CULTIVATING LEGACY

SUSTAINABLE RURAL HERITAGE PRACTICES IN A LOCAL CONTEXT

The architectural regeneration of rural heritage towns to mitigate the negative effects of gentrification

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CULTIVATING LEGACY

/ABSTRACT

Located in South Africa's oldest Moravian Mission town, Genandedal (Valley of Grace), Cultivating Legacy emphasises small-scale farming to regenerate the heritage of garden allotments and ensure food and job security. Through engagement with the landscape, community members and tourists can meander through the site, experiencing a 'live exhibition' that brings past practices and history to the present day. The project includes experimental food preservation processes, kitchens, gardens and dining experiences that extend the tourism industry into the landscape, creating platforms for collaboration with the existing heritage precinct. The town's open, central agricultural area, known as the tuingronde, historically facilitated garden allotments for household sustainability and the local economy. The main objective of the project is to mitigate gentrification's negative effects, ensuring the economic sector's contribution, cultural regeneration and job and food security for original inhabitants. The Moravian Church, still owning most of the town and serving as the main tourist attraction, alongside the Mission Museum, small-scale farmers and Heritage Western Cape, are key clients working towards rural heritage conservation. Rural towns face significant social, economic and environmental challenges, exacerbated by population decline, unlike the rapid growth issues of urban areas. The deterioration of rural architectural heritage underscores the importance of this issue globally and locally. Rural areas are crucial parts of society, dealing with diverse challenges in demographics, environment and economy. While heritage regeneration is important, it can lead to gentrification. Therefore, intentional and sensible conservation methods are essential to sustainably regenerate rural heritage towns in South Africa. The relationship between conservation and preservation contributes to an overall understanding and approach towards sustainable regenerative heritage practice. Addressing the significant social, economic and environmental challenges faced by rural towns, this project advocates for sustainable regenerative heritage practices to mitigate gentrification and conserve rural mission towns. The regenerative strategy focuses on sustainable regeneration principles, aiming to adapt a new role and adapt to a new mindshift in order to integrate the role of humans and nature in order to work developmentally. Through agriculture, Cultivating Legacy treats heritage as a dynamic system where tangible heritage acts as a static spine while intangible heritage shapes and reshapes over time, like flesh in between.

A conceptual approach to the site through the relationship between the natural and man-made interventions.

CULTIVATING LEGACY

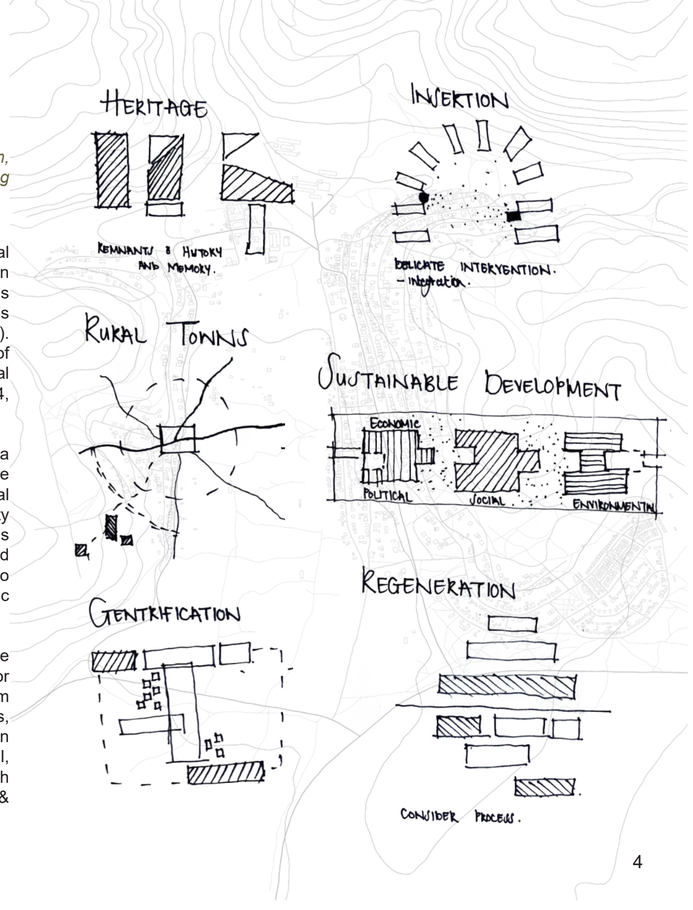
/INTRODUCTION

“Have we not sufficiently regretted and deplored the loss or destruction, by our predecessors, of potentially informative sources to avoid opening ourselves to the same reproach from our successors?” (Nora 1989:13).

Heritage conservation in South Africa is complex due to its diverse cultural and historical backgrounds. While legislation exists, its practical application is difficult due to differing views on heritage significance, as Peter Büttgens points out (2024). Graham Jacobs praises Heritage Western Cape’s efficiency but calls for more cohesive provincial approaches (Jacobs 2024). Overall, heritage conservation in South Africa highlights the importance of context, stakeholder engagement and a balance between local and global factors (Büttgens 2024, Jacobs 2024, Le Grange 2024, Townsend 2024, Wilson-Harris 2024).

In rural towns, sustainable architectural regeneration is proposed as a solution to mitigate gentrification, which risks displacing lower-income residents as wealthier individuals move in. This strategy integrates historical preservation with community-centred development, promoting local identity and economic resilience through sustainable design practices such as adaptive reuse and the use of local materials (Visser 2003:84). Heritage-led regeneration, involving the minimal alteration of historic buildings, seeks to align local development with environmental goals and preserve social fabric (Waas et al. 2011, Mang & Reed 2012).

Genadendal, South Africa’s oldest Moravian mission town, exemplifies the balance of heritage conservation and modern challenges. Recognised for its cultural value, Genadedndal’s regeneration efforts could benefit from regenerative farming practices and community engagement principles, fostering sustainable development while preventing gentrification (Donaldson 2017:128, Du Preez 2009:12, Van Papendorp 2009:59). Overall, sustainable architectural regeneration presents an inclusive approach to balancing heritage conservation with rural development (Coulson & Leichenko 2004, Doucet 2014, Le Grange & Smidt 2009).



NORMATIVE POSITION

/TOWARDS HERITAGE PRACTICE IN SOUTH AFRICA

Context plays an integral role in conservation, influencing attitudes, strategies and interventions beyond just the geographical surroundings to include social, environmental and economic factors. I support the contextual approach to heritage practice, as highlighted in interviews with heritage architects and practitioners (2024). Wupperthal exemplifies successful conservation, particularly in its restoration of the town and streetscapes (Jacobs 2023, Wilson-Harris 2024a).

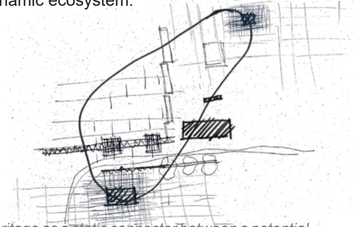
The relationship between memory and history, particularly in South Africa, is often distorted by perspective and power dynamics. This has led to the marginalisation of some histories while others are prioritised, making the future seem uncertain (Nora 1989, Barker 2020). The shift from a clear, consistent understanding of the past to one marked by fragmentation is evident in towns like Greyton and Tulbagh. Although these towns have been restored architecturally, they reflect only a portion of their deep, multicultural histories, which presents a one-sided narrative.

Heritage can sometimes be viewed as a static collection of elements disconnected from the evolving social and cultural practices of a place. However, I believe that heritage serves as the “spine” of a town, while its regeneration forms the “flesh” that interweaves with the static elements. Ben Haggard (in Mang & Reed 2012) suggests that regeneration involves shifting from seeing a place as a static entity to understanding it as a dynamic ecosystem.

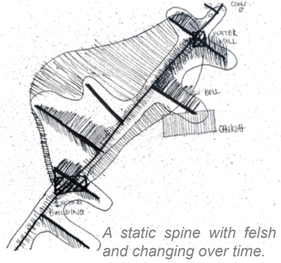
The built fabric of heritage towns, combined with the living traditions and practices, can guide the regeneration of a place, blending conservation with modernity. Townsend (2003) argues that architectural conservation should reflect societal values and cultural significance, and I agree. By respecting these values, architects can ensure heritage preservation while allowing history to evolve. Barret (in Townsend 2003) supports a broader approach to conservation, integrating it into local town management and creating environments that serve communities, rather than merely preserving elite structures.

Büttgens (2024) emphasises the role of architects in placemaking and I believe towns like Genadendal offer opportunities for intentional conservation. Genadendal’s rich history can be a foundation for regenerative conservation, using existing sites like the church square and museum to introduce heritage-led tourism that benefits the community economically and socially.

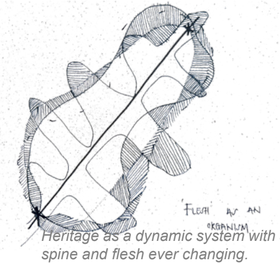
Barker (2020) notes that contrast is often used in architectural conservation, but I believe each building should be approached with careful intention. Rural heritage towns in South Africa offer opportunities to highlight the past while empowering communities through regeneration, fostering growth without losing historical significance.



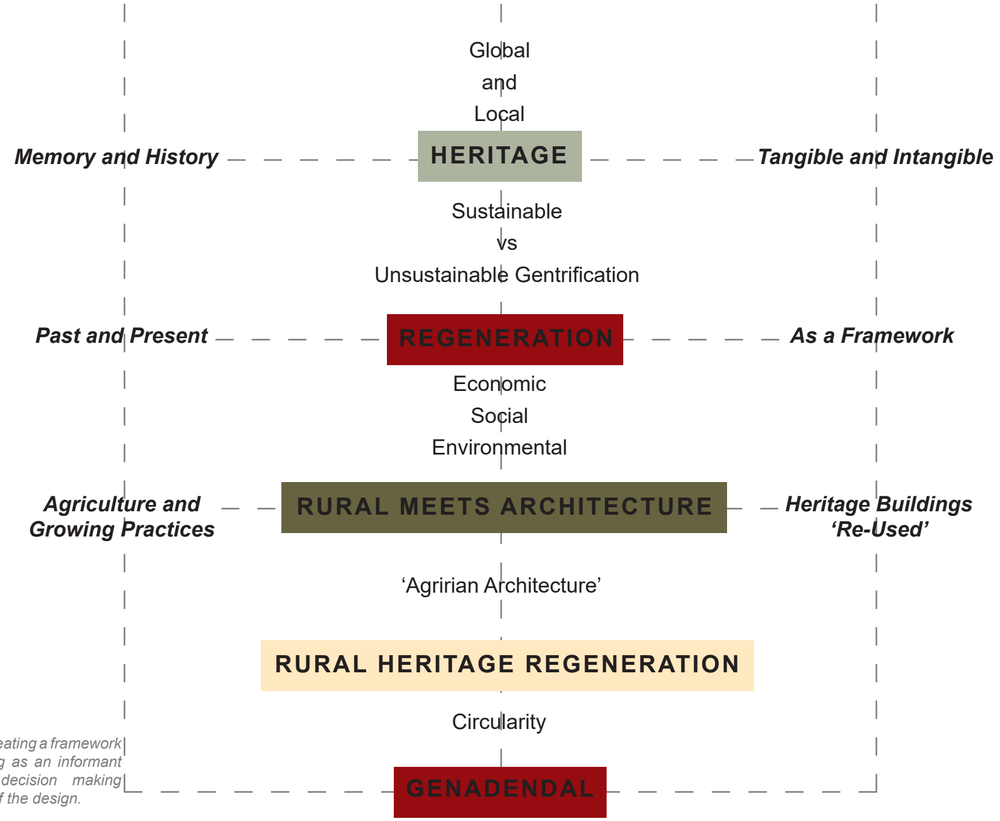
Heritage as a static connector between a potential site and the existing precinct in Genadendal.



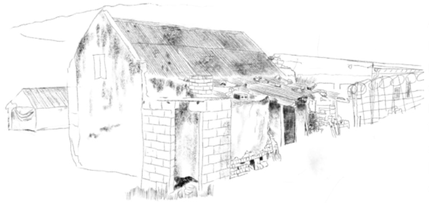
A static spine with felsh evoloving and changing over time.



Heritage as a dynamic system with a spine and flesh ever changing.



Theory creating a framework and acting as an informant for the decision making process of the design.



Sketches of the neglected heritage of Genadendal in dire need of attention and regeneration.

CONDITION OF RURAL HERITAGE TOWNS

/THE GENERAL ISSUE

Unsustainable rural development arises when there is failure to manage renewable and nonrenewable resources, including natural and cultivated ones, as noted by the Union of International Associations (2020). While renewable resources present an opportunity for sustainable growth, this potential is undermined by poor environmental conservation and a disconnect between development and conservation efforts (Union of International Associations 2020). Punter (1997) highlights that a lack of integration between overarching architectural design principles and conservation strategies complicates the process (Punter 1997 in Townsend 2003:6). Architectural heritage is shaped by historical power dynamics, often marginalising certain histories while favouring others, leading to fragmented memory and a destabilised sense of the past (Nora 1989, Barker 2020:124, Büttgens 2024).

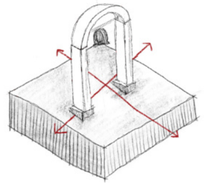
Sustainable rural development is further challenged by disagreements regarding the consequences of development, particularly the clash between public and private interests (Townsend 2003:2). The top-down approaches often exclude local communities, resulting in unsustainable tourism and gentrification (Sutton 2015). In South Africa, towns like Greyton and Tulbagh exemplify gentrification, creating new forms of social segregation (Donaldson 2017).

