

VOLUME VI:  
**PRIVATE RITUALS,  
PUBLIC SELVES**  
reclaiming urban public space through  
celebrating the ritual of washing

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Submitted in partial fulfilment of the requirements for the degree  
Master of Architecture (Professional)  
Department of Architecture  
Faculty of Engineering, Built Environment and Information Technology  
University of Pretoria, South Africa

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Course Coordinator: Dr Arthur Barker

Pretoria, 2014.

## i. DEDICATION

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**To Craig**, who taught me to question.

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**To my parents**, André and Beverley Steynberg, for laying my foundations.

**To Albert Smuts** for walking every step by my side. The future is our adventure.

## ii. ACKNOWLEDGMENT

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With special thanks to:

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**Beyers Slabbert** and **SnA Architects** for seeing my potential, and the continued support.

**Johan Swart** for your attention to detail, the long hours you put in, and for providing the perfect mix of criticism and support.

The members of **Fieldworks Collaborative** for your comradery, inspiration and friendship,

as well as

**Kira Bester** and **Linelle Visagie**

### iii. ABSTRACT

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The thesis explores the existing urban landscape of Jeppestown, specifically with regard to the consequences of the hijacking of inner-city buildings for residential purposes. The aim is to reclaim public space from the post-industrial landscape and reconfigure the existing fabric, by means of a fragile intervention so as to connect the social realm with the built fabric. The project accepts the hijacked typology of urban living as part of the context. It is viewed as an existing and ongoing condition, which far exceeds the current capacity of state-funded housing. From this stance, the project aims to provide public services that celebrate the rituals of washing in a meaningful and accessible way. The project endeavours to utilise theories related to African space to address local contemporary urban issues contextually. It uses the rituals of the everyday as a muse for creating eventful public space, an amenity which is becoming increasingly important with the growing densities of South Africa's cities.

### iii. SAMEVATTING

Hierdie dissertasie ondersoek die bestaande stedelike konteks van Jeppestown met spesefieke betrekking tot die kaaping van stadsgeboue vir residentieele hergebruik. Die einddoel is om publieke ruimte in die bestaande post-industriële konteks te herwin en om die omgewing te herprogrameer tot voordeel van die nuwe inwoners/ gemeenskap. Die konteks wat geskep word deur die onwettige bewoning van bestaande geboue, word in hierdie dissertasie aanvaar as 'n voortdurende kondisie wat die tekortkoming aan formele behuising aanspreek. Die projek ondersoek hierdie situasie en reageer daarop deurbasiese geriewe en betekenisvolle ruimtesaan die omgewing toe te voeg. Die ingreep word benader as 'n kort tot mediumtermyn oplossing wat die lewensomstandighede van families en individue in Jeppestown sal verbeter. Die langtermyn doelwit is om gepasde publieke ruimtes te voorsien vir stedelike gebiede in Suid Afrika met toenemende bevolkingsdigtheid.

#### iv. PREAMBLE

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This thesis is volume VI of a six-part investigation. It uses the group-mapping (volume I: *A Prospect Ritual*) as a contextual base from which to begin. This project was investigated and executed with strong links to the landscape architect's intervention (volume II: *Landscape Laboratory*) as, conceptually, this project deals with the notion of nature in the urban environment. The linkages to the remaining architectural projects (volumes III, IV and V) vary in scale of physical connection and programmatic dialogue. However, the collection of projects, together, contribute to the overriding framework intention for the study area.

- VOLUME I:** Jeppeshtown: A Prospect Ritual  
by Muhammad Dawjee, Albert Smuts, Kristen Steynberg,  
Gert van der Merwe, and Charldon Wilken
- VOLUME II:** Landscape Laboratory  
by Charldon Wilken
- VOLUME III:** Fragrance Factory  
by Gert van der Merwe
- VOLUME IV:** At Jeppe  
by Muhammad Dawjee
- VOLUME V:** Construction Upon Experience  
by Albert Smuts
- VOLUME VI:** **Private Rituals, Public Selves**  
by Kristen Steynberg



## V. APPROACH

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The aim of this investigation is to explore a multi-discipline approach to intervening in an existing urban landscape; this allows for a more integrated approach to design, as well as a holistic understanding of the possible connections of urban spaces. The urban vision is a joint undertaking, followed by the landscape project, which forms the base on which the four architectural projects situate themselves.

Due to the nature of this urban landscape, the approach includes all realms of the built environment: sustainable design; urbanism and urban settlements; and heritage and cultural landscapes.

## vi. GENERAL METHODOLOGY

### GENERAL PROCESS

#### v.I JEPPESTOWN: A Prospect Ritual

	lens one - lives and deaths lens two - ritual lens three - negotiated territories	- a landing exercise -	- site history - - touching base - - jeppe today -	- conditional amplification - - spatial perceptions - - thresholds -	Charlton Wilken - ML(Prof) Landscape Laboratory	Gert v.d. Merwe - MArch(Prof) Fragrance Factory	Muhammad Dawjee - MArch(Prof) At Jeppe	Albert Smuts - MArch(Prof) Deconstructing Permanence	Kristen Steynberg - MArch(Prof) Public Rituals, Private Selves	- closing statement -	
01	mechanisms & lenses	02	the surface	03	touching base	04	an urban strategy	05	the projects	06	the urban manifestation
urban vision		macro and micro framework			site specific individual design & tech.						

## vii. INDIVIDUAL METHODOLOGY

### INDIVIDUAL PROCESS

<p>01</p> <p>entropy</p>	<p>- story of a place - the narrative problem statement issues and intent</p>
<p>02</p> <p>context</p>	<p>site history the current condition lives and deaths the breathing and the still - development approach -</p>
<p>03</p> <p>theoretical investigation</p>	<p>african space event-driven space body-space fragile architecture - moving forward -</p>
<p>04</p> <p>design development</p>	<p>- spatial definition - programme signifiers and archetypes sketchplan development</p>
<p>05</p> <p>technical development</p>	<p>tectonic concept the slate, structures and services systems sustainable principles - technical resolution -</p>
<p>06</p> <p>the conclusion</p>	<p>- closing statement -</p>
<p>analysing place      place &amp; minds-pace      creating space and making place</p>	

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# PRIVATE RITUALS, PUBLIC SELVES:

reclaiming urban public space through  
celebrating the ritual of washing

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“In a society that celebrates the inessential, architecture can put up a resistance, counteract the waste of forms and meanings and speak its own language” Peter Zumthor.

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*“**Entropy** is best translated as the measure of disorder - the disorderliness vs. orderliness. This is not the same as chaos, its about matter, the disorganisation of it. I was looking for science fiction in the city. It’s to do with new ruins, with the balancing out of the disorder of things, the collection and re-assembly into something else” (Kreutzfeldt & Malcomess 2013: 37).*



# 01

## ENTROPY

This chapter explores the dynamic social realm created by hijacked residential conditions. It unpacks both the issues and opportunities for design in such an environment.

- 1.1 **the narrative**
- 1.2 **the problem statement**
- 1.3 **science fiction**
- 1.4 **issues**
- 1.5 **intent**

chapter 1: **synopsis**



“Entropy anticipates a future based on the erasure of the present, no longer recognizable except as a layering of illegible traces. Hence, imminent decay becomes visible in the most solid of structures” (Kreutzfeldt & Malcomess 2013). At face value this industrial area of Johannesburg, ‘Jepe’ as it is referred to by those in the know—seems frozen.

The streets are lined with industrious buildings and there are breaks

in the street-scape, however, that ever-so-often reveal glimpses of a past that memory seems to have misplaced. This is a place where memory is out of reach. What remains is unfamiliar; a stranger, who does not remind or inform but is merely the current, the unmoved mover (Aristotle).

There is no pause where public retreats in way of the unmoving. Here exist invisible ties – between the b r e a t h i n g and the still.

*Figure 1.1. Rooftop view of Jepestown*



But the streets are not dead...

There is bustling all around and the sidewalks are filled with footsteps. Open spaces that host a multitude of gatherings that are synchronized to a schedule arcane to the outside world. This industrial fabric is being rapidly re-urbanised by migrant workers from rural areas who arrive in the city with hopes of finding work. Here, in Jeppestown, many rationalise the choice between “misery without hope in the rural areas for misery with hope in the cities” (Simone 2004:6).

This phenomenon is not new, particularly in Southern Africa, where capital cities grew by an average of 1000 percent between 1950 and 1990 (Spellman 2008). “Most of Africa’s post-colonial cities were alike in their unpreparedness for growth (...) as more women and children followed their husbands out of the rural setting, a pressing need emerged for basic education and social services” (Spellman 2008). Johannesburg was no exception and its sturdy urban fabric could not adapt fast enough to cater for the insurgence of the new city-dweller. But through the deaths and re-appropriation of old, burned out, or abandoned industrial buildings, room is made for a new kind of city and all of the aspects of life that come with it.

These buildings now house the REpublic.

*Figure 1.2. Seeking shelter from the rain at Jeppe Station*



*Figure 1.3. Lives, deaths, and entropy. Burt-down building in the site area*



At the same time this area has very recently come into the  
spotlight

of a new generation of Johannesburg gold digger: the real estate prospectors. “As an enduring testimonial to its original city planners, the spatial morphology of the greater Johannesburg metropolitan region has been more or less a dismal failure. From its earliest frontier days as a rapidly expanding boomtown at the epicentre of the thriving gold-mining industry through successive waves of downtown building booms and urban renewal projects, Johannesburg has resisted efforts to tame its unruly landscape (Murry 2008:59). The Maboneng development precinct lies just a few blocks to the west, down Main Street. Although claims are made that not a single person was displaced in the urban renewal project, it appears to be a statute to yuppie gentrification.

As developers eye out areas of Jeppestown, long-time residents are becoming visibly anxious and venomously resistant towards the same commodification taking over their beloved dystopia.

Yet all the while, Jeppestown remains forgotten by those in power. As far as government planners are concerned, it is a purely industrial area, as it was meant to have been since the zoning change in 1946. It has consequently been neglected by the 2008 inner city spatial framework (GAPP 2008), current metro-bus route (JDA 2010), and new BRT bus route plans (JDA 2009).



*Figure 1.4. Burnt-out heritage building re-used as a car wash*



## 1.2 the **PROBLEM STATEMENT**

The exodus of industry from urban centres together with mass rural-to-urban migration, and the condition, as stated by Spellman (2008), that “most of Africa’s post-colonial cities were alike in their unpreparedness for growth”, has led to the hi-jacking and re-appropriation of industrial

buildings for residential and mixed-use purposes. The result is a new type of urban living, which brings with it new problems and opportunities. An investigation into how architecture can meet the needs of this new public will be made in order to create a new type of public space.



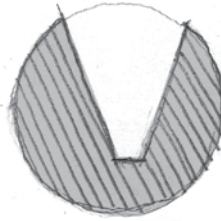


Figure 1.5. Lives and deaths diagram. From Volume I: A Prospect Ritual

Figure 1.6. Informal living in Jeppe (photo)

### 1.3 the SCIENCE FICTION

The value of Jeppetown lies in its disorder. It is because Jeppe' was forgotten that this new REpublic could move in and appropriate it as their own. It is from the ruins that this new life is born. The public's ability to adapt comes from the dystopia of their everyday. It is a testament to the robustness and complexities of this community.

It is clear that Jeppetown is changing. It is reaching the tipping point where informality could decline into chaos if not addressed correctly. The question is, who will re-imagine Jeppetown, and who will they imagine it for? Will it be left to the whim of developers? Will the city evict or rezone? Or is another vision needed, one that will protect the unique social structure while embracing the journey into the future?





## GENERAL ISSUE

What should public life mean to public space?



## URBAN ISSUE

the disconnect between the breathing and the still



## ARCHITECTURAL ISSUE

separation of body from space



The current condition is one where the insurgent public has parasitically appropriated the industrial landscape. This new public life lives out in streets, pavements and abandoned structures because the existing infrastructure does not fit their way of life.

The general issue (Figure 1.7) stems from the question:

**What should public life mean to public space?** Or in other words, how should public life influence the creation and adaptation of public space when planning the future transformation of cities? This is especially pertinent in mapping the future transformation and placemaking of existing western city models in an African context.

The urban issue (Figure 1.8) looks at

this new arrangement of appropriation and, through it, examines the **disconnect** between the new social realm (**the breathing**) and the existing built fabric (**the still**).

The architectural issue (Figure 1.9) hones in on this divide between the breathing and the still. It uncovers the disconnect between building and use and, ultimately, the post-enlightenment **separation of body from space**

*Figure 1.7. General issue*

*Figure 1.8. Urban issue*

*Figure 1.9. Architectural issue*

## 1.5 the **INTENT**

The overall intent focuses on **placemaking through ritual** (Figure 1.10).

On an urban scale the intent is to **reconfigure the built fabric** (Figure 1.11) through gaining an understanding of the needs and rituals of the new public (the breathing). An investigation of **African space-making** is paramount to this, and will be discussed further in the theoretical investigation chapter.

Architecturally the project is an investigation on **fragile architecture**, as defined by Pallasmaa (2008) and how it can be used as a tool for reconfiguring the existing fabric to reclaim public space and create a dynamic public environment.

This will be achieved by exploring event-driven space and by gaining an understanding of the activities which currently, as well as potentially, take place on site. The provision of services should then be handled in such a manner so as to support and enhance these activities. Further, an exploration of the body-space relationship (Figure 1.12) will look at the 'forgotten' aspects of the current urban environment - namely:

nature,  
the feminine,  
the civic,  
and time

*Figure 1.10. General intent*

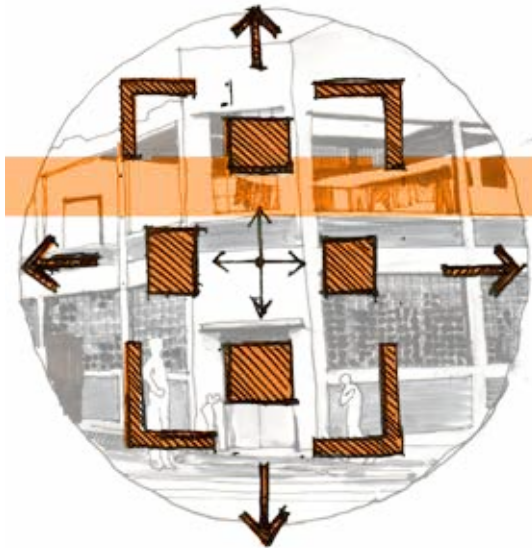
*Figure 1.11. Urban intent*

*Figure 1.12. Architectural intent*



**GENERAL INTENT**  
placemaking through ritual

**GENERAL**



**URBAN INTENT**  
reconfigure the built fabric

**URBAN**



**ARCHITECTURAL INTENT**  
fragile architecture

**ARCHITECTURAL**

chapter 1: **SYNOPSIS**

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This chapter introduces the dynamic social realm created by hijacked residential conditions. It also shows that urban issues such as this are a product of the socio-economic state of South Africa in the 21st Century. However, these issues are largely approached with apprehension, ignorance or apathy by those in positions of power due to the fact that there is often no precedent to be guided by.

The project unpacks both the issues and opportunities for design in such an environment, while highlighting the uniqueness and value of the inhabiting community.



# 02

## CONTEXTUAL analysis

Chapter 2 unpacks the context, not only in its physical sense, but also looks at past events and narratives to explain the context in terms of the inhabitants, their mindset, and the state of the urban African city in the 21st century.

- 2.1 **site history**
- 2.2 **the city and water**
- 2.3 **current condition**
- 2.4 **site location**
- 2.5 **lives and deaths**
- 2.6 **the breathing and the still**
- 2.7 **the project site**
- 2.8 **the mapping**
- 2.9 **swot analysis**
- 2.10 **statement of significance**
- 2.11 **development approach**
- chapter 2: **synopsis**

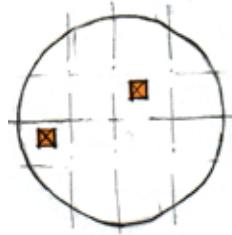
## 2.1 SITE HISTORY



**INTERVAL 1**  
clean slate



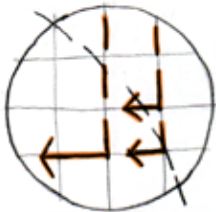
**INTERVAL 2**  
farms & spruits



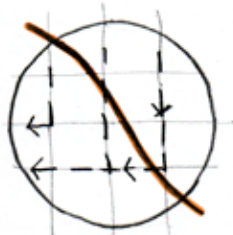
**INTERVAL 3**  
camps & shafts



**INTERVAL 4**  
grid & rail



**INTERVAL 5**  
underground pipes



**INTERVAL 6**  
sunken railway



**INTERVAL 7**  
industrial



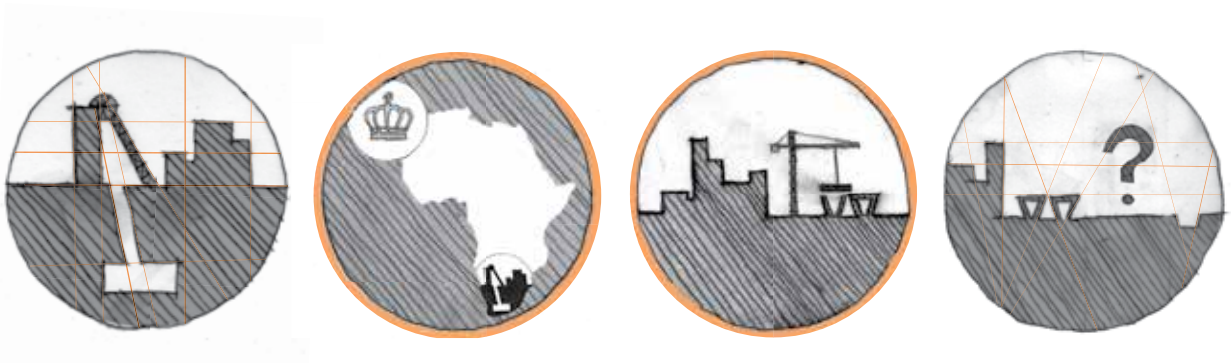
**INTERVAL 8**  
insurgency

*Figure 2.1.(above)  
Mapping of physical changes in Jeppestown*

*Figure 2.2.(opposite)  
Four generations of Johannesburg's zeitgeist*

*A Prospect Ritual* (volume 1) maps the development of Jeppestown in a series of generations, both in terms of physical changes (Figure 2.1) as well as in zeitgeist (Figure 2.2). This mapping makes evident the four phases of mindset and control, each leaving its own mark on the city. The first generation was one of mining, optimism, and communal governance. It is in this period that Jeppestown, one of the oldest suburbs of Johannesburg, was established in 1888. The second generation embodied colonial rule and the structuring of Jeppestown as a Victorian suburb.

Fisher, Le Roux & Maré (1998:71) speak of the Victorian residence as follows, “While nature was banned from the town centre it was overly present in the residential suburbs. People lived in a barren male world of work and retired to a female paradise world of recreation: a private world of the nuclear family.” Third, was a generation defined by Nationalism and the South African modern movement. This period had the greatest impact on the built fabric as we see it today. The western side of Jeppestown was transformed, in the period of twenty years, from a finely-grained, green suburb to the large-scaled multi-storey, masculine environment that it is today.



generation I (1886- )

**CONCEPTION**

generation II (1902-)

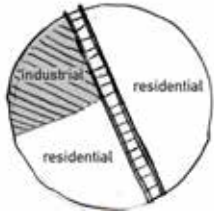
**FORMATIVE YEARS**

generation III (1961- )

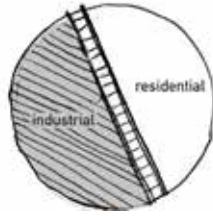
**BLIND  
COMMITMENTS &  
TORN RELATIONS**

generation IV (1994)

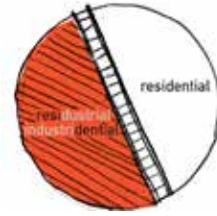
**ESTABLISHING  
PERSONALITY**



residential  
pre 1946



industrial  
post 1946



residential  
current condition



Murry (2008:3) describes this transformation as follows, “The frenzied pace of high-modernist city building during the 1960s and 1970s (...) left a colonized streetscape in its wake, consisting of concrete canyons lined with mega-structures that deadened the pedestrian vitality of the central city.” The fourth phase represents the change in the social realm. After the egress of the industrial activities from Jeppestown, it was forgotten by those in power.

But through that death rose an opportunity for rural migrants to find shelter in their search for work. As a result, communities formed within these abandoned structures. Now, in this area of Jeppestown, individual lives are lived out on the streets, and territories are negotiated. The social community that has developed has transformed this industrial area of Jeppestown into a neighbourhood in its own right.

Figure 2.3.(top) Physical implications of the rezoning of Jeppestown

Figure 2.4.(below) Photograph of Jeppestown in the beginning years ca.1890



## 2.2 The city and **WATER**

Johannesburg has always had a link to water. The Witwatersrand got its name from the many waterfalls which fall from the northern ridges (Leyds 1964:22) and the various farms of the Witwatersrand were named after the rivers that ran through them - Doornfontein, Braamfontein and so on.

Yet during the mining years, the establishment of a water system was never high on the agenda, as no one knew for how long the gold would last. By 1895, there was still no public water supply despite Johannesburg being home to some 102 000 people. Water was instead sold by bucket, for 2 ½ shillings each, from the back of a horse-drawn wagon. It was only after a typhoid outbreak during the drought of 1895-96 that it was clear that a more permanent solution was needed.

What this did achieve was a communal appreciation of water (Malcomess & Kreutzfeldt 2013:49). After Rand Water was established, and a formal network of subterranean pipes were laid, water became a removed commodity - distanced from the springs from which it was once hauled.

But, the communal enjoyment of water persisted. Figure 2.5 shows how people used to boat on the Ellis Park Lake, and how they enjoyed the Municipal Baths.

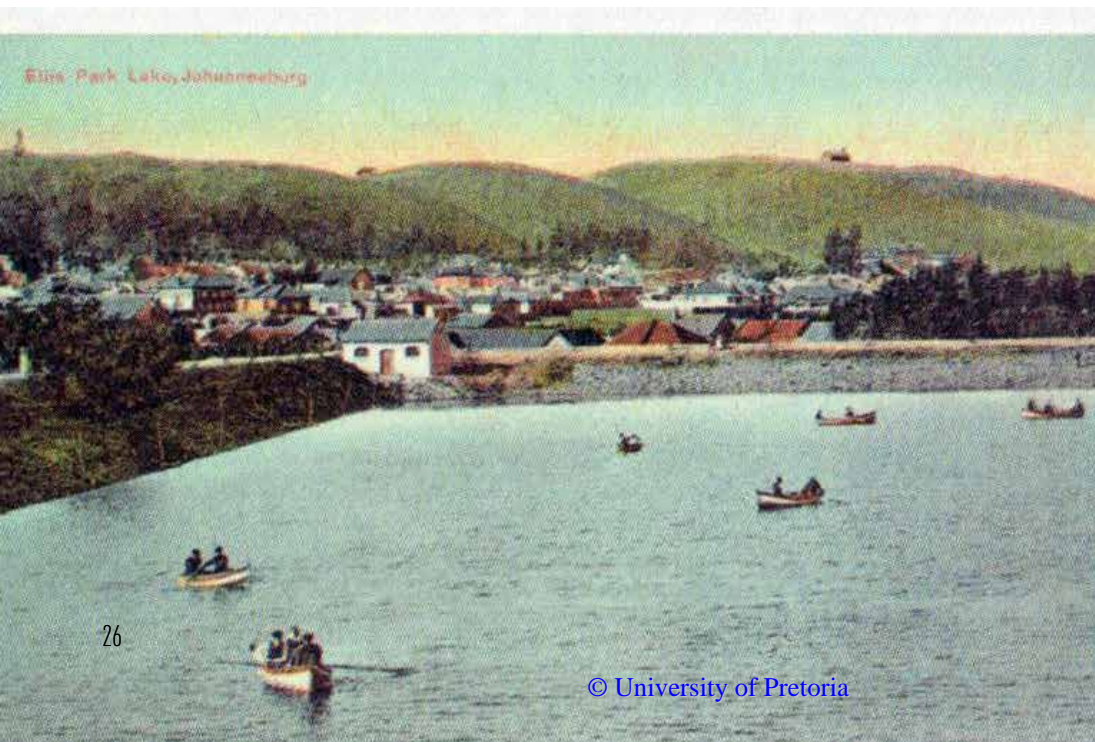
However, as time went on, living patterns changed; families began moving to the suburbs, encouraged by TAX incentives, and private pools became standard features of white middle-class living, making public facilities less used.

Water in the city became more and more controlled while the construction of hard surfaces increased the risk of flash floods. As a result of this, together with the improved pumping capacity of Rand Water, bodies of water in the city began to disappear: the streams were put into concrete channels, Ellis Park Lake was drained, and so too was the marshland which separated Jeppestown from the CBD.

As Johannesburg declined in the latter part of the twentieth century, so too did maintenance on recreational

facilities. The Summit Club, once a prestigious heated indoor swimming pool in Hillbrow, was drained in 1996 and used as a storeroom for a strip club and hotel (Malcomess & Kreutzfeldt 2013:46). The public pool in Jeppestown tells a similar story. It was closed in 1997 due to structural issues, and has housed squatters since 2004 (Monnakgotla 2012). And so gradually the communal enjoyment of water has almost completely been eradicated from the inner city.

*Figure 2.5. (left) Post card of Ellis Park Lake (right), and post card of Jo'burg Municipal Baths*





The current hijacking of buildings in Jeppestown has led to the municipal water connection being severed by the council, thus leaving the inhabitants with no source of water. This creates an opportunity for the project to respond by celebrating the rituals of washing. The creation of an event-driven space centralized around the issue of water allows one to reconfigure the existing fabric and reclaim public space to form a dynamic public environment that harbours the same communal enjoyment of water that has characterized Johannesburg's past.

*Figure 2.6. (right, top)  
Summit Club indoor pool  
in 2010*



*Figure 2.7. (right, bottom)  
Detail of frieze of the  
Summit Club*

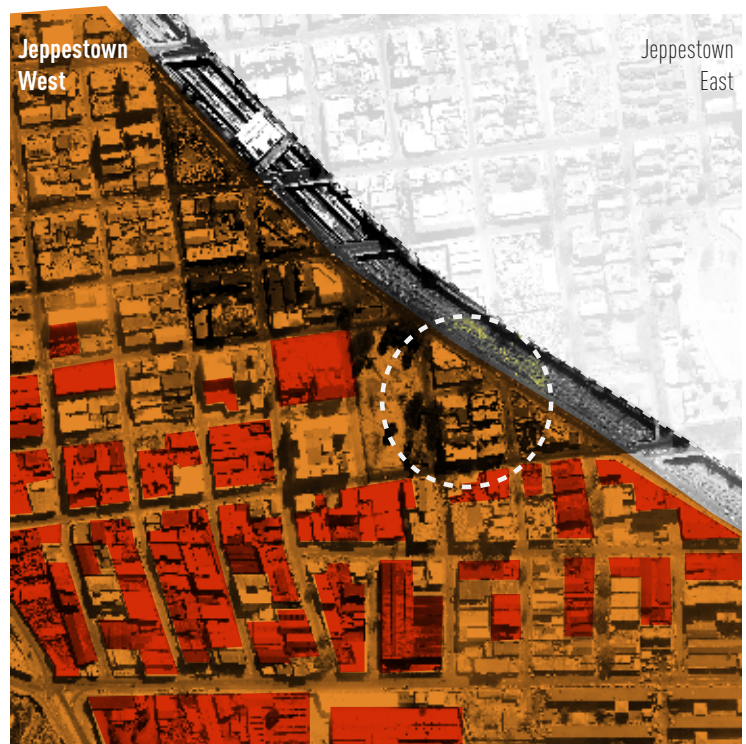


## 2.3 CURRENT CONDITION

“The fluid, chaotic quality of the city life in Johannesburg after apartheid is reflected in the unresolved tension between the overall plan of urban space and its specific details, between the durability of the built environment and the transitory use of urban locations, and between the deliberate regulation of spatial practices and the uncontrolled anarchy of chance encounters in public places” Murry (2008:1).

Jeppestown is not dissimilar to Mury’s description of Johannesburg. There is a incoherence between the built fabric and how it is now being appropriated. The social networkings of this area are fluid, ever-changing, evolving. Yet, the build fabric of Jeppe’ stands still. Stubborn, it persists in its fight against time (a trait of its modernist roots).

Figure 2.8. Area zoned as industrial versus buildings used as such

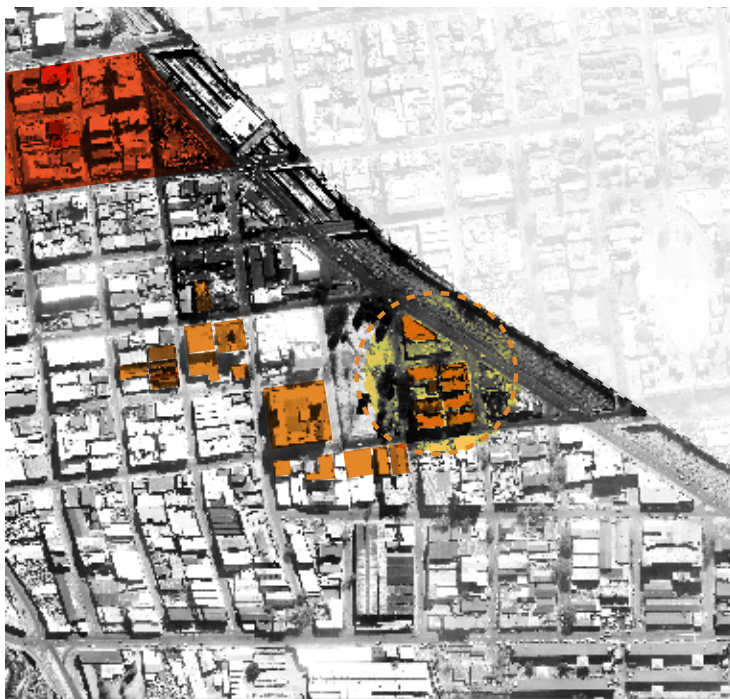


ZONED AS INDUSTRIAL  
AREA WEST OF THE TRAIN TRACK

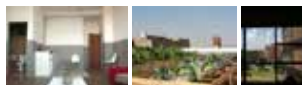
USED AS INDUSTRIAL  
LESS THAN HALF IS CURRENTLY USED AS INDUSTRIAL

The west side of Jeppestown, as stated earlier, is zoned as industrial but as Figure 2.8 shows, few of these buildings are still used as such. Figure 2.9 goes on to show buildings which were recently, or are soon to be, purchased by developers.

Figure 2.9. Recent developer owned/prospected buildings



**BJALA DEVELOPERS (bought/prospected)**  
status: URBAN RENEWAL DEVELOPERS  
use: RESIDENTIAL/ EDUCATIONAL/ MIXED USE  
conditions: 67 LOW COST UNITS, 1 SCHOOL, SKY GARDEN



**MABONENG DEVELOPMENT PRECINCT**  
status: URBAN RENEWAL PRECINCT (ongoing project)  
use: RESIDENTIAL/ RETAIL/ MIXED USE  
conditions: CURRENT - 37 BUILDINGS (150 000m<sup>2</sup>) FUTURE AIM 50 BUILDINGS (1 000 000 m<sup>2</sup>)



Finally, Figure 2.10 shows the number of buildings in this industrial area that have been hijacked and are being used for residential purposes.

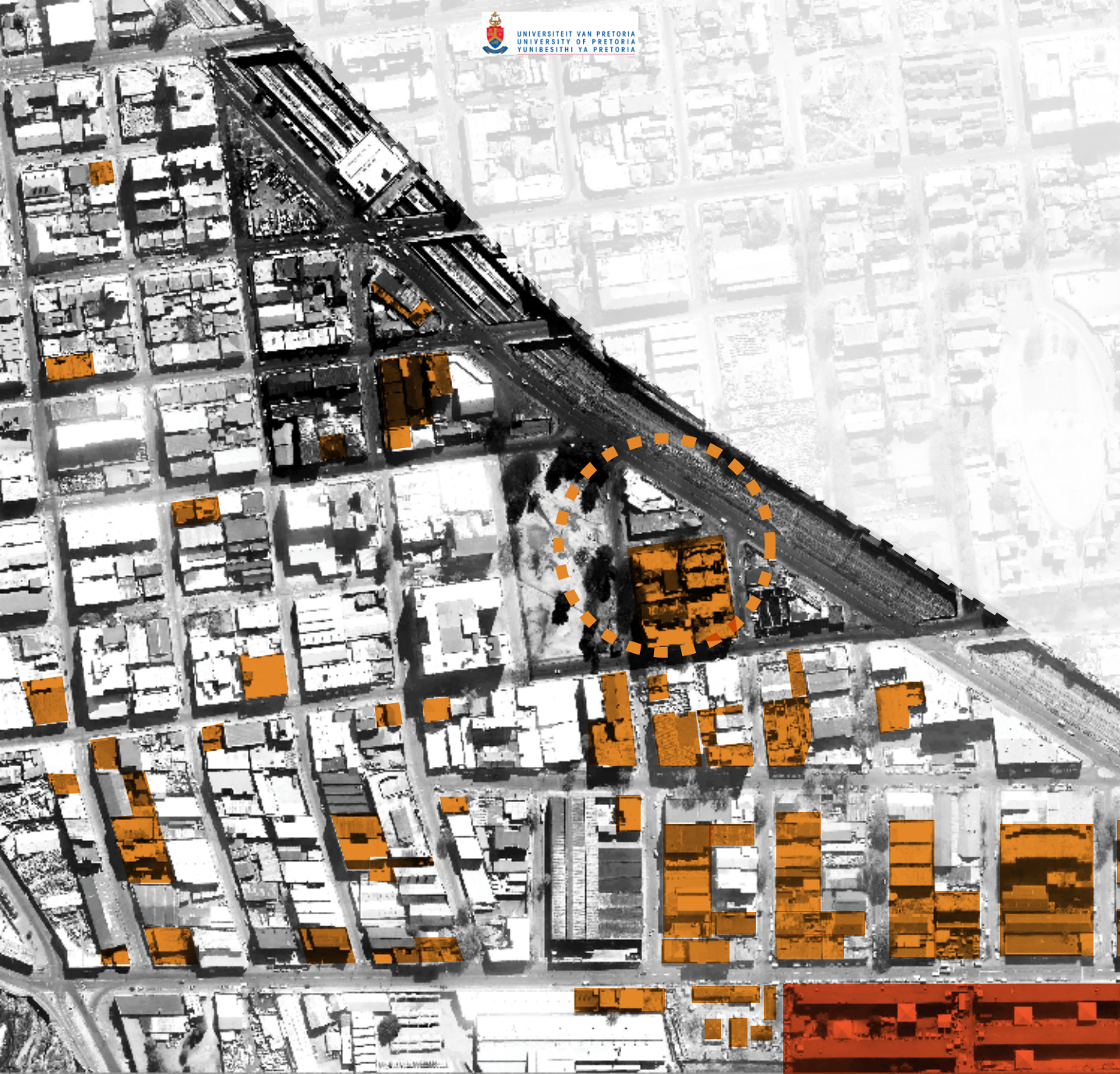
The most recent census (2011) states that Jeppestown has a population of between 20-60 people per hectare. This translates to between 2000-6000 people per km<sup>2</sup>, meaning that Jeppestown (1.83km<sup>2</sup>) is home to approximately 10 980 people. However, it is possible that the western side of the train tracks (0.46km<sup>2</sup>) has a far higher density due to the amount of people living in hijacked buildings. These numbers could have been unaccounted for by the census, together with the numbers of people who would have migrated to the city over the past three years.

Jeppeshtown is a complex environment. The park is used for many activities, and there is a strong sense of community among the inhabitants. However, the men from the Wolhuter Hostels - who play soccer there in the afternoons - have unofficially taken ownership of the park and most of the area between the park and the hostels. Their presence is irrefutably experienced. Girls have spoken of harassment by them, they have even barricaded streets to stop police raids.

Another layer to this environment is the hijacked buildings. Each building acts as its own micro-community. There is a tendency for people from a particular home towns to congregate together in a building. The close proximity of these living quarters and the limited services results in communal environment where resources are shared. The landlords of these buildings most often do not live in them, and claim rent from the residents illegally. It is often hard to trace the legal owners, as many companies and individuals who own these buildings have written them off once industry moved out and simply leave them empty.

Yet, despite all the hardships there is an endearing sense community. The average age within the community is relatively young, which is also a positive in terms of adaptability and acceptance of change.

There have been several art installations and events held in the park over the course of the year, both during the day and night. These were organised by Bjala Properties in conjunction with local artists. At first these events were approached with apprehension and defensiveness. Locals approached the installations as if expecting to be asked to leave. But, once they realised that they were welcome, they participated in the events and engaged with the screenings and activities. Events such as this transform the park, which is usually considered unsafe at night, into a vibrant social hub where even children were allowed to stay out late. Such events got encouraging feedback from the community. Although there is still apprehensiveness towards interventions in case they might promote gentrification, the community still showed positivity towards future transformations.



**ILLEGALLY OCCUPIED BUILDINGS**

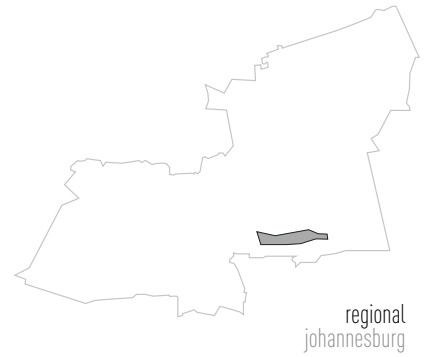
status: HIJACKED  
use: RESIDENTIAL  
conditions: POOR



**HOSTLES**

status: LOW REANTAL ACCOMODATION (R30/month)  
use: RESIDENTIAL  
conditions: OVERCROWDED





## 2.4 Site LOCATION

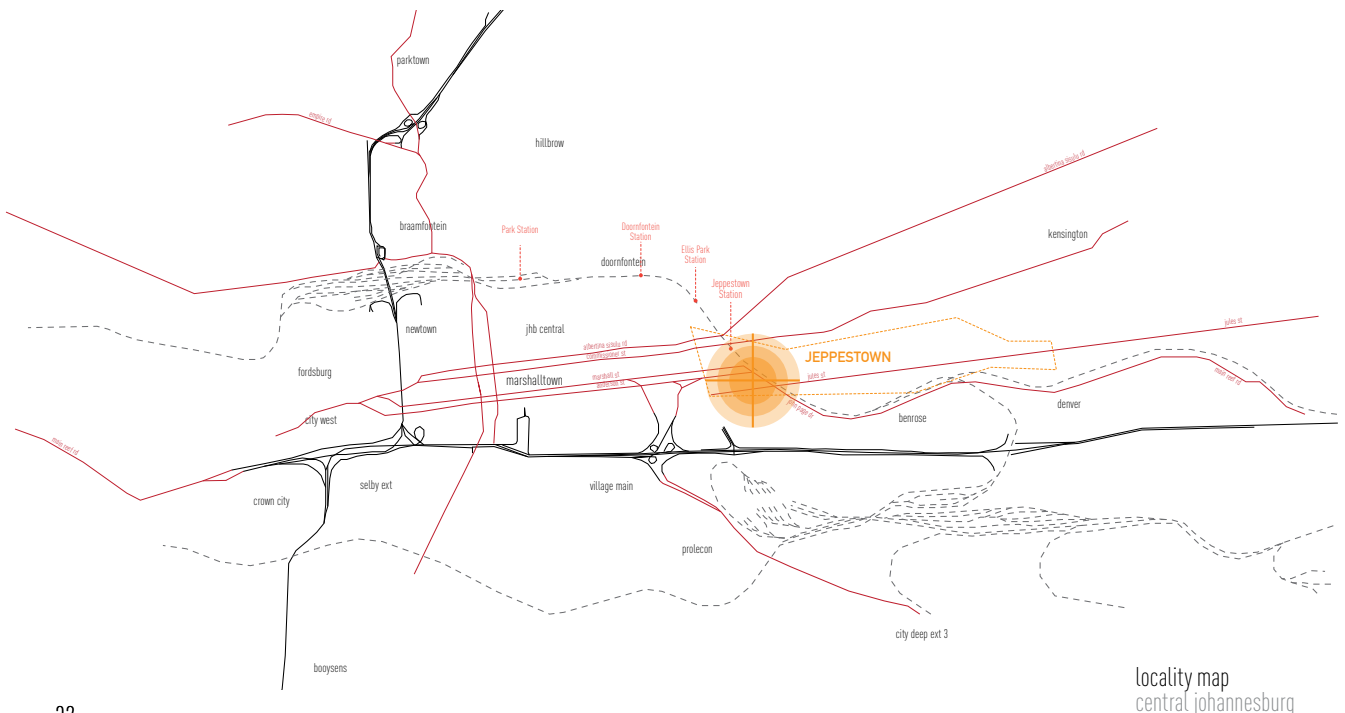
The area of study was chosen because it forms a wedge between the fast pace of John Page Drive, and the calmer, negotiated territory of the park. This park and the smaller side streets are governed by rituals of the everyday; activities stemming from the insurgent public of the surrounding hijacked buildings.

The site, located on to the West of the sunken railway line, comprises a small section of Fawcus Street as well as several existing buildings which lie on either side of it. It lies to the East of Gilfillan Park, its lesser-known name, as the people of Jeppe' simply refer to it as Jeppe Park. This is the only remaining green public space on the Western side of Jeppetown (Figure 2.13). The grid is cut diagonally by John Page Drive to the East of the site (Figure 2.14).

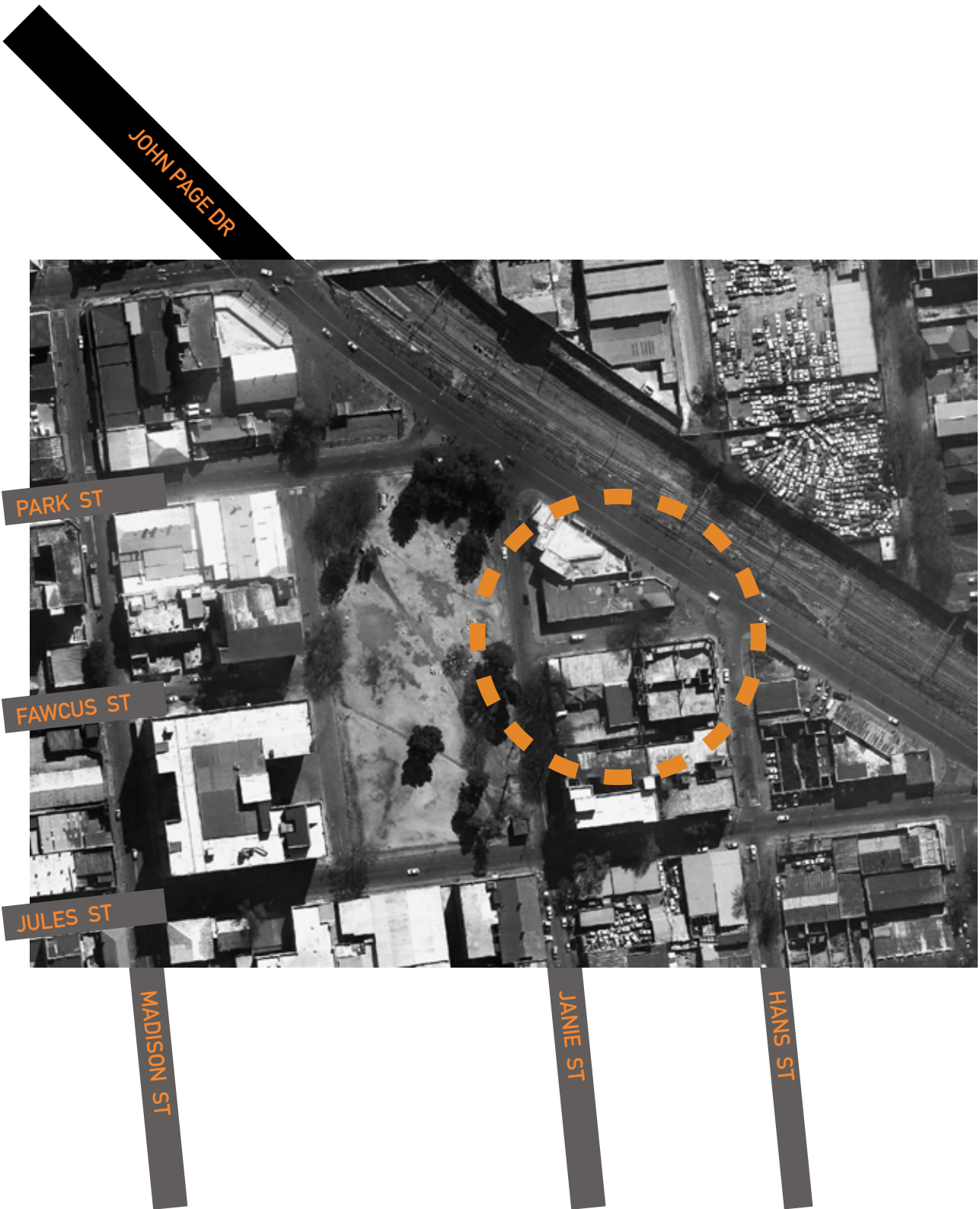
Figure 2.11.(above)  
National, provincial and regional locality maps

Figure 2.12.(below)  
Johannesburg locality map

Figure 2.13.(opposite)  
Group sites from train station to park









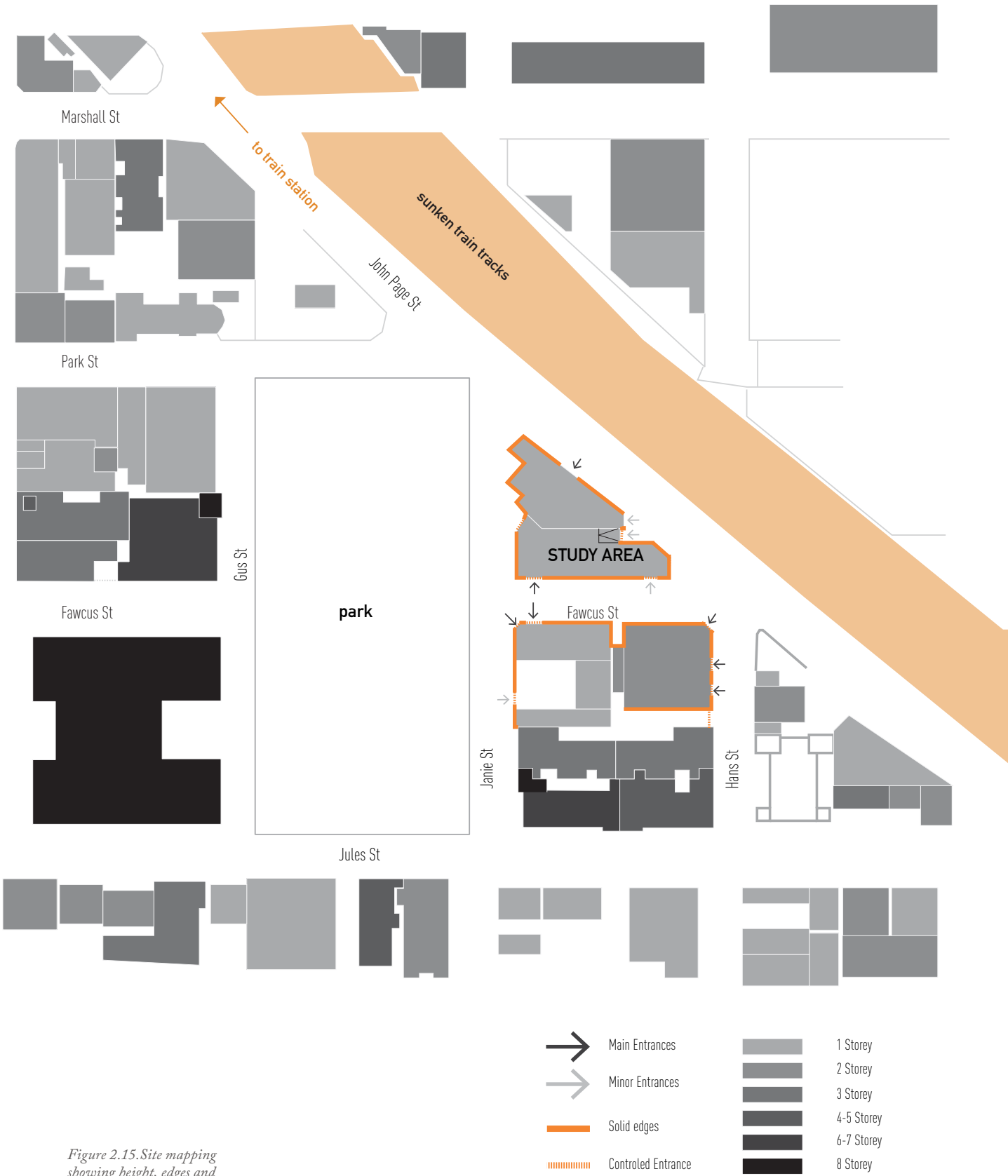


Figure 2.15. Site mapping showing height, edges and entrances

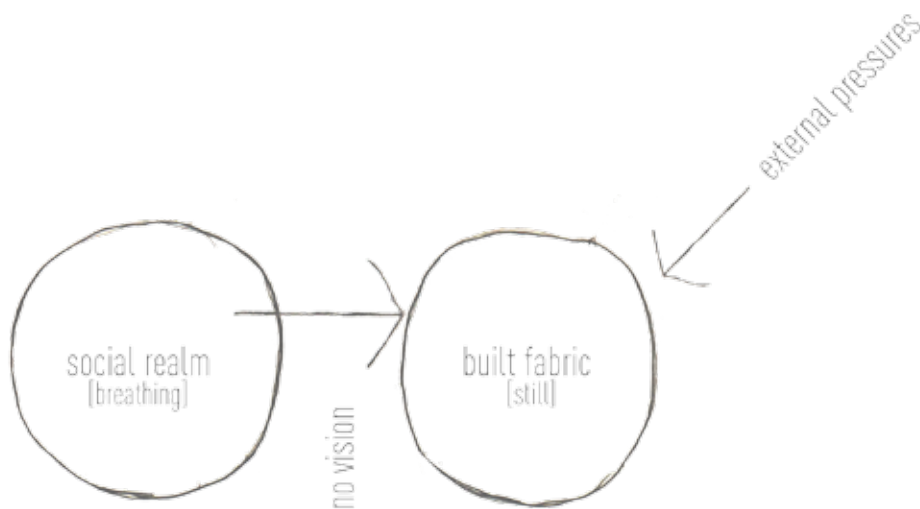
## 2.5 LIVES & DEATHS

“Rather than looking on the disorder and chaos that accompany the growth and development of cities as accidental effects or dysfunctional by-products of urban transformation, it is much more fruitful to understand these debilitating traits, or ‘frictions of space’ (Scobey 2002:134-5), as integral components of city-building process. Put in another way, contraction, stagnation, and decay are as central to the dynamics of real estate capitalism as growth, development and expansion” (Murry 2008:132).

