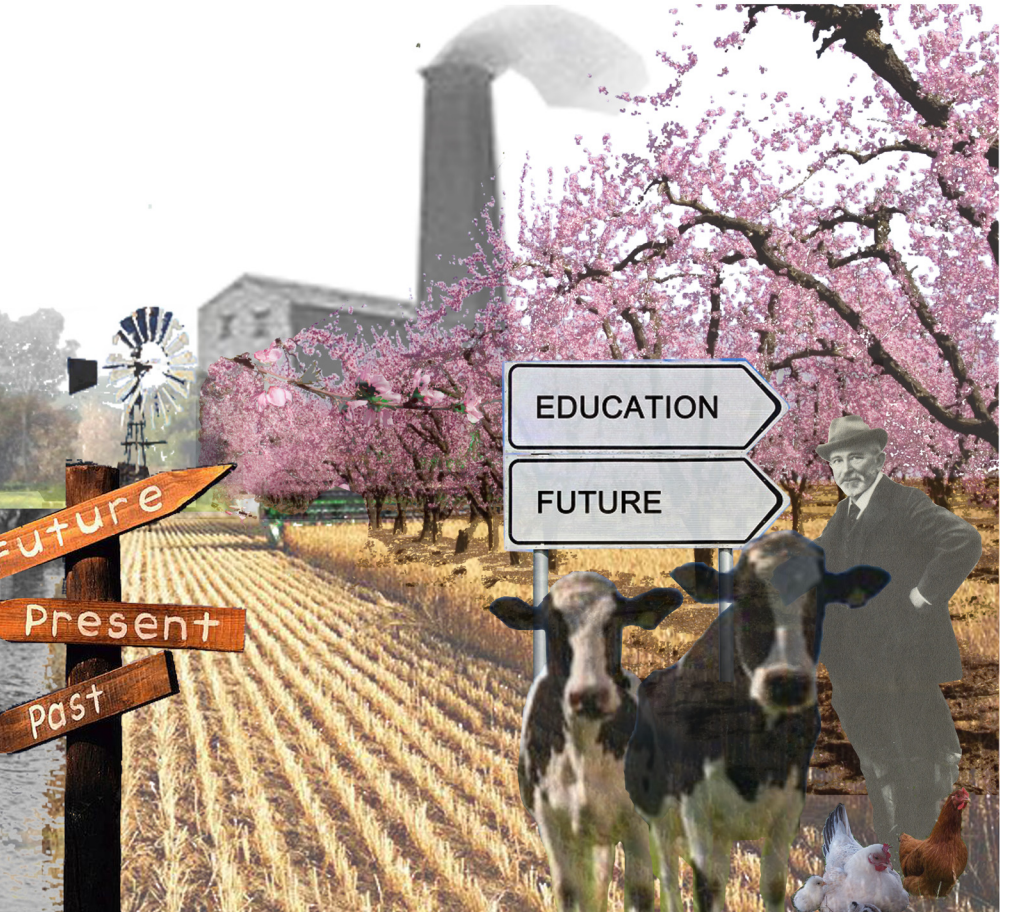

ZWARTKOPPIES FARM COMPLEX: EXPLOITING A REDUNDANT CULTURAL LANDSCAPE FOR SOCIAL, ECOLOGICAL AND ECONOMICAL DEVELOPMENT

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EXPLOITING A REDUNDANT CULTURAL LANDSCAPE FOR SOCIAL, ECOLOGICAL AND ECONOMICAL DEVELOPMENT

BY**: BIANCA SCHEFFER**

Submitted in partial fulfilment of the requirements for the degree
Magister in Landscape Architecture (Professional)
Department of Architecture, Landscape Architecture and Interior Architecture.
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University of Pretoria, South Africa.
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Research Field: Heritage, Cultural Landscapes and Environmental Potential
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I would like to give special thanks to my parents, lectures, family and friends for all your support and guidance, for being patient and for always keeping the faith.

Samevatting

Die kulturele landskap is al vir jare lank die inheemse taal van die mens en die oorspronklike bewoonheid van alle lewende dinge. Mensdom het ontwikkel tussen die diereryk, onder die hemel, op die aarde en naby water hulpbronne. Ons het aangeraak, gesien, gehoor, geruik, geproe, gewoon, en die landskap gevorm voordat die ruimtes woorde gehad het om te beskryf wat dit doen. Bewoonde landskappe was die eerste mense tekste, gelees lank voor die uitvinding van ander tekens en simbole. Hierdie nalatenskap van 'inheemse identiteit' en kulturele vooruitgang vorm 'n skakel in elkeen, fisies en geestelik. Landskap bied dus die sosiale milieu van ons lewens en selfs het ons bestaan van verskeie kennis van die etnografiese landskap wat hoofsaaklik afhanklik is van persoonlike agtergrond, tradisies, opvoeding en karakter, moet ons beide gesamentlik en afsonderlik bewus wees van veranderings in ons kulturele landskap en erfenis (Swaffield 2005: 17).

Die volgende proefskrif poog om 'n benadering te vind wat landskap-ontwerp strategieë of beginsels kan verwittig as 'n basis vir die herwinning en/of bewaring van voormalige kulturele erfenis plekke. Saam met teorieë, sal hierdie artikel ook presedente studies ondersoek om kennis op te bou oor hoe om kulturele landskappe doeltreffend te herontwikkel.

Sleutelwoorde: Kultuur landskap, erfenis, landskap-ontwerp, herwinning, bewaring

Abstract

The cultural landscape has long been the indigenous language of man and the original inhabitancy of all living things. Humans evolved amongst animals, under the sky, upon the earth and near water resources. We have touched, saw, heard, smelled, tasted, lived in, and shaped the landscape before the spaces had words to describe what it did. Inhabited landscapes were the first human texts, read before the invention of other signs and symbols. This legacy of 'native identity' and cultural process makes a connection in each one, physically and mentally. Landscape thus provides the social milieu of our lives and even though we consist of multi-layered knowledge of the ethnographic landscape which is dependent on personal background, traditions, education and character, we should be collectively and individually aware of changes in our cultural landscape and or heritage (Swaffield 2005: 17).

The following dissertation attempts to present an approach that might inform landscape design strategies or principles as a basis to the reclamation and/or conservation of redundant cultural heritage places. Along with theory, this paper will also investigate precedential studies to gain knowledge on how to efficiently redevelop a cultural landscape.

Key Words: Cultural landscape, heritage, landscape design, reclamation, conservation

CONTENTS

1 2 3

INTRODUCTION

THEORETICAL APPROACH

SITE IN CONTEXT

4

SITE ANALYSIS

5

CONCEPT DEVELOPMENT

6

DESIGN DEVELOPMENT

CONTENTS

7 TECHNICAL DEVELOPMENT

8 DETAIL DESIGN

9 CONCLUSION

1

INTRODUCTION

1. INTRODUCTION

"What we owe the future is not a new start, for we can only begin with what has happened. We owe the future the past, the long knowledge that is the potency of time to come."
-Wendell Berry

1.1. Problem in Context

Industrial development and production patterns forced individuals to move from rural areas into urban concrete jungles ruled by commercial greed. As industries grew, "globalization" had a profound effect on the quantity and quality of healthy living environments. By the end of the 20th century the fracture in the industrial sector resulted in obsolescence of cultural space and place.

Abandoned or vacant historical sites, within metropolitan or rural areas, create opportunity for commercial and economical development and the chance to redevelop 'lost' significant space into social, recreational environments.
Adaptive re-use and sustainable design strategies may better the quality of living environments in the form of urban or rural parks.

Economic growth is an essential criterion in the government's future development plans and therefore efficient programming of the proposed redevelopment which will advance the commercial sector is imperative. One should furthermore consider efficient principles and processes to guarantee the preservation and protection of the heritage-, social- and aesthetic value of the place.

Our 'manufactured' environments are cultural entities that contain representations of our past, present and future. At present there exists a need in individuals to escape the 'cookie cutter suburbs' or the captivity of a residential gated community.
There is thus potential for outdoor recreational space to expand in and among cultured landscapes and/or post industrial environments.

1.2. Study area

The historical home of the former industrialist and agriculturalist, Sammy Marks, his wife Bertha Marks and their six children, is located approximately 23km from Church Square, Pretoria, north of the N4 highway with the Pienaars River running through the property.

The National Cultural History and Open-air Museum suggested purchasing Zwartkoppies farm in 1980 from the Marks trust, but after close examination of Marks' will, it was recommended instead, that the house and the surrounding property be leased and the internal contents of the Marks' home be purchased. The Sammy Marks museum opened in 1986 and was declared a National Monument in 1989.

The homestead has since 1988 been open for visitors but has left the late industrialist's farming complex redundant. The farming complex was a significant part of the Marks' family self sustaining lifestyle, however today it sits vacant and hidden from the public. The open space amongst the significant historical farm buildings need to be redeveloped as a didactic sustainable recreational landscape.
.

Figure 1: Vacant old horses stable at Sammy Marks farm complex (Author: 2013)

1.3. Project Motivation

Today, 98% of the Marks' household contents are original and on display in the Sammy Marks museum. With this being said the existing aged farming complex on the southern side of the museum remains vacant. These buildings were used since 1895 as horse stables, chicken coops and milk houses.

With the Sammy Marks museum already open for public visitations, it represents great opportunity for the disused farming complex to be transformed into a social, economical and ecological environment. The brownfield site is both rich in existing spatial character and heritage significance and through historical interpretation and regeneration the site's added value will strengthen community identity.
Redeveloping the farm complex will benefit a diverse group of urban dwellers, plant communities and habitats and will enforce cultural heritage tourism opportunities.

1.4. Problem Statement

Cultural landscapes are progressively coming under threat of new development and therefore the need to highlight and/or protect these places of significance is imperative. Urban and rural environments originally shaped to serve the demand of industry, commerce and food production, are in need of new purposes and identities capable of delivering an urban and rural revitalization (Neal & Hopkins 2005: 156-166).

The current dispute concerning the conservation of redundant cultural heritage, deals with the dynamic changes to our recent past and the challenge in trying to marry preservation with sustainability. These 'lost' significant places demonstrate immense potential for regeneration and transformation into healthy multifunctional landscapes. Historical - , artistic - and use value of the cultural landscape requires analysis in order to inform strategies on how to reclaim, protect or highlight places of significance.

1.5. Hypothesis

The design approach will consider both the preservation of existing cultural heritage and the construction of a newly developed landscape which integrates aesthetical, socio-economical and ecological function. By restoring degraded and polluted landscapes left as inheritance of our manufactured past, we will be able to develop an original contemporary design aesthetic within a historical context.
Simon Swaffield argues that the landscape architect should allow for a "…polysemic way of knowing, expanding in the diversity of landscape within culture and design, illustrating the richness and vitality of its continuing evolution." (cited in Neal & Hopkins 2005: 152-155).

Cultural landscape theory will support the regeneration of 'lost' significant places and its evolution into a sustainable multifunctional environment.
The landscape intervention will then satisfy the link between people and place, culture and nature within the immediate environment.

1.6. Research Question

• What is a "cultural landscape"?

• What makes a place "significant"?

• Can landscape as narrative and/or didactic landscapes as approachs to design, ensure the memory of a significant place?

• What are the categories of cultural heritage significance and the historic -, social – and aesthetic values of Zwartkoppies farm?

• How can the cultural landscape theories along with precedents inform a social, economical and ecological approach?

• Can 'lost' significant cultural landscapes (such as Zwartkoppies farm) be revitalized through contemporary sustainable landscape design principles?

1.7. Methodology

This dissertation will investigate the normative position through the study of cultural and landscape architecture theories as well as precedents. Site analysis will identify opportunities or strategies concerning future development. The design exploration will continue with topics relating to social, ecological and economical functions and along with the analysis of tectonics and spatial quality, will inform concept and design development.

2

THEORETICAL APPROACH

2. THEORETICAL APPROACH

"Gardens, too, mean rather than are."

-John Dixon Hunt

It is worth mentioning that the following theoretical methodologies are multivalent and quantitative in nature and can thus not be understood from a singular point of view.

2.1. Cultural landscape

2.1.1. Defining "cultural landscape"

"Cultural landscape" as a term and a particular idea was first described by Prof. Carl Sauer in the 20th century. He argues that the cultural landscape is fashioned from a natural landscape by a culture group. Culture is the agent, the natural area is the medium and cultural landscape is the result (Sauer 1925: 46). This means human development (culture) becomes the active agent in environmental transformation (cultured landscape). These landscapes include cultural and/or natural resources associated with a significant person, people, groups or past events.

2.1.2. Elements of cultural landscape

In defining the cultural landscape there are overt elements that relate back to our relationship with the land. Guilfoyle (2006) reveal these elements in a simple diagram.

Landscape = Nature + People
Landscape = The Past + Present
Landscape = Places + Values
(Diagram by Phillips (2002: 5) cited in Guilfoyle 2006: 2)

The following diagram illustrate comprehensive elements which will inform the research dissertation (Author: 2013)

Cultural Landscape = Nature (medium) + Culture (agent)
Cultural Landscape = The Past + Present + Future
Cultural Landscape = Time + Space
Cultural Landscape = Significance + Meaning + Narrative
Cultural Landscape = Historical Values + Social Values + Aesthetic Values

2.1.3. Conservation

The start of the 20th century announced the earnest necessity to protect or reclaim cultural landscapes as it consists of historical value, aesthetic value, social value and future use value. It is imperative to conserve our cultural landscapes as these places narrate our unique historical past.

Landscape architecture studies in the 1990's, led to the general recognition that all landscapes (no matter how ordinary) contain cultural meaning. Landscape historian John Dixon Hunt stated that place-making, "…involves not only inhabitants and users but the history of the place that is made or remade, the story of the site over time. Time and process lie at the very heart of landscape architecture." (cited in Tate 2005: 62-63). According to Lefebvre (1991) our cultural heritage ought to be protected because "The city precedes the industrialization", and before the city, "… there was the settlement, the shrine, the village; Before the village, the camping site, the shelter, the cave…." (cited in Mumford 1998).

Changes in our immediate environments are inevitable thus it is essential to determine contemporary design principles which will conserve and/or celebrate the character and quality of historic places for future generations.
These design principles or guidelines are brought into being within the Burra Charter (1992) and the Vienna Memorandum (2005).

The following paragraphs will briefly state these conservation principles and/or processes to better understand adequate philosophies regarding the redevelopment of historical or cultural landscapes.

2.1.3.1. The Burra Charter (1992)

According to the Australian Natural Heritage Charter and the Burra Charter (1992) the following are principles for the conservation of a historical place:

1. The aim of conservation is to retain the significance of the place
2. Conservation is based on respecting all heritage values of the place without unwarranted emphasis on any one aspect at the expense of others
3. Conservation of a place should include provision for its security, maintenance and future
4. Conservation should involve the least possible physical intervention: do as much as necessary and as little as possible
5. Conservation of place should make use of all disciplines and experience that can contribute to the study and safeguarding of a place
6. Conservation depends on accurate recording about decision ad changes to the place
7. Conservation of a place occurs when the significant elements have not been removed or destroyed except under exceptional circumstances

The Australian ICOMOS Charter for the Conservation of Places of Cultural Significance mention the following conservation processes (Burra Charter 1992)

1. Maintenance
2. Preservation
3. Restoration
4. Reconstruction
5. Adaptation

2.1.3.2. The Vienna Memorandum (2005) on "World Heritage and Contemporary Architecture - Managing the Historic Urban Landscape

The Vienna Memorandum's main focus is on the impact of contemporary redevelopment on historically significant places.

Principles and Aims include:

- According to Article 13, changes in functional use, social structure, political context and economic development within the historic urban landscape may be acknowledged as the city's tradition and future vision (2005:3).
- According to Article 14, contemporary architecture within the historic landscape should not only facilitate socio-economical development but also respect the historic setting. The authenticity and integrity of the heritage landscape may not be compromised (2005:3).
- According to Article 15, there is need for mutual understanding between policy makers, urban planners, city developers, architects, conservationists, property owners, investors and concerned citizens on working together to preserve heritage whilst considering contemporary development which may strengthen identity and social cohesion (2005:3).
- According to Article 16, the contemporary development should guarantee environmental quality which contributes to the economic success of the city and to its social and cultural vitality (2005:3).
- According to Article 17, a central concern of physical and functional interventions is to enhance quality of life and production efficiency by improving living, working and recreational conditions and adapting uses without compromising existing values derived from the character and significance of the historic urban fabric and form (2005:3-4).

The protection of cultural landscapes means preserving the authenticity of former contributions whilst uplifting by means of future functional interventions.
According to Susan Macdonald, head of the field projects of The Getty Conservation Institute, it is essential to recognize the significance of a place when dealing with conservation (Macdonald 2011). Thus, conservation should be a successful marriage between preservation of the quality and character of significant places and its future sustainable design proposals.

2.2. Significance and meaning in the landscape

Significance is a term that will remain impossible to describe because it is ultimately personally determined. However restricted significance suggests that something, be it a person, a group, an artefact or nature, contains a quality of importance or expresses meaning.

In Laurie Olin's book Form, Meaning, and Expression in Landscape Architecture (1988) he classifies the term "meaning" into two broad categories namely the "natural" or "evolutionary" and invented or synthetic meanings (cited in Treib 1995: 84). According to the Burra Charter (1992) cultural heritage significance means aesthetic, historic, scientific or social value for past, present and future generations (cited in the Australian ICOMOS Charter for the Conservation of Places of Cultural Significance). For one, significance is culturally circumscribed and, ultimately, personally determined (Treib 1995: 106).

The following theories will explore thoughts on significance in the cultural landscape to try and understand what this means for contemporary landscape architecture discourse. The theoretical investigation will try to answer the subsequent questions:

•What makes a place "significant"?

•Can landscape as narrative and/or didactic landscapes as approaches to design, ensure the memory of a significant place?

2.2.1. Marc Treib: Must Landscapes Mean? Approach to Significance in Recent Landscape Architecture (1995)

Mark Treib (1995) asks the following questions in his writings:

•"Is it really possible to build into landscape architecture a semantic dimension that communicates the maker's intention to the inhabitant and if so, why?"(Treib 1995: 84).

•"In addition, should we try to reveal meaning in environments and if so, why?"(Treib 1995: 84).

Mark Treib (1995) goes on to describe six approaches to realize significance within the practice of landscape architecture namely: the Neo-Archaic; the Genius of the Place; the Zeitgeist; the Vernacular Landscape and the Didactic. The following paragraphs will briefly discuss these approaches:

Neo-Archaic (Treib 1995: 89)

A sort of primitivism constituted one attempt to retrieve what has been lost at some unspecified point along the way where landscape architects began to re-configure the land in a manner we could term Neo-Archaic. "If they meant something in the past (of course, we have to like them as form…), then they will mean something again to us today." (Treib 1995: 89).

The Zeitgeist (Treib 1995: 89)

This approach burrows from related disciplines, which suggests a belief in Zeitgeist (i.e., "the spirit of the times") as a determining force for any aspect of contemporary culture. Such an approach intersects at times with the Neo-Archaic, particularly in recent years when a new regard for prehistory has informed at least one major strain of art making. Landscape architecture becomes in the process a part of the ethos of the era, and its own identity as an art is confirmed.

The Themed Garden (Treib 1995: 102)

A theme, in this context, constitutes a perceptually apparent idea used to fashion the garden's form (Treib 1995: 102). Reference could manifest in a landscape feature, a structure, or even a written inscription to reduce ambiguity. (Treib 1995: 110). "Their various signs are constituted of all the elements that compose them - elements of technical human intervention like terraces or the shape of flowerbeds, elements of nature like water and trees-but they are nonetheless signs, to be read by outsiders in time and space for what they tell of a certain society" (Treib 1995: 110).