Heritage creation and cultural curation are also debated. Pierre Nora (1989) distinguishes between curating existing culture and creating new heritage, as seen in the restoration of Tulbagh's Church Street, which some argue was an act of nationalism (Augustyn-Clark 2017). These heritage projects, often driven by Western perspectives, ignore social and environmental sustainability (Wells 2007:11 in Barker 2020). The intersection of gentrification, unsustainable development and heritage conservation is evident in South Africa's mission towns, where displacement of residents and neglect of sustainable livelihoods underscore the challenges. Architects, with their unique spatial understanding, must lead the way in intentionally regenerating rural towns through thoughtful conservation that promotes livelihoods and heritage (Büttgens 2024).

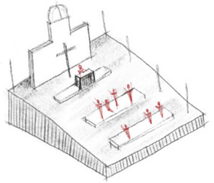
HISTORY

/GENADENDAL

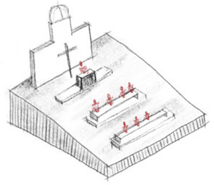
Genadendal, historically significant for its Moravian mission, offers an example of the intersection of heritage preservation, social complexity and gentrification. The town's rich cultural history, beginning with the arrival of the Moravian missionaries in the 18th century, highlights its longstanding agricultural, social and educational contributions (Du Preez 2009:15). The town is nestled in the Baviaans Valley next to the Baviaans River and is organised in a U-shape with the main residential roads wrapping around the central piece of open land known as the Tuingronde. Genadendal's proximity to informal settlements like Voorstekraal and Bereaville, as well as the affluent village of Greyton, underscores social and economic contrasts in the region. Greyton, once a farming community, has undergone gentrification, with wealthier English-speaking residents replacing the original Afrikaner farmers, leading to new forms of social segregation (Donaldson 2017:129). The Spatial Development Framework of 2023 states that there are approximately 6 824 residents living in the town, with the majority of the population group being Coloured (StatsSA 2024, Theewaterskloof Municipality 2023). It is important to hone in on the historic role of the Church and place emphasis on those roles and how they are still relevant today. Besides being a place of worhsip, the Church served as a gathering space and market space to encourage local trade and feed into the local economy. Furthermore, the Moravian Church placed a lot of amphasis on their contribution to education and opened its doors to various educational programmes to contribute to knowledge transfer across various age groups (The Moravian Church 2018).



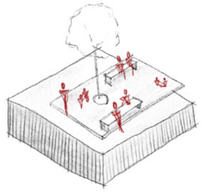
GLOBAL



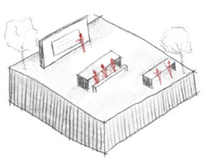
WORSHIP



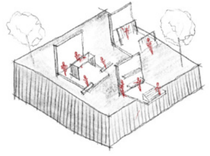
CONGREGATIONAL



GATHERING



EDUCATIONAL



MARKET & TRADE

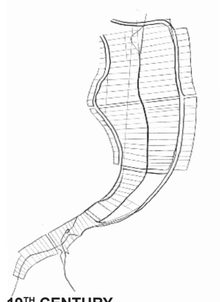
UNSUSTAINABILITY IN GENADENDAL

/THE URBAN ISSUE

Genadendal's preservation efforts have been supported by significant Dutch funding, aimed at restoring its historical core. This project, initiated in collaboration with the Dutch Department for Conservation and Delft University of Technology, focuses on sustainable development and community involvement. Unlike rigid master plans, the Conservation Development Framework adopted for Genadendal allows for flexibility, enabling conservation, growth and adaptation over time (Roos 2002:337, Le Grange & Smidt 2009:36). The restoration of Genadendal illustrates the complexities of heritage-led regeneration, particularly in balancing historical significance with social and economic sustainability.

The agricultural landscape of Genadendal has historically played a central role in the town, with garden allotments and plots providing families with fruit, vegetables and livestock. This traditional subsistence farming system, supported by an intricate irrigation system called the 'leivoor', flourished until the early 20th century. However, the rise of commercial agriculture led to its decline, with visible remnants of the old system - such as wire fences and quince hedgerows - still visible in the landscape.

The shift toward large-scale monoculture farming eroded the diversity of subsistence agriculture, contributing to soil depletion, overstocking, pollution and environmental degradation. This modern form of agriculture, driven by agribusiness, has caused the land to lose fertility and rely on unsustainable, non-renewable resources (Van Papendorp 2009:54).



19TH CENTURY

20TH CENTURY

21ST CENTURY

UNSUSTAINABILITY

/HOME GARDENING

Even though the subsistence farming in the Tuingronde were neglected, it is evident that the skill and longstanding tradition and agricultural practices still exits in the town. A significant amount of household maintain their own vegetable and herb gardens infront of their houses. This strenghtens the argument that there is a need to be self sustainable and harvest crops locally.

UNSUSTAINABILITY

/COMMUNAL FARMING

The garden allotments allocated to their respective household are generally severely negelcted, but there are some allotments that are still very well maintained and that produce enuogh crops to sustain those families and some families even manage to sell some of their fresh produce. These allotments are prodominantly maintained by the older generation and, therefore, it is important to hone in on these existing practices and pass the knowledge down to the younger generations in order to regenerate and maintain subsistence farming.

SUSTAINABILITY

/PROPOSED PLANT SPECIES

COMPANION PLANTS

01/ TOMATOES

02/ BEANS

03/ CAULIFLOWER

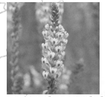
04/ CARROTS

05/ ONION

06/ GARLIC

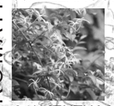
AROMATIC NATIVE PLANTS

01/ HEBENSTRETIA DURE



02/ AGATHOSMA CILIARIS

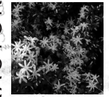
03/ PELARGONIUM TOMENTOSA



04/ MENTHA LONGIFOLIA

POLINATOR ATTRACTORS

01/ JASMINUM MULTIPARTITUM



02/ STRUTHIOLA DODECANDRA

03/ HELICHRYSUM SPLENDIDUM

04/ ASYSTASIA GANGETICA

GARDEN HEDGES

01/ BUDDLEJA SALVIIFOLIA

02/ TECOMA CAPENSIS

03/ CARISSA MACRCARPA

PROBLEM STATEMENT

/ARCHITECTURAL ISSUE

Due to the great agricultural, historical and educational importance of Genadendal, the town and community's job security and food security is at risk. The town's poor management and neglect of the Tuingronde has caused a sharp decline in self-sustainability and the degradation of both the tangible and intangible heritage. Through the architectural issue, the project aims to introduce and integrate regenerative farming methods into architectural interventions that will promote sustainable social, economic and environmental sectors, while responding to the historical urban fabric in a respectful manner to contribute to the town's overall significance.

BASED ON RESEARCH

/DESIGN QUESTION

How can sustainable architectural heritage practices contribute to the regeneration of rural heritage towns while mitigating the negative effect of gentrification?

DESIGN INVESTIGATION

/PRECEDENT STUDIES

01/ RWANDA INSTITUTE FOR CONSERVATION AGRICULTURE

Location | Bugesera, Rwanda
Architect | MASS Design Group

Rwanda Institute for Conservation Agriculture (RICA 2024)

Relevance:
/ Community consideration
/ Understanding natural processes
/ Scale of intervention
/ Integration of food processing
/ Educational influence

02/ GREENHOUSE AS A HOME

Location | Taoyuan City, China
Architect | BIAS Architects

Greenhouse as a Home (ArchDaily 2018)

Relevance:
/ Exploring growing methods
/ Building technologies
/ Understanding hydroponics
/ Incorporating traditional practices
/ Differentiating between spaces
/ Making a building interactive

03/ DAYLESFORD LONGHOUSE

Location | Daylesford, Australia
Architect | Partners Hill

Daylesford Longhouse (ArchDaily 2019)

Relevance:
/ Scale of intervention in its context
/ Relationship between materials
/ Linear function of the building
/ Public vs private
/ Level changes as hierarchy
/ Construction methods & phasing

04/ BABYLONSTOREN

Location | Klapmuts, South Africa
Architect | Malherbe Rust Architects
Patrice Taravella

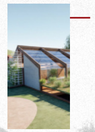
Babylonstoren Gardens (Malherbe Rust Architects n.d.)

Relevance:
/ Response to heritage
/ Integration of the landscape
/ Local materials and skills
/ Community vs Tourism
/ Water as an intervention
/ Understanding crop cultivation
/ Historic Context vs Modern Era

DESIGN INVESTIGATION

/SCALE OF PLACEMENT

'WORKING FARM' ← → *'TOURISM FARM'*



This intervention is leaning more towards that of a working farm and research centre, serving the community first and foremost. Even though the project serves the tourism industry, it is not the sole focus of the project and ultimately aims to mitigate the negative effects of gentrification through tourism.

RWANDA INSTITUTE FOR CONSERVATION AGRICULTURE

CULTIVATING LEGACY

DAYLESFORD LONGHOUSE

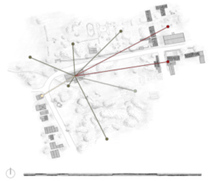
GREENHOUSE AS A HOME

BABYLONSTOREN

PROJECT BRIEF

/SITE

Genadendal has a rich and layered natural and cultural landscape that deserves attention in order to prohibit the loss of valuable heritage within the Western Cape and South Africa. The chosen site is situated towards the west of the church on the north western side of the Tuingronde. There is an existing Educare centre in a heritage building, a river, free roaming livestock and scattered small-scale farmers located on the site. The project aims to conserve the heritage building and its programme while regenerating the site and its conditions, acting as a demonstrative site that can be implemented as a model throughout the Tuingronde to regenerate the system as a whole and service the community in the process to equip them with the necessary skill and knowledge to initiate and sustain these systems while contributing to the economy and contributing to job and food security. The immediate context consists of historic houses dated back to the 20th century to the west and the church and its werf to the east. The gradual slope on the site allows water movement on site and offers an opportunity to introduce different levels, however small. Furthermore, there are various existing trees on site (mostly oak trees) that will be retained as far as possible.

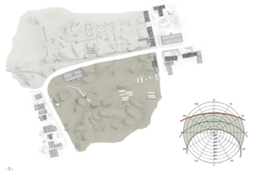


SITE LINKS

- Potential Obstructions
- Residential
- Natural Environment

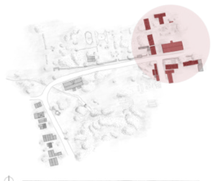
PROGRAMME

- Residential
- Educational
- Heritage Buildings/ Tourism



NATURAL FEATURES

- Moravian Land
- Community Land

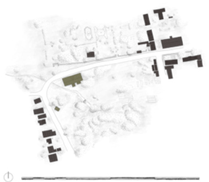


HERITAGE MISSION COMPLEX

- Mission Complex
- Heritage Buildings

MOVEMENT ROUTES

- Pedestrian Movement
- Vehicular Movement



EXISTING STRUCTURES

- Structure on Site
- Surrounding Structures

CONTEXT SCALING

PROJECT BRIEF

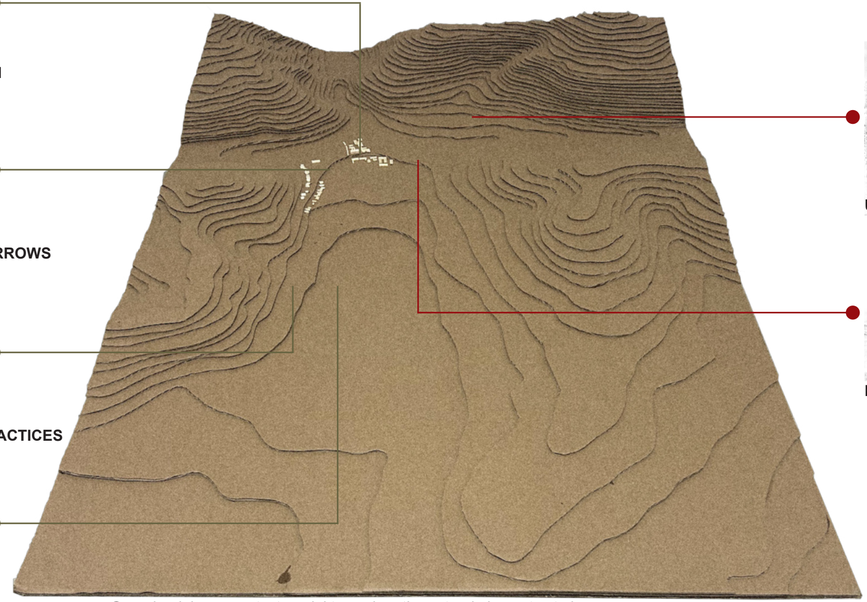
/SITE OPPORTUNITIES AND PROBLEMS

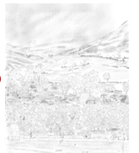
EXISTING CHURCH

INTRODUCING FURROWS

AGRICULTURE PRACTICES

EXISTING ALLOTMENTS





UNDISTURBED LANDSCAPE

FREE ROAMING LIVESTOCK

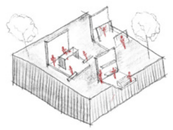
Genadendal as a context model to explore the natural elements at play.

