

# empowering power town

a contextual study that ascertains  
social and architectural sustainability

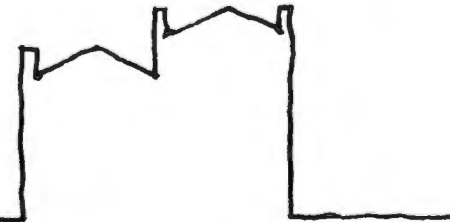
by

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Master of Architecture (Professional)

University of Cape Town  
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October 2010



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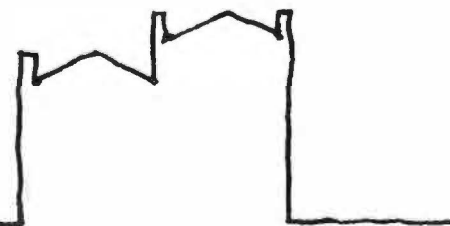
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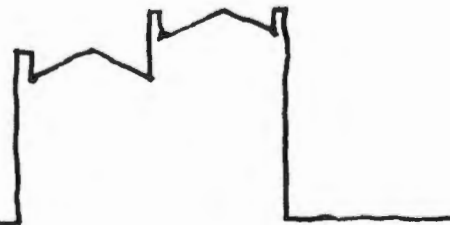
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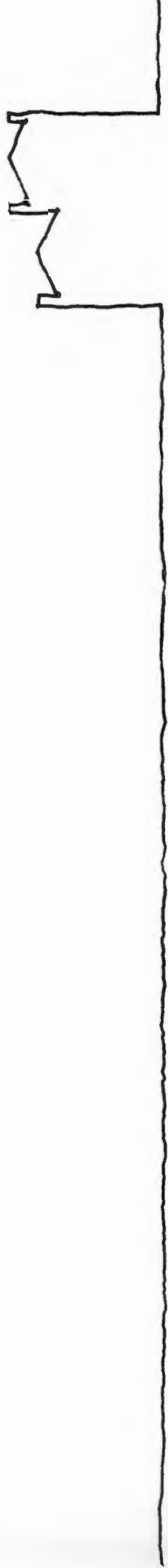
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# 1. introduction



## abstract

My thesis investigates the ability to generate social and architectural sustainability from the surrounding context of a specific site – Power Town. A thorough analysis of the changing social conditions, cultural values and natural processes are done to be part of, and inform, this hypothesis. My architectural interventions are thus informed by the existing and will be a reflection of Power Town's vernacular.

The first part of the document introduces Power Town to the reader, where it is situated and how it came to be, and why it is an unproductive settlement.

Part two, 'a landscape enthused architecture', explores cultural, productive and responsive landscapes and their implication in architecture. Methods are investigated that help to uncover the complex layers of site and landscape. This thorough understanding

of the landscape will inform the design proposal. It will illustrate that Power Town has much potential to develop and evolve within its environment.

In part three, 'adaptability', I discuss the potential of reusing structures, as they are, instead of demolishing them, clearing the site, and constructing new architecture. In many situations, man-made structures already exist in the context of a site and the adaptive reuse of them will be a productive addition to the context. New architecture must also be able to adjust and accommodate the unpredictable needs of the future.

The fourth part, 'sustainable materials', is an investigation of a productive use of materials. Using materials originated from the context is the key initiative here. It makes for a sustainable



Bird's eye view of Power Town (Wildlife Expressions, Power Town)



An Existing vegetable garden in Power Town



A self constructed house in Power Town



construction that reflects the context and blends in with the landscape. This includes possibilities such as materials produced or harvested on site and the reuse of demolition- and industrial waste.

All topics are discussed as interrelated issues that could contribute to the restoration of Power Town's dignity. Part five, '**design**', is the synthesis of all these opportunities.

A site making strategy that allows for unpredictable incremental phasing is designed initially. A number of design principles are implemented in this place making that would contribute to ascertaining social and architectural sustainability. The main idea here is to exploit the existing farming, fishing and construction

abilities in the community and initiate a productive landscape.

The place making plan lays the foundation for the design of a production centre. I propose to adapt and reuse the existing derelict power station. This new public building will form the heart of Power Town's productivity. It will house a number of facilities that offer, mainly; skills development workshops in different forms of production; a multi-usable auditorium; a production nursery; as well as flexible market, storage and work space for the processing and distribution of foodstuff in the community.

I believe that the implementation of this design proposal will be a productive injection that will ultimately empower Power Town.



## my initiation

Ever since I can remember, there was this magnificent building next to the highway that we as a family used to pass on our Sunday drives. It was an abandoned power station, inhabited by squatters. When I was a little boy, I used to try and count how many windows stayed unbroken. It has always interested me how the building changed through the years. I wondered where the mystical trees came from that tried to conquer the face brick walls of the derelict power station. What will happen to it?



view of power town from the national highway

# background

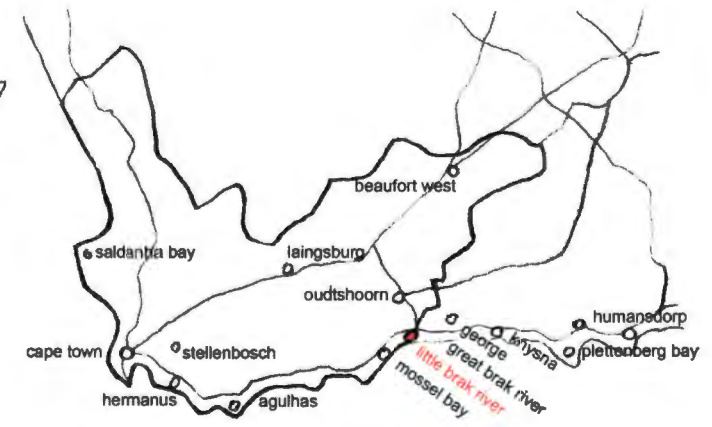
## location

Power Town lies, about 5 km east of Mossel Bay and 5 km west from Great Brak River on the Garden Route. The settlement is bordered by the N2 National Highway to the north, the Little Brak River to the west, a water purification plant and marsh to the east and the ocean further to the south.

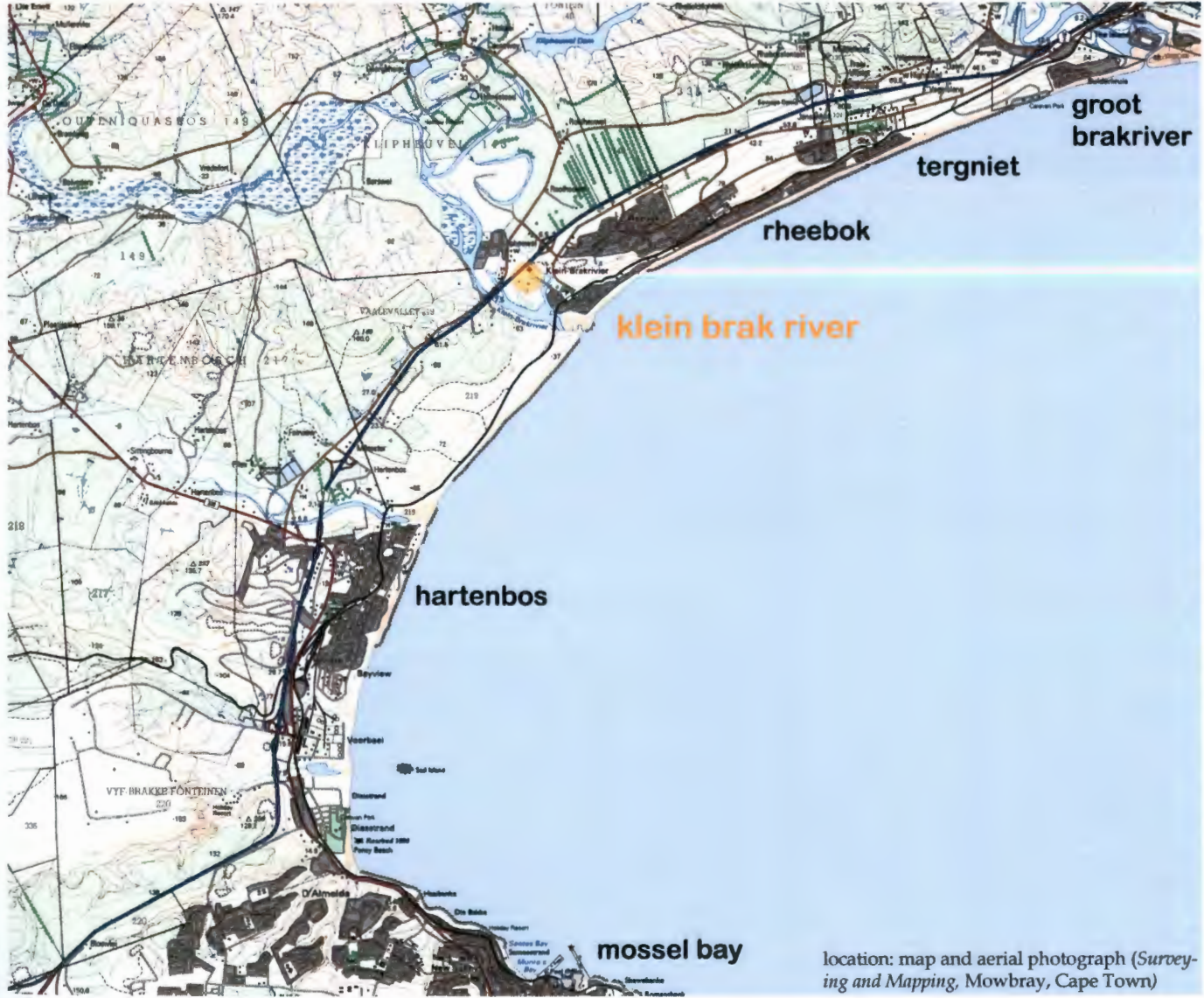
The greater area is largely made up of farmland; stretching to the mountains on the horizon and with big blue open skies overhead.



position of site in the southern cape's garden route



position of site in south africa



location: map and aerial photograph (*Surveying and Mapping, Mowbray, Cape Town*)



brick houses built by government for accommodation for water works employees

## community

The earliest structures built outside the power station were five brick houses erected by the municipality to accommodate employees who worked at the water purification plant. A small town evolved around the building when the first residents used the old abandoned power station on the site as their home. This is where the name Power Town came from. Materials were salvaged from the old building, as well as from the area, to build more houses for the community.

<sup>1</sup> Malan, *Description of the Social Environment*. Note: There are still graves to be found as proof of settlement on certain parts of the nearby farms.



Power Town streetscape



Today, approximately 150 families live in Power Town today and the settlement has formed a strong and close community.<sup>1</sup> Most of Power Town's residents come from the surrounding farms; they are retired or evicted farm workers and others had to move under the Group Areas Act in the 1950's from where they lived in the open veld on farm ground.

Nearly half the population is unemployed and dependent on child or pensioners grants. The residents' skills as builders or gardeners in the area are apparent in the beautiful houses in the town. Almost all the building materials are recycled or reused in unconventional ways.

Some of the friendly Power Town Locals

<sup>1</sup> Benjamin, *Social Impact Assessment*.

<sup>2</sup> *ibid.*

<sup>3</sup> Malan, *Description of the Social Environment*.

## the power station

I later discovered what the reason for closing down and abandoning the power station was: Water from the Little Brak River was to be used for cooling and the foreign engineer who designed the power station did not incorporate the fact that the river is a tidal river! The water was thus salty seawater and not fresh water - causing corrosion of the machinery to occur much more than expected. It was apparently closed, and the machinery removed, in the first month of operation!<sup>1</sup>

The building have served interesting purposes since: A scene for the film called "The Golden Rendezvous" (based on the book by Alistair Maclean) was shot inside it in 1977. The motel across the road was consequently named after this film. A family friend used to dry flowers inside the sheltered structure as a hobby. It was then inhabited and used for salvaging building materials. Today it is used by the community for meetings and the local children like to play in the ruin.

<sup>1</sup> Cornelius Beyers, *interview by author*, Little Brak River, December 10, 2009. Dr. Beyers is one of the first residents of Little Brak River.



An entrance to the derelict building



A room inside the power station being used for church meetings



view of the old power station from power town

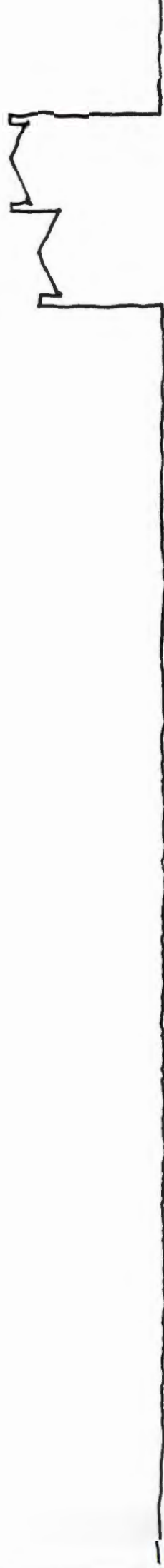


the massive, poetic, concrete rib-like beams used to support the roof structure

Power Town and the power station is an eye sore to a many people, however the old station is too expensive for government to demolish and remove just because it is deserted.<sup>1</sup> They have relocated the people that lived inside the old building to emergency houses outside. The vegetation, balustrades and roof have also been removed.

<sup>1</sup> Malan, *Description of the Social Environment*.

## 2. a landscape enthused architecture





## situation

### detrimental location

Power Town is situated too far from the Mossel Bay and George CBD's for inhabitants to have access to job-opportunities. The result of this is the same as we see in every town or city in South Africa - poverty.

Little Brak River's role and character as part of the Garden Route is an unrecognised one. It is easily ignored by travellers, even though it is easily accessible and is a significantly beautiful and poetic place. It lacks attraction when compared to the rest of the Garden Route like Mossel Bay, Knysna and Plettenberg Bay, but it has the opportunity to be unique and to become a new addition to the Garden Route. The key to this opportune lies in Power Town, because it is the face of Little Brak River and even the greater area of Klipheuwel Rheeboek and Clentana.

Another aspect of the location is that the town is situated below the 1 in 50 and 1 in 100 year flood lines. As an obvious consequence, the Power Town community has suffered from disastrous floods. In August 2006, 320 of the 428 residents (almost 75% of the population) were evacuated and had to be housed temporarily in the town halls of Little Brak River and Mossel Bay. This also affected the larger community, because they had to make arrangements to accommodate the people in terms of temporary shelter, transportation and food. The area is also vulnerable to flooding because of the extremely low water table, bad drainage, water run-off from the neighbouring high-way, and the exposure to tides and spring tides from the sea.

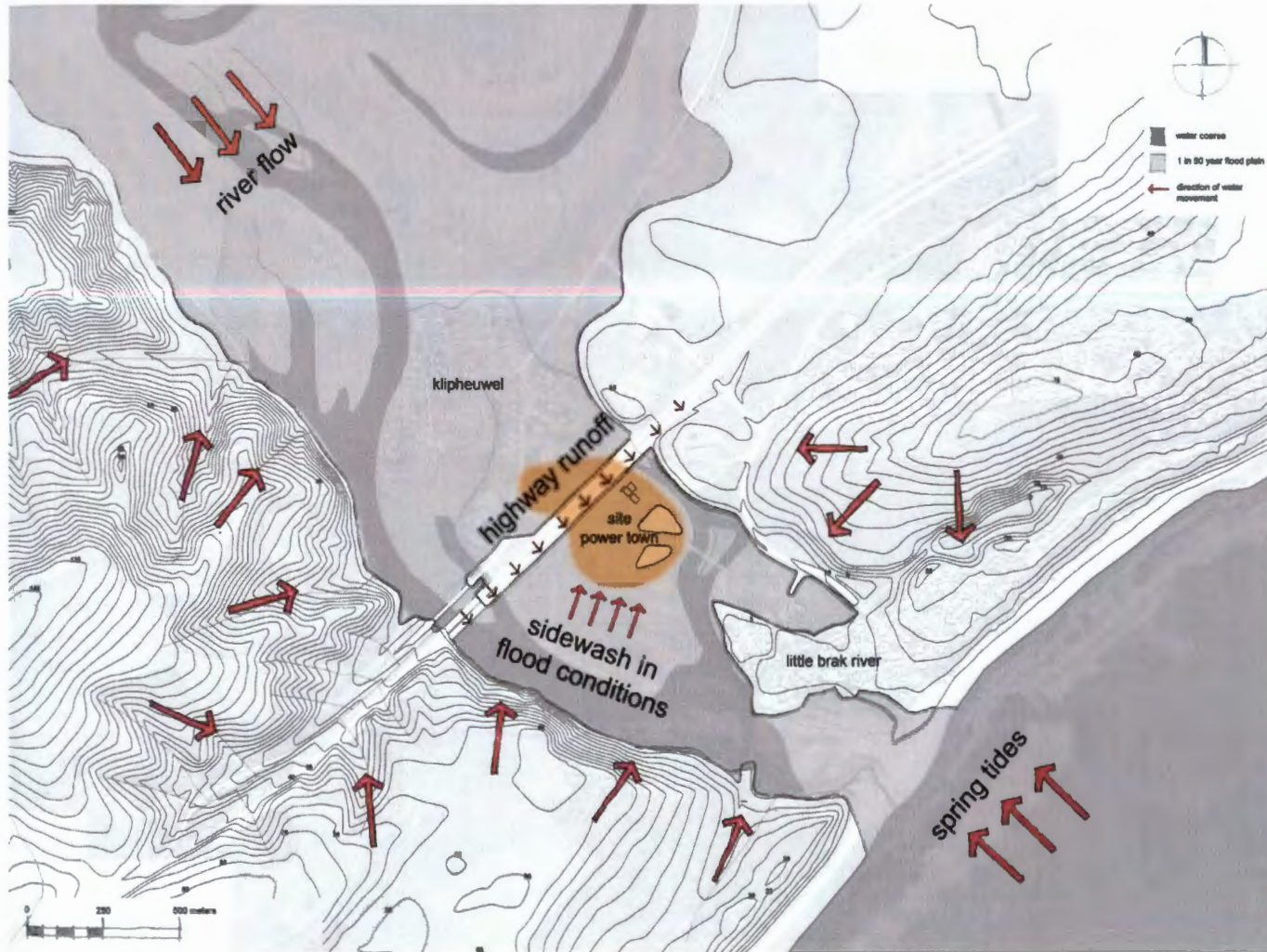
1 Benjamin *Social Impact Assessment*.



Some residents keep a boat in their yard for when it floods (Die Burger. *vloed boot*)



Pooling around the informal dwellings caused by bad drainage and a low water table



In the case of a flood the nature of the flooding is not that of strong flash floods, but rather a side wash that result in a gradual rise of the water level. This is caused by a combination of river flooding and rough seas that pushes the water back, into Power Town.<sup>1</sup>

The wet and damp conditions result in an increase of poor health. Worsening symptoms of Tuberculosis, Arthritis, lung infections, Bronchitis and colds are evident and because of bad access, it is too expensive to travel and obtain proper medical care.<sup>2</sup>

1 Alistair Fraser, *interview by author*, Sedgfield, MA, August 3, 2010  
 2 Benjamin, *Social Impact Assessment*.

Map on the effects of water on site (adapted from *Surveying and Mapping*, Mowbray, Cape Town)

## sensitive ecosystem

Power Town neighbours the Little Brak River estuary. The ecosystems of estuaries are easily negatively affected by the presence of humans. Farming, forestry, fishing, development and the introduction of alien fauna and flora all takes its toll on the natural environment.

alien vegetation, such as water hyacinth, clog the water surface, deplete oxygen, smother indigenous plants, foster mosquitoes and restrict water flow



alien fish, like the smallmouth bass, prey on the indigenous fish in the river

rare species like the Knysna Seahorse and certain grasshopper species are to be found in the Little Brak River estuary



roads, bridges and weirs obstruct migration patterns of fish species marine sediments are increasing as a result of reduced river flows

The discharge of treated wastewater (nutrient rich freshwater) reduces the salinity in the estuary



forestry impairs the functioning of the river banks and creates foreign leaf-litter in the river.

cattle grazing and trampling have a localised impact on the habitat and overgrazing leads to soil degradation



excessive nutrient loads from farming activities (e.g. fertilisers) lead to the increase of alien vegetation

Threats to the ecosystem of the Little Brak River estuarine (Adapted from River Health Programme. *State of River Report*. p.3-16)

## an unwelcome feeling

Government and the Department of Housing have promised to move all the Power Towners out of the flood plain. Negotiations to do this have been going on for 16 years, but have not become a reality.<sup>1</sup> According to Steven Booysen,<sup>2</sup> the last identified location is one of 17 previously considered sites to build low income housing on for the community to relocate too. However, this site is even more isolated and difficult to get to. The community agreed to move in 2006, but they were intimidated to do so after the latest extreme floods. Mr. Booysen told me in a conversation in March

<sup>1</sup> Zietsman, *Power Towners nog nie hervestig ná 4 j. se praat.*

<sup>2</sup> Steven Booysen, *interview by author.* Power Town. April 9, 2010. Mr. Booysen is the oldest resident in Power Town and a community leader.

2010: "I will rather die before I move." This echoes most Power Towner's reluctance to relocate.

The continuous disruption in the social construction of the community adds to a feeling of being unwelcome or not belonging to the place. This insecurity prevents the community from developing and results in an unproductive society.<sup>3</sup> The government has even banned the settlement from evolving or growing - no more people are allowed to move into Power Town, because of the plans to eventually relocate the residents. The Power Town committee has decided to reprioritise land for agriculture and focus on securing

<sup>3</sup> Malan, *Description of the Social Environment.*

land for housing development.<sup>4</sup>

A lack of open public space and recreational opportunities is encouraging youth to find entertainment in drinking.<sup>5</sup> The liquor store and sport fields are on the other side of the N2 from Power Town, resulting in many road deaths and accidents as citizens have to cross the highway by foot. The only alternative for crossing is the 1,6 meter high, water drenched subway that is off the route to town.

<sup>4</sup> Benjamin, *Social Impact Assessment.*

<sup>5</sup> Malan, *Description of the Social Environment.*



A cyclist waiting for a gap in vehicle traffic to cross the highway



The existing, crawl-height, pedestrian subway



The only existing successful recreational space is on the opposite side of the highway from Power Town

## intent

### gaining an understanding of landscape

Much in and around Power Town is the result of a complete misinterpretation of landscape. Historically the bad decisions resulted in the issues we see in Power Town today. I believe that it is incredibly important to have a thorough understanding of how landscape and cultural ideas influence each other before one can design. How these ideas condition architecture and how architecture, in turn, conditions landscape ideas in a larger cultural vision informs design and it can not be neglected.

In his essay, *Four Trace Concepts in Landscape Architecture*, Christophe Giro<sup>1</sup> explains his operating concepts that serve as tools for site investigation, especially with regard to recovering/rejuvenating sites. They allow us to draw as much as possible from the potential of place. These “trace concepts” cluster around issues of memory, and they emphasise the fact that an architect seldom belongs to the site he or she intervenes with. The four trace concepts are; landing, grounding, finding and founding. They must follow in sequence so that the site can emerge in a comprehensible manner.

Landing explains the experience of the first visit to a site with preconceived ideas of the nature of the site already in mind; much like my first visit to the site. Grounding is when you start to read and unravel the different complex layers of the site. Finding entails searching for the unseen as well as the outcome, when you discover something significant about the site. Finally, founding is the stage where the prior three acts are synthesised into a new and transformed construction of the site. Founding may be either conservative - referring to a past circumstance; or innovative - importing something new to a place. A well founded architectural project will respond to this understanding of the site and will extend



The railway bridge, crossing the Little Brak River, collapsed in 1905 because of floods. This serves as an example of how man-made structures fail if it is not designed with a good understanding of the landscape. (River Health Programme. *State of River Report*. p26.)

<sup>1</sup> Giro<sup>1</sup>, *Four Trace Concepts in Landscape Architecture*, p. 60-65

the legacy of a place toward a productive future.

The landscape architect and theorist, James Corner, says: "Landscape and image are inseparable." He uses and describes the word "eidetic" as "a mental conception that may be picturable but equally be acoustic, tactile, cognitive, or intuitive." Eidetic images contain a range of ideas that conditions how reality is conceptualised and implemented. They engender, unfold and participate in evolving design realities.

How one experiences, maps, conceptualises and imagines inevitably affects what is built and what influences it may have in time. Furthermore; Corner explains that techniques of drawing and representing have a major impact on innovative architectural design. The interaction between the built and the imaginary is what lies at the centre of architecture's creativity and contribution to culture. Architectural intervention spawns out of the creative and innovative methods of the presenting medium. It holds the poetics of rhythms and passing of time, seasons, tides, weather and occupancy.

- 1 Corner, *Eidetic Operations and New Landscapes*, p 153
- 2 Corner, *Recovering Landscape*, p 9 19



Uses of land and vegetation of the area (Adapted from *Surveying and Mapping*, Mowbray, Cape Town)

The following map was one of my first of Power Town. It is a comment on my first visit – the beginning of my journey in uncovering the complex layers of Power Town in order to realise the hidden potential of the context. It is a cross site analysis of the cultural landscape and feeling of place.



## cultural landscape

The relocation of Power Town will cause a major rupture in the existence of the people and the cultural landscape that they have come to be accustomed to. Power Town should not be relocated, but accommodated in their current cultural landscape. This decision should be made so that security can be established, improvements can be made and development can start to advance. The community can ascertain a sense of belonging and build on their existing memories.

The cultural landscape has the capacity to contribute to positive space making. Over time, landscapes build up layers with every new representation. These layers enrich the range of interpretations and possibilities of the landscape idea.<sup>1</sup> We should look at the whole in order to realise that the cultural landscape is all around us and a part of our daily experience.<sup>2</sup>

Landscape does not only represent nature and environment (like we would experience it from a distance) but it also represents the identity and cultural belonging of a community or society.<sup>3</sup> It becomes a poetic filter we view our surroundings through; to gain social identity, culture, memories and finally a sense of belonging and community.<sup>4</sup> It remains open to different interpretations for different viewers, providing for cultural diversity.

Modernist culture neglects landscape and creates a particular vision; a vision of picturesque, rural scenery, idealised images of countryside without modern technology, urbanisation or change. Landscape is thought of as a place to escape from the problems of the present and the concerns of the future. But landscape is never cultureless; it is always bonded to society. It is not a product of culture, but rather an agent in producing and enriching culture.<sup>5</sup>

Landscape is not always to the benefit of all in society; it could also hold darker, negative connotations. The innocence and idealism of landscape can often conceal social inequities,<sup>6</sup> much so in the cultural landscape of Power Town.

If you observe the landscape from a distance, as a manufactured landscape, you will always feel separated from it. To experience it from the inside involves the evaporation of the landscape into the everyday genius loci of place. The structures of place help a community to establish collective identity and meaning. This is the constructive nature of landscape and its capacity to enrich the cultural imagination, providing a basis for connection, a feeling of belonging and sense of being home.<sup>7</sup> It is this insider view that brings a new broader range of possibilities of utilisation to Power Town.

1 Corner, *Recovering Landscape*, p.5

2 Lake, *Problems and Opportunities in Rural Conservation*. United Kingdom. p.63

3 Girot, *Four Trace Concepts in Landscape Architecture*, p. 59

4 Corner, *Recovering Landscape*, p.7

5 *ibid*, p.4-9

6 Corner, *Recovering Landscape*, p.4 11

7 *ibid*, p.12



## architecture, landscape and memory

When we are designing to establish a sense of place, the importance of designing with and for memory can not be neglected. This is important not only for architecture to be good, but also for one's experience within that space to be memorable. Both memory and sense of place prominently involve the same part of the brain. Our memories depend upon a strong sense of place, and by extension, our sense of place is influenced by the memories formed there.<sup>1</sup>

Establishing a connection between spaces is important, because it provides opportunity for the incorporation of landmarks and architectural features that can make a place memorable. The power station in Power Town is an example of a landmark that played a great role in the existence and memories of the town.

One of the residents of Power Town, who used to live inside the power station, is nicknamed 'Upstairs'. This connects him permanently to this landmark with its history and character of being an enormous structure that offered shelter and started a town. Similarly, the landscape and its features like the farms and mountains hold the essence of many inhabitants' memories being from the area and about working the land.