Two constants currently exist within the urban condition: first is that rural migrant workers will relocate to the city and live in hijacked buildings until better opportunities arise (internal pressures);

and second, is that developers will follow economic opportunities by buying up and redeveloping run-down buildings (external pressures).

It is from this perspective that the project takes the stance to not intervene with the hijacked building on site, but rather accept its condition for what it is (and that it is subject to change) and, rather, serve its community from within the public sphere. It does this by means of intervening in the existing fabric, reclaiming and thresholding public space from the existing fabric, and providing services to create and support everyday activities so that they may be enjoyed as social rituals.





*Figure 2.16. (left)  
Diagram of the current  
urban condition*

*Figure 2.17. Rubble and  
ash adjacent to the Burnt-  
down wonder*

## 2.6 The **BREATHING** & The **STILL**

Documenting the exact numbers and conditions within the hijacked buildings is problematic in terms of security, respect for privacy, and ethical clearance. To visit such a building meant arranging with a member of the community to ask permission from the residents prior to the site visit. Residents are naturally weary of those who take interest in their buildings for fear that they might be developers or law enforcement. Because of this, no photos were taken during the visit.

However, an article written for the *International Business Times* (Reid 2014) highlights a similar story to conditions found on site. An extract states, “With a nationwide unemployment rate of 25 percent, however, and an urban population of which a large percentage arrived looking for work, “affordable accommodation” takes on a different meaning. Hijacked buildings – old industrial and office buildings that were abandoned, then taken over by squatters – are common.

‘We must fight to continue at this place,’ said Johannes Baloyi, who moved into a hijacked building on the edge of Maboneng more than 20 years ago. Baloyi came to Johannesburg from Limpopo province looking for work, but he is still unemployed. These days he makes money by gathering recycling and volunteering at the local police department. He rarely makes more than R20 or R30 in a day. His building, which Baloyi estimates houses more than 200 people, has no running water and no electricity. A large open space in the back is mostly inaccessible, filled with trash and excrement. Residents used to pay R400 per month to a landlord who controlled the building, but he recently stopped coming around. Baloyi thinks it is because they will soon be evicted. As poor as the accommodation is, ‘it’s better than being on the street,’ he said” (Reid 2014).



*Figure 2.18. Resident of a hijacked building*



The demographics of the area, as stated in the 2012 Jeppe Park Study (Sticky Situations 2012), comprise mostly of people from Kwazulu Natal (66%), followed by smaller numbers of people from Zimbabwe, Mupumalanga, Free State and Limpopo. Of these the majority are adults (45%) or young adults (34%), with very few children, teenagers, or elderly.

According to census (2011), households without decent housing sits at 16% which translates to 1 757 people. Not having access to decent housing naturally related to other service issues, such as that of access to electricity, water, and social issues. This is seen with the 13% of

households (1 427 people) that have poor access to water, and 9% (988 people) with poor access to sanitation. 14% of households (1 537 people) do not have access to electricity, and unemployment in this ward sits at 40%. Female-headed households also sit at 40%

Based on these statistics, the project will respond programmatically to the need for water-related services. It should do so in a way that will benefit the community economically through job creation. This allows for ownership to be taken of the space, thus creating a safer environment which enables a portion of space to be dedicated solely for the use of women and children.

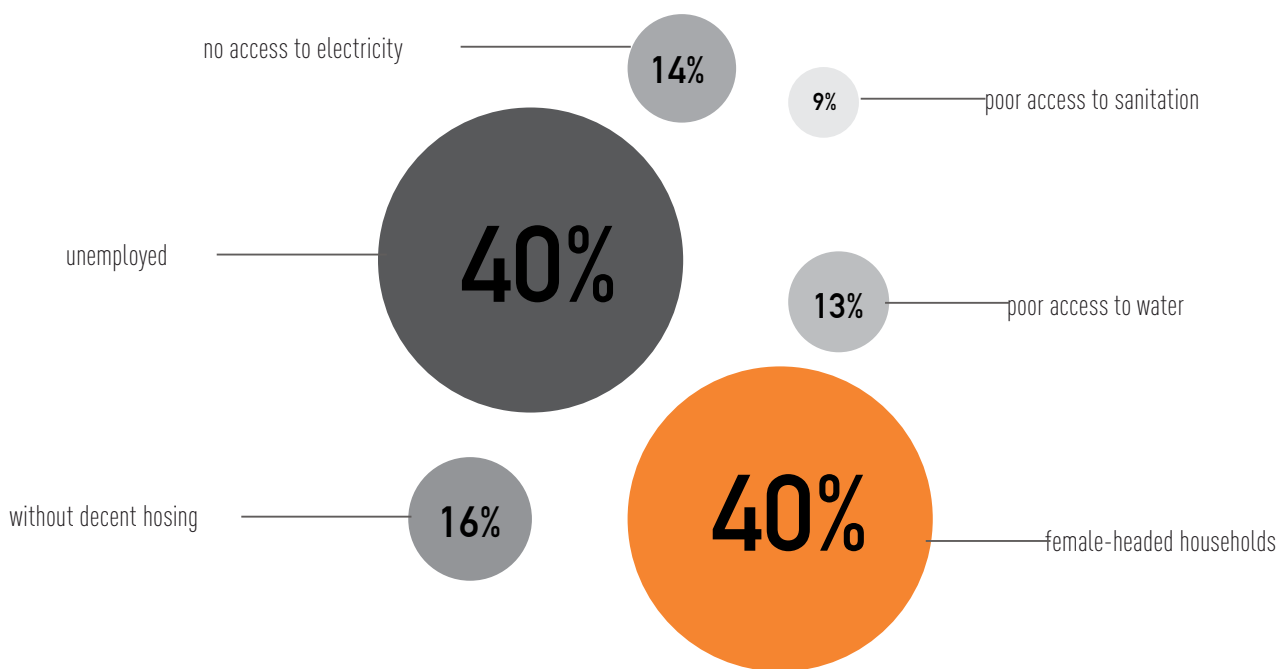


Figure 2.19.(top)  
Household statistics of  
Jeppetown

## POPULATION

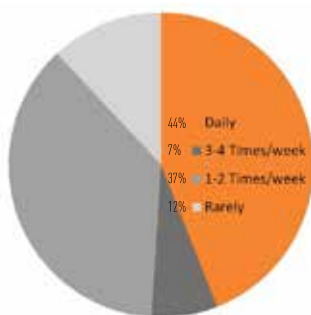


JHB	
CURRENT	2050
4.1 million	8.2 million

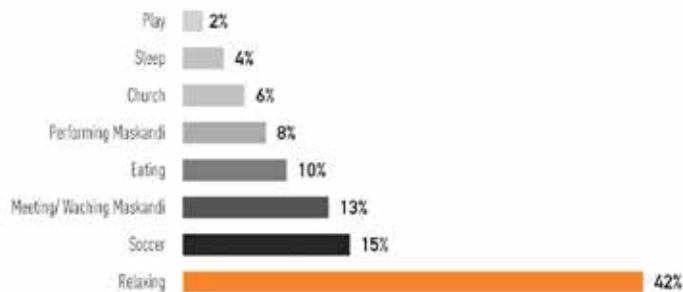
  

JEPPESTOWN	
CURRENT	2050
14 975	29 590

## PARK: FREQUENCY OF USE



## PARK: ACTIVITIES



## PLACE OF ORIGIN

KZN-66%      N.A-5%    LP-5%    MP-5%    FS-5%    ZIM-3%    EC-3%    MAL-3%



## AGE DISTRIBUTION

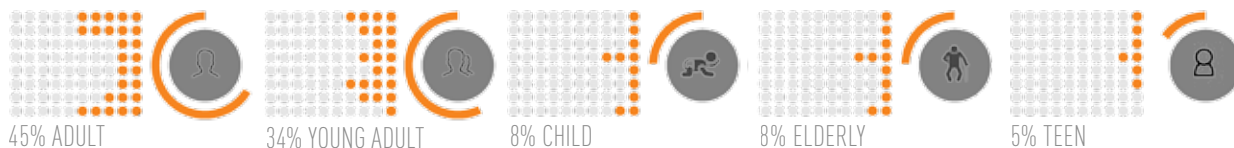


Figure 2.20.(top) Population

Figure 2.21.(middle, left) Frequency of use of the park

Figure 2.22.(middle, right) Statistical uses of the park

Figure 2.23.(middle)Place of origin of residents

Figure 2.24.(bottom) Age distribution graph

## 2.7 The PROJECT SITE

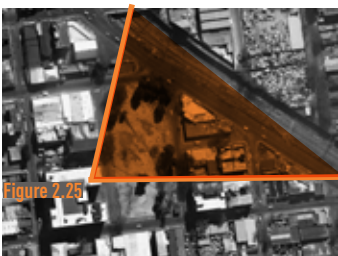




Gilfillan Park is the southern-most node of the urban framework and is a hub of activity throughout the day. It is the only designated public space in the west side of Jeppestown. The park can be seen as the largest negotiated territory, defined as: “fluctuating physical space that is determined by programme and circumstance” (Volume 1: *A Prospect Ritual*) - in the group framework. Daily rituals and activities are currently accommodated within the park as if managed by a schedule. This speaks of the invisible understandings of a bona fide community.

School children and the general public use the park throughout the week to eat, relax and meet with friends. It is used daily in the afternoons for multiple soccer games, played concurrently (Figure 2.25), by men living in the hostels two blocks to the south; and also for Maskandi, the traditional Zulu dance which draws in crowds of spectators. It is also used for church gatherings on weekends, as well as by school children and general public throughout the week. A spaza shop and male hairdresser operate informally from the eastern side of the park, along Janie Street. It is along this edge where the site begins.

Figure 2.25.(opposite)  
Daily soccer games in the  
park



On the corner of Janie and Fawcus Street is a small shabbeen (within the white building in Figure 2.26), which lives out to a back courtyard. The buildings surrounding this courtyard are single storey hijacked residential, although the writing on the wall still reads 'Wallpert Motors Panelbeaters'. Adjacent to this, on the corner of Fawcus and Hans Streets, is the building known by people

in the area as 'The Burnt-down Wonder'. It too is hijacked and, as the name states, in ruins. What was a two storey structure a few years ago, is now roofless and houses approximately 200 occupants on only the ground floor. On sunny days washing can be seen hanging on the top floor through the gaps where windows once were.

*Figure 2.26. Fawcus Street as seen from the park*



The remaining four buildings on the southern end of the block are all residential blocks, ranging from three to six storeys high. Although these are residential, ownership, legality, and conditions vary.

One thing that all of these buildings have in common is that there is, more often than not, no running water. In some of the hijacked structures, residents have dug through the surface-bed

in order to tap into municipal water supply. Others could make use of the few services provided by the buildings until the municipality turns off the water pressure due to non-payment.

This situation has led to a communal appreciation and sharing of water when it is available. It is from this aspect that the project grows and the programme for the intervention is developed.

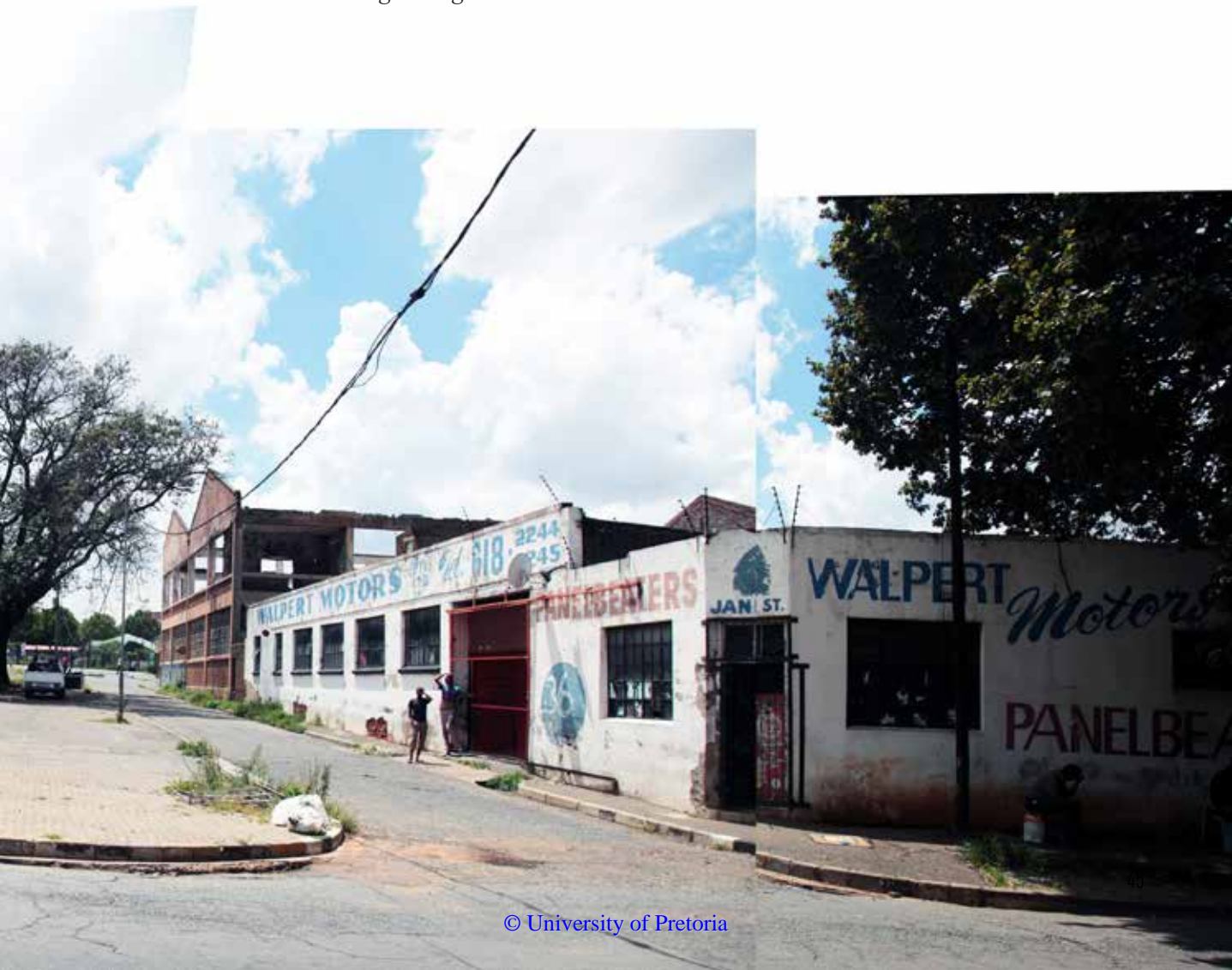




Figure 2.27



*Figure 2.27. Washing seen through the window of 'The Burnt-down Wonder'*



## 2.8 The MAPPING

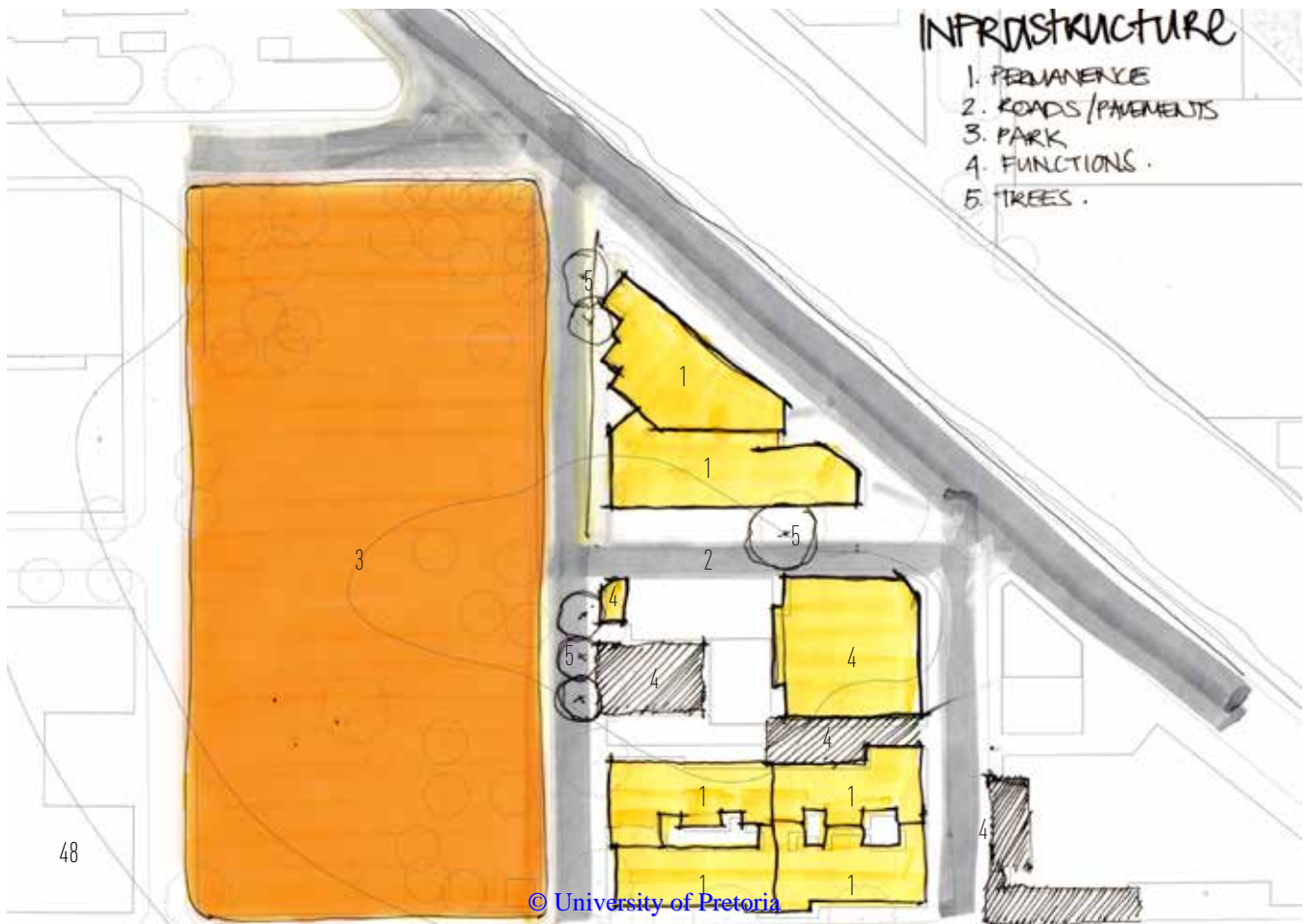
Infrastructure is seen as and any built or natural form or that support the enhancement of place through service or function. Due to the social needs in Jeppe', all forms of infrastructure are seen as positive attributes that should be enhanced and utilised

In the site's context, permanent structures (regardless of condition) are seen as infrastructure in their ability to house services and provide shelter.

Roads and pavements, and the park are all open forms of infrastructure of the urban fabric, and allow the space for everyday activities to take place. Lastly, trees are seen as soft infrastructure.

Due to the age of the study area, most trees are well developed, and provide shade, definition and character to the environment which is often a quality that is absent from newly-developed sites.

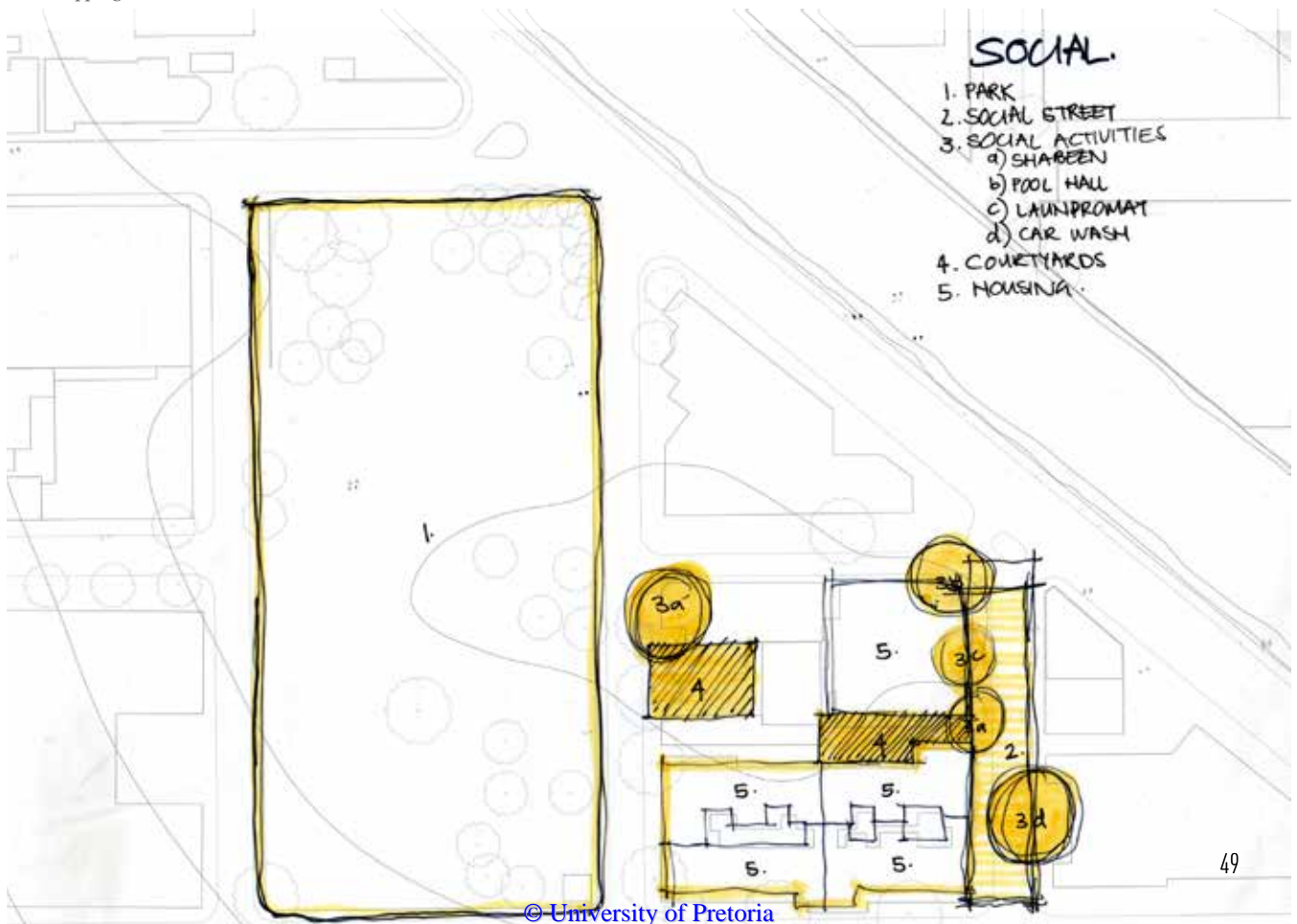
Figure 2.28. Infrastructure mapping



This project holds the social environment of Jeppestown in very high esteem, as it is the driving force behind the rituals and negotiations that shape the area. The park is a major facilitator of this. Hans Street, to the eastern edge of the site, is a social street. A spaza shop, pool hall, entrances to several residential buildings, and a

car wash in the burnt-down church (Figure 1.4 on page 10) all live out onto this street. Courtyards between the buildings also house informal shabeens and social spaces not easily accessed by outsiders. The area has a dense residential population who have become the driving force behind the proposed intervention.

Figure 2.29. social mapping



The sketches opposite map the rhythm of the site. Figure 2.31 shows the rhythm of the train. The cutting of the grid by John Page Drive and the railway has a distinctive effect on the flow of the site. Figure 2.32 maps the movements patterns of pedestrians around the site, and through the park. It also shows that the three corners of the site have the most energy, as they are located where paths intersect.

Figure 2.30 uses the lenses, as discussed in Volume I: *A Prospect Ritual*, to map the site. This mapping shows areas of rituals, negotiated territories, and lives and deaths. It allows a glimpse at the forces that govern the flow and ownership of space.

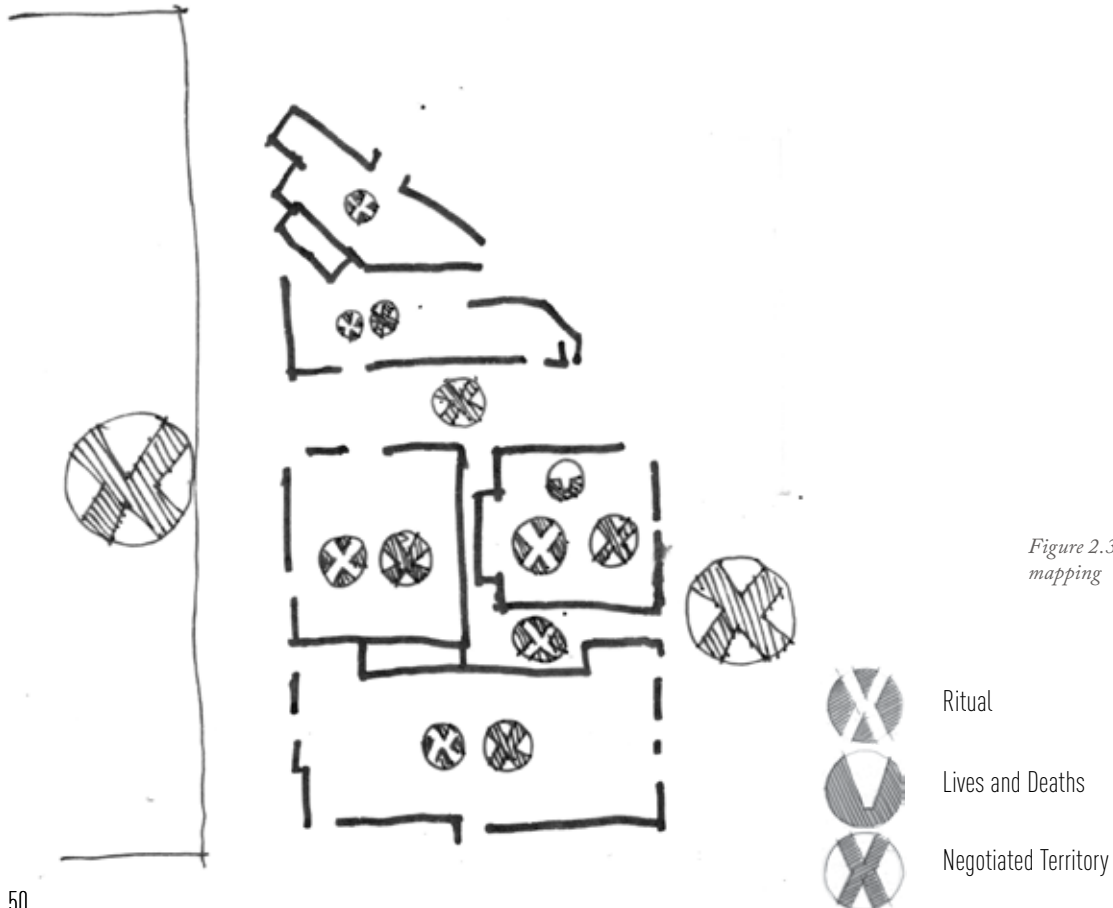


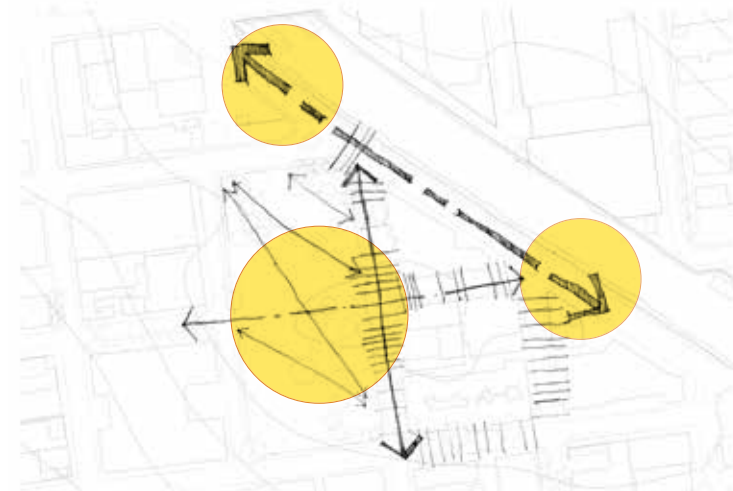
Figure 2.30. Lenses site mapping



## 2.9 SWOT ANALYSIS

Figure 2.31. (top)  
Conceptual mapping of  
the energies of the train  
and pedestrians

Figure 2.32. (bottom)  
Movement lines and  
energies



### STRENGTHS

- Multiple functions: diverse social energies
- Proximity to the park
- Permanence of structure

### WEAKNESSES

- Condition of structures
- Lack of civic space
- Lack of services

### OPPORTUNITIES

- Street as space
- Adaptable and robust community
- Energy from surrounding functions

### THREATS (constraints)

- Gentrification by developers
- Need for external input (financial/legal)
- Existing structures

## 2.10 STATEMENT OF SIGNIFICANCE

Even though Jeppestown is one of the oldest suburbs in Johannesburg, its western edge - where the site is located - was almost completely rebuilt between the mid 1940s and late 1960s due to the rezoning and political drive of the time. None of the buildings on the site are unique examples of industrial heritage, although they most fall within the SAHRA Act 25 of 1999 category of structures that are older than sixty years. (SAHRA 1999)

They should be preserved in the case that they can **positively contribute or support the public realm** in terms of either: their function, current or future potential; the permanence of structure; or the services they can provide.

Due to the fact that this post-industrial area is being taken over by people for residential use, the approach should be one which can contribute to the reclaiming and transformation of fabric for public space and supporting infrastructure.



PROJECT SITE

## 2.11 DEVELOPMENT APPROACH

The aim is to reclaim public space from the existing post-industrial landscape, and reconfigure the existing fabric so as to support the insurgent population. The value of this area lies in the established community which inhabit it. The existing buildings are useful in the fact that there is the opportunity to adapt them as opposed to having to build from scratch. In many cases (as with the after-school centre, an ongoing physical project, discussed in Volume 1: *A Prospect Ritual*) this greatly reduces the cost implications for new programmes and thus encourages initiatives and businesses to start up which in turn will have a positive impact on the community as a whole.

The project accepts the hijacked typology of urban living as an existing and ongoing state which far exceeds the current capacity of state-funded housing.

From this stance the project aims to provide services within the public realm in a meaningful and accessible way. This is seen as a short- to medium-term method of improving conditions for the many individuals and families who are likely to live in these conditions until they become more economically self-sufficient.

In the longer-term, the project endeavours to create meaningful public space which will be necessary with the increasing densities of South Africa's cities.

Figure 2.33. Panorama of park looking towards the site



chapter 2: **SYNOPSIS**

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This chapter demonstrates the influence that history has had on the site as it stands today. There is a layering of times, mindsets, and physical changes which need to be taken into account when intervening in this existing context, as they contribute to the spirit of the place. The chapter also unpacks the demographics of the inhabitants and looks at social issues experienced within the area so as to ascertain an appropriate approach going forward.

It then shows the deficit of public space in the area and thus the need to reconfigure the existing fabric so as to support the insurgent population.

The project accepts the hijacked typology of urban living as a contemporary urban condition that needs to be addressed directly, and in the short-term, while anticipating future densities and the need for quality public space.



*Figure 2.34. Pen and inc sketch of a burnt-down structure*

# 03

## THEORETICAL investigation

This chapter explores approaches to space-making within an African context. It defines the approach that should be taken in terms of intervening in an existing context and amplifying positive traits inherent to the site.

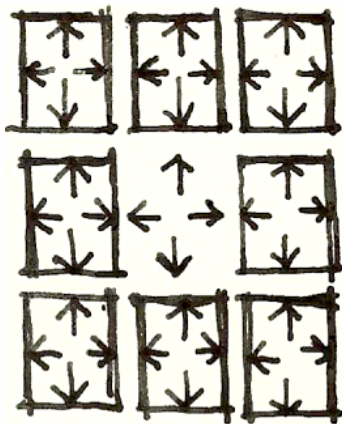
- 3.1 **african space**
  - 3.2 **event-driven space**
  - 3.3 **design precedent study**
  - 3.4 **body-space**
  - 3.5 **dichotomies**
  - 3.6 **fragile architecture**
  - 3.7 **moving forward**
- chapter 3: **synopsis**

## 4.1 AFRICAN SPACE

“In the context of a world that is progressively more interconnected, the concept of place has become totemically important” (Da Costa & Van Rensburg 2008a:30). It can be argued that the creation of space should be an extension of the people it is being created for. Such an argument calls into critique current urban spaces, the methods of their creation, and the public which occupy them. To do this, one must first appreciate different cultural understandings of space within South Africa’s urban environment.

J Berry, a cross-cultural psychologist, defines a difference between African and Western spatial understandings. He uses the term ‘Field Dependent’ (Figure 3.1) to describe Western spatial understanding. This state views space as private, except where it is explicitly designated as public. Alternatively, the African - or ‘Field Independent’ (Figure 3.2) - understanding of space is that everything is public, except that which is defined as private (Berry 1992:124).

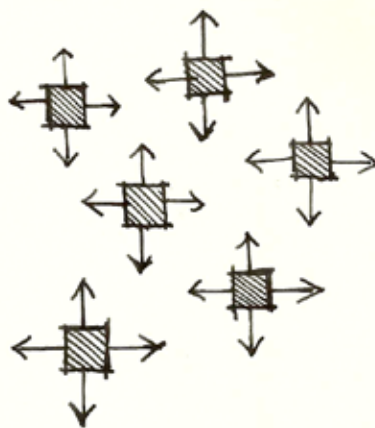
### FIELD DEPENDENT



#### STRUCTURE OF WESTERN PHILOSOPHY

Everything is PRIVATE except that which is designated as public

### FIELD INDEPENDENT



#### STRUCTURE OF AFRICAN PHILOSOPHY

Everything is PUBLIC except that which is designated as private

Figure 3.1. Field Dependent Space.

Figure 3.2. Field Independent Space

Figure 3.3. (opposite) Field interdependent space



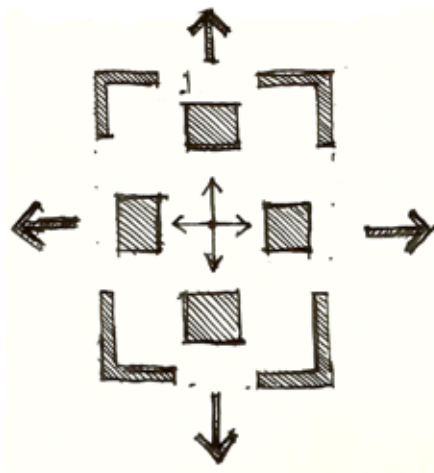
In South Africa and other post-colonial cities we find that cities have been, and continue to be, planned and built in accordance with the Western (field dependent) typology. Yet, the demographic of public who now inhabit Jeppetown subscribe to an African, field independent, understanding of space; this can be seen in the way in which space is currently being appropriated. The urban issue of disconnect between the social realm and the built fabric stems from this.

In response to this, a third definition of spatial understanding has been devised

as part of the framework in volume 1: *A Prospect Ritual*.

This state has been termed **Field Inter-dependent**. Theoretically this approach seeks to investigate ways of **reconfiguring the built fabric** (Western - field dependent) so as to allow for dialogue and synthesis with the social realm's understanding and use of public and private spaces (African - field independent). **It also aims to consider the city in terms of the duality that exists between the breathing (African) and the still (Western).**

### FIELD INTERDEPENDENT



### RECONFIGURATION OF WESTERN STRUCTURE TO AFRICAN PHILOSOPHY

## THE URBAN AFRICAN CONDITION

Mary-Anne da Costa (2007:26) States that, “The African City is characterised by the notion of anonymity. It not only exists overshadowed by globalisation and Western thought processes, but it is also trying to free itself from its Colonial past.” Inter-dependent spatial understanding is meant to address this in acknowledging that the populous of the city, and the formal rules which govern it are not in sync, and thus, need to be addressed.

This is a two-pronged endeavour: where firstly, one needs to emancipate the African city from the pretence that the globalization of western norms makes them either superior, universal, or appropriate to the African context; secondly, an understanding of African

issues need to be addressed with African values and resources.

One such issue is the phenomenon of hijacked buildings. Landman et al (2006:6) states that the fast rate of urbanization in South Africa, coupled with little accessibility to well-located land, has resulted in unaffordable housing options. The choice often sits between unaffordable housing on well-located land, or housing projects in remote areas which are unsuccessful due to the fact that job opportunities are often located far away, putting an extra financial burden on the poor. However, “the poor have always found themselves alternatives to their needs” (Landman et al 2006:6), and the hijacking of abandoned inner-city buildings is one such alternative.

While hijacking of buildings is a phenomenon which occurs elsewhere in the world, the conditions under which they occur in South Africa are specific and occur on a couple of different levels: one level is that of economics. The provision of housing is frivolous without access to the job market. The (illegal) renting out of hijacked buildings is lucrative for ‘landlords’, and the often un-governed control of abandoned structures makes this both an easy and understandable choice for many migrant workers. Another level this needs to be understood on is an urban planning and administrative one. Although this is a socio-economic problem, its consequences reach far into the urban realm; yet these are largely dealt with either a blind eye, or a tough hand. Although housing subsidies and social grants have reached many, “the demand for housing far exceeded the

supply, and many [have] to be content with having placed their names on a housing waiting list” (Landman et al 2006:2-3). Thus, instead of viewing urban hijacking as something that is ignored (as is the case in Jeppestown) or that which needs to get ‘cleaned up’, it should rather be acknowledged for the magnitude in which it exists, and inspires new innovations of realistically improving inhabitants lives in the immediate future.

A major factor in improving circumstances is access to services. As dealt with in Chapter 2, access to services is a major issue in Jeppestown. Therefore, the project will make a programmatic and spatial exploration into the provision of services which are free from the waiting-list of housing delivery.

“The urban dweller has evolved into a new type of ‘urbanising agent’ - a term employed by Kahn (1995: 200) – who creates new social and human landscapes in accordance with the need for reconsidered forms of urbanity” (Da Costa & Van Rensburg 2008).

## 4.2 EVENT-DRIVEN SPACE

Field Interdependent design inherently has to look to the rituals and negotiation that occurs between the city’s diverse public. It intrinsically deals with a place’s idiosyncrasies, its entropy, and the identity of place. As stated by Da Costa et al (2008b:48), “Its urban spaces must be able to accommodate humans as social beings who belong to a self-organising and multi-faceted society (...) Strategies should incorporate processes of rebuilding, incorporating, connecting and intensifying what already exists.” It is vital to this project that the existing context, functions and rituals are used as design informants in the remodelling of the current fabric.

Da Costa et al (2008b) state that African cities should be reconditioned through an understanding of event-driven space as being more relevant than form-driven solutions. To do this one must recognise the various activities that take place, or have the potential to take place on site. Activities can be distinguished into three categories as defined by Jan Gehl (1987:11).

He defines activities as being **Necessary**, those activities that need to happen regardless of the environment, such as eating, drinking, shelter, cleansing and excretion; **Optional**, the activities that take place when the physical surrounds are in a good state, most outdoor activities fall into this category; and **Social**, which arise from an amalgamation of necessary and optional activities. The communal understanding of this category of activity elevates it from an activity to what the framework (volume 1: *A prospect Ritual*) defines as **ritual**.



**The approach to the project will use the rituals of washing to create an event-driven space. This allows for the re-scripting of the existing fabric, making it relevant to its users through “rebuilding, incorporating, connecting and intensifying that which already exists” as previously stated (Da Costa et al 2008b:48).**

Figure 3.4. Rituals diagram from Volume I: A Prospect Ritual



Figure 3.5. (opposite, top)  
Pavement used as seating

Figure 3.6. (opposite,  
middle) Male hairdresser  
on Janie Street

Figure 3.7. (opposite,  
bottom) Spaza shop on  
Janie Street

### 4.3 theoretical PRECEDENT STUDY

#### NYANGA BATH HOUSE

Nyanga, Cape Town

Piet Louw Architects with Dekker & Els

2001

The value of this precedent is that the project was not approached solely from a service-provision point of view, but as a social place. The public square and covered areas create meaningful public space in a densely-built area where little space is designated to the public realm.

It was part of the Municipal-Spatial Development for Cape Town which first built a community centre, but identified the need for a communal bathhouse to serve the informal settlement in Nyanga.

The bathhouse and public square lies at the end of a main pedestrian route. The bathhouse forms the eastern edge of the public square. “The bathhouse itself is seen as a social facility, not as a utility service” (De Beer 2001). The portico and covered entrance allow for people to meet in the shade.

The building also houses a laundry that can be accessed from within the building or from without. The building also houses space for a caretaker. The bathhouse houses showers, ten of which give the option of showering in the open air. There are also toilets and disabled facilities.

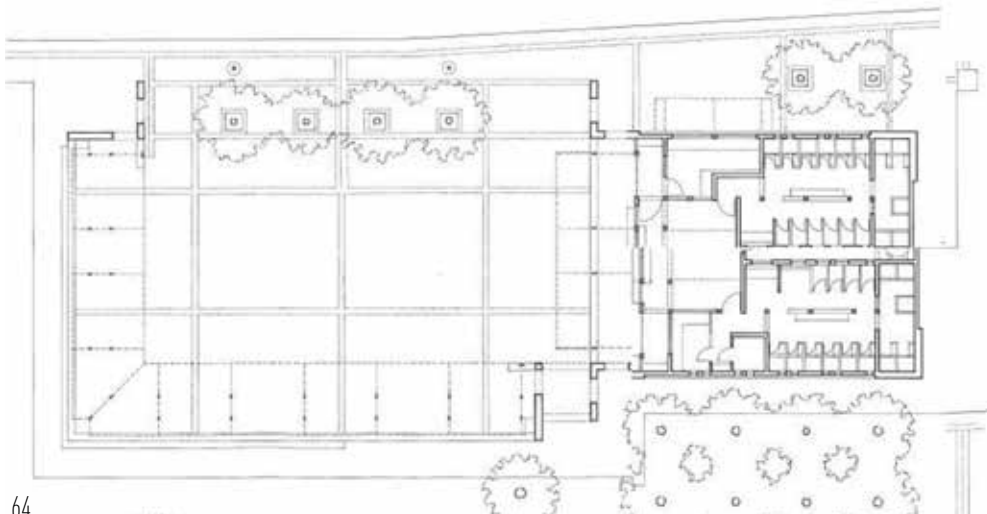


Figure 3.8. Plan of courtyard and bathhouse

The building does not attempt to be iconic in its form, but rather, gains value through both its programme as well as its un-programmed spaces. It is an **event-driven space** that allows people the space to live out their public lives. It succeeded in claiming space from the built fabric (a few houses were relocated) in order to serve the public both in terms of service provision as well as adding value to the public realm.

It is an example of a South African issue and context dealt with in an appropriately contextual way as explained by Da Costa's (2007:26)

notion of **African issues and solutions**. It is an African building without the pastiche that often accompanied commissions of the last decade, such as the Northern Cape (2004) Provincial Government Complex (Figure 3.14 and Figure 3.15 on page 71).

The fact that this project was subsequently burnt down in a service-delivery protest, is not a testament to its failure but, rather, its success: as the destruction of something meaningful speaks much more than that which doesn't hold value to people.



Figure 3.9. Model of project in context

Figure 3.10. Aerial photograph





## 4.4 BODY-SPACE

“It is argued that the Enlightenment project initiated the alienation between body and space, resulting in the physical determinism of post-human Modernism. To reintroduce the body to space, current methodologies that rely on spatial analysis and understanding based on formal qualities alone must be contested and replaced with strategies that integrate form, temporality and event. This is especially pertinent in the African context where Western norms have had a pervasive formalist influence on the spatial structure of cities” (Da Costa & Van Rensburg 2008a:43).