The Genius of the Place (Treib 1995: 89)

A garden was not a universal concept to be applied uninflected upon all sites. Instead, the garden revealed the particularities of its place as well as the profundity of the garden's idea. "The presence of the genius is a bit more obvious in the undisturbed land…". Buried within this approach to shaping the landscape is the belief that reflecting a pre-existing condition creates a design more meaningful to the inhabitants (Treib 1995: 90-92).

The Vernacular Landscape (Treib 1995: 89)

The vernacular is a rich source of materials and forms; after all, it constitutes the "real" world in which we dwell (Treib 1995: 98).

The Didactic (Treib 1995: 89)

The fifth approach to "constructed meaning" goes down the Didactic path. The Didactic approach dictates that forms should tell us- in fact instruct us- about the natural workings or history of the place. A design didactically conceived, like the photo caption, is both informative-possibly normative- and certainly directive. A Didactic landscape is supposedly an aesthetic textbook on natural or, in some cases, urban processes. …the work of art addressed either natural or urban process with an assumption-which I have since come to suspect-that designs revealing these processes are both more viable and more meaningful (Treib 1995: 100-101).

2.2.2. Sir Henry Wotton: Community, Firmness and Delight (1624)

When designing within cultural landscapes which already consist of layered values and significance, we as designers should ask: How can we add value to place? We are 'producers' of place and we 'produce' functional spaces that fit the basic need for shelter and comfort. According to Sir Henry Wotton, in his book The Elements of Architecture (1624), there are three basic considerations to take into account when constructing spaces namely commodity, firmness and delight.
The following paragraphs will briefly discuss the considerations and will later be re-called to support technical design
development.

2.2.2.1. Commodity (cited in Thompson 1999: 88)

The landscape architect should foremost consider the user; client or occupant of the space. Through analytical studies the designer may succeed in constructing healthy comfortable living environments. Inclusively designed spaces necessitate the safety of the visitor within their immediate environment. Outdoor social gathering spaces and economical opportunities on site may encourage the community to take part in day-night activities and in turn strengthening passive surveillance.

2.2.2.2. Firmness (cited in Thompson 1999: 88)

James Corner argues that: "Landscape is both spatial milieu and cultural image…a medium that is embedded and evoked within the imaginative and material practices of different societies at different times" (cited in Harvey & Fieldhouse 2005: 5).
Functionality in use and material may question the significance of designed elements in the landscape. Sustainable use of material and robust practical application will affect the firmness of proposed outdoor structures. Proposed elements have to be able to tolerate the forces of nature, be sustainable and must accommodate all users. Firmness in material and usability will add value to spaces and thus guarantee the continual existence of place for future generations.

2.2.2.3. Delight (cited in Thompson 1999: 88)

Historical writings confirm that art and delight have always been part of our cultural background. Aesthetics are subjective in nature but it is exactly this, delight, which formulates significant places. The pleasure of being surrounded by a healthy natural environment in a comfortable setting with multifunctional activities is what makes a place significant and memorable.

Sir Henry Wotton did not necessarily declare that these three considerations make places more significant, but it sure seems like a simple recipe for success when redeveloping historical places. A place of comfort, beauty and stability adds value to cultural landscapes which otherwise would remain redundant. Significance and meaning in the cultural landscape accumulates in spaces or places where people desire to be present.

2.3. Landscape as Narrative

2.3.1. Matthew Potteiger and Jamie Purington: Theory in landscape architecture: Landscape Narratives (1998)

The word narrative originates from the Latin word gnarrus which means "to know". Landscape narrative comprises of the story of the site itself, the story of the visitors and the understanding of the stories by responsible designers. The experience of narrative is explained by Ronald Barthes as being "international, trans-historical, trans-cultural: it is simply there like life itself" (Potteiger & Purington 1998).

Out of the interdisciplinary and evolving field of contemporary narrative theory, we can identify certain critical moves that re-conceive narrative and landscape in ways that can engender these new practices. First, landscape and narrative can be redescribed as cultural systems of signification, as language. Secondly, landscape and narrative are also linked by an expanded notion of text and the network of intertextual associations. Further, landscape narratives are not directly homologous to language, but meanings and interpretations are both enabled and constrained within social discourse (Potteiger & Purington 1998: 137).

Three related realms describe the diversity in landscape narrative and provide a framework for understanding narrative qualities and production of places:

The story realm (Potteiger & Purington 1998: 137)

The term "story realm" designates the world created within a narrative-its content, or the story, as well as the means used to shape that world, or the narration (telling). In the narrative space we look at how the units of the story, event, sequence, place, character, agency, point of view, and so on, all work as a system of signification to conjure and sustain a coherent and believable story (Potteiger & Purington 1998: 137).
Structuring sequences also structure time, and narrative has been referred to as a language of time.
Narration time and story time are integral but different. The time it takes to walk the trails is the time of narration, whereas the story time is the time of the actual geological and ecological processes (Potteiger & Purington 1998: 138).

We can enter the various spaces and times of stories-myth, natural history, magic realism, etc.-only to the extent that we let their conventions determine what we look for and do in them (Potteiger & Purington 1998: 140).

The contextual/intertextual realm (Potteiger & Purington 1998: 137)

The term contextual and intertextual designate a realm of narrative where meanings cross boundaries between the story and sites outside the story. Instead of closure, the contextual/intertextual realm opens a story to multiple readings, references, associations, and constellations of stories. The devices used in a story to bring closure-metaphor, metonymy, etc…multiple authorship of landscape narratives increases the plurality and complexity of meaning (Potteiger & Purington 1998: 140).

The discourse realm (Potteiger & Purington 1998: 137)

A discourse is more than the moral of the story: it is a "social framework of intelligibility" which influences all practices of signification, including narrative and landscape

A discourse is more than the moral of the story: it is a "social framework of intelligibility" which influences all practices of signification, including narrative and landscape (Potteiger & Purington 1998: 141). Attention to discourse focuses on the uses of stories, the purposes to which they are put, and the institutions and the world views they
create and sustain (Potteiger & Purington 1998: 142).

Across these realms, landscape narratives are shaped by a variety of practices: framing, naming, sequencing, revealing/concealing, erasing, gathering, opening and so on
(Potteiger & Purington 1998: 143).

Potteiger and Purington (1998) writes that "we come to know a place, because we know its stories". They go on to explain 5 themes apparent in landscape as narrative which comprise of: Naming; Sequence; Revealing and Concealing; Gathering and Opening.

The latter mentioned themes will be discussed briefly in the following paragraphs.

2.3.1.1. Naming

The naming of a space gives relevance or a temporal dimension to the location and can just by uttering the names give a sense of the genus loci of the place.
The tangible characteristics of the site and/or the people associated with the site could provide clues to appropriate naming. By providing a suitable name for a specific site the visitors have the prospect to connect and share collective memories. Naming a site can pay tribute to historical or cultural events (past, present or future) and can in time be meaningful to a visitor or the greater community.

2.3.1.2. Sequencing

Landscape architects can through design interventions, direct both the movement of people through the site and express evolution of the landscape over time (Potteiger & Purington 1998). In his essay Must Landscapes Mean? Marc Treib (2002) describes landscape architecture as "part of a cultural, technical and social milieu and is informed by multitude of factors and considerations".

2.3.1.3. Revealing & Concealing

Potteiger and Purington (1998) write that the concealing and revealing of nature in the picturesque movement showcased the beauty and power of man over nature.
This however is in contrast with current contemporary discourse, as the dynamic and evolving natural processes or systems are now exposed (Potteiger & Purington 1998: 146). Treib explains that "to design with processes (elements) and making these visible to the visitor become more meaningful" (Treib 2002).

By concealing what was once there and by revealing what was once not perceptible, the visitor to the site becomes conscious of the flux in invaluable natural resources. This approach will enable the cultured landscape and natural landscape to collide and develop a landscape narrative in itself.

2.3.1.4. Gathering

Gathering is fundamental theme in landscape narrative theory since stories gather and configure time, event and place (Potteiger & Purington 1998: 143).
The gathering theme, describes the congregation of people and the sharing of knowledge and memories. The social events and meaningful cultural experiences initiated on the site constitute a cohesive whole with the framed landscape.

2.3.1.5.Opening

Opening describes the multiplicity of the visitors' interpretations when visiting the site. As appose to a closed landscape which is formalized, selective or "themed gardens" which does not allow for personal interpretation, the opened landscape allows for a diverse range of responses (readers) and individual experiences.
When understanding the site's layered history and the connection to other stories it will inform the opening theme of a landscape proposal.

2.3.2. Conceptual Diagram

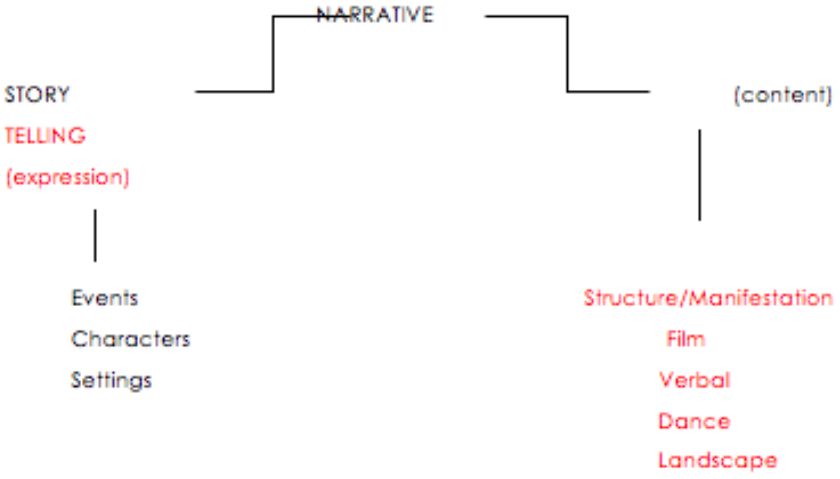


Figure 2: Diagram illustrating the concept of landscape as narrative (Author: 2012)

2.4. Theoretical conclusion

The cultural landscape parallels with time and space and sequentially influences diverse significant values. Meaning and significance within the landscape develops over time, shaped by human experience and is then narrated as a cultured landscape. Conservation of these valued cultured landscapes means the preservation of collective knowledge accrued over time. By designing functional, comfortable and beautiful spaces, the place will develop into a significant healthy communal environment. New collective memories will give meaning to the site.

Contemporary redevelopments of redundant historical places thus ensure gratification of present needs. Contrasting contemporary interventions may highlight the significance of the past and by 'daylighting' sustainable systems, the design educates the public on present and future landscape design discourse.

Thus respect towards cultural landscapes, natural environments and dynamic human needs can grow to be a notable method for achieving significance.

2.4.1. Relationship between theories

Conservation = Nature + Culture

Nature = Time + Space

Culture = Historical Values + Social Values + Aesthetic Values

Time = Significance + Meaning + Narrative

Space (s) = Commodity + Firmness + Delight

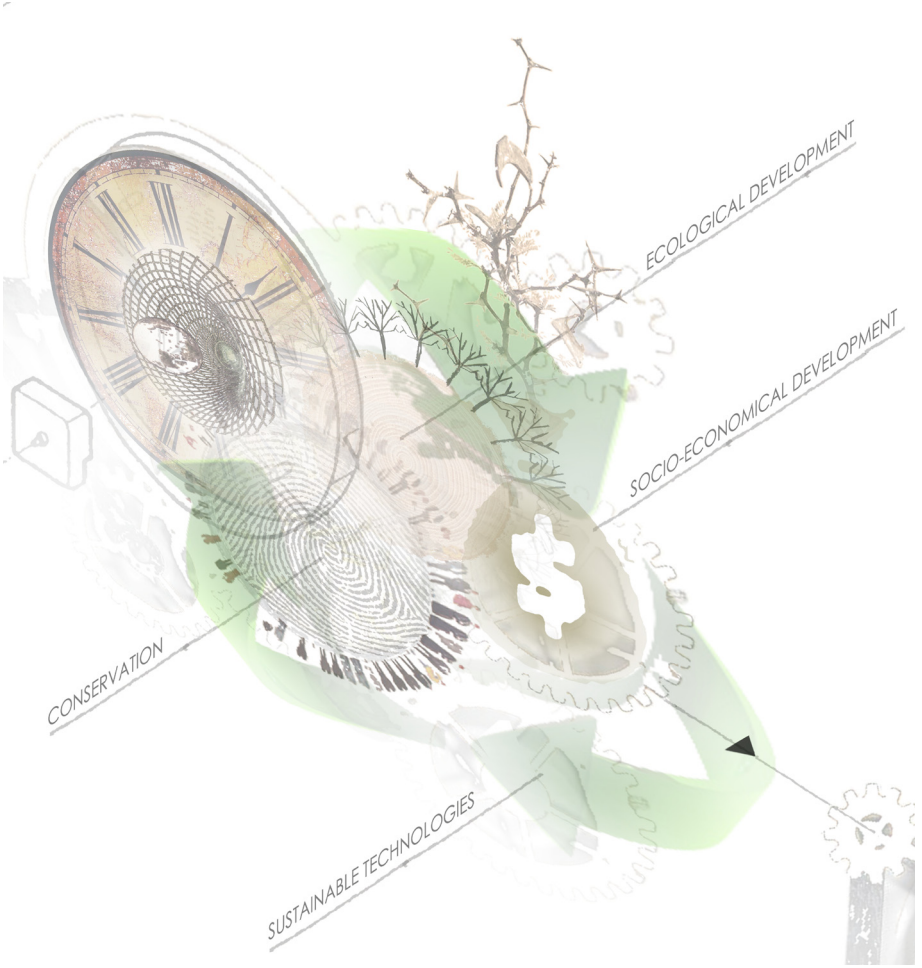


Figure 3: Conceptual Diagram illustrate the relationship between theories (Author: 2013)

3

SITE IN CONTEXT

3. SITE IN CONTEXT

"Place-making involves not only inhabitants and users but the history of the place that is made or remade, the story of the site over time. Time and process lie at the very heart of landscape architecture."
-John Dixon Hunt

3.1. Contextual analysis

The motivation behind the contextual investigation is to gain knowledge of the cultural heritage significance and historic -, social – and aesthetic values present on Zwartkoppies farm? Simon Swaffield writes that "landscape provides a systematic basis for understanding the spatial patterns and processes we see around us and the way that the people adapt the environment to their needs and desires" (HARVEY & FIELDHOUSE 2005: 6). Contextual analysis such as quality of space and special character are precursor of the valued historical landscape.

The following paragraphs and images will narrate the context of Zwartkoppies farm.

3.1.1. Zoning

Figure 4: Zoning diagram - Zwartkoppies context 1939 (adapted by Author: 2013)

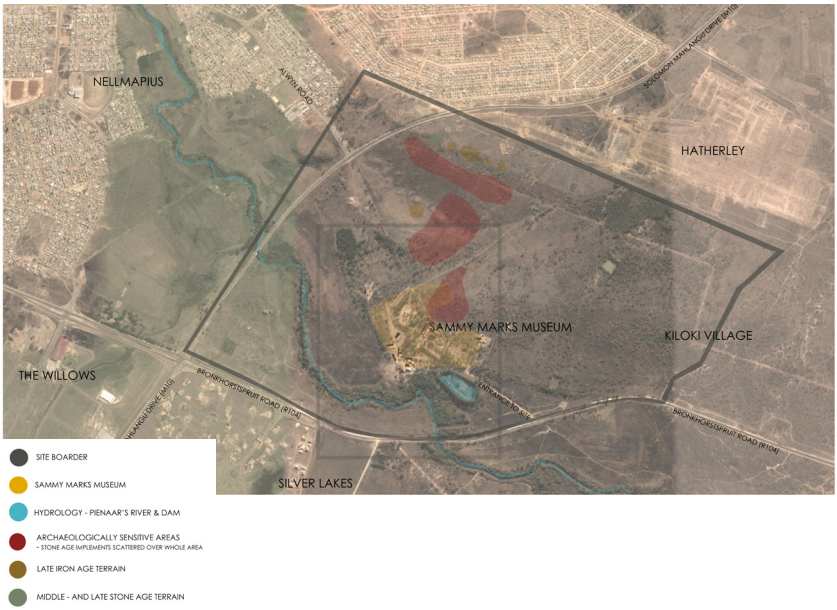


Figure 5: Zoning diagram - Zwartkoppies context present day (adapted by Author: 2013)

Figure 6: 1km Radii from Sammy Marks Homestead to Pta CBD (adapted by Author: 2013)

3.1.2. Roads and Access

Figure 7: Macro context map (Aerial map adopted by Author: 2013)

Figure 8: Micro context map (Aerial map adopted by Author: 2013)

3.1.3. Topography and Hydrology

3.1.3.1. Topography

• Altitude (m): 1400-1500

• The site slopes to a south-western direction and into the Pienaars River running through the site.

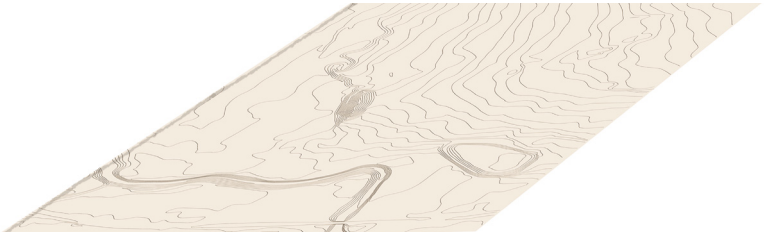


Figure 9: Site Contours sloping towards the Pienaars River (adapted by Author: 2013)

3.1.3.2. Hydrology

• River - Pienaars River runs through site (flows south to north)
• Catchment system - weir and dam built by Marks
• Technology - 4km furrow built from dam (Hydro - power)
• Turbine - powered by water for electricity to marks house

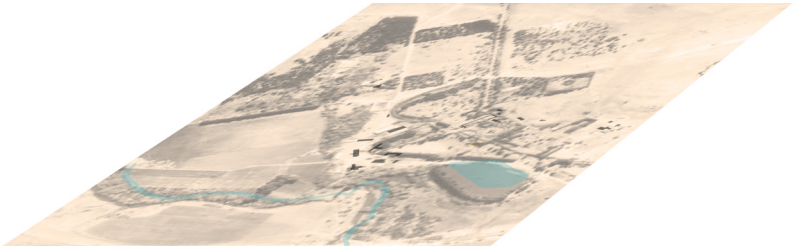


Figure 10: Site hydrology and the Pienaars River (adapted by Author: 2013)

3.1.4. Flora and fauna

3.1.4.1. Flora: Grassland Biome

3.1.4.1.1. Natural Distribution

The Grassland biome straddles the high central plateau of South Africa ('highveld'), the mountainous areas of Lesotho and the sub-escarpment of Kwazulu-Natal, Eastern Cape and Mpumalanga (Carbutt, Tau, Stephens & Escott 2011: 17). It is the largest biome of Southern Africa and covers nearly a third of the continent. http://m.wwf.org.za/what_we_do/land/grasslands/ (accessed on 2013-08-27).

3.1.4.1.2. Vegetation and landscape features

More than 72 vegetation types exist in the Grassland biome but few trees occur naturally. Of the 3370 plant species that occur in the Grassland biome, only one in six consist of grass species. The remainder plants are aloes, red-hot pokers, watsonias, ground orchids and arum lilies to name but a few. The landscape features range from flat to undulating hills and valleys to rugged mountain escarpments.

Figure 11: Vegetation distribution on Zwartkoppies farm (Author: 2013)

3.1.4.1.3. Conservation

The Grassland ecosystem services and biodiversity are under immense pressure and is in need of conservation. Of the 80 vegetation types existing in the biome, 2 are listed as critically endangered, 18 are endangered and 27 are classed as vulnerable. The biome's river ecosystem ranks 83% as threatened, and 48% critically endangered. One third of South Africa's 107 threatened butterfly species occur in the grassland biome.