Architecture has this ability to get in touch with an occupant's memories through their senses and emotions. What people probably remember most are the meaning, sense and emotion that an environment helped to provide. It has the capacity to embed a series of meaningful happenings where built form can transcend the senses and form positive memories that would help generate a sense of place. These qualities can simply help someone make a decision or it can even impact on a whole culture, but most importantly; it can contribute to establishing a sustainable society.<sup>2</sup>



My view of the history and memory of the cultural landscape.  
(Adapted from *Surveying and Mapping*, Mowbray, Cape Town)

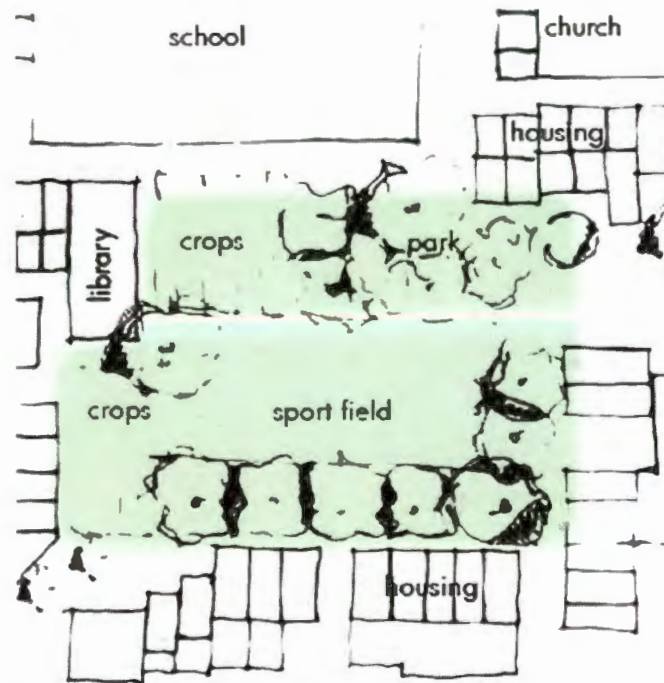
- 1 Lehman, *Designing a Sense of Place: Don't Forget Memory!*
- 2 *ibid.*
- 3 Andrew 'Upstairs', *interview by author, Power Town, March 26 2010*
- 4 Lehman, *Designing a Sense of Place: Don't Forget Memory!*

## the importance of social sustainability

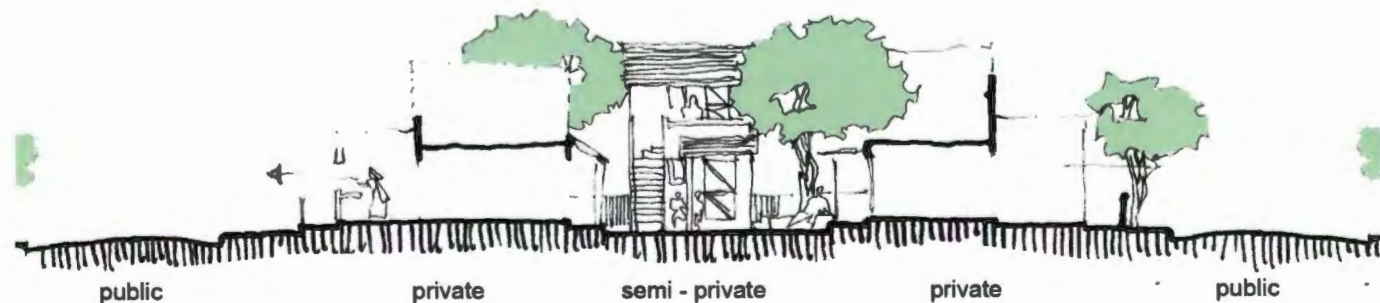
It is very important to celebrate public facilities and public open spaces in a community, because these are the spaces that impact on the lives of many and to which many escape from the poverty of their individual circumstances. These spaces should be located so that it is accessible to all - integrated and overlapped with a series of different activities around it.<sup>1</sup>

Public open space should be integrated into architecture, landscape, agricultural activities, streetscapes, sport fields and green spaces. In Power Town, where finance to maintain public space is not always available, integration of these uses will help ensure that open spaces are frequently used and easily maintained. Also, when people view public space as their own, they begin to take responsibility for it.<sup>2</sup> A sensitive combination of good design and community involvement is effective in creating secure environments, free of risk and fear of crime and violence. For example; we feel comfortable and confident using spaces that offer good visibility and effective lighting at night - where we feel we can be seen and be heard by other people.

<sup>1</sup> Dewar & Uytendogaardt, *Creating Vibrant Urban Places to Live*, p.48  
<sup>2</sup> Urban Design Compendium - *Urban Design Principles*.



Public open space as a combination of different uses.



Hierarchy of spaces



Sketch of social and pedestrian friendly street space

According to Dave Dewar and Roeloff Uytenbogaardt <sup>1</sup>, public spaces should be located at special places within the urban structure and landscape so to build up symbolic significance that will be worth far more than just the functional role. Power Town also offers the opportunity to locate recreational spaces in the ecological buffer zone between the river and settlement.

Sport has the potential to play an important role in individual, community and societal development; it has a positive psychological function; it teaches important life skills and values; it promotes cohesion; and it encourages social interaction. Sport fields, for one, would then be a recreational space that would contribute greatly to the social sustainability of a community like Power Town.

Streets should be designed to form social spaces that are friendly to pedestrians as opposed to vehicle dominated roads. They should further reflect the activities that we would like to see carried out on them. For example, if the street is lined with shops, it should be designed to enable people to get to the shops, cross the road, have a chat and linger in front of shop windows.<sup>1</sup>

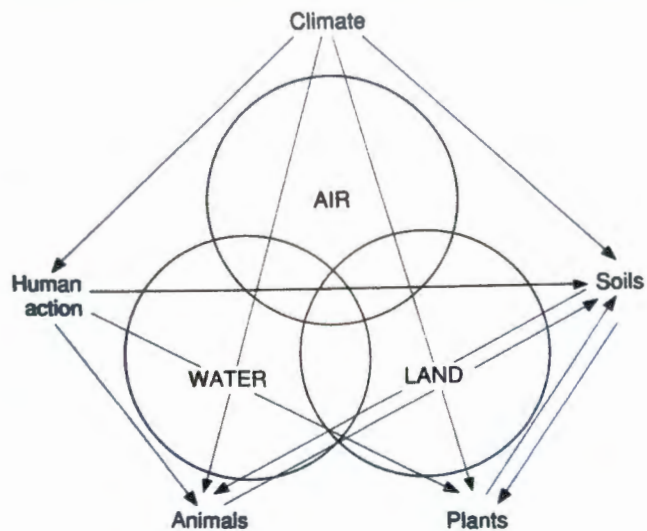


Street interface offers social and economical opportunities

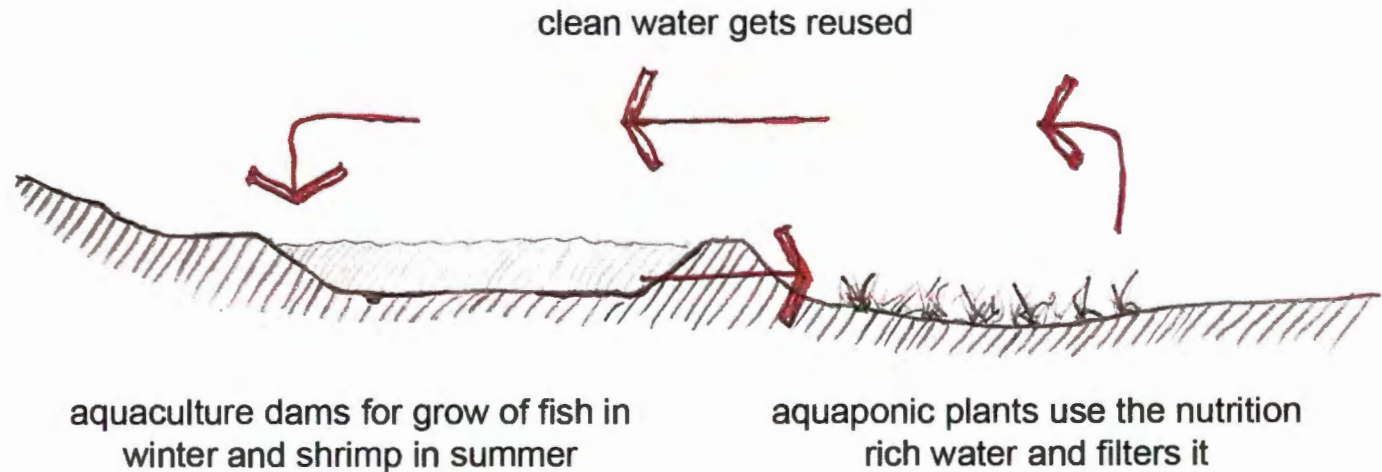
<sup>1</sup> Dewar & Uytenbogaardt, *Creating Vibrant Urban Places to Live*, p.51

<sup>2</sup> *ibid*, p.51

<sup>3</sup> *Urban Design Compendium Urban Design Principles*.



The interaction of the biotic factors. (Yeang, *Designing with nature*, p.15.)



A closed cycle of water-reuse protects the eco-system

## architecture and nature

Landscape is not a given, it is continuously made and remade. It is an inheritance that demands to be recovered, cultivated and projected towards a new future. It needs to be designed to create a relationship between conservation of nature and productivity for humans.<sup>1</sup> We are a part of nature as a biotic component and we have a role to play.<sup>2</sup>

It is important to understand the way production is done in the landscape so as to measure the impact it has on the environment

and how we could make these impacts positive. We can live harmoniously with nature, using it for our needs while also respecting its importance.<sup>3</sup> Human settlement next to the Little Brak River estuary is deconstructive at the moment, but it still has the opportunity to change to conserve the natural heritage of the area for future generations.

In order to anticipate the effects that any changes to an environment might have on the ecosystem, a synoptic understanding of its components is needed. Any object inserted on a site will, by virtue

of its physical presence and functioning, affect the ecosystem and also other ecosystems in the greater area.<sup>4</sup> Permaculture is an approach to designing human settlements and agricultural systems that mimic the relationships found in natural ecologies. This is based on ecological and biological principles, often using patterns that occur in nature to maximise effect and minimise work. Permaculture aims to create stable, productive systems that provide for human needs, harmoniously integrating the land with its inhabitants. The ecological processes of plants, animals, their nutrient cycles, climatic factors and weather cycles are all part of these productive

<sup>1</sup> Corner, *Recovering Landscape*, p.4-12

<sup>2</sup> Yeang, *Designing with nature*, p.11

<sup>3</sup> Yeang, *Designing with nature*, p.11.

<sup>4</sup> Yeang, *Designing with nature*, p.19

systems. The output of one element becomes the input of another, work is minimised, waste becomes resource, productivity increases and environments are restored.<sup>1</sup>

Fauna and flora depends on migration to survive, but human settlements are interrupting more of these natural corridors. Green space systems, like urban agricultural fields, should be continuous to promote ecological biodiversity.<sup>2</sup> It has the opportunity to conserve these migration corridors and to create an overlapping use of nature and production.

The built environment should always aim to create a harmonious relationship with nature. Allowing plants and animals to grow and nest onto, over and inside architecture begins to move towards such a harmony. How trees grew on the abandoned power station in Power Town can be seen as an indication of this relationship wanting to happen. My architectural interventions will ultimately set up conditions that serve as catalysts for enabling and influencing a better relationship between man and the natural landscape.

<sup>1</sup> [www.wikipedia.com](http://www.wikipedia.com). *Permaculture*

<sup>2</sup> Dewar & Uytendogaardt, *Creating Vibrant Urban Places to Live*, p.54



The infamous trees growing onto the derelict power station (photo by local resident)



Fauna migration corridors of the Little Brak River and Hartenbos areas. (Adapted from: Coetzee, *High Conservation*)

## time implications

Time is a critical dimension in landscape and designs must pass through different stages from inception to maturity, in a linear progression.<sup>1</sup> Landscape is never finished or completed; it is a continuously unfolding accumulation of events and stories.<sup>2</sup> The identity of a place is not given or does not pre-exist - it changes and evolves in time. I believe it is important to allow for the transformation from one identity to another.

Architecture must be designed to respond to changes that the environment will undergo in time. This may not always be seen as positive, but the linear progression of time is realistic rather than pessimistic. It can, and should, be used positively in architecture. Time also provides a sense of hope for the future. Existence involves change, and change demands time.

A second dimension of time is cyclical: The landscape in and around Power Town offers successions of night and day, change of seasons and tidal change as examples of opportunities for responsive design. Grasping these opportunities will resonate with the connection to the place and reflect life within it.<sup>3</sup> The annual rhythms of vegetation changes, shadows, colour changes, water levels and traffic intensities all denote characteristics of time and change.

<sup>1</sup> Treib, *Nature Recalled*, p.38  
<sup>2</sup> Descombes, *Shifting Sites*, p.81  
<sup>3</sup> Cache, *Earth Moves*, p.14  
<sup>4</sup> Treib, *Nature Recalled*, p.38 41  
<sup>5</sup> *ibid*, p.38

## responsive architecture

Thinking of buildings as part of the landscape, situated within the wider geographical context, allows us to form new strategies for development and growth of the rural environment. We should use landscape to both reflect and inform the outline of architecture.<sup>6</sup> Context offers deeply sensuous and experiential dimensions of the land and also ecological and political content. A responsive architecture will therefore be intensely informed by the cultural landscape, provoking new forms of experience, meaning and value.<sup>7</sup> The boundaries between object and field will become blurred so that architecture and landscape are amalgamated rather than isolated.<sup>8</sup>

It is also important to put the emphasis on the specificity of the site. The site phenomena can serve as generator of new ideas or the reclaiming of landscape ideas. The reclaiming of sites implies three things: First; that new uses and activities are developed in terms of social program and utility; second, the retrieval of memory and the cultural enrichment of place and time; and, third, the diversification, succession and conservation of ecology.<sup>9</sup> All three values pose for the inventive character of architecture to renew the significance of cultural and natural processes of the site. This invention is an essential ingredient of reclamation - it stimulates the possibility of a new kind of landscape.

<sup>6</sup> Lake *Problems and Opportunities in Rural Conservation*. United Kingdom p.63  
<sup>7</sup> Corner, *Recovering Landscape*, p.16-17  
<sup>8</sup> Mateo, *Natural Metaphor*, p.137  
<sup>9</sup> Corner, *Recovering Landscape*, p.13



A drainage channel that guides water run-off from the highway away from this home.



Storm water culvert and channel in response to the bad drainage of the site. (Benjamin, *Social Impact Assessment*.)

The architect Glenn Murcutt states that seemingly ordinary and simple things can also potentially be very ecological and productive. Very simple natural elements are available and must become a part of our thinking. We can benefit from these natural elements like prevailing winds, sun orientation, water and earth in many different ways.

The Power Towners have started to form the landscape to respond to the nature of the area. They shape the landscape to benefit from it or control it. These responses are a result of many years of learning from and experiencing the local landscape. The houses built by the Power Towners themselves show the beginning of responsive structures. Some houses are built on stilts in response to the threat

<sup>1</sup> Jacobs, Murcutt: *Thoughts on the Ecology of Architecture*, p.26

of floods. They are not elevated high enough to clear the flood line, but the beginnings of a responsive architecture are there. A lot of residents keep a boat somewhere in their yard for when it floods.

I believe to embrace and support the existing spontaneous responses that the Power Towners have had to landscape will initiate the revitalisation of the site. Revitalisation does not only entail environmental conservation or the restoration of people's immediate surroundings, but also the revival of cultural and social concerns.<sup>2</sup> It could for instance contribute to the integration of the different social groups of the area and eventually start to break down the strong pessimistic barriers of the site.

<sup>2</sup> Girot, *Four Trace Concepts in Landscape Architecture*, p 59

a power town dwelling built on a raised platform



house built on stilts as an attempt to live above the flood line



the old power station abluion has been inhabited because it is originally built so that the floor level is above the 100 year flood line. It offers a safe space in this harsh environment; even though it was not designed to be a home at all



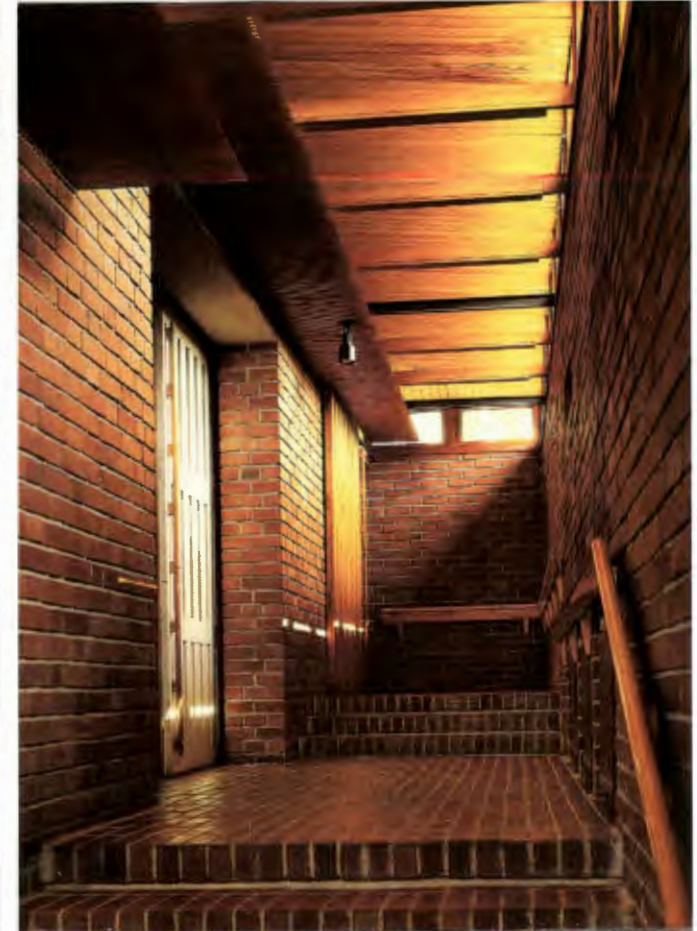
Regionalism, as a theoretical approach to architecture, strives to counter the placelessness and lack of meaning implemented by modern architecture. It is thus more a commitment to place, than to space. I believe that regionalism has great significance in architecture. Contextual forces like natural elements, resources and environmental constraints are used to give meaning and a sense of place. Regionalism counteracts the effects of the globalisation of cultures and the homogenisation of architecture that are destroying culture, place and individual wellbeing. The importance of these factors should never be neglected in architecture. It contributes to the understanding of local identity.

The architect Alvar Aalto tends to ground his buildings in a given topography and in the specificity of the local context. To do this, his buildings are responses to the place. He practises with an extraordinary sensitivity towards local materials, craftsmanship and use of light to fit a certain level of filtration and penetration. The Saynatsalo City Hall, for instance, is delicately layered and inlaid into its site. I appreciate the feeling for the tectonic nature of built form it creates and its capacity to transform the surface of the earth.

The building breaks down in response to the particularities of the specific site. It has a layout that responds to the genius loci and that allows views towards distant lakes and invites the low northern sun of Finland to fill the building with sunlight. Aalto further uses naked materials and situates the building among closely planted trees, allowing the building to be absorbed into the landscape and appear to be a part of it. He also addresses a cultural regionalism: The building creates a sense of belonging and community in an area that was fought violently over by Nazis and Communists during World War II.



Alvar Aalto's Saynatsalo City Hall, 1949. (Tzonis & Lefaivre, *Critical Regionalism*, p.69)



A light filled staircase in Saynatsalo City Hall, 1949, by Alvar Aalto. (Tzonis & Lefaivre, *Critical Regionalism*, p.66)

1 Frampton *Prospects for a Critical Regionalism*, p.161

2 *ibid*, p 148-149

3 Tzonis & Lefaivre, *Critical Regionalism*, p.66-68





existing vegetable gardens in power town

## productivity

Landscape is a potentially valuable economic and nutritional resource. The possibility of using it for production is always there. A productive landscape has the capacity to strengthen personal and community responsibility, it is a platform for individual creativity and social organisation. A community self-organised productive landscape has the potential to embrace existing historical sites and to contribute to a sustainable environment.<sup>1</sup>

Productivity further implies a recovery, repossession, control taking or regaining of health. It carries with it two more connotations: one is that of optimism and hope, attached to the reinforcement of a precious cultural gem, with new and exhilarating prospects; the second is a degree of sentimentality, possession or empowerment.

The implementation of sustainable ecosystems into communities integrates a number of different possible systems such as: agriculture, the production of renewable energies, waste management, aquaculture, conservation, and many more. Existing vegetable gardens, water purification, fruit trees, chicken and cattle farming, fishing and a planned fish farm in the context are all signs of the viability of a productive landscape in the specific area.

The urbanisation and shift from rural to urban living by millions of people in South Africa has resulted in poverty, food insecurity and malnutrition. Urban agriculture in the form of growing food crops and herbs, raising animals, producing tree seedlings, ornamental plants and flowers in the settlement all form part of this system that fights poverty.<sup>2</sup> The land can be communally owned and rented to local people who wish to work it, or it could be a range of private gardens, spread all-over the town. The necessary skills and techniques should be taught or be awakened so to give the people

1 Dewar & Uytenbogaardt, *Creating Vibrant Urban Places to Live*, p.54  
 2 [www.ladyverd.com](http://www.ladyverd.com). *Green Engines Productive Landscape For Self-Sustainable Cities*.  
 3 Corner, *Recovering Landscape*, p 4  
 4 Viljoen, *CPULs*, p.35



Existing chicken farming in Power Town



The growing of ornamental plants and flower



The water purification plant next to the town indicates the beginnings of a possible productive landscape



Banana trees are some of the many different fruit trees in Power Town

Agriculture, as a system of productive landscape, in a private garden  
(White & Sheppard, *Food City*.)



An inward-looking self-sufficiency of urban agriculture in Chavez  
(White & Sheppard, *Food City*.)



Urban agriculture in Havana, Cuba (White & Sheppard, *Food City*.)



of Power Town the opportunity to produce and earn an income, even though they live on such an isolated location.<sup>1</sup>

Productive architecture is something more than sustainable architecture. It does not only have little negative impacts on the environment, but it is buildings that actually produce positive impacts and gives back to the environment. It does not destroy, but is progressive. This includes, above all, human and economic productivity. Architecture should be engaged in the cycles of nature. The continual reshaping of processes like weather, light,

seasons, growth, erosion, deposition and tides produces and transforms architecture.

It is possible for architecture to work positively with natural elements by harvesting energy, collecting rainwater, providing living habitat or growing food. Plants are solar devices too and could be integrated as living elements into buildings. Green roofs, living walls, and integrated food production have enormous potential for multiple integrated benefits to buildings and its occupants.<sup>5</sup>

Integrating architecture and agriculture can provide more than

just fresh, local food: Plants can make buildings perform better by moderating temperature, cleaning the air and by making people healthier and happier - increasing psychological comfort and worker productivity. Growing crops on buildings has the potential to confer a host of benefits including a reduced environmental footprint, reduced transportation costs, greater food security and enhanced energy management in architecture.

<sup>1</sup> Dewar & Uytendogaardt, *Creating Vibrant Urban Places to Live*, p.54

<sup>2</sup> Kiss + Cathcart, *Redefining Green*.

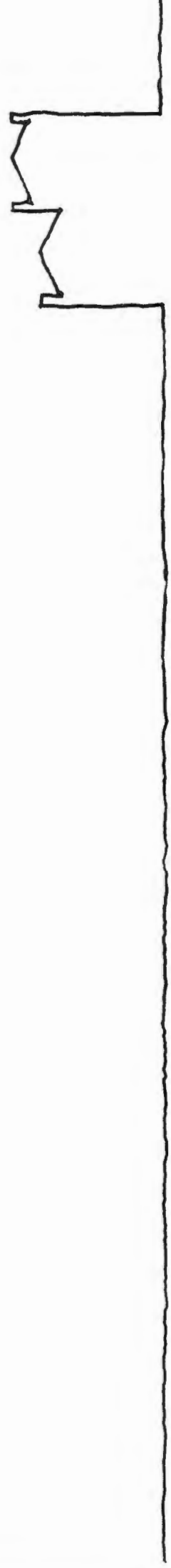
<sup>3</sup> Hoyer, *Things take time and time takes things*, p 75

<sup>4</sup> Descombes, *Shifting Sites*, p.79

<sup>5</sup> Kiss + Cathcart, *Integrated Systems*.

<sup>6</sup> Kiss + Cathcart, *Integrated Agriculture*.

### 3. adaptability



## situation

### buildings being abandoned

All buildings evolve and change over time, adapting to the needs and uses of successive generations.<sup>1</sup> However, the majority of buildings designed by architects today do not age gracefully. Instead they deteriorate with time and need constant maintenance and renovation until, eventually, they need to be demolished. They are designed to be impressive on the day of completion and there after, life continues and environmental forces take their toll on the architectural fabric. This widespread way of thinking is unsustainable and unacceptable for the contemporary world we live in.

The functionalism movement in architecture was about designing very specifically for the purpose of architecture's programme. The designs of architect Erik Asplund, a follower of this movement, often resulted in an interconnected system that would be completely disrupted if even one thing was changed. Extreme functionalist buildings could not be used for anything else and then, after it had reached its intended purpose, it becomes useless and unsustainable.

When a piece of architecture is abandoned without a use, it decays and its spirit dies as it becomes frozen in time. The power station in Power Town continued to change and evolve over time to become a cultural landmark in the context of Little Brak River, the garden route and even the Southern Cape. It is however not being utilised to its full potential today and thus also not maintained.

<sup>1</sup> Westra, *Flexibility is Essential to Sustainability*, p.129

<sup>2</sup> Treib, *Nature Recalled*, p.37

<sup>3</sup> Westra, *Flexibility is Essential to Sustainability*, p.129

<sup>4</sup> Forsyth, *Understanding Historic Building Conservation*, p.3-4



# intent

## adaptive reuse

Adaptive reuse involves the renovation and regeneration of architecture - breathing new life into buildings like the Little Brak River power station. The introduction of new elements that would reactivate the architecture is often needed to generate a successful adaptation.

Many countryside building's future is dependent on their finding a use other than that it was originally intended. The solution is not in their historical value, but in their role in the wider landscape and the changing demography and structure of rural communities and economies. Architects should work from a landscape scale as a framework for understanding derelict buildings and how they developed. This also helps us to understand their past, present,

likely future and how to manage change over time. This leads to a shift in the way we use and manage buildings; not as objects in themselves, but as an integral part of the living landscape, changing and adapting into the future.<sup>1</sup>

The embodied energy in an existing building is very large; its reuse will save much of the energy and expense of new construction, while eliminating demolition and disposal costs as well.

The renovation of the historic Drill Hall in Joubert Park, Johannesburg by Michael Hart Architects and Urban Designers is a good South African example of the adaptive reuse of an entire

building. The Drill Hall was almost destroyed by a fire in April 2002. Now the 100-year-old building has been developed as a heritage asset and public open space that forms part of the historical and cultural tourism trail of the city.

Most people want to see the power station at Little Brak River removed along with all the residents of Power Town, but to rejuvenate the area by reusing the existing structure and to integrate it into the greater area in a positive manner would be a much better proposal. This is not even considered once though, probably because of the fear change, of the unknown and the unthinkable.