To consider event as a major design informant is to acknowledge the actor, and in so doing event-driven design has to engage in the creation of space for bodies.

Heinrich Wölfflin says of his theory of form, “Physical form possess a character only because we ourselves possess a body” (1886:151). Wölfflin (1886:159) further explains that “It is through the ‘most intimate experience of our own body’ and its projection ‘onto inanimate nature’ that aesthetic perception occurs”. When Wölfflin speaks of the body, it is easily read that he is referring to his - male - body. The exclusion of the female is an extension of the exclusion of the body. Forty (2000:58) elaborates on this by explaining the way in which modernist architects speak about form is in a male sense. During the twentieth century, form was transformed from a neutered state to a masculine epitome.

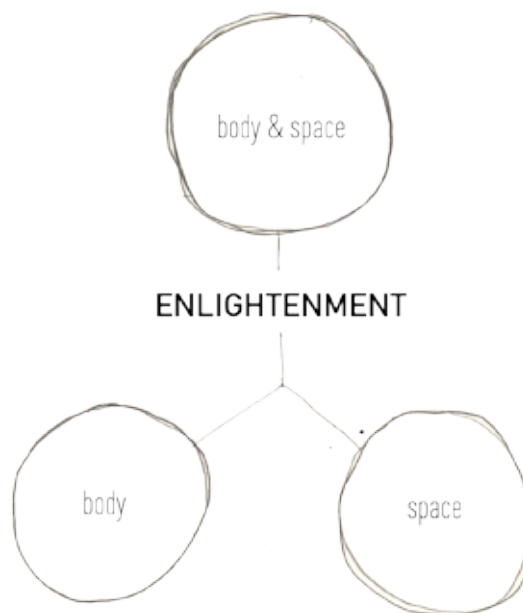


Figure 3.11. (opposite)  
Bather

Figure 3.12. Cartesian  
separation of mind and  
body

“For a true understanding of place, the body must be allowed to confront constructed space. This engagement cannot only happen through visual experience and ocular comprehension” (Da Costa et al, 2008)

---

Yet, the conception of architecture as gendered, which was classically the tradition and had organised architects and critics’ reflections for centuries, ended abruptly with the advent of modernism.

By 1924, the year of Sullivan’s Death, gender had ceased to be the organizing metaphor for the whole variety of hierarchical distinctions, ‘strong/weak’, ‘plain/delicate’, ‘purposeful/equivocal’ and so on. (...) No modernist spoke about architecture in terms of gender - nor even gave a reason for not doing so (Forty 2000:52).

One point to note on this is classical architecture’s vocabulary was strongly polarized; things were solid/light, male/female, natural/artificial. Whereas modernism speaks of ‘form’, ‘space’ and ‘order’ for which there is an indefiniteness to their opposites.

Forty (2000:61) says of this, “Even if the modernists’ attachment to ‘form’ was undoubtedly predicated on a horror of ‘formlessness’, what constituted ‘formlessness’ - or ‘aspatiality’, or ‘disorder’ - remained unarticulated and inexplicit.” ‘Form’, ‘space’ and ‘order’ have been presented by modernism as absolutes. They do not allow room to consider their ‘other’, making the vocabulary of modernism inaccessible to such thoughts. Forty (2000:61) maintains the need to question this vocabulary as “critical terminology must involve consideration of their opposites.”

It is from this stance that the project positions itself. Heys (1988) states, “Somewhere every culture has an imaginary zone for what it excludes and it is that zone that we must try and remember today.”

Body is not the only quality that has been excluded from the architecture of this area of Jeppe. Other forgotten, and interrelated aspects include: the feminine, civic, and nature.

**Therefore, the project aims not only to understand the existing landscape for what it is, but also in terms of what it lacks. There will be a focus on public space-making as well as the user and, in particular, the female. This will be made physical by means**

**of the programme, ergonomics, and spatial character. There will also be an emphasis on introducing nature into site. Nature and natural systems, such as the water cycle, will become elements that ground the project within time. Materials will be allowed to weather, and seasons will change the character of spaces. Embedding the project in nature and time rejects the sterile notion of modernism and humanized the environment of the user.**



*Figure 3.13. Study for  
Bathers in the Forest.  
Picasso. 1908. Charcoal.*

## 4.5 DICHOTOMIES

There are several dichotomies that provide insight into the functioning of the area. One category is not to be read as superior to its polar, but rather, it is meant to be used as a tool in establishing balance; as it is only in the play with its opposite that a character can truly be appreciated i.e. one cannot appreciate light washing down a wall if there is no darkness to highlight it.

Book VII of *Treatise on Architecture* by Sebastiano Serlio, written in 1575, was the first intentionally established vocabulary of opposites for the purpose of critically reviewing architecture as an art, thus showing the first ‘modern’ approach to the subject. He differentiated between:

soild (soda)	weak (debole)
simple (semplice)	flimsy (gracie)
plain (schiett)	delicate (delicata)
sweet (dolce)	affected (affettata)
soft (morbida)	harsh (cruda)
robust (robusta)	soft (tenera)

Where ‘soild’ and ‘weak’ refers to the degree of structural strength; ‘plain and ‘delicate’ refers to handling of detail; and ‘soft’ and ‘harsh’ has to do with the degree of unity in transitions.

Forty (2000:44) explains that Serlio’s system, like other dichotomies, distinguishes between ‘this’ and ‘not this’. But, he has been careful to give each pole equal weight, rather than the tendency of most architectural analogies to give only one category the attention, while the other is “merely roughly indicated, or frequently not named at all, subsiding simply as the inexplicit otherness”.

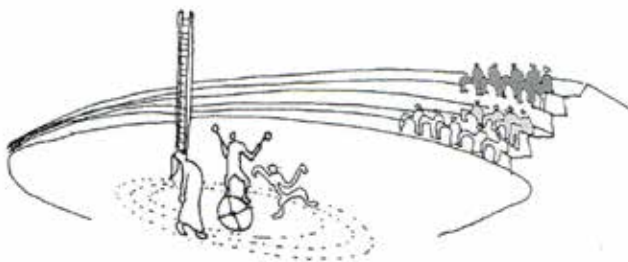


Figure 3.14. Concept sketches for the Northern Cape Provincial Government Complex.

The dichotomy of Western versus African has already been discussed in terms of spatial constructs, but the following comparison, by Broodryk (2000:20), compares Western and African philosophies:

**WESTERN**

alone  
material  
pieces  
future  
control  
guilt  
accumulate

**AFRICAN**

together  
mind  
whole  
past  
harmony  
shame  
share

This allows the designer a better insight into the consequential spatial and privacy practices appropriate to the context. Therefore an African architecture is one that instils the values of togetherness, community and harmony rather than a collection of pastiche forms (the pot/drum/tree) or geometric patterns (Figure 3.16). The architecture should attain its distinction through the application of theory, rather than solely a focus on form.

*Figure 3.15. Photo of the tower structure of the Northern Cape Provincial Government Complex.*

*Figure 3.16. African pastiche of the SANRAL Customer Service Centre buildings*



Another dichotomy that has been touched on is that of male and female. When viewing spaces, Margrit Kennedy urges to “see them not as exclusive categories, but rather poles of a defining continuum” (Rothschild 1999 p14).

Kennedy (1981:12-13) continues to define the qualities of both gendered designers, as well as the spaces that are more included to produce, as follows:

#### **MASCULINE**

designer orientated  
fixed  
abstractly systematized  
specialized  
one-dimensional

#### **FEMININE**

user orientated  
flexible  
organically ordered  
holistic  
complex

Again, neither is meant to be seen as ‘right’ or ‘wrong’, but rather be understood for their respective characteristics so as to best represent the desired qualities of a particular space or scheme.

Mapping of the existing site conditions was done with this gendered notion of space. It is subjective endeavour, more so than the mapping, for instance, between light and dark, but is a useful tool in unpacking the qualities of site, and identifying areas that may not possess the desired characteristics. Figure 3.17 is the result of an emotive gendered mapping achieved by walking the site and recording the changing spirit of the place.

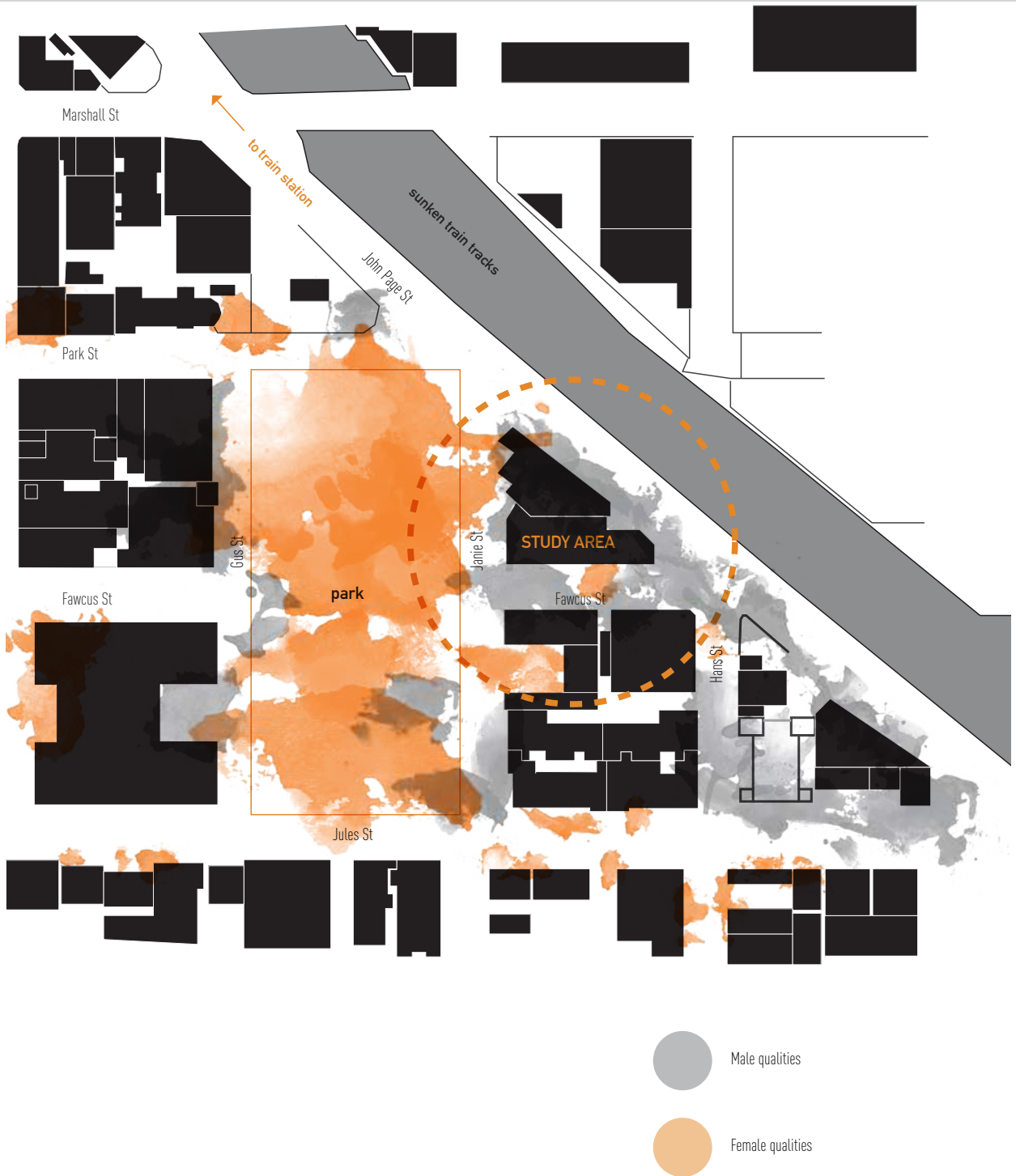


Figure 3.17. Gendered space mapping

## 4.6 FRAGILE ARCHITECTURE

Architecture needs to move away from the obsession with iconic aesthetics that creates a city of isolated monuments of the ego. South African cities are in need of new buildings but, more so, an editing of their current fabric. In so doing, both building and exterior space should be transformed in such a way as to form a collective flow of publicness that is appropriate to the African condition in which it exists. These spaces should encourage the activities of the everyday, allow for negotiation and

editing by the users so that the space can constantly be re-imagined in order to stay relevant.

Pallasmaa (2000) discusses the importance of what he terms 'fragile architecture' to achieve this. He explains that by lessening the visual impact of architecture, a more sensuous experience of space is encouraged. One way to achieve this is through material choice and the expression of aging; Pallasmaa (2000:6) states,





“A distinct ‘weakening’ of the architectural image takes place through the processes of weathering and ruination. Erosion wipes away the layers of utility, rational logic and detail articulation, and pushes the structure into the realm of uselessness, nostalgia and melancholy. The language of matter takes over from the visual and formal effect, and the structure attains a heightened intimacy. The arrogance of perfection is replaced by a humanizing vulnerability.”

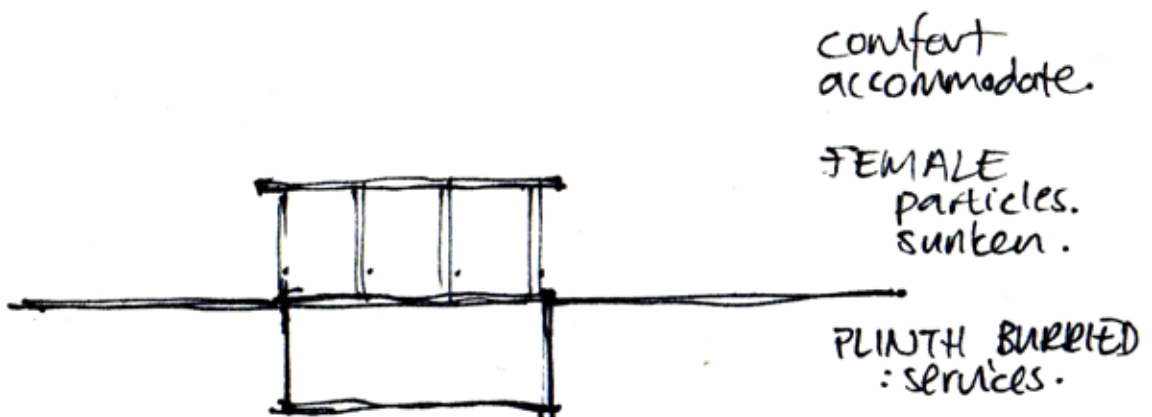
Figure 3.18. (opposite)  
Masculine form diagram

Figure 3.19. Feminine  
form diagram

Architecture of this nature is meant, according to Pallasmaa, to ‘accommodate’ through ‘domesticity’

and ‘comfort’, rather than to ‘impress’ by evoking ‘admiration and awe’.

This allows the essence of the architecture to reference human interaction and encounters rather than visual syntax. In essence, it combines all the aforementioned theories of African space, event-driven space, and body-space. The result of this is the placing of event as an intrinsic part of architecture (event-driven space). It also exhibits the strong links between the built environment and nature. This link to the landscape implicitly opens a dialogue with time, change and thus, the fragile image.



Kengo Kuma speaks of the fragile image and how it relates to his normative position on architecture. In speaking of his design for the Kiro-san Observatory (a structure buried at the tip of a prominent mountaintop, so as not to disturb the beauty of the landscape) he explains that the project was to explore the ‘anti-disposition’ of objects in nature (Kuma 1994). He goes on to explain that he views architecture on display as ‘male’ structures, whereas buried structures can thus be considered ‘female’. He elaborates that,

“Up to now, human beings have almost exclusively built ‘male’ architecture. During times when resources were thought to be infinite, and when the environment was believed to have infinite capacity, people favored this ‘male’ form of architecture. Now that we know how delicate and fragile the environment is, however, the value of ‘male’ architecture is being questioned” (Aymonino & Mosco 2006:207).



Figure 3.20. (left) Buried landing of the observation deck

Figure 3.21. (right) entrance stairs at the bottom

Figure 3.22. (opposite) View from the observation deck

However, it is obviously not always appropriate to bury structures - for financial and practical reasons - but this project was a turning point in the architect's thinking. In a discussion of the Nakagawa-machi Bato Hiroshige Museum of Art, he states that the

intention was to “break down the solid, heavy mass of the building into light, delicate particles” (Aymonino et al, 2006:207), which has become a continued stance to be iterated throughout his body of work.





Fragile architecture is often not guided by a singular image, but rather a complex response to context and experience. Carlo Scarpa's work often has this quality. Pallasmaa (2000:7) speaks of Scarpa's work as follows: "Although his projects often seem to lack an overall guiding idea, they project an impressive experience of architectural discovery and courtesy."

"His architecture obscures the categories of foreground and background, object and context, and evokes a liberated sense of natural duration. An architecture of courtesy and attention, it invites us to be humble, receptive and patient observers. This philosophy of compliance aspires to fulfill the humane reconciliatory task of the art of architecture."

Another such example is that of Alvar Aalto's Villa Mairea (Figure 3.24 and Figure 3.25). Pallasmaa (2000:7) calls it a, "masterpiece of the episodic architecture of fragile formal structure". The project portrays a continuous quality feeling, rather than a continuous reading of form. Pallasmaa (2000:7) continues:

Architecture has developed the tendency to endeavour to be recognized by a singular, bold image. Yet, it is of concern that architects seem to get caught up in attempting to find the 'money shot' above spending time on creating a good spatial experience.

It is for this reason that the project has positioned itself to explore architecture as an experienced to be lived, rather than just seen.



Figure 3.23. (opposite)  
Interior of Kengo Kuma's  
Ginzan Onsen Fujiya

Figure 3.24. (left) Interior  
of Alvar Aalto's Villa  
Mairea

Figure 3.25. (right)  
Handrail detail from  
Alvar Aalto's Villa Mairea



## 4.7 MOVING FORWARD

The concept of **fragile architecture** will be carried through the design process and into the technical development.

The context is inherently complex, both in terms of social issues and physical manifestation. The understanding of the site as the inhabitants as uniquely South African calls for an approach beyond basic housing delivery. Utilising the notion of **field inter-dependent space** allows for the existing fabric to be transformed and made relevant to the current and future inhabitants of Jeppestown.

This is further achieved by creating an **event-driven space**. Placing ritual and activity at the heart of the architecture enable the intervention to be rooted to the every-day lives of the user.

Architecture is ultimately built for the user, and the design and conception of space should reflect this.

The **body-space** relationship deals with many aspects of the scheme, from ergonomics to material choices, user safety, haptic and the multi-sensual experience of spaces.

Allowing the architecture to be subservient to the user, as opposed to dominating, is at the heart of **fragile architecture**. Further, embedding architecture in the world by connecting it to time, change and decay allow it to not be monumentality but rather be celebrated as mortal and related to mankind.

This approach will enable the current, harsh, environment to be softened. The architecture will no longer need to fight against time, but rest in the embrace of change. The public have risen, and together with the city, they will move forward.



Figure 3.26. South-western corner of the site



chapter 3: **SYNOPSIS**

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The theories in this chapter have been investigated in order to aid and establish the making of architecture in the current forgotten urban context. Through the theory, one is able to scrutinize the psychological facets of the context - such as spatial conception -which give cues to the ordering of the intervention. Further, by scrutinizing qualities missing within the space currently, a design can then begin to alter the environment to express such qualities.

Ultimately, the theory completes the study of context by not only analyzing that which is there, but also that which is not. It highlights the potency of creating architecture that is rooted in ritual; an architecture that is humanized through its connection to time and nature; an architecture that is ultimately there to serve.

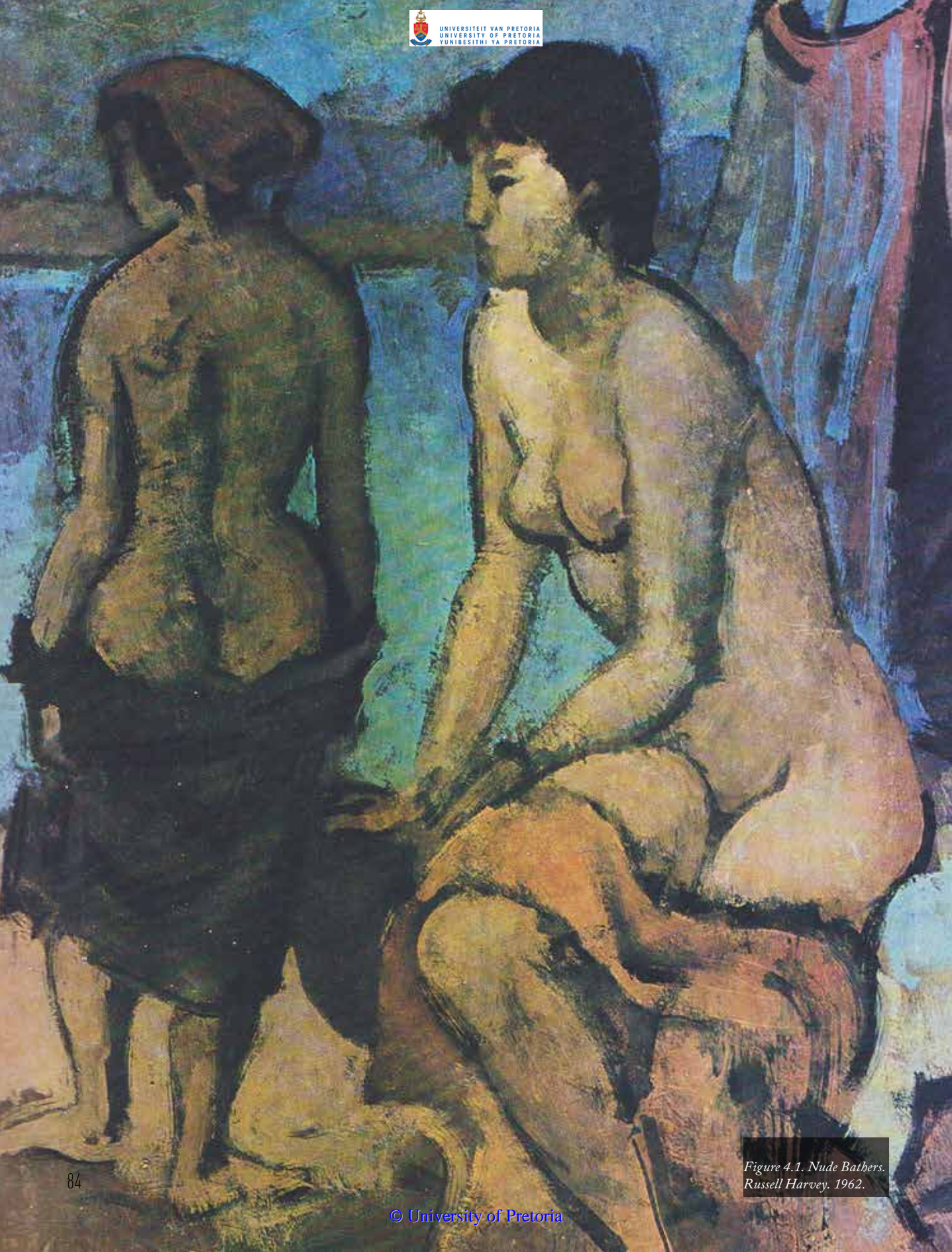


Figure 4.1. *Nude Bathers*.  
Russell Harvey. 1962.

# 04

## DESIGN development

Chapter Four discusses the spatial ordering of the site, as well as the programme and design intentions with regards to the theory and overriding concept.

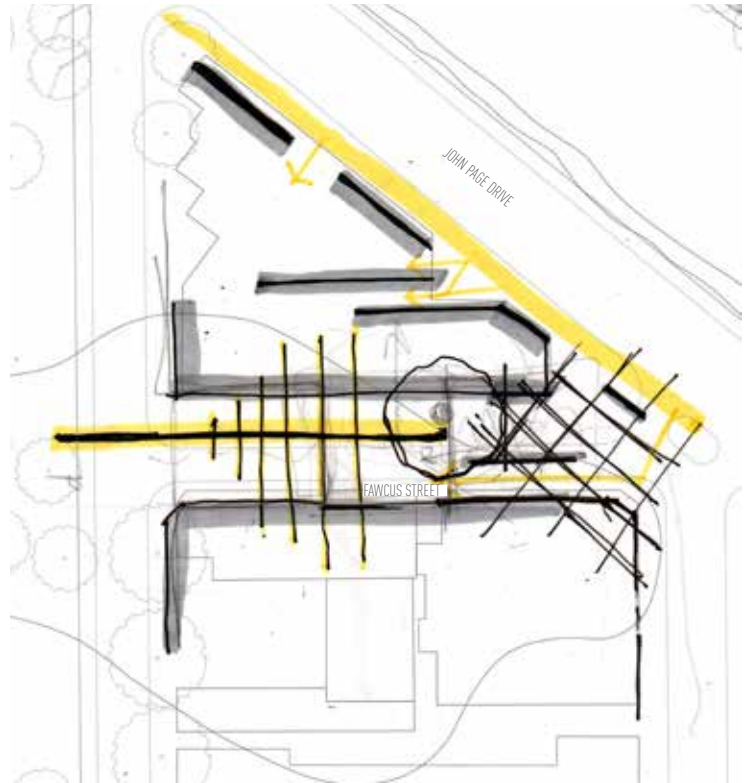
- 4.1 **first intentions**
  - 4.2 **spatial definition**
  - 4.3 **programme**
  - 4.4 **types of bathing**
  - 4.5 **design precedent**
  - 4.6 **un-volumetric architecture**
  - 4.7 **sketch plans**
- chapter 4: **synopsis**

## 4.1 FIRST INTENTIONS

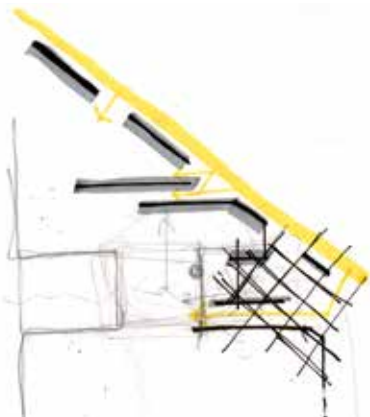
One of the first noticeable characteristics of the site is the way in which the grid is severed by John Page Drive. It results in a change in the axis of energies from the conventional north-south and east-west directions.

It is therefore important to map the routes and edges of the existing structures, and then overlay an order of hierarchy to the intended directionality of energies through the site.

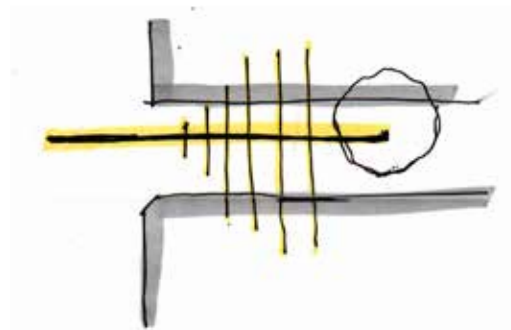
This site analysis diagrams show a distinct difference in spatial flow on either side of the tree in Fawcus Street.



ROUTES  
EDGES  
BREAKS



ACCESS  
THRESHOLDS  
FOCAL POINT



● edges  
● energies & movement

The site is then divided by the intended levels of privacy:

1. The park is the most public space.
2. The inserted programmes are public but indoors.
3. Squares on either end of Fawcus Street, these act as spill-out spaces for the surrounding activities .

4. A courtyard formed around the tree, will be a semi-public space.
5. The space within the boundary walls of the existing building will house the semi-private and private programmes.

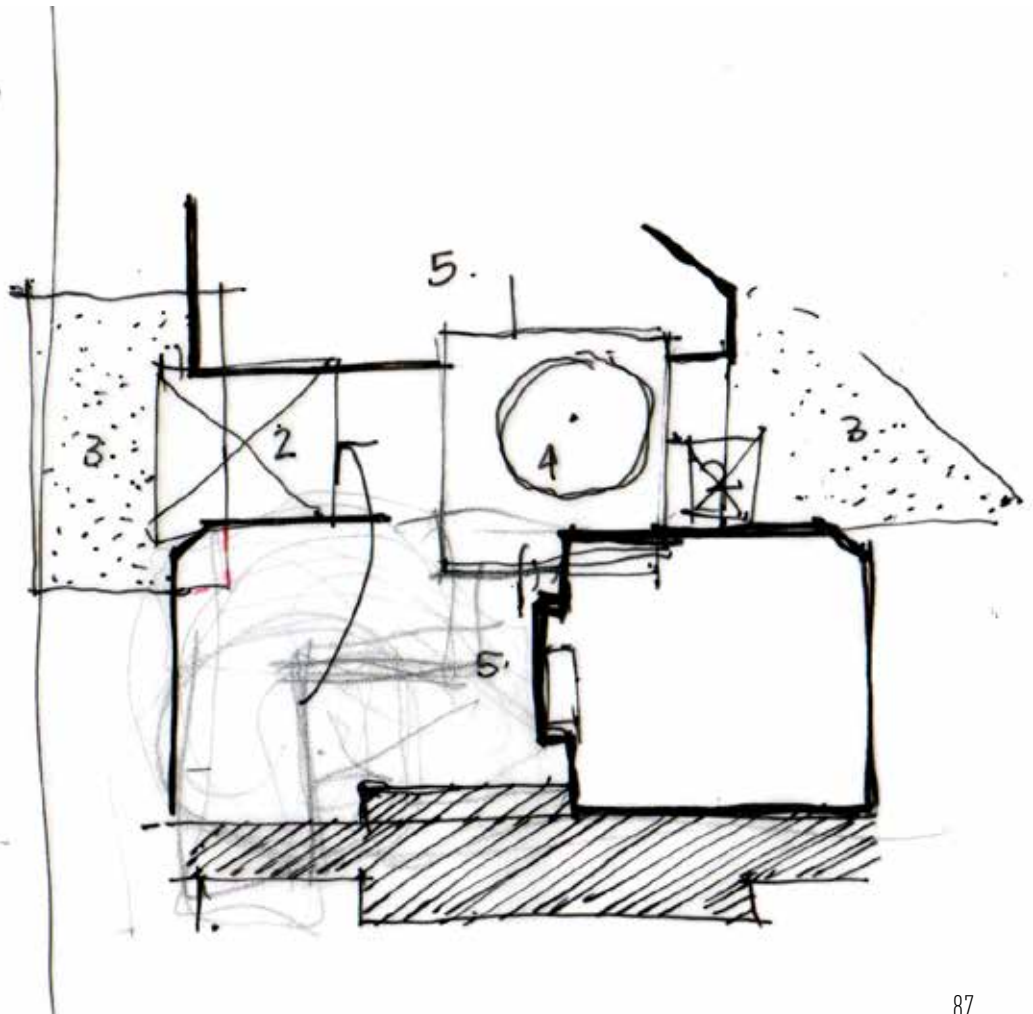


Figure 4.3. Initial spacial intent diagram

## 4.2 SPATIAL DEFINITION

The site is analysed spatially for cues that highlight its potential for transformation. As dealt with in previous chapters, the design ultimately is about the inhabitants and place-making for them. Therefore the central objective goes beyond programme to the creation of public space. Programme is a tool to fuel this objective, but is not in itself the driver of the design. Tadao Ando (1996) speaks of architecture and its transparent logic, he says that the, “[Architecture] is never simply a method of problem-solving whereby given conditions are reduced to technical issues. Architectural creation involves contemplating the origins and essence of a project’s functional

requirements and the subsequent determination of its essential issues.”

The spatial development of the site comprises four acts of spatial definition, which will ultimately contribute to the character and rationale of the final outcome. These tie into the intentions of the greater framework at discussed in volume 1: *A prospect Ritual*. It looks at how architecture can create a new layering within an existing context, to transform it into a people-centred place. The approach to defining the site in this way not only embeds it within its current context, but provides a level of robustness that is independent of the physical structure beyond the site.



Figure 4.4. Existing site broken down into development acts

act one\_  
**TREE AS INITIATOR**

The site, as it currently stands, is largely made up of a mixture of abandoned and hijacked industrial buildings. Fawcus Street, along which these buildings sit, is a type on non-space. It is a confused space; neither a route nor a destination. The pavement is wider than the street itself, yet it servers little more purpose than a host for the weeds which grow from its cracks.

The surrounding buildings enclose the street, giving it the feel of a canyon; a crevice between solid masses. It is in this space that a lone oak tree stands (Figure 4.5). It signifies the strength of the fragile in an environment as harsh as this one. It is the only space-defining object in this straight strip of street.

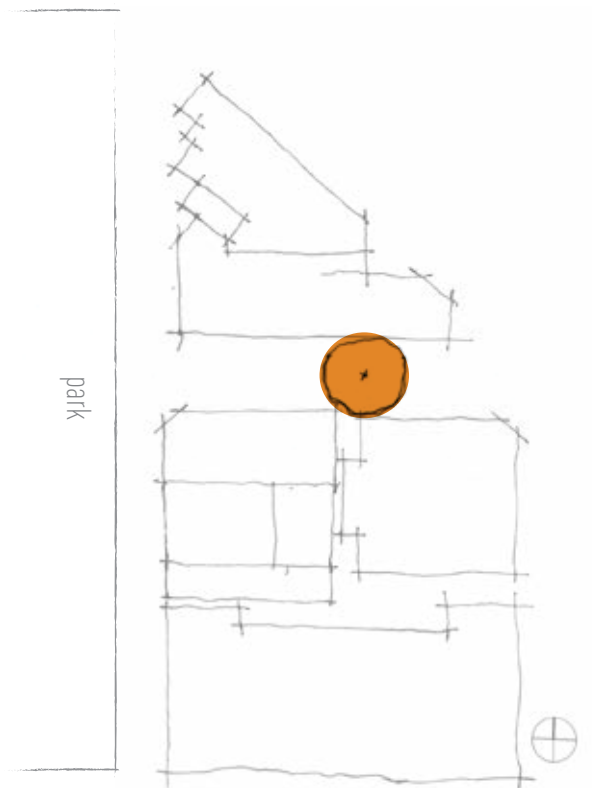


Figure 4.5. Tree as initiator

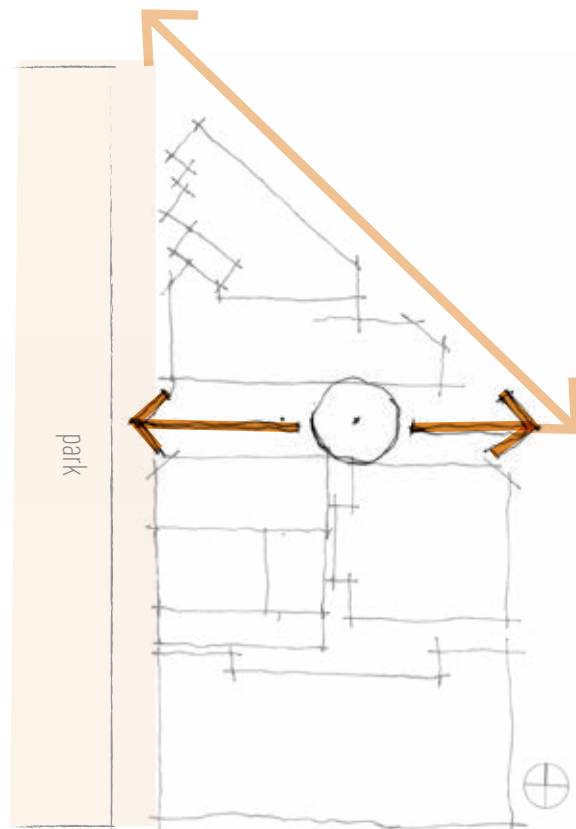
act two\_  
**AXIS AND LANDMARK**

On an urban level, Fawcus Street has the potential to become an axis and connector between the energies of the park to the west and with the pedestrian movement on John Page Drive in the east, as well as the commercial and residential energies on Hans Street.

Aymonino et al (2006:18) states that, “the road system itself has become a

fundamental element of public space, joining the traditional urban voids of the square and the street.”

The tree forms a landmark on this axis which will help orientate the users and connect them to the greater surrounds. Therefore both the axis and the tree should remain legible throughout the intervention’s design (Figure 4.12 on page 94).





act three\_  
**THRESHOLDS OF  
PUBLIC SPACE**

This action divides the street into three by placing a structure on either side of the tree. What this achieves spatially, is the defining of different scales of public space; namely the square (on either end) and the courtyard in the centre. The layering of public space adds richness to the current state of either public park, or private building.

This, in turn, allows for a more diverse range of activities and use of space than previously possible. The programmes of these two interventions - a restaurant to the west, and a hairdresser to the east - are economic in nature to help with unemployment, ensure ownership, as well as provide passive surveillance for the other social activities on site.

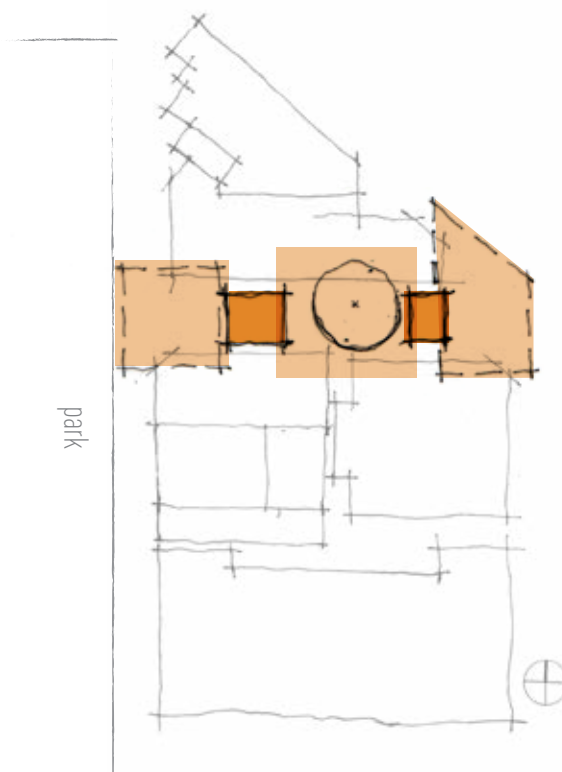
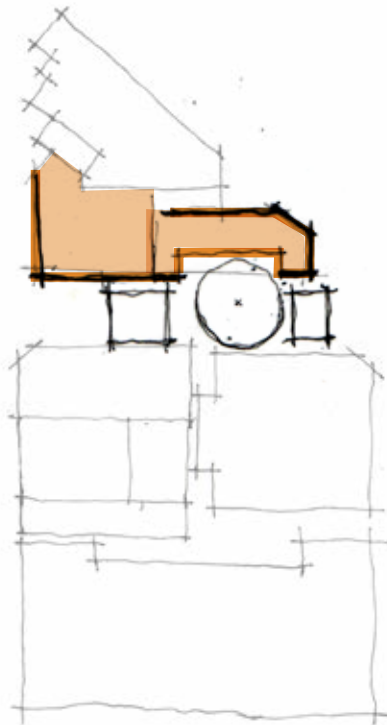


Figure 4.7. *Thresholds of public space*

act four\_  
**CONSTRUCTIVE SPACE**

Constructive space is a term used to describe the situation where a new programme is inserted to amplify existing conditions on site. This takes place within parts of the existing building to the north of Fawcus Street (Friday Panel beaters - see Figure 4.4 on page 88),

and is the main focus of this project. The programme is inserted here and is intended to provide the services for the ritual of washing, while allowing it to be celebrated. These services include a laundry, washing facilities, and ablutions.



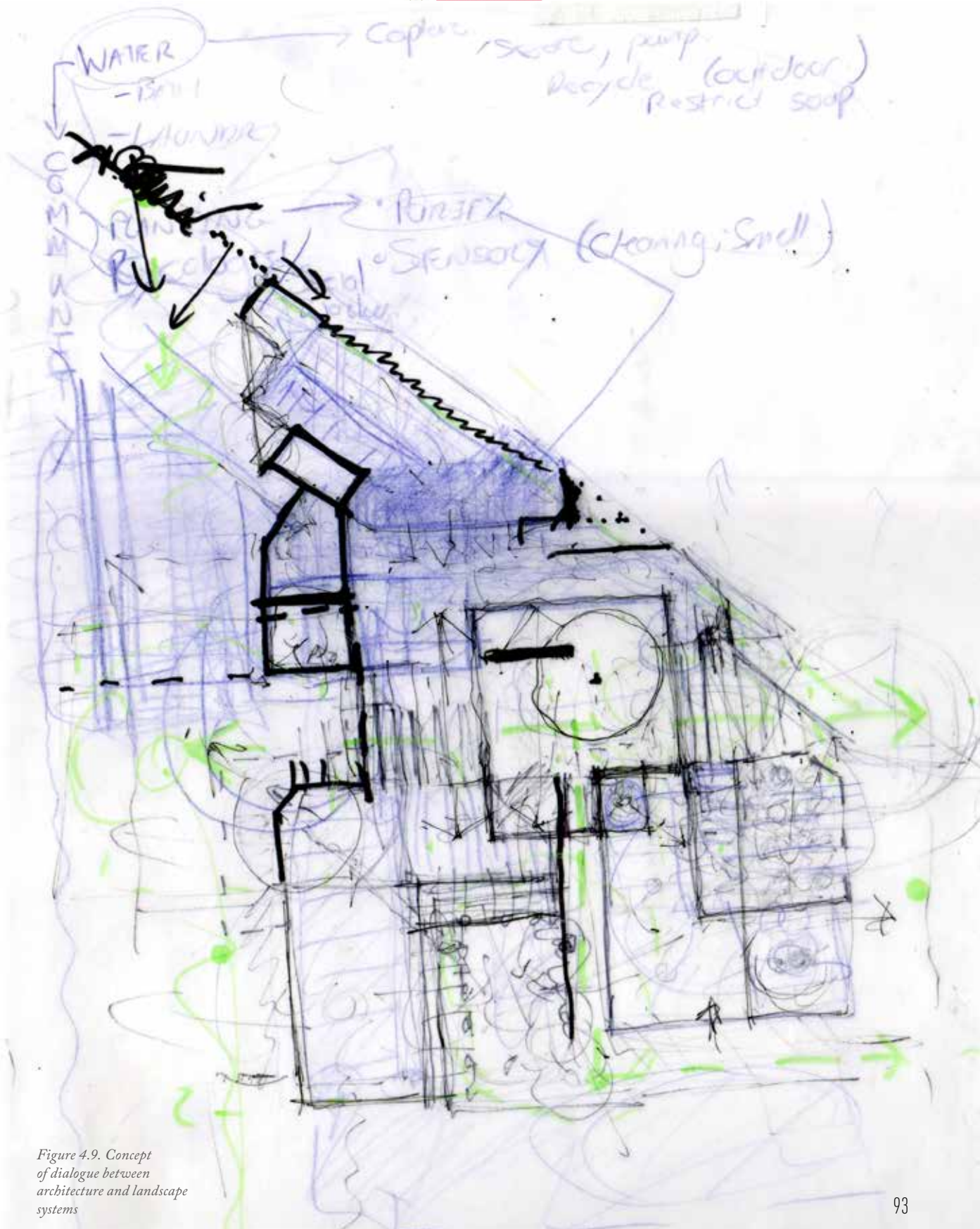


Figure 4.9. Concept of dialogue between architecture and landscape systems

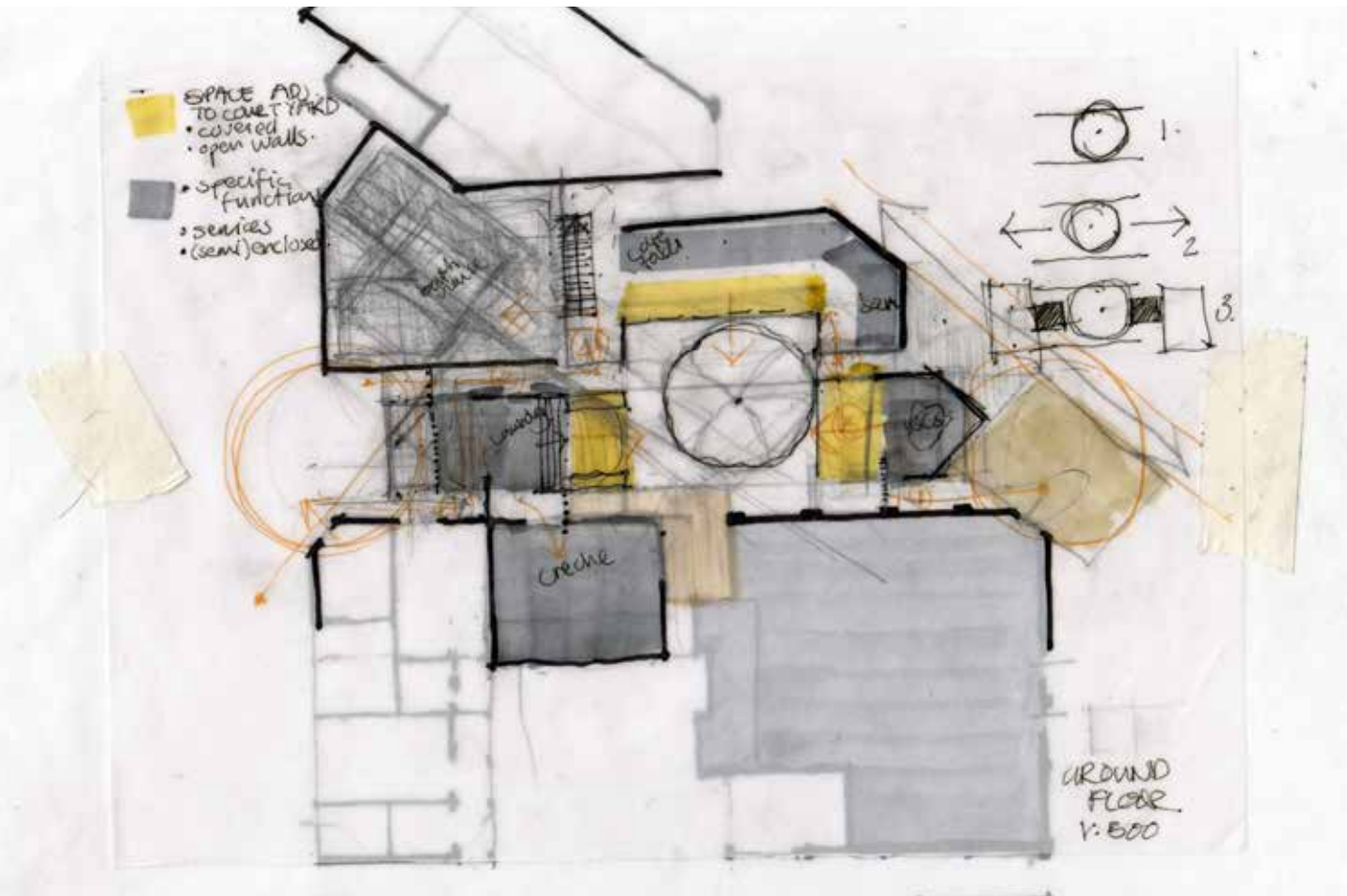
The first concept sketch plans defined spaces using the above-mentioned four acts of spatial definition. It then also looked at which spaces were more fixed in character versus those that from part of the route.