3.1.4.1.4. Climate

- Rainfall Season: summer and ranges from 500-1 000mm per annum
- Maximum temperatures: 33.6˚C (January).
- Minimum temperatures: between 0˚C and -2˚C with frequent frost (July).

3.1.4.1.5. Geology and soils

- Geology: sandstone, shale
- Soil type: deep red, yellow eutrophic

The grassland biome regions are associated with high nutrient status soils of basalt and dolerite origin. The most common soil in the biome, accounting for 50% of the area, is the red-yellow-grey latosol plinthic catena. This is followed by black and red clays and solonetzic soils, freely drained latosols, and black clays (Rutherford & Westfall 1986).

3.1.4.1.6. Archaeological Sensitive Areas

- Stone age implements scattered over whole area
- Late iron age terrain
- Middle - and late stone age terrain

Figure 12: Archaeological sensitive areas (adapted by Author: 2013)

3.1.4.1.7. Dominant Taxa

• *Themeda triandra*
(van Oudtshoorn 1992: 50)

• *Eragrostis curvula*
(van Oudtshoorn 1992: 177)

3.1.4.1.8. Important Taxa

Medium trees

•*Oleo europaea subsp. africana*
(Joffe 2001: 105)

•*Ziziphus mucronata*
(Joffe 2001: 115)

•*Rhus lancea*
(Joffe 2001: 116)

•*Celtis africana*
(Joffe 2001: 89)

•*Acacia karroo*
(Joffe 2001: 87)

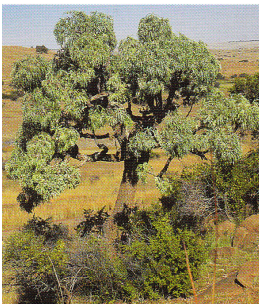
•*Acacia caffra*
(Joffe 2001: 86)

•*Combretum erythrophyllum*
(Joffe 2001: 101)

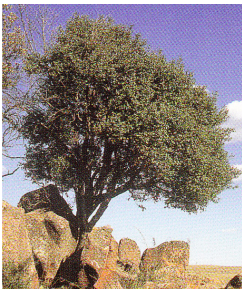
•*Erythrina lysistemon*
(Joffe 2001: 111)

Small trees

•*Euclea crispa*
(Joffe 2001: 56)



•*Cussonia paniculata*
(Joffe 2001: 68)



•*Halleria lucida*
(Joffe 2001: 76)

•*Rhus dentata*
(Joffe 2001: 62)

Tall Shrubs

•*Diospyros lycioides*
(Joffe 2001: 219)

•*Ehretia rigida*
(Joffe 2001: 224)

Medium shrubs

•*Polygala virgata*
(Joffe 2001: 202)

Small shrubs

•*Euryops virgineus*
(Joffe 2001: 156)

•*Phymaspermum acerosum*
(Joffe 2001: 171)

•*Dietes grandifolia*
(Joffe 2001: 149)

•*Dietes bicolor*
(Joffe 2001: 148)

Groundcovers

•*Othonna carnosa*
(Joffe 2001: 276)

•Vygies
(Joffe 2001: 344)

•*Arctotheca calendula*
(Joffe 2001: 266)

•*Sansevieria* species
(Joffe 2001: 311)

•*Aloe greatheadii*
(Joffe 2001: 251)

•*Bulbine frutescens*
(Joffe 2001: 268)

3.1.4.2.Fauna

- Blue Crane (Anthropoides paradiseus),
- Blue Swallow
- Oribi
- Bald Ibis
- Flap-neck Chameleon (Chamaeleo dilepis)

4

SITE ANALYSIS

4. SITE SCALE

"Landscape architecture is part of a cultural, technical and social milieu and is informed by multitude of factors and considerations."
-Marc Treib (2002).

4.1. Background

What is known since the 1890's, as Zwartkoppies farm, was the home and farm estate of the hospitable industrialist Sammy Marks. He was described as being a methodical and conscientious commercial farmer as well as a conservation enthusiast (Mendelsohn 1991: 104). Marks took great pleasure in entertaining at his home on Sundays in particular, when he would invite guests (sometimes as many as 40) whom among others were then president, Paul Kruger to Zwartkoppies. He would walk them around his "English Country Estate" proudly showing them his growing orchards and vineyards (Mendelsohn 1991: 101).

The layered historical landscape of Zwartkoppies, reflect the Victorian style and the passion for delight in taming the natural environment. Zwartkoppies was upgraded in 1890 and the homestead was soon surrounded by grand avenues of evergreen trees, a splendid garden, a maize, a croquet lawn, a tennis court, a cricket cum football field, a swimming pool, new stables, and flourishing orchards, explicitly authenticate an English country estate in the midst of the Highveld.

Being technologically forward, Marks fitted electricity (hydro-electricity) generated by a water powered turbine rushing down a 4km furrow from a dam that he built specially for this purpose on the bank of the Pienaars River (Mendelsohn 1991: 103-104).

Sammy Marks had great interest in all things commerce, from diamond mining, to establishing the first factory in the Transvaal (Eerste Fabrieken), to managing his own dairy and agricultural farm estate at Zwartkoppies. This made his "visionary imagination and unquenchable optimism", ring true (Mendelsohn 1991: 262).

4.2. Character of site

4.2.1. Words describing site character

Past, Memory, Historic, Tamed, Geometry, Victorian, Walks, Leisure, Edges,

Present, Untamed, Nature, Vacant, Dry, Decay, Rust, Texture, Shadow, Silence.

4.2.2. Features that characterise the site

4.2.2.1. Zwartkoppies farm

- Homestead Style - Victorian, Edwardian
- 1890's alterations - Dutch architect de Zwaan
- 1890's alterations executed - Scottish builder, John Kirkness
- Modern amenities - swimming pool, tennis court, electricity
- Additions to landscape - maize, croquet lawn, Grand Avenue lined with evergreen trees, cricket cum football field, rose garden
- Farm buildings - space for 14 horses & 5 carriages
- Wine cellar
- Rose garden (1906)
- Main access to Sammy marks home
- Access to farm buildings
- Staff quarters
- Stables and coach house
- Cow shed and dairy (1903)
- Silos
- Dairy cottage and creamery
- Bertha mark's chicken coop
- Manager's house
- Chicken run
- Storage shed
- Cow feeding aisle
- Cow dipping tank
- Dam (built by marks for hydro-electricity)
- Pienaar's river
- Private residence
- Croquet lawn
- Flag pole
- Flag pole garden
- Private residence
- Open land used for agriculture

• Characteristic features of the past

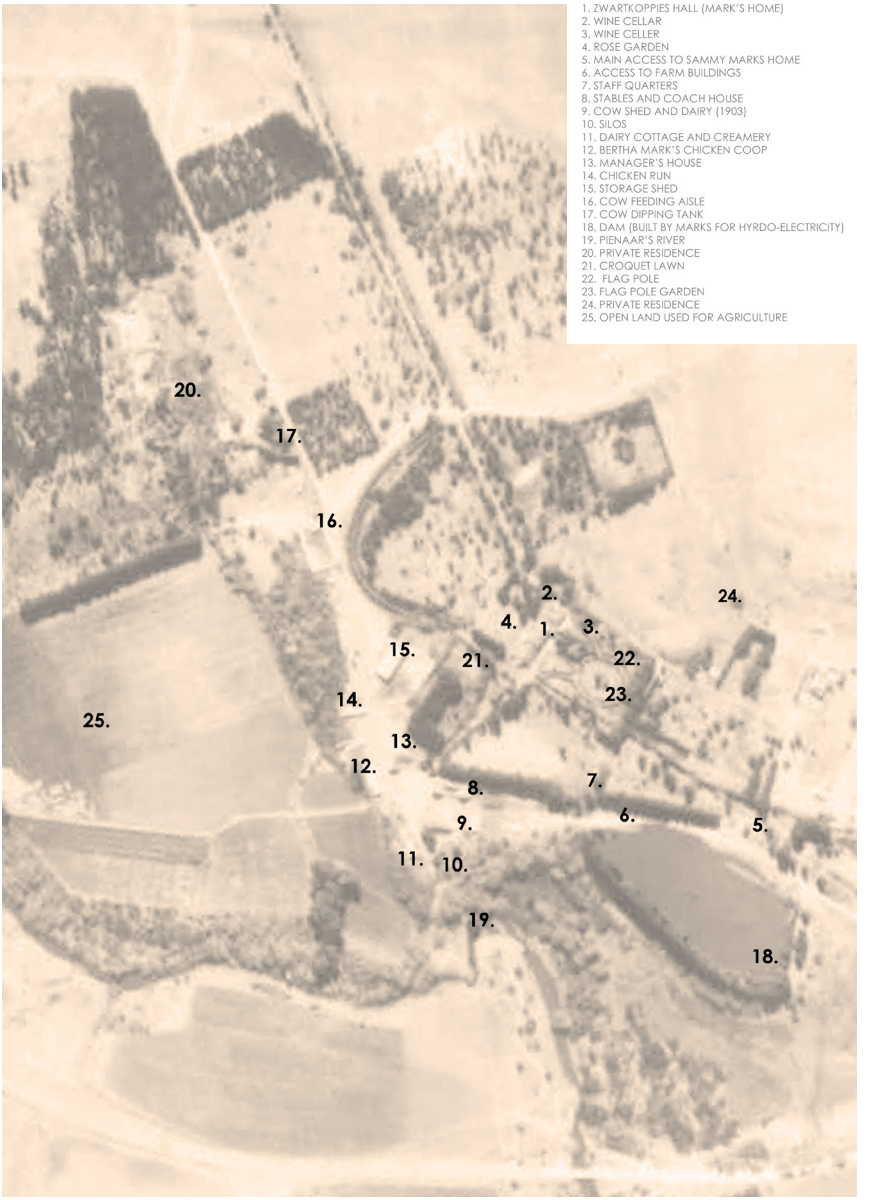


Figure 13: 1939 Aerial photo of Zwartkoppies farm (adapted by Author: 2013)

• Characteristic features present day

Figure 14: Zwartkoppies farm today (adapted by Author: 2013)

4.2.2.1.1. Entrances and access:

Most of the entrances to spaces on the Zwartkoppies farm were in "Russian Gable" style. A white wooden gate (built in 1897) with two white columns of plastered brick located on the northern side of the site, used to be the main entrance to the Sammy Marks home as it was in close proximity to the industrial area Hatherley were the Eerste Fabrieken is located. Today however the entrance is not in use but serves as a backdrop for the current tea garden. The southern gate (not used frequently then) composed of an entrance flanked by two structures built of hewn blue granite and bricks which today is the main public entrance to Sammy Marks Museum. Identical to the latter mentioned gate were two other entrances to the east and west of the site. The eastern entrance possibly gave the Marks family access to their orchard, lake and boathouse. Today it is used as a service entrance.

4.2.2.1.2. The rose garden

In 1906 the Victorian rose garden was laid out in front (north) of the Marks house and was edged with terracotta rope edging tiles produced by Marks' Vereeniging Brick and Tile Company. The geometric layout, the arch and the rope tile edges still exist today.

- Rose garden (1906)
- Formal garden planted in 1905 (18th century English style)
- Fruit tree areas surrounded by cedar trees
- Flag-pole garden set out in a geometric pattern
- Avenues of loquat trees and masses chrysanthemums
- Formal flower beds around the marks home
- Gravel roads

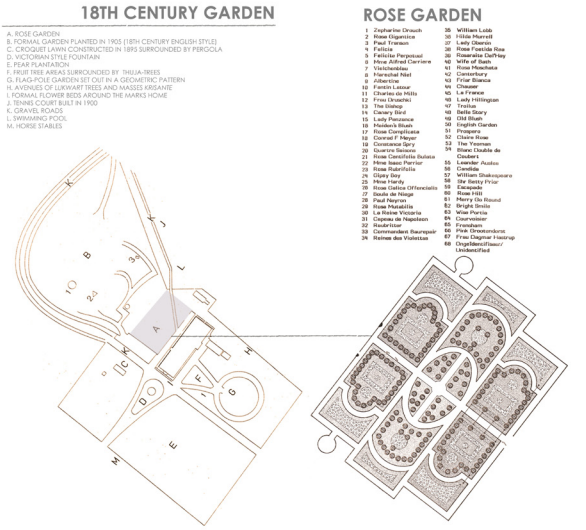


Figure 15: Plan of the Victorian garden design at Zwartkoppies (adapted by Author: 2013)

4.2.2.1.3. Orange grove and pear orchard

The orange grove is situated between the Marks house, cypress maze and the flagpole garden. The orange trees are planted in a V-shape with roses in the middle. In the south-eastern corner of the garden 36 pear trees were planted and further east from the house more peach, plum and apricot orchards were planted. The pear and some of Marks's citrus orchards still thrives today.

- Age of pine - plants thousands of exotic trees
- Orchard - peach & pear trees
- Planting - 7ha cereal (2 profitable crops/annum)
- Fruit harvested - Marks sends children boxes of fruit to England 1896 - veldt fire destroys more than 20 000 trees

4.2.2.1.4. The croquet court

The lawn was first used by the Marks family as a tennis court but this was later upgraded in 1903 to a clay court at the main northern entrance of the site. The lawn area then served as croquet court and is still used today by the public. The summer-house used in the past for teas is still today since 1918, covered by Mermaid rose. Replanted light cream cannas and oleanders surround the court replicating the past.

- Croquet lawn constructed in 1895 surrounded by pergola

4.2.2.1.5. The fountain

The circular fountain was built mid 1890's which consisted of a cement pond with piles of rocks in the centre, where water was supplied from metal pipes around the inside of the fountain wall and at the centre of the rock pile. Lawn, roses, shrubs, conifers and palms were planted around it. The fountain is currently operational.

4.2.2.1.6. The Coach house, stables & sow souse complex

The coach house and stable complex (which could house 14 horses and 5 carriages) was completed in 1895 and the red brick "cow house" later in 1907. Stacked stone walls between the entrance gate to the complex (with a hitching-rail to tie horses) and the coach house & stables, was replaced with plastered brick walls. Also lost in time are the sliding doors, staircase, iron gates and the landing of the lofts.

Thick stacked stone walls in front of the dairy and other stone walls in the forms of kraals (to enclose cattle) no longer exist. Currently the buildings are vacant.

4.2.2.1.7. Bertha's fowl-run

Built in 1910 for the wife of Sammy Marks, Bertha, who was fond of poultry-farming could house her 20 000 chickens. The latter was destroyed in a fire and ceased to exist.

4.2.2.1.8. Pienaars river and the lake

The Pienaars River that runs through the Zwartkoppies farm flows from south to north and is a 1.5 km distance through the site. Marks built a lake (approx. 125m^2) south of the homestead for recreational activities such as swimming and boating. In the middle of the lake existed an island for family picnics. The lake is empty today and not in use.
A hydro-electrical plant was fitted on the farm in 1896 with the help from a Polish engineer. The plant was installed at the banks of the Pienaars River near the Marks home. Today however the electrical system is no longer operational.

4.2.3. Site Vistas

Figure 16: Panoramic from western side of Zwartkoppies farm complex (Author: 2013)

Figure 17: Panoramic from eastern side of Zwartkoppies farm complex (Author: 2013)

Figure 18: Zwartkoppies farm complex main arrival (Author: 2013)

4.3. Historical-, social- and aesthetic value

4.3.1. Historic Value

Historic value to the community encompasses the history of aesthetics, science, and society, and therefore could be used to encompass a range of values. A place may have historic value because it has influenced, or has been influenced by a historic figure, event, phase or activity. It may be the site of an important event. History can describe the 'story' of a place or its people and can apply to any period, though not usually the current period.

Material use in and around the Sammy Marks complex were known to the industry Marks was involved in. Clay bricks, steel profiles, corrugated iron and terracotta rope tiles are some of the industrial materials that exist on site (Naudé 2003). With the demolition of Sammy Marks' factory, Eerste Fabrieken, the Zwartkoppies farm became the only substantial evidence associated with his accomplishments. The loss of this significant industrial building, capitalized the heritage and aesthetic value of Zwartkoppies.

4.3.2. Social Value

Social value to the community embraces the qualities from which place is a focus of spiritual, traditional, economic, political, national or other cultural sentiment to the majority or minority group.

Zwartkoppies farm adds value to the history of the region of Donkerhoek, Diamond Hill, The Willows, Silverton and in general the area between Donkerhoek and Pretoria. The farming complex in itself used to be documented in agricultural magazines and these writings centred around the significant modern agricultural and economical activities initiated on the farm. Jo Marks, Sammy Marks' son, was praised in past publications for his achievements in exploiting innovative farming methods and his overall involvement in the agricultural community of Pretoria and the surrounding region (Naudé 2003: 164).

4.3.3. Aesthetic Value

Aesthetic value to the community includes the aspects of sensory perception (sight, touch, sound, taste, smell) for which criteria can be stated. These criteria may include consideration of form, scale, colour, texture and material of the fabric or landscape, and the smell and sound associated with the place and its use.

This cultural landscape evokes a strong sense of time and place because of the Victorian building style and landscape grandeur. At the beginning of the 20th century, the Victorian period came to an end and the Edwardian era took its place. The excavated trenches on site, dating back to the First Anglo Boer war (1880-1881), are only "archaeologically" significant in the sense that the artefacts of the site will be retained for future generations (Naudé 2003: 162).

4.4. Statement of Significance

Zwarkoppies Hall or Sammy Marks Museum (today) was the 19th century family home of the late industrialist and agriculturalist Sammy Marks. The Victorian and neo-classical architecture, the historical materials used in the interior as well as formal garden elements date back to the time of construction in the 1890's. The Dutch architect, De Zwaan (who assisted then President Paul Kruger in designing several other buildings for the Zuid-Afrikaansche Republic), designed alterations to the Marks's home during the mid 1890's and Scottish building contractor, John Johnston Kirkness built the proposed structures shortly after.

The place is associated with Sammy Marks who played an important part in history (late1800's) concerning industrial and agricultural development in the Transvaal. The Sammy Marks Museum allow for the general public and/or community to know the story and to experience place and memory of the Marks's 19th century homestead. The Zwartkoppies farm and Sammy Marks Museum is valued by the community because of the cultural, educational and social associations of the historical site.

The Zwartkoppies farm is significant as it symbolises the industrial and agricultural development of the Transvaal in the late 1800's. Sammy Marks's creative and technical achievements are intangible today but contributes to the historic value and memory of place. The structures existing on Zwartkoppies farmstead are automatically protected under Section 34 of the National Heritage Resources Act (25 of 1999) for buildings older than 60 years.

Figure 19: Historical Representation of the Marks legacy (Author: 2013)

4.5. Programme and Objectives

4.5.1. Programme

To propose a didactic recreational park, on a cultural landscape (Zwatkoppies farmstead) that contains significant meaning, by suggesting sustainable contemporary landscape design that would expose the site's historical existence and enforce awareness of memory and place. Proposed historical design representations will recollect the Marks family's past activities. The memory of the past should thus be reflected in the present by proposing a social and cultural recreational landscape which will contribute to an ecological and economical future development.

The recreational park at Zwarkoppies will be redeveloped by means of event spaces, restaurants, didactic and interactive spaces as well as walking trails through the site. Systems design and sustainable development will ensure ecological and economical design. Water harvesting and management systems, photovoltaic panels and indigenous community planting will ensure a future self-sustaining park. Conservation principles and processes will guide the accurate management of the historic structures existing on site.