PROJECT BRIEF

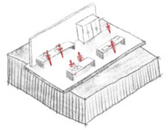
/PROGRAMME

Regenerative farming and food processing does not only support job- and food security, but offer the opportunity to regenerate a forgotten history in the town - education. Through the process of regenerating the soil and land in order to reinstate the garden allotments and enable small-scale farming, the opportunity presents itself to further the community's understanding of the soil, plant species, agricultural practices and their cultural landscape. Various buildings accommodate various programmes with the ultimate goal to create a circular system that feeds into one another and creates a sustainable social, environmental and economic sector. In order to regenerate the soil, a holistic understanding of the greater conditions is required, therefore, the programme accommodates a research centre and laboratory to test the soil and find appropriate solutions to regenerate the Tuingronde as a whole. Alongside the research centre, exists seed banks and organism labs to experiment with various plant species, either feeding back into the greater landscape or merely for research purposes. Educational spaces are spread throughout the site and offer the opportunity to educate the community on a theoretical and practical basis through skills development. The educational component aims to partner with existing local and international programmes in Genadendal and specifically targets young adults who have matriculated in the town, but are unable to further their education elsewhere. It also invited outside researchers to contribute to the ongoing studies done in Genadendal in order to conserve its valuable heritage.

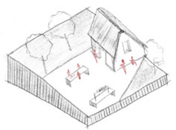
The regenerated landscape and the upskilled community can take their fresh produce one step further in the food chain and make use of the food preservation and processing facilities to process the food through various methods. This ensures longevity of the fresh produce and enables the community to cater for their families throughout the year, regardless of seasonal farming. The final link in this food chain is selling the fresh produce at the newly instated local market space that houses a deli and restaurant space for the local community as well as the tourists citing the town for its historical significance. Throughout this entire process there is an ongoing system in place ensuring that the food waste is dealt with in such a way that it feeds back into the greater system, ultimately contributing to the regeneration of the soil once again. The programme as a whole aims to equip and empower the community to be self-sustainable and regenerate a local economy that sustains itself and does not rely on outsiders to maintain the town.



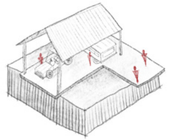
MARKET & TRADE



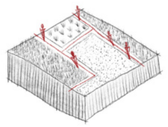
FOOD PROCESSING



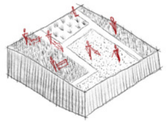
ADMINISTRATION



MACHINE STORAGE

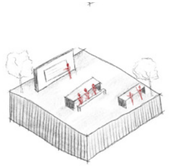


MOVEMENT & MEANDER

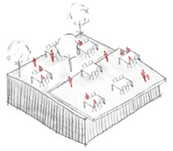


SMALL SCALE FARMING

GATHERING



EDUCATION



CULINARY EXPERIENCE

PROJECT BRIEF

/USERS

This architectural project caters to diverse user groups, including the local community, young adults and local students, foreign and local researchers and academics and tourists. The community members involved in this project, specifically through small-scale farming, academic work or as students, are granted access across the site, while visitors and tourists will have limited access to some of the educational facilities and would rather be directed to the local market space, auditorium spaces and natural landscape weaving through the site. It could be argued that there is a hierarchy of users that are divided into primary-, secondary- and tertiary users.

The Primary Users:
The main student groups involved would be matriculated students seeking tertiary education and /or skills development to contribute to the local community and equip themselves to become self-sustainable in the town or in the greater context. Additionally, the educational spaces can be used by the local schools for exhibitions, special programmes or additional programmes. Community members would also be equipped and upskilled to teach at this facility and further the local knowledge. As it is a 'working' landscape, the main aim is to get the local small-scale farmers involved to continue and further the growing of vegetable crops while teaching the younger generation how to farm on this particular piece of land.

The Secondary Users:
The tourists and visitors of Genadendal act as the secondary users, mainly using the market space, restaurant and deli and meandering through the landscape. The visitors would also have access to the auditorium and certain exhibition spaces in order to further the museum-like experience extending from the Genadendal Museum through to the 'live exhibition' happening in the landscape through small-scale farming.

The Tertiary Users:
To place emphasis on the circularity and sustainability of this project, the tertiary users consist of the existing 'inhabitants' of the site. The free roaming livestock is not well managed and there is not sufficient recording keeping of ownership of these animals. Therefore, these animals will be accommodated on the site and will form part of the greater systems, contributing to soil regeneration through placing them in certain grazing areas and moving them around as needed in order to maintain optimal soil health. Through managing and introducing new organisms on site, the natural ecosystem acts as the tertiary users, maintaining the regenerative system.

PROJECT BRIEF

/DESIRED OUTCOME

This project addresses tangible and intangible issues through observation and ‘real-life experiences’ alongside research done on the town and the general issue addressed. Cultivating Legacy focuses on issues such as sustainability, heritage conservation and agricultural practices through regenerative architectural principles and approaches. This includes the consideration of food waste systems, regenerated furrow systems and the use of various building technologies and materials to represent diverse histories and eras relevant in Genadendal. Through reintroducing the furrow systems, movement through the site is encouraged while irrigating the landscape and recycling greywater used in the various buildings. Anaerobic digestion processes contribute to the food waste system, allowing it to feed back into the soil and could, in future, be structured in such a way that it could start producing energy rather than be released as heat. The educational principles and facilities intend to represent the rich history of the town while empowering the younger generation of Genadendal to stay in the town and avoid the early stages of gentrification.

PROJECT INFORMANTS

/TANGIBLE

The tangible informants are embedded in the three main lenses through which sustainability is understood: social, environmental and economic.

Social Informants:
These informants include the tools and machinery used in agricultural practices and how that can contribute to the phasing of the project in order to promote sustainability. It also includes the physical acts of trade and methods followed in order to sell and trade and what the gathering around this ritual looks like. Lastly, one of the main social informants is the Moravian Church. This includes the architectural significance and value as well as what it represents.

Environmental Informants:
These informants were found on site, but are visible in the greater context as well. Firstly, the garden allotments and the way in which they’ve been laid out. It is also important to consider these allotments on a smaller scale and consider the plant species grown and how one plant species feeds into the next. Secondly, the livestock served as an informant in terms of their movement as well as their contribution to the deterioration of the soil. The livestock currently contributes to the decay of the landscape, but if managed properly, they can contribute to the regeneration of the Tuingronde. Lastly, the river flowing through the site served as an informant. The water does not only serve as a natural source to irrigate the land, but also encourages movement across the town.

Economic Informants:
As there is an urgent need for food security in the town, it is important to learn from the existing retail and trade systems in place. The ‘spaza’ shops in the town served as an informant in order to understand the urgent need for fresh produce and the lack of sufficient fresh produce in the community. The site borders an existing bus yard, but it is severely neglected. The bus yard is managed by a family in the town and is supposed to repair buses and resell them, but this model failed and the abandoned buses are just accumulating on site. This bus yard served as an informant for the services needed in order to achieve optimal operationalisation of the system as a whole.

01/ TOOLS MAKING/ USED

02/ CHURCH BUILDING

03/ MAKING AND TRADE

01/ SMALL SCALE FARMING

02/ LIVESTOCK

03/ RIVER

01/ SPAZA SHOPS

02/ SELLING OF FRESH PRODUCE

03/ BUSSES AND TAXIS

01/ HUMAN MOVEMENT

02/ HERITAGE CELEBRATION

03/ MAKING AND TRADE

01/ ENGAGEMENT WITH RIVER

02/ ENGAGEMENT WITH MOUNTAINS

03/ ALLOTMENTS

01/ LOCAL TRADE

02/ NIGERIAN SPAZA SHOPS

PROJECT INFORMANTS

/INTANGIBLE

The intangible informants are embedded in the three main lenses through which sustainability is understood: social, environmental and economic.

Social Informants:
The intangible social informants relate to that which is tangible, but hones in on the cultural significance and the value added to it. Here, human movement through the town (and site) served as an informant in order to understand where gathering happened and where movement is merely an action. The celebration regarding the heritage of Genadendal indicates that there is an ever growing interest in the history of the town and the various practices forming part of this heritage should be emphasised and celebrated in the modern era. Lastly, the social significance related to the garden allotments served as an informant due to the sense of ownership connected to it as well as the rituals happening in and around these allotments.

Environmental Informants:
These informants honed in on the human relationship and interaction with the natural landscape. The three main natural elements considered are the mountains, the river and the structured garden allotments. There is a clear distinction between what is left to grow naturally and what has been impacted by human influences. It is important to take note of the contrast between the natural and human-impacted.

Economic Informants:
The intangible economic informants were not identified through the observation of what is existing, but rather through the lack thereof. There is an urgent need for food and job security and there is no economic sector to sustainably maintain this need in the town. There are few formal places of trade and these are poorly managed with little to no stock available. There are no job opportunities which leads to the residents of the town leaving to find work in nearby areas within the greater context. This ultimately leads to an imbalance in the amount of people contributing to the economic sector in relation to the amount of people dependent on the local economy.

PROJECT DESIGN

/MASTERPLAN

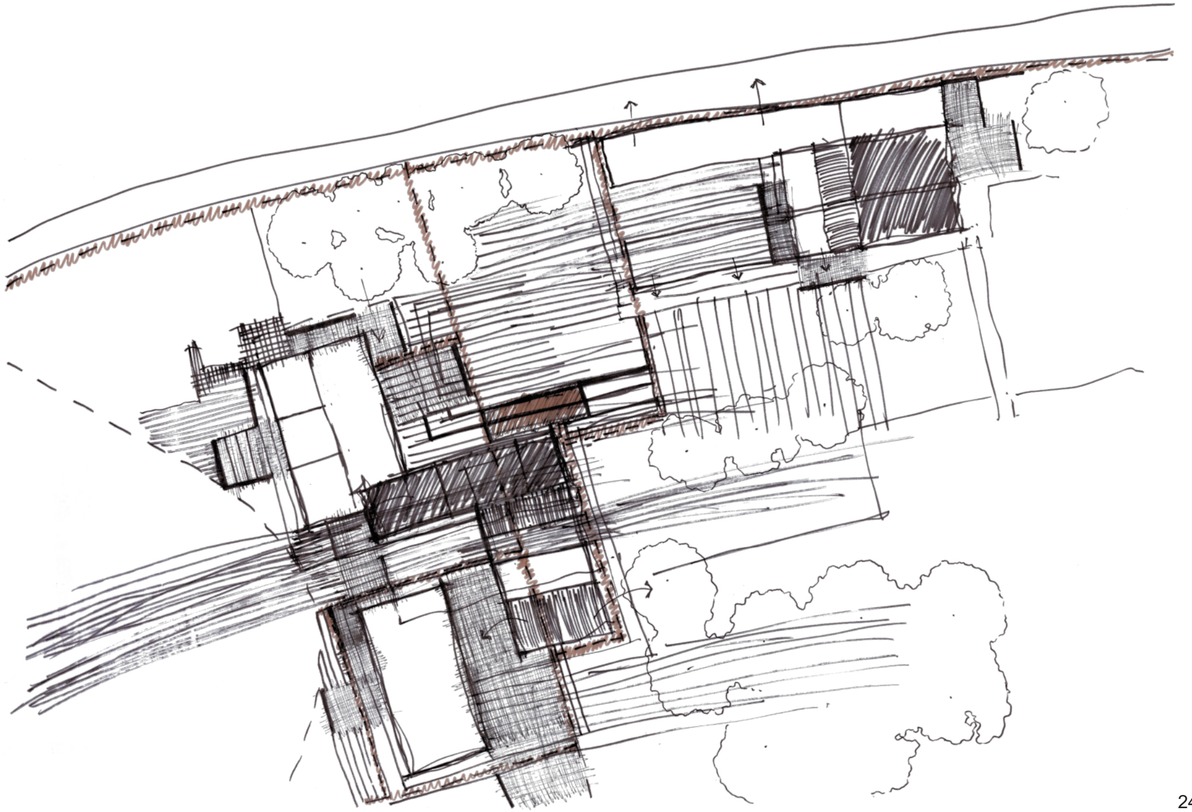
The masterplan for the Tuingronde integrates sustainability, resilience, and regeneration through agriculture, education, and tourism. It focuses on revitalizing water bodies and plant species while introducing new techniques to ensure sustainable land use.

The reintroduction of the garden allotments aim to instil a holistic understanding of the landscape while promoting ownership and subsistence farming to feed into the economic and social sector through food- and job security. In order to regenerate the Tuingronde successfully and sustainably, it is important to ensure that the allotments are arranged in such a way that the land can be divided into different areas for grazing and for soil to rest while livestock inhabit those areas. The design of the masterplan intends to create a circular system and allow various programmes to feed into one another in order to optimise the use of the land, the agricultural outcome and to minimise waste in the process. The rich educational heritage embedded in the town's history serves as an informant to a portion of the program with a research centre and library located in the existing heritage building on the west of the site. Through thorough research and a scientific understanding, the required knowledge can be applied to restore the neglected soil and start the process of regeneration. Alongside the research centre, the nursery, seed banks, organism laboratories and greenhouse investigate alternative methods of crop cultivation which enhances an understanding of growing while presenting the opportunity to harvest fresh produce on a regular basis.

Food preservation facilities process harvested produce, turning waste into compost and energy through anaerobic digestion. The produce serves the community and supports local tourism through markets and restaurants.