1 *Lake, Problems and Opportunities in Rural Conservation*, p.47-63

2 *Silverman, Drill Hall*, p.124



View of the renovated Drill Hall. (Silverman, *Drill Hall*, p124)



Drill Hall public square (Davie, *Joburg has enviable heritage collection*)

## conservation

the old tower next to the power station can be adapted to be used in conjunction with a productive landscape system



the interior of the power station is a harsh environment at the moment as a result of the building's deterioration, but it could once again be utilised for a new use



One of the parts of a life-cycle based sustainability is conservation. In many cases, old buildings, like the power station, have potentially wonderful architectural character that can not be replaced.<sup>1</sup> Architecture forms a part of our heritage and old buildings are not dead inanimate things. They are like living organisms that must be looked after and if necessary rejuvenated so as to continue to serve society spiritually and physically.<sup>2</sup>

The Power station has a major impact and plays a prominent role on the cultural landscape of the context. I have investigated this importance above, in Part Two, of this document. People become rooted with their cultural landscape through familiarity over a live-long process. Connections, memories, relationships and responsibilities all contribute to a feeling of belonging. The appearance of buildings should not always change as to preserve the poetics of the cultural landscape and its iconic elements.<sup>3</sup> Architecture should be an amalgamation of history and present in order to be a celebration of adaptive reuse.<sup>4</sup>

These cultural factors suggest a possible scheme of adaptability where the interior of a building can change in the short term, and the exterior in the long term. Adaptability in this sense could easily mean neutrality instead of identity, but buildings should always reflect their monotony, association, self-involvement and identity.<sup>5</sup>

- 1 Parnett & Browning, *A Primer on Sustainable Building*, p.54
- 2 Van der Merwe, *The Preservation & Restoration of Historic Buildings in South Africa*, p xi
- 3 Conradi, *Political aspects respecting adaptive building* p 129
- 4 Otto, *Adaptability*, p.166 167
- 5 Conradi, *Political aspects respecting adaptive building* p 129



a power town house designed and built out of panels that could easily be taken apart to expand, change and adapt a dwelling



multifunctional interior space in a power town house

## flexibility

I believe a level of consideration should still be given to architecture's specific programme, but it should also be possible to adapt the building for the future or for current changing needs in order for architecture to be truly sustainable. Frei Otto said: "If we can adapt our dwelling, and don't have to adapt to dwelling, we have adaptive architecture." The ability to adapt to invariable conditions in a passive way will however always have certain degrees of limitation.<sup>1</sup>

Flexibility is not a new idea; it can be traced back to the earliest historical times. In South Africa alone, numerous historic cultures were dependent on structures that could be adapted when they no longer fulfilled their purpose, to fit the requirements of the occupants, or to respond to weather and climate.<sup>2</sup> The human body already possess of a passive physical adaptability, an automatic adaptation to the immediate environment - hot or cold, friends or enemies, food and shelter, but these psychic fundamentals of us are still unexplored with regard to architecture.<sup>3</sup>

The lifetime of buildings mainly depend on their technical and humane adaptability and not necessarily on the building materials they are made of. Good buildings will be rebuilt even if the materials have reached the end of their life-cycle. Bad buildings will be demolished even if the materials used are long-life materials.<sup>4</sup>

Most people tend to build structures as cheap as possible, but this sometimes proves to be more costly in the long term, because it needs to be constantly repaired, replaced or changed. To design

and build structures that fit social grounds and that could adapt to different people and lifestyles saves these costs. Flexibility becomes affordable, even in low-cost housing.

Adaptability is just as applicable to cities or towns as to buildings or parts of buildings. Every generation would want to build their own city that complies with their modern needs. We cannot know what the future holds or what these needs will be. Everything we know, or that we relate to, is always connected to the historical comprehension of our times. Today's life has nothing to do with the life of the past - it could not have been predicted.

I believe we should design for a certain technical flexibility to allow for change and adaptability in the future and what ever it might hold. However: the higher the applied technology in a building, the higher the dependency and resistance to adaptation. Better possibilities can be found in simple construction forms which can be changed and controlled by the user according to his needs.<sup>5</sup> The houses that have been built by the Power Town community comprise of such qualities.

The Power Town houses are also occasionally built to address a social adaptation. Multifunctional and open-space allows for functional adaptability and a better daily utilisation of space. These spaces are a reaction to functional needs and could be implemented because the users of the home build and adapt their homes themselves. It is done without the input of an architect or of building authority standards.<sup>6</sup>

1 Otto, *Adaptability*, p.166-167  
 2 Baier, *Development of Forms of Live*, p.61  
 3 Otto, *Adaptability*, p.166-167  
 4 *ibid*, p.166-167

5 Hartkopf, *The cost of flexibility in low cost housing*, p.119  
 6 Bubner, *Adaptable Architecture*, p.42-43  
 7 Mendes, *We are Nature*, p.143  
 8 Baier, *Development of Forms of Live*, p.61



## the significance of a graceful aging of architecture

Time is a crucial dimension of architecture and change is the direct by-product of time. Architecture should pass through stages in time; from inception to maturity and beyond.<sup>1</sup> The passage of time is marked by weathering and it inheres in all construction. It carries with it signs of memories of the past. The power station in Power Town is a good example of this: it carries with it a rich and interesting history and a set of memories to many different people (including myself) especially because of the weathering of the building.

Time's passage in architecture includes a building's design, construction and inhabitation. It is not a moment in time characterised by a single photograph. Weathering reminds the architect that buildings are ever-changing.<sup>2</sup> Materials have to be rethought in terms of what they express, how they change with age, how they intensify architecture and what their life cycles are.<sup>3</sup>

<sup>1</sup> Treib, *Nature Recalled*, p 37

<sup>2</sup> Mostafavi & Leatherbarrow, *On Weathering*, p.112

<sup>3</sup> *ibid*, p.113

<sup>4</sup> Buchanan, *The Life of materials*, p 53



the roots of one of the trees that grew up the power station; inside a rain water down pipe

The transformation of a building's surface over time could be positive. Architects should recognise the necessity to allow for change and not to design with the desire to overcome fate.<sup>1</sup> No human creation lasts forever and design can not fight time. Rather treat nature and weathering as a model and mentor, not as an inconvenience to be controlled.<sup>2</sup>

Studio MAS architects designs in conjunction with nature in order to create buildings that change and evolve with time. This change is positive and the building gets better as plants grow onto the facades or as timber ages and changes colour.

<sup>1</sup> Mostafavi & Leatherbarrow, *On Weathering*, p.114

<sup>2</sup> McDonough, *The Hannover Principles*, p 6



Designing for a graceful aging of architectural materials by allowing plants to grow over wall surfaces. (Saieh, *Courtyards on Oxford/Studio-MAS*)



vegetation grows onto a green screen at the Circa Gallery in Johannesburg by StudioMAS architects (photo by author)

## 4. sustainable materials



# situation

## the environmental impact of materials

The environmental impact of materials is a hidden expense in today's architecture. Extraction, production, transportation, installation and disposal of materials have major impacts on the environment and on our health, yet we hardly take cognisance of this. Materials can be manufactured thousands of kilometres from a building site, affecting ecosystems in the area, unseen and unrealised by the architect at the building site. Similarly, extraction of raw materials for the manufacture of these products could occur far from the site of manufacturing. The transportation through all these phases consumes fuel and contributes to pollution.<sup>1</sup>

The figure below can be seen as an example of material being used in an unsustainable, expensive and inefficient way. Sandstone is mined in the Free State and then exported over hundreds of kilometres to be used as cladding, on a perfectly good brick wall, in a building set in a different environment. The direct environment of

<sup>1</sup> Calkins, *Materials for Sustainable Sites*, p 5-7

the building offers and indicates its own opportunities for material use that comes from and accords with the context of the area, but this is not utilised.

Cheap and readily available fossil fuels caused materials like waterproofing for flat roofs, epoxies, mastics, gaskets and synthetic materials to exist. Energy descended from oil is used to produce these materials that also made modern expressions in architecture possible.<sup>2</sup> Technology has further vastly expanded the choice and possibilities of materials. Computer aided design (CAD) also facilitates these materials as basically any form or geometry can be produced. This large range of possibilities adds a new approach to design that attempts to enliven architecture with complexity,<sup>3</sup> but by doing the obvious, or sometimes the traditional, will result in a much more productive construction.

<sup>2</sup> Buchanan, *The Life of materials*, p 55

<sup>3</sup> *ibid*, p.55



Materials used against good sustainable principles. (Stone Cladding, Images)

Demolition waste transported over vast distances and causing a major impact on the environment (Nelson Aggregate, *Promotes recycling Efforts*)



Discarded products, that could be used as possible building materials, are discarded and wasted. (Blanche, *Dumping Garbage at the Croton Landfill Operation*)



Demolition waste dumped in the residential areas of Philippi, Cape Town



## waste

Modern Architecture has deviated far from traditional architecture that had the primary function being shelter. Today architecture is planned, pre-selected, theoretically optimised and then, also, fixed or inadapttable.<sup>1</sup>

The physical impact of increasing building mass is undeniable. The construction of buildings is consuming some three billion tons of raw materials every year. New and old buildings, together, account for 40% of the world's annual energy use; 15% of its water consumption and 50% of its waste stream. This results in the construction and maintenance of modern buildings to rival the material and energy use of the entire manufacturing sector of the

global economy.<sup>2</sup>

The importance of reusing and recycling construction and demolition waste can not be neglected. Demolition waste is badly administered in South Africa and there is a need for proper management. This poor waste management plan on construction and demolition sites have affected the quality, supply and price of recycled materials. This adds to a negative association to sustainable construction.<sup>3</sup>

Many remote open areas have become dumping grounds for construction waste and unwanted industrial materials. These materials are simply discarded and wasted, but they have the potential to be reused directly or to be recycled into something new.

<sup>1</sup> Otto, *Adaptability*, p.166-167

<sup>2</sup> Braungart, *Beyond the Limits of Sustainable Architecture*, p.114  
<sup>3</sup> Delaware, *Construction and Demolition Waste Management*, p.1



## social aspects

New alternative sustainable materials often have negative cultural and social connotations. Using cheaper and recycled materials to replace the familiar and traditional conventional materials can easily communicate a sense of being deprived or poor. People and businesses generally don't want to be associated with low-tech and cheap materials and I believe that a way of changing this mindset is much needed, but easier said than done.

According to Steen Hoyer, it takes about two to three generations before a new idea is understood and accepted in society. A new suggestion is characterised by exactly this; a different, strange and futuristic idea that breaks away from the unacceptable past and present.

It is also realised that difficulties in balancing environmental, social, health and economic issues as well as the complexity of the life cycles of materials can be seen as possible limitations to sustainable suggestions.

- 1 Hoyer, *Things take time and time takes things*, p.76
- 2 Construction Industry Research and Information Association, Environ

Today, we use the unsustainable and alien models of western architecture because we imagine it to be world class. Gigantic, high-tech and iconic figures form a typical example of a corporate building. South Africa could have a much more viable, interesting and meaningful way of representing and competing with world architecture. By adapting modern principles to our environment, we could find our own way and create great contemporary architecture.

Sustainability is mostly seen as an unnecessary expense. This leads to sustainable architecture encountering scepticism within the construction world. A problem raised here is that professionals have inadequate skills and knowledge to use recycled materials. It could also result in more time and effort intensive construction.

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mental Impact of Materials, p.15

3 Cooke, *Process, not Product*, p.1

4 Van Kasteren et al *Buildings That Last* p.110

5 Delaware, *Construction and Demolition Waste Management*, p.1

a idealistic concept: a plastic crayfish net that washed up on the shore are being reused as a actual waste collector, a rubbish bin, in Little Brak River

## intent

### making use of materials from the direct context

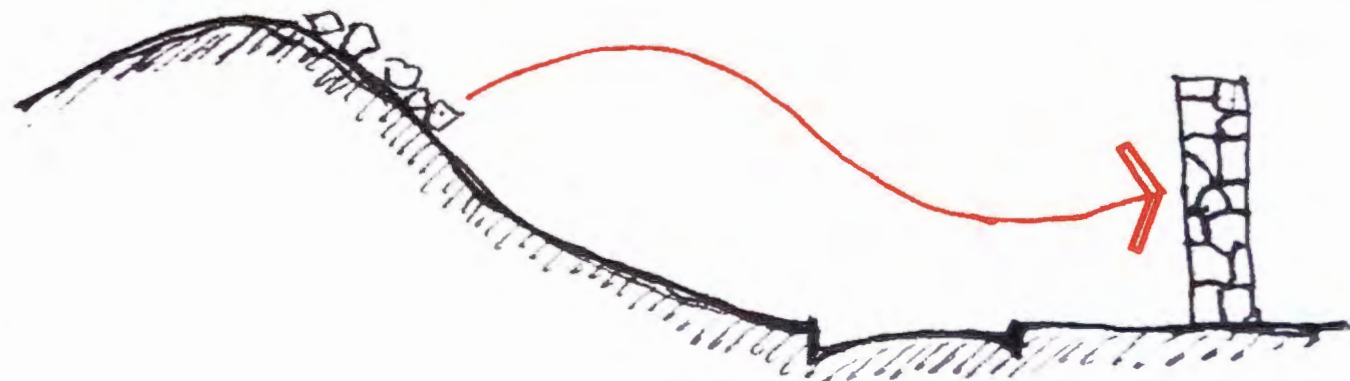
I believe that architects should be aware of where the materials they specify are from and what their histories are. Just because a building material is available at the local dealer, does not mean it is from the area - it could have been transported over large distances or extracted in unsustainable ways to make it available. Ideally, materials from the direct context should be used. This insures not only more sustainable architecture, but it also contributes to a sense of place.

The Rural Studio at Auburn University's Collage of Architecture, Design and Construction, founded by Architect and Professor Sam Mockbee, aims to extend architecture into a socially responsible context. Groups of students at this collage live and work off campus to design and build buildings for destitute citizens. Students work with local agencies and salvage materials in the area to experiment with and use or reuse as building substance, with new convention in terms of methods and forms. Glass bottles, old number plates, alien trees, scrap timber and steel are all examples of such materials.

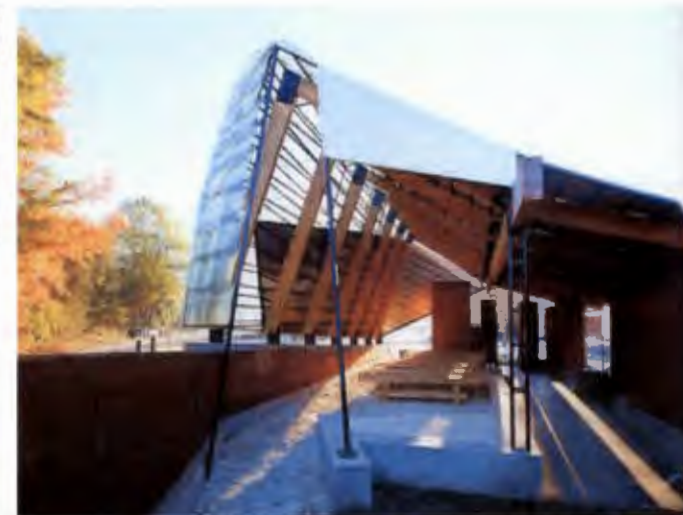
Mason's Bend Community Centre (1999-2000) in Hale County is a multifunctional space that could be used as a place for recreation, childcare, worship and meetings. The material it is constructed out of is mainly from the direct periphery of the site: The structure's walls are rammed earth made from the local clay, cement, and a small amount of water. The roof is a combination of aluminium sheets and car windscreens salvaged from a nearby scrap yard. Both aluminium and glass are bolted to a secondary light weight metal frame, made from scrap metal. The primary laminated timber



View of earth walls and roof structure. (www.cadc.auburn.edu. 2009)



principle: use materials from the immediate context



Roof/screen constructed out of used car windscreens (www.cadc.auburn.edu. 2009)

1 Slessor, *Rural Mission*, p.55-56.  
2 Auburn Education, *Mason's Bend Community Centre*.

frame are made from cypress trees, cut and milled on site.<sup>1</sup>

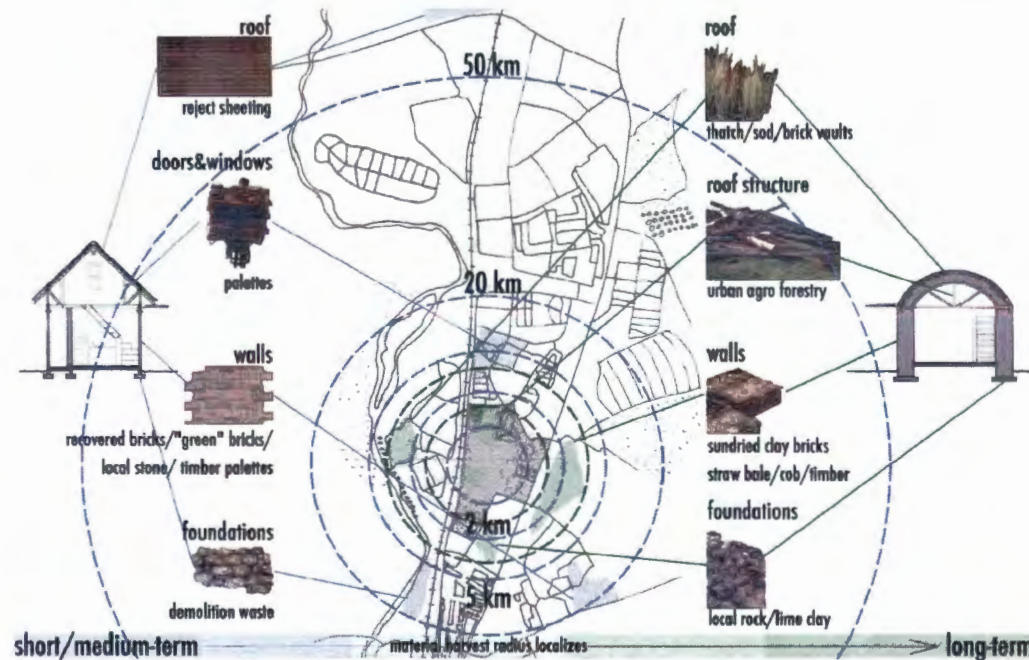
The historical legacy of the site and the social and cultural traditions of the inhabitants were difficult to comprehend, but they were addressed by the introduction of new architecture and methods. It might also have been achieved by combining vernacular archetypes with bold forms - creating a strong sense of place. Making such a strong architectural work out of a community centre sends out a positive message associated with the possibility of a productive use of materials.<sup>2</sup>

A local example of an architectural work that provided the opportunity to interrogate various meanings of productivity is the Sustainable Subsidy Housing in Mbekweni, Paarl by Anna Cowen.

This project was granted research funding to design and build eight experimental low-cost housing models. Prisoners are used to build the houses and are being trained in sustainable construction. This gave them the opportunity to work or build their own houses once they have been rehabilitated.

The focus of this project is on materials, both conventional and unconventional, that are locally available. This forms part of a mapping process, done on every site that also maps the degree of dependency that any community has on its external environment. A cultural mapping is also done that examines the prevailing aspirations, expectations and values of the people in the context of the site.<sup>3</sup>

The figure above explains the pallet of building materials the architects then decided on and that uses local materials that are appropriate to culture, labour, anthropology, budget and production in the short term. A longer term vision would envision greater degrees of self-reliance, like the planting of trees that could be used for future construction on the same site.<sup>4</sup>



harvest pallet for building materials in the context of the site (Low, Community, p.78)



view of the houses (Low, Community, p.78)

<sup>1</sup> Slessor, *Rural Mission*, p.60.

<sup>2</sup> *ibid*, p.55-56.

<sup>3</sup> Low, *Community*, p 70

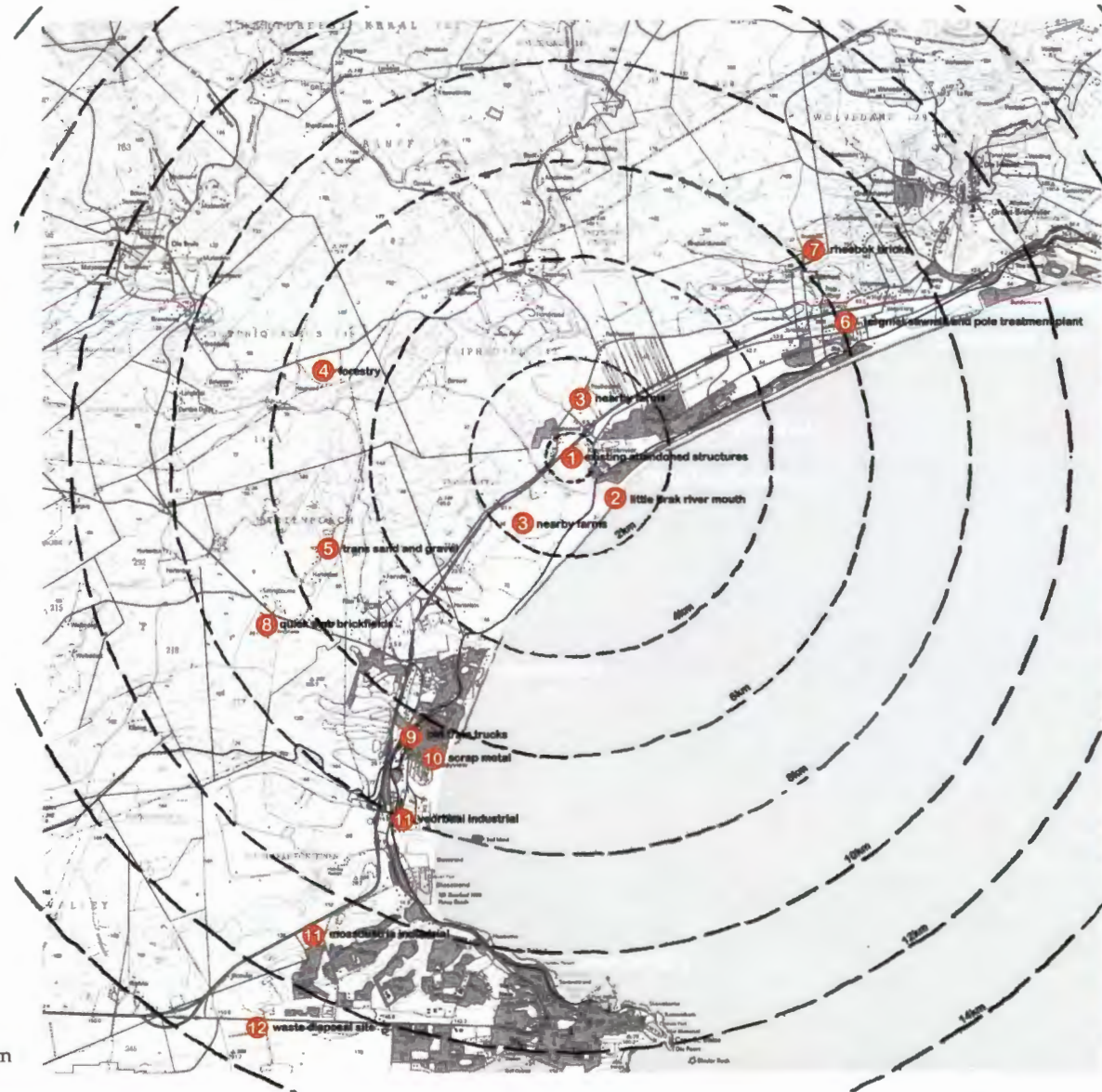
<sup>4</sup> *ibid*, p.70

<sup>5</sup> *ibid*, p 78



The result is a house type developed in response to locally available materials like sand, stone, recycled bricks, lintels and rejected timber from industry. This option for low-income housing is also cheaper than current RDP houses that surround the area. It is also an important study to help explain that using local sustainable materials are not necessarily aesthetically appalling or socially unacceptable, but it could be very pleasant.

1 Low, Community, p 70



<p>1 adaptive reuse, demolition waste, broken bricks, roof sheeting, steel</p>	<p>2 excess river sand, shells, beach wash-up, sea-water</p>
<p>3 waste straw, alien trees</p>	<p>4 involve black wattle and pine trees</p>
<p>5 local sand &amp; stone quarry</p>	<p>6 wood, off-cut planks, poles, pallets</p>
<p>7 broken bricks, pallets</p>	<p>8 discarded pallets, crates, cable reels, bricks, concrete blocks</p>
<p>9 derelict train trucks, sleepers, rail bars, containers</p>	<p>10 washing machine, fridge &amp; car panels, street signs, steel drums, washing basins</p>
<p>11 discarded tyres, crates, tv screens, car windshields, carpet samples</p>	<p>12 tin cans, bottles, garden chairs, compressed garbage blocks</p>

material harvest palette for power town

## alternative materials

The context of a site might offer materials that are readily and cheaply available, but there is no knowledge of how it can be utilised for architecture. Today, developers have become so used to building with materials from the shop only, that this is not even seen as an option anymore. Why build with brick and concrete if the site offers stones, sand and timber? Architects need to research and invent the methods and materials and offer examples of practical modern methods for using them in site specific situations.

One alternative, for example, is the use of straw bales, made from waste straw, which can be used as a construction material. The waste straw would otherwise be burned, contributing to air pollution. It is a sustainable material to use, as it can be cut and used almost directly after extracting. It is light-weight, easy to use, cheap,



Structure built out of straw bales. (Green Building Elements, Images)



Discarded glass bottles used as building material. (Green Building Elements, Images)



Sand bag house being constructed (Design Indaba, Images)

The 10x10 Design Indaba house by MMA Architects, Cape Town, during construction (Design Indaba, *Images*)



Use of sand from the immediate context to build with (Design Indaba, *Images*)



thermally efficient and it re-grows. It is stuccoed on the outside and plastered on the inside so that it keeps out moisture and rodents.<sup>1</sup>

Using sand from the immediate area can potentially prevent having to transport materials over large distances, like the construction of the 10x10 Design Indaba houses with the Eco-Beam building system. The system does not require specialised labour and can easily be used and understood by owner-builders. The structural beams are made from two timber elements joined/spaced with a bent Alu-zinc strip to give the beam its depth. This creates a beam that uses one third of the timber than that of a solid timber beam.<sup>2</sup>

The beams are used to build a structural frame and the sand bags are then used as infill. The bags can be made by the community and when filled with sand, it weighs about 7kg, making it easy for women and children to handle. The whole system can be built on site because no running water or electricity is needed. The system is waterproof as water runs down inside the walls thanks to the capillary action of sand.<sup>3</sup> If the local soil has a higher clay percentage than sand, earth construction could be the alternative.

Unconventional and traditional materials can be combined with modern construction methods to open up more opportunities. Materials like adobe and straw bale for example can be adapted to meet modern code-required standards for health and safety in contemporary buildings.<sup>4</sup>

- 1 Parnett & Browning, *A Primer on Sustainable Building*, p.56
- 2 Earth Bag Building, *The Ecobeam Building System*
- 3 *ibid*
- 4 Elizabeth & Adams, *Alternative Construction*, p 3-10

## recycling of materials

We should aim to eliminate the concept of waste by evaluating and optimising the full life cycles of materials and their processes. Reusing building materials reduces the amount of new materials needed – easing the demand on the environment to provide.

The durability of materials, measured in the light of its life-cycle cost, has profound environmental implications. Sometimes the production and disposal of a material has far worse consequences than the material's actual use. It then becomes critical to extend the useful lifetime of such a material.

Some derelict and abandoned buildings would be demolished in the near future to develop and create a denser environment in our cities. This comprises of the opportunity to recycle the construction waste as material for new buildings and to experiment with new methods of construction with reused materials.

Over the years, seasonal floods have damaged and destroyed the homes of Power Towners. They have adapted to this by rebuilding their houses stronger or higher in order to stay and survive in their cultural landscape. They have learned the necessary construction skills to rebuild their houses out of used materials.

Discarded materials, such as whole glass bottles, can be used for a different purpose: to act as building material in order to create

<sup>1</sup> McDonough, *The Hannover Principles*, p.6

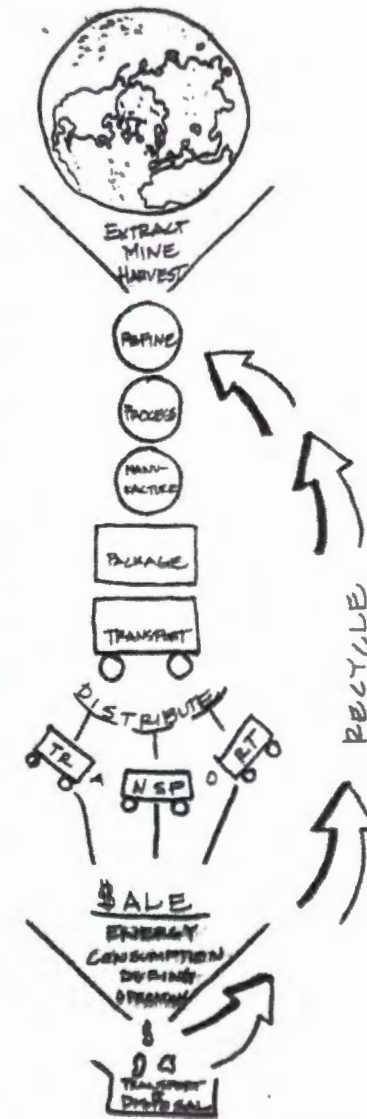
<sup>2</sup> Parnett & Browning, *A Primer on Sustainable Building*, p.50

The life-cycle of materials (Parnett & Browning, *A Primer on Sustainable Building*, p50)

a destroyed house in power town after flooding had occurred (Benjamin, *Social Impact Assessment*.)