4.5.2. Objectives

The design objectives focus on the preservation of existing cultural heritage and the construction of a newly developed landscape which integrates aesthetical, socio-economical and ecological function. By restoring degraded and polluted landscapes left as inheritance of our manufactured past, we will develop an original contemporary design aesthetic within a historical context. Simon Swaffield argues that the landscape architect should allow for a "…polysemic way of knowing, expanding in the diversity of landscape within culture and design, illustrating the richness and vitality of its continuing evolution."(cited in Neal & Hopkins 2005: 152-155

- Preservation of a historically-significant site
- Economic stimulation and job creation
- Environmental renewal (stormwater runoff and grey water quality)
- Enhance public recreation
- Education
- Creation/expansion of diverse ecological habitats
- Improvement of neighbourhood aesthetic or immediate "green" environment
- Achieve a healthy community identity

• Social

• Recreational park with open free play areas and shaded areas
• Event Space/Amphitheatre for festival or outdoor conferences
• Water activities where visitors may come in contact with the Pienaars River
• Fresh produce markets create opportunities to either sell or buy local goods
• Interactive activities which will allow for visitors to interact with each other or the history of the site itself
• Walking trails along the River and in and around the Farming Complex
• Didactic and/or Mnemonic Tours/Signage
• Milk Production demonstrations will educate the public in the production processes

• Ecological

• Water Management Systems such as green mounds and bioswales which will control stormwater runoff and pollution
• Rainwater Harvesting stored in cisterns used for irrigation and/or toilette facilities
• Indigenous Community Planting to enhance wildlife and biodiversity
• Systems Design in the immediate environment
• Bird and Wildlife Watching Areas within the parkland
• Didactic Tours which will educate on systems and biodiversity
• Walking trails along the River and in and around the Farming Complex

• Economical

• Fresh produce markets create opportunities to either sell or buy local goods
• Photovoltaic panels for alternative and sustainable electricity use
• Rainwater Harvesting to be used for irrigation and/or toilette facilities
• Event Space/Amphitheatre for festival or outdoor conferences
• Milk Production demonstrations will educate the public in the production processes
• Conservation and Preservation of place would insure the future existence of

• Site Amenities

• Outdoor Furniture for comfortable movement through the site
• Sufficient Lighting Facilities which will allow for the visitor to feel save at night
• Toilette Facilities
• Disabled Access to include all visitors to the site
• Information Boards for orientation and didactic purposes
• Parking Areas
• Drop off Areas

5

CONCEPT DEVELOPMENT

5. CONCEPT DEVELOPMENT

"Landscape is not merely the world as we see it; it is a construction, a composition of that world."
-Donald Meinig

5.1. Supporting Theories

5.1.1. Detail Design

Landscape architect, Prof. Christophe Girot identifies two significant values in landscape architecture which are time and place and he argues that "landscape is the historical result of the different uses made of a place, its climate and its topography. It is also the cradle of the history of the human species"(cited in Tate 2005: 61).

5.1.1.1. Commodity

By manipulating space(s) within the landscape and by for example generating hierarchy in movement patterns (through materials and textures), we may influence neighbouring activities on site and propose deliberate communal or private spaces which will sequentially influence functionality of spaces.

Constructing spaces with inclusivity in mind is a fundamental standard that must be incorporated into place-making. Coarsely finished slopes (minimum 1:12), champhered concrete edges, widened pathways and tactile paving are ways to make inclusive design noticeable in the landscape.

5.1.1.2. Firmness

A design requires firmness as it illustrates the importance of structural science, stability and functionality in the building environment. This means that the form of construction process and product must be of a sustainable and endurable nature to withstand external and internal forces. The exploration and use of accurate and efficient materials in such a way that it need not be replaced more often than not, will insure an innovative and robust design that will successfully protect or 'comfort' the occupant of the space. Elisabeth Beazley's statement verifies that the problem should firstly be solved in a functional and practical manner and then secondly the artistic value may emerge (cited in Pinder & Pinder 1990: 11).

The designer may learn from traditional building practice within the cultural landscape to authenticate firmness of construction. If we combine traditional techniques of thinking (or doing/building) with contemporary method we may continue to achieve successful and delightful designs that are coherent with ecological, sustainable and comfortable development.

5.1.1.3. Delight

This detailed ideal that Sir Wotton explained must be the most difficult to describe seeing that the idea of beauty is totally subjective in character (it exists only in the eye of the beholder). Landscape architecture as an 'artwork' was important and seen very often in Geoffrey Jellicoe's work, where the symbolic meaning became more significant than the function of the design (Thompson 1999: 84).
Landscape architecture theory and principles may help turn brownfield sites into desirable places and allow for individuals to experience delight within a historical environment.

The alliance of well defined details, functional, ecological and beautiful landscape design can facilitate delight. To quote the renowned architect Ludwig Mies van der Rohe's dictum: "God is in the detail", he goes on to explain how the intent of qualitative design is appreciated not just by fellow designers but by the visitor to the site (Thompson 1999: 86). Van der Rohe also might have meant that details occurring in our surrounding natural environment ("light as nature"), narrates history and tradition not just in physical construction but also natural processes.
Diversity in wildlife and self sustaining ecosystem may possibly validate beauty.

5.1.2. Sustainable Design (The Sustainable Sites Initiative)

The Sustainable Sites Initiative (SSI) is a credited tool to help inform or iterate 'green' building practice. The following are guiding principles for the development of a sustainable site:

•Do not harm
The aim is to make no changes to a site that will degrade surrounding environments and to propose future sustainable projects on brownfield sites.

•Precautionary principle
Cautious and sufficient decision making is imperative to ensure no damage to human and/or environmental health.

•Design with nature and culture
Responsive design regarding economic, environmental and cultural conditions with respect to context will guarantee sustainable sites.

•Use a decision-making hierarchy of preservation, conservation, and regeneration
To maximize and mimic the benefits of ecosystems by preserving existing environmental features, conserving resources in a sustainable manner and regeneration of lost and/or damaged ecosystems.

•Provide regeneration systems as intergenerational equity
The aim is to provide future generations with sustainable environments supported by regenerative systems and resources.

•Support a living process
The continuous re-evaluation of values and adaptation to environmental change will assure sustainable practice of living processes.

•Use a systems thinking approach
Understand the value and relationships in an ecosystem and the essential relationships between natural processes and human activity.

•Use a collaborative and ethical approach (Birkeland 2002)
Direct and open ethical correspondences with persons involved with the project.

•Maintain integrity in leadership and research
Implement leadership, develop research with technical rigor, and communicate new findings in a clear and timely manner.

•Foster environmental stewardship
Understanding that responsible management of healthy ecosystems improves the quality of life for present and future generations (Architects, et al. 2009: 9).

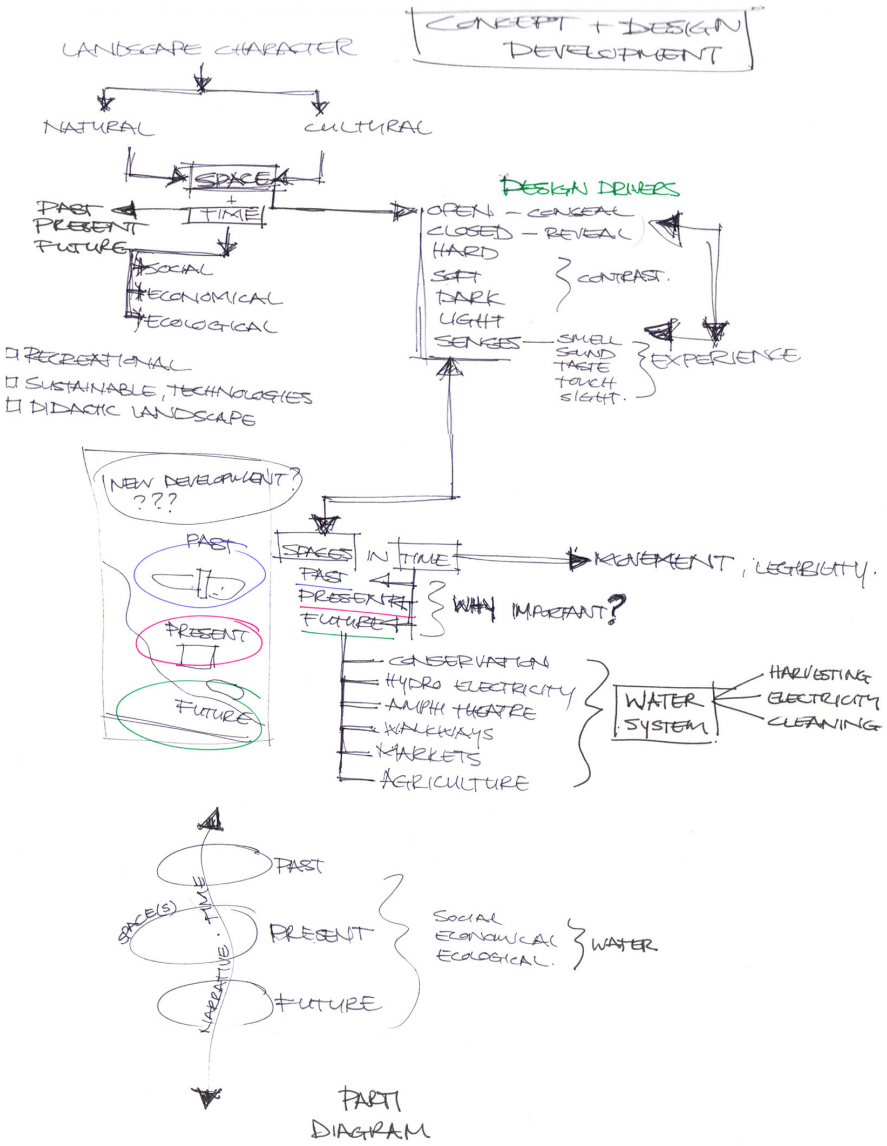


Figure 20: Concept development diagram (Author: 2013)

5.2. Precedents

The following precedent studies will be a vehicle towards developing a sufficient approach concerning the redevelopment of cultural landscapes and/or brownfield sites. The observations will generate an approach to inform concept and design development.

5.2.1. Historical and cultural precedent

•Project Name: Landschaftpark Duiburg Nord, Emscher Park
•Architect: Peter Latz & Partners
•Location: Duisburg-Nord, Germany
•Time of completion: 1994

•Background:
Once a towering blast furnace (Thyssen Steelworks) the site now consist of newly created plazas, gardens and recreational areas (Reed 2005: 124). The site's historical elements are revealed by designed infrastructure that allows vantage from which panoramic views may be observed. Demolished structures were recycled and used as building material. Natural processes occurring on site was reinterpreted to strengthen or validate contemporary technological processes.

• Observation:
The purpose of the regeneration was to improve environmental quality whilst protecting the industrial heritage and furthermore strengthening the image of the region as a cultural landscape. The design approach considered both industrial heritage preservation and the creation of a new type of landscape, integrating aesthetic, economic and ecological function. The design interventions responded with current sustainable approaches to past systems without compromising the significance of existing post industrial structures. Duisburg-Nord is a cultural heritage park that reinforced community identity in the region by being a catalyst for future healthy urban renewal.

• Design drivers:
Scale
Hierarchy
Qualities of spaces
Vision for urban regeneration
Heritage significance

Figure 21: Site plan (Reed 2005: 126)

Figure 22: Cherry trees surround the blast furnaces (Reed 2005: 125)

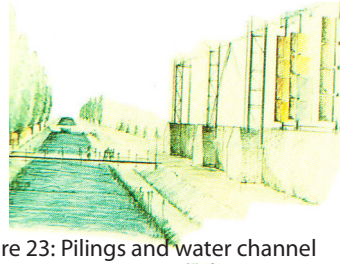


Figure 23: Pilings and water channel (Latz & Partners 1996: 59)

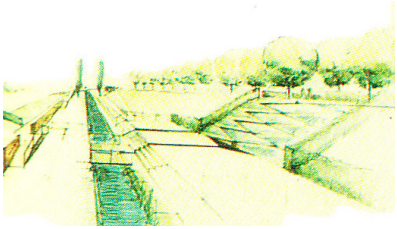


Figure 24: Water channel (Latz & Partners 1996: 59)

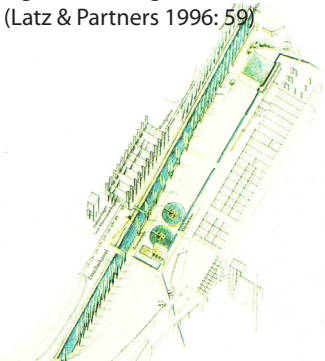


Figure 25: Concept development diagram (Reed 2005: 126)

Figure 26: Playground in ore bunker (Reed 2005: 127)

5.2.2. Social and economical precedent

• Project Name: Babylonstoren
• Architect: Liesl van der Walt
• Location: Western Cape, South Africa
• Time of completion: 2007

• Background:
Babylonstoren is a typical 18th century Cape Dutch style werf that consist of a whitewashed main residence, an old cellar, wheat stores, a bell tower and a fowl pen. The hotel not only reflects the integrity of the original Drakenstein Valley architecture but also pays tribute to the traditional Companies Garden at the Cape.
Fruit, vegetables, scented flowers and medicinal plants laid out in a systematic grid, are utilized in the Babel restaurant and spa. Water from a stream is gravity fed into waterways that irrigate the garden. Social activities like walking trails amongst the vegetable garden and orchards, cycling trails around the werf and canoeing makes this cultural landscape a communal destination.
http://babylonstoren.com/about/what_we_are.php?language=eng accessed on 2013-10-23

•Observation:
What makes the cultural landscape of Babylonstoren so significant is that it doesn't just fulfil the cultural, social expectations of a wine farm in the immediate area but also brings something unique to the region. It personifies a contemporary productive landscape in the midst of a cultural setting. A sustainable edible vegetable, fruit, herb and medicinal garden allows the visitor to the site to engage with the natural environment. Adaptive reuse of historical structures embraces economical opportunities and special character of place. http://able.wiki.up.ac.za/index.php/Babylonstoren accessed on 2013-09-19

•Design drivers:
Geometry
Activities
Environmental
Services

Figure 27: Formal garden layout

Figure 28: Babylonstoren sits comfortably in its natural environment (Author: 2013)

Figure 29: Water channels and orchards (Author: 2013)

Figure 30: Signage and arched walkways (Author: 2013)

5.2.3. Environmental and aesthetic precedent

• Project Name: Don Valley Brickworks
• Architect: Architectes Paysagistes Incorporated
• Location: Toronto, Canada
• Time of completion: 1998-

• Background:
An old brickworks factory that was transformed into a didactic, family park that takes in hand the themes of nature, culture and community of the Toronto region.
From heritage tours, clay-making to organic food markets, the Don Valley Brick Work industrial park's objective is adaptive reuse and the authentic preservation of historical structures. Stormwater management strategies are visible to the public and solar energy enhances the sustainable design approach.

•Observation:
Don Valley Brickworks reveals the simultaneous use of ecological restoration for water quality improvement, habitat creation, leisure and recreational opportunities.
The project creates opportunity to highlight the fact that the recreational areas may be compatible with stormwater management, environmental restoration and water quality improvement. The redevelopment confirms that diverse wildlife habitat can be combined with leisurely activities and recreational opportunities (Loures, et al. 2011).

•Design drivers:
Structure
Material
Technologies
Sustainability

Figure 31: Birds eye view of the site

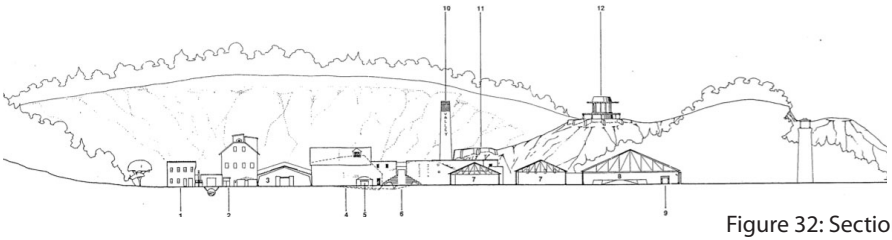


Figure 32: Section

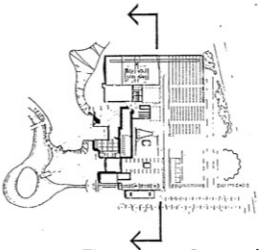


Figure 33: Ground level plan

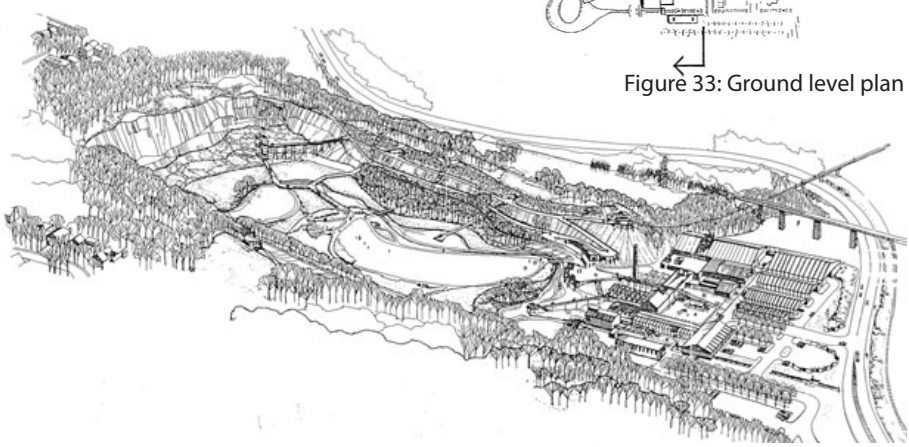


Figure 34: Southwestern Perspective

Figure 35: A landmark site

Figure 36: Existing historical signage of the brick factory

5.3. Approach

How can cultural landscape theories along with precedents inform a social, economical and ecological approach to redeveloping heritage places?

Historical and cultural
Landschaftpark Duiburg Nord confirms how industrial heritage could be used as a medium for future urban regeneration. The contemporary interventions strengthened the existing potential by motivating public or communal interest. Systems design particularly water management strategies support the sustainable redevelopment of this post industrial site.

Social and economical
Considering the refined concept of land transformation, industrial heritage and environmental quality, the main objective of the Babylonstoren project was to enable the development of a multifunctional landscape with several green spaces.
Along with the ecological and functional sense of place, the objective was to set a spatial organization that translates a logical and formal unity for reading the site.

Environmental and aesthetic
The aim of the project is to refocus the attention of the community on natural systems or processes thus a project based on environmental and heritage regeneration strategy. Don Valley Brickworks confirms that recreational parks are compatible with stormwater management, ecological restoration and water quality improvement.

5.4. Concept

The concept is to redevelop the redundant Zwarkoppies farmstead into a didactic recreational park that will captivate the living memory of Sammy Marks. The park will guarantee various visitors' experiences both in time and space and fulfil the original intention to preserve appropriate cultural activities on the site. The design aims to accomplish two different objectives: protecting the industrial heritage and historic structures; and constructing a park that provides both intimate and larger scale public spaces for a variety of economical and cultural activities. Contemporary activities on site will parallel with the former cultural identity of Zwartkoppies farm and will manifest past farming methods, improved in present day.