Overall, this layout addresses the social, environmental and economic needs of the community and empowers the inhabitants to be self sustainable and non-reliant on the support from outside investors, mitigating the negative effects of gentrification, without disarming the community, but rather liberating them from the dependence on others.

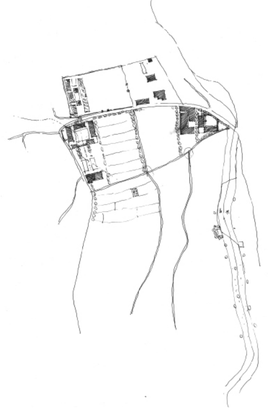
A concept model exploring the relationship between a static spine and dynamic felsh weaving through it.



DESIGN DEVELOPMENT

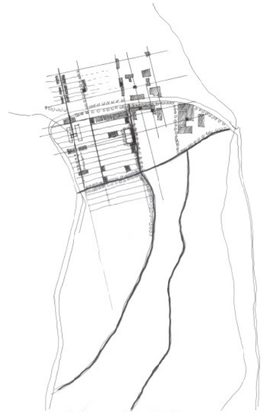
/MASTER PLAN ITERATION

01/ A TRADITIONAL CAPE DUTCH APPROACH



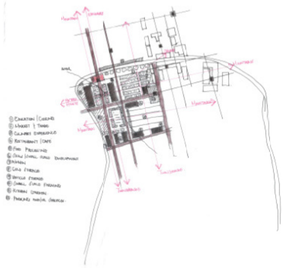
Derivation:
The first iteration followed a very traditional approach within a Cape Dutch context focussing on the buildings organised along a linear spine with traditional gardens, hedges and walkways extending from one end to another, placing emphasis on a specific arrival and exit space.

02/ IDENTIFYING AXES TO CONNECT HERITAGE



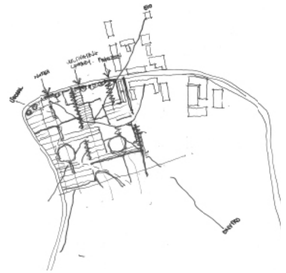
Derivation:
The traditional approach felt very isolated from the natural landscape and the next iteration focused on finding definite links between the existing heritage precinct, the cultural landscape and the natural landscape. The first iteration was placed underneath this layer to find new placements for buildings.

03/ ORGANISATION AROUND THESE AXES



Derivation:
To further the investigation, the organisation of the buildings around these axes played an integral role in terms of programme alongside the integration into the landscape and the affect these axes have on the division of the landscape from a fromalistic perspective, but also a pragmatic one.

04/ IDENTIFYING ZONES AND CONNECTIONS

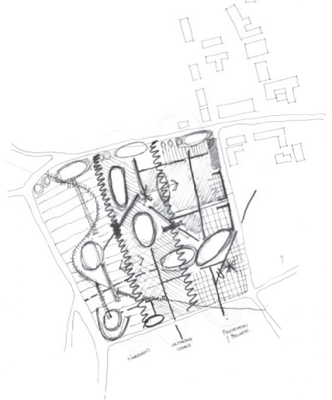


Derivation:
Due to the rigid nature of the axes, there was a need to break the rigid blocks through introducing organic froms through buildings, walkways and natural elements. This also led to the investigation of the circularity of the site as a whole and the site was divided into three sections for *growing, heritage and production*.

DESIGN DEVELOPMENT

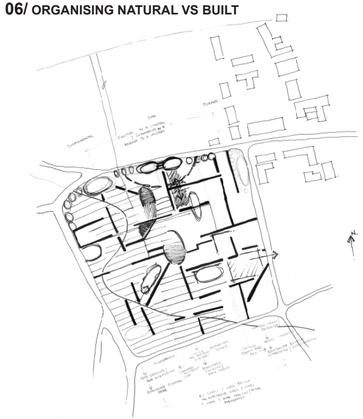
/ARCHITECTURAL ITERATION

05/ GROWING / HERITAGE / PRODUCTION IN A LANDSCAPE



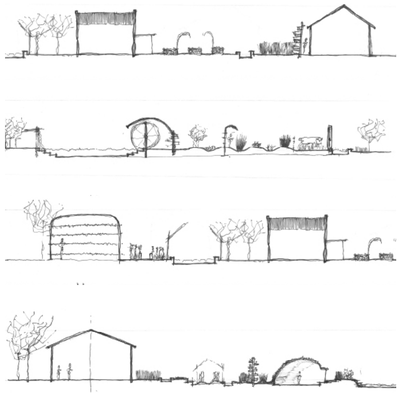
Derivation:
Working within the identified zones, it was impotant to understand how these zones would transition from one into the next and how they would interact with the various natural elements that should be considered on site.

06/ ORGANISING NATURAL VS BUILT



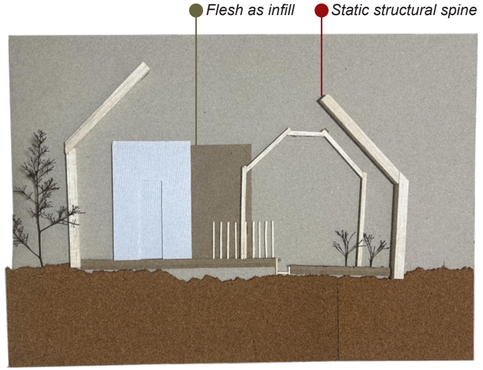
Derivation:
Based on a conceptual idea, this iteration considered how the concept would translate into architecural form making and how the built environment would interact and integrate into the natural landscape, creating spaces to regenerate the cultural landscape.

07/ FORM MAKING IN THE NATURAL LANDSCAPE



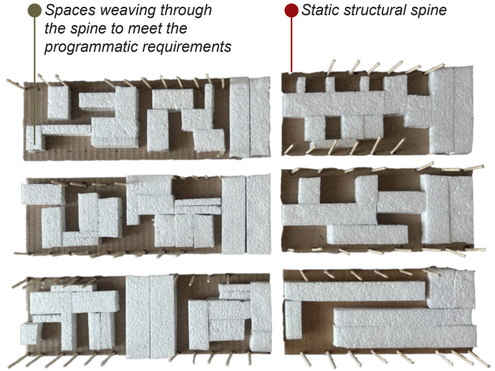
Derivation:
Through sectional explorations, the previos iteration was taken further and explored through envisioning the form of various buildings and how that would impact the natural landscape. Different growing methods played an integral role in order to investigate how these methods could inform space making.

01/ A FRAME CREATING A SPINE



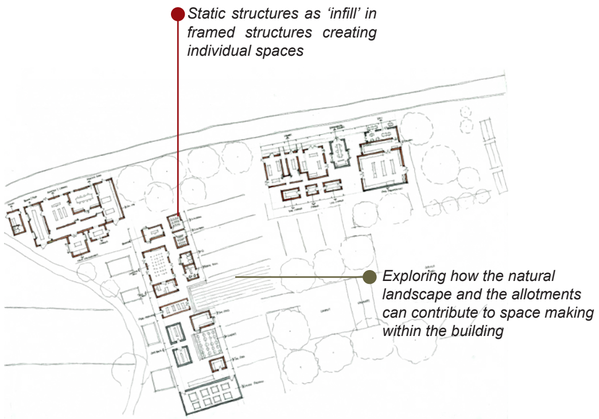
Derivation:
The first iteration followed a very traditional approach within a Cape Vernacular context focussing on the buildings organised along a linear spine with traditional gardens, hedges and walkways extending from one end to another, placing emphasis on a specific arrival and exit space.

02/ VARIOUS 'SPINES' WITH MASSING AS 'FLESH'



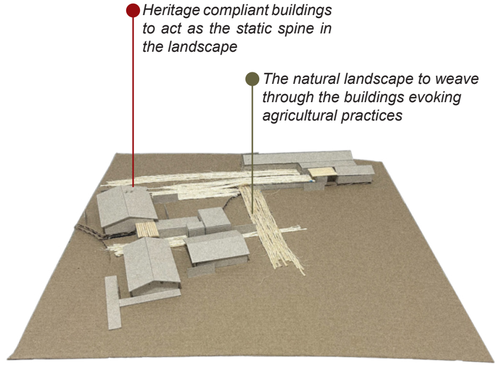
Derivation:
The first iteration followed a very traditional approach within a Cape Dutch context focussing on the buildings organised along a linear spine with traditional gardens, hedges and walkways extending from one end to another, placing emphasis on a specific arrival and exit space.

03/ INDIVIDUAL SPACES FRAMED BY A BIGGER STRUCTURE



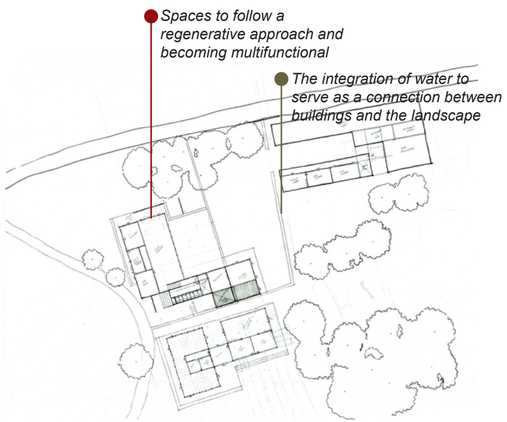
Derivation:
The first layout explored space making through allocating different programmes to different spaces, all framed by a bigger structure. Even though the conceptual approach was on the right track, the layout was disjointed and needed stonger integration between the individual spaces as well as the landscape.

04/ TRADITIONAL STEREOTOMIC STRUCTURES IN A NATURAL LANDSCAPE



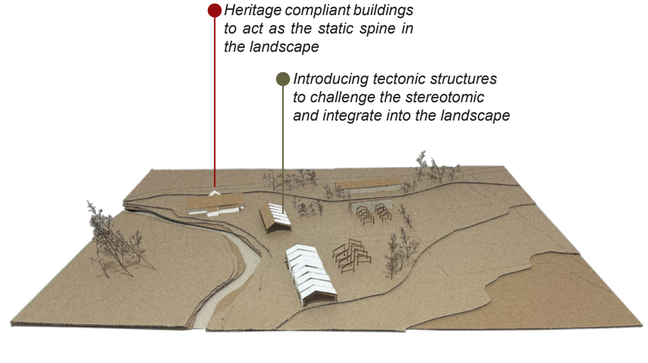
Derivation:
This iteration followed a very traditional approach within a Cape Vernacular context focussing on the buildings organised along a linear spine with traditional gardens, hedges and walkways extending from one end to another, placing emphasis on a specific arrival and exit space.

05/ REGENERATION THROUGH MULTI-USE SPACES AND VARIOUS GROUND LEVELS



Derivation:
Through this iteration, it became evident that ground levels should contribute to space making in order to make use of passive cooling methods and to use space optimally. Spaces also merged in order to introduce multi-use spaces and reduce scattered individual 'rooms'.

06/ CHALLENGING STEREOTOMIC WITH TECTONIC AND CHALLENGING TRADITION

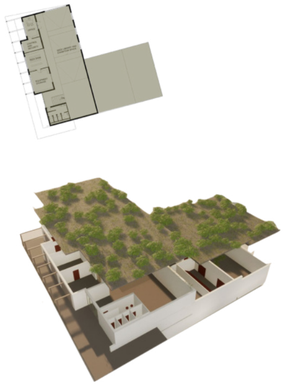


Derivation:
The first iteration followed a very traditional approach within a Cape Dutch context focussing on the buildings organised along a linear spine with traditional gardens, hedges and walkways extending from one end to another, placing emphasis on a specific arrival and exit space.

DESIGN DEVELOPMENT

/GROWING METHODS ITERATIONS [COMPLYING TO HERITAGE]

01/ GREEN ROOF

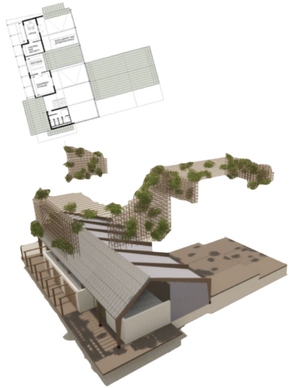


AVERAGE YIELD PER YEAR PER ALLOCATED M²

Potatoes:
3 kg/m²/year * 69.1 m² = 207.3 kg/year
Beans (Green or Dry):
0.35 kg/m²/year * 276.4 m² = 96.74 kg/year
Carrots:
3 kg/m²/year * 138.2 m² = 414.6 kg/year
Cabbage:
5 kg/m²/year * 138.2 m² = 691 kg/year
Onions:
2.5 kg/m²/year * 69.1 m² = 172.75 kg/year

A TOTAL OF **1582.39 KG OF PRODUCE PER YEAR**
FEEDING APPROXIMATELY **11 PEOPLE PER YEAR**

02/ HYDROPONIC WALLS

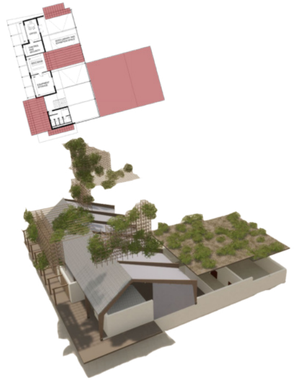


AVERAGE YIELD PER YEAR PER ALLOCATED M²

Lettuce (Romaine, Iceberg, Butterhead):
27 kg/m²/year * 223.8 m² = 6042.6 kg/year
Spinach:
25 kg/m²/year * 223.8 m² = 5595 kg/year
Tomatoes (Cherry, Heirloom Varieties):
52 kg/m²/year * 149.2 m² = 7758.4 kg/year
Cucumbers:
60 kg/m²/year * 74.6 m² = 4476 kg/year
Peppers (Bell Peppers, Chillies):
23 kg/m²/year * 74.6 m² = 1715.8 kg/year

A TOTAL OF **25 587.8 KG OF PRODUCE PER YEAR**
FEEDING APPROXIMATELY **175 PEOPLE PER YEAR**

03/ COMBINATION METHOD



AVERAGE YIELD PER YEAR PER ALLOCATED M²

CONVENTIONAL FARMING ON A GREEN ROOF [272m²]
Beans (Green or Dry):
0.35 kg/m²/year * 136 m² = 47.6 kg/year
Carrots:
3 kg/m²/year * 90.7m² = 272.1 kg/year
Cabbage:
5 kg/m²/year * 45.3 m² = 226.5 kg/year
HYDROPONIC FARMING [442.2m²]
Lettuce (Romaine, Iceberg, Butterhead):
27 kg/m²/year * 55.275 m² = 1492.425 kg/year
Spinach:
25 kg/m²/year * 165.825 m² = 4145.63 kg/year
Tomatoes (Cherry, Heirloom Varieties):
52 kg/m²/year * 165.825 m² = 8622.9 kg/year
Cucumbers:
60 kg/m²/year * 55.275 m² = 3316.5 kg/year

A TOTAL OF **18 123.66 KG OF PRODUCE PER YEAR**
FEEDING APPROXIMATELY **124 PEOPLE PER YEAR**

DESIGN DEVELOPMENT

/GROWING METHOD CHOSEN ITERATION

FINDINGS

TOTAL YIELD:

A total of 18 123.66 kg of produce can be harvested annually through combining conventional farming methods on a green roof with a hydroponic system.