Residents collect waste materials to reconstruct their homes with (Benjamin, *Social Impact Assessment*.)



architecture. This directly reuses waste that does not even have to be reworked. It saves energy, creates a new vernacular and it minimises waste in the same process.

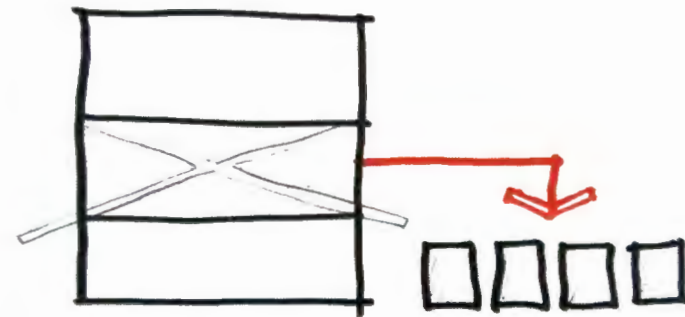
Investigations have shown that short-lived, temporary construction, if it is to meet the minimum standards and qualities for inhabitation, is so near to the cost for long-lived construction that when it is calculated over the life of the building, the cheaper, temporary building is less economical than the more expensive durable building.<sup>1</sup> There is thus no reason not to build with materials that has longer life-cycles. Material re-use for future generations should also be made easier. Materials with a high life expectancy should be joined in such a way that they can be taken apart and be recycled if it needed be.

<sup>1</sup> Conradi, *Political aspects respecting adaptive building*, p.129

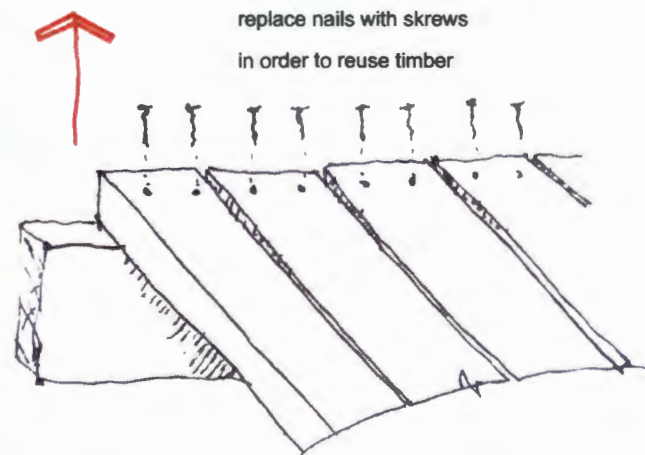
OMM Design Workshop reuses broken bricks to construct the walls for the Constitutional Court in Johannesburg. (Constitutional Court, Images)



An entrepreneur in Philippi selling wall panels made from left over off-cut wood from the nearby Philippi industrial area.



reuse of demolition waste



build making reuse easy

## awareness and acceptance

Architects must look at ways of encouraging environmental awareness. The understanding of building materials, manufacturing, recycling, transportation, waste management, adaptive reuse, etc. should be raised. Materials and structural methods of building should be or become acceptable, easy and understandable to use, popular and acknowledged. It is necessary to teach the needed skills for building in this unconventional and sustainable ways.

Focussing too exclusively on materials alone is unhelpful though, they need to be used with symbolism, order, type and tradition always in mind. Our sensual engagement with materiality forms an idea of quality and enjoyment of space.<sup>1</sup> Materials play a crucial role in communicating architecture and space - creating an interaction between architecture and its users. This engagement with the sensuality and symbolism of materiality, convey a sense of life and so also enhance our lives.

Architects should realise that it takes time for people to accept and adapt to new methods and ideas. A certain degree of progression is required that promotes the work so that it does not come as a shock, but that change will come positively. This will allow for hopes and dreams to eventually lead to realities that rationalists deny in the present. An optimism and playfulness of new ideas and technologies can be inherent.<sup>2</sup>

The Tsonga Environmental Centre in Samora Machel, Cape Town by ARG Design attempts to make new methods acceptable to the local cultures and societies. The architects wanted to express vernacular architecture through structure by creating appropriate spaces with an innovative approach.<sup>3</sup>

The primary focus of the design was to generate a way of thinking about materials that could benefit the community in the short

and long term. A range of building materials are used that could be grown in the context of the site or recovered and re-used from the building demolition processes of other construction in the area. These materials also informed the structure and form of the building, contributing, in the true nature of the materials, to other sustainable strategies.<sup>4</sup>

Materials, like the reused beams and gum poles are used in a way that is structurally logical and it contributes to the thermal control of the building by using low-tech techniques. Recovered scrap metal is used for burglar bars and security gates. The floor finish is a combination of recovered materials like sleeper piers and gum planking that does not need treatment and are self-maintained.<sup>5</sup> It was built through community participation, using a simple approach to materials, construction and space making. The building is successful in its function; to provide environmental education and training, but it is used little by the community and is not maintained.<sup>6</sup> This raises another point for investigation: the Genius Loci of the spaces created and the social sustainability of the building. Architecture needs to be activated by positive space that would attract its users. By connecting a public building like the Tsonga Environmental Centre to a recreational open space could possibly be such an activating tool.

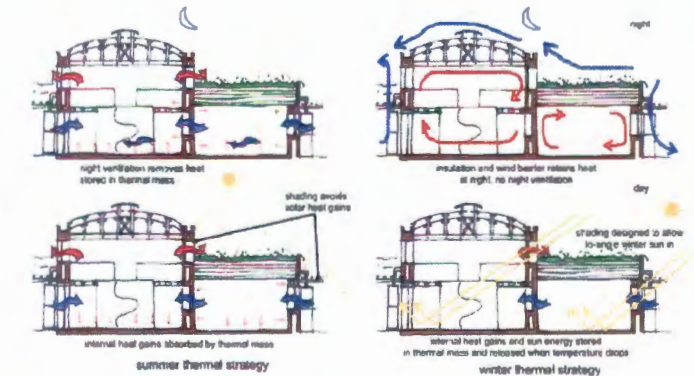
The materials are designed with the structure to accommodate possible change in the future, adding this sustainable aspect to the building. The roof could easily be lifted to accommodate more floors and the columns are structurally strong enough to be adaptable.<sup>8</sup>

A range of productive strategies like collecting roof water, benefiting out of cross ventilation, orientating to the sun so to benefit from heat gain and shading the northern facade by trees in summer for thermal efficiency are also applied.<sup>9</sup> The correct materials are important for these systems to function.

Interior view of materials used in their own logic. (Low, Community, p.78)



Self sustained thermal control diagram. (Low, Community, p.78)



1 Buchanan, *The Life of materials*, p.53

2 *ibid*, p.57

3 Hoyer, *Things take time and time takes things*, p.76

4 Low, *Community*, p.78

5 Low, *Community*, p.78

6 *ibid*, p.78

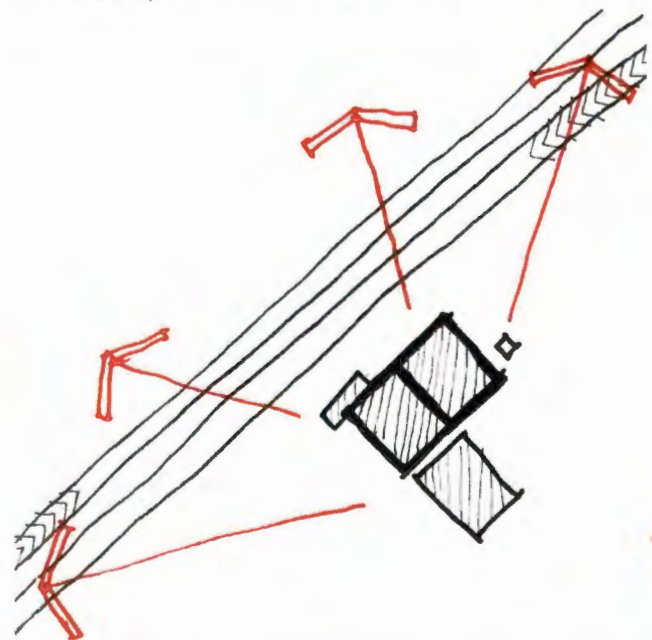
7 Murray, *Green Shed*, p.45

8 *ibid*, p.44

9 *ibid*, p.46

A social scheme needs to be designed and promoted that would make the use of cheap, recycled and unconventional building materials acceptable to the public. Using cheap building materials in important buildings with prosperous associations so to create reuse monuments can become a method of breaking the negative associations with such materials. It has to be used successfully, expressionistic and communicate this message to the observer with the architecture that is formed. Architecture has to contribute to a more sustainable future.

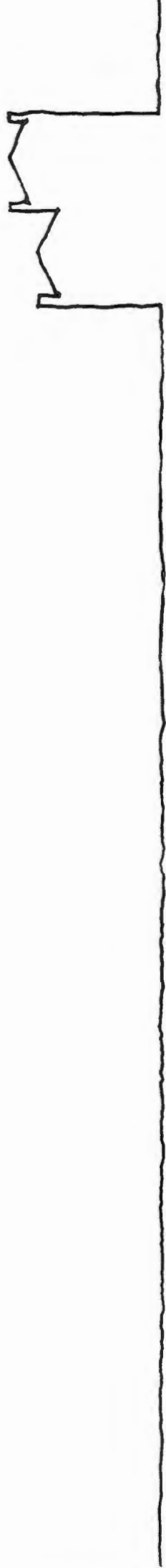
Power Town and the power station offer the opportunity to be a monument of sustainability, productivity, adaptability and reuse. It could communicate a message of environmental awareness to passers by. It is situated in the eye of the Garden Route and is a significantly beautiful and poetic place. It has the opportunity to become a unique addition to the Garden Route.



The possibility of the power Station to be used as a monument of reuse

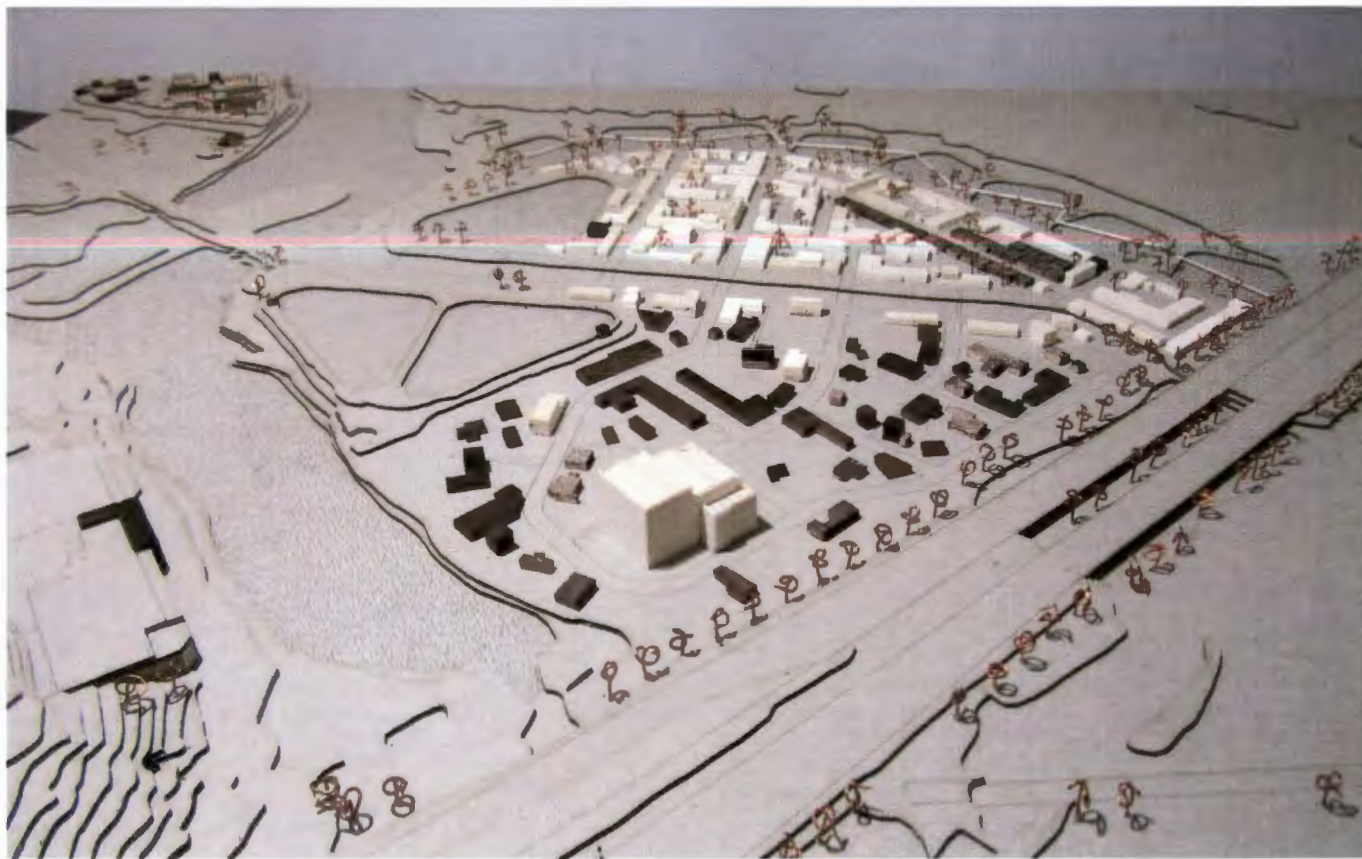


## 5. design





## intention



I started the design process with a thorough investigation of site and context. I believe that one must fully understand the natural, cultural, social, political and historical backgrounds before you can design a proposal that would be successful in that specific context. My investigation has revealed many opportunities for the design and revitalisation of Power Town. The central concept for this revival, generated from the context of Power Town, is productivity. Productivity does not only entail physical production of architecture, energy or resources, but it also implies simple sustainability – architecture that does not destroy, that adds to the context, generates social sustainability that is progressive.

The Power Towners have already started to show the inevitable. They have found ways to survive and look after themselves in their environment and have formed a strong community. They constructed many of their own houses; they started to adapt to the environment by raising or waterproofing their houses. Some people produce their own food and others make clothes or sell fruit next to the highway as small productive systems. The idea is to utilise these signs of a productive landscape and to utilise it. For this to happen in a sustainable manner, one must first ensure that the Power Towners are there to stay. It is their cultural landscape and they are accustomed to it. Forcing them to move will be a major disruption of the society they have forged. To prohibit them from developing the means to survive makes them dependent on the government and gives false hope that destroys their chances of becoming productive. Secondly; a framework must be set up for the settlement in which to develop. This is to ensure architectural and cultural sustainability for their future. The principles and informants in this chapter will contribute to the design of this framework.

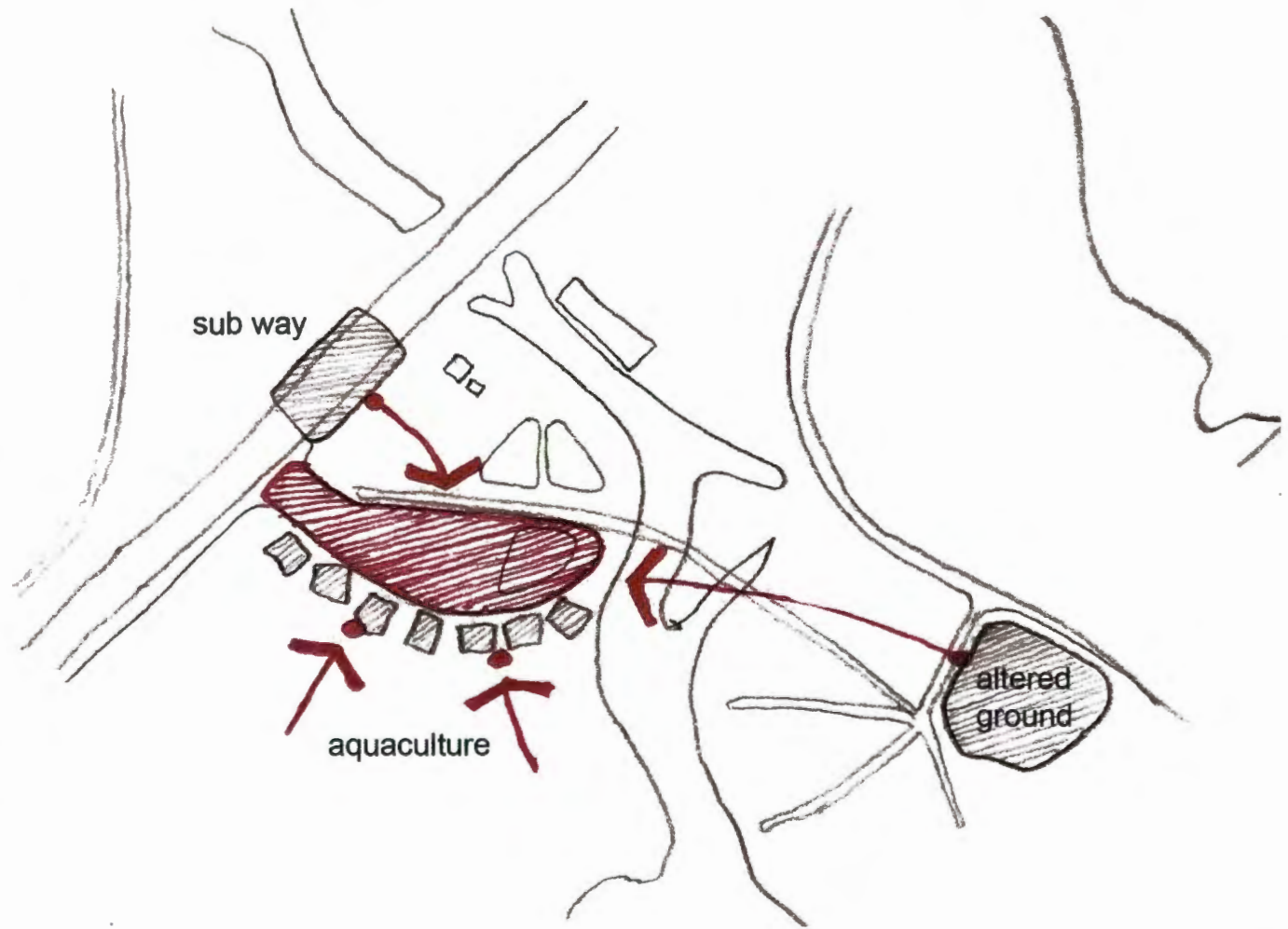
## site making

According to engineer Alistair Fraser, the area that Power Town covers at the moment makes no significant ecological contribution to the Little Brak River estuary.<sup>1</sup> It would however still be advisable to keep the town's ecological footprint as small as possible so to rehabilitate and conserve as big a part as possible of the river estuary. The estuary contributes to the sense of place and recreational enjoyment for the community. **The following three principles inform a productive and sustainable site making strategy for Power Town:**

### 1. flood management

Power Town is situated between the 20 year and 50 year floodlines. The Catchment, Stormwater and River Management Branch of Cape Town's Roads and Stormwater Department states that construction in the 20 year floodplain will not be permitted. However, in special cases, development may be permitted if attention is given to evacuation and emergency response issues.

All building floor levels and high risk development activities must be higher than the 100 year floodline (3 metres high). A number of development activities can be built between the 50 year and 100 year floodlines (2,7 metres high) and anything lower can be utilised for transport systems, parking, agriculture, etc. given they won't obstruct river flow.<sup>2</sup> The ground level in power town at the moment ranges from 1,2 to 2,8 metres high.



cut and fill earthworks plan

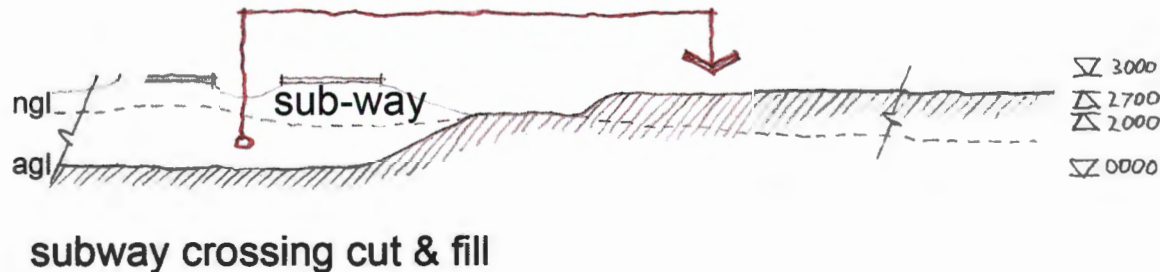
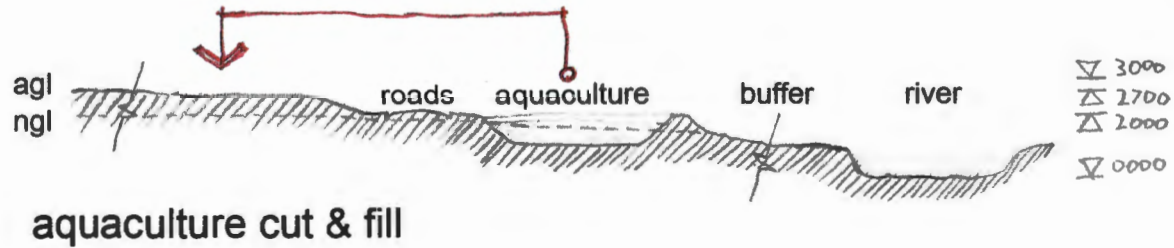
<sup>1</sup> Fraser, *Power Town Floodplain Management*. p.7

<sup>2</sup> City of Cape Town, *Floodplain and River Corridor Management Policy*. p 7

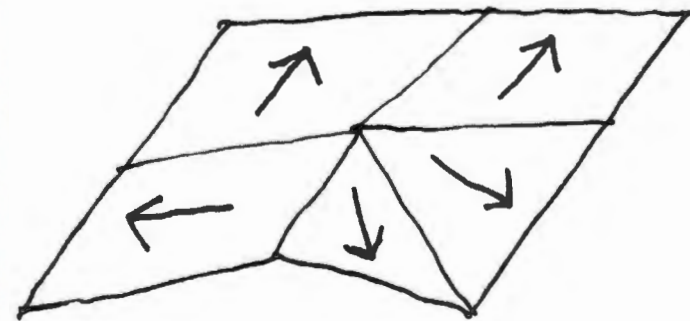
<sup>3</sup> *ibid.* p 14

It is ironic that although the southern cape is constantly at risk of flooding, specifically the George and Mossel Bay area, it also suffers from great water scarcity. The Cape Argus stated on 20 August 2010 that these towns will run out of water in 97 to 126 days! Desalination plants are being built to make freshwater out of seawater, but this is done at great costs. This calls for an innovative plan to get the maximum benefit from the little rain that does fall by collecting it.

1 Makinana, 56 days before water runs out.



Water restrictions and floods are the two extremes of water management in Power Town

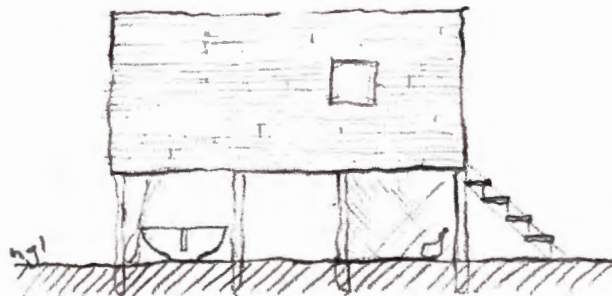


Unobstructed water drainage towards the lowest points of site ease storm water drainage

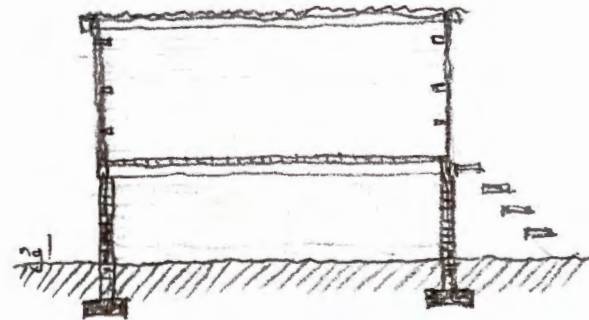
Another dimension of managing floodlines is the global issue of rising sea levels. Sea levels are rising - it's just a matter of how much and how fast. The Royal Institute of British Architects (RIBA) has done a futuristic project on how to cope with this issue. They propose that there are three ways to go about it:

1. **Retreat.** To retreat is to move critical infrastructure and housing back to safer ground and to allow water to invade. It is not a complete abandonment of the existing; it is a long term management plan. This poses a problem for Power Town, who has nowhere to relocate to and moving the town will have huge negative implications in terms of the cultural landscape.
2. **Defend.** To defend is to ensure the sea water does not enter the existing built environment. This will require built defences to ensure the standard of protection will be met in the distant future as sea-levels rise. The water table in Power Town is very high because it is so near the sea and building a dyke around the town will only result in it damming up inside.<sup>1</sup>
3. **Attack.** To attack is to advance and step seaward of the existing coastline. There is massive development potential to be gained for coastal cities by building out onto the water. This further reduces the need to sprawl into the countryside and ensures sustained social and economic vitality.<sup>2</sup>

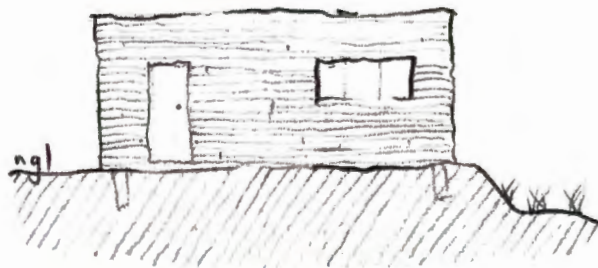
My proposal is not to 'attack' but to 'embrace'. With the principles that I propose, Power Town can stay in its cultural landscape and adapt to it with the knowledge of nature and context that will be gained from the landscape. The ground level of an uninhabited part will be raised to accommodate future development above and the floodlines. The floor levels of the existing built fabric will incrementally be raised to also clear the 100 year floodline.