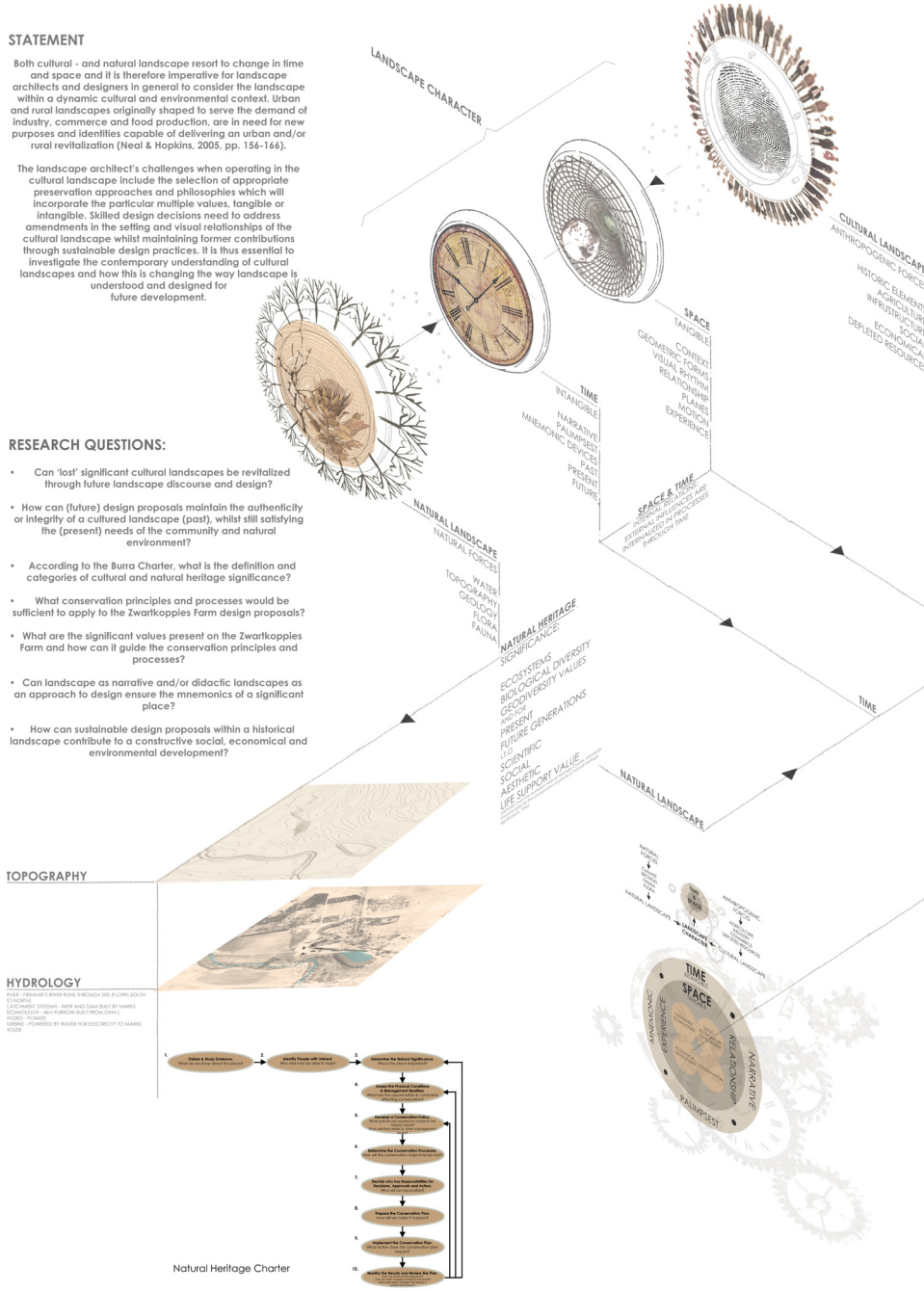
STATEMENT

Both cultural - and natural landscape resort to change in time and space and it is therefore imperative for landscape architects and designers in general to consider the landscape within a dynamic cultural and environmental context. Urban and rural landscapes originally shaped to serve the demand of industry, commerce and food production, are in need for new purposes and identities capable of delivering an urban and/or rural revitalization (Neal & Hopkins, 2005, pp. 156-166).

The landscape architect's challenges when operating in the cultural landscape include the selection of appropriate preservation approaches and philosophies which will incorporate the particular multiple values, tangible or intangible. Skilled design decisions need to address amendments in the setting and visual relationships of the cultural landscape whilst maintaining former contributions through sustainable design practices. It is thus essential to investigate the contemporary understanding of cultural landscapes and how this is changing the way landscape is understood and designed for future development.

RESEARCH QUESTIONS:

- Can 'lost' significant cultural landscapes be revitalized through future landscape discourse and design?
- How can (future) design proposals maintain the authenticity or integrity of a cultured landscape (past), whilst still satisfying the (present) needs of the community and natural environment?
- According to the Burra Charter, what is the definition and categories of cultural and natural heritage significance?
- What conservation principles and processes would be sufficient to apply to the Zwartkoppies Farm design proposals?
- What are the significant values present on the Zwartkoppies Farm and how can it guide the conservation principles and processes?
- Can landscape as narrative and/or didactic landscapes as an approach to design ensure the mnemonics of a significant place?
- How can sustainable design proposals within a historical landscape contribute to a constructive social, economical and environmental development?



Natural Heritage Charter

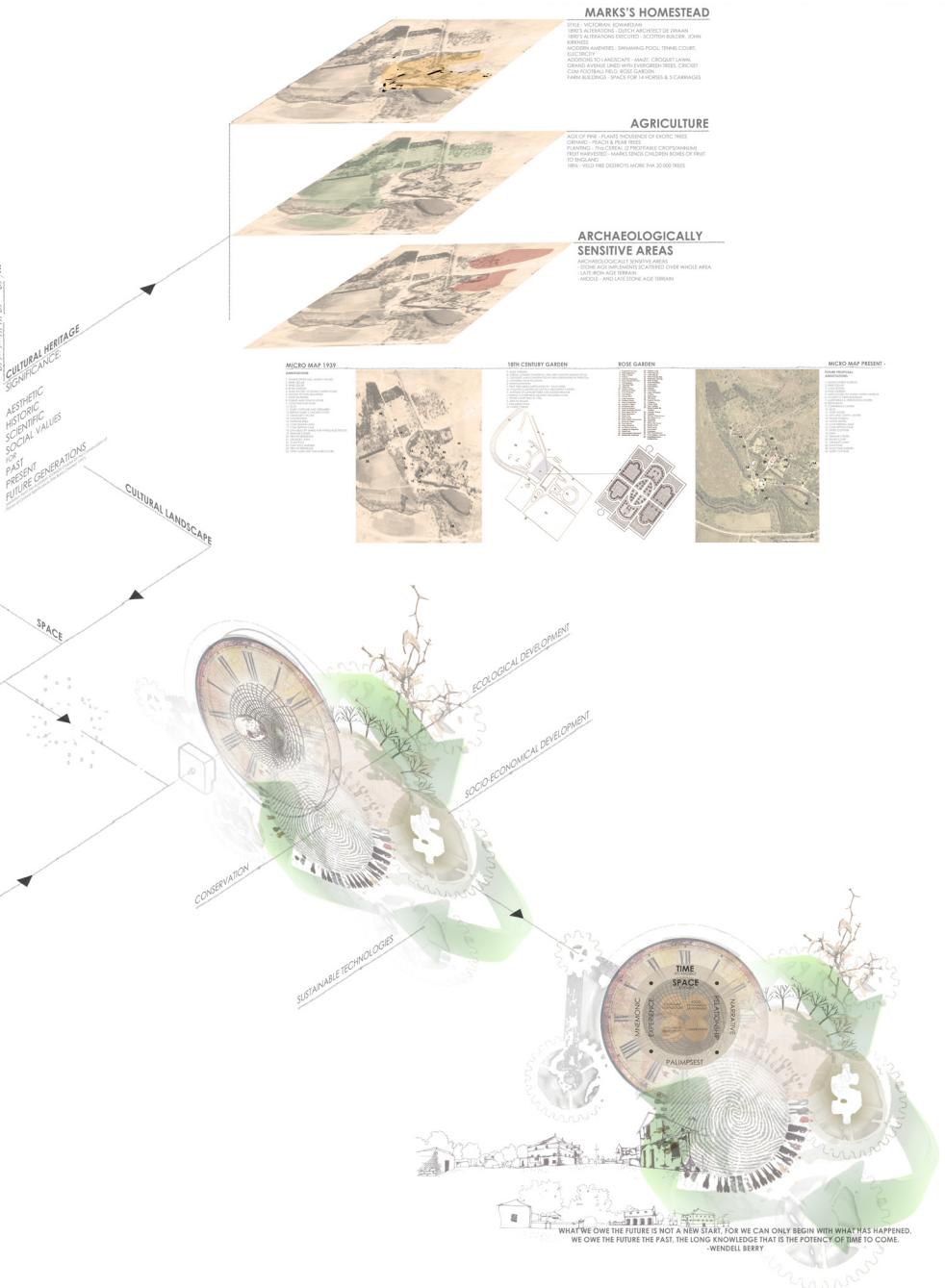


Figure 37: Theory as an approach to concept development (Author: 2013)

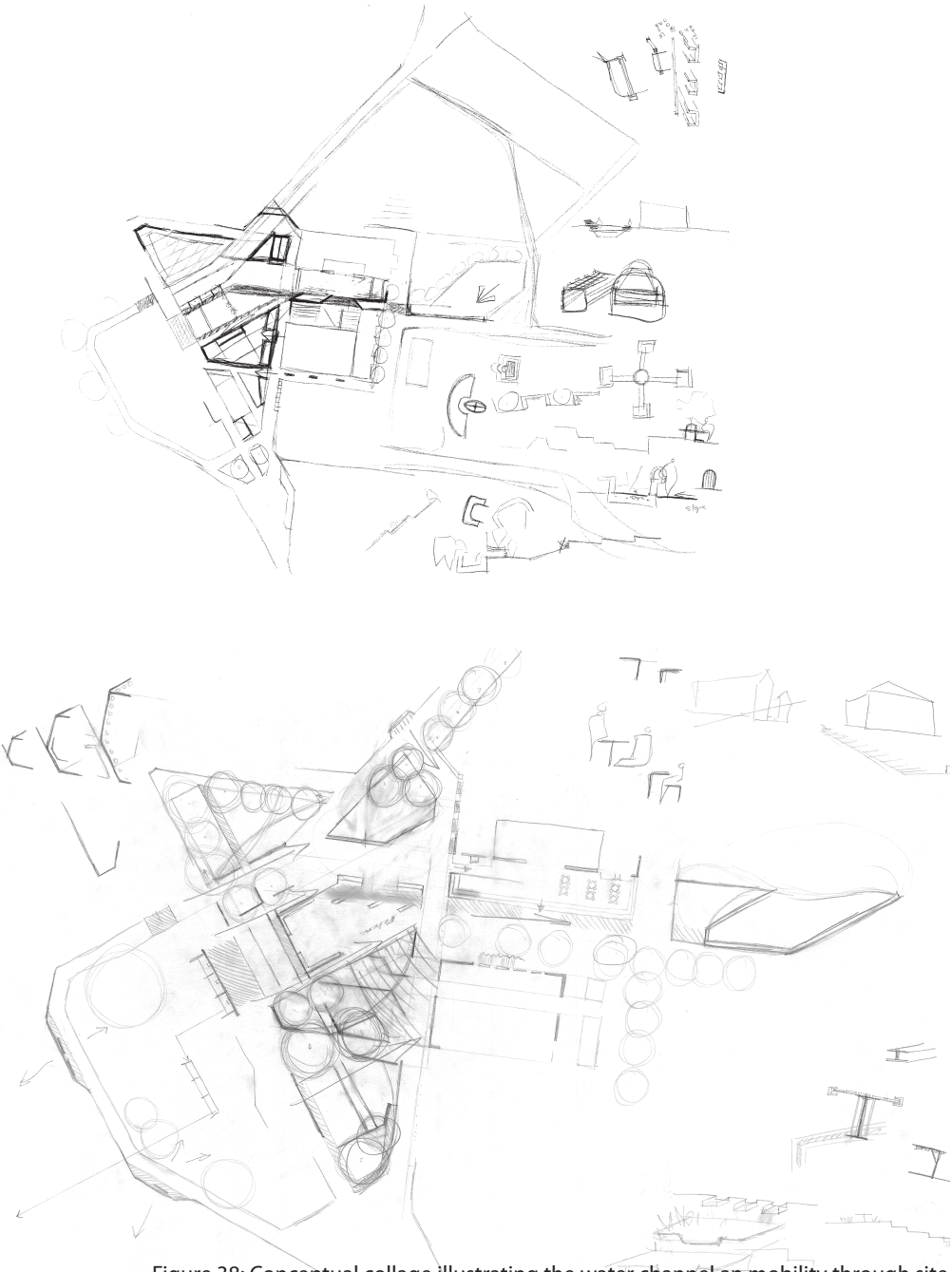


Figure 38: Conceptual collage illustrating the water channel an mobility through site (Author: 2013)

6

DESIGN DEVELOPMENT

6. DESIGN DEVELOPMENT

"Design with nature."

-Ian McHarg

The landscape architecture redevelopment will respond to the Zwartkoppies Dairy (architectural proposal) of Darryn Botha (2012).

The intention of the dairy facility is to provide a platform for an industrial typology to engage in a critical dialogue with a public interface. The proposal links the idea of a closed loop system where production, consumption and waste are linked –to work together rather than as separate entities (Botha 2012: 59).

6.1. Design Solutions

Figure 39: Site Matrix (Author: 2013)

Figure 40: Diagram illustrate program on site (Author: 2013)

Figure 41: Movement and hierarchy of space (Author: 2013)

6.2. Master Plan

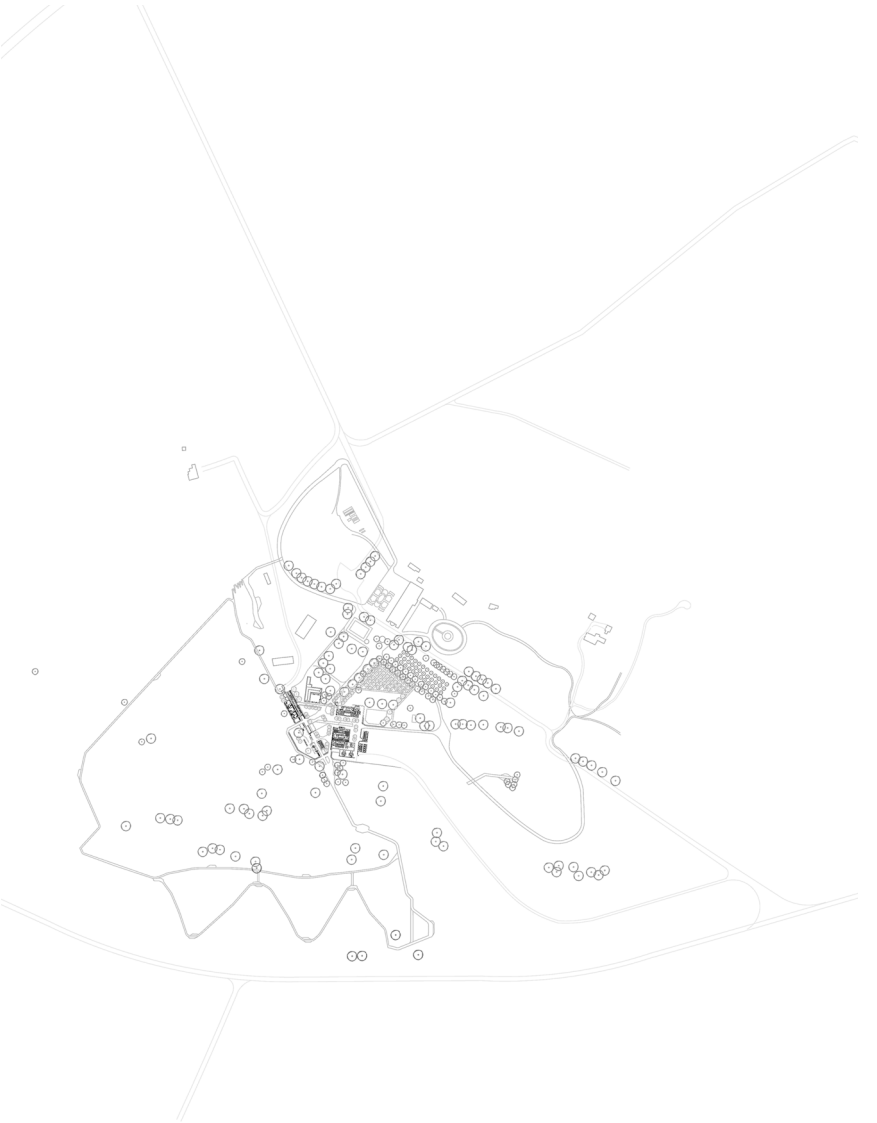


Figure 42: Master Plan (Author: 2013)

6.3. Design characteristics

Figure 43: Diagrams and perspectives that illustrate activities and elements of design (Author: 2013)

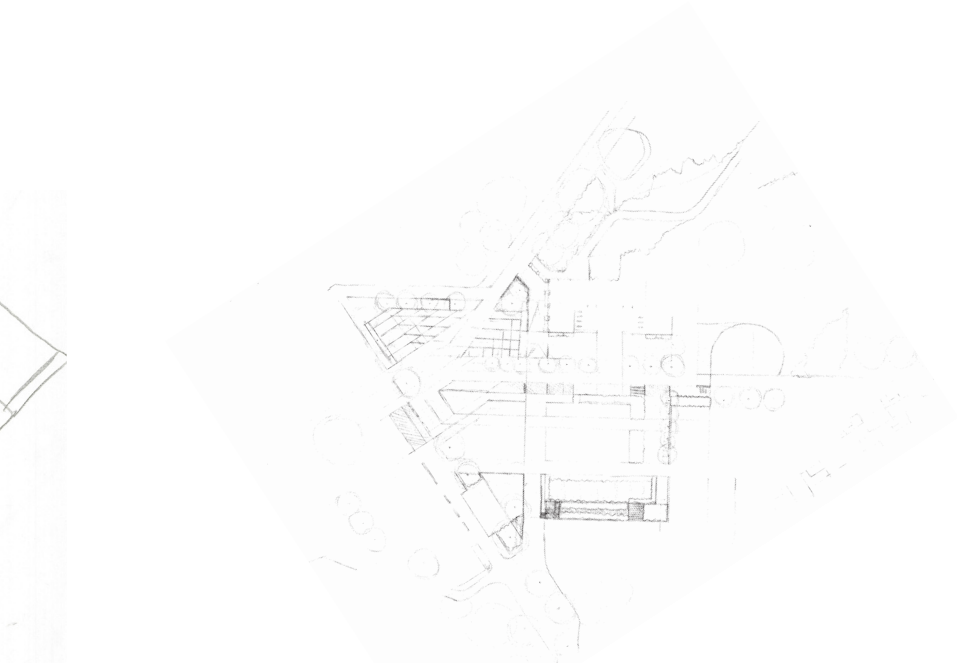


Figure 44: Form generated through movement (Author: 2013)