Each method makes allowance for certain plant species and both of these methods cannot accommodate all the required plant species individually. Thus, it is of great value to combine these methods to cover a variety of crops and contribute to food security on a larger scale.

Even though the total yield is less than that of solely using a hydroponic system, the plant species are greater as well as the nutrient value of the vegetables grown.

It is evident that on less than 0.2 ha of land, this building can feed 124 people annually.

HERITAGE COMPLIANCE:

The mixed growing method system introduces an opportunity to design in accordance with the stipulated regulations. The pitched roof is contextually appropriate and the material choices for the building contributes to the thermal comfort to improve the growth of the hydroponic-vegetation inside the building. The hydroponic systems contribute to the required pergolas and shading structures for the verandahs and aid in the cooling of the facades.

The green roof used for conventional farming is level with the natural ground level and does not disturb the aesthetic and scale requirements and regulations. The green roof also serves as insulation for the building below ground and acts as another outdoor space for the users to interact with.

An exploded axonometric to understand the relationship between hydroponics and conventional methods.

RECOMMENDATIONS

TOTAL YIELD:

The yield can be improved by incorporating more hydroponic systems into the design of the building, These systems add value in terms of food security, management and operational skills and act as pergolas and shading devices.

The total yield will increase once the produce from the other buildings on the site as well as in the landscape are considered as well.

HERITAGE COMPLIANCE:

Further iterations can be done to test the scale and materiality of the building. It is important to consider the historic context, but design in a truthful manner that is a reflection of the era that we live in.

Additional iterations and decision-making will have to go into the openings of the building, as it will not only affect the aesthetic value of the building, but the natural airflow and ventilation in the building, impacting the plants.

TESTING THERMAL COMFORT:

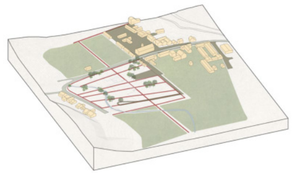
There could be tremendous value in testing the performance of the thermal comfort of the building and assessing the heat regulation as there are hydroponic systems in the interior of the building as well.

By testing this, one can experiment with the growth, taste and variety of the various plant species. This could contribute to the greater aim of the project - to contribute to research regarding food production and crop cultivation.

PROJECT DESIGN

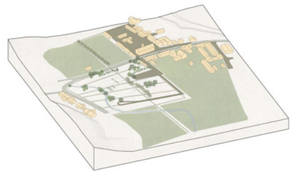
/PHASING

Cultivating Legacy aspires to consider the construction and agricultural processes as a whole and places emphasis on the phasing of the project through prioritising the relevant processes to bring the project to fruition.



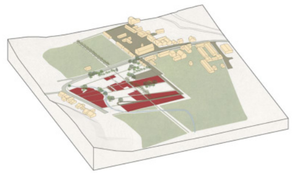
/Phase 01

Reintroducing the neglected furrows in Genadendal. These furrows do not merely serve as the main source of irrigation in the Tuingronde, but it serves as the main connection to the existing river running through the site. This creates an opportunity to interact with the river and to optimally use the water that often just flows past these allotments. Furthermore, the furrows serve as the main connection to the heritage precinct. These furrows connect to the Watermill and encourage pedestrian movement from the top of the heritage precinct all the way down into the chosen site and eventually into the greater landscape.



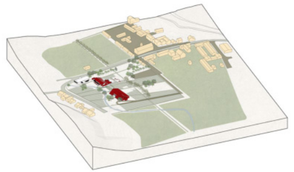
/Phase 02

Considering the time it takes for trees to grow, it is important to plant the desired trees as soon as the furrows are implemented. These trees serve as barriers between various spaces within the landscape, while introducing a new plant species to the area. The existing oak trees will remain untouched, while introducing new oaks to create ‘walkways’ through the site for pedestrians. Smaller olive trees are a new addition to the site. They act as ‘hedges’ between the allotments and add to the fresh produce harvested on site and offer the opportunity to introduce the pressing of olives to make olive oil.



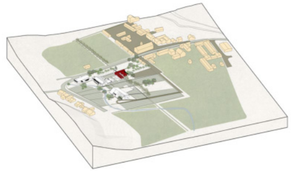
/Phase 03

Once the trees have been planted, the garden allotments are introduced and the soil is in its preparation phase before planting the first crops. In order to successfully prepare the land, the first construction will take place and the basement of the main building will be excavated. This prevents future disruption and offers a space to store the farming equipment and machinery to prepare the garden allotments, without erecting unnecessary structures and using a space optimally.



/Phase 04

As the heritage building on site will be restored, but not altered, the research and agricultural facilities will be constructed before any of the other structures. This will include the construction of both the stereotomic and tectonic structures in order to assemble the glue laminated timber (GLT) portal frames on site and minimise construction time. These spaces will facilitate a generous amount of planting as it includes the nursery and greenhouse and will serve as an incubator for crop cultivation while the remainder of the construction is underway.

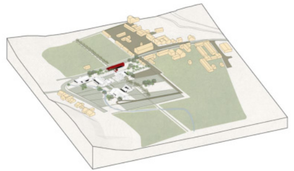


/Phase 05

As the main purpose of the project is to serve the community above all else, it is important to place emphasis on the spaces that will feed into the social, environmental and economic sectors. Thus, the food preservation and processing buildings will be constructed in order to start processing food amid final construction and start feeding the local community, but also surrounding communities. Again, stereotomic and tectonic structures interact with one another to regulate temperatures for the relevant processes, comply with health and safety regulations when working with food and minimise construction time on site.

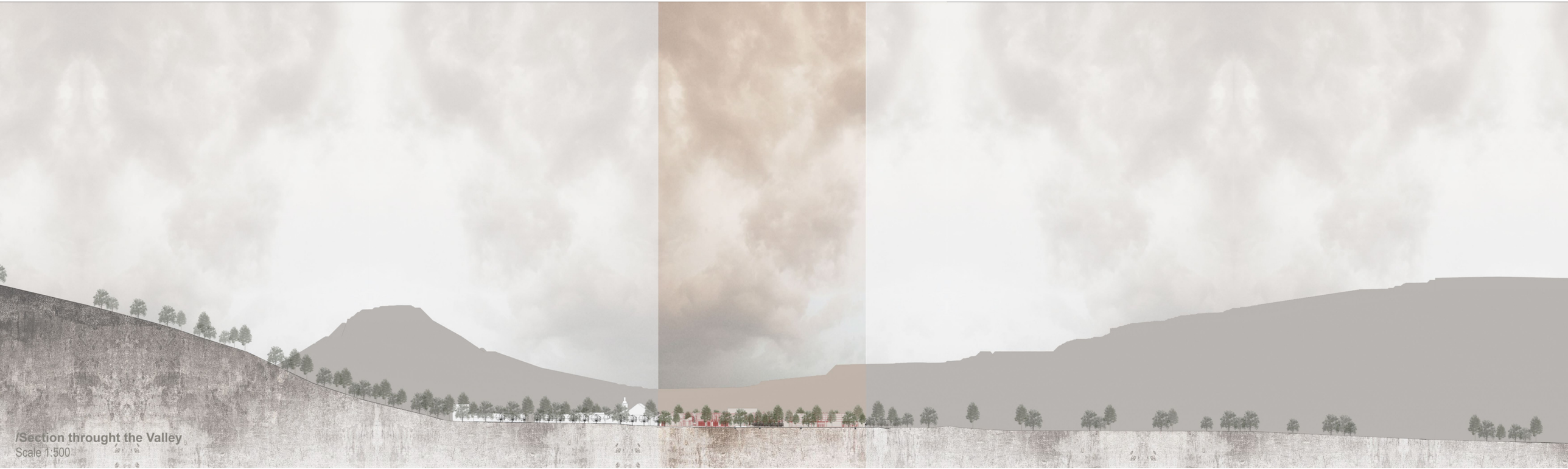
/Phase 06

Over the passage of construction time, the crops should have started to grow and the classrooms are introduced to create a space for the community to start gaining knowledge from the dynamic and interactive growing methods and systems happening across the site. These classrooms offer spaces for theoretical teaching as well as workshop spaces in order to develop practical skills.



/Phase 07

Lastly, the market space and restaurant will be constructed on the street edge of the site. This building serves as the main tourist attraction and an invitation into the greater site and scheme. The building offers the opportunity for local residents to sell fresh produce and processed goods amongst one another whilst responding to the need for a dining experience in the tourism industry of Genadendal. This building does not challenge the local context in terms of materiality or form and complies to the heritage regulations and requirements. It interacts with the furrows through water features, wash hand basins and the movement it encourages.