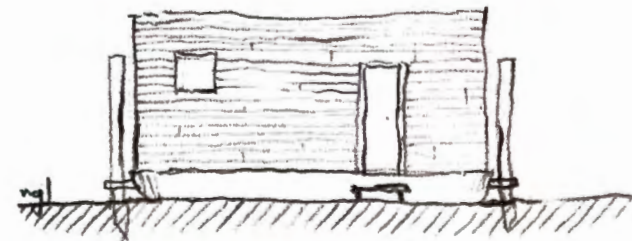
dwelling raised on stilts



a high plinth wall elevates the ground floor



raise the natural ground floor

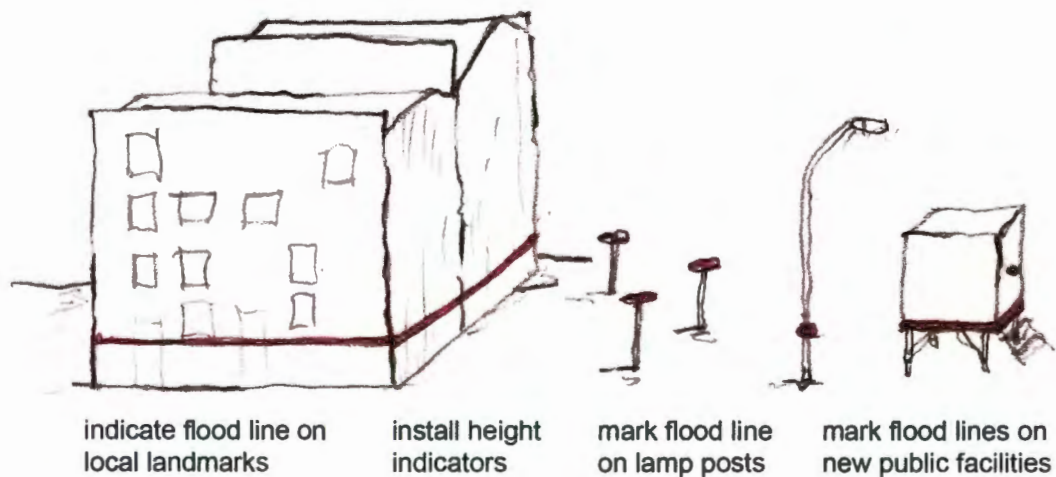


dwelling built on a raft

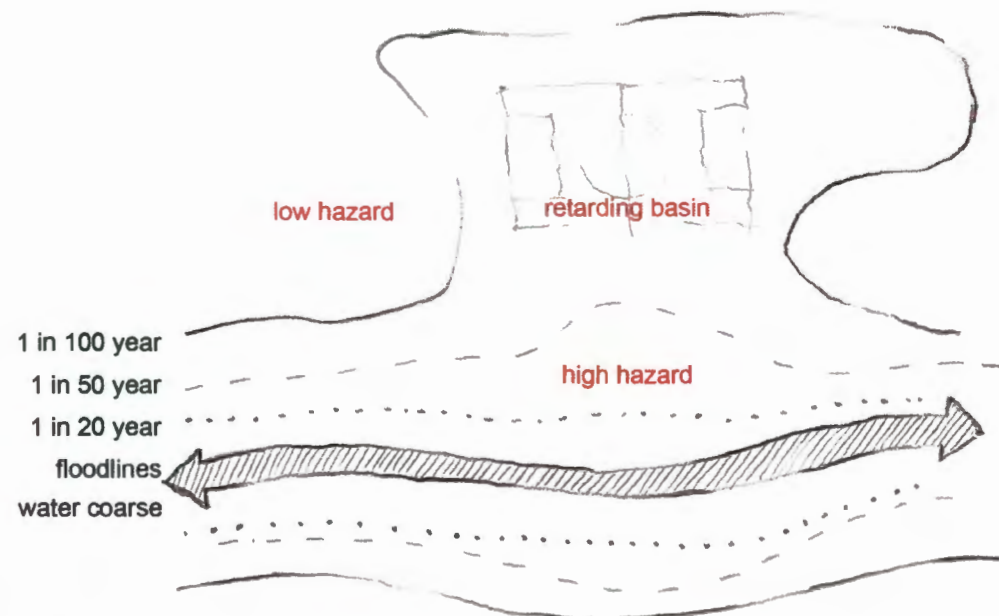
different methods of safe building in the flood plain

<sup>1</sup> Fraser, *Power Town Floodplain Management*, p.7

<sup>2</sup> Continuity central, *Retreat, defend, attack? How to respond to sea level rises?*



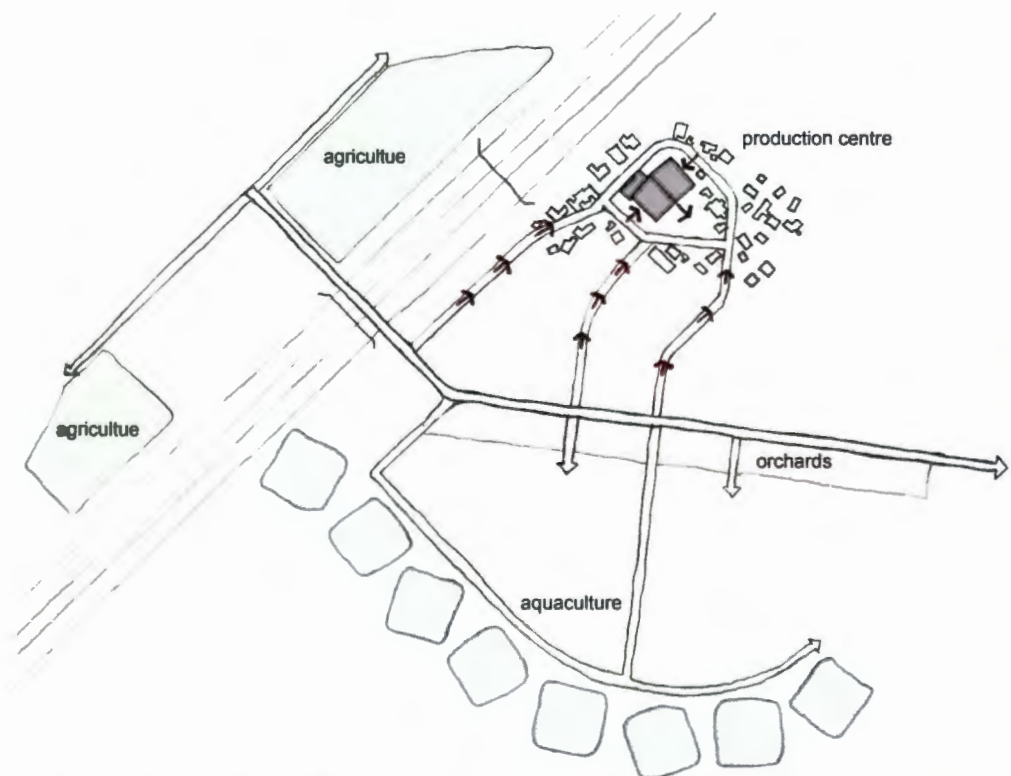
raise flood plain awareness by indicating the height of the 1 in 50 year flood line



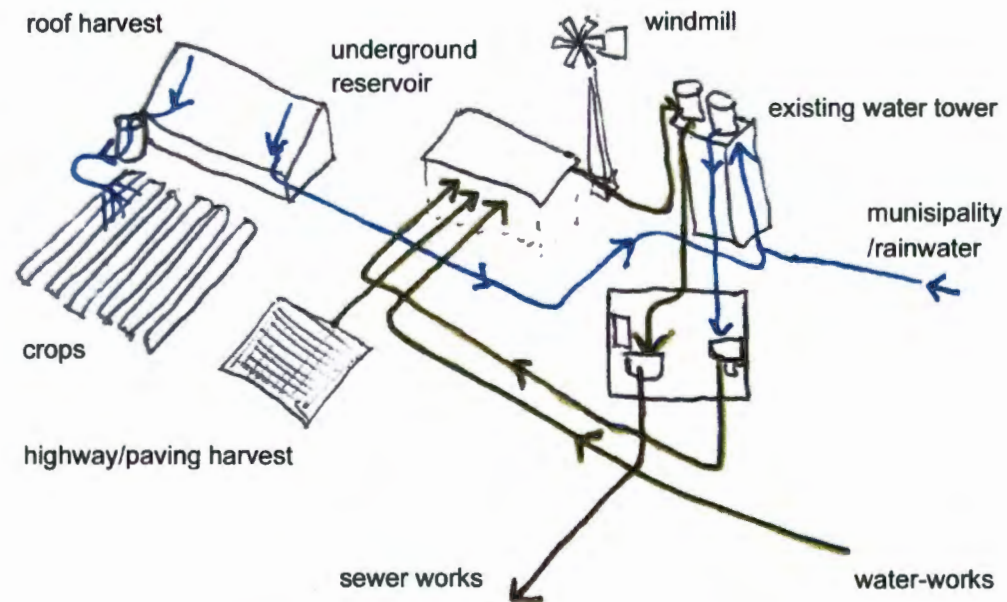
a flood retarding basin with low priority structures can absorb a great amount of flood water

## 2. productive landscape

The initiation of a productive landscape will give the community the opportunity to sustain themselves and also to generate a financial income for the area. It will help mould the community into a sustainable and productive society.



productive landscape produce layout



water management system

The context offers rich soils for agriculture and the salt water of the estuary can be used for aquaculture too. In an interview with aquaculture specialist, Laurence Evans, he proposed that one must farm with fish in the winter when the water is cold and use the same dams for shrimp farming in the summer season when the water is warm.<sup>1</sup>

Aquaculture in a controlled environment is much more sustainable than in the open seas where at the moment fish are being fed antibiotics to be kept alive. The fish gets unexplained sicknesses that are carried over to wild fish outside the retention nets.<sup>2</sup>

<sup>1</sup> Laurence Evans, *interview by author*. Cape Town. July 22, 2010

<sup>2</sup> Leo-Heigns Nel, *interview by author*. Knysna. June 12, 2010. Mr. Nel is a professional city planner in Knysna. He did a study on the expected impact that a fish farm outside Little Brak River will have on the area.

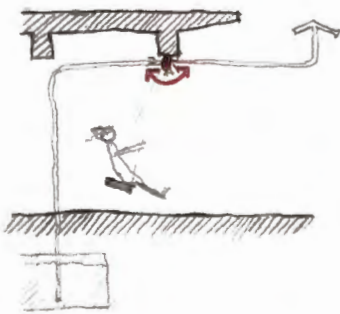
Permaculture systems, like hydroponics, further enhance the sustainability of aqua and agriculture. Hydroponics is a closed circle system where the nutritious water from the aquaculture is used for agriculture. The water, filtered by the plants, is then fresh again and perfectly usable for the aquaculture.<sup>3</sup> Waste water from the adjacent water purification plant can also be reused and filtered in the same process. The productive landscape offers a way to co-exist with nature while at the same time benefiting from nature; it is also protected and conserved given that a sustainable productive system is put in place.

The spaces used for agri- and aquaculture are designed so that it has the multifunctional ability of being used for public open space

<sup>3</sup> Wikipedia, *hydroponics*.

and recreational space. The aquaculture dams forms part of the recreational ecological buffer on the southern side of the town. A fruit tree orchard is combined with the main boulevard that forms an axis in the town and an existing pipeline reserve next to the N2 highway is used for agriculture. This will also help to buffer noise from the highway.

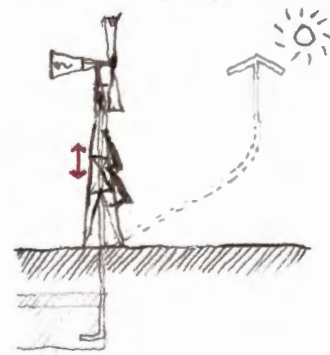
swing pump



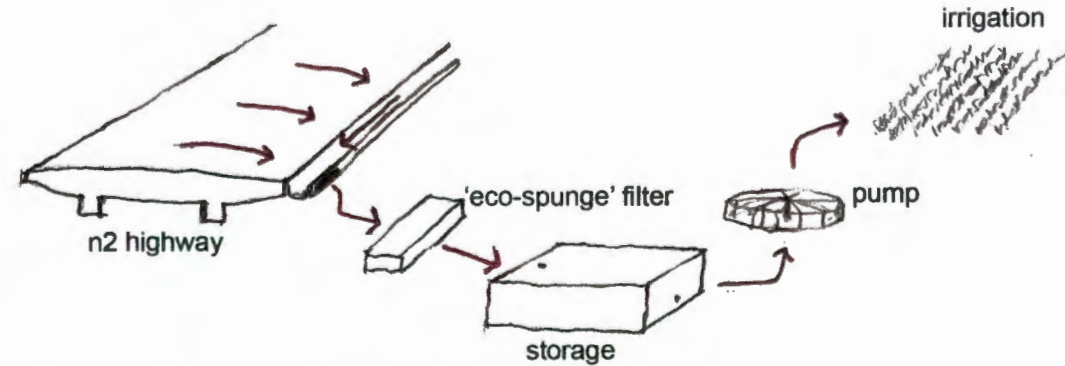
merry-go-round pump



wind & solar pumps

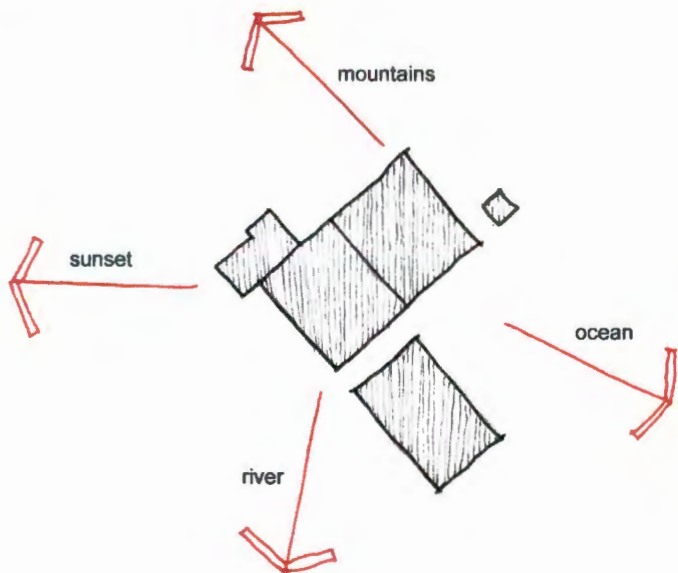


possible methods of pumping water

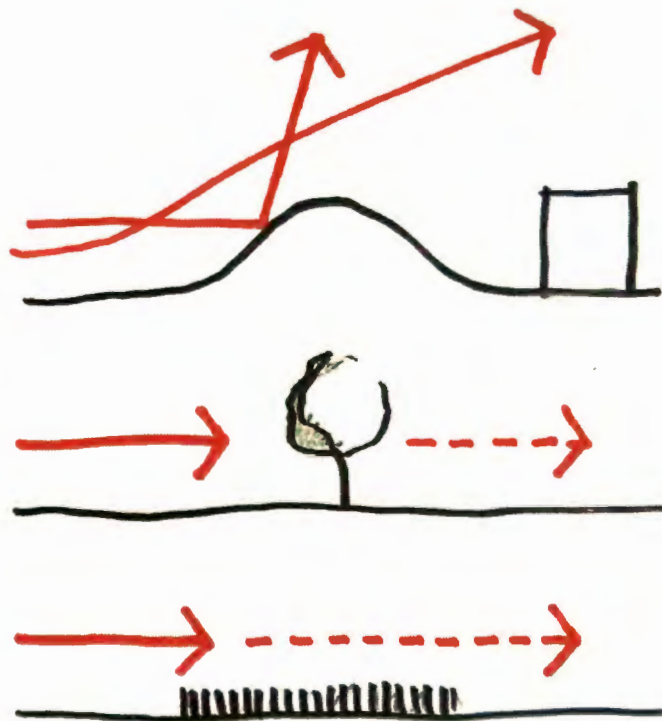


utilise the water run-off from the highway

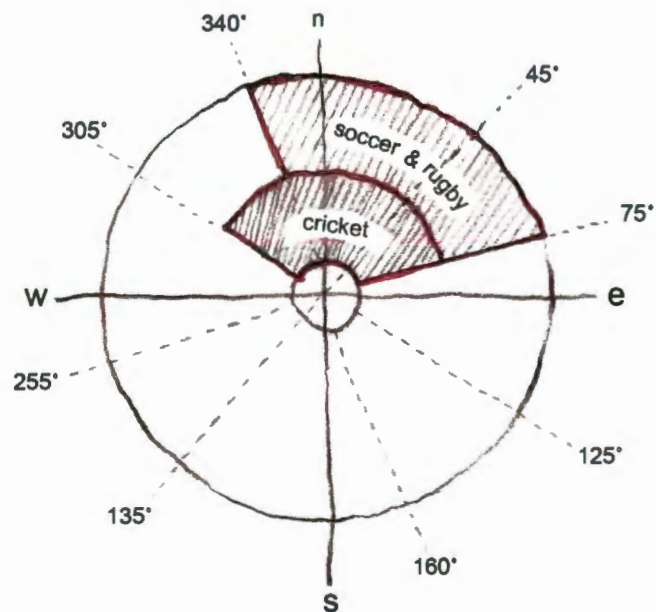
utilise the superb views from the site



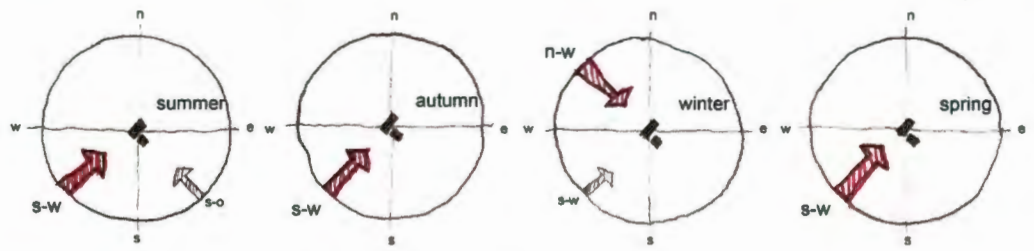
the productive landscape can be used to control wind and noise pollution in a dual function



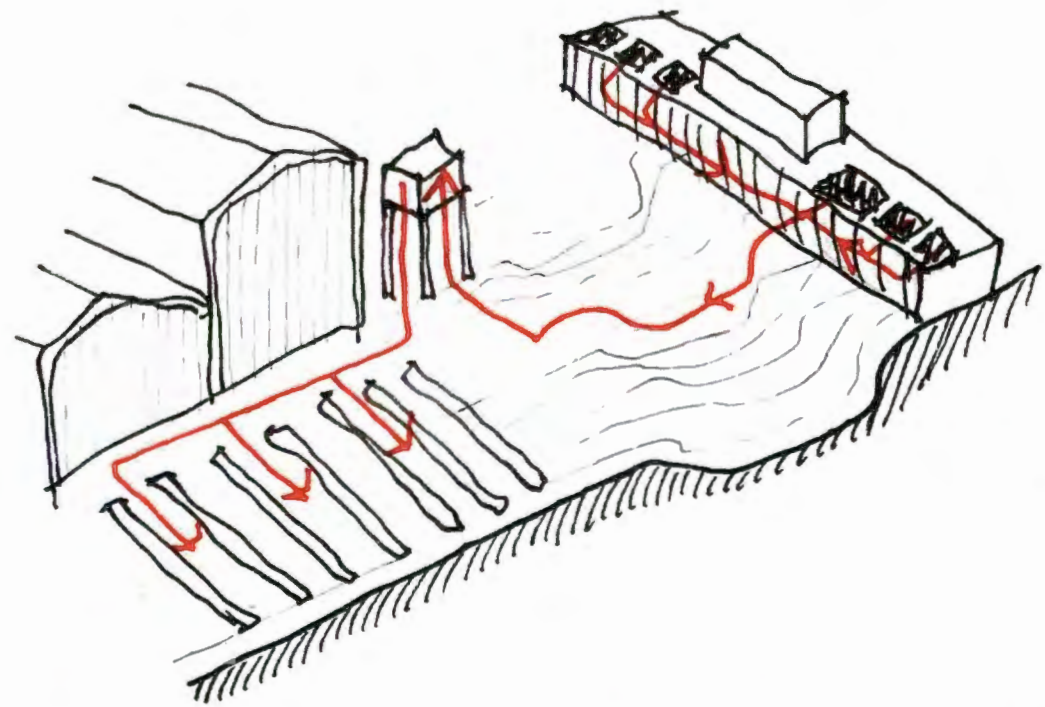
the optimum orientation for sport fields



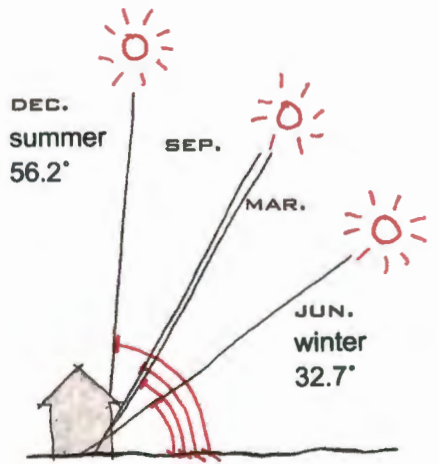
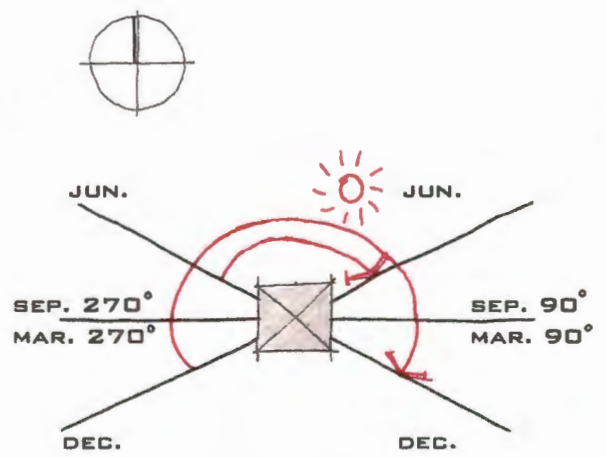




prevailing winds in power time



utilise water-works for waste reuse and irrigation



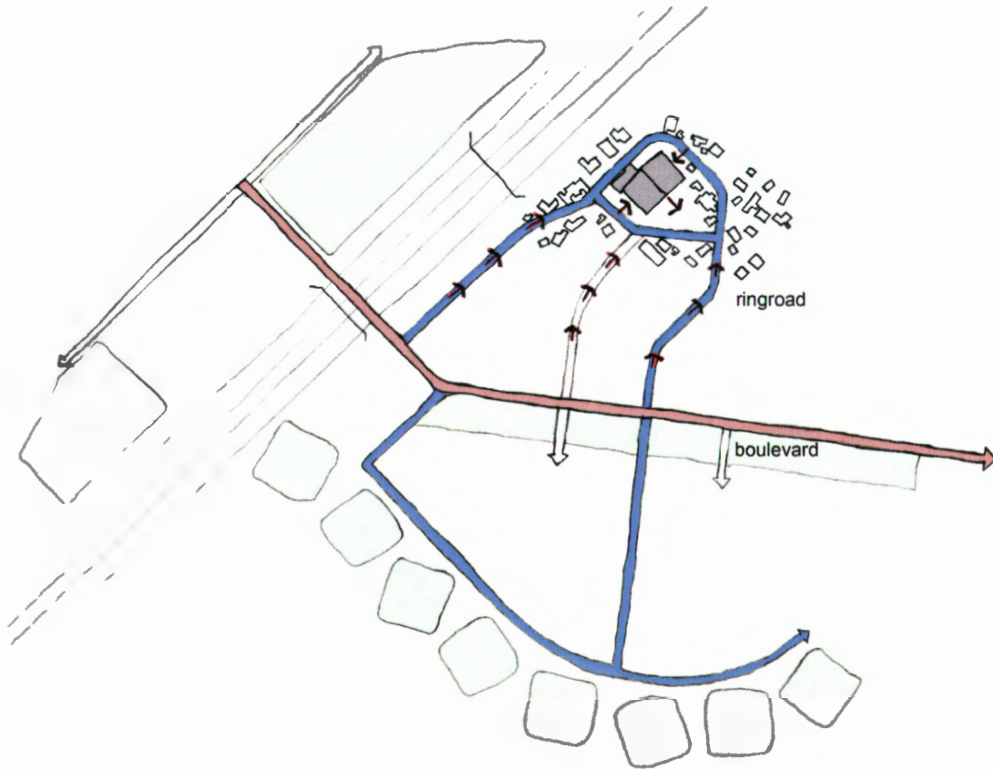
use the orientation towards north to gain maximum solar benefit for winter and summer

### 3. hierarchy of circulation

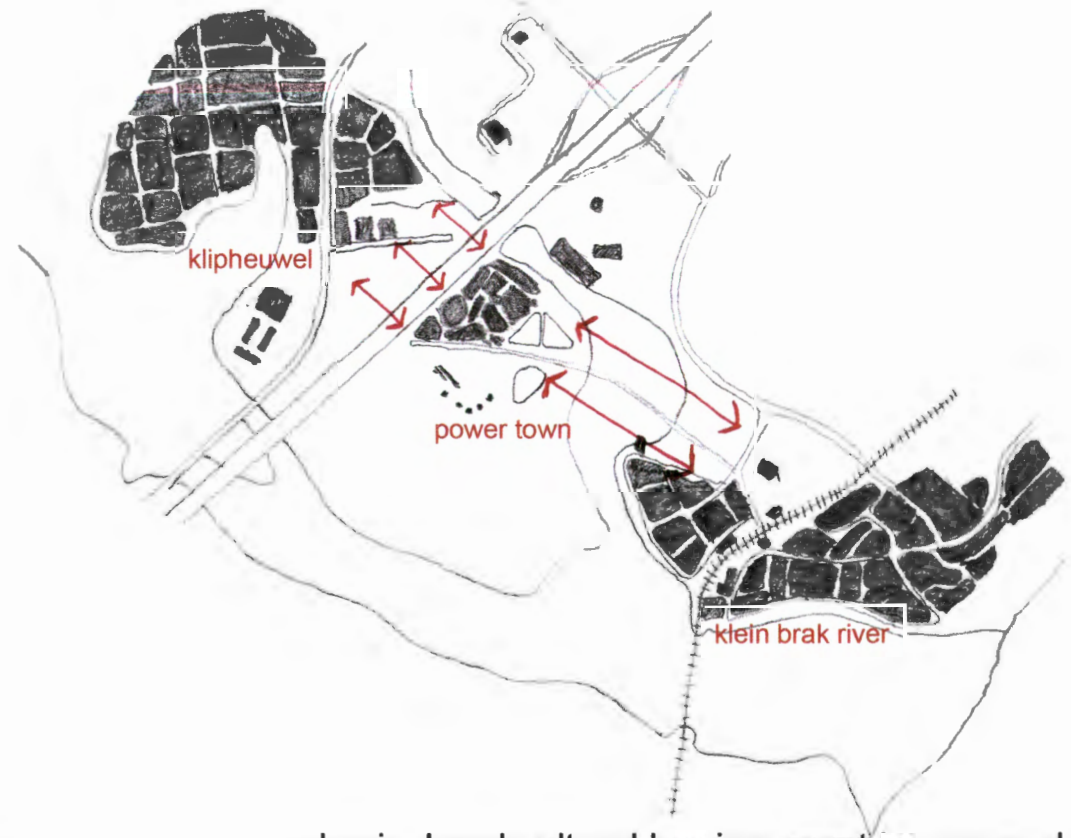
The third site making strategy is a fixed street layout that would maximise access to and from Power Town. The idea is to eventually start to integrate Power Town, Little Brak River and Klipheuwel to form an even more cohesive community. A wide boulevard will exclaim the entry into Power Town. This will cross a ring road that in

itself connects the agri- and aquaculture to the existing old power station building. The space in-between these main roads is filled in with a grid structure that accommodates the existing built fabric and allows safety vehicles and garbage trucks to access all the houses.