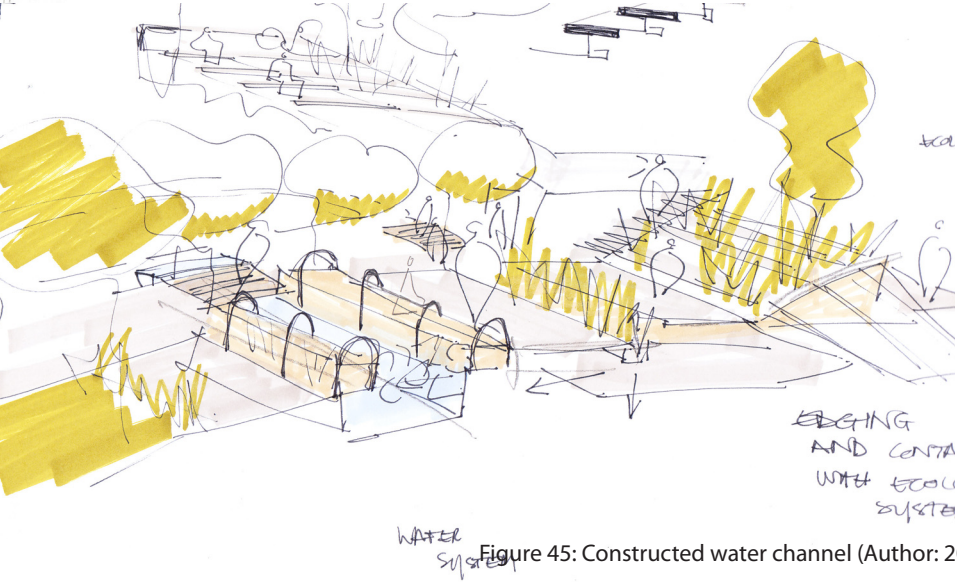
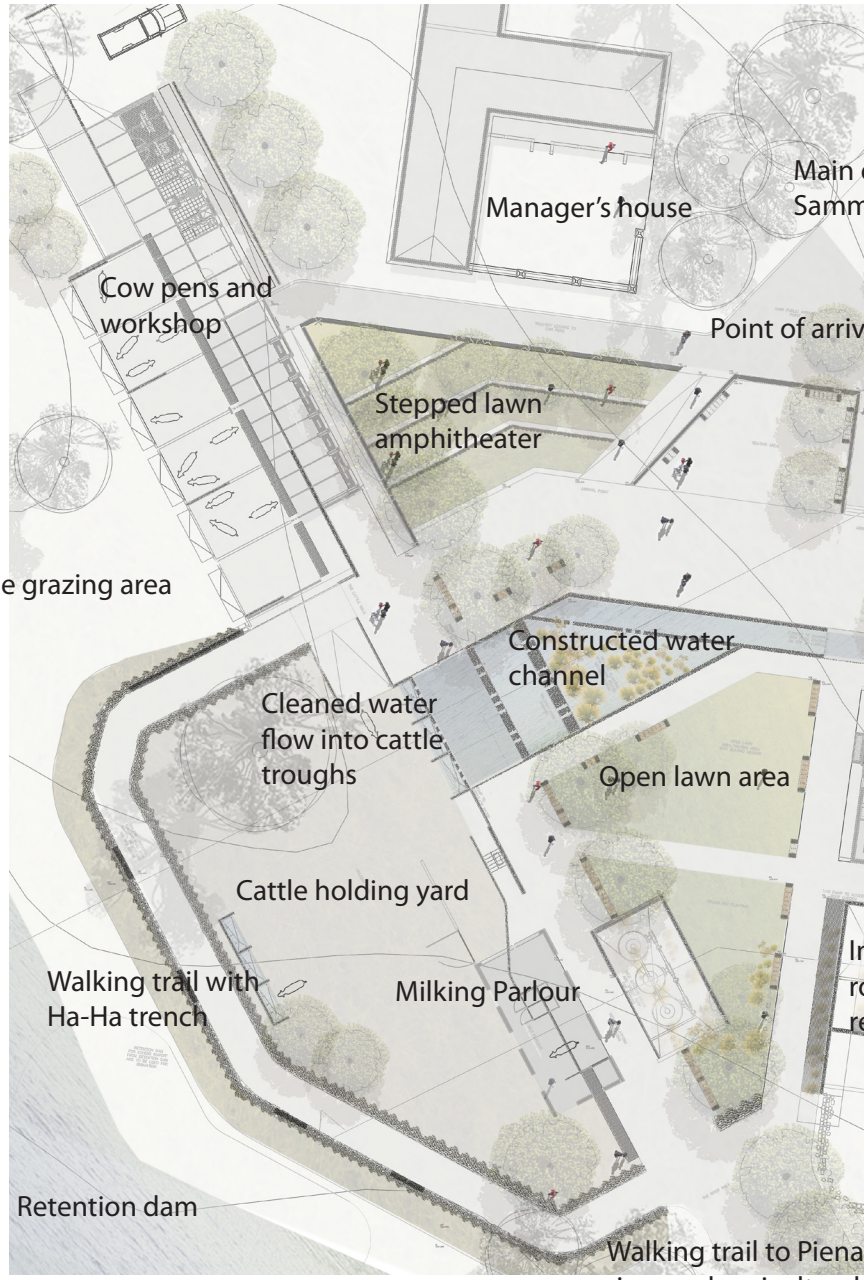


Figure 45: Constructed water channel (Author: 2013)

6.4. Sketch Plan



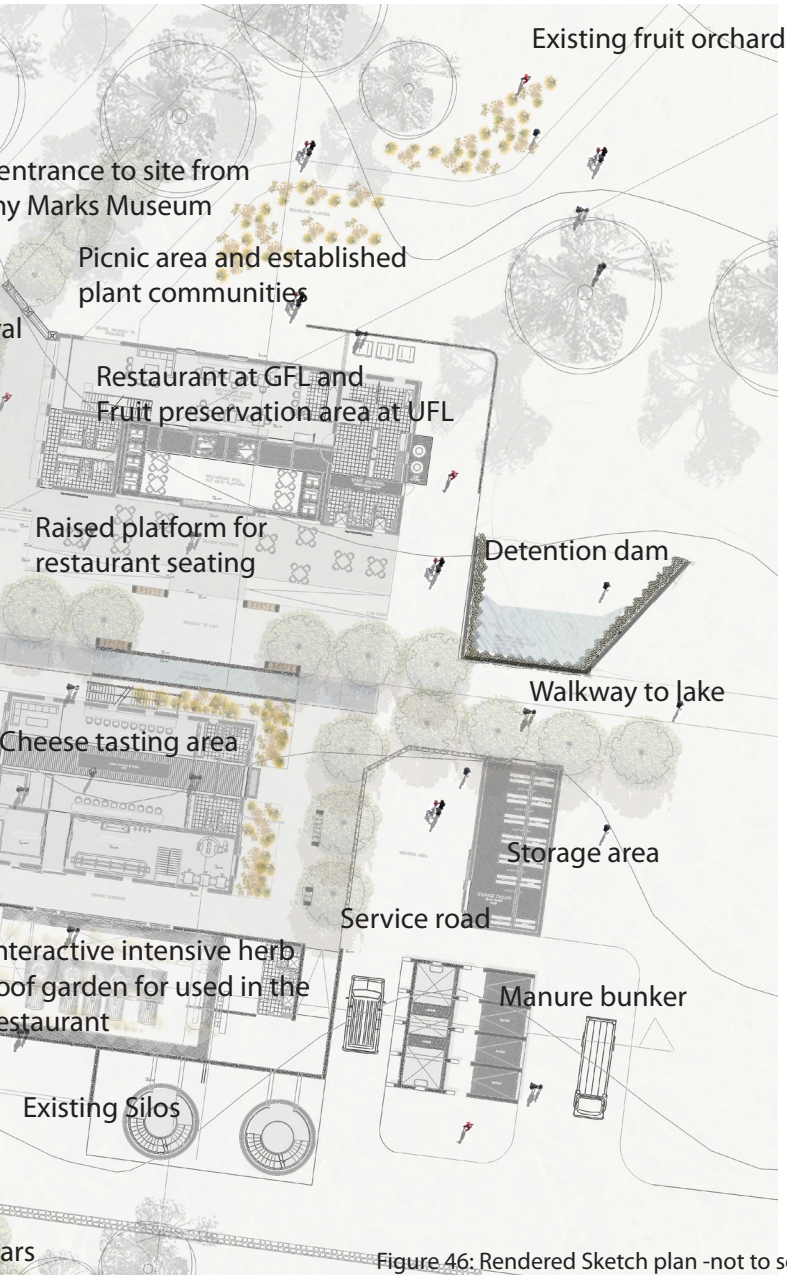


Figure 46: Rendered Sketch plan -not to scale (Author: 2013)

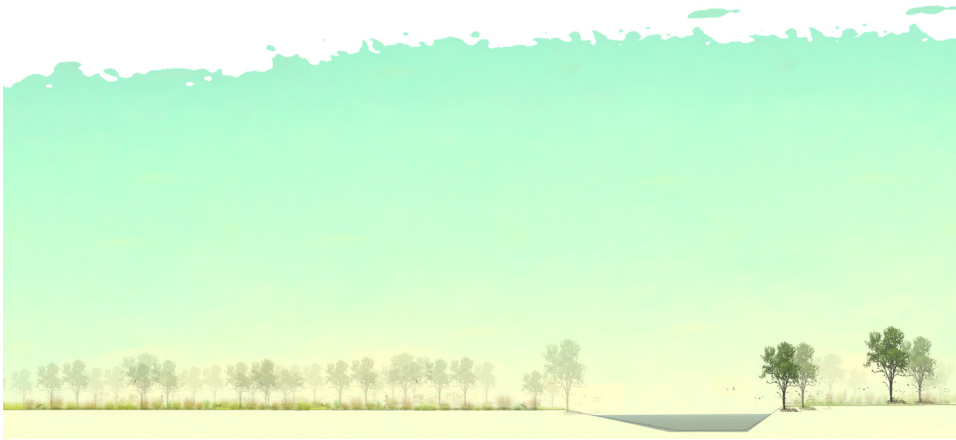
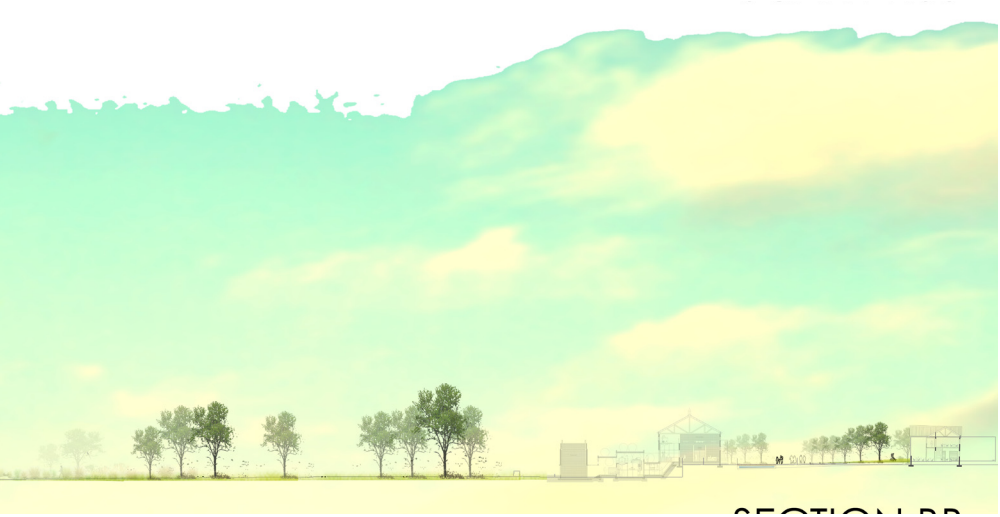


Figure 47: Section elevation through Z



wartkoppies Dairy Farm, walking trail, Pienaars river and agricultural area - not to scale (Author: 2013)

7

TECHNICAL DEVELOPMENT

7. TECHNICAL DEVELOPMENT

"Landscape is both spatial milieu and cultural image…a medium that is embedded and evoked within the imaginative and material practices of different societies at different times"
-James Corner

7.1. Hydrological system

Water management strategies will be put in place to ensure that sustainable farming methods are demonstrated or evident to the public visitor.

The water system includes the catchment of rainwater from roofs and surface runoff that will be channelled from a retention dam to a detention dam. Excess water will be utilized for irrigation in planted and agricultural areas.

Collection and use of stormwater runoff will remain visible throughout the site. Runoff water will be treated through a constructed channel by means of altering water zones. Once the water has flood the planted area, the open reflection pool area, the deep zone area and the gravel zone, the water will spill into cattle troughs. This water cleansing system educates the public as to what natural processes stormwater require in facilitating potable water. The proposed channel signifies a historical representation of furrows and/or channels built by the Marks family for leisurely use and hydro-power.

Cattle Water requirements

TYPE OF LIVESTOCK	ANNUAL REQUIREMENTS (LITRES)	DAILY REQUIREMENT (LITRES)
DAIRY COW IN MILK	22500 (22.5m³)	62
DAIRY COW IN DRY	17000 (17m³)	47
CALVES	8200 (8.2m³)	22
HORSES - GRAZING	13500 (13.5m³)	37
48 DAIRY COWS	1080000 (1080m³)	2976 (2.9m³)

Figure 48: Cattle water requirements (Author: 2013)

7.2. Ecological system

The proposed redevelopment at Zwartkoppies will integrate the public interface with the processes involved in contemporary farming methods and sustainable systems design. The public will visit the cultural landscape for leisurely activities as well as didactic experiences concerning the significant history of the place.

Ecological restoration and food production will benefit the local community and economical sector.

Figure 49: Self-sustaining landscape diagram (Author: 2013)

7.2.1. Fauna

Calculations

Stocking rates or DSE (Dry Sheep Equivalent)
Diagram 1.1: Example of estimating the stocking rate (DSE) for a property
Example: Firstly, determine how much land is available for grazing. Eliminate non grazing areas such as
house, sheds etc. Take account of restricted seasonal grazing due to waterlogging.
Total property size: 12 hectares
Available grazing land:
Area 1: (grazing all year) = 6ha
Area 2: (restricted for 3 months in winter) = 2ha
Area 3: (only available for 6 months) = 4 ha
Assume the regional stocking rate for the region is 10DSE/ha and the pasture is of good quality.
Maximum stocking rate for the property:
Area 1: 6ha × 12/12 × 10DSE = 60 DSE
Area 2: 2ha × 9/12 × 10DSE = 15 DSE
Area 3: 4ha × 6/12 × 10DSE = 20 DSE
Total for the property: = 95 DSE
(i.e. 95 dry sheep can be run on this property without degrading the land)
If running milking cows; divide 95 by the DSE for milking cows (14)
i.e. 95/14 = 7 milking cows.

Stocking rates or DSE (dry sheep equivalent)

Diagram 1.2: Example of estimating the stocking rate (DSE) for a property
Example: Firstly, determine how much land is available for grazing.
Eliminate non grazing areas such as house, sheds etc.
Take account of restricted seasonal grazing due to waterlogging.
Total property size: 48 hectares

Available grazing land:

Area 1: (grazing all year) = 24ha
Area 2: (restricted for 3 months in winter) = 8ha
Area 3: (only available for 6 months) = 16 ha
Assume the regional stocking rate for the region is 10DSE/ha and the pasture is of good quality.
Maximum stocking rate for the property:
Area 1: 24ha × 12/12 × 10DSE = 240 DSE
Area 2: 8ha × 9/12 × 10DSE = 60 DSE
Area 3: 16ha × 6/12 × 10DSE = 80 DSE
Total for the property: = 380 DSE

(i.e. 380 dry sheep can be run on this property without degrading the land)
Milking cows: divide 380 by the DSE for milking cows (14)
i.e. 380/14 = 27 milking cows.

Diagram 2: Example of increasing grazing pressure at a constant stocking rate
A property of 48 hectares has a stocking rate of 10 DSE per hectare, which means a total of 34 milking cows (or 340 dry sheep) can be maintained over the year. If the whole property has only one paddock, the grazing pressure is 1 milking cow per hectare. To double the grazing pressure the property could be divided in half, creating two paddocks, each 24 hectares, allowing one to be grazed by 48 milking cows, while the other is rested. To increase the grazing pressure 4 fold, and have three paddocks rested, four paddocks should be created.

Milk production calculations

AMOUNT OF DAIRY COWS	AVERAGE MILK PRODUCED /DAY (LITRES)	MONTHS MILKED	TOTAL MILK PRODUCTION/YEAR (LITRES)
SINGLE DAIRY COW	65	10 (305DAYS)	19500 (19.5 m³)
48 DAIRY COWS	3120	10 (305DAYS)	951600 (952m³)

Figure 50: Milk production calculation (Author: 2013)

Feeding requirements

Type of livestock		Maize silage			Hay	
	kg/day	kg/year	Storage space (m^3)	kg/day	kg/year	Storage space (m^3)
Calf (125-350kg)	12	4380	6.15	0.5	180	1.2
Full grown cow	22	8030	11.15	-	-	-
(350-550kg)						
48 Cows	1056	2930950	528			

Figure 51: Cattle feeding requirements (Author: 2013)

$107m^2$ of agriculture = serves 1 person
$20234.3m^2$ or 2ha of agriculture = serves 189 people
$6070.3m^2$ or 1ha of agriculture = serves 112 people
$146264m^2$ or 14.6ha of agriculture = serves 1323 people

7.2.2. Flora

- Plant Communities - Grassland Biome

- Wetland Planting
- Chondropetalum tectorum (Joffe 2001: 317)
- Aponogeton distachyos (Joffe 2001: 316)
- Cyperus prolifer (Joffe 2001: 322)
- Juncus effusus (Joffe 2001: 330)

- Intensive 'Green' Roof - Herb Garden
- *Lavandula allardii* – Lavender
- *Ocimum basilicum L.* – Common Sweet Basil
- *Eriocephalus africanus L.* – Wild Rosemary
- *Salvia Africana-coerulea* – Blue Sage
- *Thymus vulgaris L.* – Thyme
- *Anethum gravoelens L.* – Dill
- *Chamarea capensis* – Wild Fennel
- *Apium graveolens L.*– Soup Celery
- *Pelargonium graveolens* – Rose-scented pelargonium
- *Lobostemon fruticosus (L.) Buek.* – Eight day Healing Bush
- *Peucedanum ferulaceum* – Wild Parsley
- *Lactuca capensis* – Cape lettuce
- *Tetradenia spp.* – Wild Ginger

Figure 52: Images illustrate ecological strategy (Author: 2013)

7.3. Material palette

Relating architecture to landscape through elements and material

- Eva Last Composite Timber Decking
- Fibre Grating
- Cast in-situ concrete
- Steel profiles
- Recycled rocks from the site

Elizabeth Beazley landscape architect and publisher of *Design and Detail of the Space Between Buildings* concluded about the problems regarding treatment of the space between buildings, that there was much lacking in our twentieth century efforts, but that there were some outstanding examples of good new work, 'outstanding because they are straightforward, robust, simple and well detailed'. Of these criteria she noted that: 'These virtues should be the rule, not the rare exception.' (cited in Woudstra [no date])

7.4. Access and movement

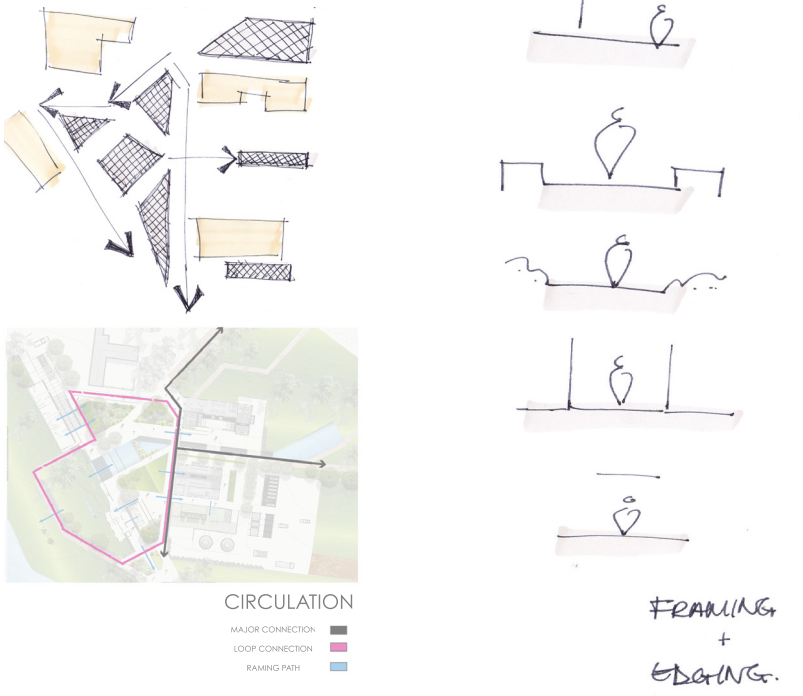


Figure 53: Images illustrate circulation strategy (Author: 2013)