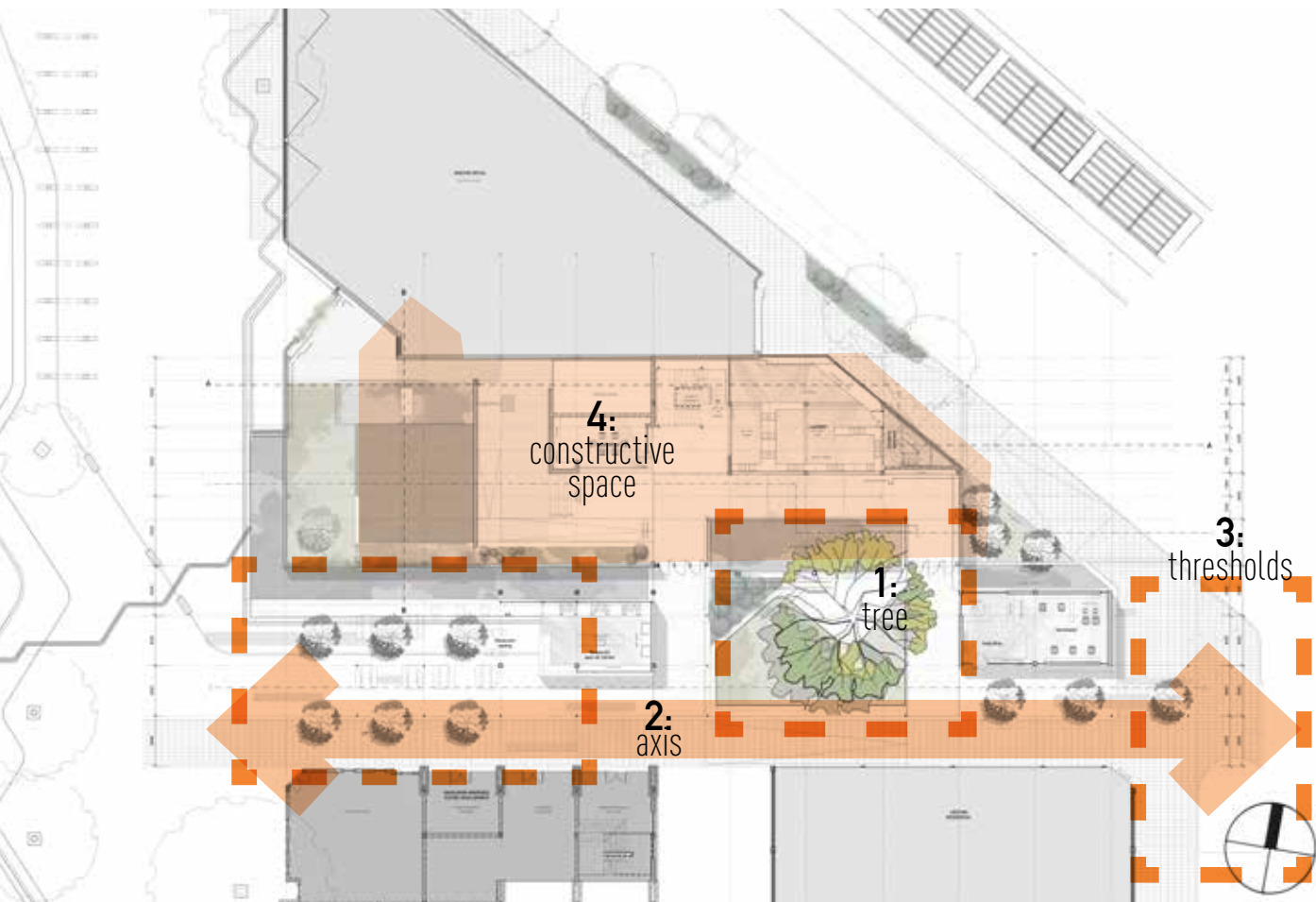
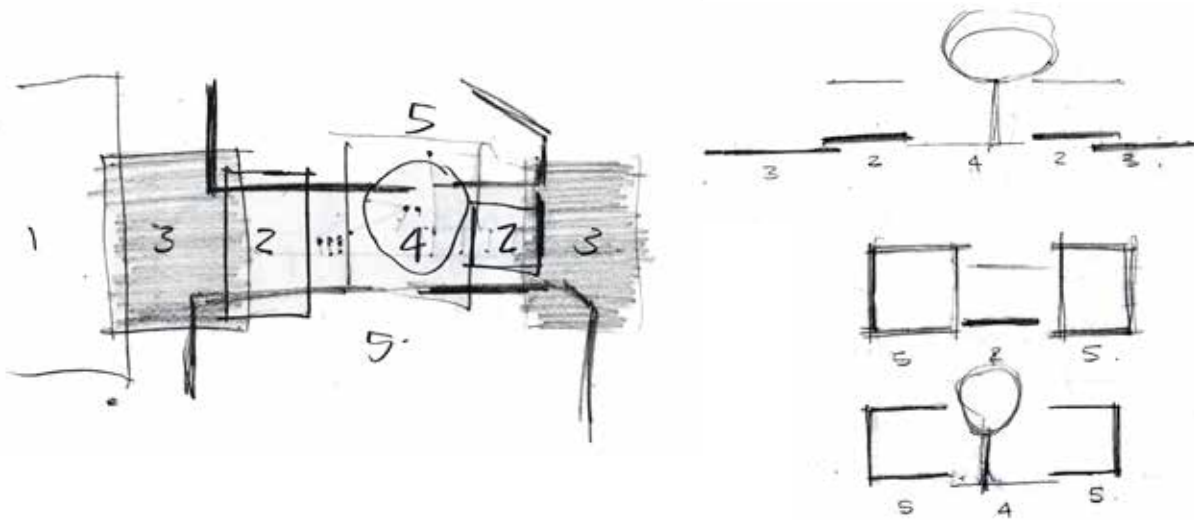
The images show the progression of these act from sketch plan phase (Figure 4.10) to technical development in (Figure 4.12)

Figure 4.10. Initial sketch plan of spatial definition (April 2014)

Figure 4.11. (opposite, top) Spatial diagrams of relationship of building to courtyard: plan and section

Figure 4.12. (opposite, bottom) Spatial intentions shown on October 2014 Ground Floor Plan





## 4.3 PROGRAMME



*Figure 4.13. Thandi  
Brooks. 1955. Photograph  
by Bob Gosani*

As discussed in volume 1: *A Prospect Ritual*, the notion of conditional amplification is key. This theory is used to determine how to intervene in the existing landscape in order to highlight the positive qualities of the space or associated activities. It comprises three possible methods of intervention, namely:

Responsive spaces:  
accommodating existing functions and enhancing the surrounds through their amplification

**Amplification through infrastructure**

Constructive spaces:  
addition of new/altered ritual to enhance existing environment

**Enhancement through new programme**

Reconciliation of existing fabric:  
A reconciliation of the physical and the intangible to complement each other's future potential through the insertion of a new intervention.

**Street as mediator**

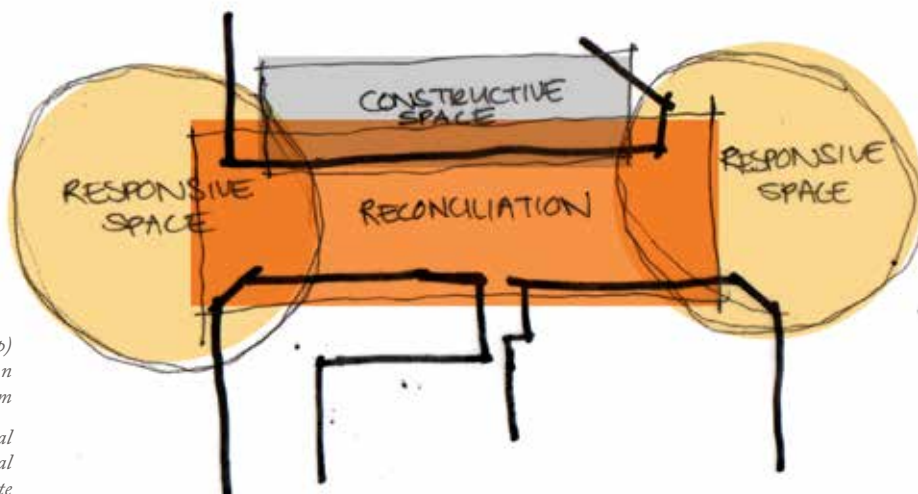


Figure 4.14. (top)  
Conditional amplification  
diagram

Figure 4.15. Spatial  
diagram of conditional  
amplification on site



“In general, bathhouses large and small alike were a matter of civic pride for any urban settlement. Furthermore, bathing was a socially satisfying experience, as one met friends there and shared food, drink and gossip, a tradition that lives on in Islamic bathhouses today” (Ergin 2011).



*Figure 4.16. (top)  
Washerwomen. Otto  
Schröder. 1913*

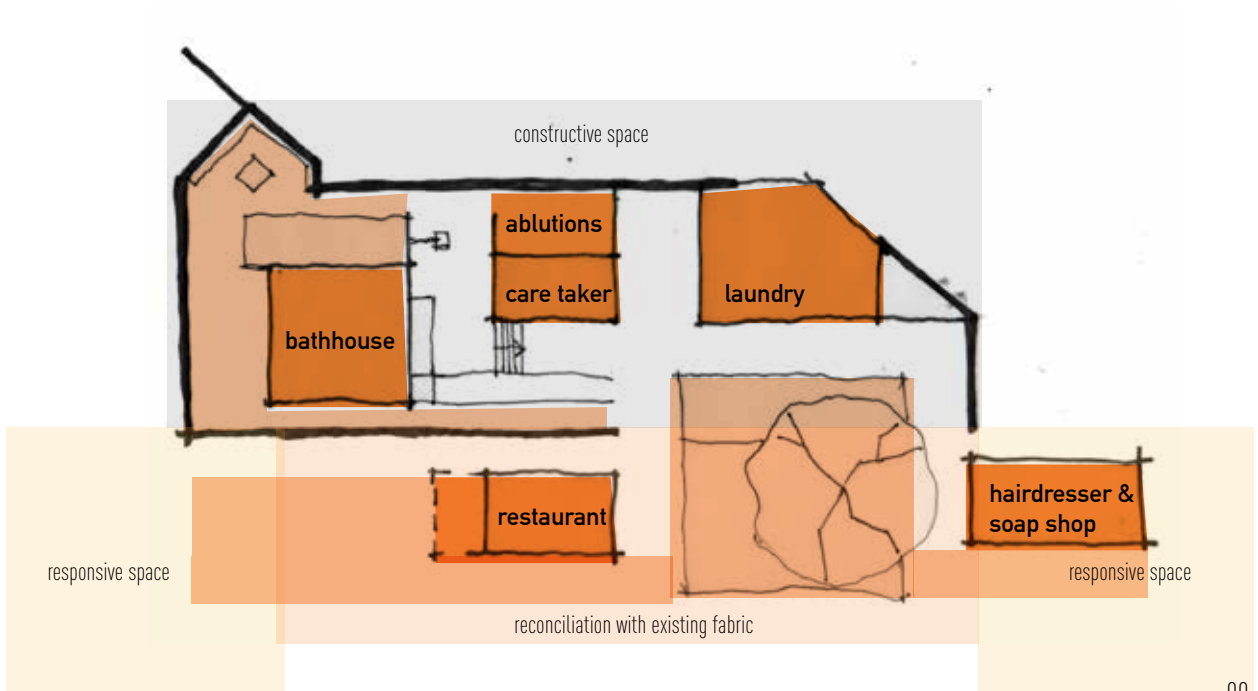
*Figure 4.17. (bottom)  
Dolly Rathebe, Drum  
Cover. 1955. Photograph  
by Bob Gosani.*

*Figure 4.18. (opposite)  
Programme in relation to  
conditional amplification  
spatial zones*



Most South African cities have a shortage of usable public amenities. This is largely due to a lack of planning, low maintenance and vandalism. With the growing number of people who live in cities informally - be it the homeless, indigent households, refugees, or migrant workers - new methods for providing public services need to be investigated so as to be able to deal with the desperate need for service provision in the short to medium term.

The project aims to celebrate the ritual of washing by exploring its various associated activities as an extension of the current social realm. This is done in such a way as to harbor a positive social environment that also benefits the community economically. The programme is thus multifaceted and includes: an open-air restaurant, a hairdresser, and hand-washing laundry all clustered around the courtyard. These create a passive surveillance and allow the bathhouse to be a women- and-children-only space, situated in the existing structure.



## 4.4 TYPES OF BATHING

Bathing is a basic ritual of all civilizations, but is acted out in many different ways. Methods of bathing vary with regards to cultural norms, accessibility to water, physical environment, as well as personal preferences and levels of privacy.

The bathhouse as a typology is seen through cultures across the world from as far back as the Classical Period. It has manifested as the Roman *thermae*, Japanese *onsen*, Turkish

hamman, Scandinavian sauna, and Russian *banya*. Ergin (2011:1) says of this:

“In general, bathhouses large and small alike were a matter of civic pride for any urban settlement. Furthermore, bathing was a socially satisfying experience, as one met friends there and shared food, drink and gossip, a tradition that lives on in Islamic bathhouses today.”  
(Ergin 2011)

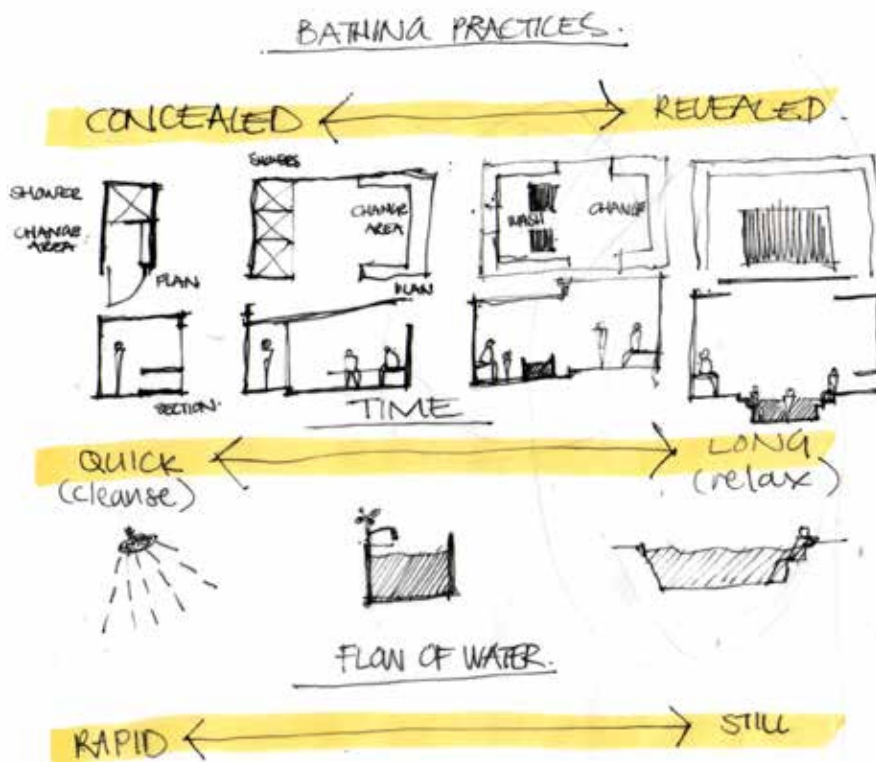


Figure 4.19. bathing configurations relate to time and flow of water

The project aims to celebrate the ritual of washing through the various associated activities as an extension of the social realm and a testament to civic pride as spoken of by Ergin (2011).

Due to the fact that there is not a customary typology for public bathing in South Africa, the project allows for several types of bathing and levels of privacy.

These include shower and bath cubicles with internalised changing space,

a communal changing area, and an external bathing area.

All the shower cubicles have the option of opening into a planted atrium space. This is intended to accentuate the biophilic relationship between the user and nature. The open bathing area consists of timber clad seating with adjustable shower heads that can also be hand-held. This area can be used as a social bathing area, or used to hose down children after play.

## HUMAN INTERACTION WITH WATER



## INTERACTION TRANSLATED INTO MODERN BATHING



Figure 4.20. Human interaction with water and the translation into bathing archetypes

## 4.5 DESIGN PRECEDENT STUDY:

### SAFE HAVEN BATHHOUSE

Ban Tha Song Yang, Thailand  
TYIN Tegnestue  
2009

budget: 3 300 USD [±R40 000]  
duration: duration: 17 days  
classification: rural

The project was constructed for an orphanage in rural Thailand. Due to the climate of northern Thailand, the upkeep of personal hygiene is vital for the prevention of diseases, particularly in young children.

The project houses basic amenities for cleansing, which include toilets, personal hygiene facilities, and laundry. Due to its location, the project uses a low-tech approach for the dignified provision of services and choice of materials.

Timber decking and gravel are used in all wet areas as they dry easily. The timber structure and bamboo screen also help blend the building in with its natural surrounds. The private activities are housed within the two concrete 'boxes' while the central bathing area is only semi-private - in line with the local Karen culture. This central area is open to the teak plantation to the north. The bamboo screen to the south creates a corridor and connects all the functions together (TYIN Tegnestue Architects 2014).



Figure 4.21. Open wash area

Figure 4.22. (opposite, top left) Plan

Figure 4.23. (opposite, bottom left) Diagram of social vs. private spaces

Figure 4.24. (opposite, top right) Front elevation of bamboo screen

Figure 4.25. (opposite, bottom right) Toilet cubical exhibiting materiality, cultural customs and privacy

design **INFORMANTS**

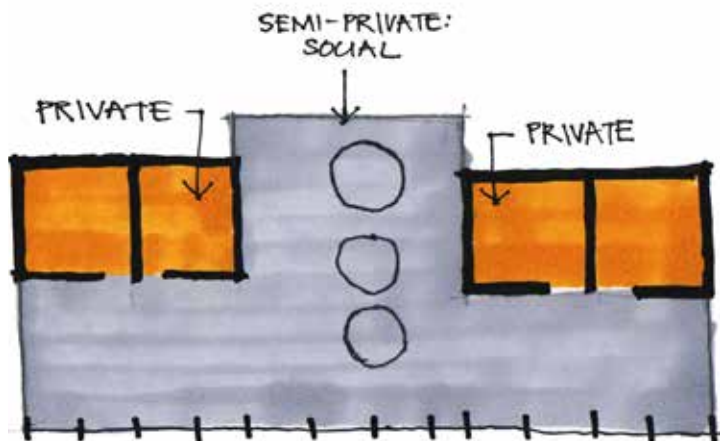
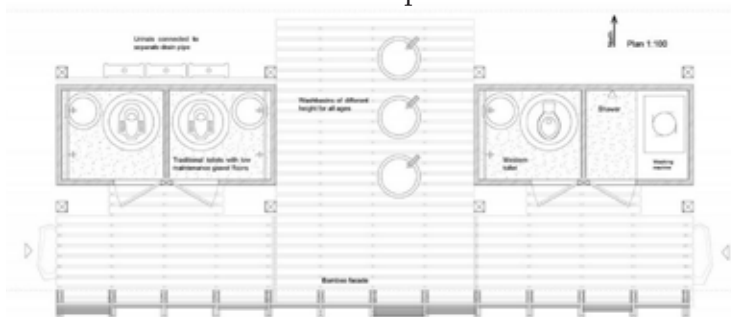
TYIN's design shows that it is important to understand the cultural bathing practices, social interactions, and associated levels of privacy, as they have clear spatial implications.

Ergonomics is a factor in accommodating the user and relating body to space; as apparent in the design of the urinals, which are installed at differing heights, as well as the wash basins, which accommodate both adults and children.

Natural ventilation and material choice is important factor in all wet areas. This precedent shows that

this can be achieved with low-tech methods. Material usage expresses the various levels of privacy in the scheme, where heavy and light are elegantly juxtaposed.

The connection to nature is also important. The precedent achieves this haptically while visually connecting to the natural surrounds. In Jeppestown, such a connection with flora will have to be introduced in a way that promotes natural systems such as biotopes while supporting man's biophilic relationship with nature, especially within an urban context.



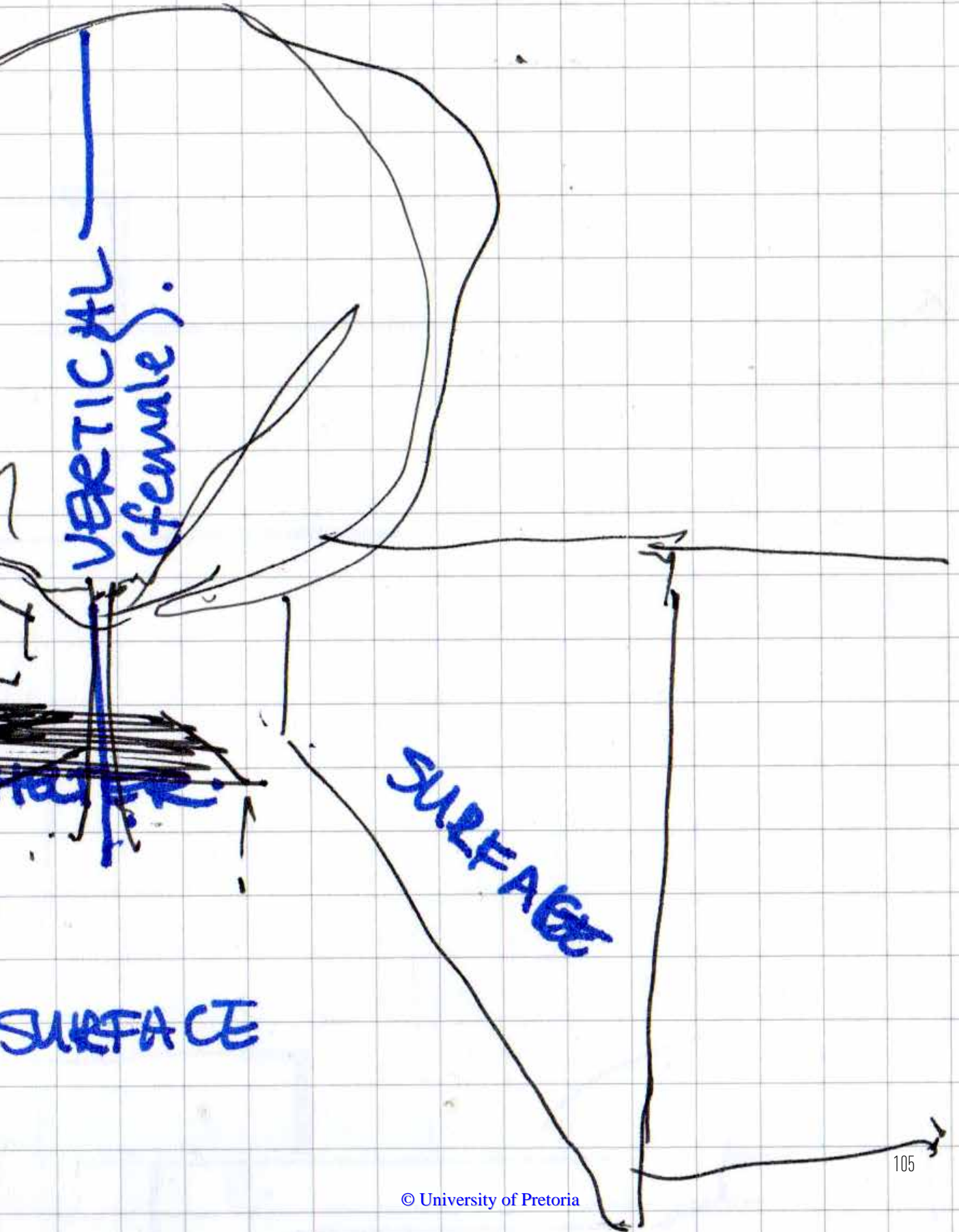
## 4.6 UN-VOLUMETRIC architecture

“Given the semantic and functional inadequacy of public spaces in responding to the ever more urgent need to provide different spaces for a changing society, the objective is no longer just to construct a meaningful urban form, but to investigate the relations between mobility, communal spaces and private spaces” (Aymonino et al 2006:18).

The following four archetypes are each to be read as a signifier of various parts of the intervention. They provide order and make the design accessible to the user terms of the qualities they represent.



Figure 4.26. Concept sketch of un-volumetric elements

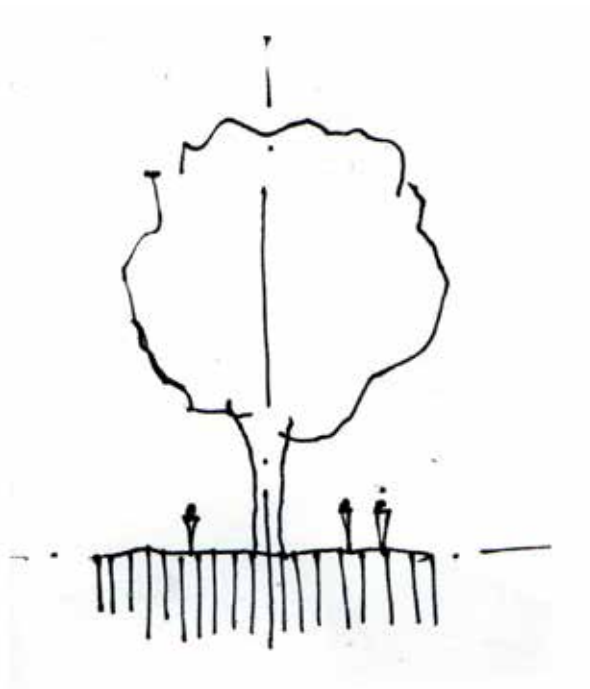


## VERTICAL

\_the archetype

Throughout the proposal, the tree remains the primary, and tallest, vertical element. This is done to **represent nature and the 'fragile' at the heart of the design**, and falls under act one of spatial definition (Figure 4.5 on page 89). The composition of the design is such that vertical elements act as signifiers: of entrance; of the water harvesting and storage process; and of activities beyond the wall.

"No date can be given for the origin of this configuration: it is an archetype found in all civilizations" (Aymonino et al 2006:63)





## ENCLOSURE \_the sacred

“In antiquity the enclosure was the temenos, the sacred precinct, a piece of the world protected from the profanity of the world itself” (Aymonino et al 2006:103)

In this project, the western corner of the existing wall from the Friday Panel Beaters building (Figure 4.4 on page 88) is retained as a symbol of **enclosure**. The wall’s height and materiality speak of a solid strength and scale of architecture that is characteristic of the modern era in which it was built. The retention of this boundary wall allows the structures behind it, which are made up of the bathing portion of the programme, to be light, airy and yet, still **private, secure and comforting**. This coincides with the intentions of act four of spatial definition (Figure 4.8 on page 92). It allows this area the qualities of a sanctuary.

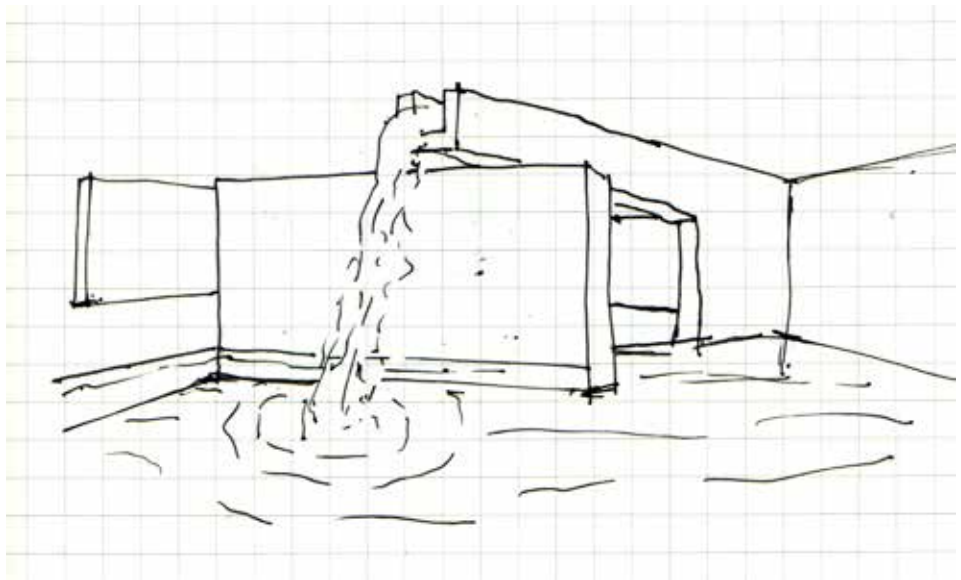


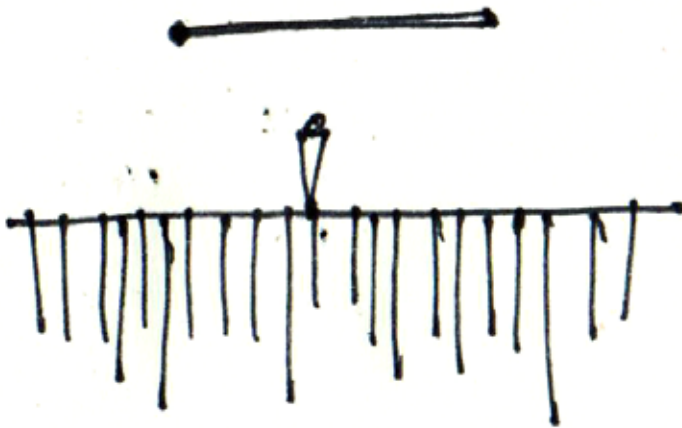
Figure 4.28. Sketch of Luis Baragan’s Fuente de los Amantes

## SHELTER

\_the symbol

Shelter is provided for the squares on either end of Fawcus Street. This un-volumetric intervention provides shading and allows the squares to be re-appropriated by the users. The shelters demarcate various sections of Fawcus street, while still allowing visual connections to the tree and the different public activities. **The overhead plane acts as a guiding element and highlights the axis** as intended by act two (Figure 4.6 on page 90).

“Providing shelter is the primary responsibility of architecture.”  
(Aymonino et al 2006:167)



## ENVIRONMENT \_the dialogue

“A series of non-volumetric elements located in a public space create an environment, ie. a field formed by the dialogue between different objects.”  
(Aymonino et al 2006:211)

The intention is for the landscape and its designed elements to tie together the fragmented units of the architecture, thus creating a discernible character of place which can carry through into the park and along both edges of John Page Drive. This is mainly achieved through the combination of the bodies of water, landscape elements and the route (which are referred to as the slate in volume 1: *A Prospect Ritual*, as well as in the Technical Development chapter) that runs through the site.

They **connect the project to nature, and thus connect it to time and change. This is a quality of fragile architecture** which is implemented in order to humanize the space and breakdown the current harsh character.

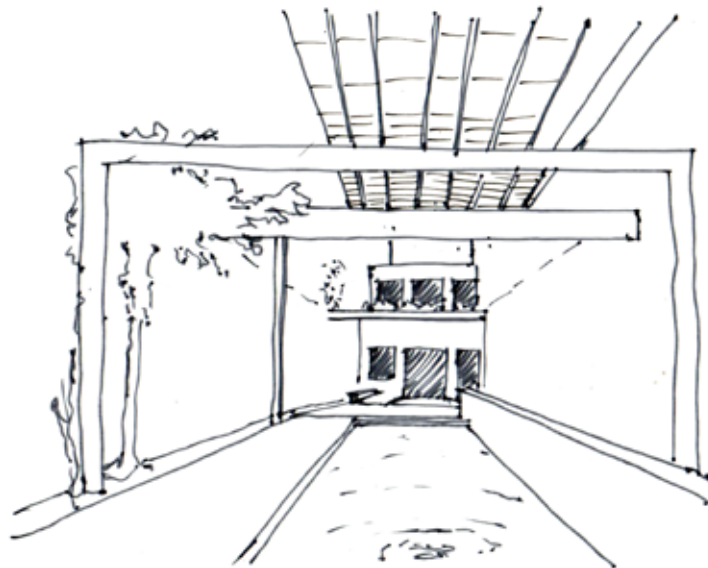
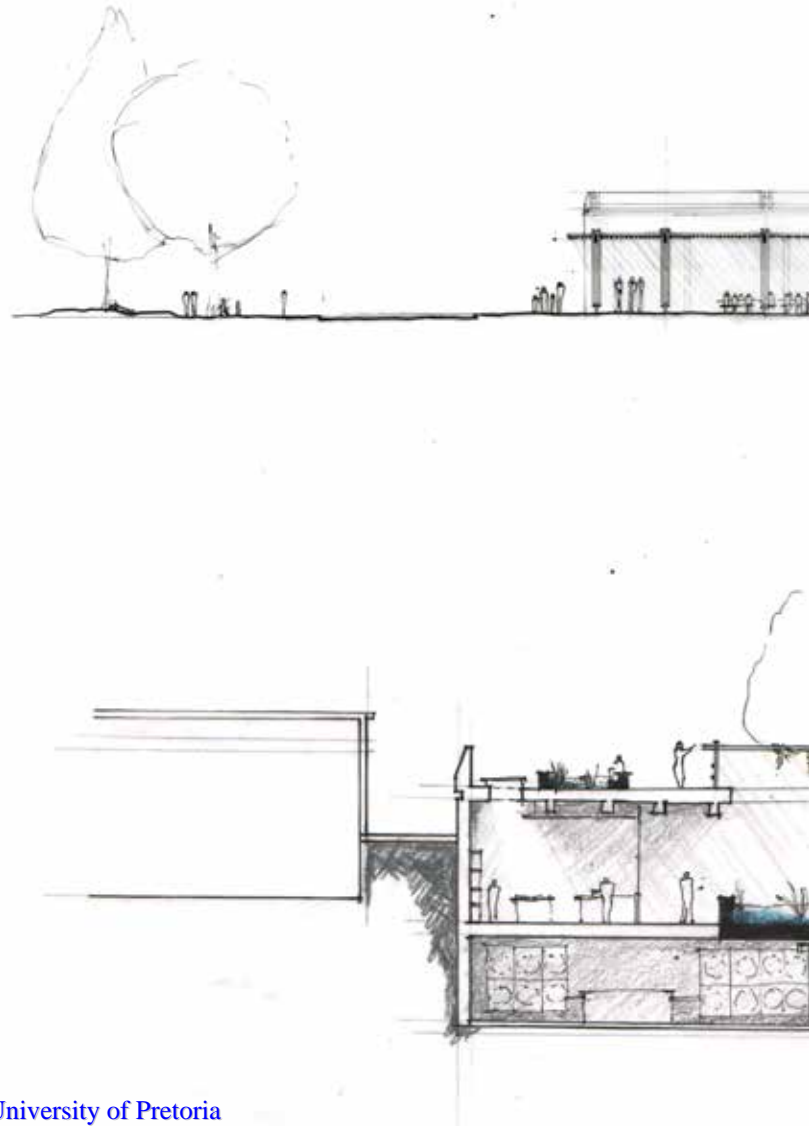


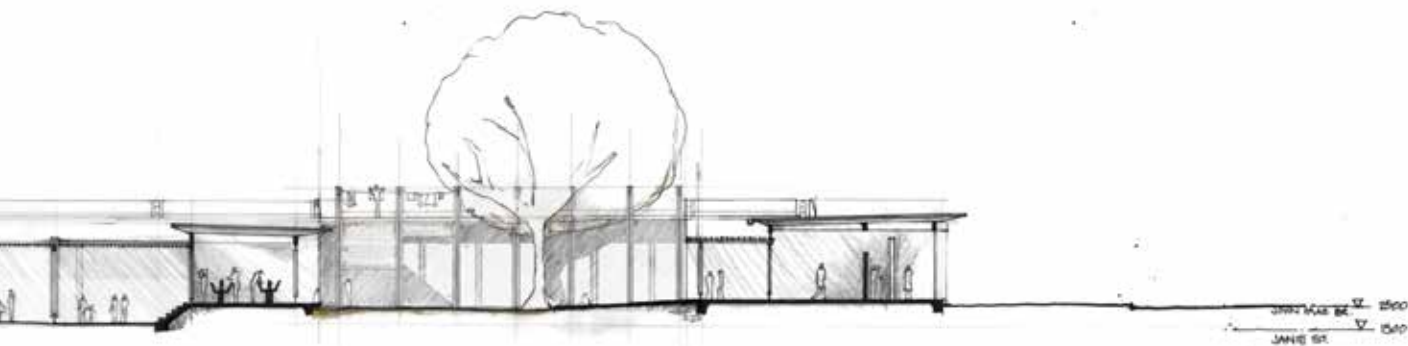
Figure 4.30. Sketch of  
Heeren Street Shophouse,  
Malacca, Malaysia

## 4.7 SKETCH PLAN DEVELOPMENT

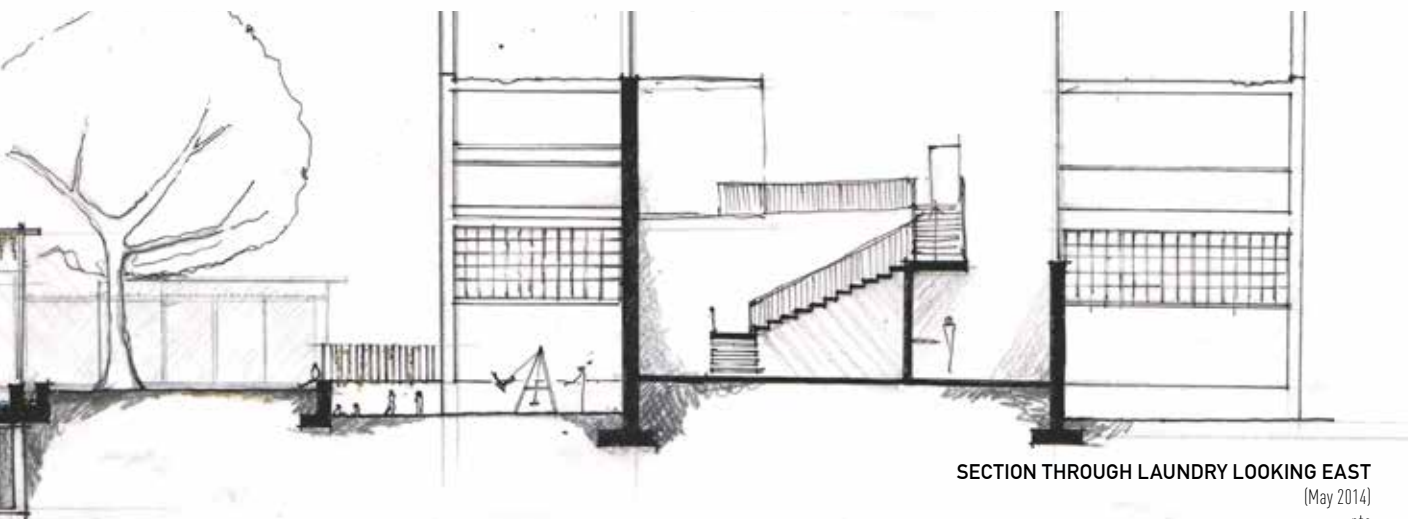
The design process through the sketch plan phase did not always follow a linear process. Several adjustments to the programme were made in accordance with site research, appropriateness and feasibility. These changes had an effect on the design and layout. Portions of the initial design were scrapped completely (see Appendix I), others were relocated or developed upon.

Originally the bathhouse was located within the existing Friday Panelbeaters Building, with the laundry facility and public toilets in the pavilion-type structures in Fawcus Street. The main issue to be addressed though the beginning sketch plan revisions was the matter of safety associated with both the bathhouse and ablutions. As the design developed, the public functions of the restaurant and hairdresser were located in Fawcus Street as a response to the social realm. The existing structure was used to house the laundry and bathhouse on separate levels. This portion of the scheme became more focused on the female user.





SECTION THROUGH FAWCUS STREET LOOKING NORTH  
(May 2014)  
nts

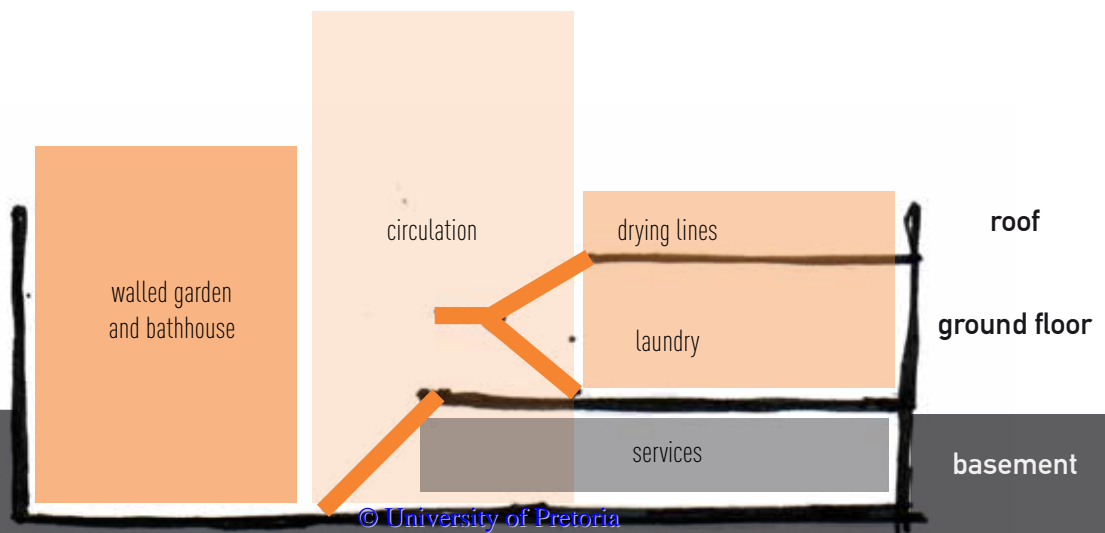


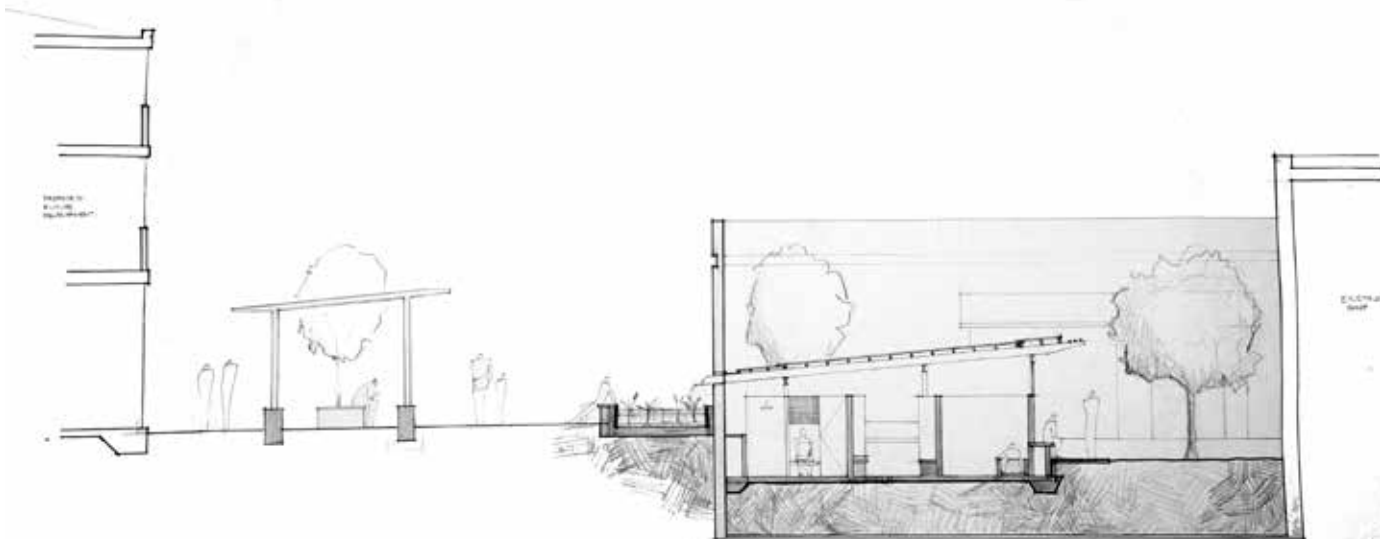
SECTION THROUGH LAUNDRY LOOKING EAST  
(May 2014)  
nts

A defining spatial intervention came from placing the laundry and bathhouse within the existing structure. This led to the demolition of part of the ground floor slab in order to sink the bathhouse courtyard into part of the basement level. Doing so allowed for a freedom to place new structures on a compacted fill within the basement cavity. It also allowed for this space to

be planted, forming a walled garden. **The decent into the bathhouse space exaggerates the height of the existing boundary wall, which creates a sense of envelopment and security fitting for the programme.**

The remaining portion of the existing building houses the services and storage tanks in the basement, and allows the laundry and drying area to best utilise the structure for its robustness and ability to house services.