The national highway separates Power Town from all the shops, sport fields and work opportunities in Klipheuwel. It forms a major barrier that requires a pragmatic solution. I propose that a subway be built that reconnects the two neighbourhoods. The subway

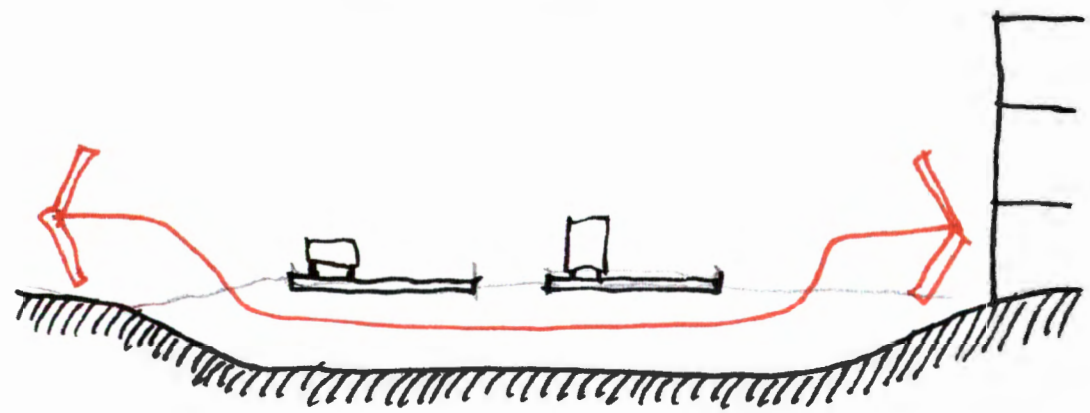


hierarchy of street circulation

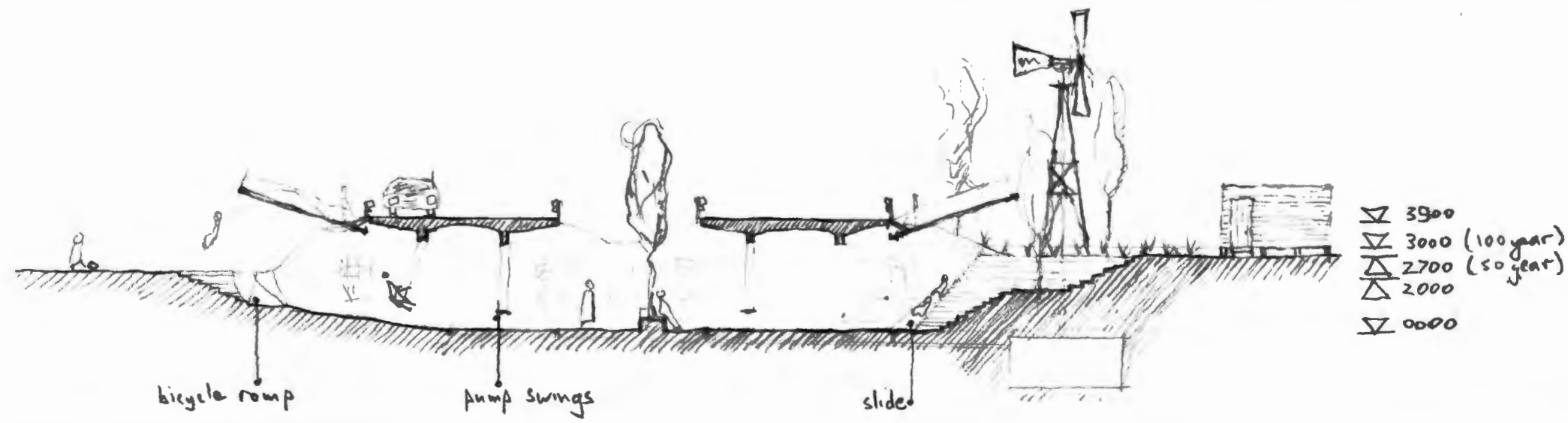


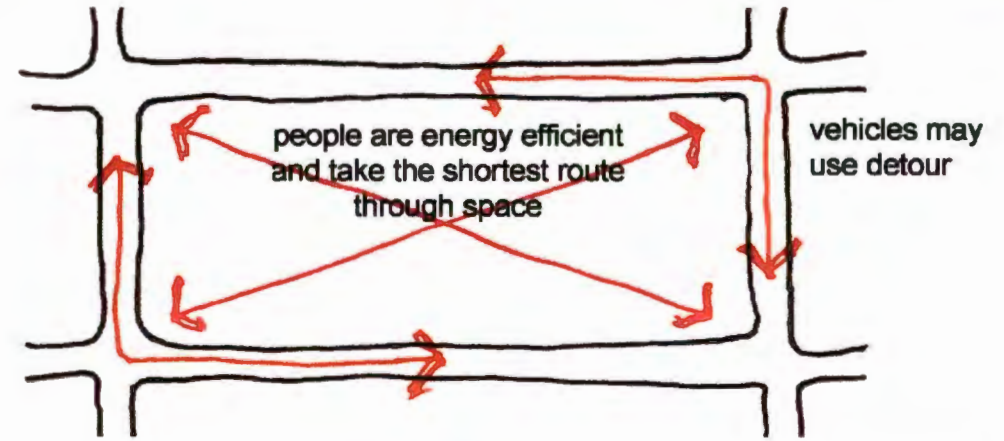
physical and cultural barriers must be crossed in order to start to integrate settlements

excavation will, in addition, provide fill. It will house a small play park that will activate the space and make it positive and safe. The energy generated by children playing in the park can be utilised to help pump rain water out that can be saved and reused for agriculture.

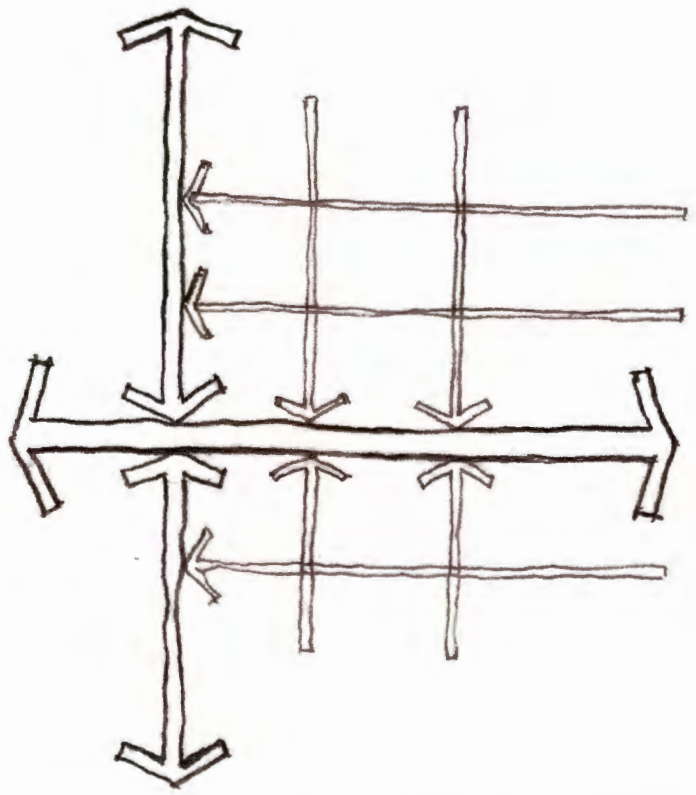


make a positive connection with the high way

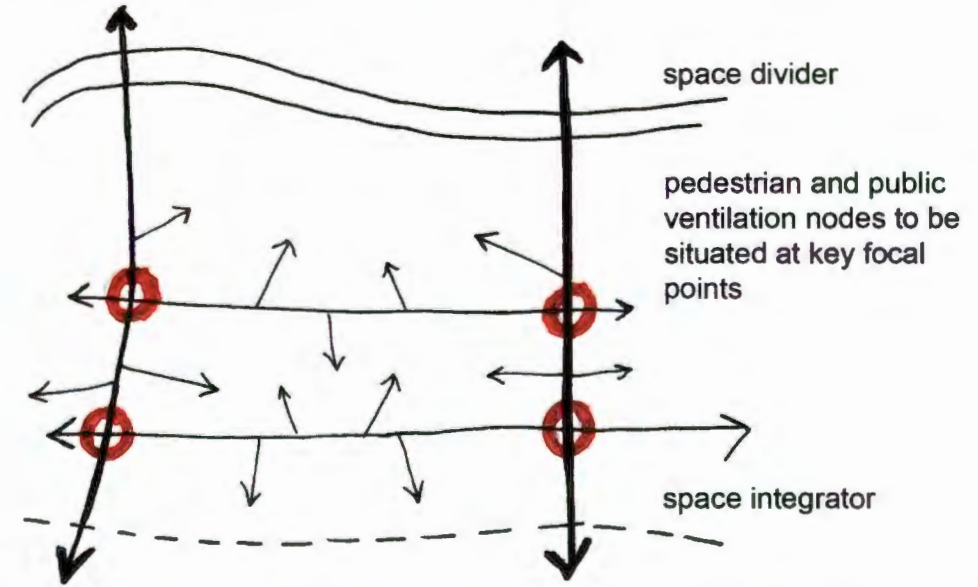




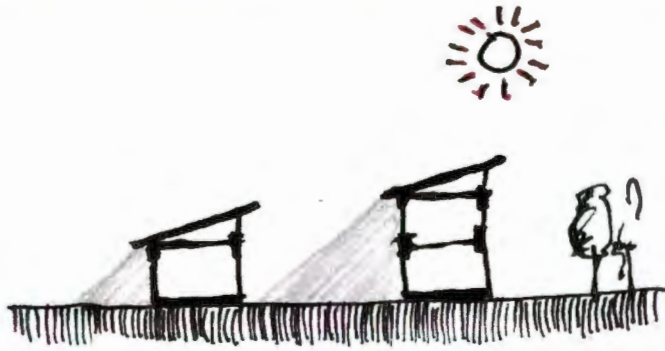
the nature of vehicle and pedestrian movement



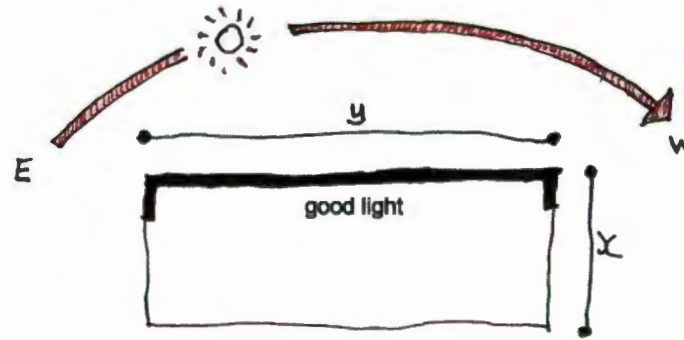
a classic grid structure, adapted to fit the context, optimises access and integration



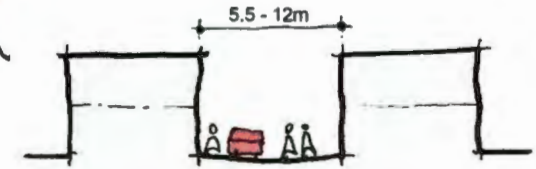
arrangement and manipulation of urban-scale spaces



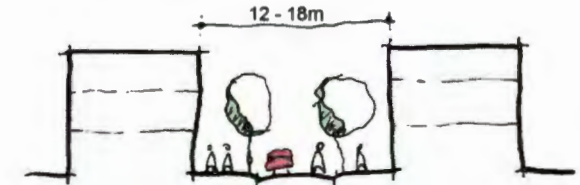
solar access to all buildings and floors can be provided with careful design



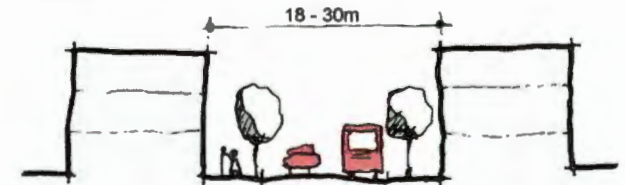
a longitudinal orientation of blocks ensures maximum benefit of natural sunlight



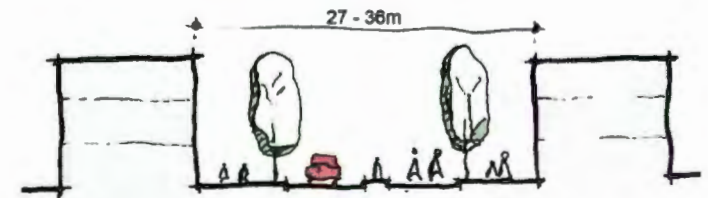
cul-de-sac



residential street

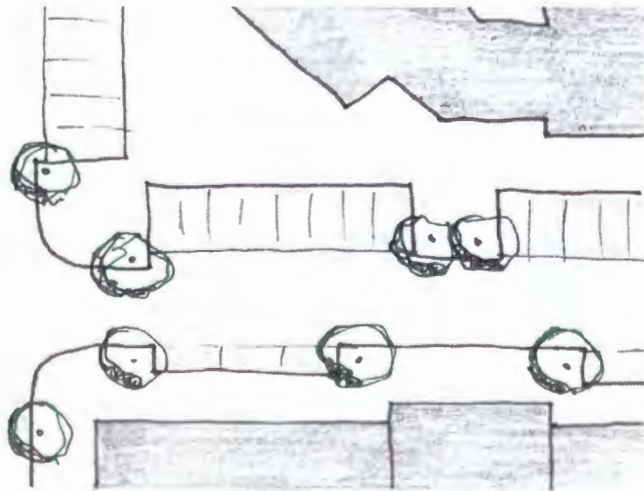


high street

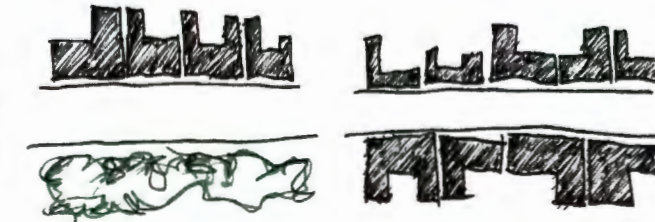
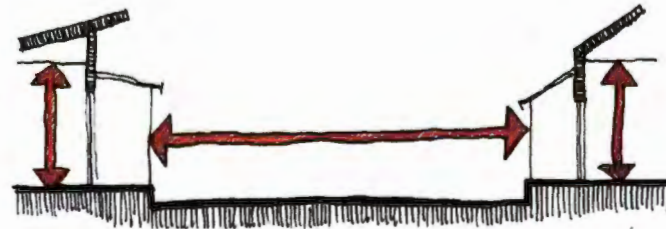


boulevard / public square

hierarchy of streetscapes



the negative visual impact of parking can be minimised by clustered on-street parking areas

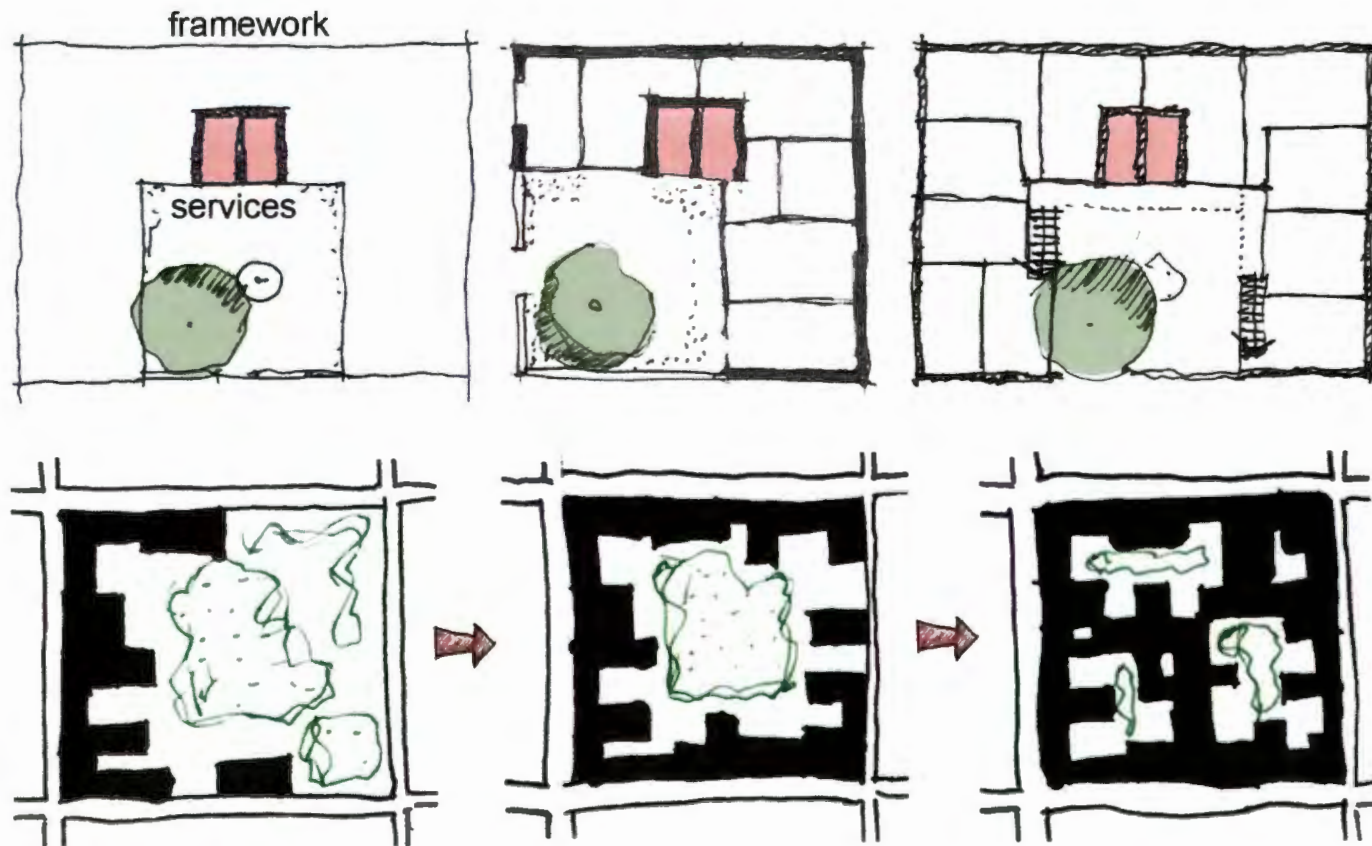


street edges should contribute to forming a sense of enclosure

## incremental development

An incremental phasing of the site design allows for the development to evolve over time in certain time frames. A large project like this will most likely be funded in phases. It makes the financial and logistical aspects of the project much more viable. The phasing can have an unpredictable outcome in terms of built fabric and houses, as long as it develops in a framework that will ensure the correct density, access, edges and sustainability.

I believe that housing must become a community project and that Power Towners should develop their own houses, like they have over the years, and not to rely on government provisions. This must also become a national policy; that government provide the essential services and structure and citizens can develop their own housing within these guidelines.



a incremental growth inside a provided infrastructure that still provides for personal choice





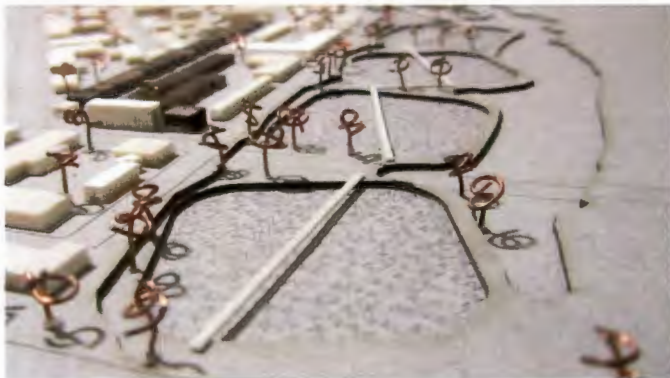




model



aguaculture dams mixed with recreational space

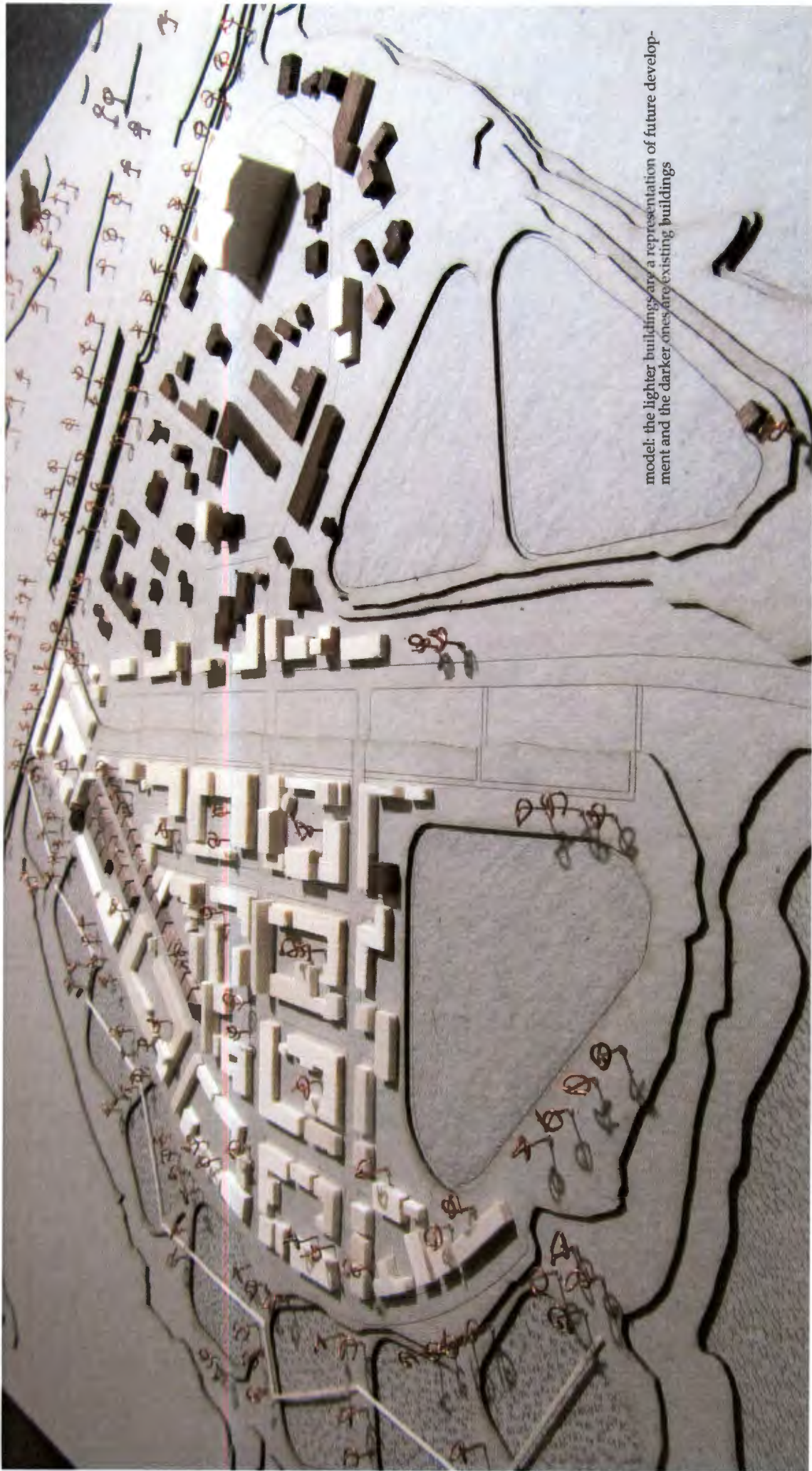


the green subway that connects power town and klipheuwel



trees buffer highway noise and also form wind breaks





model: the lighter buildings are a representation of future development and the darker ones are existing buildings

## production centre

The site making design lays the basis for the design of a production centre. This new public building will form the heart of Power Town's productivity. I propose that the existing abandoned power station be revitalised for this use. This adaptive reuse is in itself a form of productivity. It is also a reflection of what the specific context indicates as potential.



## programme

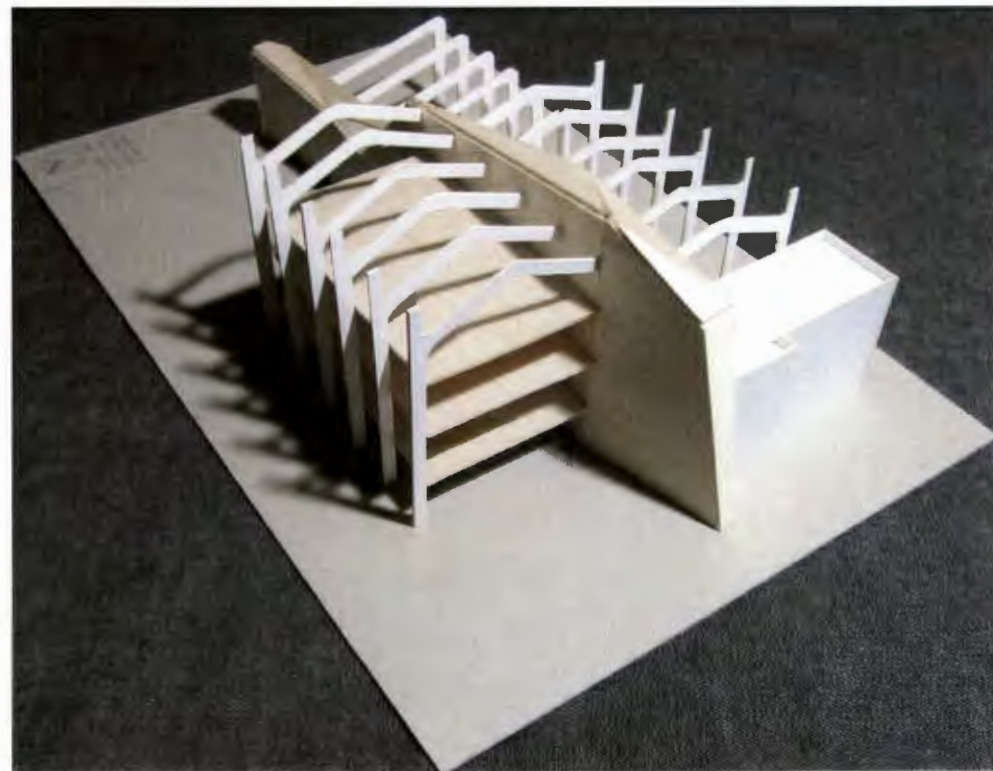
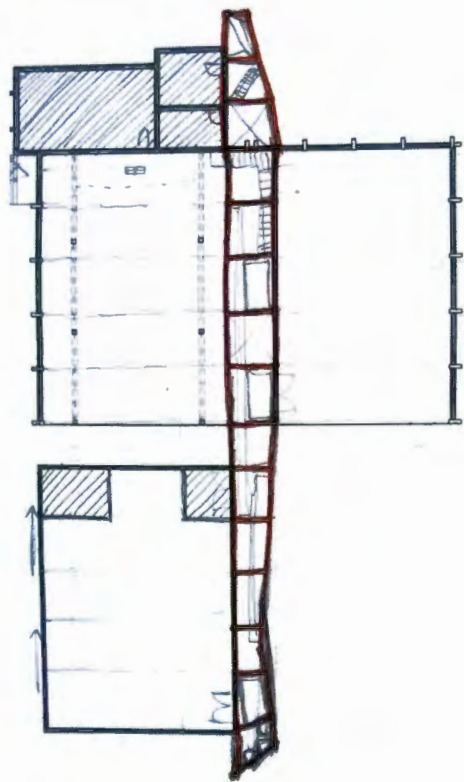
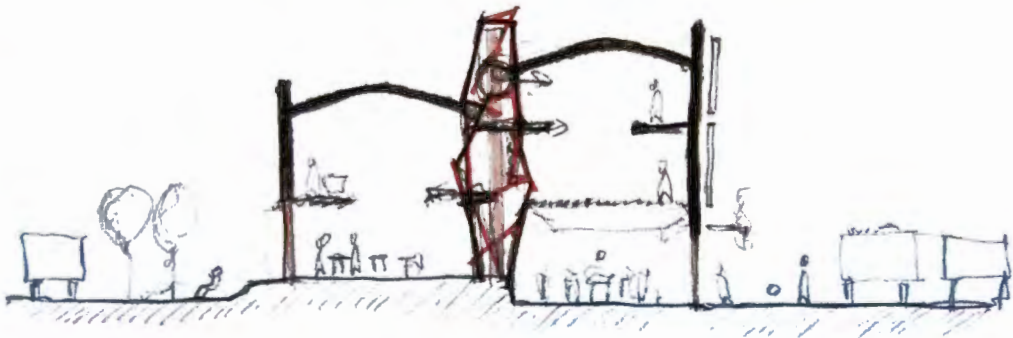
The production centre will be used for the processing and distribution of produce as well as the needed skills training to go with it. It will be a public building whose main purpose will be to put the revitalization process to work and then sustain it after. It will be a productive injection and a monument of sustainability.

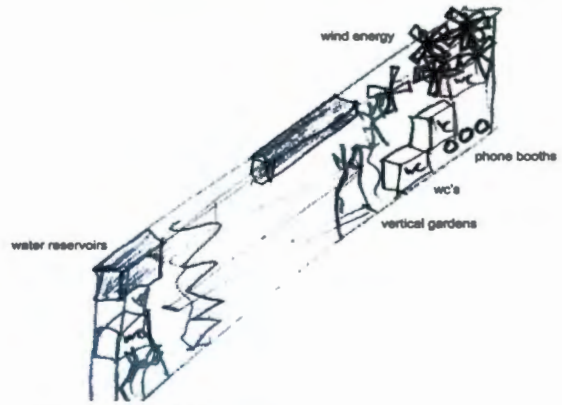
**The following spaces will make up the design's programme:**

- Produce delivery and pick-up space that would connect the building with the productive landscape.
- Production space for processing produce. This process needs spaces for cleaning, sorting, washing and packaging.
- Cool and dry storage space.
- A public market space.
- A number of flexible workshops that will raise awareness and offer skills development in different forms of production like:
  - agriculture,
  - aquaculture,
  - conservation,
  - sustainable construction,
  - recycling and reuse,
  - adult learning and skills,
  - computer training, etc.
- A multi-usable community hall/auditorium. This space is much needed in the context of the whole garden route for conferences and meetings and will potentially attract exterior users as well.
- Foyer space, possibly connected to an outside space.
- A production nursery under controlled circumstances.
- Office space for management.