8

DETAIL DESIGN

8. DETAIL DESIGN

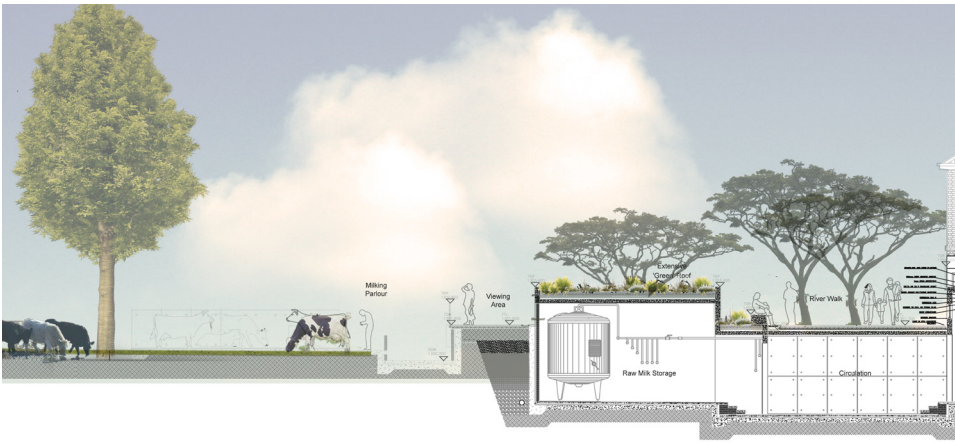
What we owe the future is not a new start, for we can only begin with what has happened. We owe the future the past, the long knowledge that is the potency of time to come.
-Wendell Berry

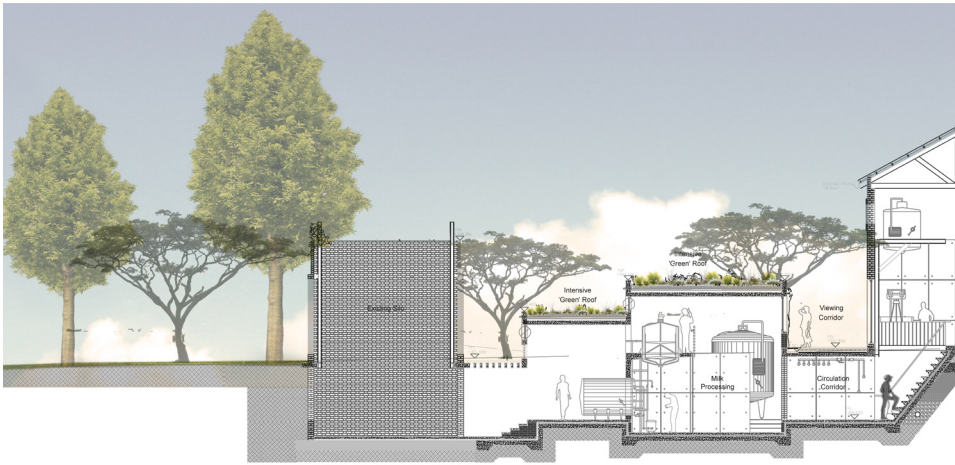
8.1. Plans

1. Main arrival point from the Sammy Marks Museum
2. Walkway to existing fruit orchard
3. Existing building adapted to restaurant (ground floor) and fruit preserve making area (first floor)
4. Open space for seating and extension of restaurant
5. Restaurant spill out onto outdoor platform
6. Walkway to existing lake
7. Detention dam to capture stormwater and excess flowing to retention dam (south west of site)
8. Walkway to lake
9. Existing building adapted to a cheese tasting area
10. Existing building adapted to a storage room
11. Services road
12. Existing building adapted to a cow manure bunker
13. 'Green' roof above milk storage and cooling area
14. Existing silos
15. Viewing corridor
16. Open lawn area with concrete and composite timber benches
17. Walkway to Pienaars River and agricultural area
18. Existing building adapted to a milking parlour
19. Cattle holding yard
20. Ha-Ha trench and walkway
21. Retention dam
22. Cattle trough
23. Water to filter through a constructed channel and into the cattle troughs
24. Stepped lawn amphitheater
25. Existing building adopted as cow pens
26. Existing manager's house

Figure 54: Annotated Sketch Plan - not to scale (Author: 2013)

8.2. Sections





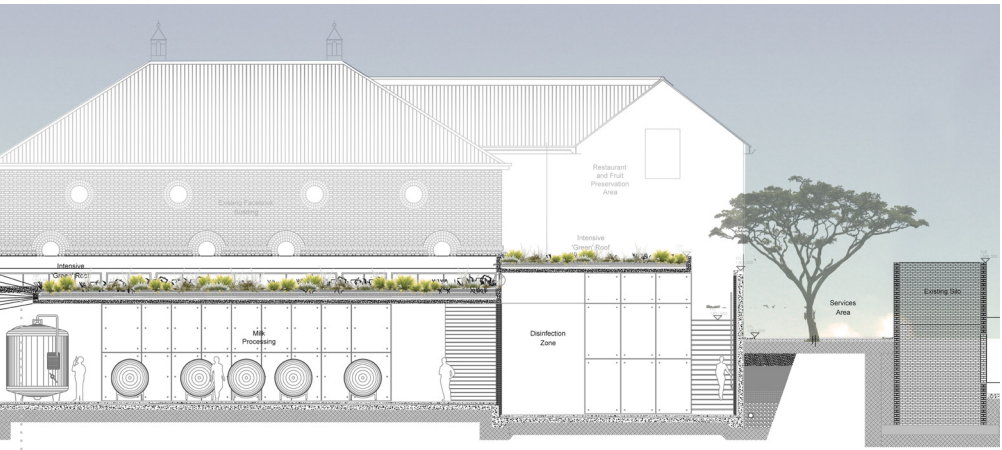


Figure 55: Section elevation through existing silo, 'green' roof and holing yard - not to scale (Author: 2013)

Detail 1

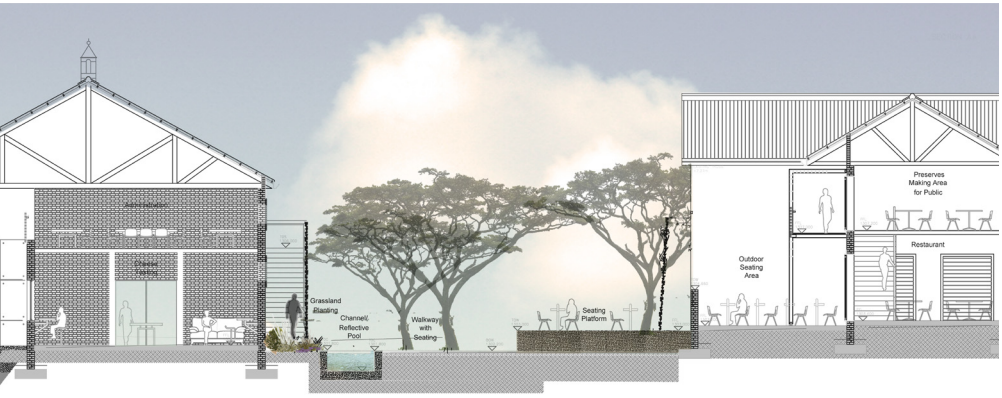
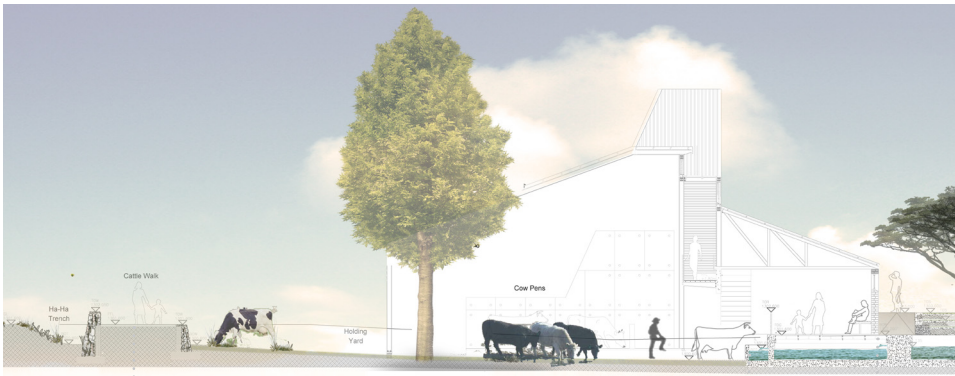


Figure 56: Section elevation through restaurant, water channel, cheese tasting area, 'green' roof and viewing corridor - not to scale (Author: 2013)



Detail 2

Detail 3.1-3.2

Detail 4.1

-4.2 Detail 5.1-5.3 Detail 6 Detail 7

Figure 57: Section elevation through restaurant, water channel, water trough and holding yard with amphitheater in background - not to scale (Author: 2013)

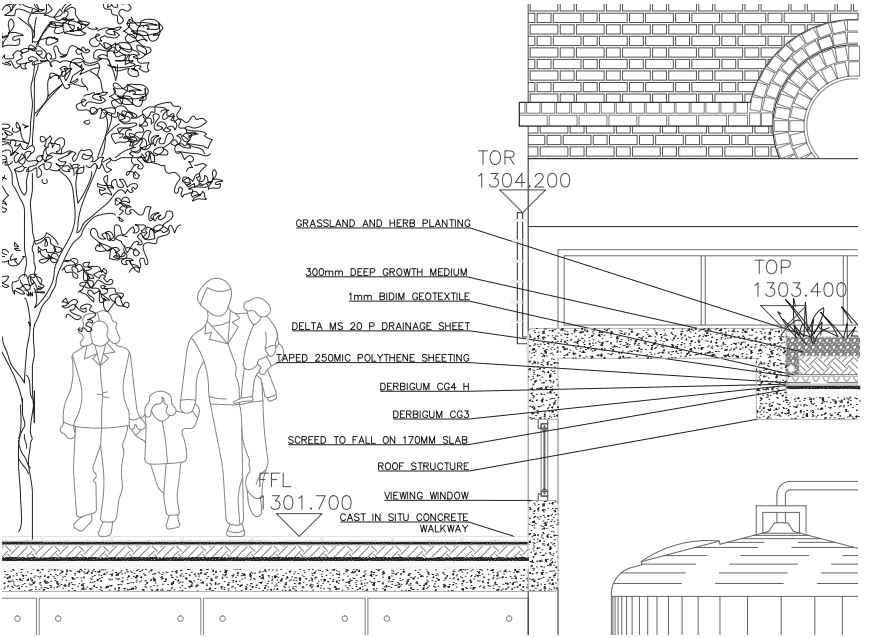


Figure 58: Detail 1-Section through intensive 'green' roof - not to scale (Author: 2013)

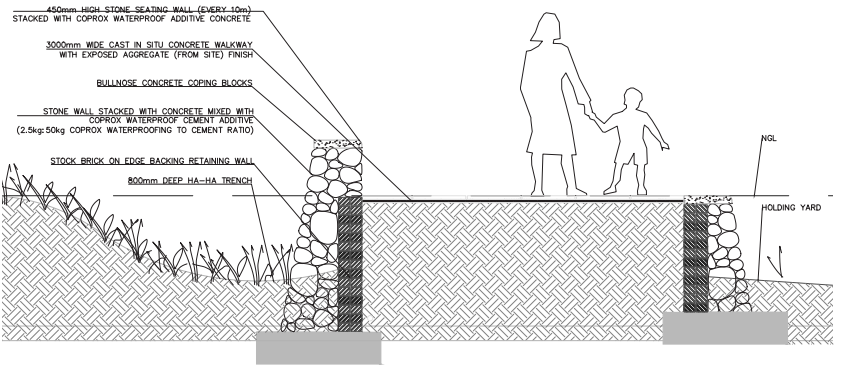


Figure 59: Detail 2-Section detail through Ha-ha trench, paved walkway and seating wall (holding yard to the right and grazing area tor the left) - not to scale (Author: 2013)

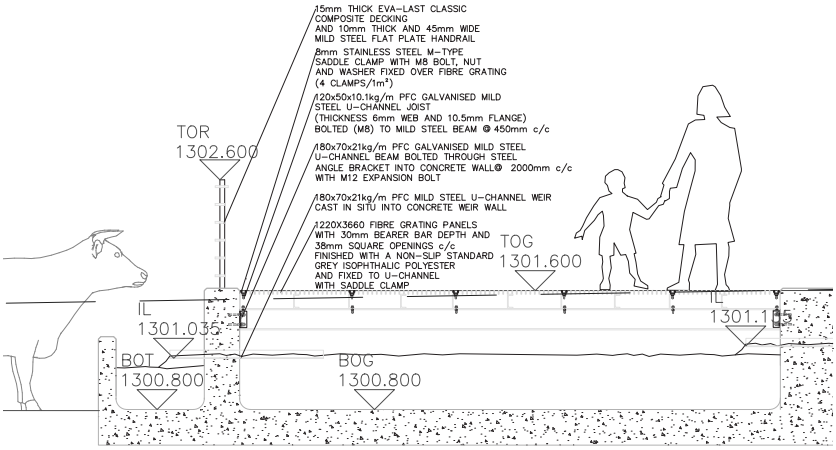


Figure 60: Detail 3.1-Section detail showing fibre grating over water channel and cattle trough - not to scale (Author: 2013)

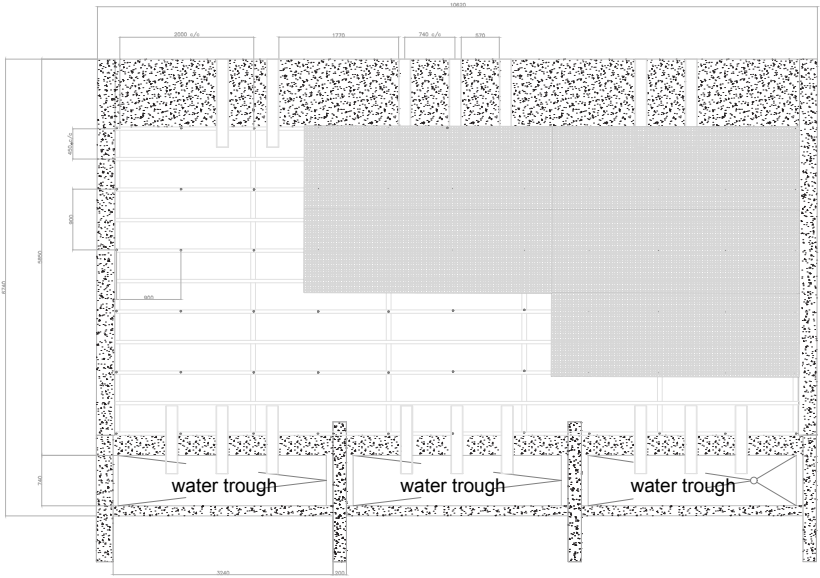


Figure 61: Detail 3.2-Plan showing fixing detail of fibre grating and spacing of PFC - not to scale (Author: 2013)

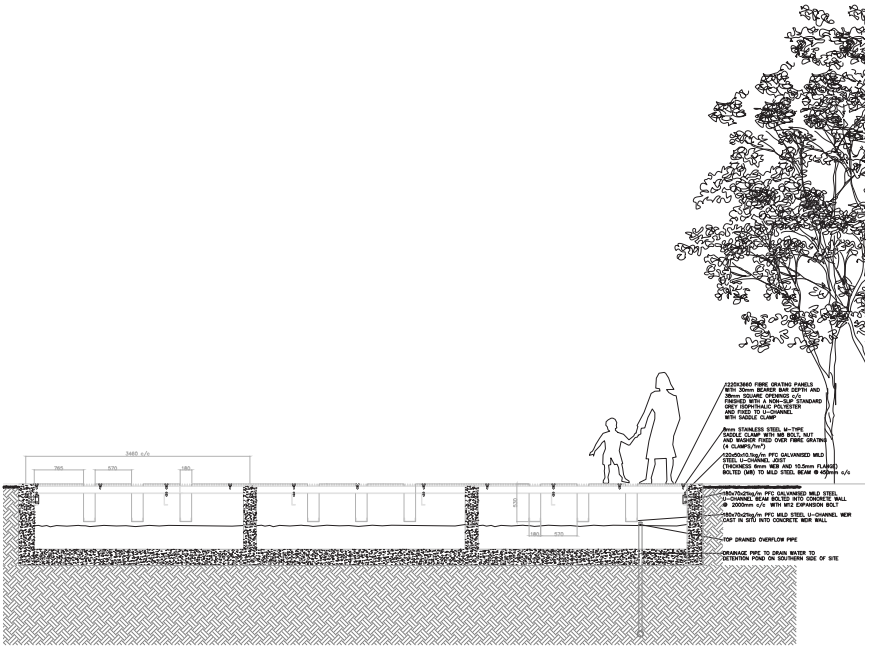


Figure 62: Detail 4.1-Section showing cattle water trough and fibre grating walkway over channel - not to scale (Author: 2013)

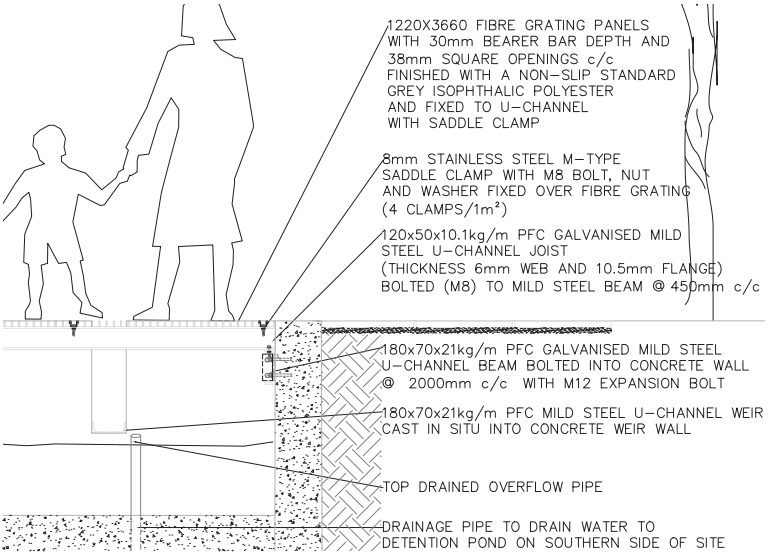


Figure 63: Detail 4.2-Fixing detail through fibre grating - not to scale (Author: 2013)

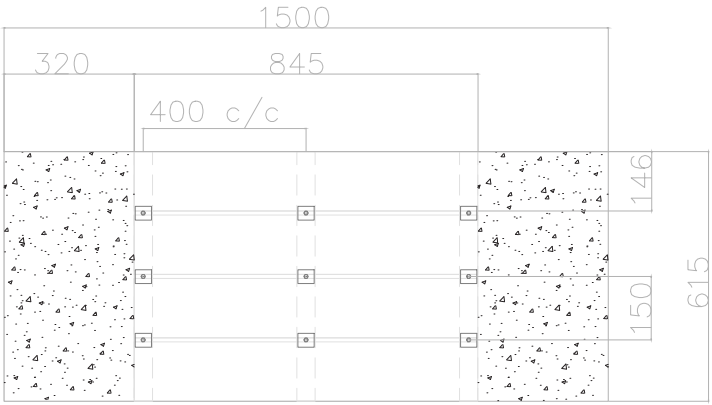


Figure 64: Detail 5.1-Composite timber and concrete bench in plan - not to scale (Author: 2013)