/Section throught the Valley
Scale 1:500

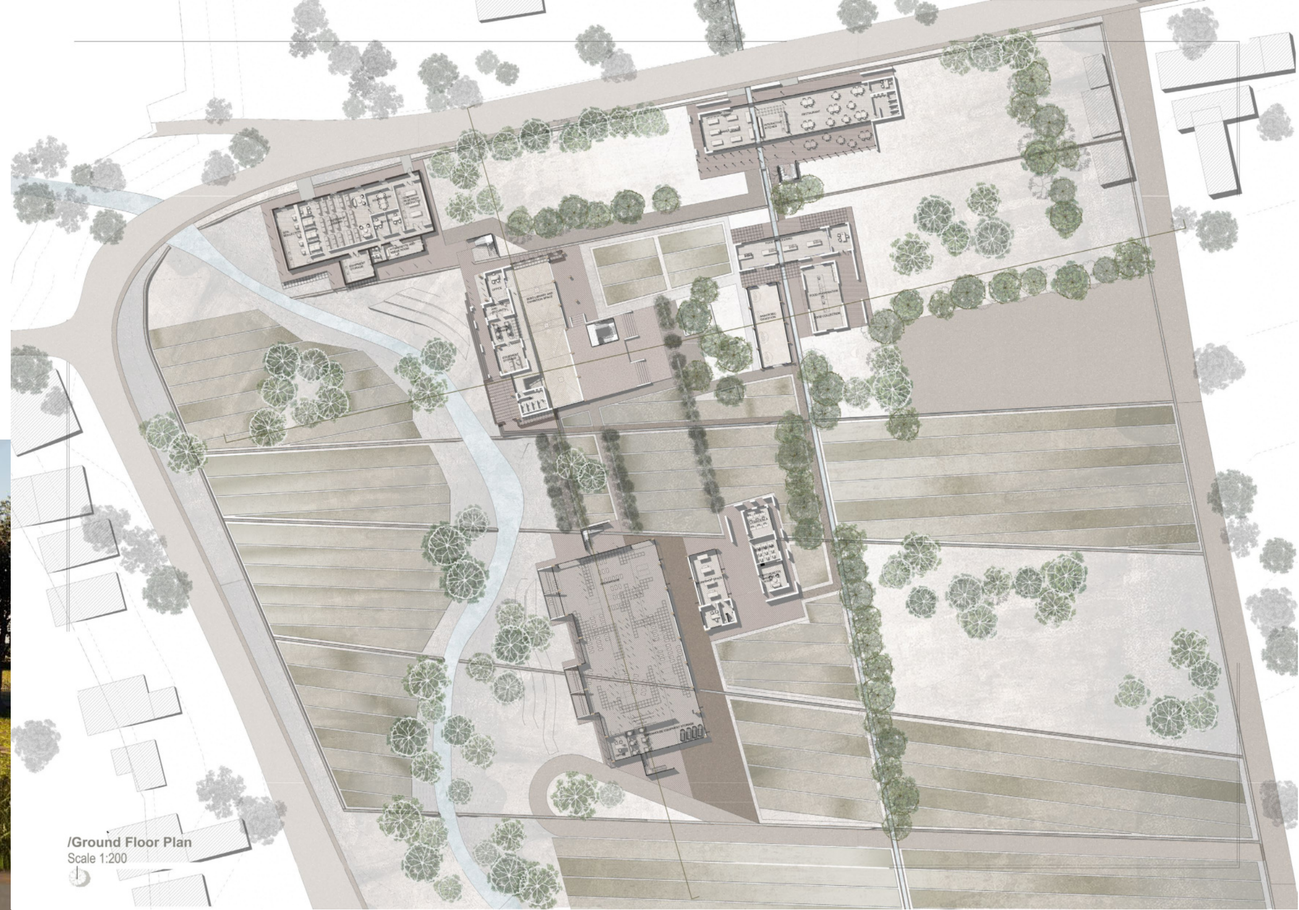
FINAL DESIGN

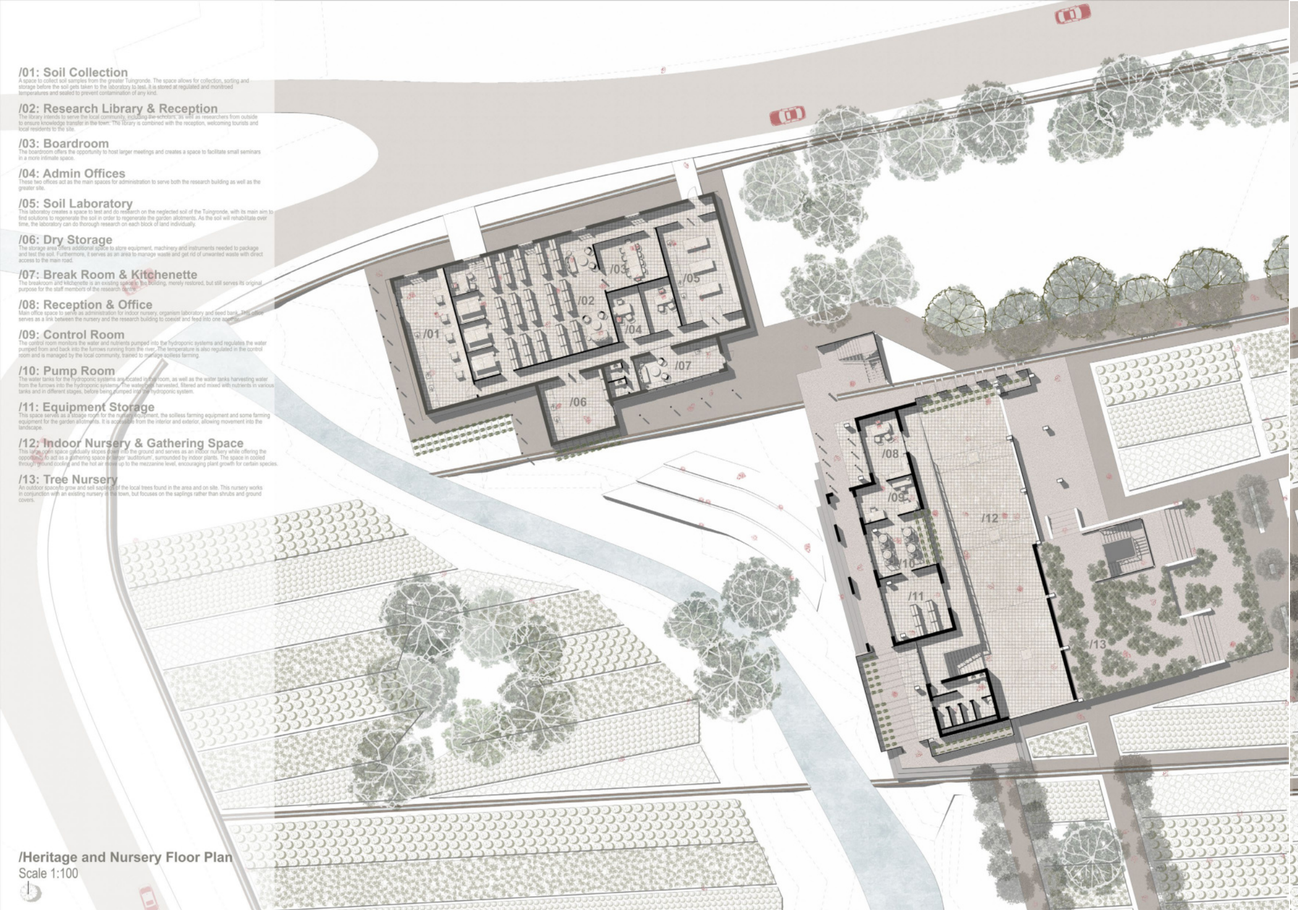
/PLAN

The ground floor plan places emphasis on various buildings sitting in the Tuingronde with the natural landscape weaving through. Programmatically this project fits into the regenerative framework by Mang & Reed. To the north east of the site, on the street scape, a market space welcomes community members and tourists to interact with the local community and support the local economy and small scale farming. The market coexists with a food preservation area, offering the opportunity to preserve food and sell to the greater community as well as a deli and experimental kitchen. This programme responds to the role of the humans within the regenerative framework, stating that humans have to take up their role in nature and act responsibly.

To regenerate the Tuingronde one would have to start with the soil and work with the different ‘blocks’ of land. The existing educare center will be conserved and will facilitate a research center to test, sample, experiment with and improve the soil conditions of the land. This center will place emphasis on the historic teachers college and offer the opportunity to further the education of matriculated students of the local high school, while working in conjunction with the school as well as existing international programmes invested in Genadendal. Mang & Reed would classify this as working developmentally as well as working with a new mind, meaning that one does not necessarily change the techniques, but rather the mindset in the way you do it.

In conjunction with the research center, a new building will facilitate further practical skills training, indoor gardening, nurseries and small scale allotments to test the research being done, while feeding into the small scale farming and skills training on a practical level. This building stretches down to the south and into the first allocated grazing areas, showcasing the relationship between the controlled farming and the bigger ecosystem.





/01: Soil Collection

A space to collect soil samples from the greater Tuingronde. The space allows for collection, sorting and storage before the soil gets taken to the laboratory to test. It is stored at regulated and monitored temperatures and sealed to prevent contamination of any kind.

/02: Research Library & Reception

The library intends to serve the local community, including the workers, as well as researchers from outside to ensure knowledge transfer in the town. The library is combined with the reception, welcoming tourists and local residents to the site.

/03: Boardroom

The boardroom offers the opportunity to host larger meetings and creates a space to facilitate small seminars in a more intimate space.

/04: Admin Offices

These two offices act as the main spaces for administration to serve both the research building as well as the greater site.

/05: Soil Laboratory

This laboratory creates a space to test and do research on the neglected soil of the Tuingronde, with its main aim to find solutions to regenerate the soil in order to regenerate the garden allotments. As the soil will rehabilitate over time, the laboratory can do thorough research on each block of land individually.

/06: Dry Storage

The storage area offers additional space to store equipment, machinery and instruments needed to package and test the soil. Furthermore, it serves as an area to manage waste and get rid of unwanted waste with direct access to the main road.

/07: Break Room & Kitchenette

The breakroom and kitchenette is an existing space in the building, merely restored, but still serves its original purpose for the staff members of the research building.

/08: Reception & Office

Main office space to serve as administration for indoor nursery, organism laboratory and seed bank. The office serves as a link between the nursery and the research building to operate and feed into one another.

/09: Control Room

The control room monitors the water and nutrients pumped into the hydroponic systems and regulates the water pumped from and back into the rainwater tanks from the river. The temperature is also regulated in the control room and is managed by the local community, trained to manage soilless farming.

/10: Pump Room

The water tanks for the hydroponic systems are located in the room, as well as the water tanks harvesting water from the furrows into the hydroponic systems. The water is harvested, filtered and mixed with nutrients in various tanks and in different stages, before being pumped into the hydroponic system.

/11: Equipment Storage

This space serves as a storage room for the maintenance equipment, the soilless farming equipment and some farming equipment for the garden allotments. It is accessible from the interior and exterior, allowing movement into the landscape.

/12: Indoor Nursery & Gathering Space

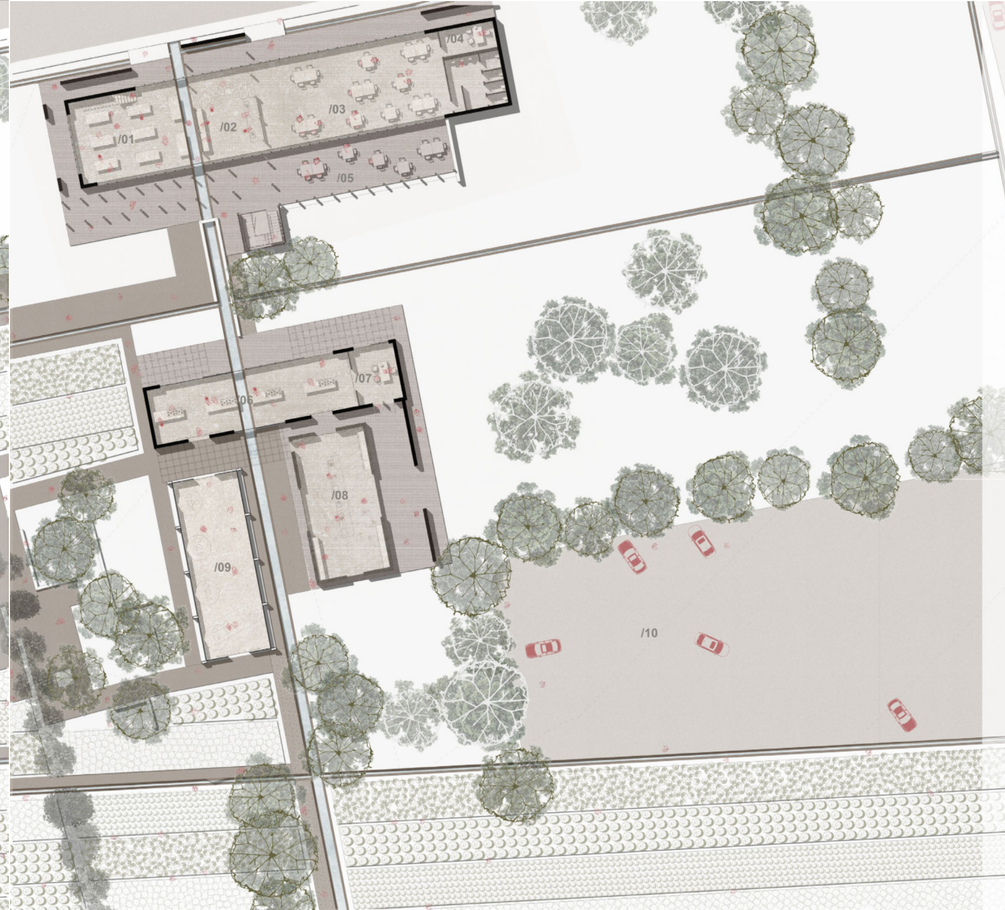
This large open space naturally slopes down into the ground and serves as an indoor nursery while offering the opportunity to act as a gathering space for open auditorium surrounded by indoor plants. The space in cooled through ground cooling and the hot air moves up to the mezzanine level, encouraging plant growth for certain species.

/13: Tree Nursery

An outdoor nursery space and will source most of the local trees found in the area and on site. This nursery works in conjunction with an existing nursery in the town, but focuses on the saplings rather than shrubs and ground covers.

/Heritage and Nursery Floor Plan

Scale 1:100



/Market & Deli

/01: Market Space

The market space offers the opportunity for the local community to sell their fresh produce harvested from the regenerated garden allotments. It is on the street edge and activates the street while serving the economic and social sector, mitigating the displacement of the local economy.

/02: Interactive Kitchen

The open kitchen allows interaction between the visitors and the chefs. The kitchen feeds into the market as well as the deli and restaurant, creating a flexible space that enables community members to showcase their cooking skills and the kitchen can accommodate cooking classes as well.

/03: Deli & Restaurant Area

This main interface is for the processed food that has become part of a culinary experience, enjoyed on site and contributes to the district's experience of Oewerdorp as a whole.

/04: Admin Office

This office mainly deals with the management of the market and deli and manages the economic side of the trade happening in this building.

/05: Outside Dining

The terrace outside the building serves as a link between the dining experience and the landscape. It follows the traditional stoep of Cape Vernacular architecture and overlooks the Tuingronde as well as the food preservation building, drawing the visitor into the entire process of food processing.

/Food Preservation

/06: Food Preservation Kitchen

This food preservation kitchen allows various preservation processes and as they are all linear, the kitchen layout accommodates each during tasks fermentation, pickling, canning and preserving. The kitchen has enough space to facilitate packaging as well and serves the market and deli directly.

/07: Admin Office

This office manages the food collection and exportation as well as the anaerobic digestion and regulates the food waste system in place.

/08: Food Collection & Preparation

This building is located next to the service yard, which allows for easy delivery access. To ensure a seamless preservation process, the building deals with the preparation of the produce before it moves to the kitchen.