## initial ideas

The first idea was to reactivate the abandoned building through the introduction of a new element. The power station's old use was completely different to its proposed new use and thus the design were different. The new element at first took the shape of a spine or service wall that had a dual function: to provide all the services that was lacking and to join the existing outbuilding to the power station. The wall will be a transparent frame structure with services like vertical circulation, bathrooms, offices, water tanks and vertical gardens placed inside.





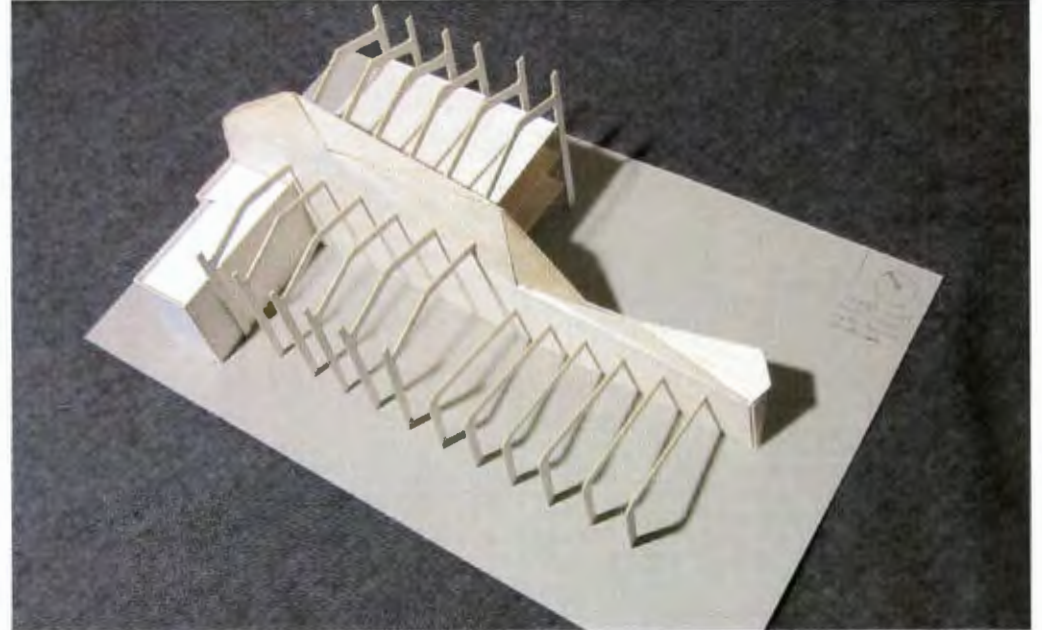
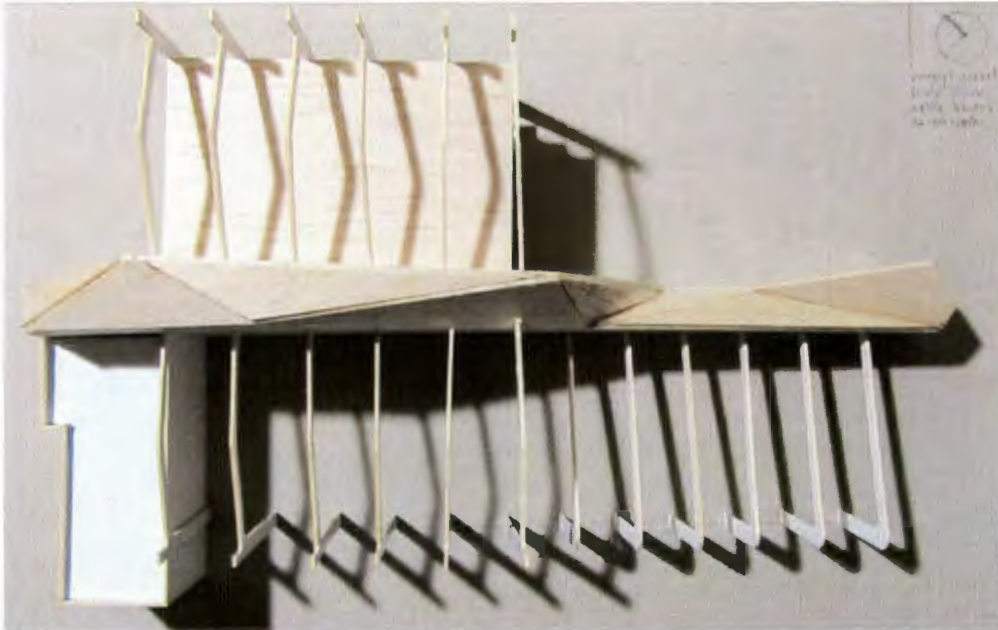
multi-usable service wall element



connection of ground floor with exterior space



service wall and vertical production garden combination

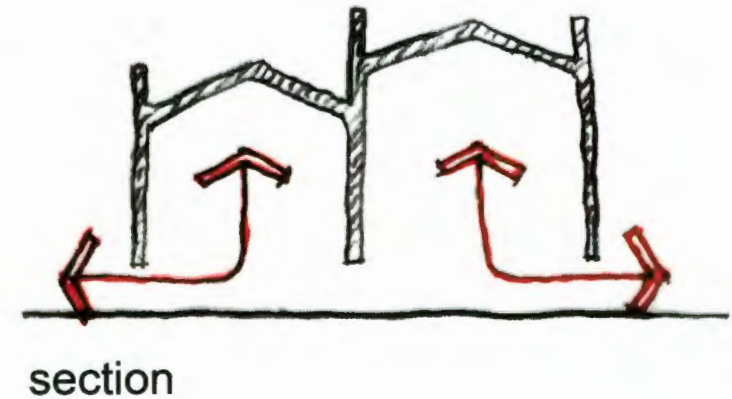
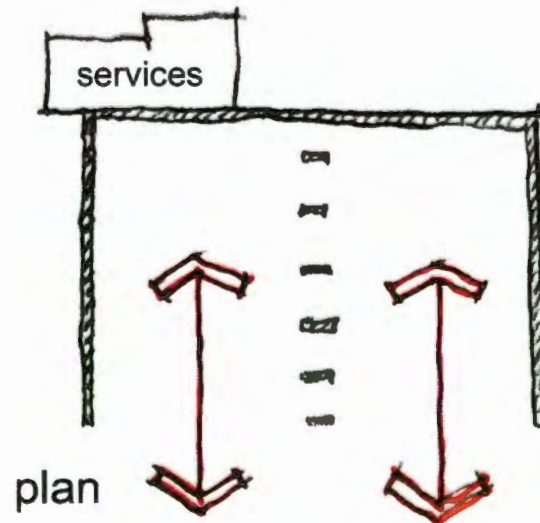


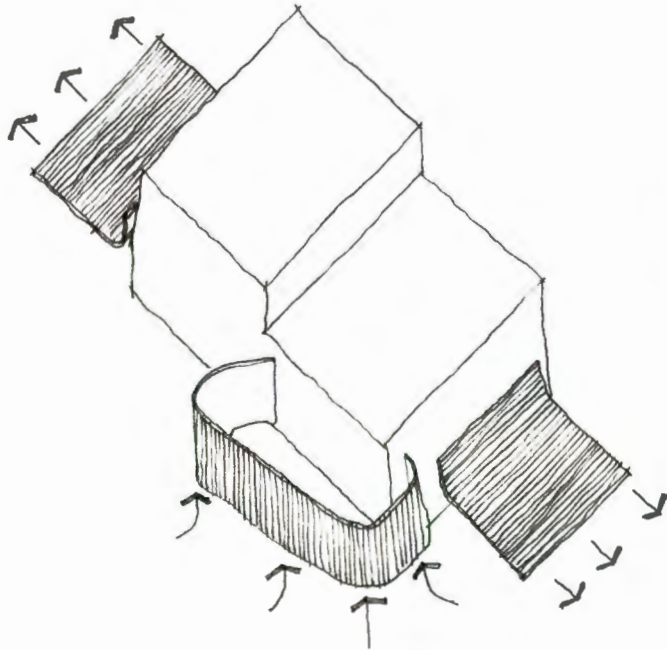
The concept model proved that the design would however dominate the power station. The geometry breaks the initial intended form of the building and it penetrates the ruined structure on complex points. The other building which had been added later is in a poor state. The brick walls are in an unrecoverable state and are inferior to the power station.

This lead to the following 3 main design concepts:

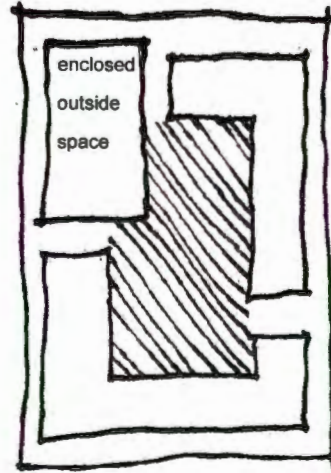
### 1. existing structure as shell

It became evident that the power station is best kept in its ruin state - as a shell in the landscape. This will preserve the memories and connotations of the building developed over the ages. The new uses can be sheltered by this shell and becomes spaces within a space. A series of folded plains or skins ties the building down to the landscape and connects the industrial scale to residential scale. These plains also allow vegetation to grow back onto the building and will start to establish the memory of the infamous trees growing up the gutter pipes of the structure.

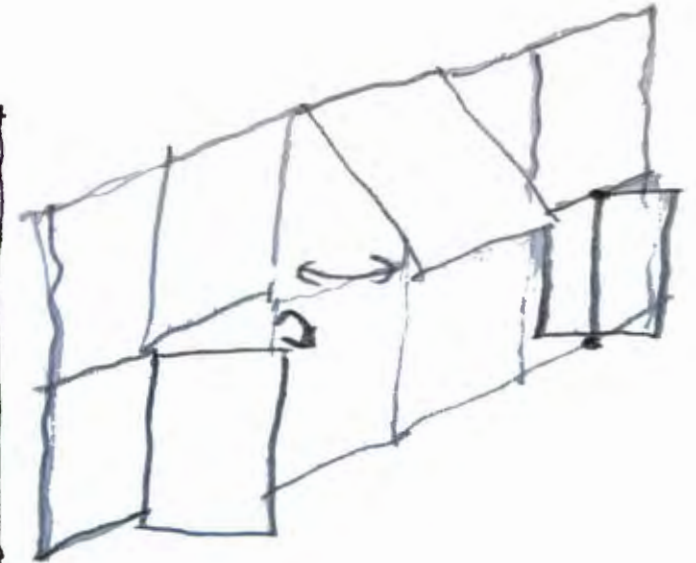
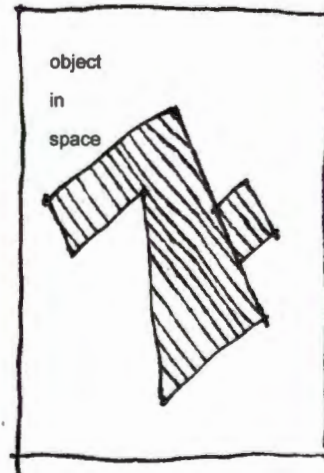




folded plains tie the building down to the landscape and pulls nature up onto the building

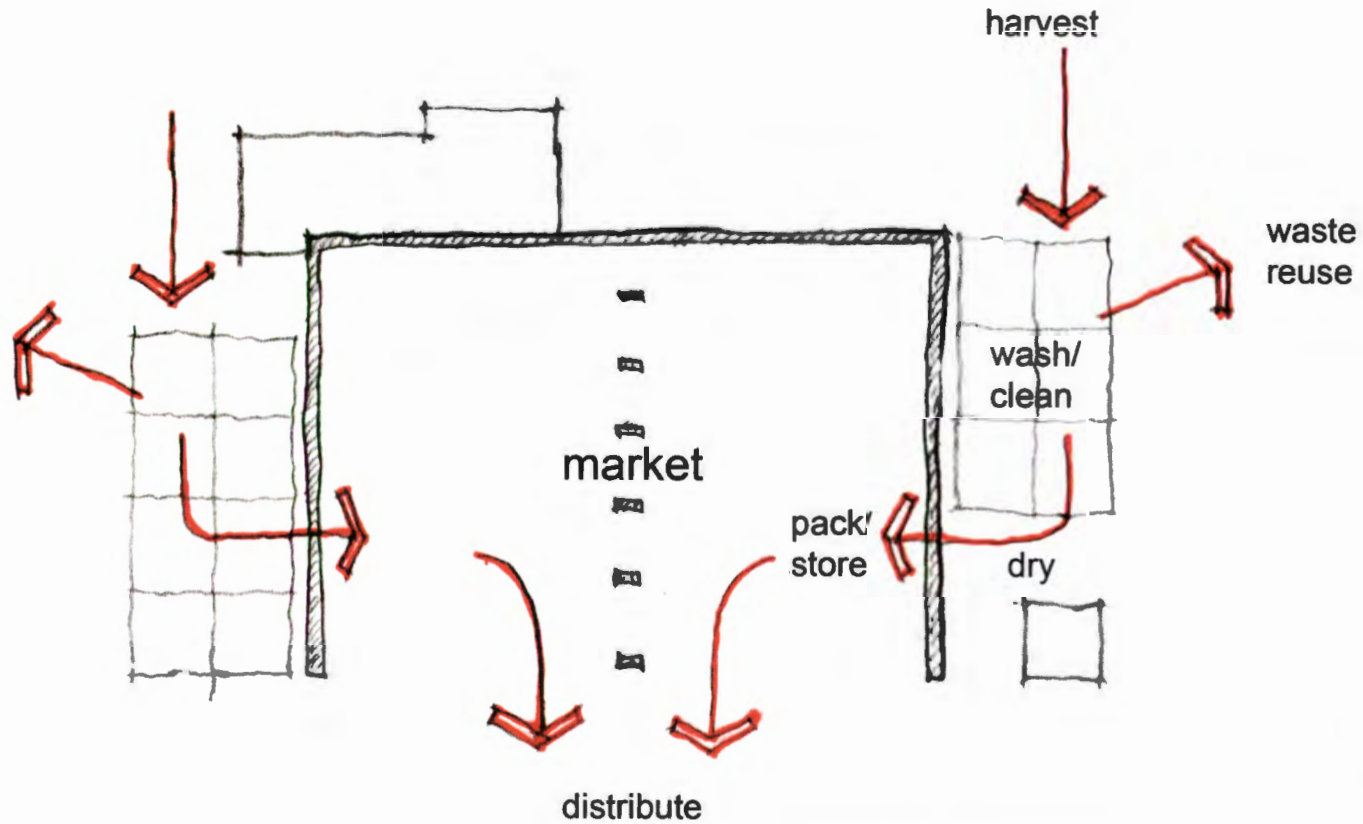


create enclosed space rather than an object in space



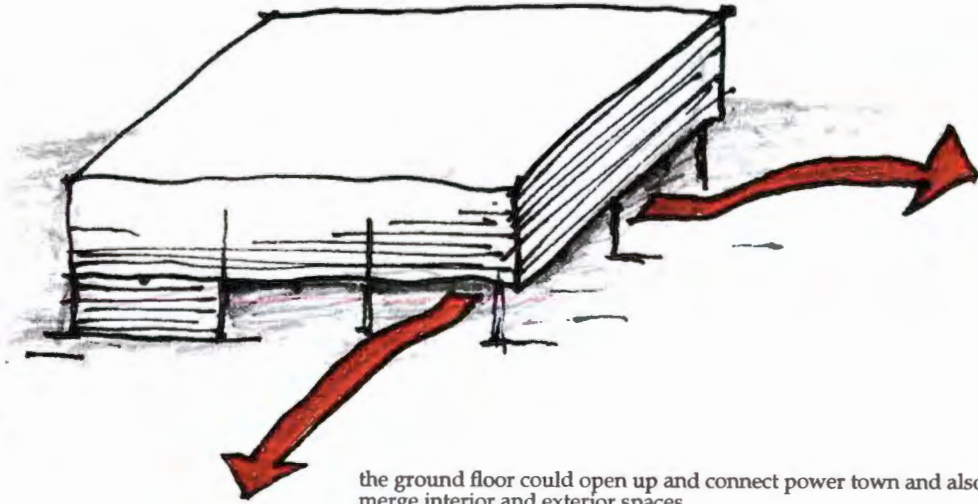
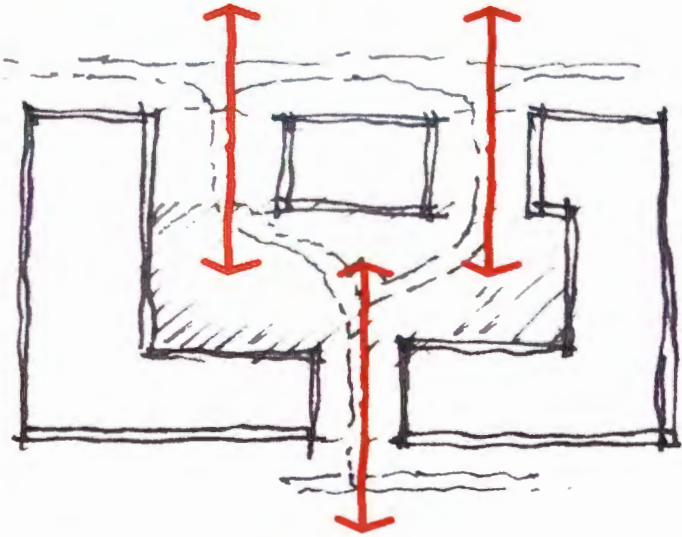
a moveable, transparent, wall built out of reused pallets closes the 'shell'



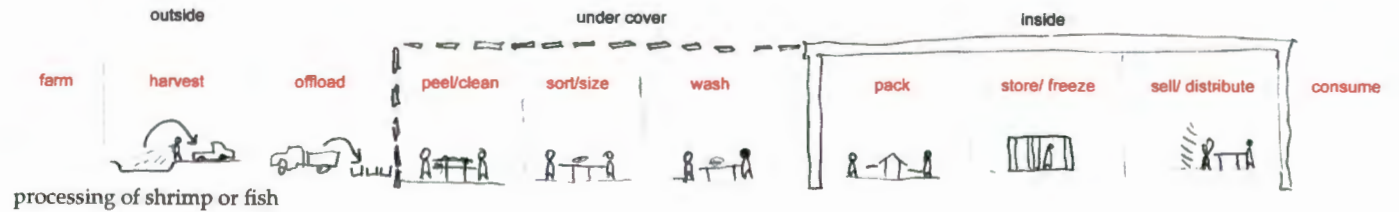
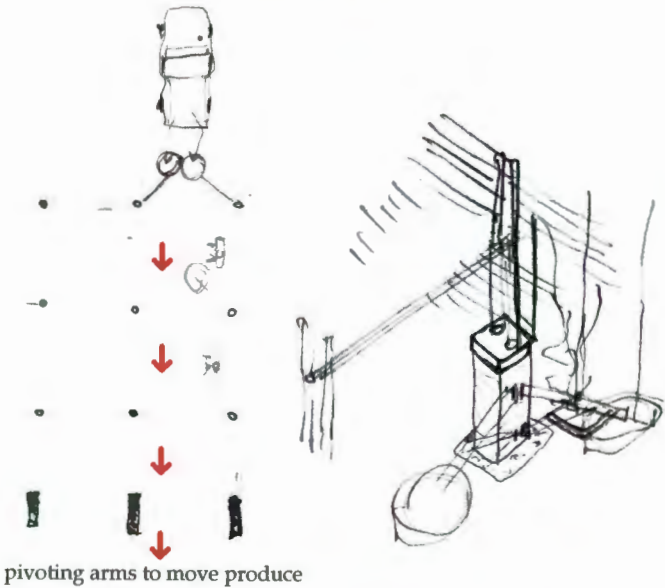


## 2. production ordering system

The ground floor is used for the processing of foodstuff, a market and dry storage space. It is ordered so that produce can be transported from the landscape, be cleaned and washed outside and packed, stored and distributed inside. The space inside is flexible and it feeds out onto a public open space that could also be utilised as part of the market space.

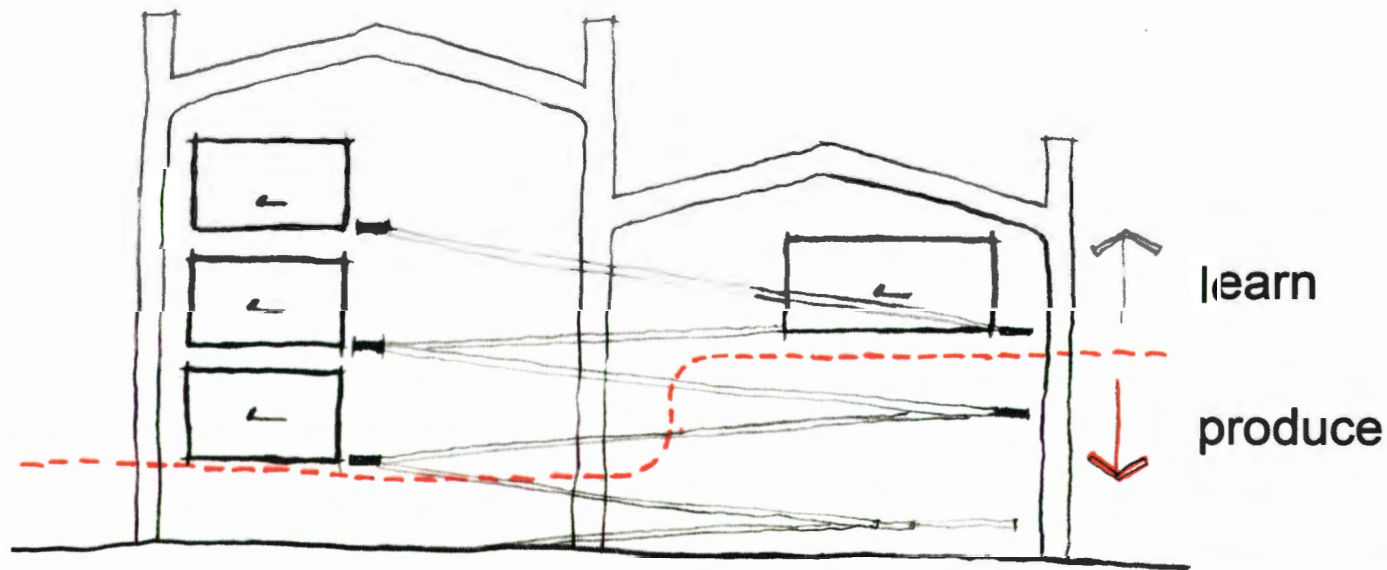


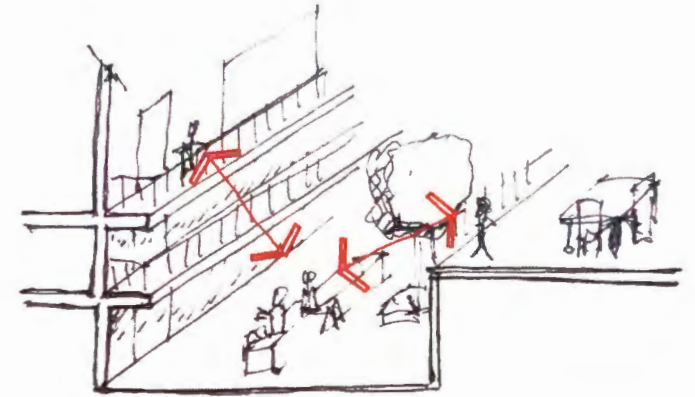
the ground floor could open up and connect power town and also merge interior and exterior spaces



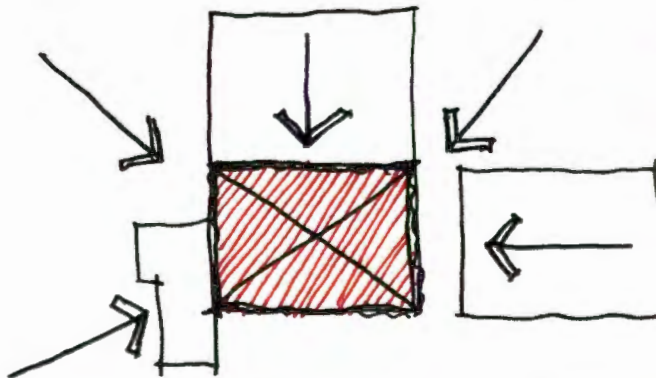
### 3. vertical circulation

The same concept of a new element that reactivates the space is translated into an idea that fits the geometry of the power station: a series of vertical circulation elements hangs off the massive concrete beams in a light filled open atrium. This atrium becomes the datum of the design and joins everything together. The workshops are supported above the floor plan at different heights so to visually communicate to the outside but also to let northern light in.