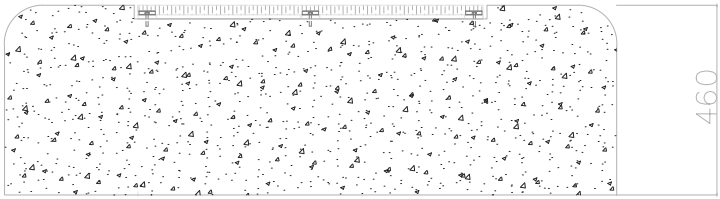


Figure 65: Detail 5.2-Composite timber and concrete bench section detail - not to scale (Author: 2013)

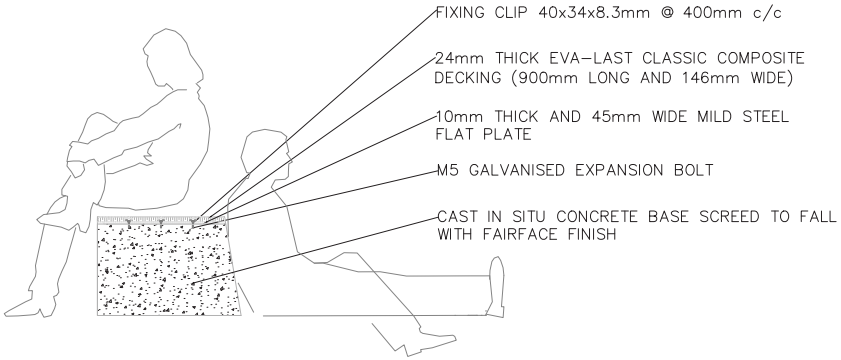


Figure 66: Detail 5.3-Composite timber and concrete bench fixing detail - not to scale (Author: 2013)

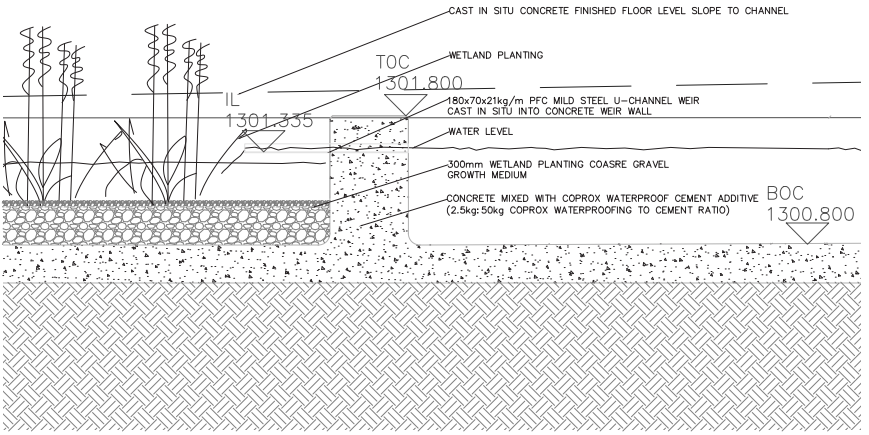


Figure 67: Detail 6-Water channel and wetland planting detail - not to scale (Author: 2013)

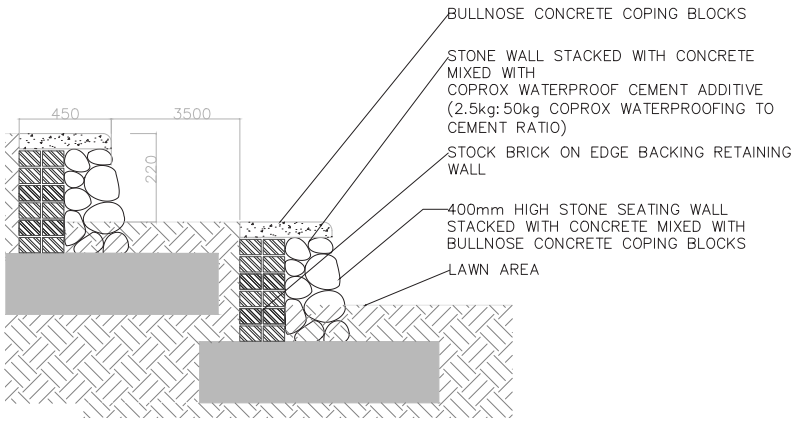
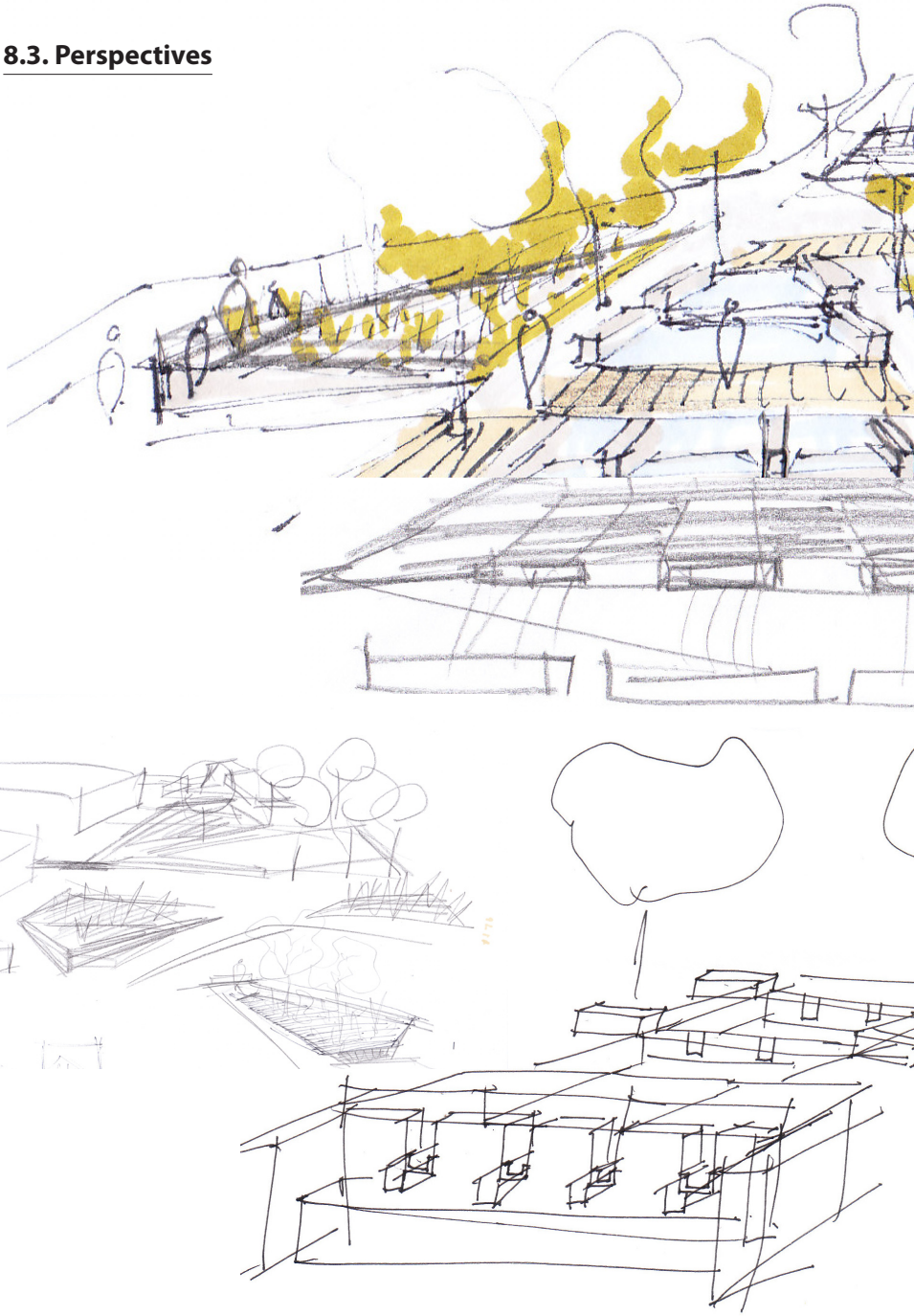


Figure 68: Detail 7-Stepped lawn, concrete and stone amphitheater detail - not to scale (Author: 2013)

8.3. Perspectives



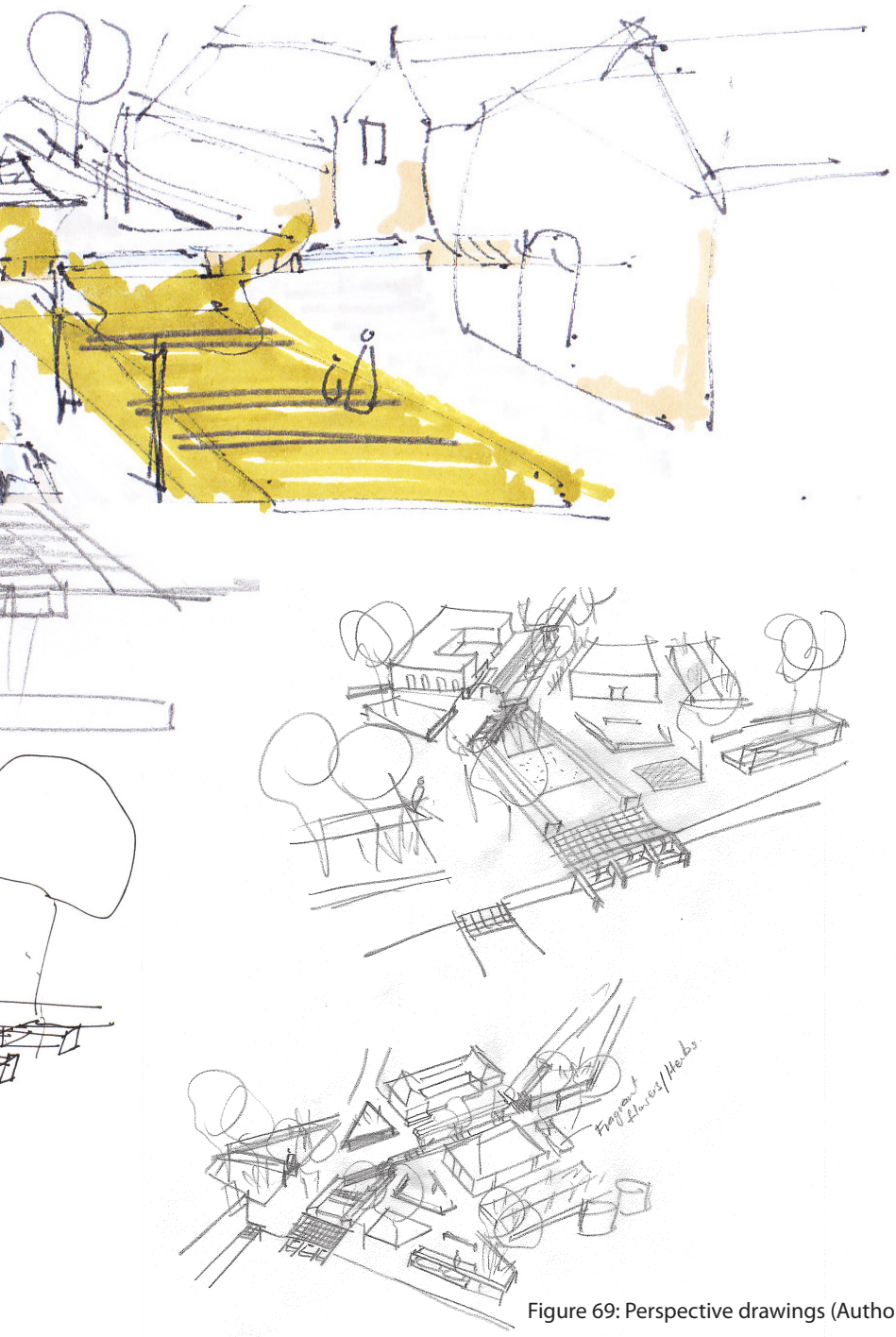


Figure 69: Perspective drawings (Author: 2013)

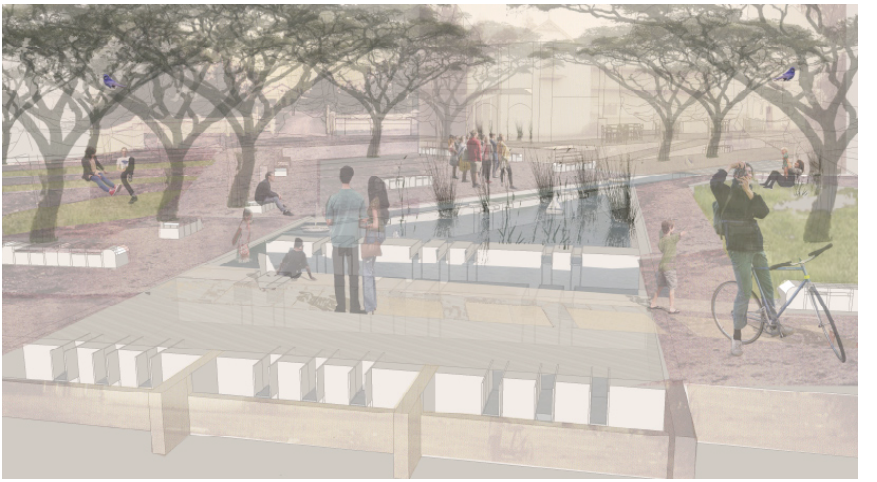


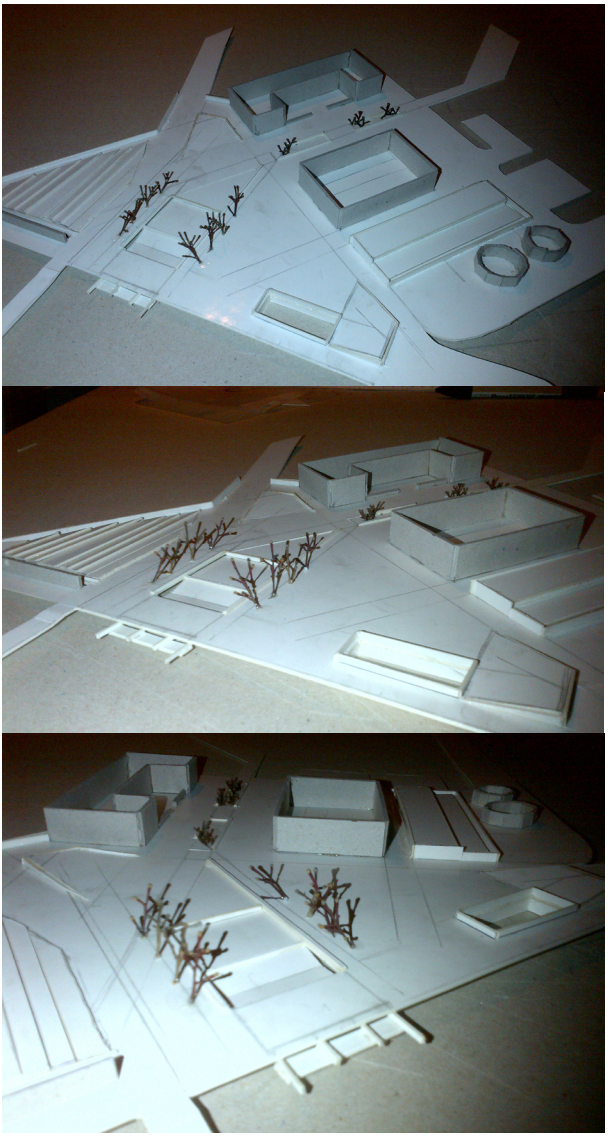
Figure 70: Water channel and cattle trough (Author: 2013)

Figure 71: Intensive 'green' roof with 1:15 slope and viewing windows into milk cooling and storage rooms (Author: 2013)

Figure 72: Main arrival point (Author: 2013)

Figure 73: Amphitheater and water channel (Author: 2013)

8.4. Model



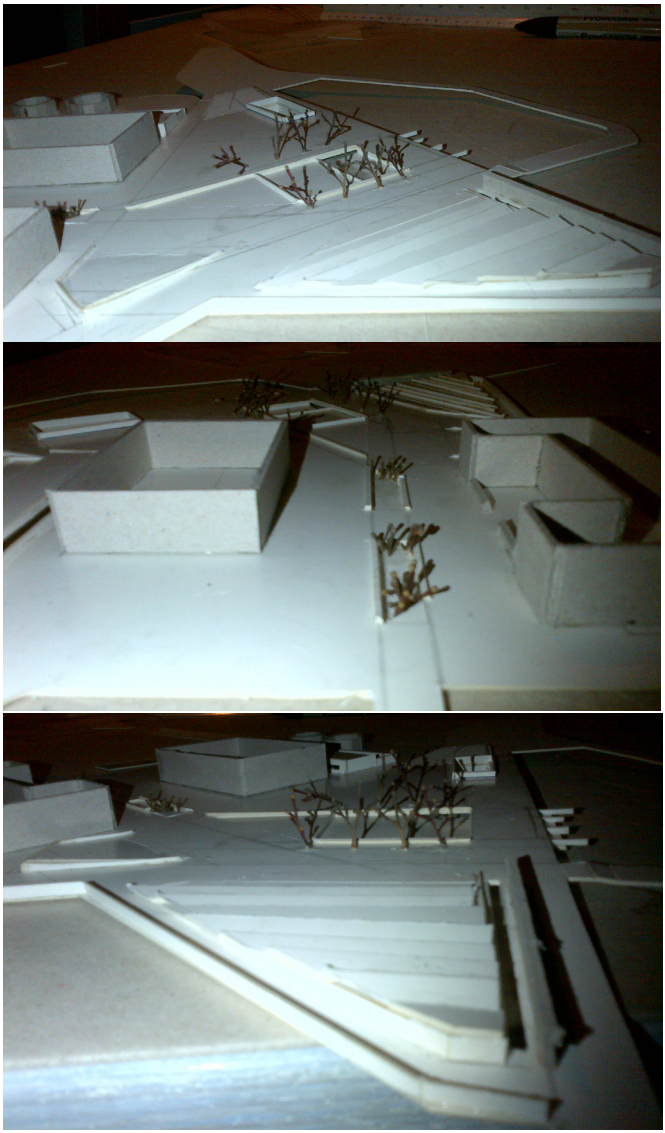


Figure 74: Site Model (Author: 2013)

9

CONCLUSION

9. CONCLUSION

"New landscapes for our new lives must be consciously achieved by positive and clear sighted adaptation of the habitat to our new industrial condition"
-Nan Fairbrother

9.1. Synthesis of issues and intentions

Cultural landscapes such as Zwartkoppies farm, are more often than not neglected and forgotten. These redundant spaces are under pressure to be redeveloped into significant places. The cultured landscape have the potential to be regenerated and given new purpose without losing its historical and/or cultural value.
Contemporary solutions and aesthetics should be integrated into these degraded historical places and allow for the new intervention to highlight and celebrate or 'lost' inheritance. Environmental renewal as well as sosio-economical development will help achieve a healthy community identity.

9.2. Synthesis of solutions to hypothesis

When restoring degraded and polluted landscapes left as inheritance of our manufactured past, we will be able to develop an original multi-funtional contemporary design aesthetic within a historical context. Regeneration and conservation principles act as guidelines for dealing with heritage and cultural values existing on these significant sites. Overt natural processes and sustainable design approaches make for heathy living environments. By educating the public visitor, value is added to an already significant site and the redevelopment will satisfy the link between people and place, culture and nature.

11

APPENDIX

11. APPENDIX

11.1. List of Figures