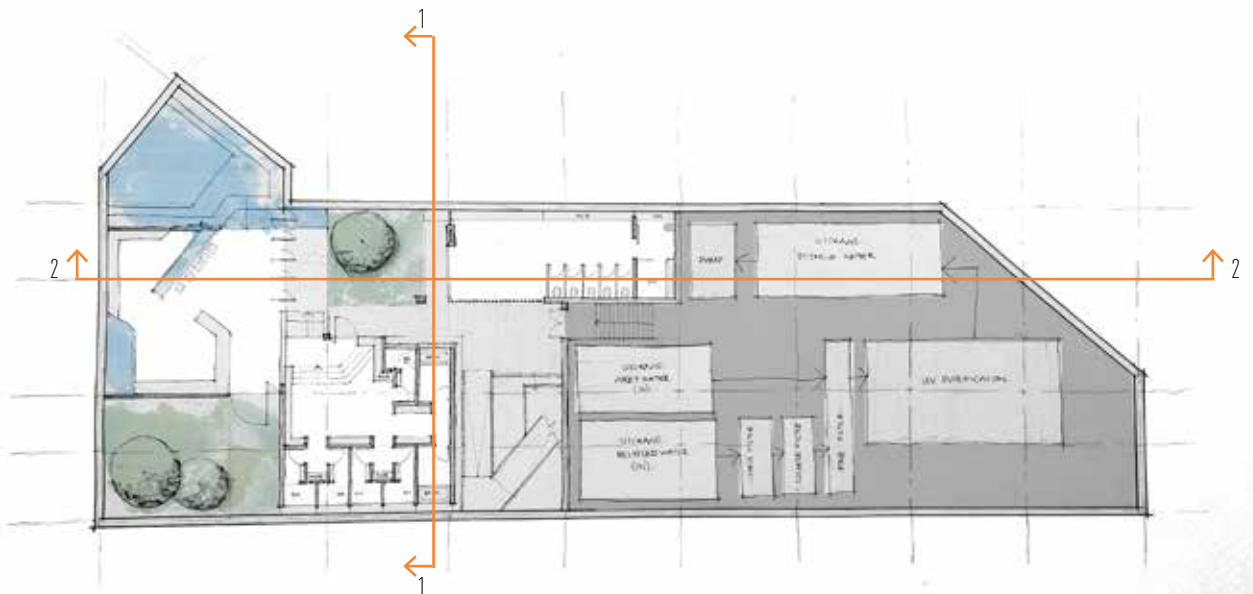




**SECTION 1 THROUGH BATHHOUSE LOOKING WEST**

(June 2014)

nts



**BASEMENT FLOOR PLAN**

(June 2014)

nts

*Figure 4.31. (opposite)  
Diagram of interventions  
within the existing  
structure*

*Figure 4.32. Section  
through bathhouse looking  
west (June 2014)*

*Figure 4.33. Basement  
Floor Plan (June 2014)*

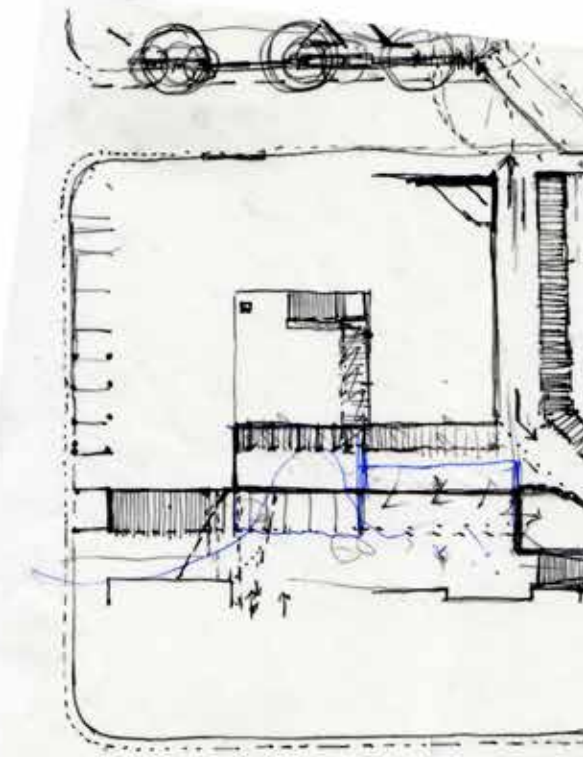


Figure 4.34. (top) Render of walkway between laundry and courtyard (July 2014)



Figure 4.35. (middle) Render of bathhouse spaces and courtyard (July 2014)

Figure 4.36. (bottom) Render from Fawcus street, looking at main entrance, restaurant and courtyard (July 2014)





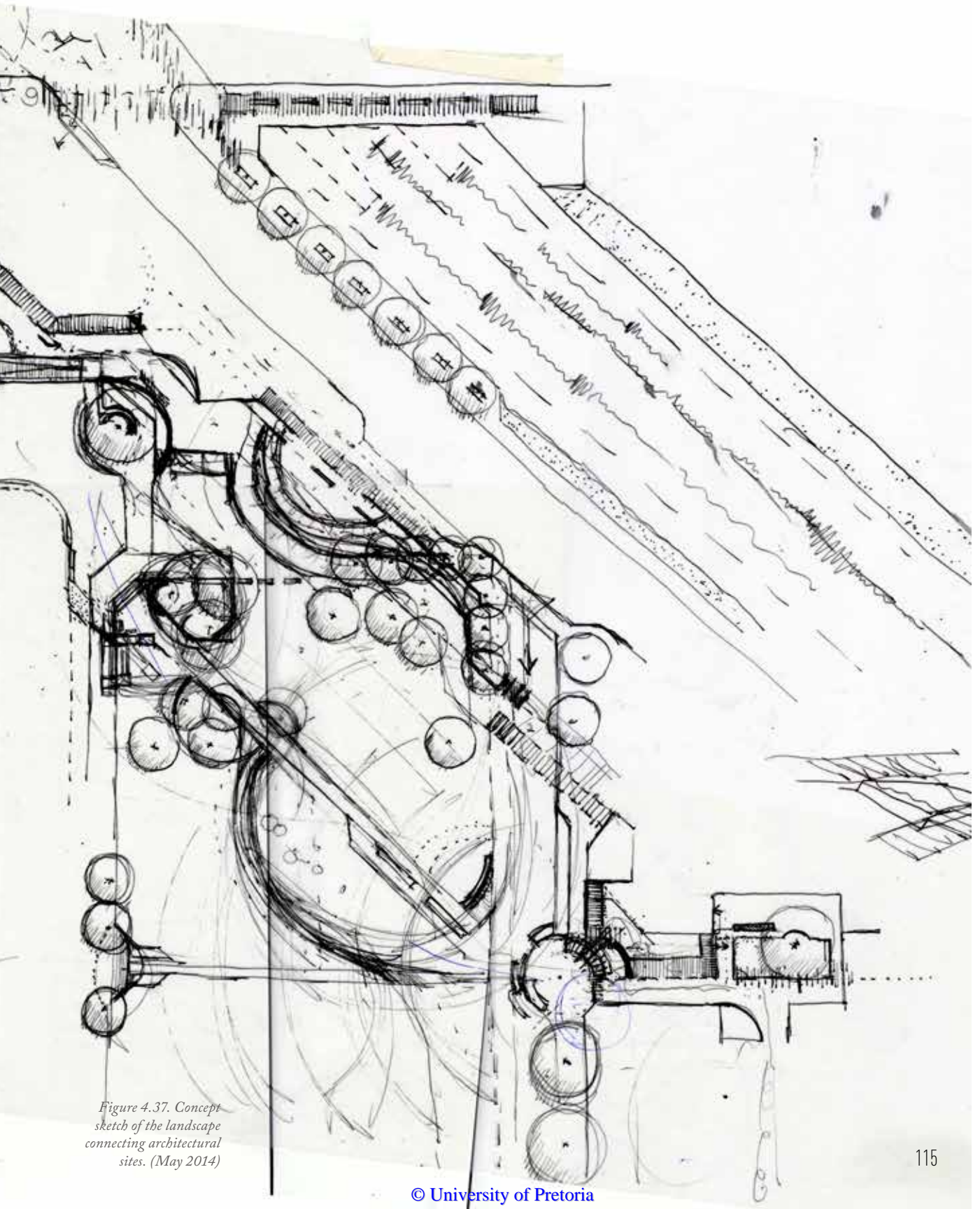
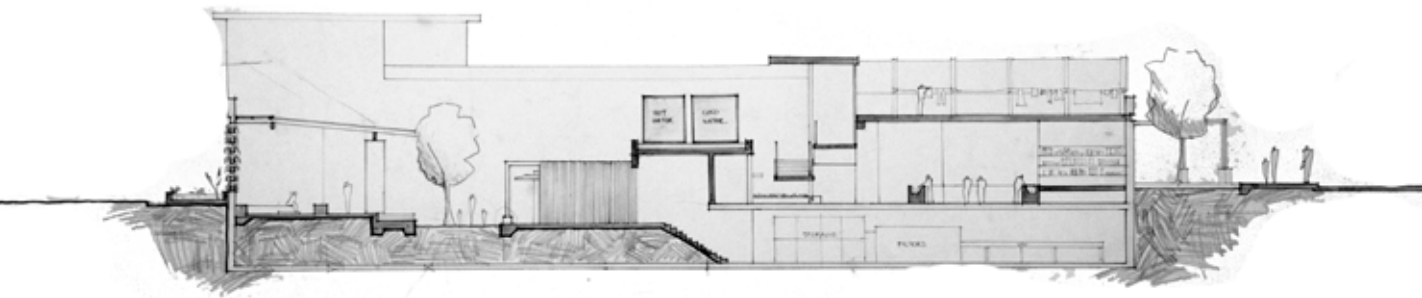


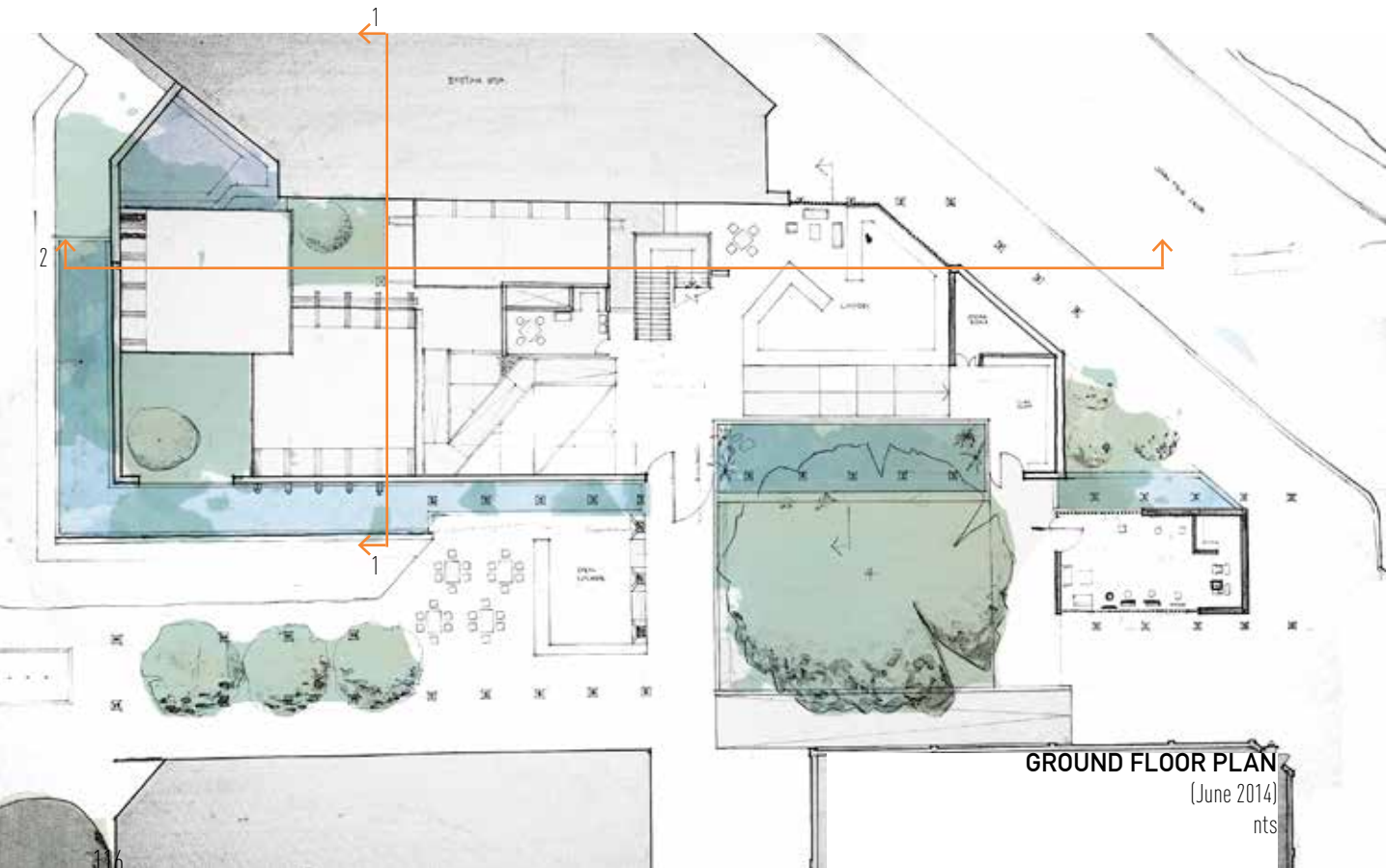
Figure 4.37. Concept sketch of the landscape connecting architectural sites. (May 2014)



SECTION 2 THROUGH BATHHOUSE AND LAUNDRY LOOKING NORTH

(June 2014)

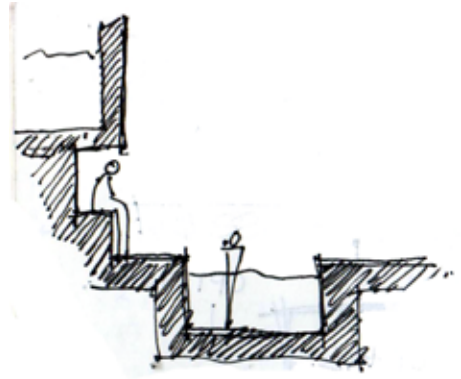
nts



GROUND FLOOR PLAN

(June 2014)

nts



The bathhouse and surrounding courtyard is a primary focus of the design. This is because it is one of the most intricate spaces in terms of coordinating functions, openness, privacy, connection to nature, and services.

The incorporation of nature within this space is important from a concept level. Man can directly interact with nature in the natural pool, the outdoor bathing area, the roof gardens as well as from within the shower cubicles themselves.

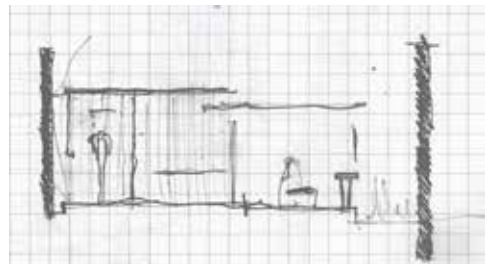
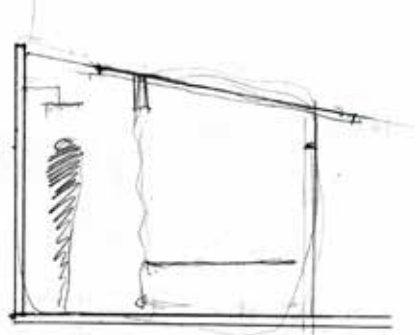


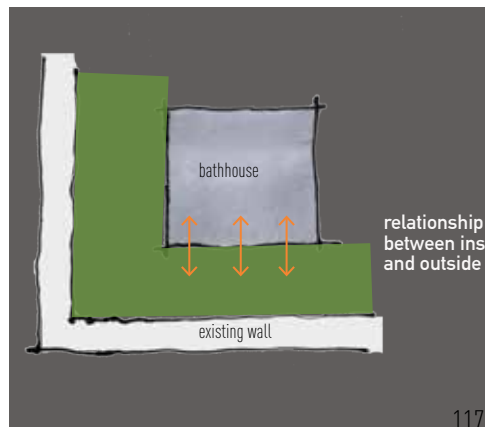
Figure 4.38. (opposite, top) section 2 through bathhouse and laundry looking north (June 2014)

Figure 4.39. (opposite, bottom) Ground floor plan (June 2014)

Figure 4.40. (top) Spatial exploration of the user's interaction with water

Figure 4.41. (bottom, left) New structure in relation to existing

Figure 4.42. (bottom, right) Relationship between inside of structure and nature



The bathhouse area of the project is made up of two enclosed areas which house the bathhouse and ablutions respectively (Figure 4.43).

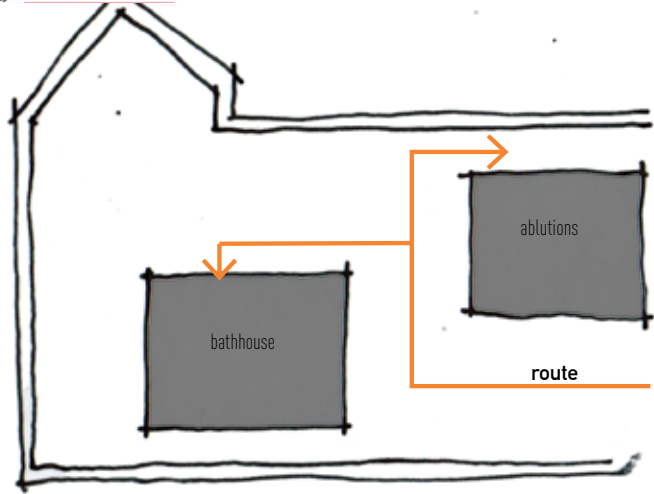


Figure 4.43. Indoor areas and route

These enclosed spaces are surrounded by greenery to create a courtyard environment within the boundary walls. (Figure 4.44).

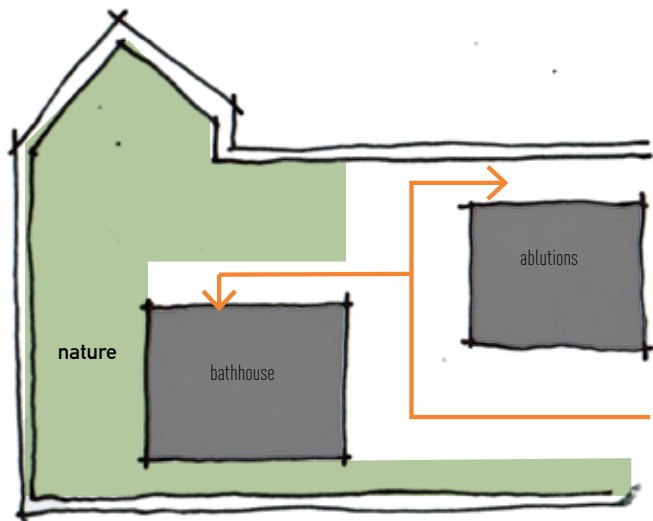


Figure 4.44. Nature

A water body is placed to the north of the bathhouse structure (Figure 4.45). It is a natural pool which includes plants as part of the water purification process. The pool can be used to splash in but is only 600mm deep. This pool also influences the micro-climate of the courtyard through evaporative cooling.

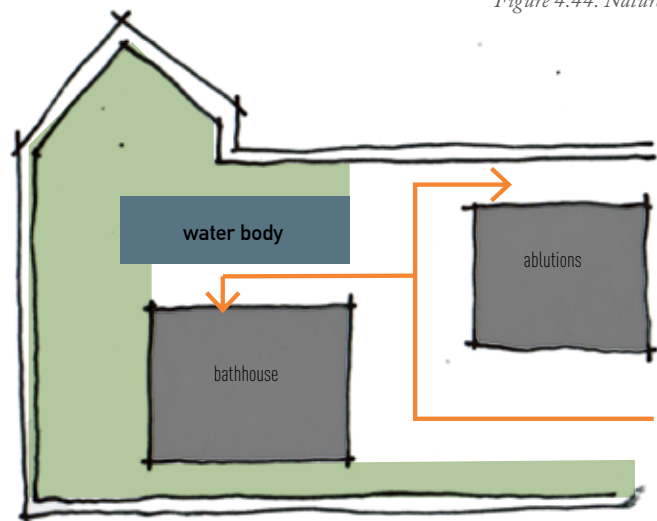


Figure 4.45. Water body

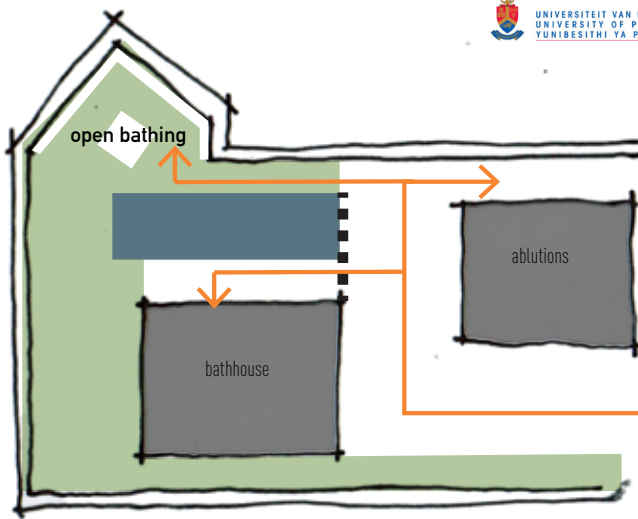


Figure 4.46. Open bathing area

An open bathing area is created in the north-western corner of the courtyard. This area is designed with a social typology of bathing in mind. It can also be used for the bathing of children in a way that is social for the mothers (Figure 4.46).

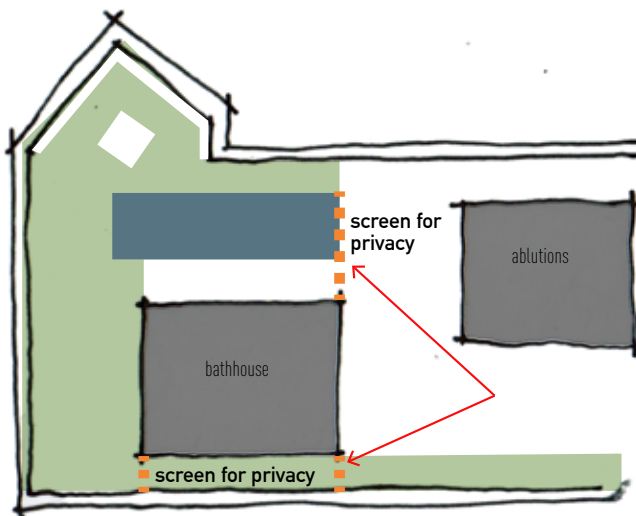


Figure 4.47. Screen elements for privacy

The bathing area is screened off from the laundry by means of walls and screens (Figure 4.47). This allows men to make use of the rest of the facilities, but not be able to see into the bathhouse area. A drinking fountain is added where

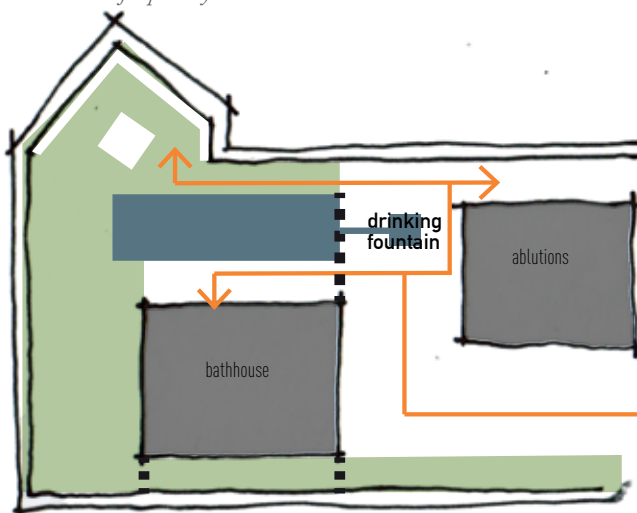


Figure 4.48. Drinking fountain

the route splits to the various bathing components (Figure 4.48). It allows for another social interaction based around water.

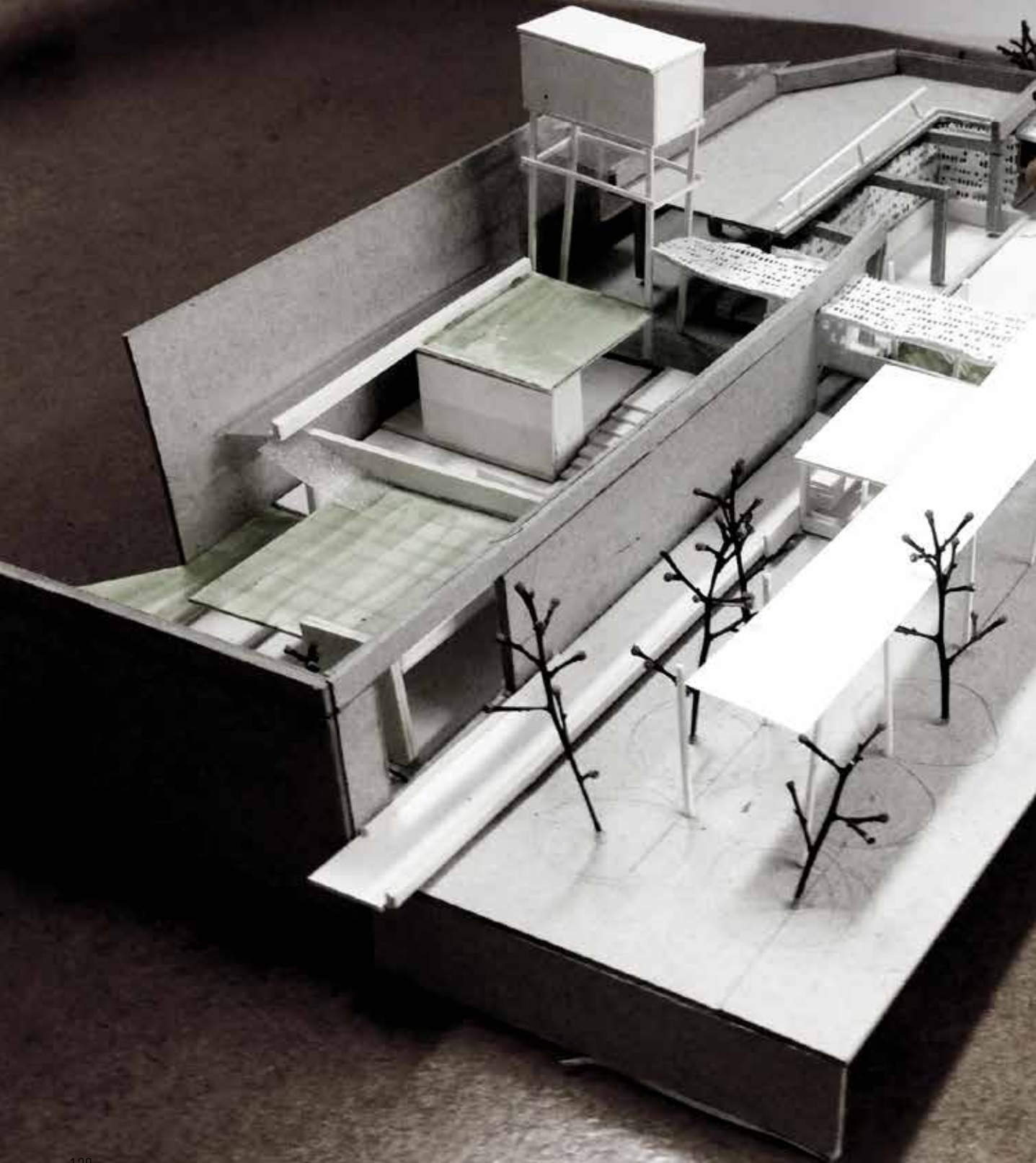




Figure 4.49. Axonometric photo of concept model

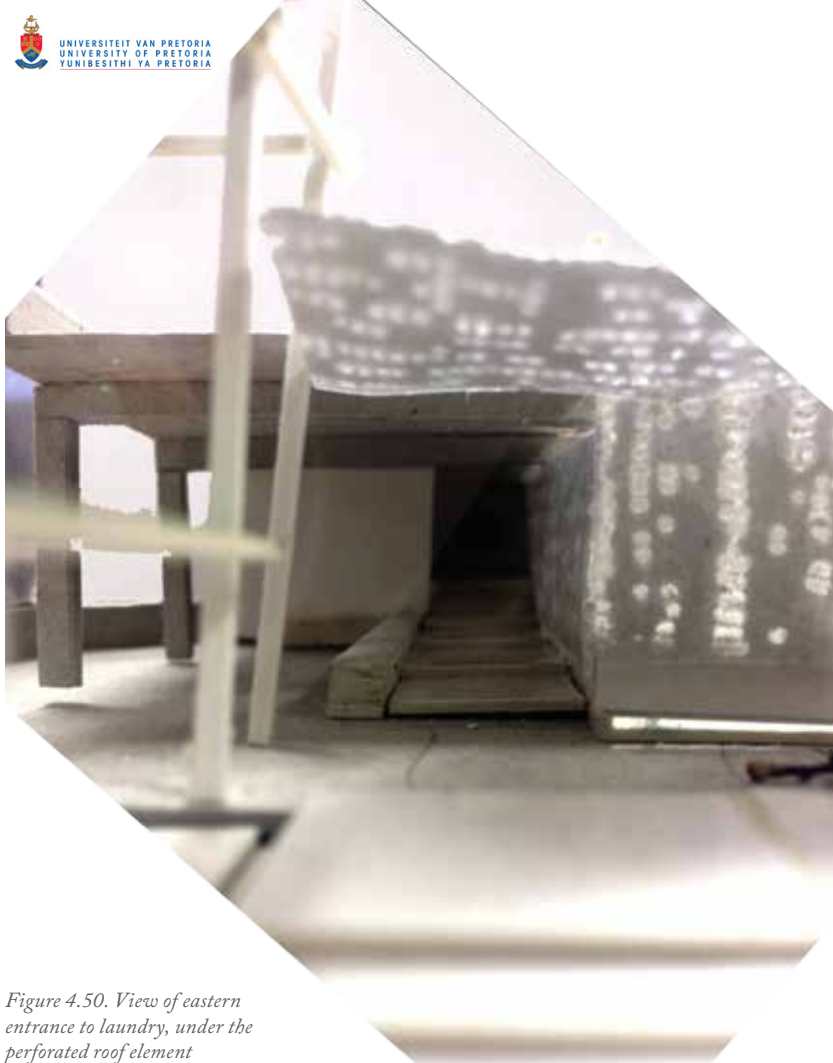


Figure 4.50. View of eastern entrance to laundry, under the perforated roof element



Figure 4.51. Photo of the south-wester corner of the concept model looking at the restaurant and seating area



Figure 4.52. Photo of courtyard in Fawcus Street showing a wetland pond, existing structure and guiding roof



*Figure 4.53. Perspective  
of Fawcus street from the  
park, looking towards the  
restaurant*



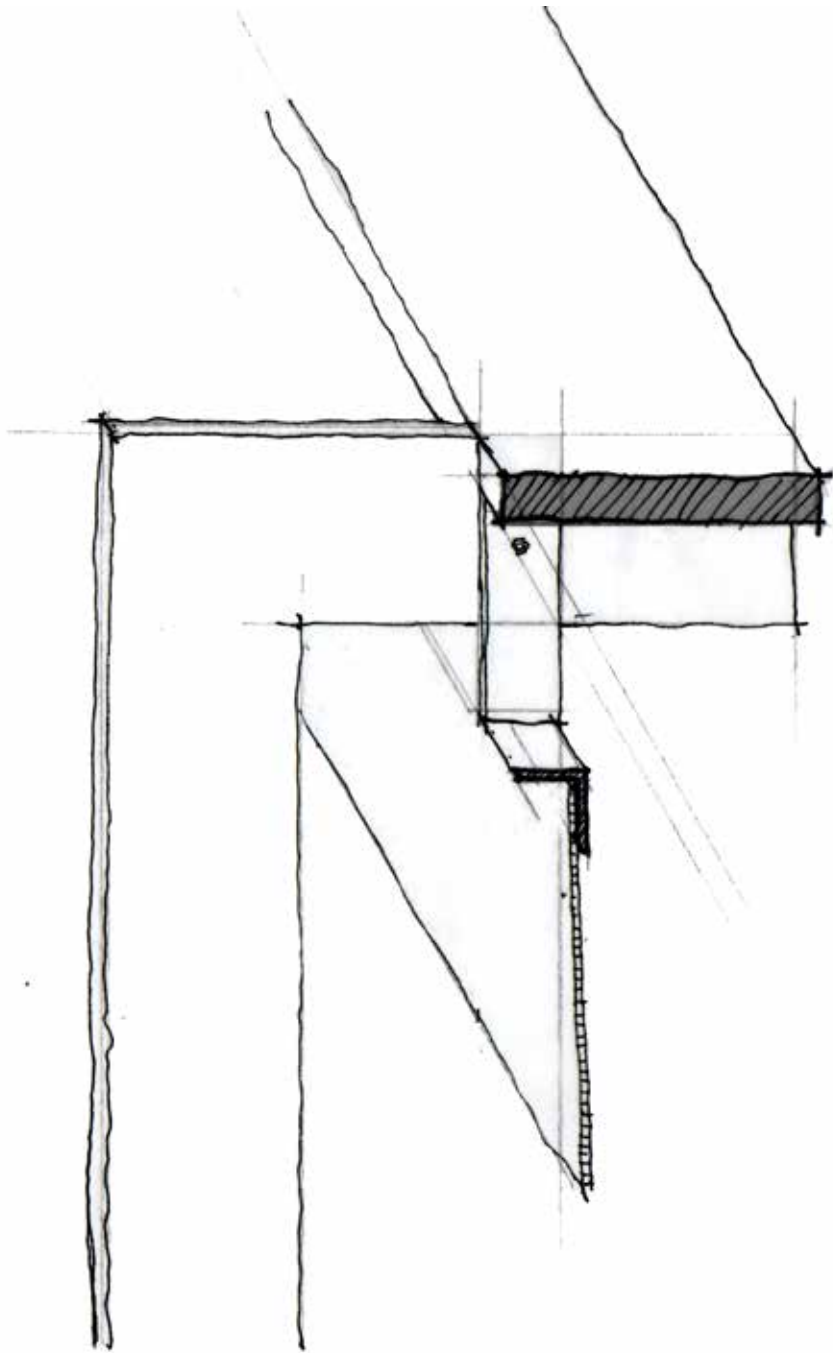
chapter 4: **SYNOPSIS**

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The design development chapter looks at how to create a new spatial definition within the existing built landscape that ties in with the aims of the greater framework. Thresholding of space and use of signifying elements allows the design to be more accessible to the user. Creating an event-driven space was one of the most challenging objectives of the design as the scope and placement of programmes is a crucial factor in the project's success because they influence the spatial character and are needed in order to amplify the existing conditions.

The design consists of several threads that create its end character. These include the existing fabric, users and activities, the theoretical approach and spatial intentions; each of which are integral to the scheme, but all need to be tied together by a common logic. This logic is best seen in the technification of the design. The project is complex yet delicate, and details have the ability to express both.



# 05

## TECHNICAL development

This chapter highlights the continuation of the concept of fragile architecture through the technification process. This is not seen as separate from design development, but rather the proving of it much like the theorem of a sum. It explores the systems and materiality necessary for the project's feasibility and success

- 5.1 **technical concept**
  - 5.2 **the slate, structure & services**
  - 5.3 **structure**
  - 5.4 **the route**
  - 5.5 **technical precedent**
  - 5.6 **the water system**
  - 5.7 **materiality**
  - 5.8 **the bathhouse**
  - 5.9 **sustainability in the urban  
environment**
  - 5.10 **technical drawings**
- chapter 5: **synopsis**

## 5.1 the TECTONIC CONCEPT

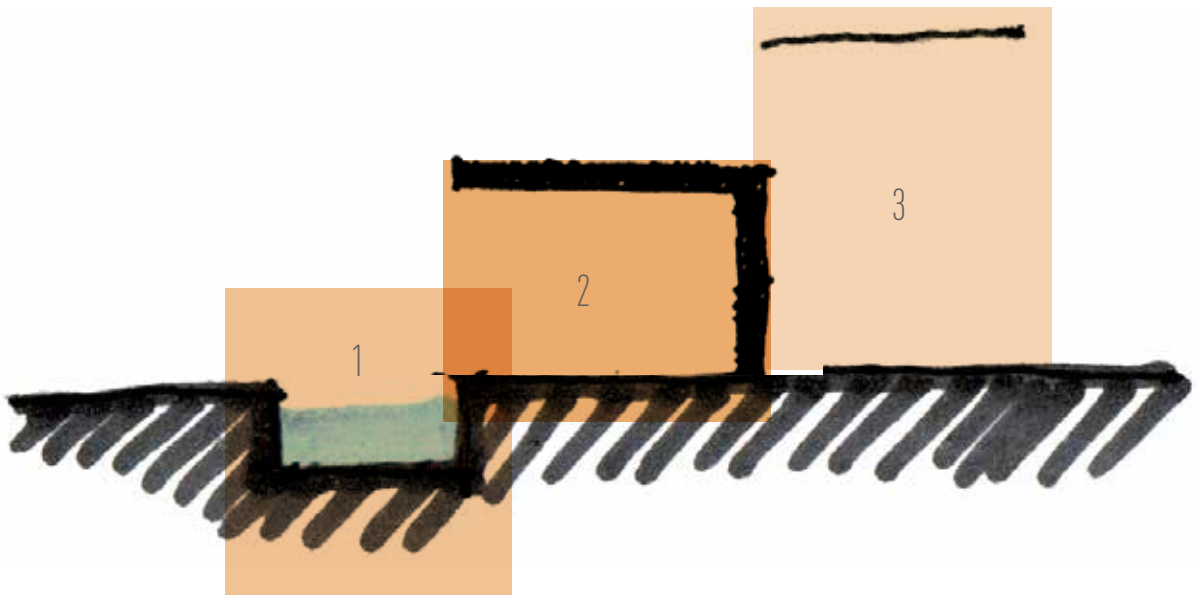


Figure 5.2. Technical concept diagram

Figure 5.3. (opposite, top) Elements of time

Figure 5.4. (opposite, middle) Elements of the Earth

Figure 5.5. (opposite, bottom) Elements of the sky

The technification of this project is an extension of the architectural concept of fragile architecture. Throughout the scheme there are three repeating elements, each detailed to express their intended qualities. The elements are:



### 1. ELEMENTS OF TIME

These elements express the fragility of the scheme through **ritual, change and flow**. They are represented by planting, bodies of water, and weathering of materials.



### 2. ELEMENTS OF THE EARTH

These elements are enveloping, grounded and maternal. They represent **comfort and security**. A series of such elements house the specific programmes of the scheme, as well as their supporting services.



### 3. ELEMENTS OF THE SKY

These elements are light and delicate. They **guide the user** through the scheme, and form various levels of shade or shelter to complement the relevant programmes.

exploded axonometric of  
**CONCEPT IN CONTEXT**

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**ELEMENTS OF THE SKY**

These overhead plains vary in opacity. Some provide shelter, while others provide shade. The tallest roofs highlight the axis through the site and demarcate where Fawcus Street once ran, while the lower roofs create a threshold edge condition for the courtyard, and accentuate the two entrances into the secure portion of the scheme.

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**ELEMENTS OF THE EARTH**

These elements are heavy in nature. They provide shelter, and enclose the services required of the respective programmes, which include: the bathhouse, ablutions, restaurant, and hairdresser.

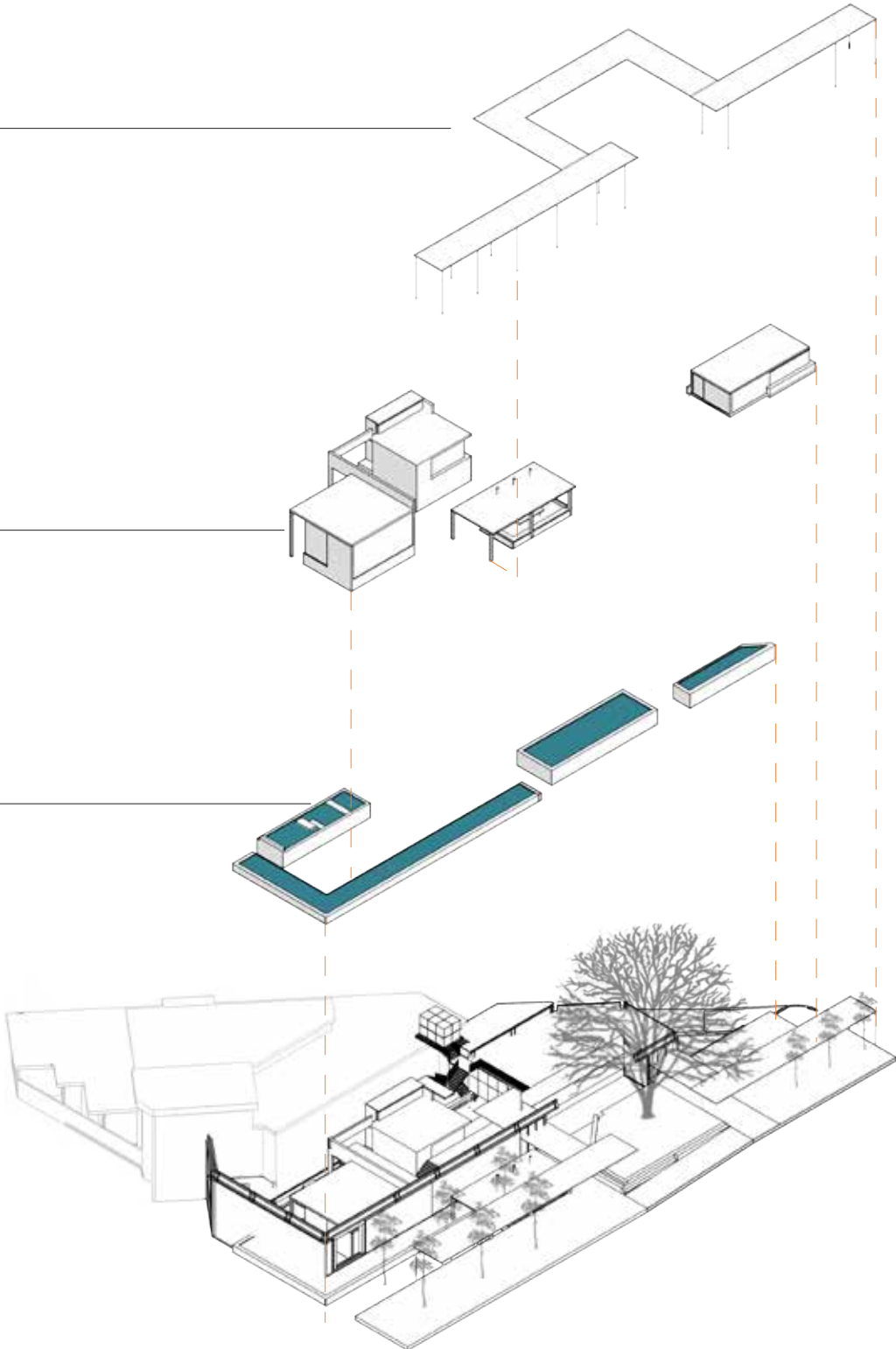
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**ELEMENTS OF TIME**

The water levels and planting palette of the wetland system change with the seasons, but the flow of water remain a constant within the project. They bind together the various forms within the project and flow between that which is new and the existing structures.

*Figure 5.6. Exploded axonometric of concept in context*





## 5.2 the SLATE, STRUCTURES & SERVICES

### 1. THE GUIDE

Users are guided through the site by means of the free-standing roofs. The demarcate the entrances and route axis through the site.

### 2. THE CONTAINER

The programmes that are supported by the water system are housed within the contained spaces.

### 3. THE WATER SYSTEM

Elements of the water system, such as the wetland system and pool, form part of the experience of the site; while other elements (such as the water tower and parabolic water heaters) signify of the water process. Lastly there are elements of the water system that are not accessible to the public realm, these include the bulk storage, traps, filters and purification systems.

### 4. NATURE, THE ROUTE, AND THE SLATE

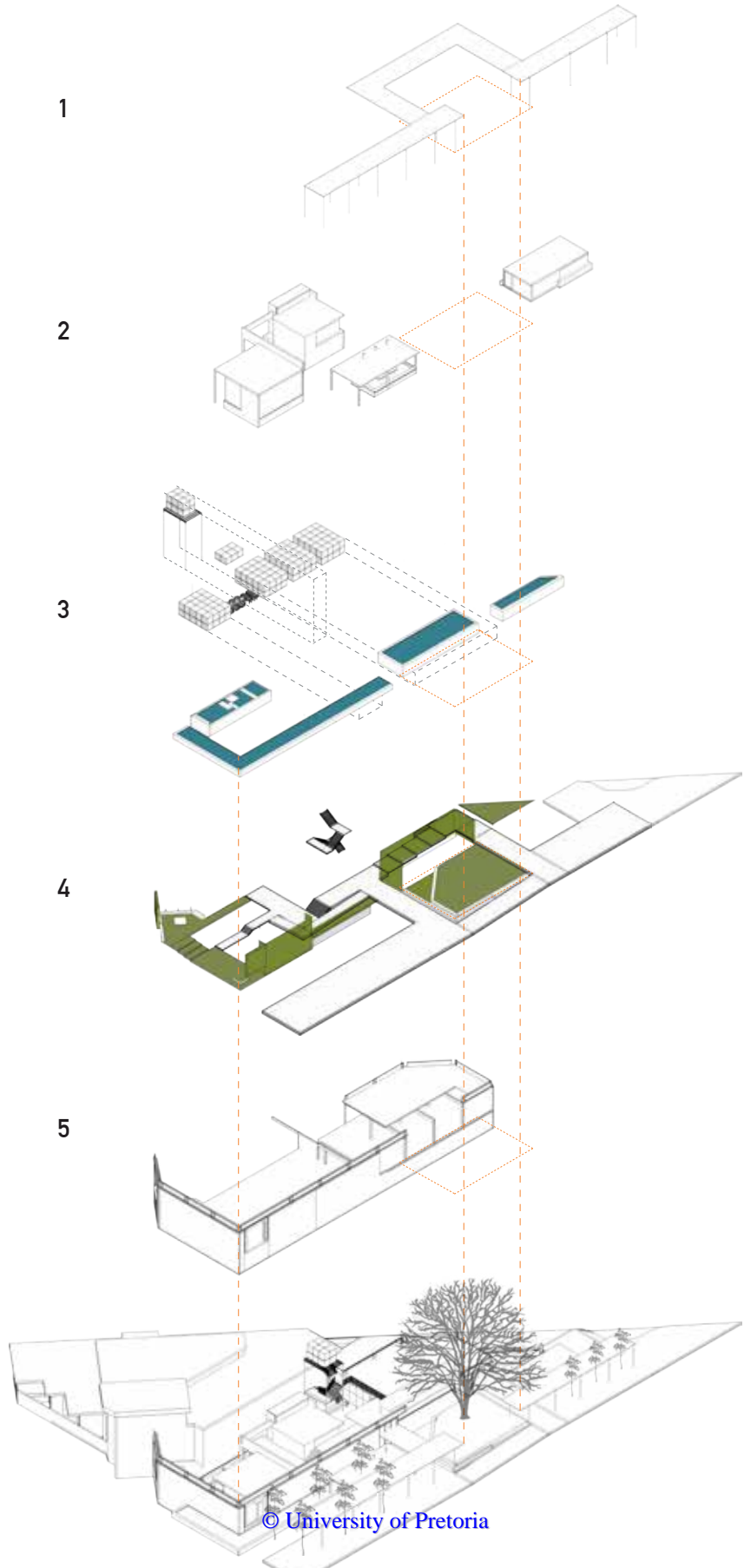
Viewing the site, and Fawcus Street in particular, as a slate allows one to understand the amount of space which can be committed to the public realm.

From this, the slate is broken up into pathways, squares, courtyards and other green areas, such as rain gardens. This forms part of the soft infrastructure that impacts on the experience of the site in a haptic manner.

### 5. EXISTING STRUCTURE

The existing structure is a column-and-beam structure with face brick infill on the outer walls. The structure has three levels: basement, ground floor, and vehicle-accessible roof. The majority of the basement, the eastern portion of the ground and roof slabs have been retained. The western boundary wall also remains.