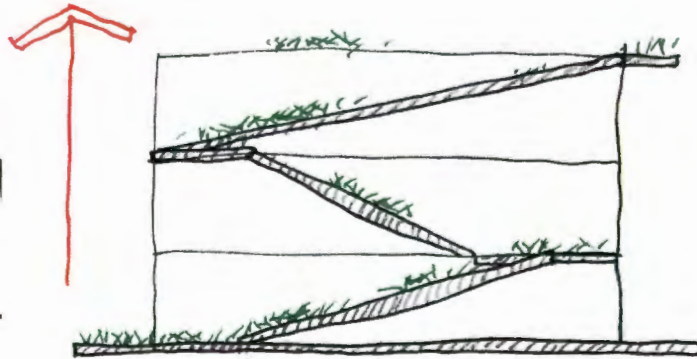




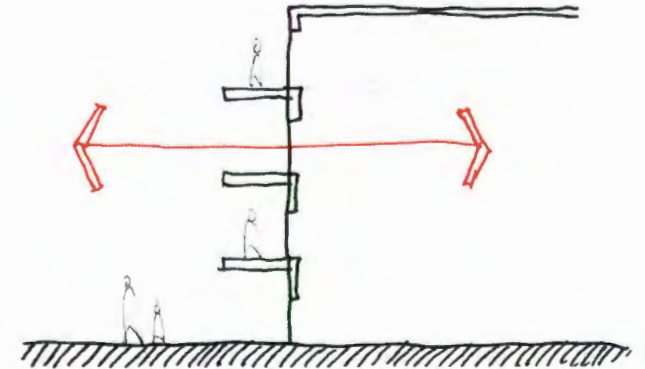
by creating visual connections, the extreme verticality of the power station can be minimised



The atrium becomes the datum of the design and joins everything together

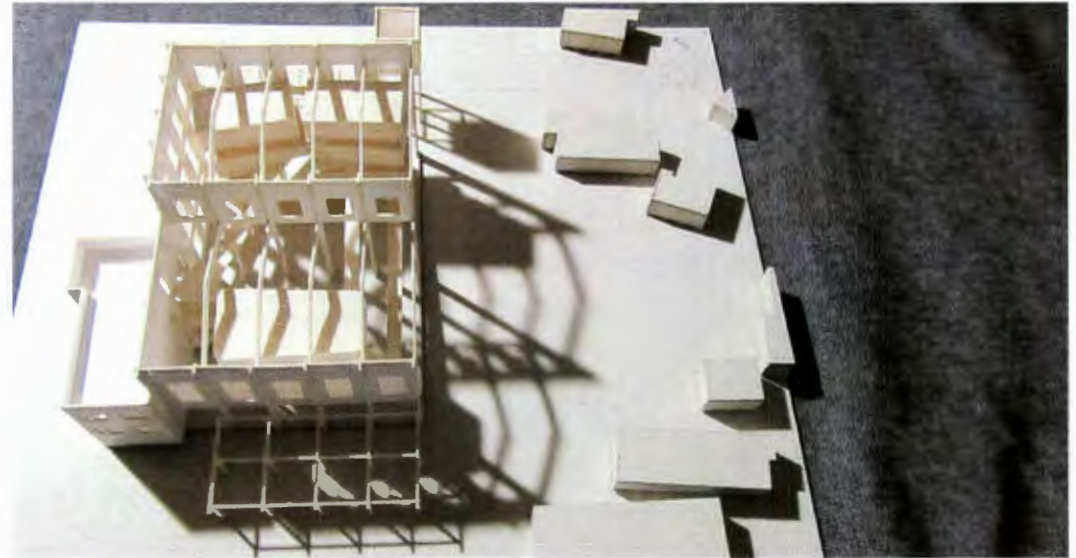
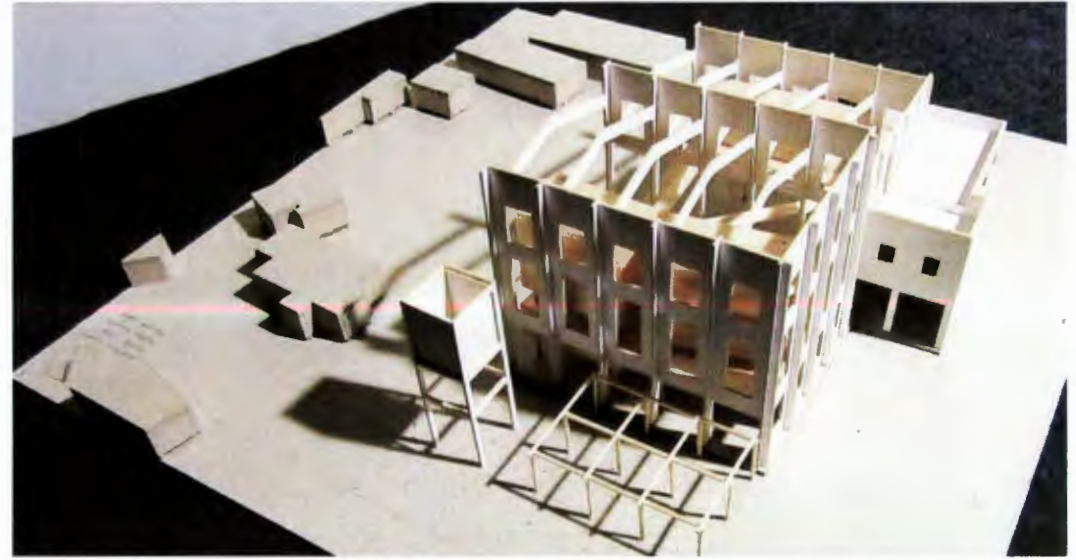


the vertical circulation acts as a extension of the ground floor or landscape



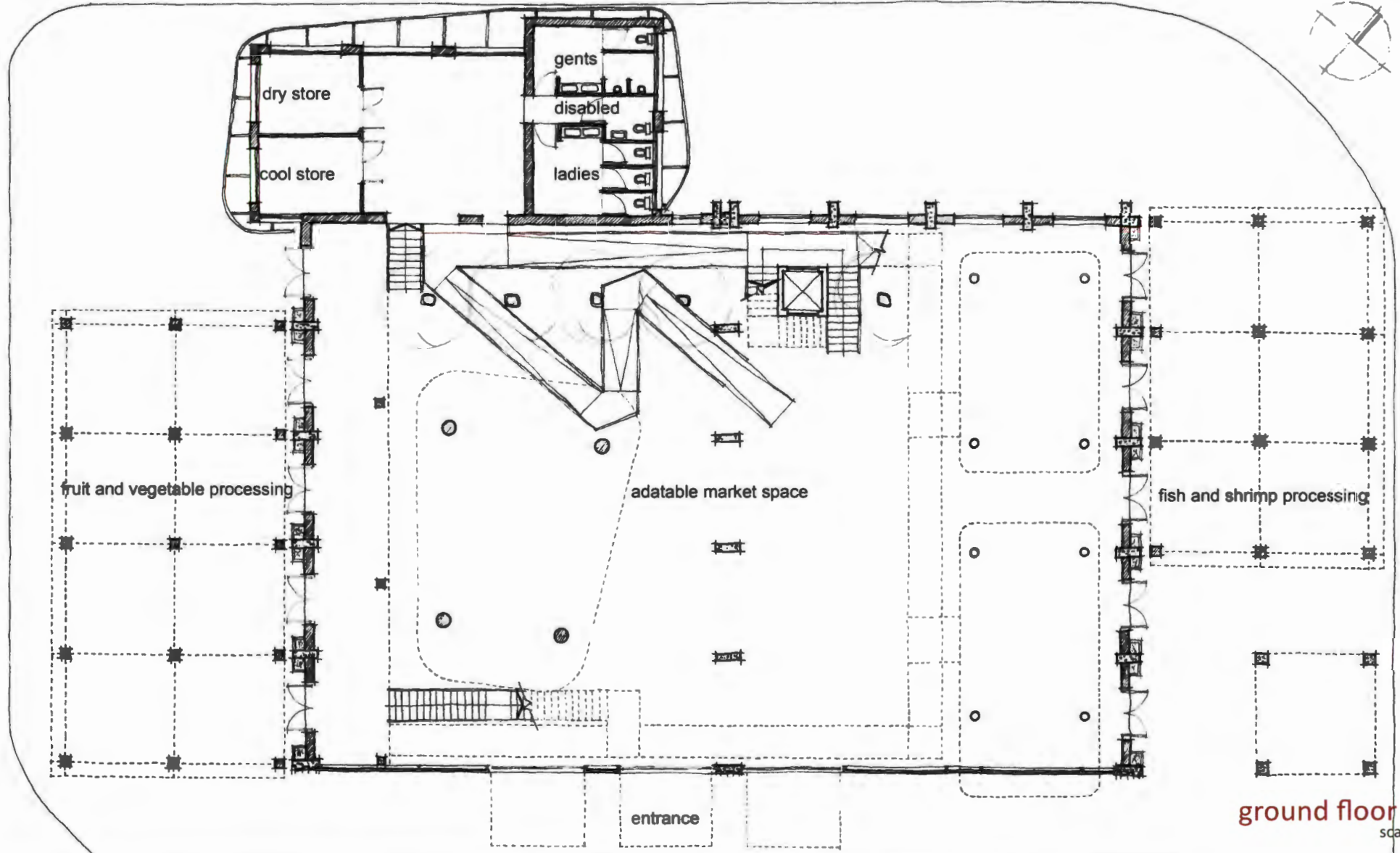
transparent facades that displays internal activity will express accessibility and hospitality

## design outcome

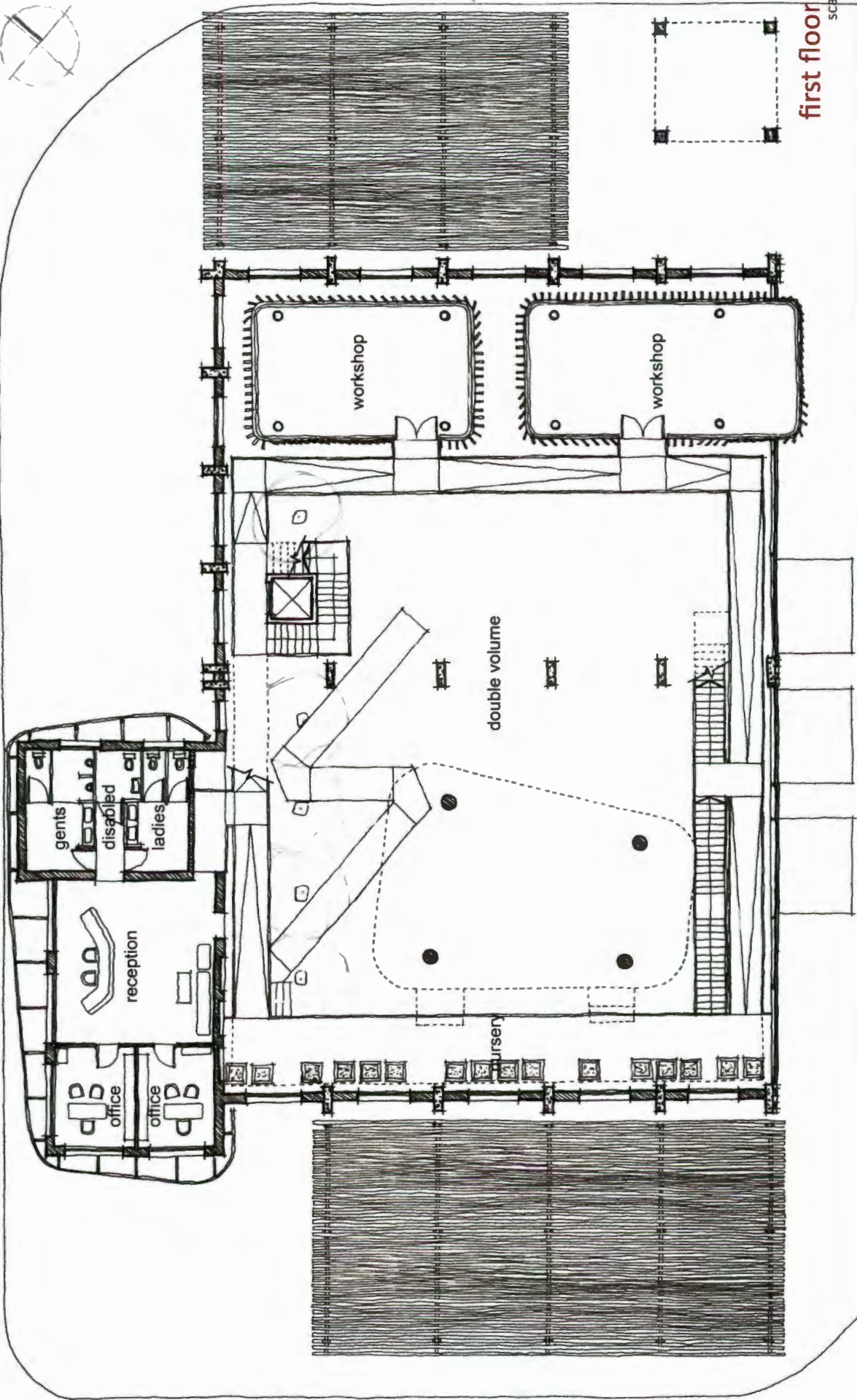


The shed building outside is demolished and the quality materials are reused. The steel trusses are used for the roof structure of the new building and the broken brick and concrete for walls and paved floor surfaces. The unusable demolition waste is used to form an earth mound for an amphitheatre that also gives the outside space a feeling of enclosure.

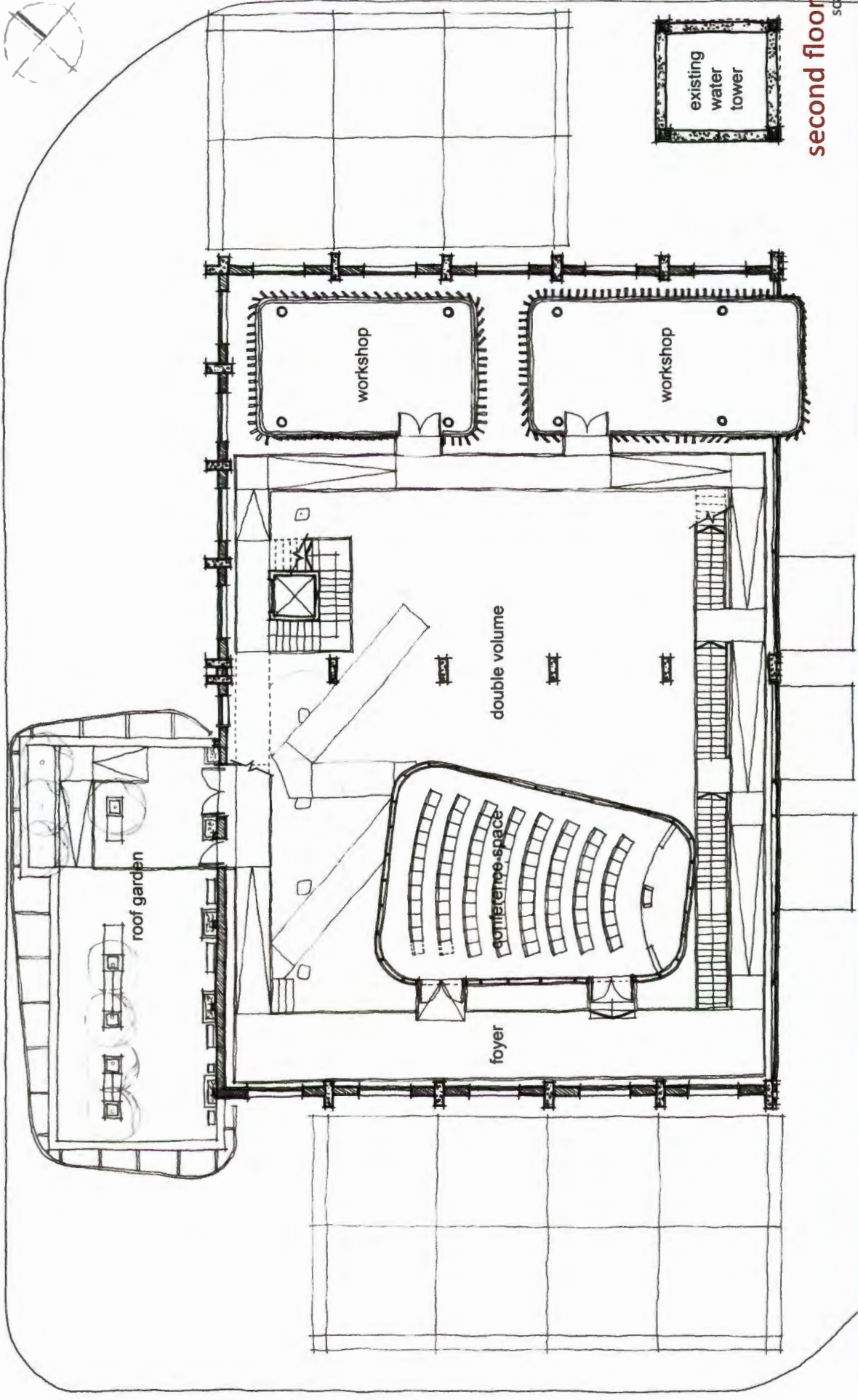


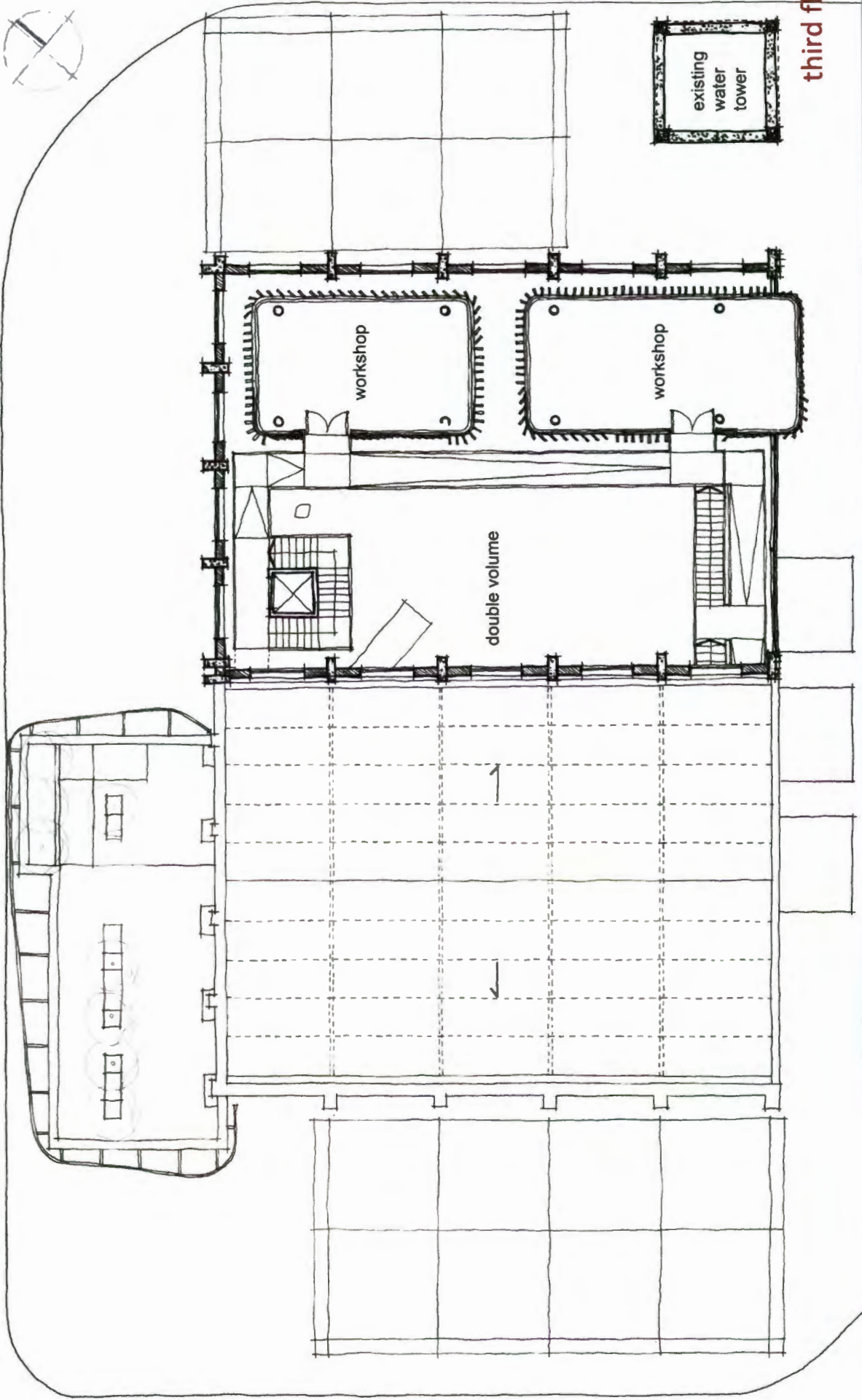


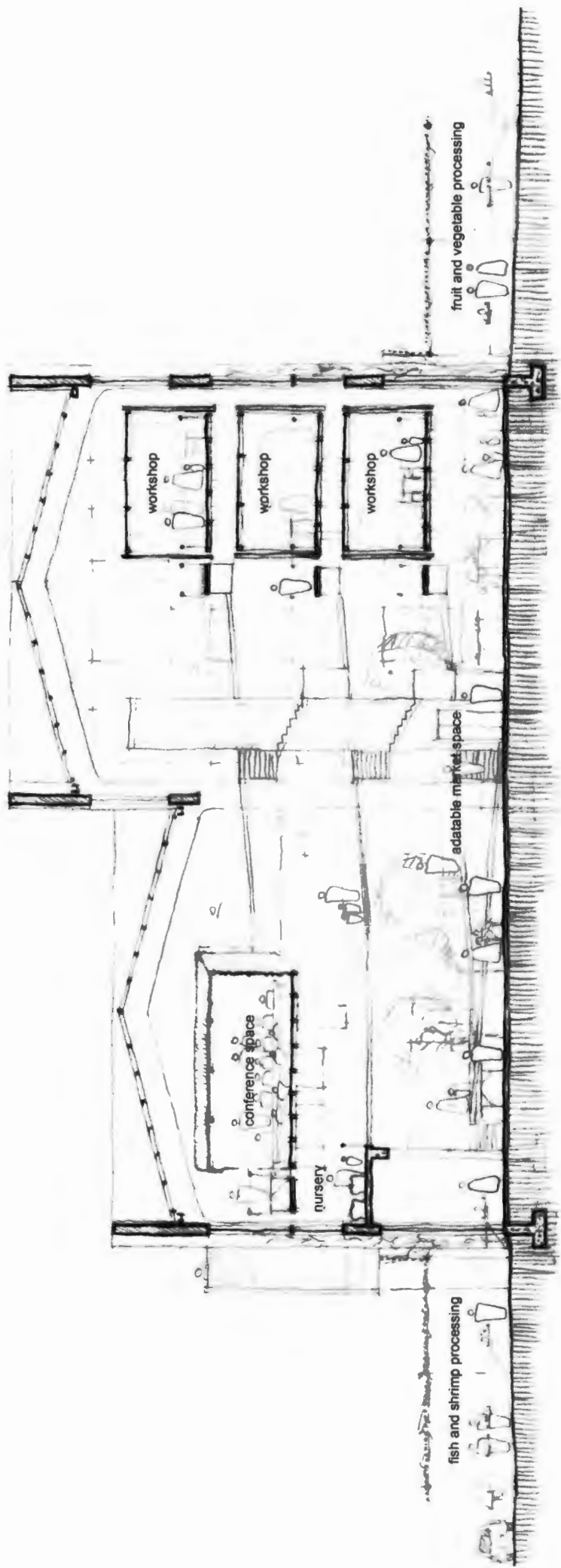
ground floor plan  
scale 1:200



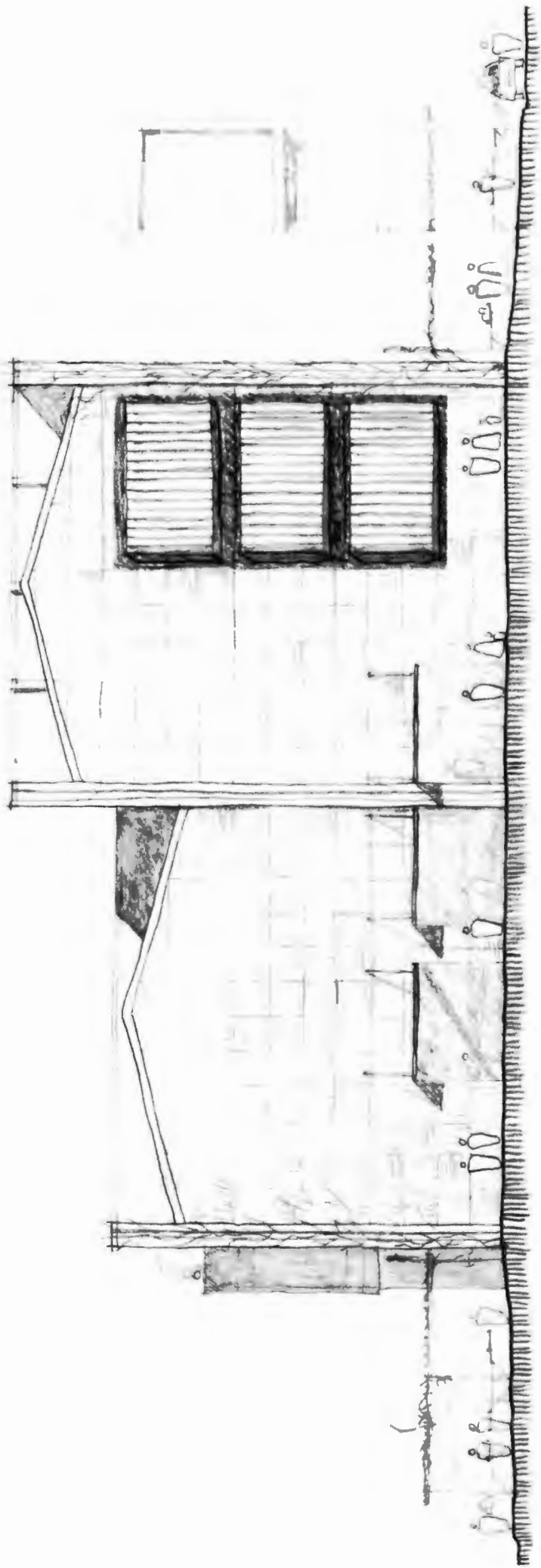




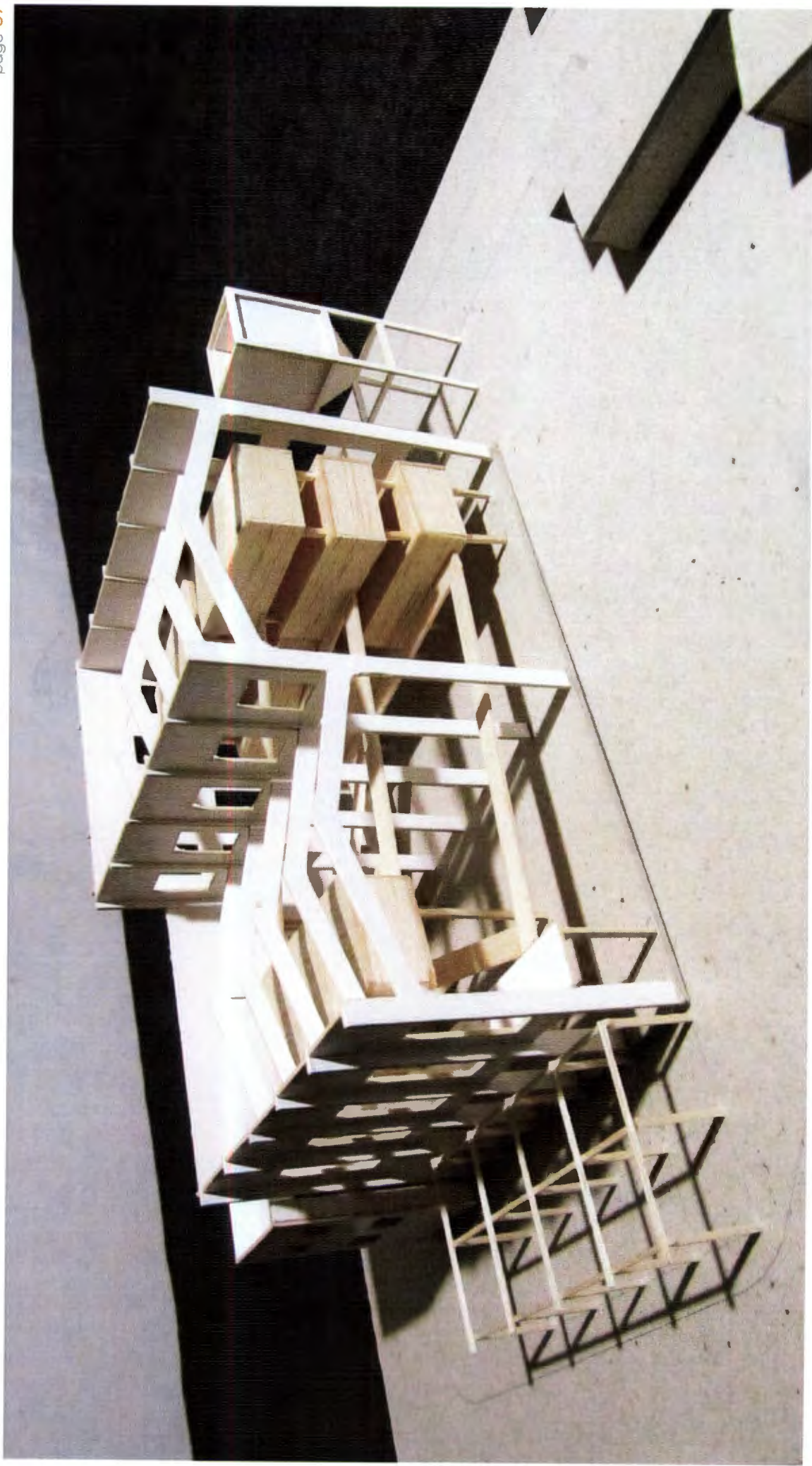




cross section  
scale 1:200



south-west elevation  
scale 1:200







## 6. conclusion





Currently, all that exists on the Power Town site is a result of a series of misinterpretations of the landscape. My proposal for the rejuvenation of Power Town is generated by the opposite; by gaining a thorough understanding of the cultural landscape and context. Only then can a designer generate applicable, meaningful and innovative ideas.

Power Town should be allowed the opportunity to develop and evolve within its current cultural landscape. I intend to exploit the history and culture of Power Town and initiate a productive landscape. This would be a financial, social and architectural injection that would start to revive the area.

Using materials originated from the context of Power Town makes for a productive construction that reflects the context and blends in with the landscape. These materials are readily available and by understanding and using them, a local vernacular architecture is started.

I see society, nature and culture as dynamic and unpredictable. These individual systems cannot be forced to develop, but certainly guided into a specific direction. Ultimately, my architectural interventions will set up conditions that will serve as catalyst for enabling a better relationship between these systems and my proposal will further be able to adjust to and accommodate the unpredictable needs of the future.

The rejuvenation of the town and the adaptive reuse of the power station would eventually change Power Town to not be an eyesore for the neighbouring population, but rather a positive icon and even an attraction. It will build on existing memories and it will generate new ones that will all contribute to a new sense of belonging.



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