/09: Anaerobic Digestion

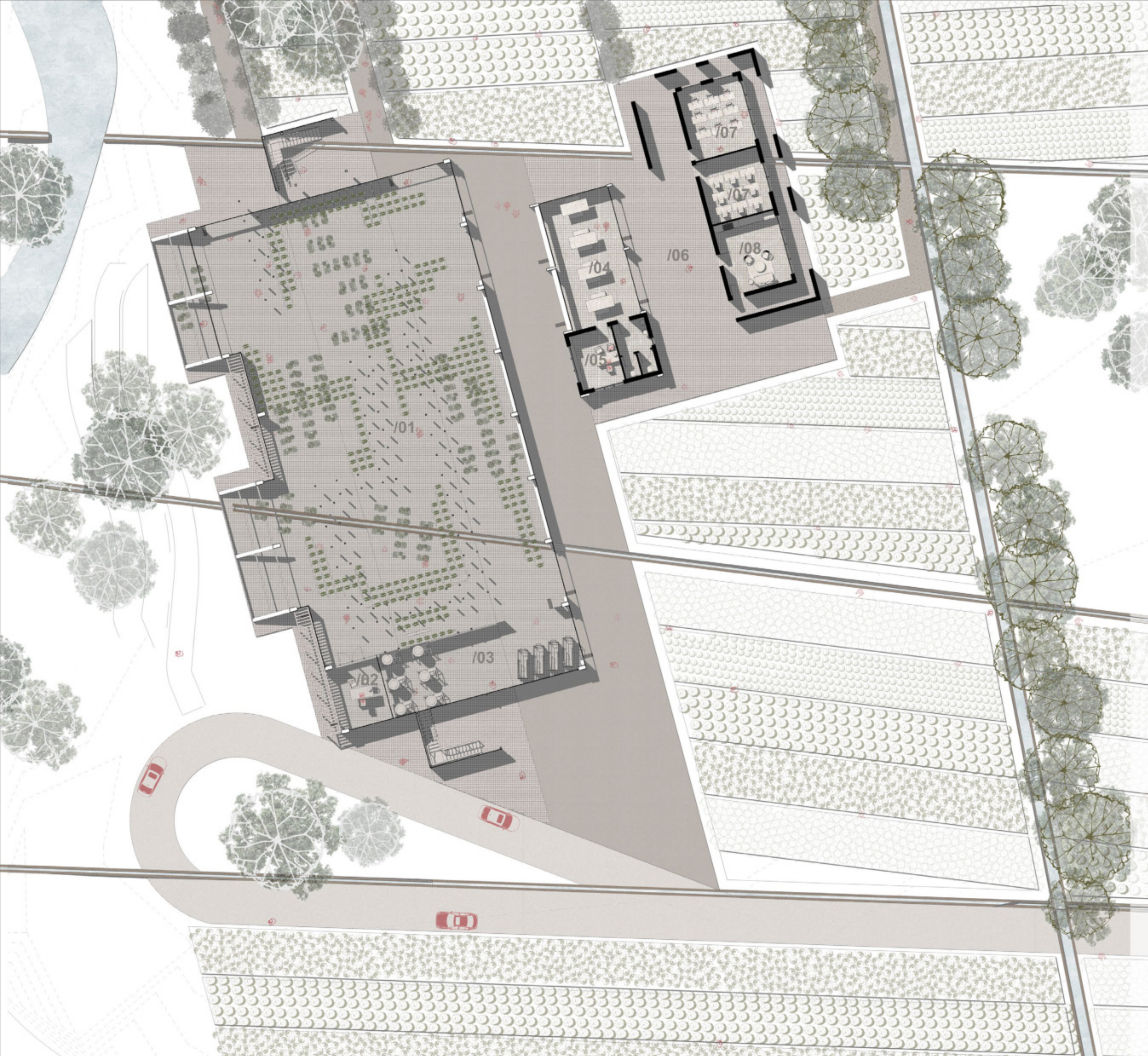
This method is the main system in place dealing with food waste, ensuring that there is a circular system in place and that there is minimal to no waste. This process offers the community to generate energy in future, through the heat released. The food additionally forms part of a composting system feeding back into the garden allotments.

/10: Service Yard

The existing service yard is maintained and acts as the main service yard for the market, restaurant and food preservation buildings. It can serve as additional parking, should the need occur.

/Market and Food Preservation Floor Plan

Scale 1:100



/Greenhouse

/01: Greenhouse

The greenhouse introduces soilless farming to the community of Genadendal. This farming methods has an enormous impact on the annual yield of fresh produce, allowing the community to harvest 77 times more than they would have through conventional farming methods. The regulated temperatures allow for all year farming, specialising in garden vegetables through the CAN-Agri hydroponics system.

/02: Admin Office

This admin office manages the logistics of the harvest of the greenhouse while serving as the control room for the water tanks and the temperature regulation.

/03: Equipment Storage

This space serves as a storage unit for the equipment and machinery needed to harvest and clean the hydroponic systems as well as the water tanks. The floor condition allows excess water to flow back into the furrows.

/Classrooms

/04: Workshop

The programme of skills development and knoweldge transfer requires a space for practical skills to be developed and taught. The workshop space offers the opportunity to reorganise the modular furniture to accommodate various needs and opens up onto a large outdoor work space, if more space is required. The modular furniture acts as storage and seating as well.

/05: Admin Office

This office serves as an admin office to manage the educational programmes facilitated at the workshop as well as the two class-rooms. This office mainly serves the educational programmes.

/06: Outdoor Workshop Space

The outdoor workshop space intends to accommodate practical skills that has to be taught outside in order to equip learners to gain knowledge on conventional and alternative farming methods, working with machinery and additional handling of tools.

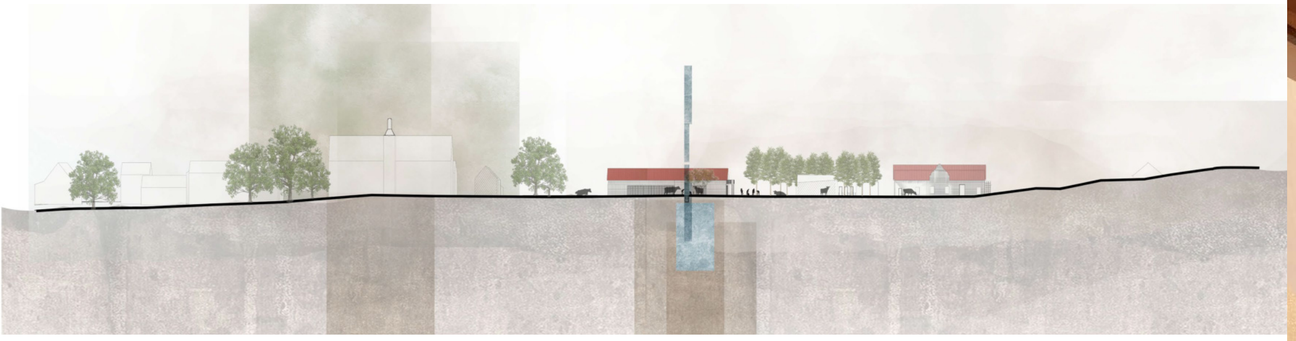
/07: Classrooms

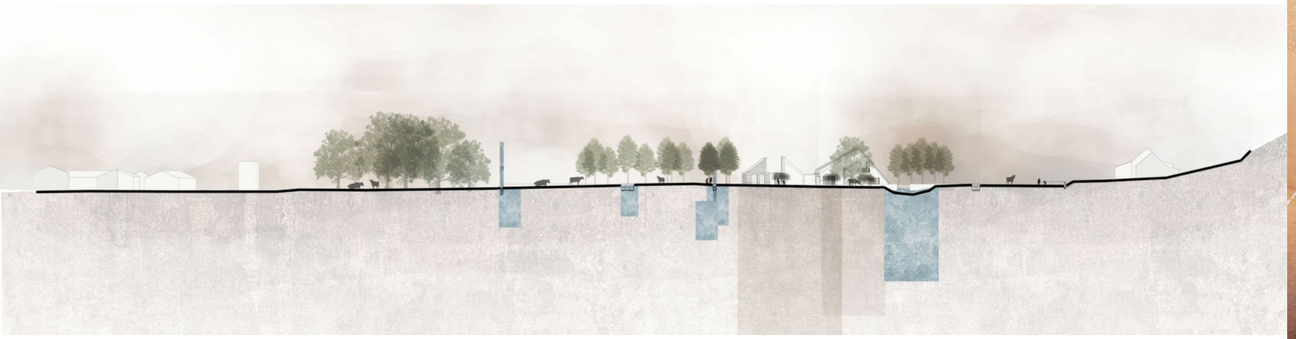
There are two classrooms allocated specifically to the research programme of this intervention. These classrooms are intimate and allow for theoretical sessions with small groups of people. If there are larger groups of people, the auditorium or open indoor nursery can be used.

/08: Breakroom & Kitchenette

The breakroom and kitchenette services the staff members and/ or guests visiting the classrooms and greenhouse for conferences and lecetures.

/Greenhouse & Classrooms Floor Plan
Scale 1:100

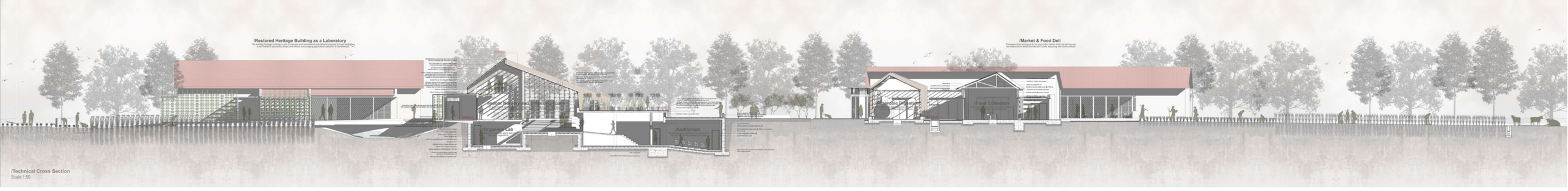


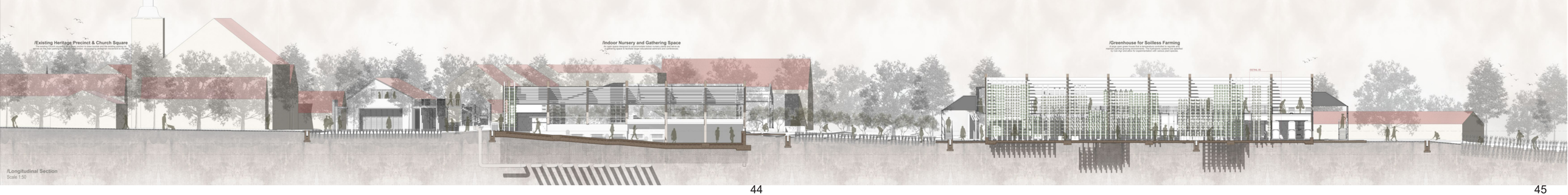


FINAL DESIGN

/CROSS SECTION

This section showcases the interaction between the building and the landscape through various levels and the relationship between ‘in’ the gron and ‘on’ the ground. The space below make use of passive cooling systems as they are surrounded by the cool soil, while the space higher up take advantage of the heat moving up to the roof. Furthermore, it represents the use of various materials and different ways of form-making in order ro respond to heritage.





FINAL DESIGN

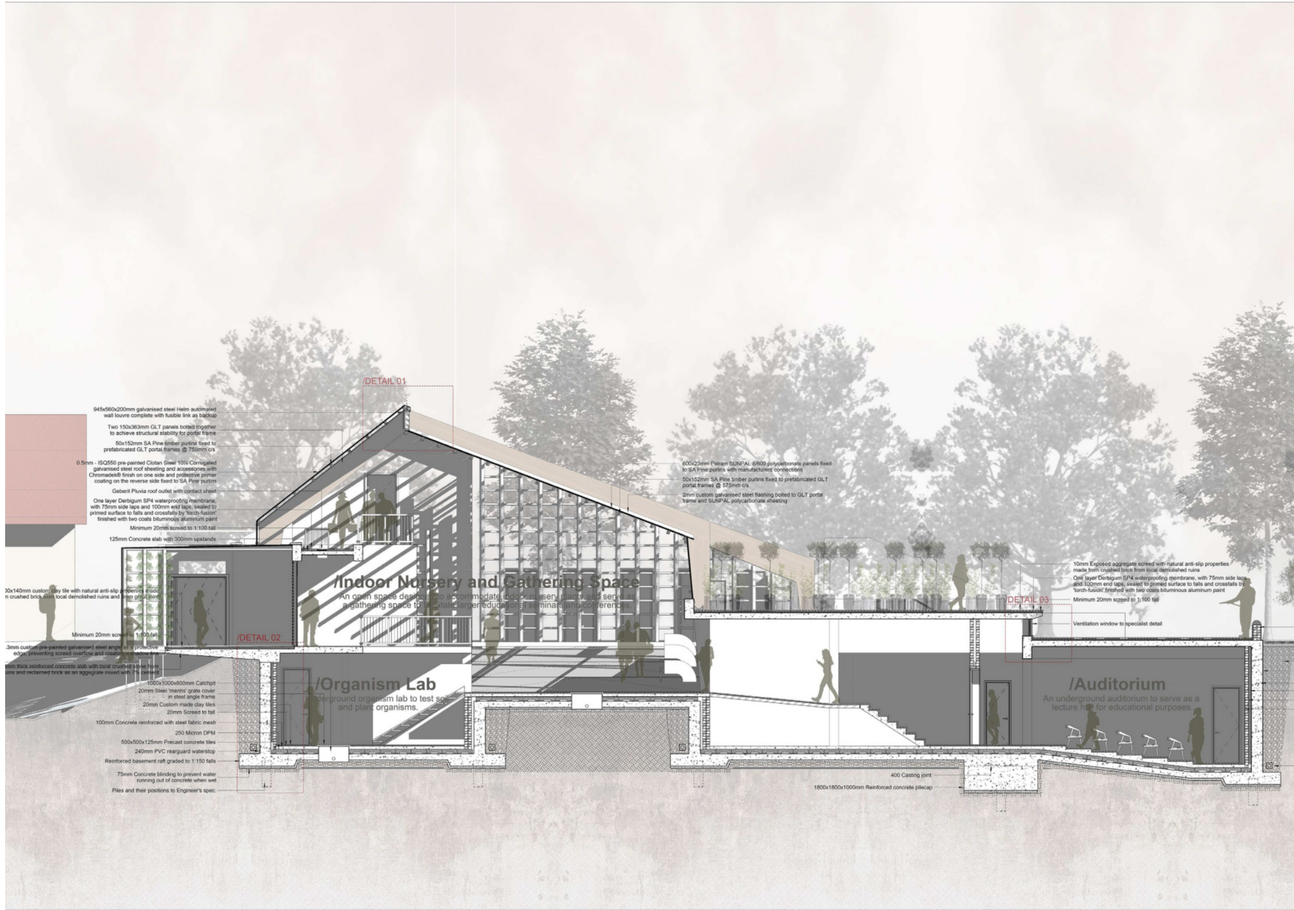
/TECHNICAL INTEGRATION

The technology and materials used were dependent on the heritage guidelines for the area while considering regenerative approaches and sustainable ways to build. There is a contrast between the historic stereotomic approaches and the modern era tectonic approaches. Overall the concept was to have ‘static’ structures, in this case, the portal frames, with the programmes and various spaces weaving through and adaptable to various needs.