*Figure 5.7. Exploded axonometric of slate, structures and services*



### 5.3 EXISTING STRUCTURE and DEMOLITION

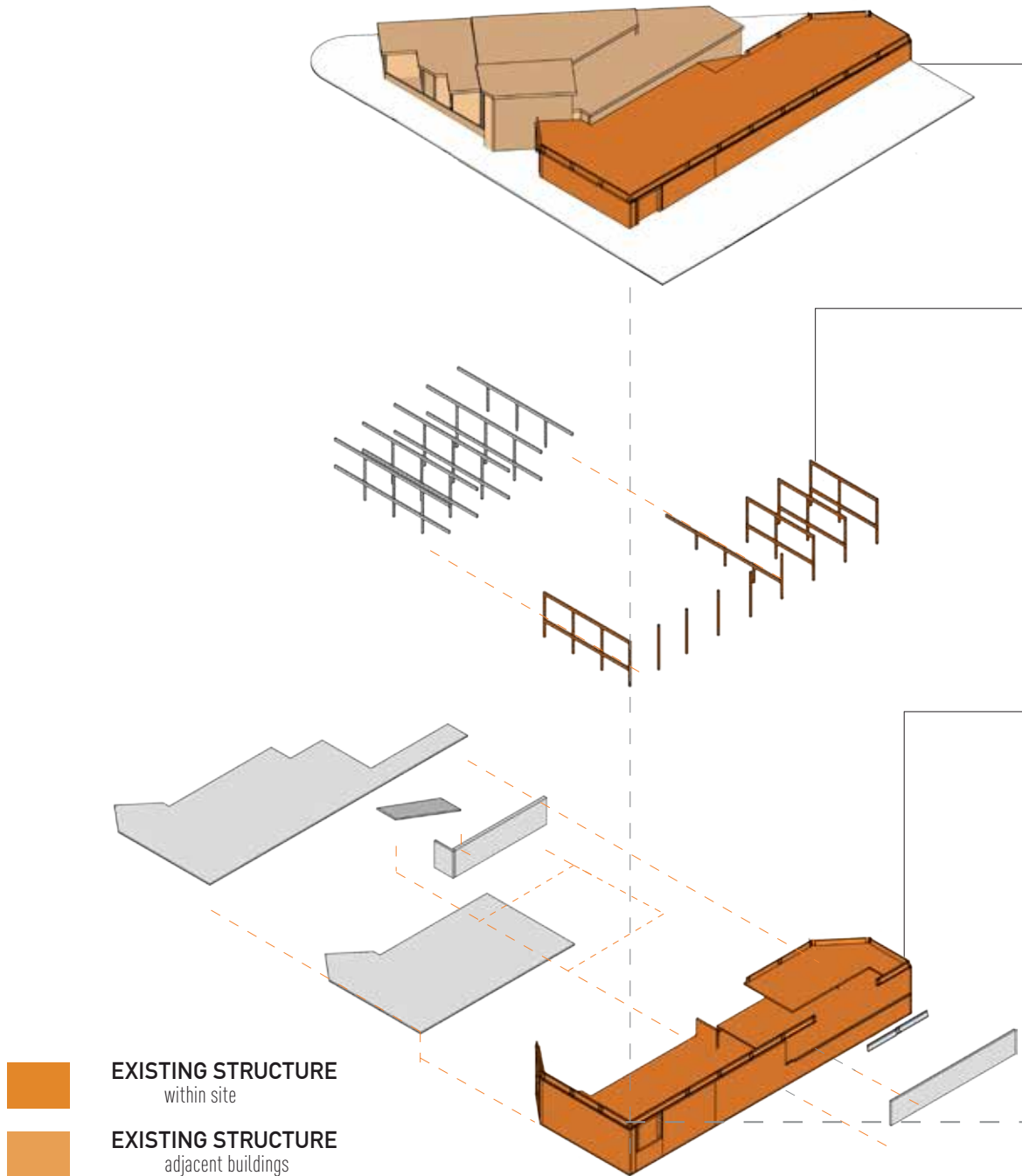


Figure 5.8. Exploded axonometric of existing structure and demolition work

## CURRENT EXISTING STRUCTURES

### PRIMARY STRUCTURE

The primary structure is made of a column-and-beam system. The structure is retained along the wall edge, and where it is needed to support the slabs. The portion of the structure that will be demolished is to open up space for the 'internal' courtyard.

### SECONDARY STRUCTURE

The walls which are retained form the enclosure for the private functions of the bathhouse behind. The majority of the basement is used to house the water purification services. The rest of the retained structure supports the laundry programme.

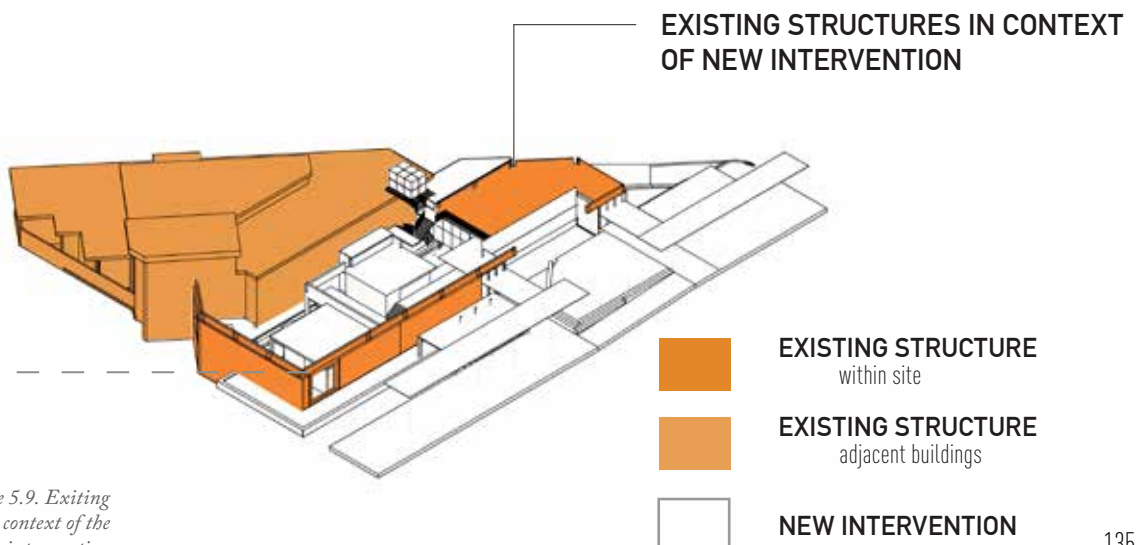


Figure 5.9. Existing structure in context of the intervention

## 5.4 the ROUTE

The route allows the user to navigate the natural slope of the site, as well as the artificially exaggerated slope created within the existing building - leading down into the bathhouse area.

The route makes use of both ramps and stairs, allowing the project to be universally accessible except for the roof, cubicle area of the bathhouse.

The route leads the user through and around planted areas and water bodies, allowing for a haptic experience of site.

“Since we move in **Time**  
through a **Sequence**  
of **Spaces**,  
we experience a space in relation to  
where we have been and where we  
anticipate going” (Ching 2007:240)

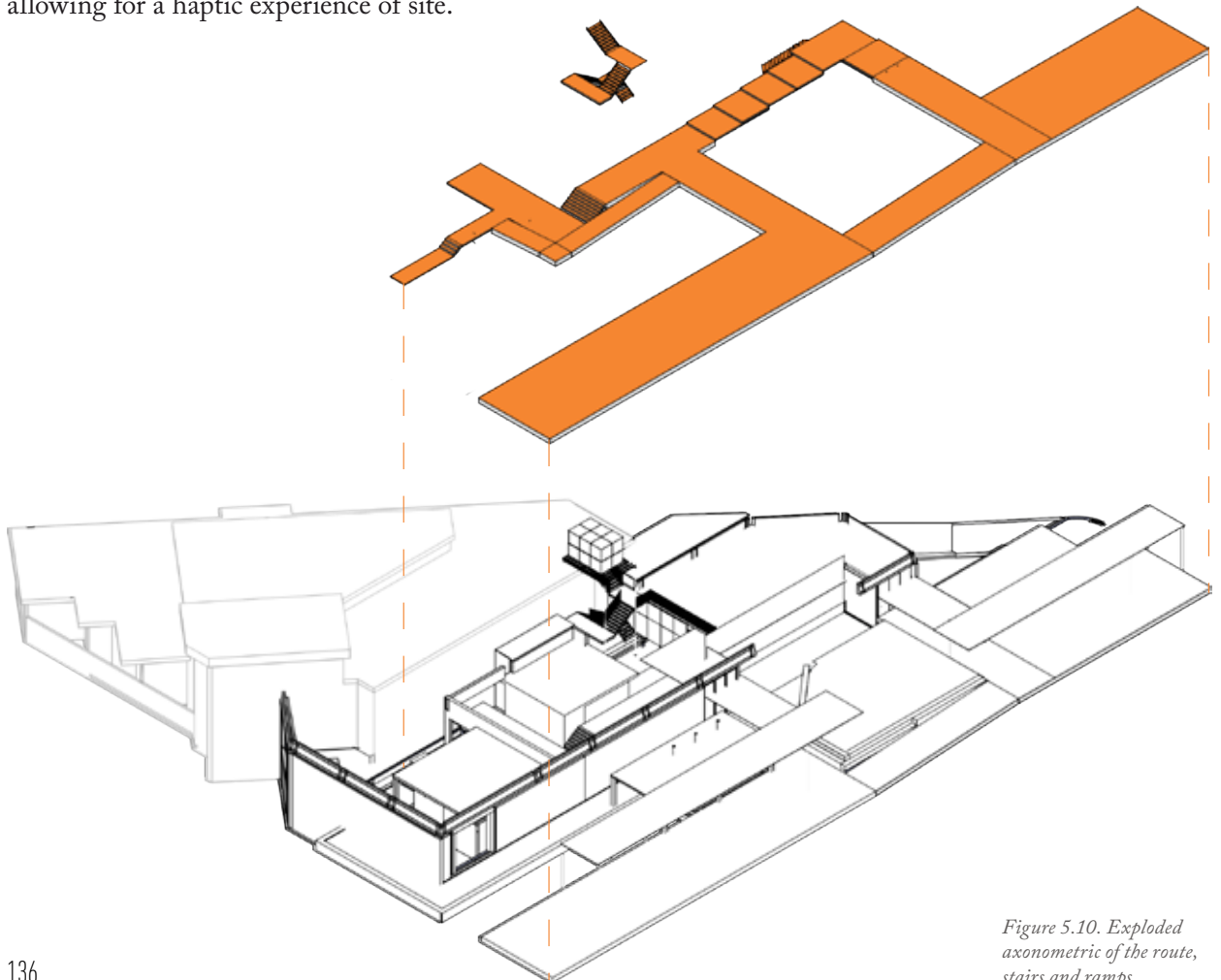


Figure 5.10. Exploded axonometric of the route, stairs and ramps

## 5.5 the WATER SYSTEM

The project's water system comprises of an internal and external system (Figure 5.11). This is carried out with the aid of various landscape interventions. The catchment area for the site extends along John Page Drive on the north-east and includes the park to the west (Figure 5.12). The area of this catchment basin is approximately 32 450m<sup>2</sup>. Surface runoff off-site is captured in a series of swales, vertical wetlands, and rain gardens; these systems help remove inorganic pollutants, such as trash. The water is then run through an oil trap before it enters the on-site wetland system.

The wetland is made up of three ponds, each containing flora that helps remove micro particles and nitrates from the water. The system flows naturally as each pond steps down with the natural slope of the site. From the wetland system, the water is taken into a return tank in the basement, where it proceeds on through sand filters and ultraviolet purification. It is then stored in additional storage tanks until it is needed. From here, water is pumped by means of a solar water pump into two Abeco water tanks on the roof - one insulated hot water tank and another for cold.

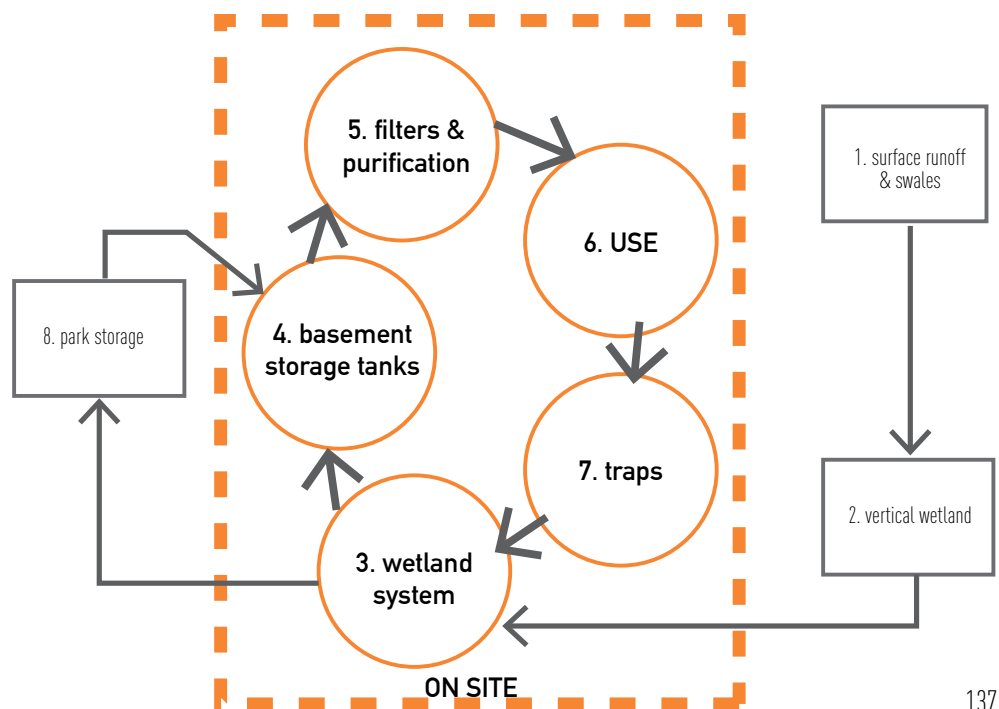
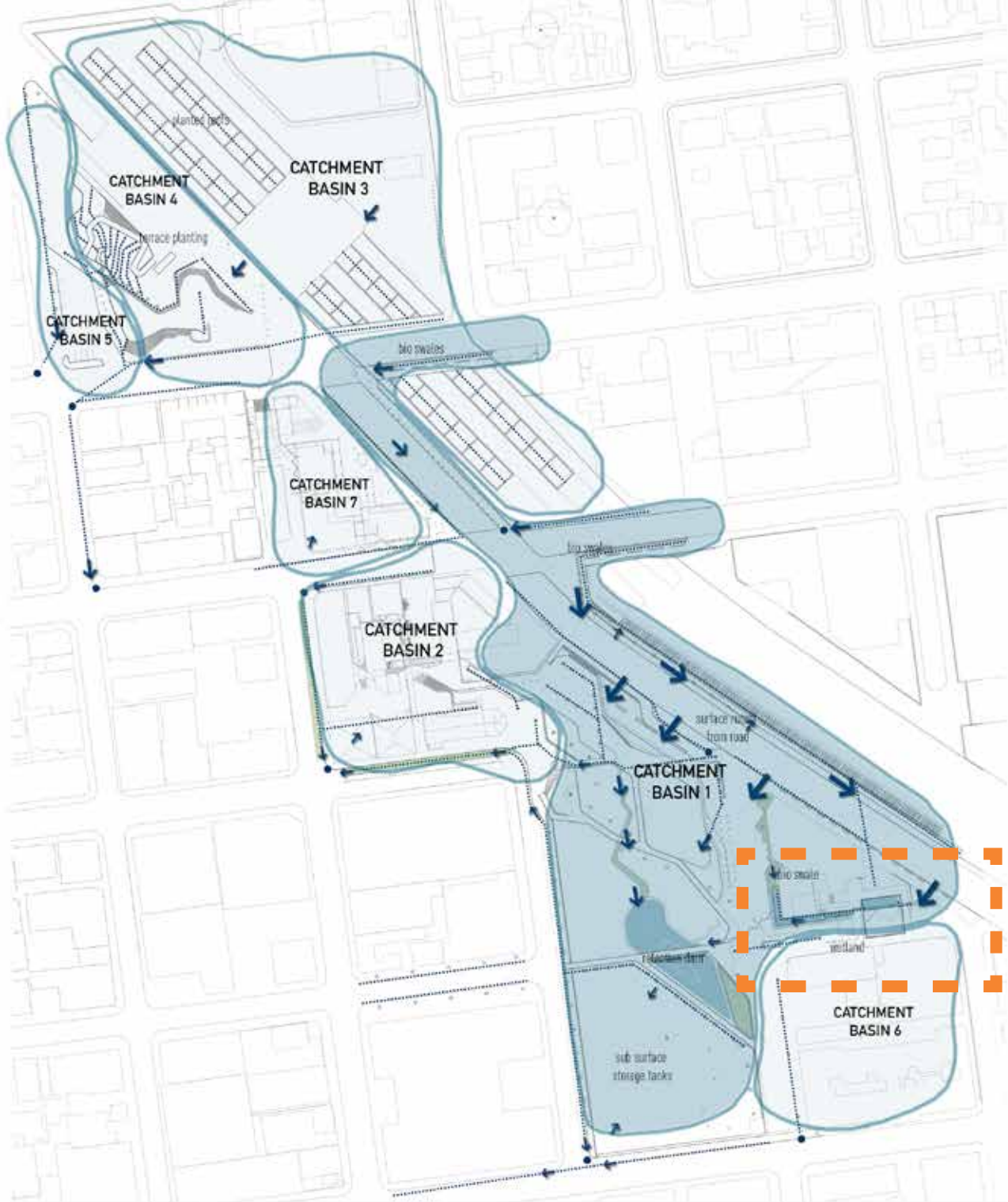


Figure 5.11. Macro water framework





## 5.5.1 WATER MANAGEMENT

Water management is a vital part of the scheme's concept as well as its feasibility. Although the project is heavily water-dependent, the collaboration with the landscape architect allows for all the demand of the bathhouse, laundry, and ablutions to be from a combination of harvested rainwater and recycled grey water. The restaurant and laundry will run on municipal supply, and all waste water will be diverted to the municipal sewer system.

### HEATING

According to SANS 204-1 (2008:5), "Where technically feasible, solar water heating systems shall be installed." Water heating will be achieved with the use of two 20m parabolic solar water heaters. Water will be heated during the day and stored in an insulated hot water tank, this water should remain above 55 °C to prevent bacteria developing in the tank. Excess hot water at the end of the day will remain in the insulated tank overnight for use the next day. All hot water pipes will also be insulated to avoid heat loss.

### FILTRATION

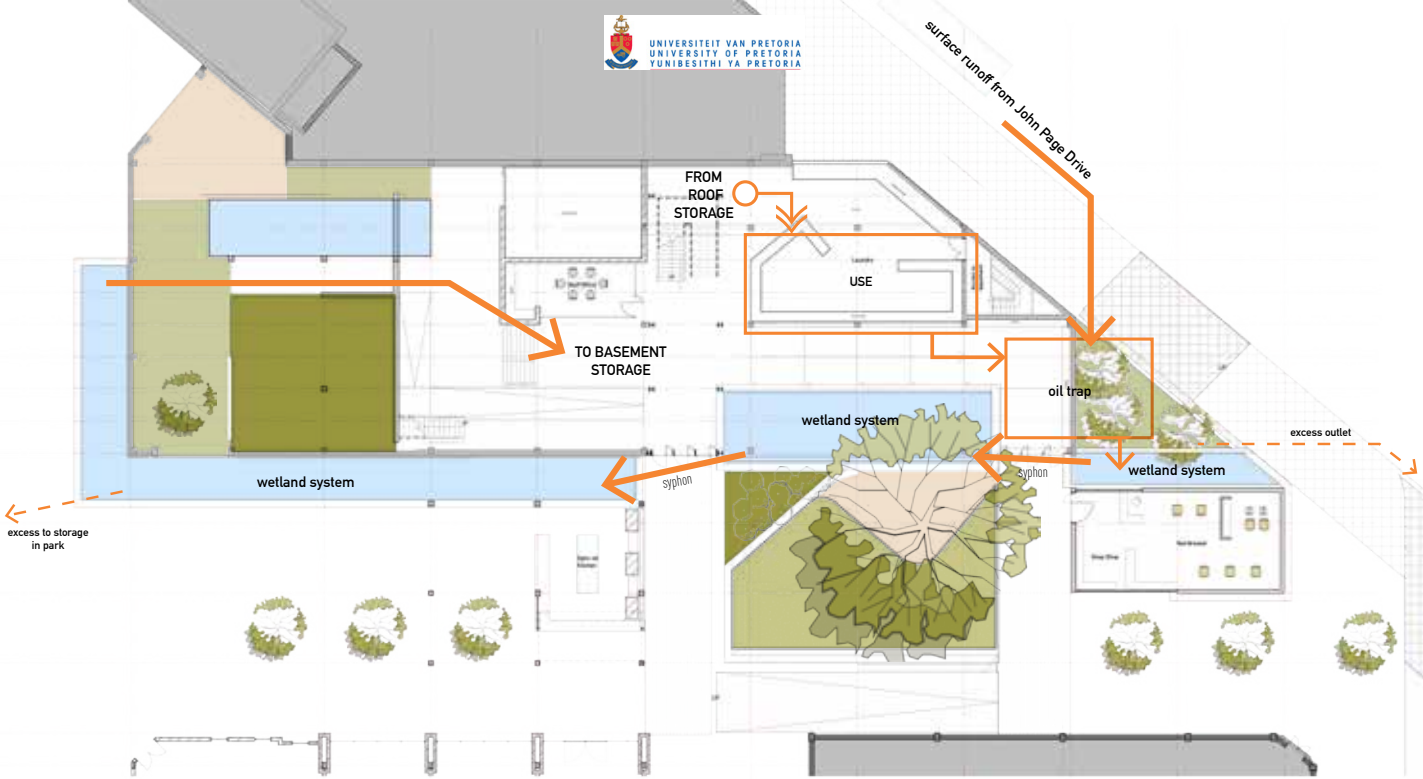
All grey water entering the basement storage is sent through an oil trap and the wetland system before entering the filtration process. This process uses a sequence of filters to remove micro-particles from the water. The first filter is a coarse sand filter, followed by a sand-granular activated carbon (GAC). The water is then UV purified to remove pathogens before storage. No chlorine is used as the water is also fed into the play pond in which there are wetland plants.

### WETLANDS

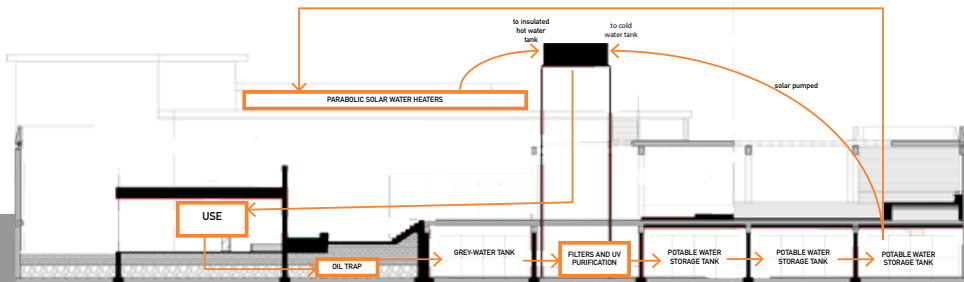
The wetlands receive both storm water as well as grey water so as to maintain water levels throughout the year, although there is provision for seasonal fluctuations. Before storm water enters the system, it first travels through a series of rain gardens to reduce the speed of the flow. In the final rain garden there is also provision for a subterranean storm water tank to prevent any damage to the wetland that a flash flood could cause.

### FITTINGS

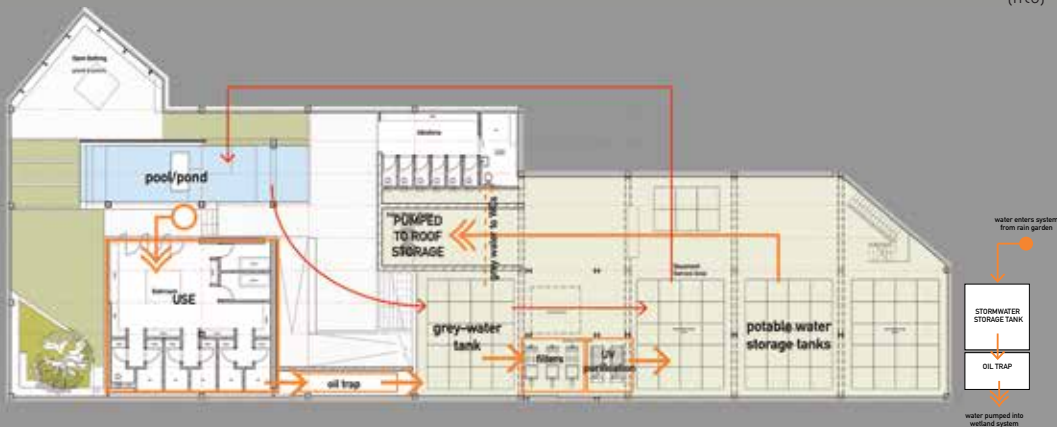
All fittings will be low-flow (9,5l per minute for shower heads) and vandal resistant.



**GROUND FLOOR**  
water cycle  
(nts)



**EAST-WEST SECTION**  
water cycle  
(nts)



**BASEMENT**  
water cycle  
(nts)

## 5.5.2 DEMAND & TANK SIZING

The purified harvested water serves the showers and laundry, of which the showers make up the greatest demand.

Showers:  $5 \times 95\text{l}$  per (10min) use = 475l  
 $475\text{l} \times 6$  uses per hour = 2850l/hour  
 2850l/hour = **2.85m<sup>3</sup>/hour**

Bath:  $1,7\text{m} \times 0,8\text{m} \times 0,4\text{m} = 0,544\text{m}^3/\text{use}$   
 $0,544\text{m}^3 \times 2$  uses/hour = **1,09m<sup>3</sup>/hour**

The bathhouse component will be open from 7am-7pm, with three peak hours (7-8am, 5-7pm). For the remaining 9 hours will be taken at 50% capacity.

Therefore peak demand is:

$$2,85\text{m}^3 + 1,09\text{m}^3 = \mathbf{3,94\text{m}^3/\text{hour}}$$

$$\times 3\text{hours} = 11,82\text{m}^3 \text{ per day}$$

Off-peak demand is:

$$(2,85\text{m}^3 + 1,09\text{m}^3) \times 50\% = 1,97\text{m}^3/\text{hour}$$

$$\times 9\text{hours} = 17,73\text{m}^3 \text{ per day}$$

The laundry is operational from 8am-6pm. Peak demand is taken as 1-4pm in which time all 12 troughs, off-peak demand is taken as 8 troughs in use per hour

Peak:  $17 \times 45\text{l} = 765\text{l}$   
 1 load per hour = **0.765m<sup>3</sup>/hour**  
 $\times 3 = 2.295\text{m}^3 \text{ per day}$

Off-peak:  $8 \times 45\text{l} = 360\text{l}$   
 1 load per hour = 0.36m<sup>3</sup>/hour  
 $\times 7 = 2,52\text{m}^3 \text{ per day}$

Total peak consumption per hour = **4,705m<sup>3</sup>**  
 Total daily demand = 34,365m<sup>3</sup>

The Abeco tanks are made of 1,22 x 1,22m modules which can hold 1,816m<sup>3</sup> (Abeco Tanks 2014). Each of the hot and cold gravity tanks make use of 4 modules, which works out to 7,264m<sup>3</sup> per tank and 14,53m<sup>3</sup> total. This is enough water for three hours of peak-demand usage ( $4.705 \times 3 = 14,12\text{m}^3$ ) Because the tanks are 10m above ground floor, a minimum of one-bar water pressure is achieved (which is the same as municipal pressure), the water can thus be gravity fed to where it is needed. All grey water is recaptured and sent through oil traps before re-entering the wetland system. Excess water in the system is channeled from the wetland into an off-site retention pond and underground water tanks in the park, from where it will be pumped back into the on-site system in dryer months.

Figure 5.13. (top) Water cycle illustrated on ground floor plan

Figure 5.14. (middle) Water cycle illustrated on section

Figure 5.15. (top) Water cycle illustrated on basement plan

## 5.6 technical PRECEDENT STUDY

### THERME VALS

Graubünden, Switzerland

Peter Zumthor

1996



Zumthor's Therme Vals, designed for an existing hotel complex in the Swiss town of Vals, sits on a steep slope overlooking the valley and surrounding mountains. The town is known for its natural hot springs.

The bathhouse is located between five existing hotel buildings on the source of the spring. Zumthor's main informants were that of site and programme. He saw the structure as a quarry, both carved and extruded from the mountain. This analogy is evident in the construction of the individual tectonic blocks, made of stone, which together form the building and designate spaces and experiences.

The complex is made up of two main pools, one internal and once external. They are both fed by the natural springs and are a constant 32 °C. The internal space is divided into units, each containing different atmospheres and encounters with water. They include: a hot pool (42 °C), cold pool (14 °C), swirling water, scented water with flower petals, auditory pool, tasting of water, and steam bath. Other units house the ablutions, change rooms and massage rooms.

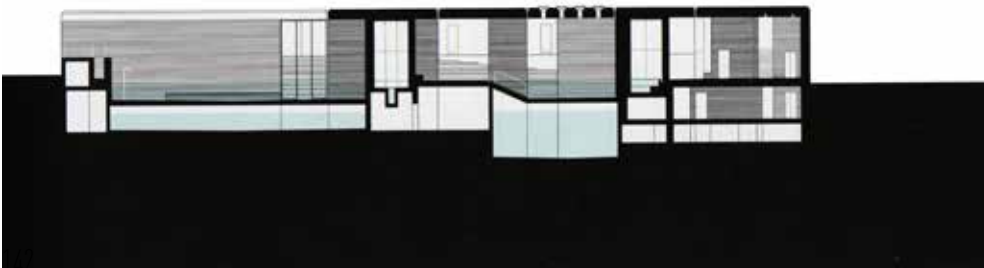


Figure 5.16. (top) Light washing the walls from the gaps between forms.

Figure 5.17. (left) Section showing mass

Zumthor's handling of materials is in line with the concept of fragile architecture. The materials are robust and low-maintenance, but are allowed to weather, and celebrated for their imperfections. The monotone palette of the stone and concrete allow the water, landscape and quality of light to be celebrated.



There is a long staircase leading from the entrance down into the space. This, as with the thesis, allows a cinematic movement for the user to descend into the space. The forms of the building are heavy and enveloping, in contrast with the external spaces which allow vistas of the mountains in the distance. The journey down into the bathhouse together with the solidity of forms juxtaposed by the freedom and openness of the outdoors.

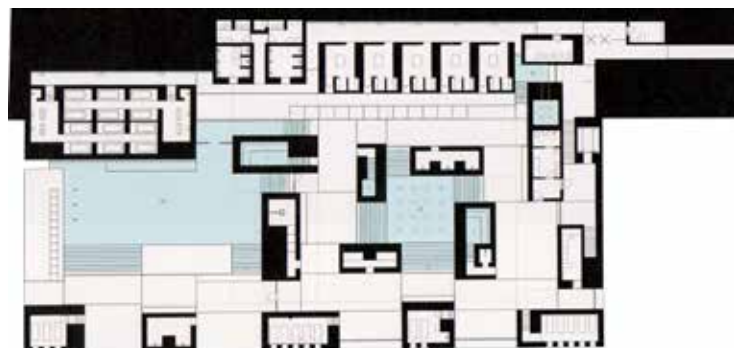


Figure 5.18. (top) Roof light detail

Figure 5.19. (second) Weathering of material

Figure 5.20. (bottom, left) Photo highlighting mass, material, and connection to the surrounding nature

Figure 5.21. (below) Bathhouse plan



## 5.7 MATERIALITY

The material palette of the existing structures on the site are mainly industrial in nature. Concrete, masonry, and asphalt with the occasional patch of greenery creeping through the cracks. The permanence and strength of these materials is a quality that is to be expressed.

The new material palette, however, is meant to be juxtaposed to the existing materials. The in-organic palette consists of in-situ concrete for the heavier forms, and steel, polycarbonate and recycled plastic timber. The new materials are meant to express lightness and fragility in their detailing, and are meant to show the passage of time through their weathering. The new palette is monotone with regards to man-made materials, so as to highlight the planting palette and natural materials - which are considered as part of the material palette.



face brick



concrete

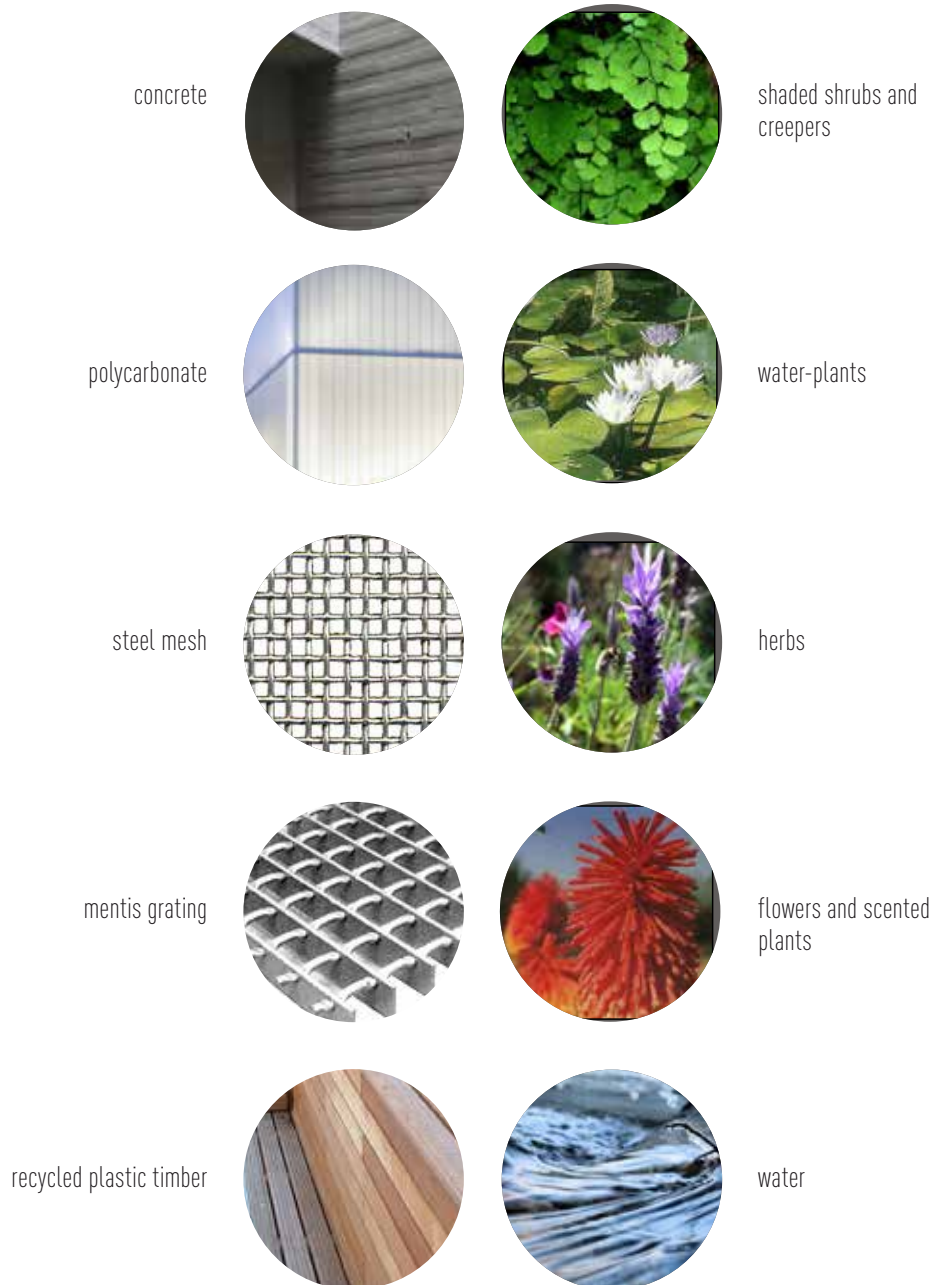


bark



asphalt and paving

### EXISTING MATERIALS



## NEW MATERIALS

Figure 5.23. New material palette

## 5.8 SUSTAINABLE PRINCIPLES

In keeping with the concept of fragile architecture, the project seeks to embed itself in nature and natural systems. From a sustainability point of view the project should remain grounded by being as robust and resilient as possible. This entails the use of basic, natural principles above the implementation of high-tech possibilities. Fortunately, the South African climate is very forgiving in terms of user comfort. As long as a person is kept in the shade and out of the rain, they will be comfortable for the majority of the year.

However, there are basic design principles that should be followed to optimise the performance and sustainability of a building.

### ORIENTATION

The first principal is orientation. The building should face north, or as Figure 5.24 states, the optimum orientation is with  $7.5^\circ$  east of north, however,  $15^\circ$  to either side of north is considered as ideal. The image the ground floor plan indicating the buildings at  $5^\circ$  west of north.

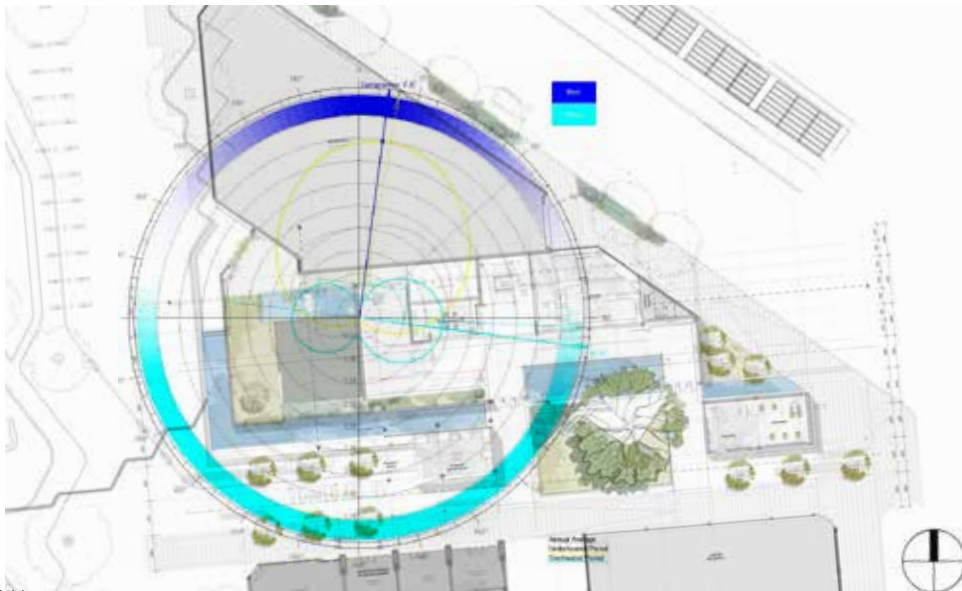


Figure 5.24. Optimum orientation shown on ground Floor Plan

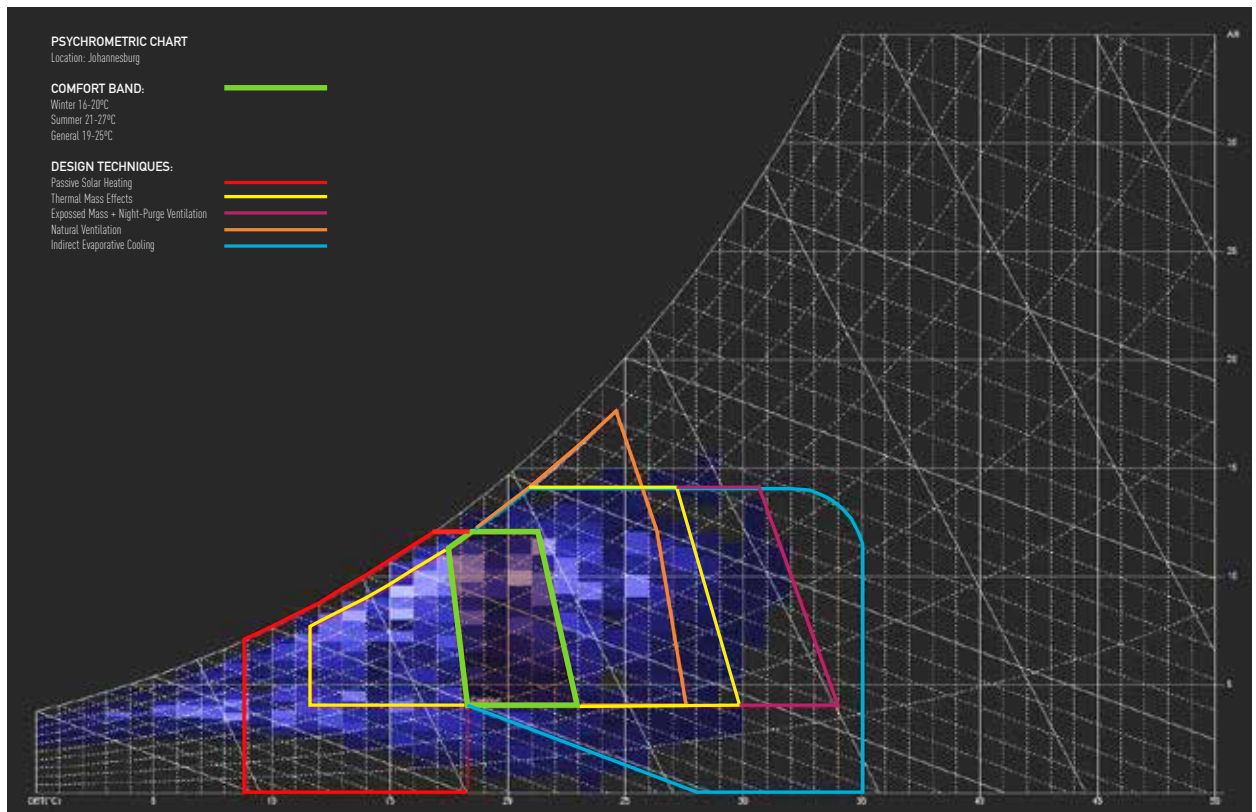


## THERMAL MASS

Thermal mass is the most effective principle achieving thermal comfort by managing both over and under-heated periods, as indicated by the yellow region in Figure 5.25. All enclosed spaces within the project make use of thermal mass by means of the concrete floors and structure which latently re-radiate the heat from the day. This can further be coupled with night-purge ventilation to expel heat when the building is not in use for particularly hot spells. This principle is used for the ablutions, bathhouse and restaurant kitchen.

The roof garden acts furthermore as an insulator which helps minimise temperature fluctuations throughout the year, but is particularly pertinent during the winter months. A test roof built in Ottawa by Karen Liu of the National Research Council's Institute for Research in Construction, offers conclusive data that green roofs decrease heat loss and energy usage during cold months (L'Abbé 2005).

Figure 5.25. Psychrometric chart indicating the comfort band and effect of various design techniques



## SOLAR ANGLES

The site falls within Climatic Zone 1: Cold Interior according to the SANS 204-1 (2008). This means that the Solar exposure needs to be carefully considered in the bathhouse component, as passive solar heating is important that the space does not under-heat during the winter months. The effect of this is indicated by the red portion in Figure 5.25.

A section from the design in October was analysed in terms of the solar

angles (Figure 5.26). It can be seen that it is over-shaded as a result of the roof garden overhang above the walkway, which is currently 2300mm wide, and thus needs to be iterated.

If this overhang is reduced to be between 1000mm (Figure 5.27) and 500mm (Figure 5.28), summer radiation is kept off the northern facade but is allowed in during the remainder of the year.

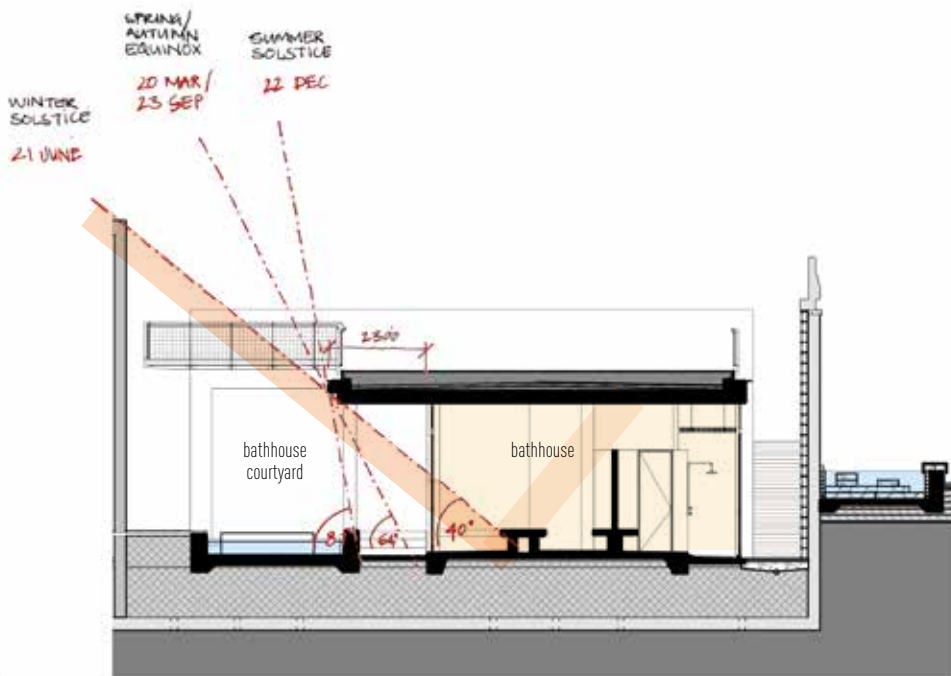


Figure 5.26. Sun angles on section as it was in the October technical crit

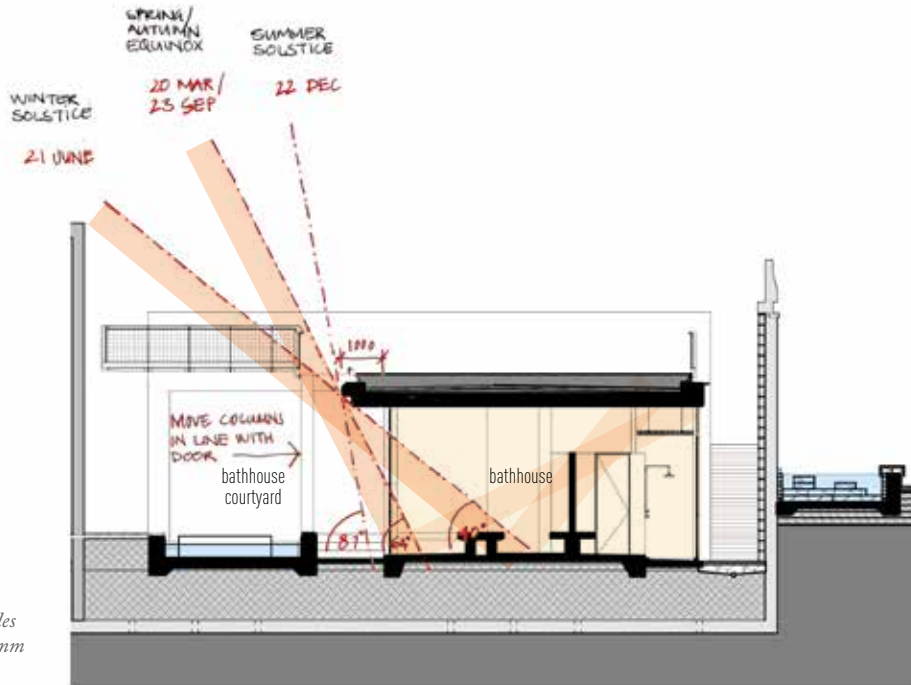


Figure 5.27. Sun angles on section with 1000mm overhang

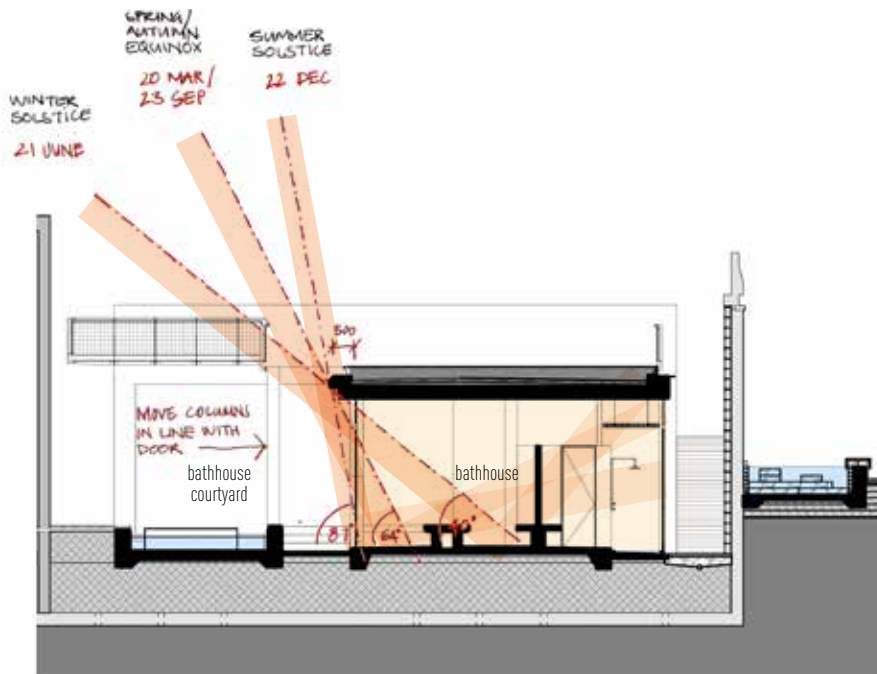


Figure 5.28. Sun angles on section with 500mm overhang

## SIZE

The most significant impact of design on sustainability is that of size. Naturally, the smaller the building the less its environmental as well as its financial impact. Due to the context in which this project is situated, it is important to ensure that every piece of the design is relevant and serves a purpose.