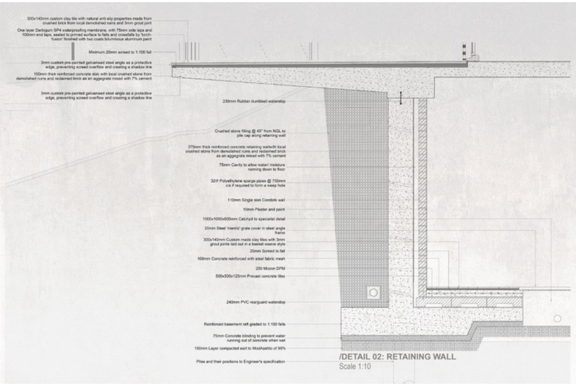
The buildings and facades visible from the streets are mainly stereotomic to comply to the heritage regulations. However, these stereotomic facades aree challenged by the tectonic and modern day techniques and approaches at the back of the buildings. The technological approaches were also dependent on the programmatic, systematic and service requirements.

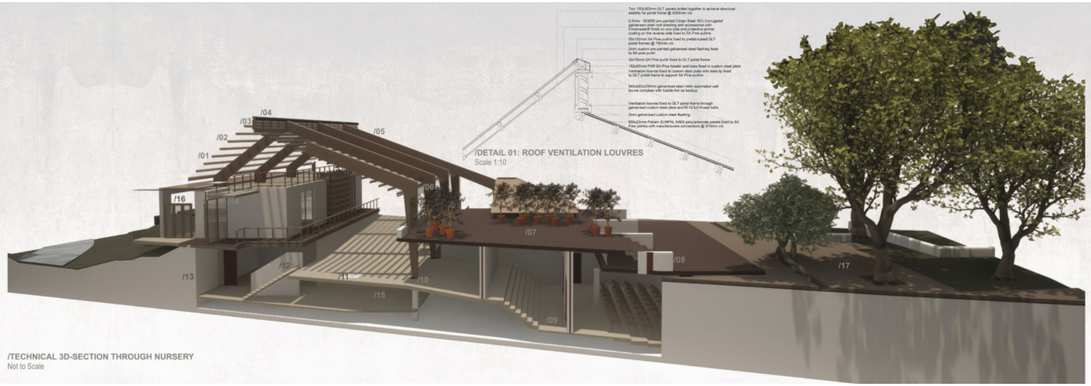
Main stereotomic materials: Traditional Masonary walls, plastered and painted with pitched roofs, that changed for thatch to corrugated sheeting over time.

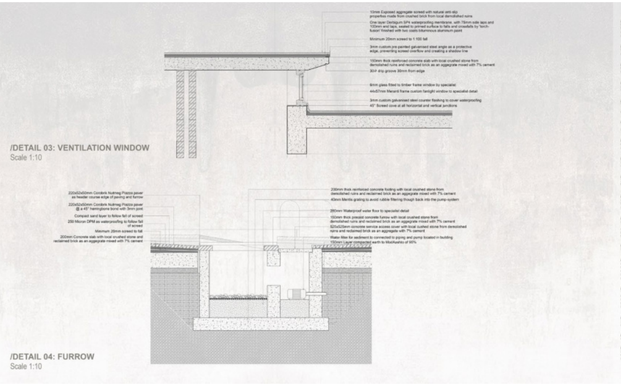
Tectonic: CNC cut GLT Portal Frames produced off site and assembled on site with polycarbonate walls and roof as infill. Polycarbonate as a heat and thermal regulator for the programmatic requirements and responds to the shed-like structures existing in the landscape.



/TECHNICAL DETAILS







FINAL DESIGN

/CRITICAL REFLECTION

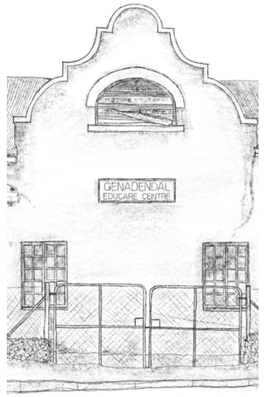
The project's initial goals were twofold: first, to regenerate the lost heritage of Genadendal in a sustainable manner to ensure its longevity. This regeneration addressed the intangible heritage through agricultural practices and the intention to regenerate small-scale farming in order to reinstate the town's selfsustainability, job security and food security. Secondly, the project aimed to mitigate the negative effects of gentrification through intentionally choosing the programme of this project and its intended user groups. In order to preven the negative effects of gentrification, it remained important to avoid the displacement of the natural and cultural landscape. This presented an interplay between various contrasting informants and aspects of the project. A balance was sought between the tangible and intangible heritage, the natural landscape and the built environment, the toursim industry and the local community and the 'contrast' versus 'copy' approach to heritage. Ultimately, the design aims to connect these binaries and foster an holistic approach to heritage within South Africa.

A critical reflection of potential design alternatives remains a vital component of the evolving design process. Reflecting intentionally, elements on various scales could benefit from further refinement. Due to the project's required compliance to heritage rules and regulations, there lies an exciting opportunity to challenge the surrounding context through architectural design even more, while still paying tribute to its rich and layered heritage. With regeneration as one of the main drivers, the narrative around circular systems could be explored in more depth, offering the opportunity to delve deeper into the potential energy produced through anaerobic digestion and how that would have an impact on the design of the building(s). Even though the live stock forms part of the design and their movement and contribution to soil rehabilitation was recognised, the project still offers an opportunity to incorporate more interaction between humans and animals and, on an urban scale, offers the opportunity to incorporate these animals into the food processing aspect of the scheme through a dairy and a butchery.

FINAL DESIGN

/PROJECT CONTRIBUTION

01/ HERITAGE



This project contributed to heritage conservation by protecting an existing building on site through restoring its architecture and maintaining its educational role in the town. The greater scheme contributes to an approach to heritage through its respone to the Cape Vernacular and reinterpreting architecture to stay true to its time.

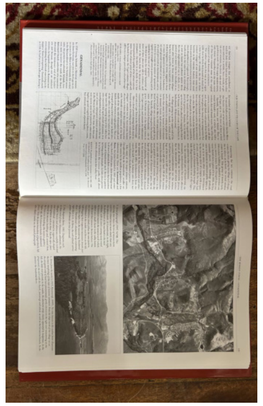
02/ ARCHITECTURE

Cultivating Legacy contributes to the discourse by stating that an intentional, truthful and respectful architectural respone to a heritage context does not merely copy that what is existing, but draws from it through certain elements and reinterprets them in a manner that speaks of the era we live in. Furthermore, the architecture does not adhere to the immediate 'contrast' reaction heritage often evokes, but rather distinguishes itself in subtle ways.

03/ GENADENDAL

The project contributes to Genadendal's cultural and natural landscape by regenerating the small-scale allotment farming and reviving lost agricultural practices. This does not only add value to the cultural tradition of farming, but contributes to the regeneration of the Tuingronde and the soil thereof. It offers the opportunity to introduce new plant species and create more circular systems between the landscape, the humans and the livestock.

04/ THEORY



Cultivating Legacy is based on existing heritage approaches and serves as the documentation of heritage architects and practitioners' approaches, visible in one project. The project is embedded in Mang & Reed's regenerative principles and framework, showcasing the evident relationship between conservation and regeneration and how they can coexist in order to protect our heritage.

FINAL DESIGN

/CONCLUSION

Heritage conservation in South Africa presents a multifaceted challenge that requires balancing cultural diversity, historical significance and development pressures. While existing legislation provides a framework, practical implementation must navigate complex social dynamics and varying persepctives on heritage value. Sustainable architectural regeneration emerges as a viable strategy to address these challenges, particularly in rural areas where it can help mitigate the risks of gentrification.

This project integrates historical preservation with community-centered development through the integration of local materials, responding to the economic needs and regenerating the negelected agricultural practices, ultimately addressing the social, environmental and economic sectors.

The project intends to bridge the gaps between varioius contrasting principles and ideas. It speaks to the relationship between the tangible and intangible heritage through the architectural interventions, but also through the practices and programmes they evoke. The project places emphasis on the contrasting relationship between the built envirnment and the natural landscape and integrated the one into the other.

Ultimately, the project aims to serve the community and emable the inhabitants to contribute to conservation in South Africa, while becoming self-sustainable and having an impact on its greater context. Cultivating Legacy is a project that, through sustainable social, environmental and economic approaches, offers the opportunity to serve as a catalyst for resilient and regenerative architectural interventions within a heritage context.

/REFERENCES

Barker, A. 2020. Limiting binary thinking: architectural design in historic urban contexts. South African Journal of Art History. Vol. 35. No. 2: 121-149.

Büttgens, P. 2024. Verbal communication, interview with the author on 25 March 2024. [Recording and Transcript in possession of author].

Donaldson, R. 2017. Rural (Small Town) Tourism-Led Gentrification. In: Small Town Tourism in South Africa. New York, NY: Springer Cham. [Online] Available at: http://link.springer.com/10.1007/978-3-319-68088-0_6 [Accessed 3 March 2024].

Du Preez, H. 2009. Genadendal's Historical Context and Project Set-up. In: Du Preez, H., Van Oers, R., Roos, J., Verhoef, L. (eds.) The Challenge of Genadendal. The Netherlands, Amsterdam: IOS Press BV.

Du Preez, H., Roos, J. 2009. Integrated Conservation of Genadendal - A Critical Review. In: Du Preez, H., Van Oers, R., Roos, J., Verhoef, L. (eds.) The Challenge of Genadendal. The Netherlands, Amsterdam: IOS Press BV.

Jacobs, G. 2024. Verbal communication, interview with the author on 26 March 2024. [Recording and Transcript in possession of author].

Le Grange, L. 2024. Verbal communication, interview with the author on 26 March 2024. [Transcript and Notes in possession of author].

Le Grange, S. 2024. Verbal communication, interview with the author on 26 March 2024. [Transcript and Notes in possession of author].

Stats SA. 2024. Department: Statistics South Africa: Genadendal. [Online] Available at: https://www.statssa.gov.za/?page_id=4286&id=151 [Accessed 1 May 2024].

The Moravian Church. 2018. The Moravian Church: Our Faith, OUr History and Our Ministry. [Online] Available at: https://www.moravian.org/2018/06/the-moravian-church-our-faith-our-history-and-our-ministry/ [Accessed 10 August 2024].

Theewaterskloof Municipality. 2023. Theewaterskloof Municipality Spatial Development Framework 2023: Chapter 12: Genadendal, Bereaville and Voorstekraal. [Online] Available at: https://twk.gov.za/wp-content/uploads/2023_2024/Town%20Planning/Draft%20Spatial%20Development%20Framework_June%202023/12%20GENADENDAL_Draft%20June%202023.pdf [Accessed 6 May 2024].

Townsend, S. 2024. Verbal communication, interview with the author on 27 March 2024. [Recording and Transcript in possession of author].

Union of International Associations. 2020. Unsustainable Rural Development. [Online] Available at: http://encyclopedia.uia.org/en/problem/135572 [Accessed 14 March 2024].

Van Papendorp, J. 2009. Identifying the Cultural Landscape of Genadendal. In: Du Preez, H., Van Oers, R., Roos, J., Verhoef, L. (eds.) The Challenge of Genadendal. The Netherlands, Amsterdam: IOS Press BV.

Visser, G. 2003. Gentrification: Prospects for urban South African society. Acta Academica Supplementum, 2003(1):79-104.

Wilson-Harris, J. 2024a. Verbal communication, interview with the author on 27 March 2024. [Recording and Transcript in possession of author].

Wilson-Harris, J. 2024b. Email correspondence on 29 March 2024. [Email in possession of author].