## WIND

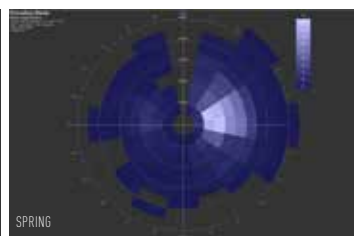
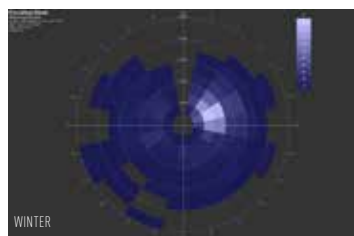
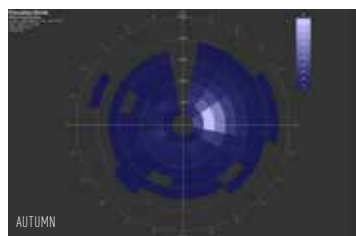
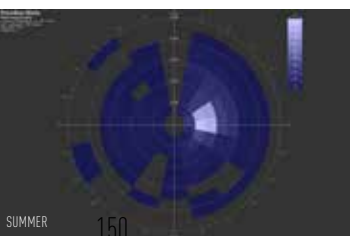
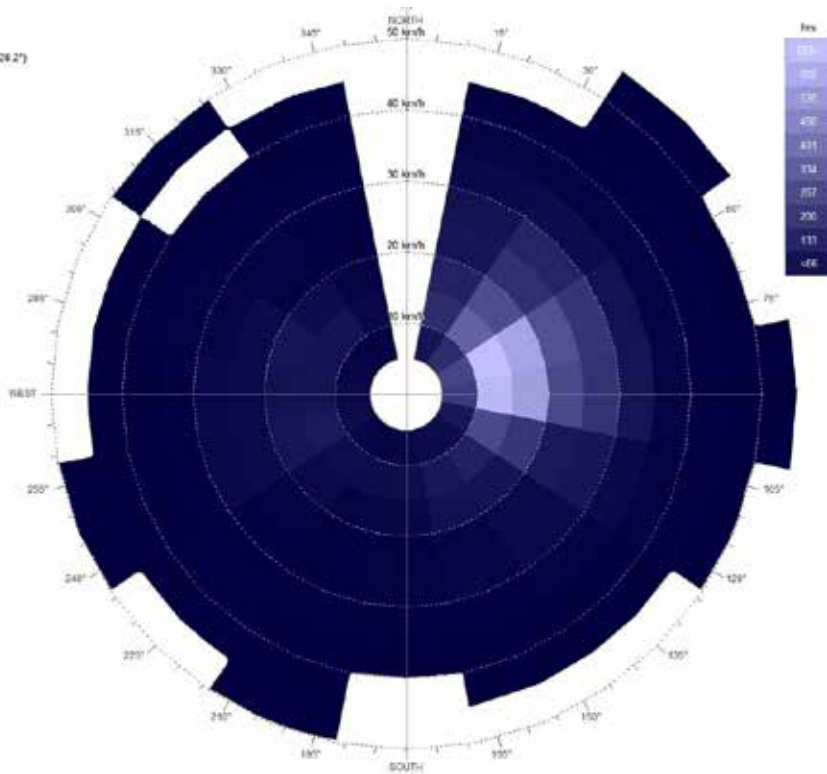
Wind in Johannesburg seldom gets stronger than 30km/hour, which is too slow to be harnessed for energy creation. However, it is important to note that prevailing winds are mostly from a north-eastern direction as this influences the direction of wind driven rain.

Figure 5.29. Prevailing wind roses.

### Prevailing Winds

Wind Frequency (Hrs)  
Location: Johannesburg (Jan 19, -26.1°, 28.2°)  
Date: 1st January - 31st December  
Time: 00:00 - 24:00  
© Weather Manager

YEARLY AVERAGE



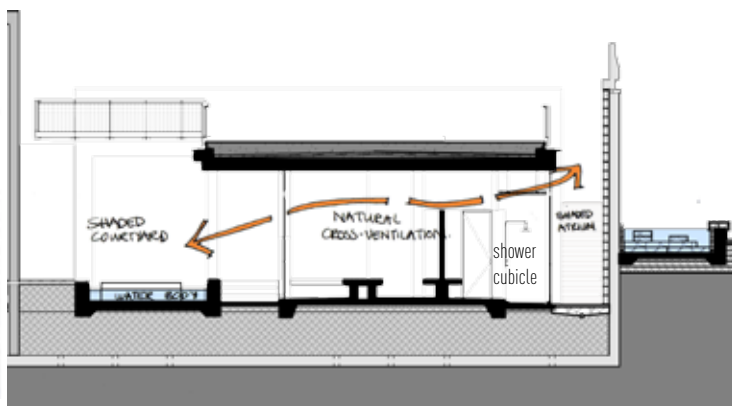
## VENTILATION

The whole project has been designed with natural ventilation in mind. The psychrometric chart on page 147 indicates how natural ventilation helps prevent overheating (Figure 5.25). Spaces are mostly open but covered, with the option of being closed up should the weather call for it. This saves on electricity, but also ensures that moisture does not build up as the programme is acutely water intensive.

The bathhouse was designed to be as open as possible to allow for a visual connection to the courtyard, and also for moisture to escape. Most of the north and south façades can be opened to allow for natural ventilation (Figure 5.30). Additionally, there are louvres in the ceiling void of the shower cubicles to ensure hot air and steam can escape (Figure 5.31). All cubicles also have a door which opens to the southern atrium space encouraging air exchange.

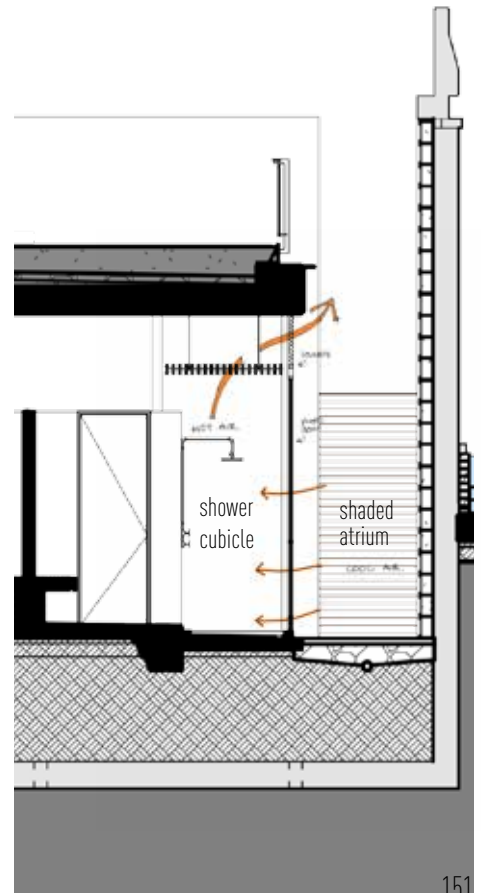
Figure 5.30. (left)  
Natural cross ventilation

Figure 5.31. (right)  
Ventilation of shower cubicle and atrium



## GREENERY vs POLLUTANTS

The openness of the design allows for a connection to nature. The planing and flowing water allow for a space rich in sensory experience. But, it has the added benefit of improving the air quality as well as muffling the noise pollution created by John Page Drive. Additionally, the indirect evaporative cooling from the water-bodies and planted courtyards helps cool the adjacent spaces (Figure 5.25 on page 147)

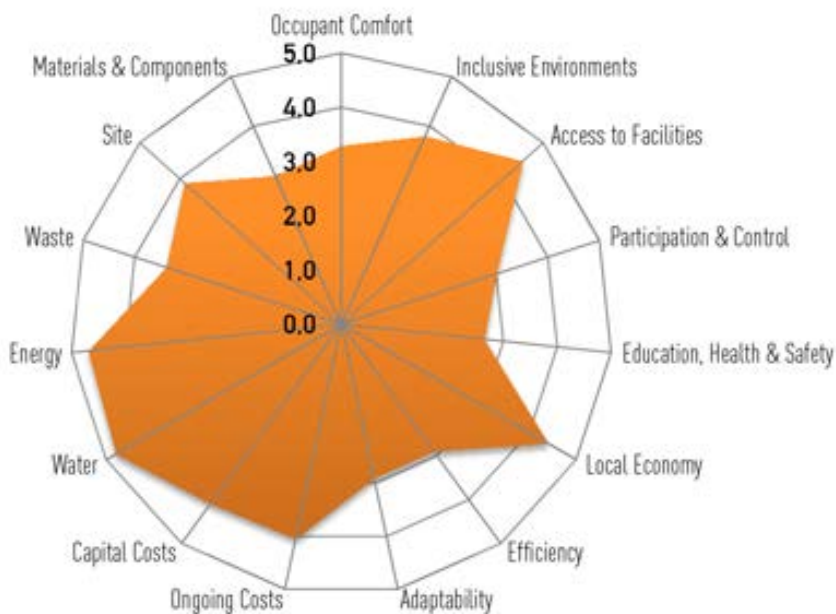


## 5.9 SUSTAINABILITY in the urban environment

In both the rural and urban setting, the provision of services and infrastructure will remain a top necessity for the coming decades. Due to rapid urbanization, and population growth, it is imperative that such infrastructural development be met - wherever possible - by sustainable means. This should be done, not only to ensure the security of natural resources, but also as an economic incentive of job creation through the infrastructure of micro-industries.

The *Sustainable Building Assessment Tool* (SBAT) system, developed by Jeremy Gibberd of the CSIR, has been used in this project as a measure of its sustainability. The SBAT tool determines the impact of the intervention across three main categories, namely: social, economic and environmental sustainability.

This is used as an introduction to the various systems and measures used in the scheme, and will be elaborated on further in the chapter.



SOCIAL:	3.5
ECONOMIC:	3.7
ENVIRONMENTAL:	4.0
<b>OVERALL:</b>	<b>3.7</b>

Figure 5.32. SBAT assessment graph (September 2014)

## 5.1.1 SOCIAL Sustainability

Access to facilities was the highest ranked (4.5/5) in this section of sustainability. This largely comes from the locational potential of the site, which is in close proximity to numerous forms of public transport; the park; and various other amenities such as schools, retail and post offices. This was a contributing factor in the site selection and programming of the site as a public service space. There is a great need for the poor to have access to well-located land. Landman (2006:2) expands on this by stating, “The post-apartheid urban form is becoming increasingly exclusionary, which raises many questions regarding the impact on the growing number of urban poor

and their access to urban land and well-developed public places.”

The project also strives to achieve an inclusive environment both within the structures as well as the surrounding public space. This is executed by means of ramps, no steeper than 1:15, which take wheelchair-users to the majority of the site, with only the roof and basement being accessible by stairs only. Paraplegic WC and bathing facilities are also provided within the scheme.

The entire scheme makes use of natural ventilation, and natural light, which can be supplemented by electric lighting only when necessary.

## 5.1.2 ECONOMIC Sustainability

Economically, the proposed project scores well in terms of Local Economy (4.4/5), Ongoing Costs (4.1/5) and Capital Costs (4.1/5). This is achieved through the fact that the majority of materials and labour are sourced within a 50km area. Of this labour a large percentage will support tradesmen within Jeppe, such as welders and carpenters (also collaborated with on the After-school Center discussed in Volume I). A portion of the construction is of a nature that local community can be trained during the construction.

Capital costs are kept low in aspects such as ground-works - of which there is relatively little due to the use of the existing structure - and reuse of materials.

The demolished brickwork from the existing structure will be re-used in non-load-bearing situations, such as the side-walls of ponds; flemish bond would maximize use of the re-sued bricks as any damage to the brick can be largely concealed. The demolished concrete will be crushed and used as hard-core in the backfill needed in the bathhouse area, and the all soil needed for both compacted fill and planting will be sourced from excavations by the landscape intervention (Volume II) in the adjacent park, which includes excavation for a pond as well as underground water tanks.

Design and material choices were made with maintenance and robustness in mind. This is necessary due to both the context and the programme. It keeps the ongoing maintenance costs to a minimum, but does result in a slightly lower adaptability score.

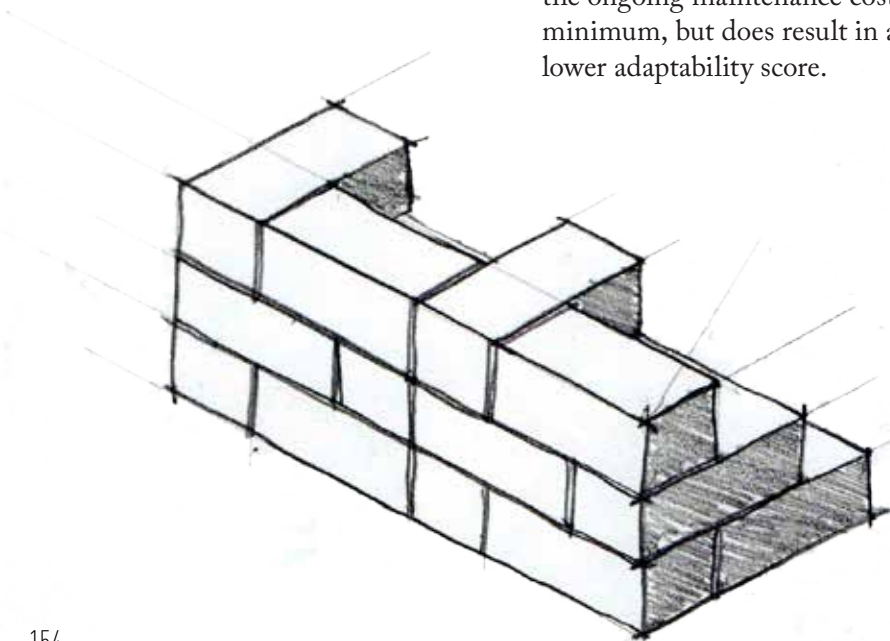


Figure 5.33. Sketch of bricks laid in flemish bond



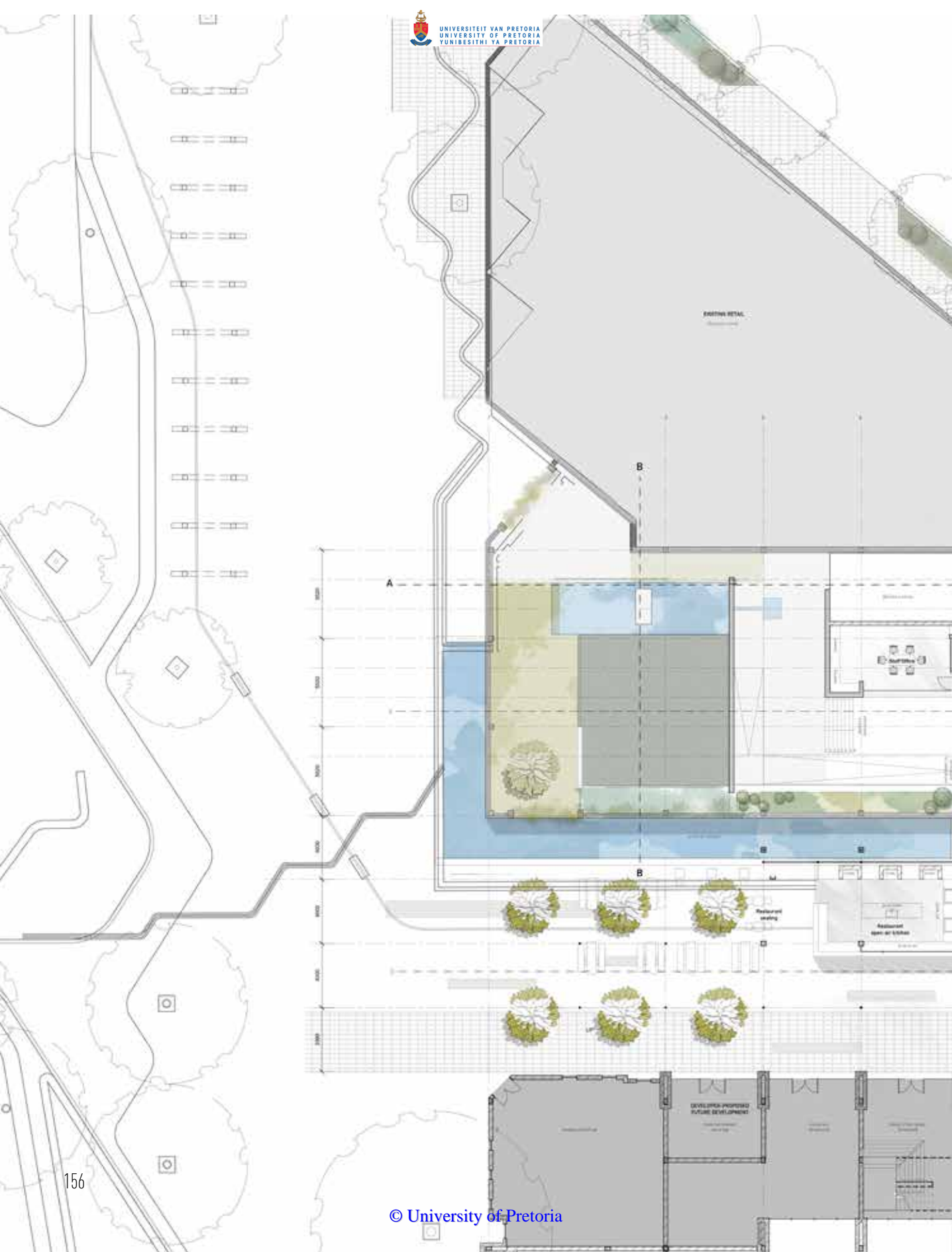
### 5.1.3 ENVIRONMENTAL Sustainability

Environmentally, sustainability is achieved through a thorough water management system. The programme is very water-intensive, and thus the planning of the water management system needed to be integral throughout the design phase. This strategy will be explained in depth later, but it makes use of the basic principles of storm water harvesting; on-site filtering and purification; as well as recycling of grey water.

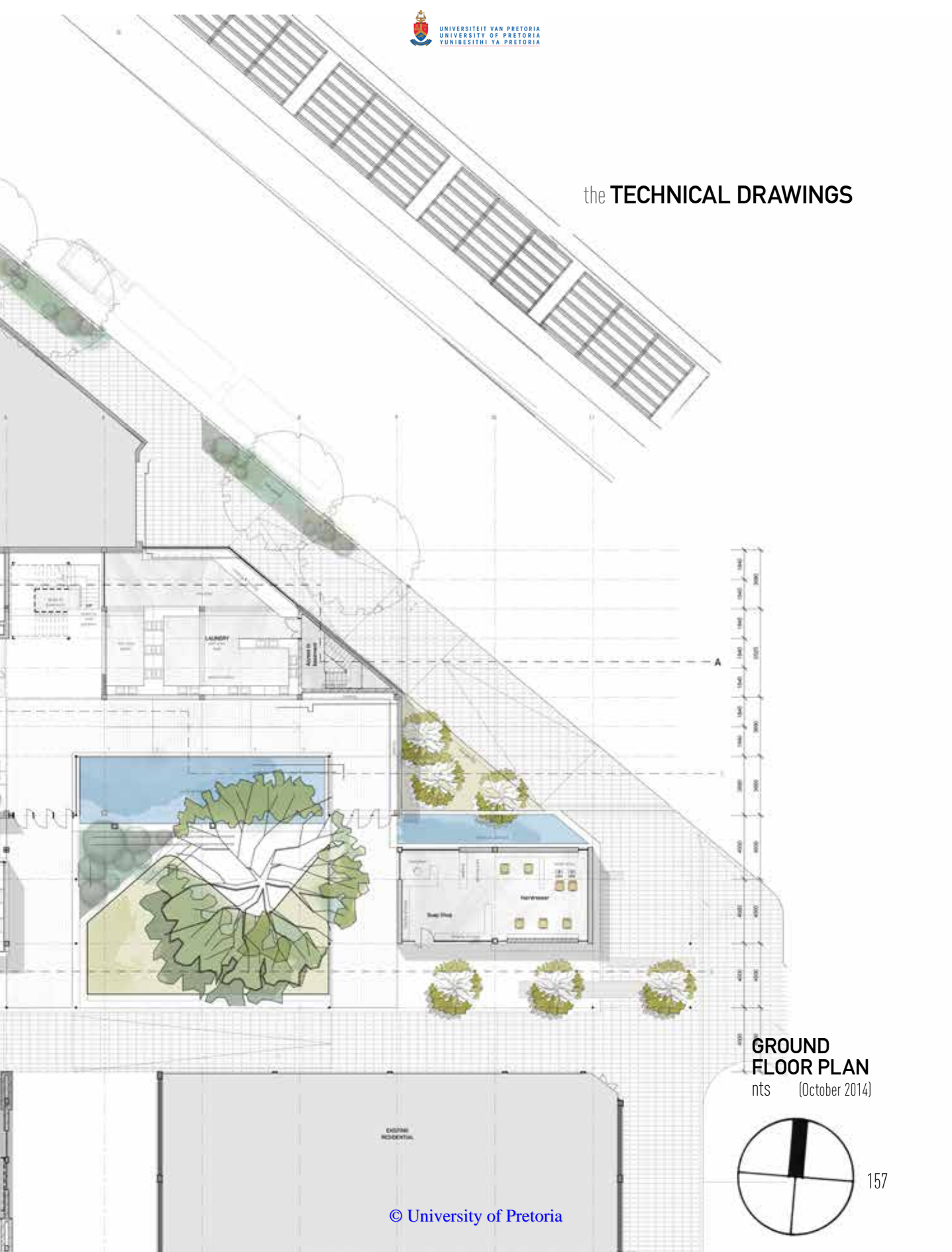
The most energy-intensive part of the programme comes from heating the necessary amount of water for daily use. This is done with the use of parabolic solar water heaters.

Green roofs are included in the design to increase insulation - especially in the bathing area where the clothing factor is negated and a more stable temperature band is required.

From a site-choice perspective, this project falls completely within a brownfield site, which is ideal seeing as it is also well-located urban land which can be reclaimed as public space and for public amenities. The intervention does not negatively impact on the surrounding buildings, improves pedestrian routes, and decreases the risk of flash floods through the introduction of sort or permeable surfaces and rain gardens.



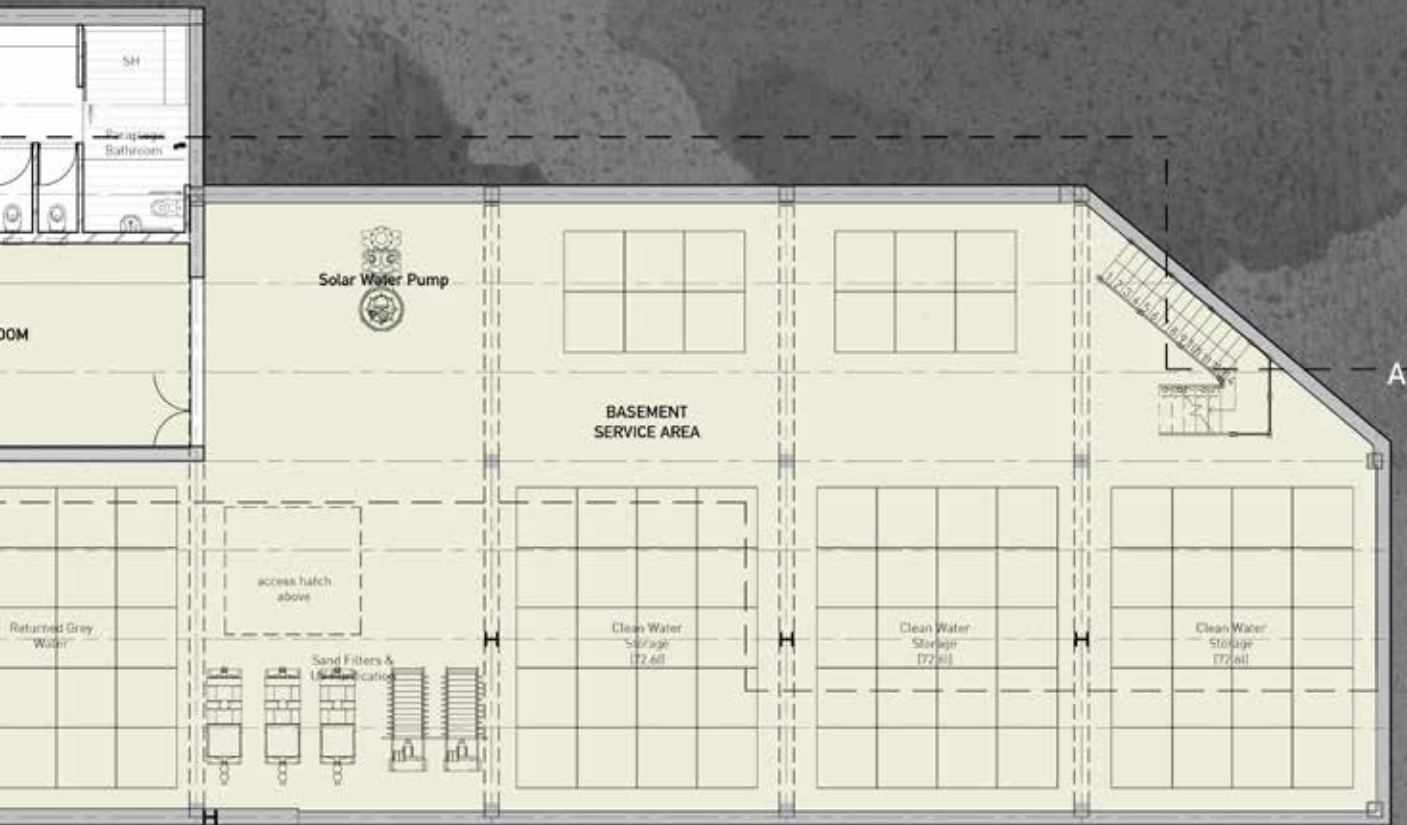
the TECHNICAL DRAWINGS



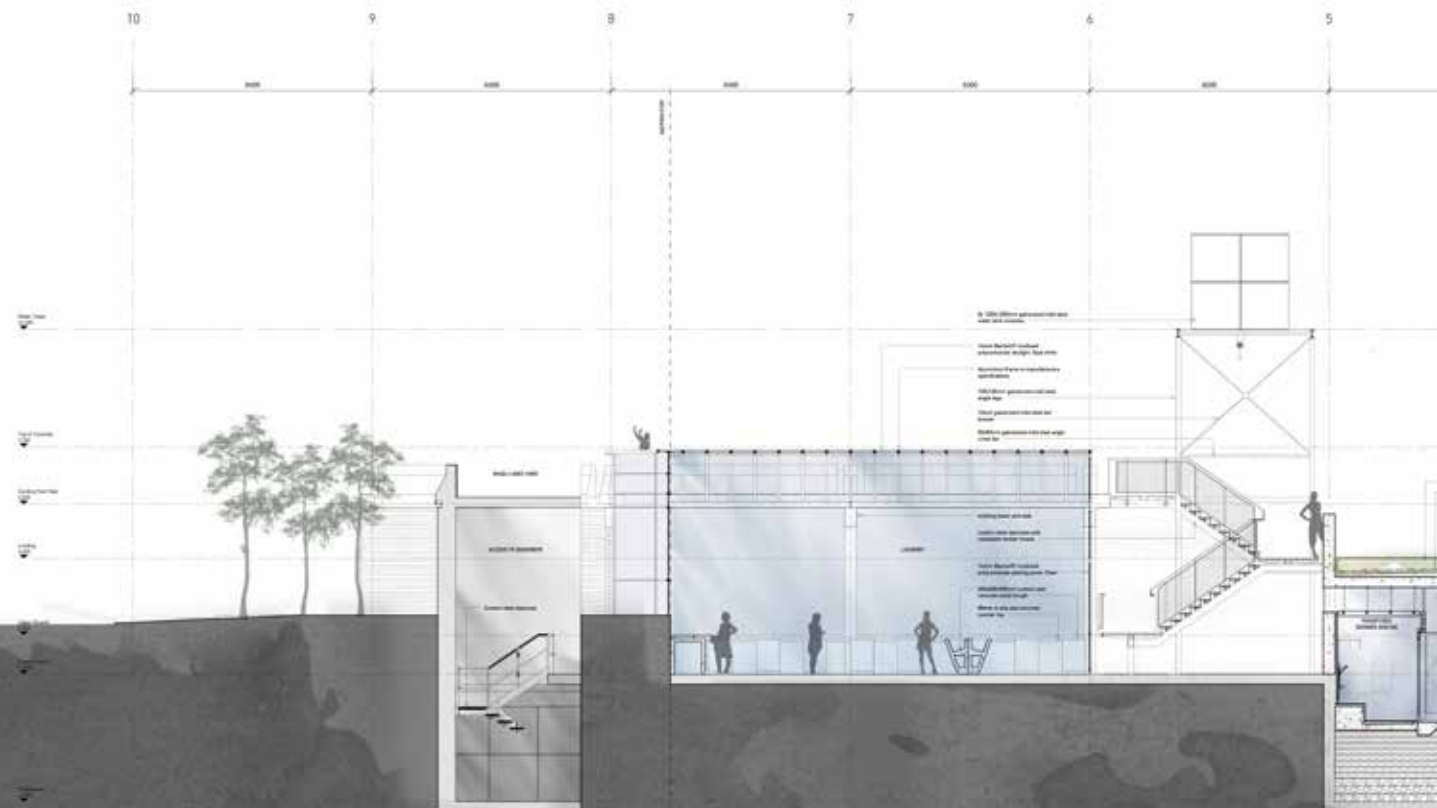
**GROUND FLOOR PLAN**  
nts (October 2014)

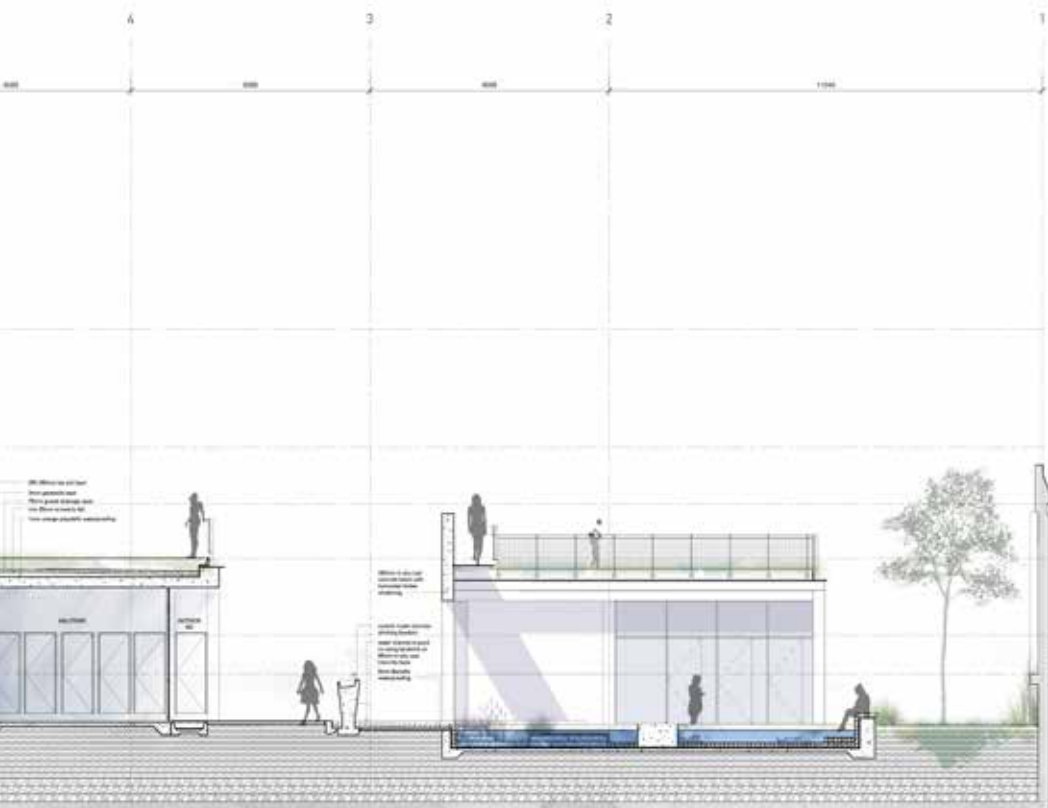




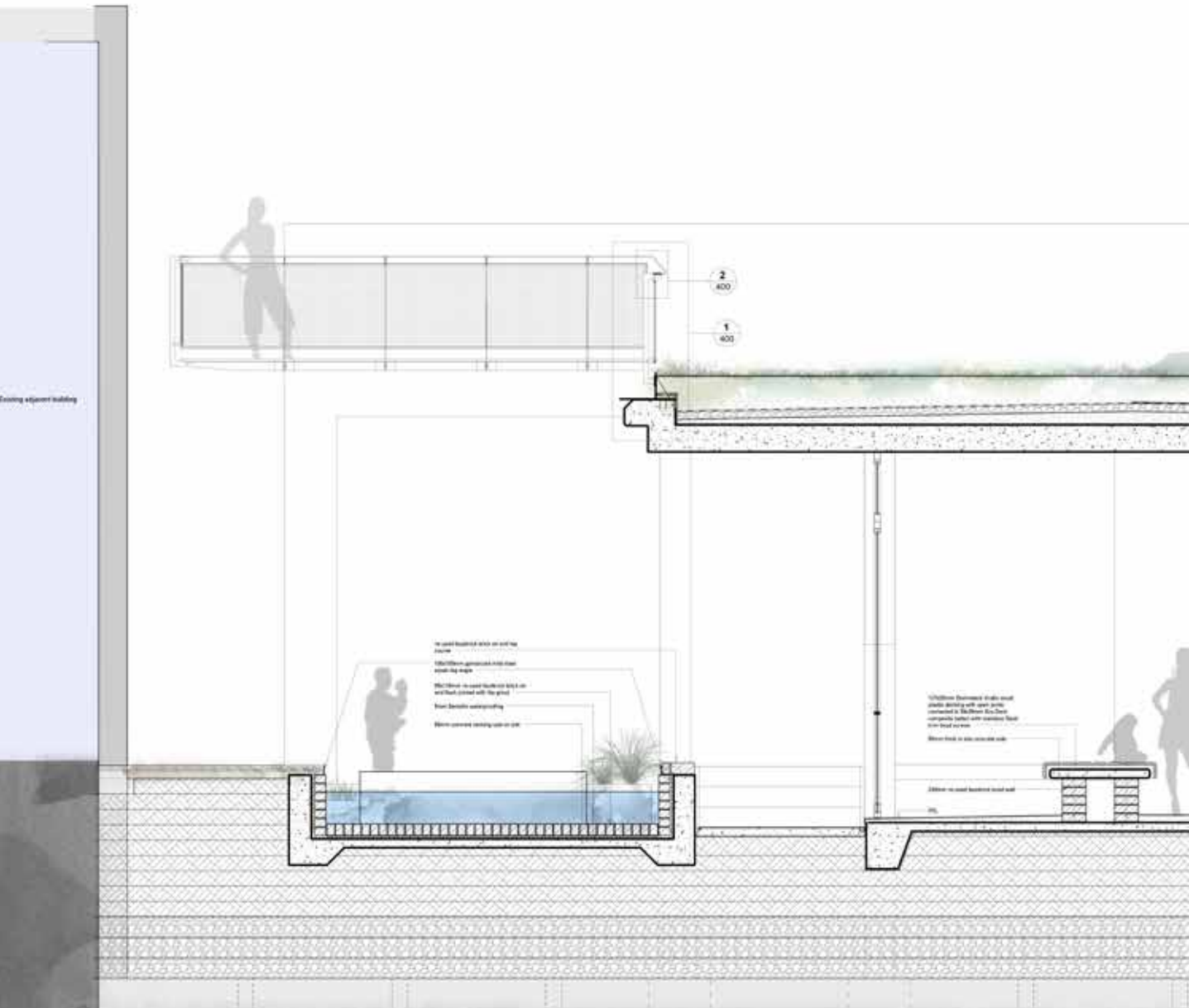


**BASEMENT PLAN**  
nts (October 2014)





SECTION A-A  
 nts (October 2014)







## SUNKEN POND DETAIL

Scale 1:20

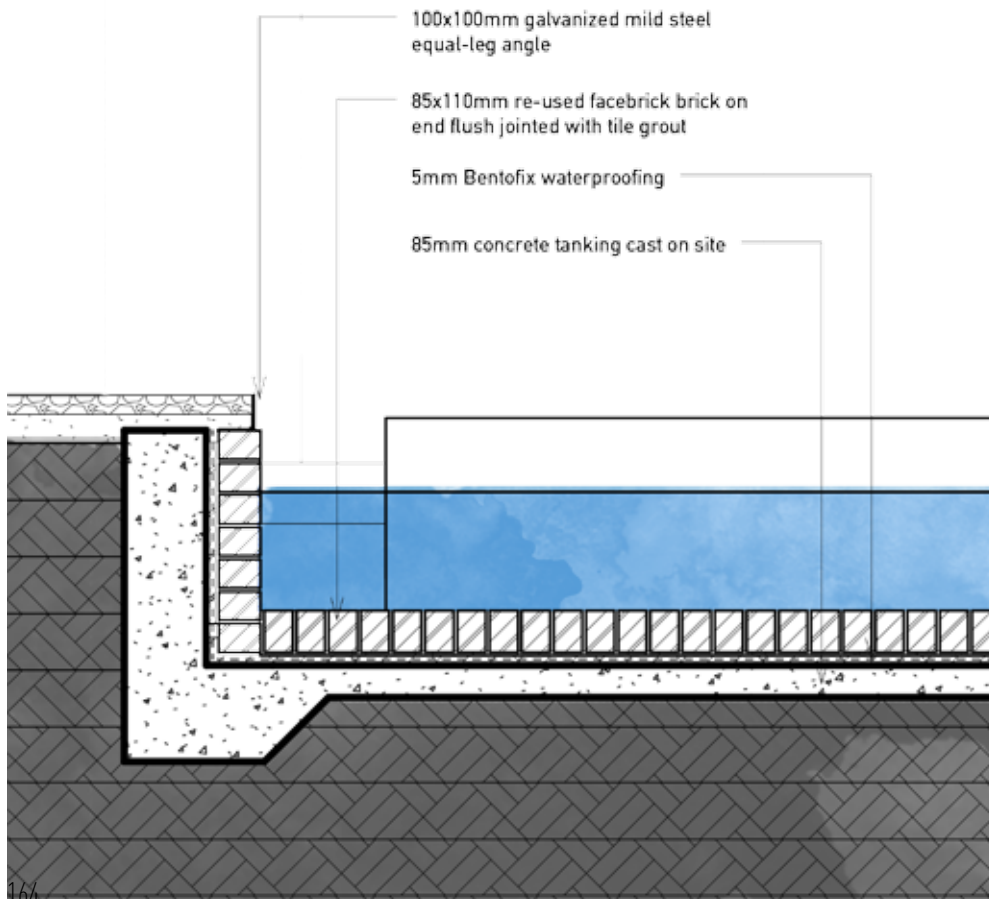
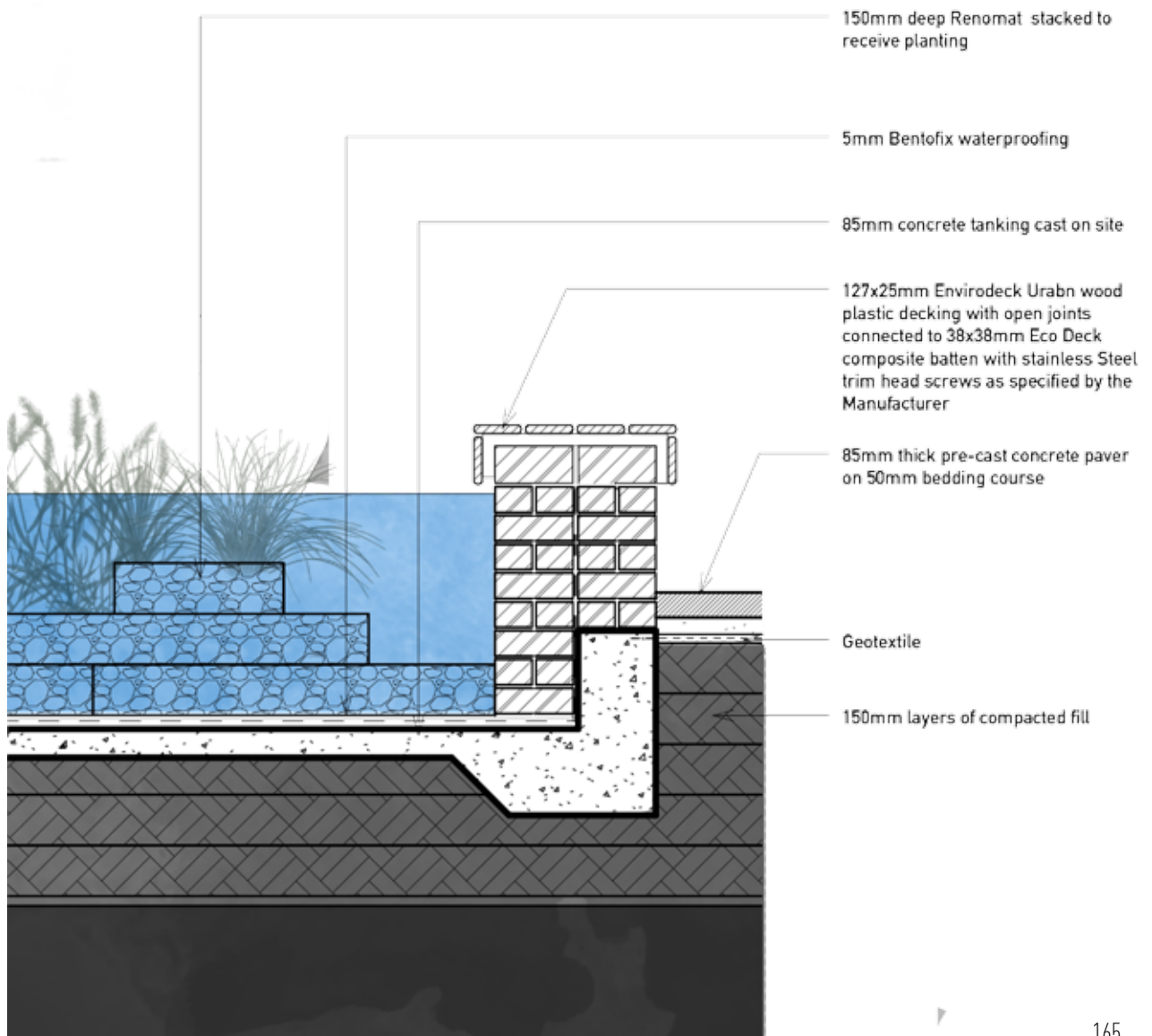


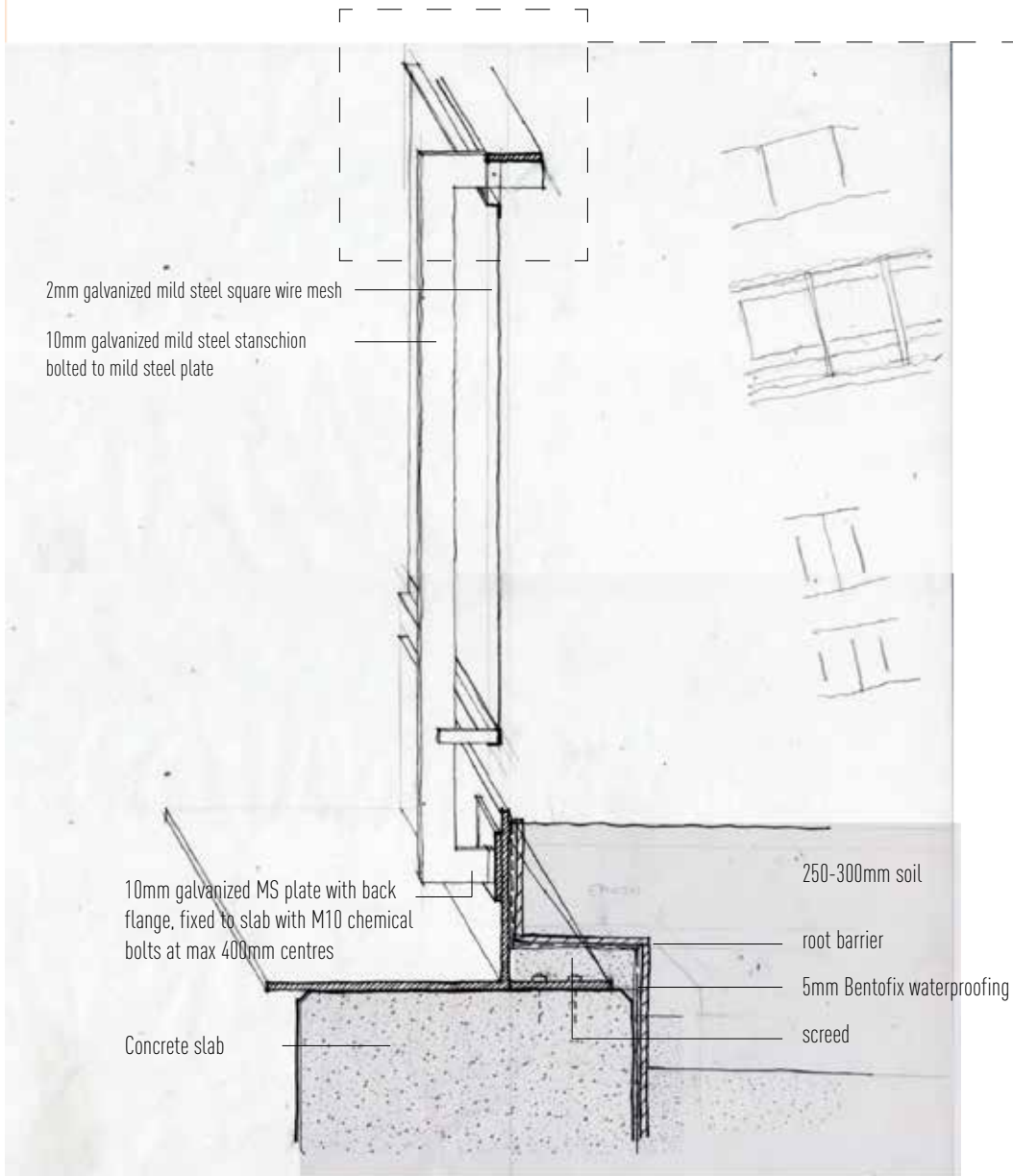
Figure 5.38. Detail of sunken eco-pool

Figure 5.39. (opposite) Detail of wetland pond with edge seating

## WETLAND POND WITH EDGE SEATING

Scale 1:20







- 10mm galvanized mild steel handrail
- 10mm galvanized mild steel stanchion
- 2mm galvanized mild steel stanchion plate bolted to 20x20mm mild steel angle
- 2mm galvanized mild steel square wire mesh

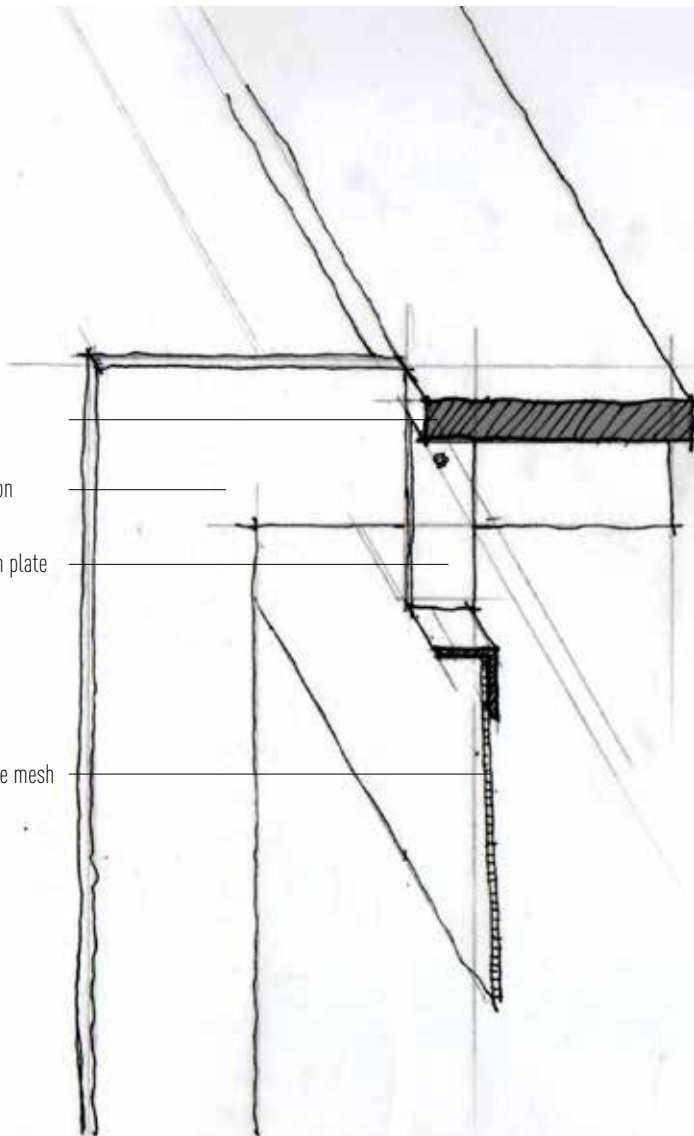


Figure 5.41. Handrail detail

chapter 5: **SYNOPSIS**

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This chapter expresses the design concept at its most intimate scale. The intricacy of the design is expressed through the details and the interconnected relationship between built form, landscape and systems. Where design is seen as an equation, the technification thereof is the theorem. It is through technification that the overarching intent of the project is proven.





# 06

## SYNOPSIS & Final Presentation

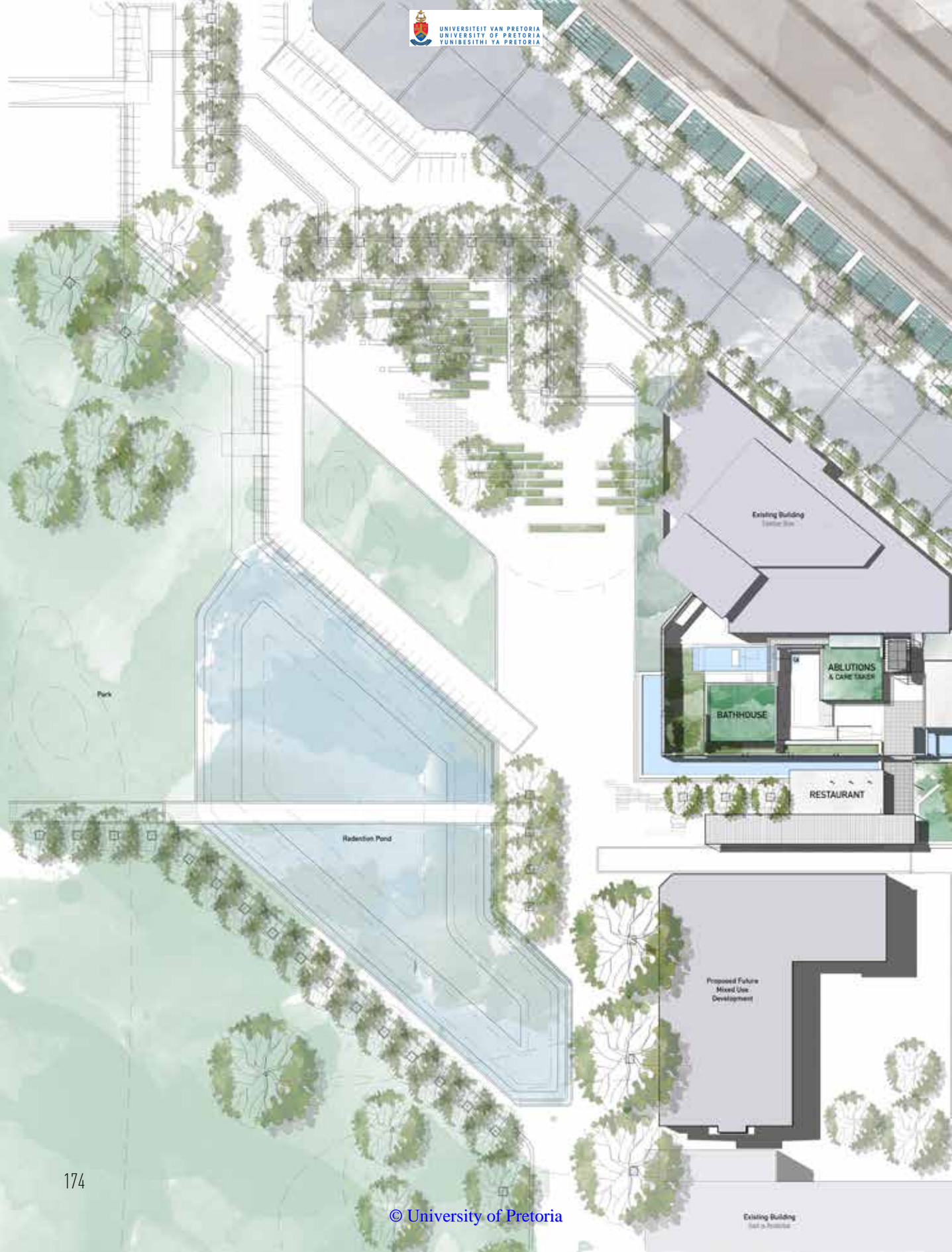
This chapter contains the drawings, images and models as presented in the final crit. These include design, technical and emotive representations.

- 6.1 **the layered street**
- 6.2 **the site plan**
- 6.3 **section a-a**
- 6.4 **ground floor plan**
- 6.5 **section b-b**
- 6.6 **basement plan & iteration**
- 6.7 **section c-c**
- 6.8 **detail of the sky**
- 6.9 **detail model**
- 6.10 **section d-d**
- 6.11 **detail of time**
- 6.12 **detail of the earth**
- 6.13 **slab edge comparison details**
- 6.14 **chapter 6: synopsis**

## the LAYERED STREET







# SITE PLAN\_nts



## SECTION A-A\_nts



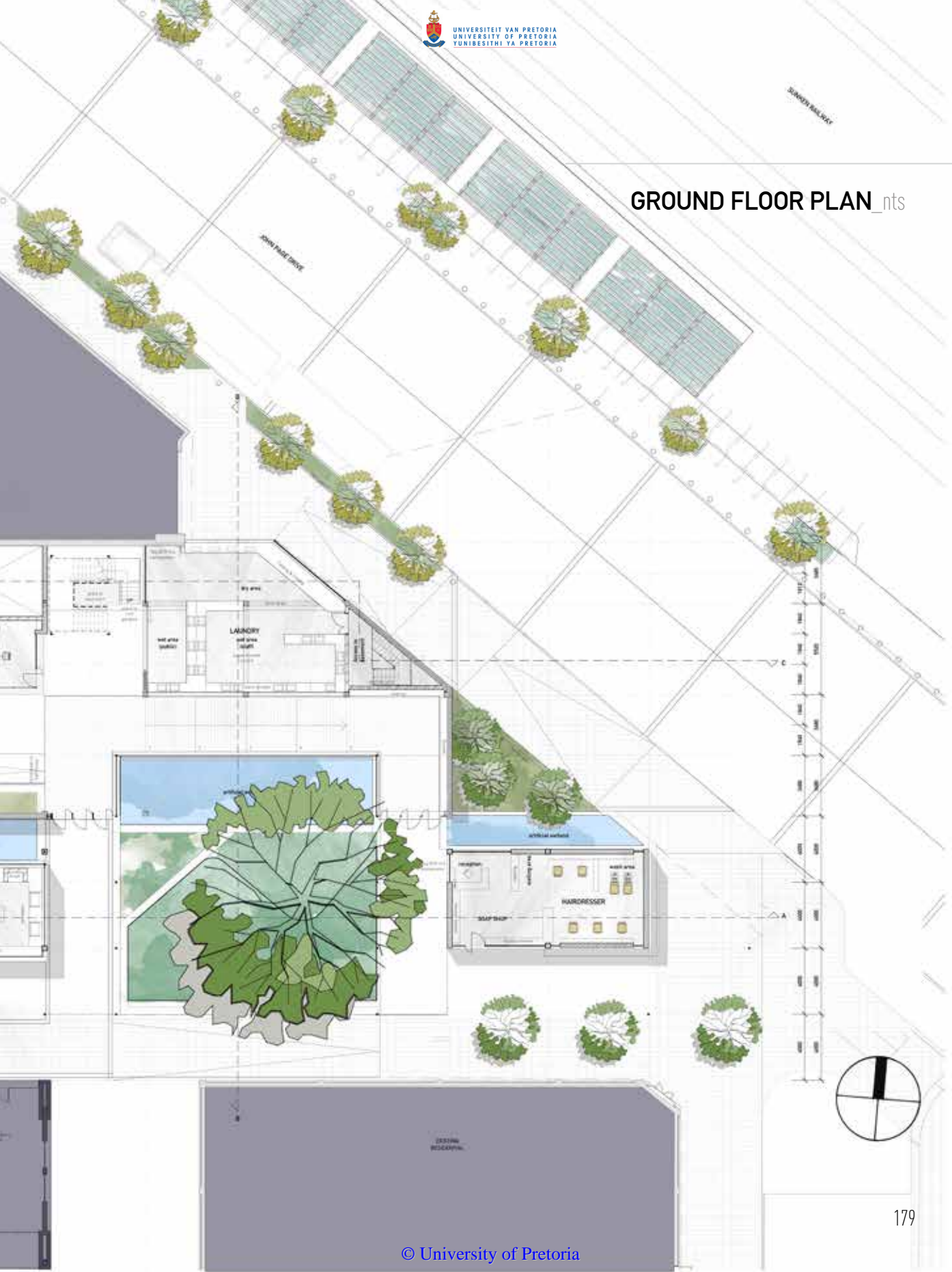
*Figure 6.5. Section C-C through Fawcus Street, the restaurant, courtyard, hairdresser and soap shop*







# GROUND FLOOR PLAN\_nts





*Figure 6.7. Perspective of courtyard*

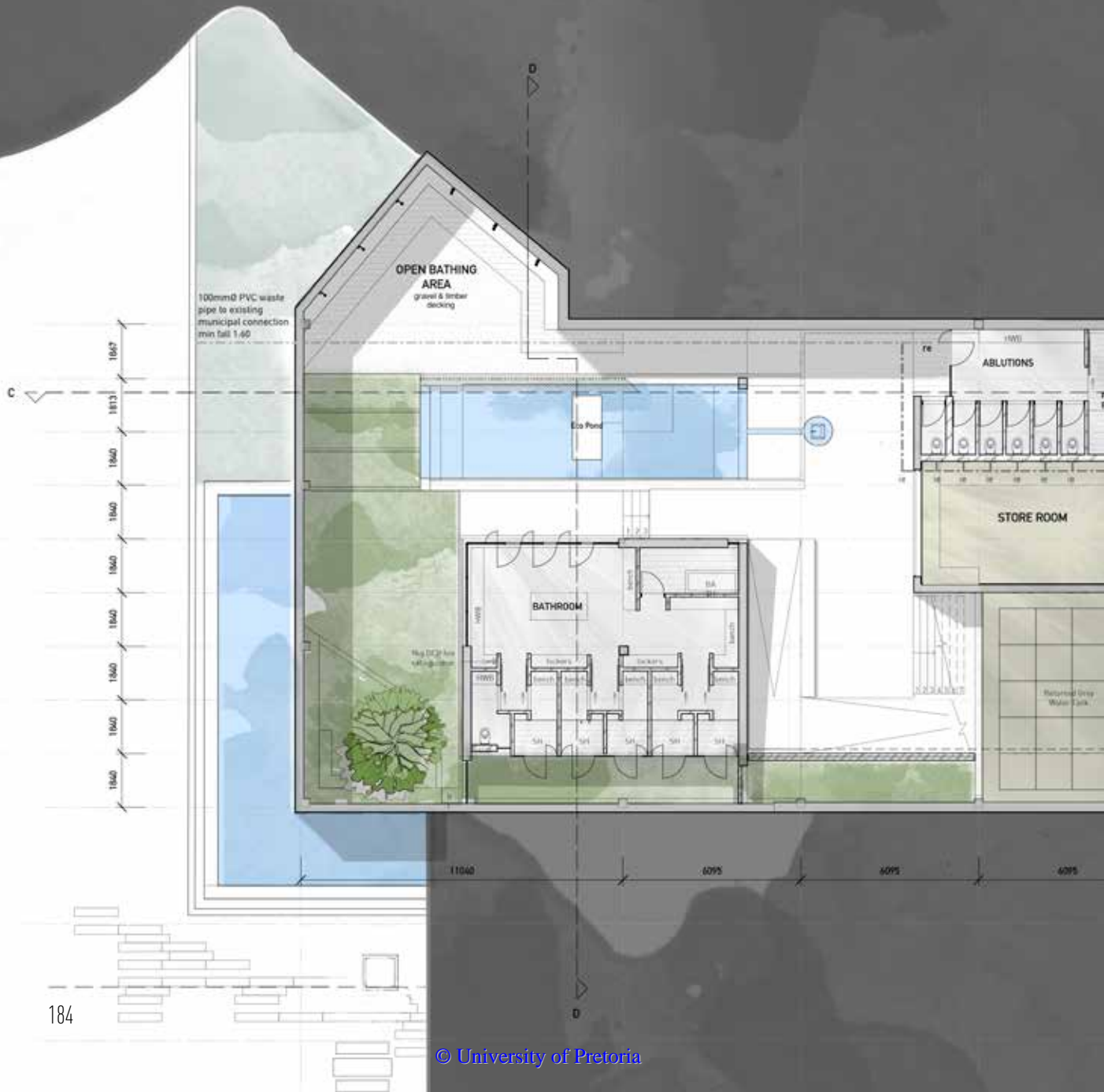


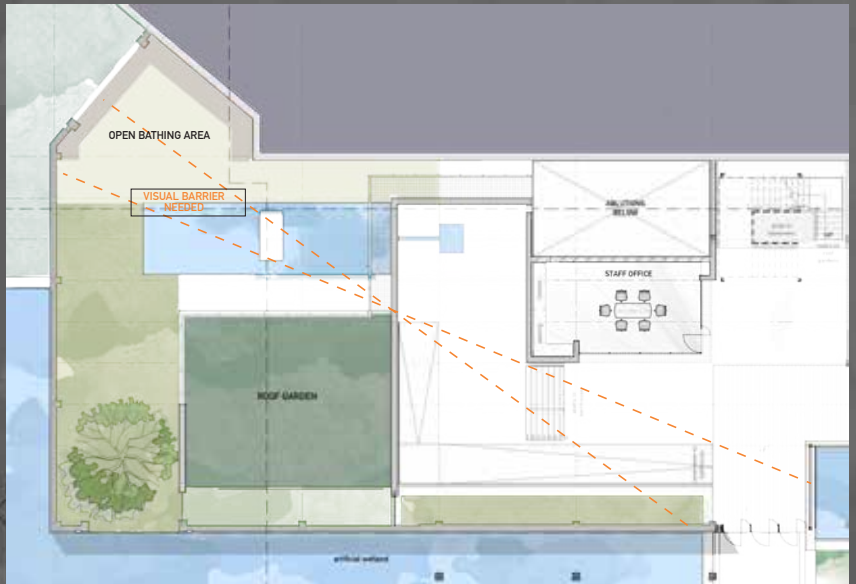
## SECTION B-B\_nts



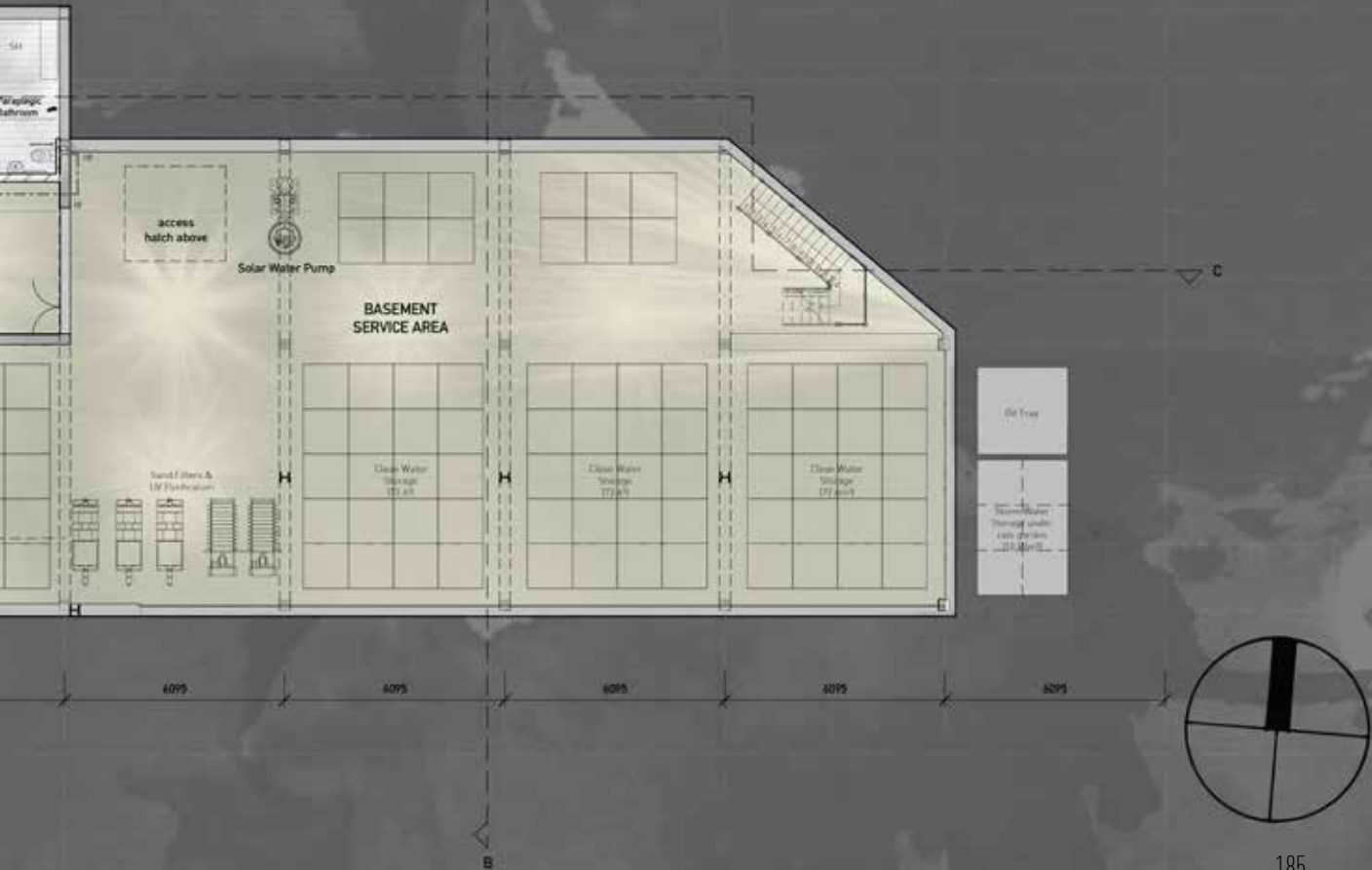


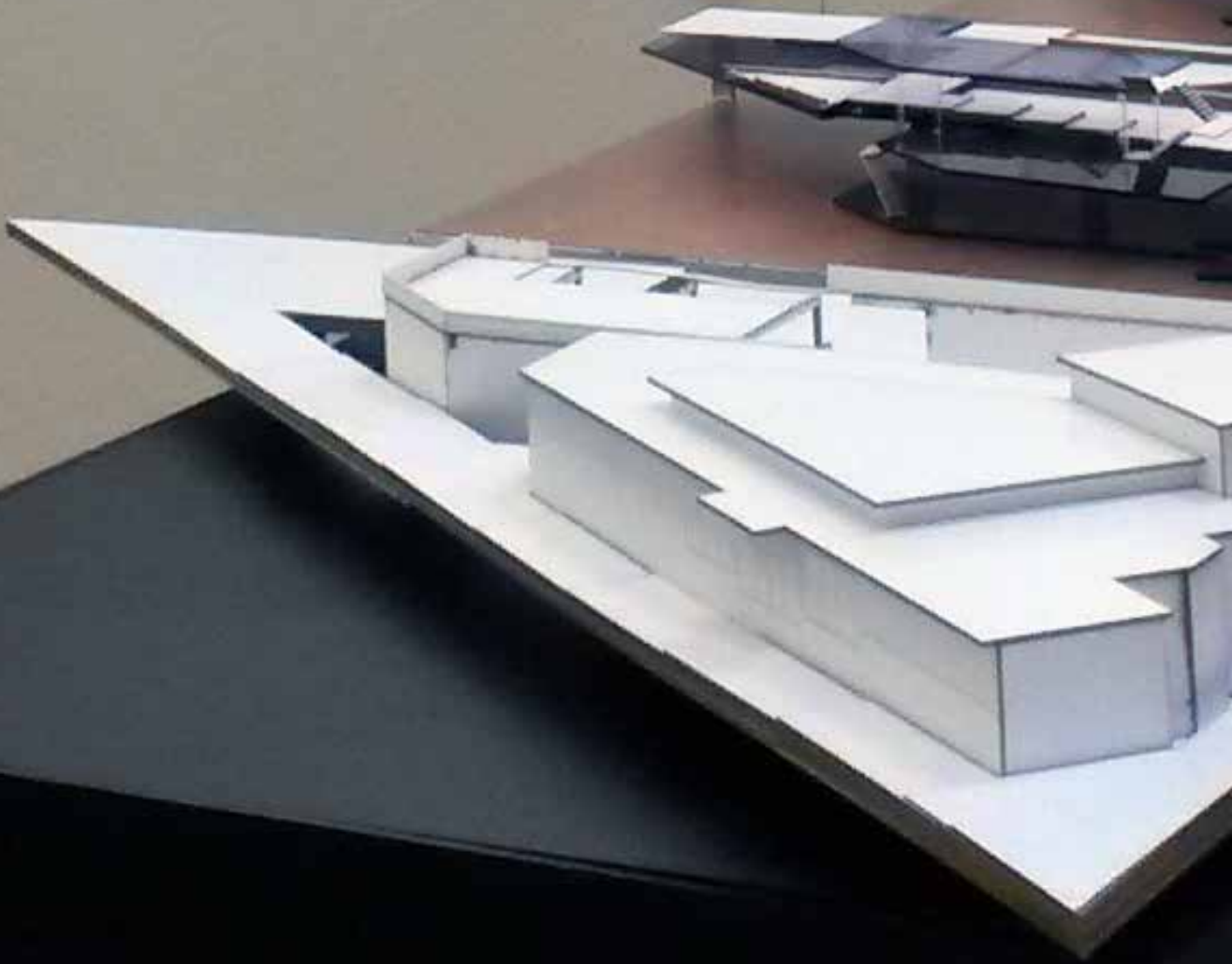
# BASEMENT PLAN<sub>nts</sub>





ITERATION OF SCREEN ELEMENT FOR PRIVACY









*Figure 6.11. Exploded models showing components of the project*





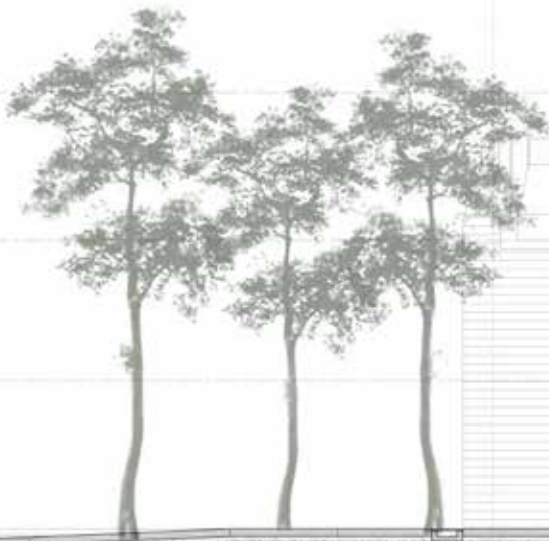
*Figure 6.12. View from bathhouse roof looking towards the laundry and drying yard*

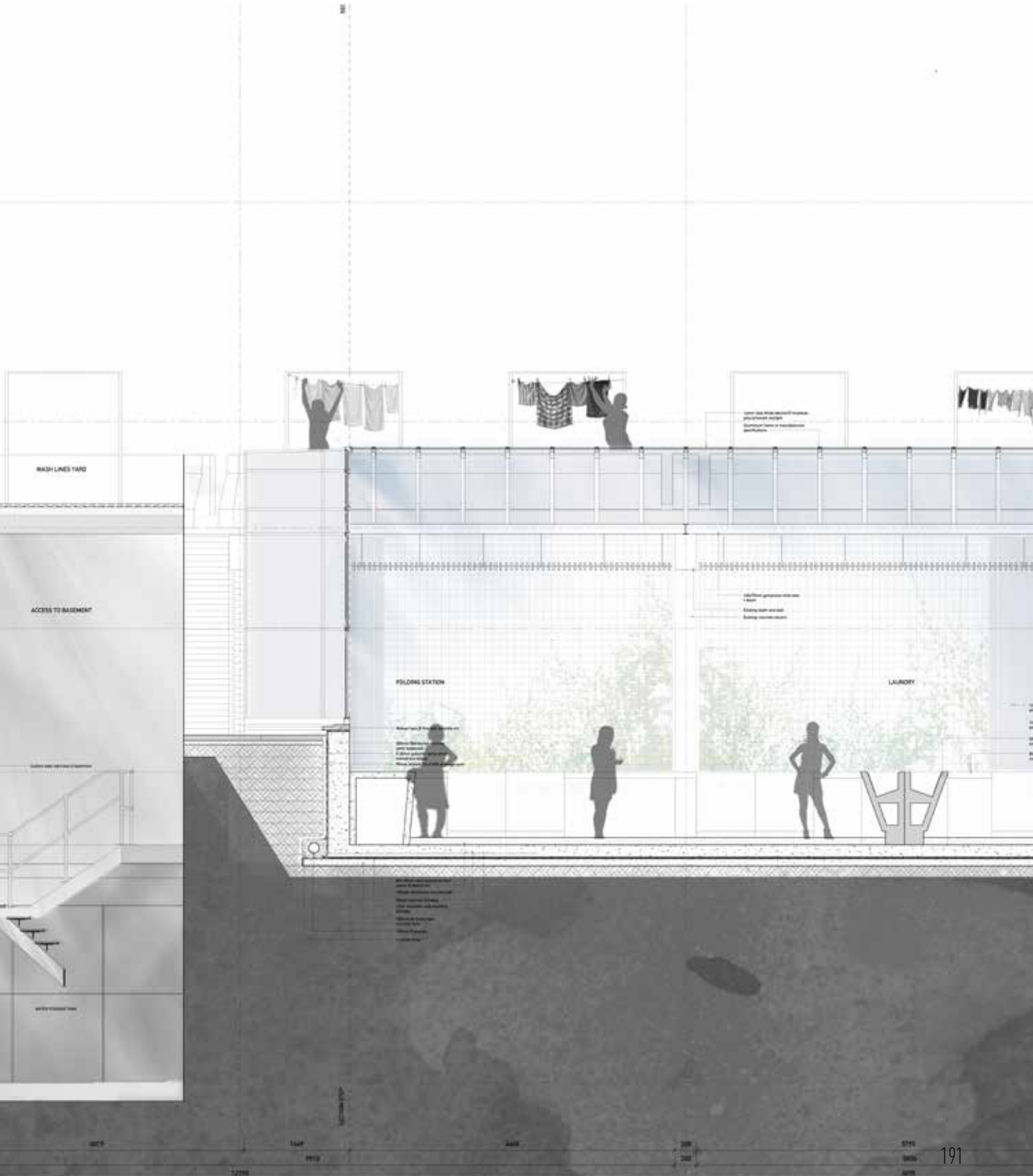
# SECTION C-C\_nts

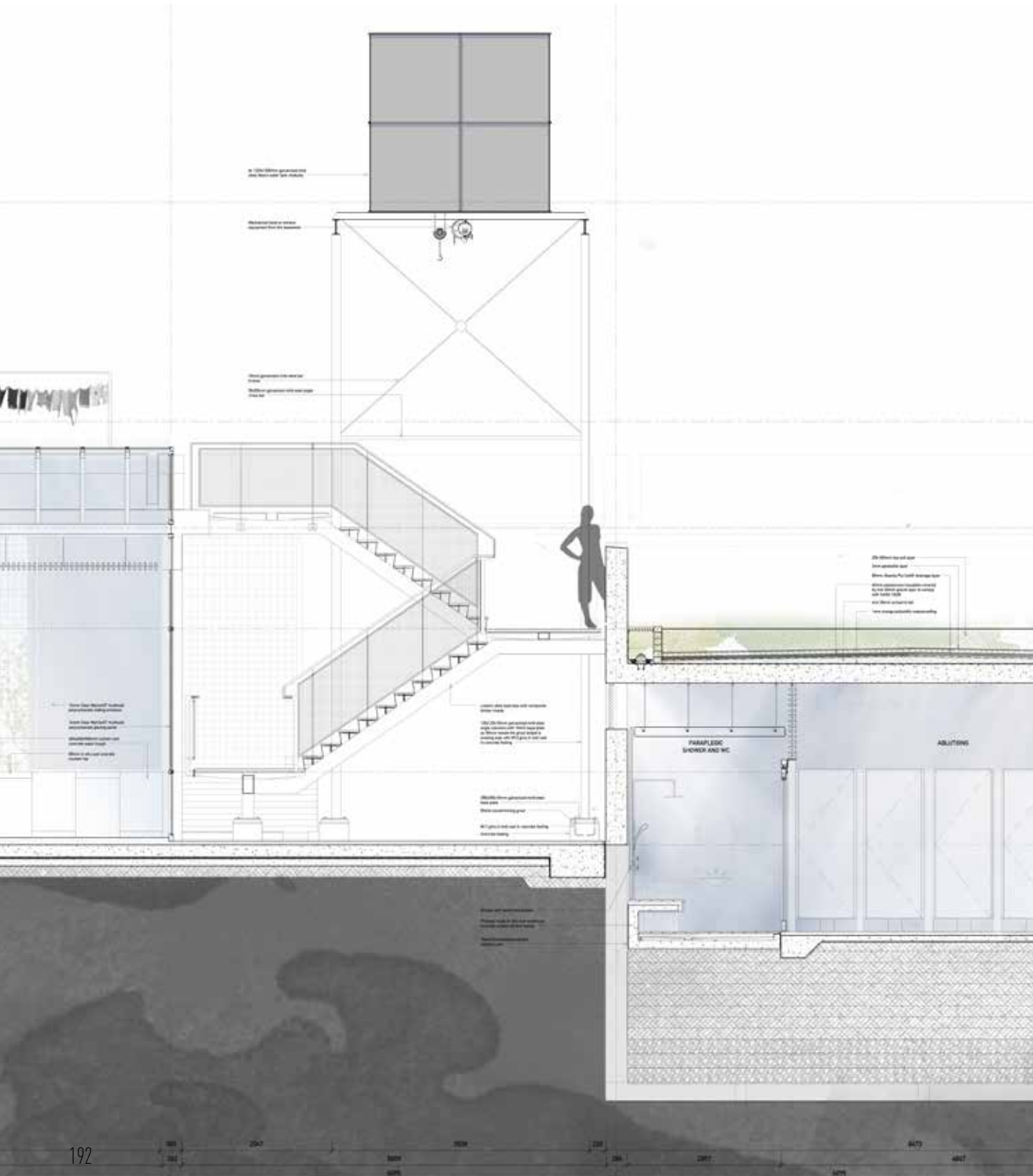
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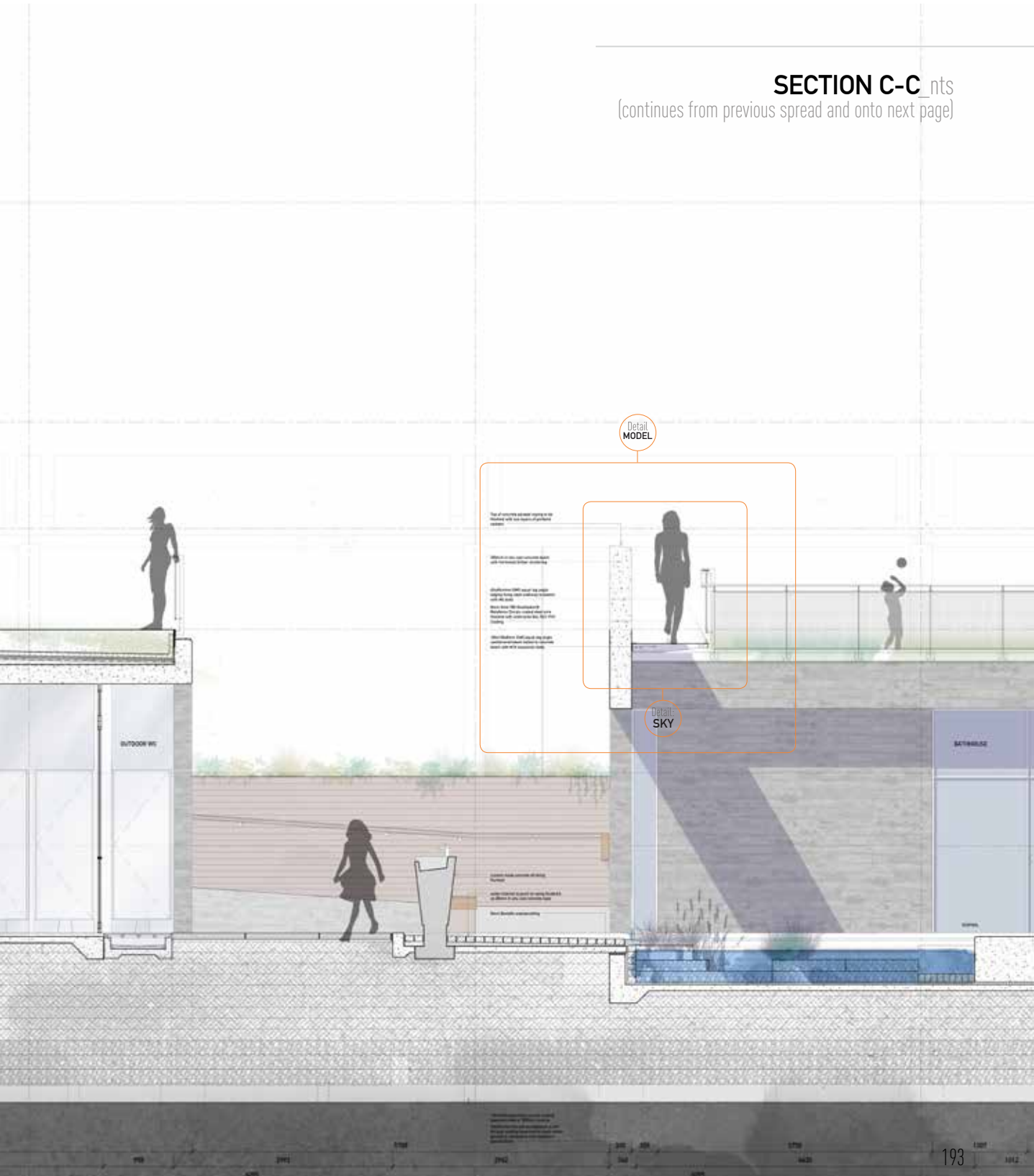
JOHN FAIR DRIVE







**SECTION C-C<sub>nts</sub>**  
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**SECTION C-C\_nts**  
(continues from previous spread)





## L OF THE SKY<sub>nts</sub> (see section C-C)

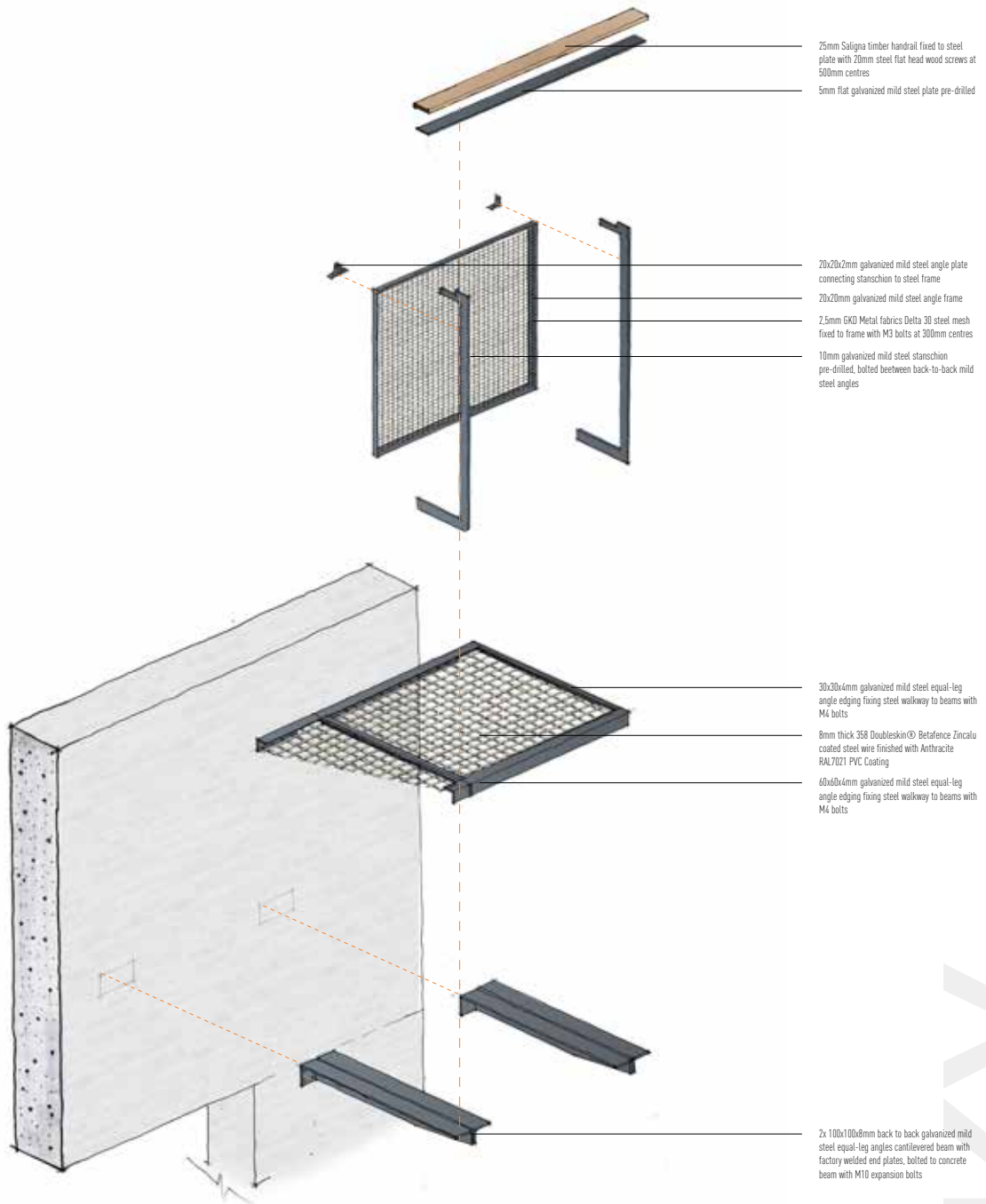
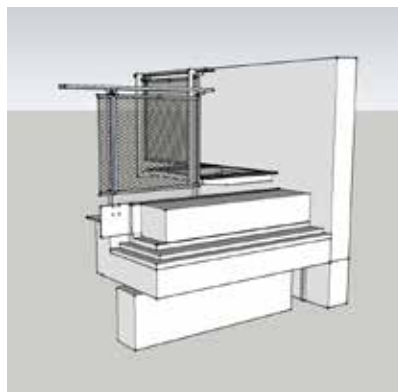
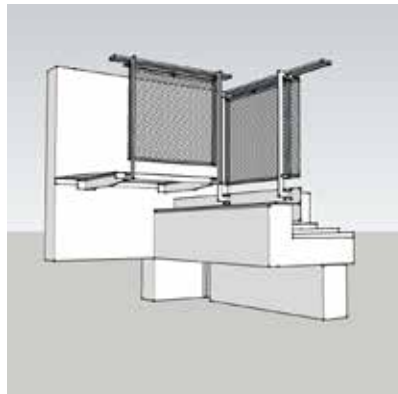
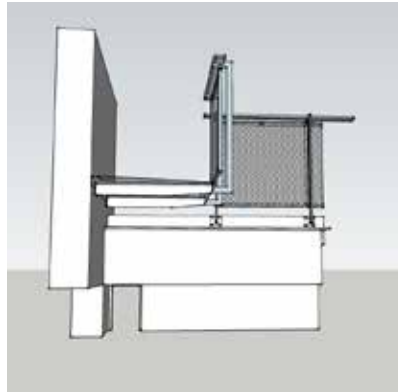


Figure 6.14. Detail of the Sky: Bridge and Balustrade detail

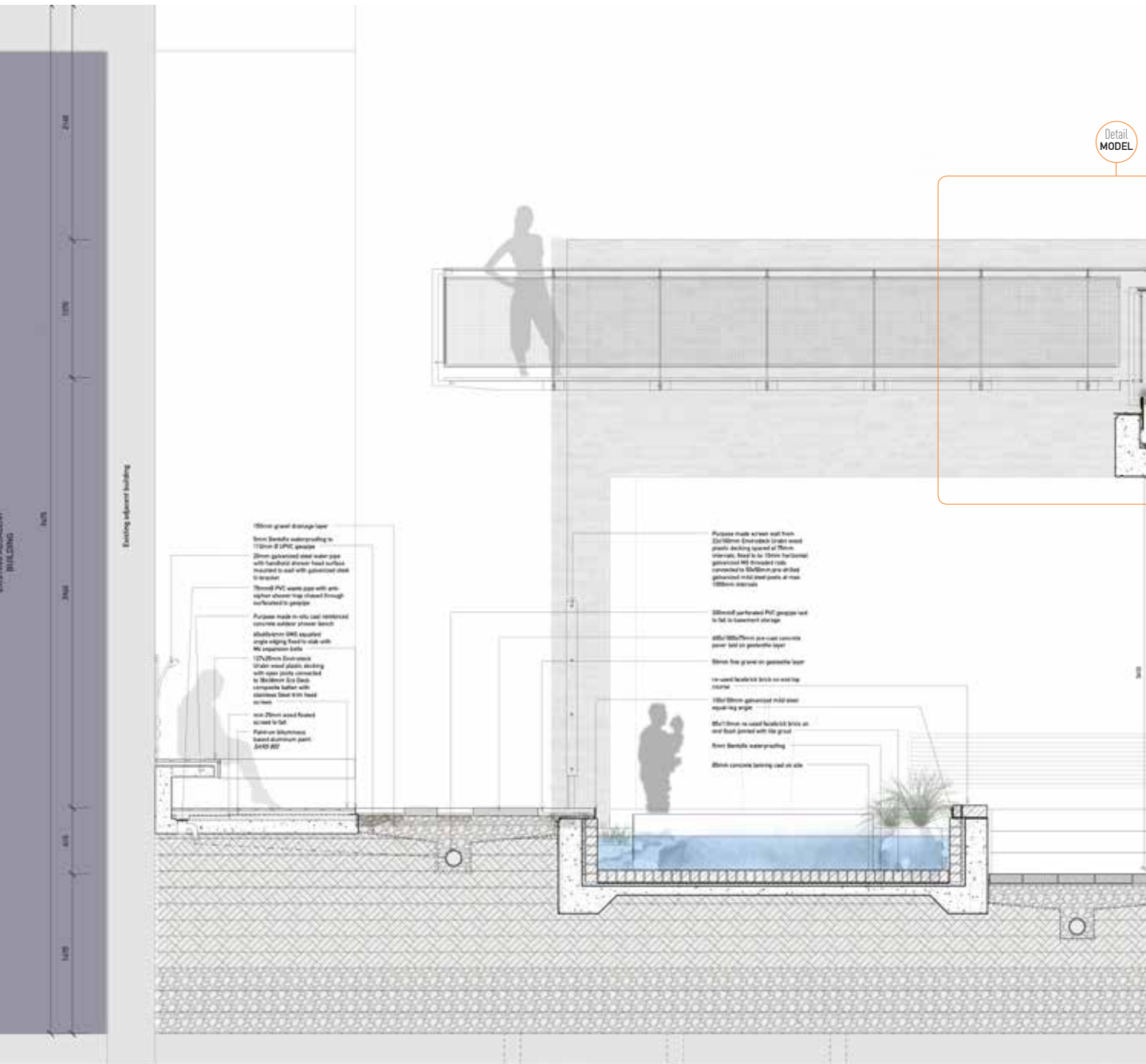


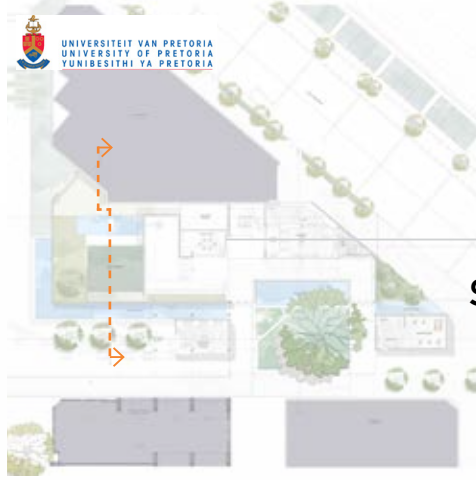
## DETAIL MODEL: Transition Between Elements of the Earth & Elements of the Sky (see section C-C & section D-D)



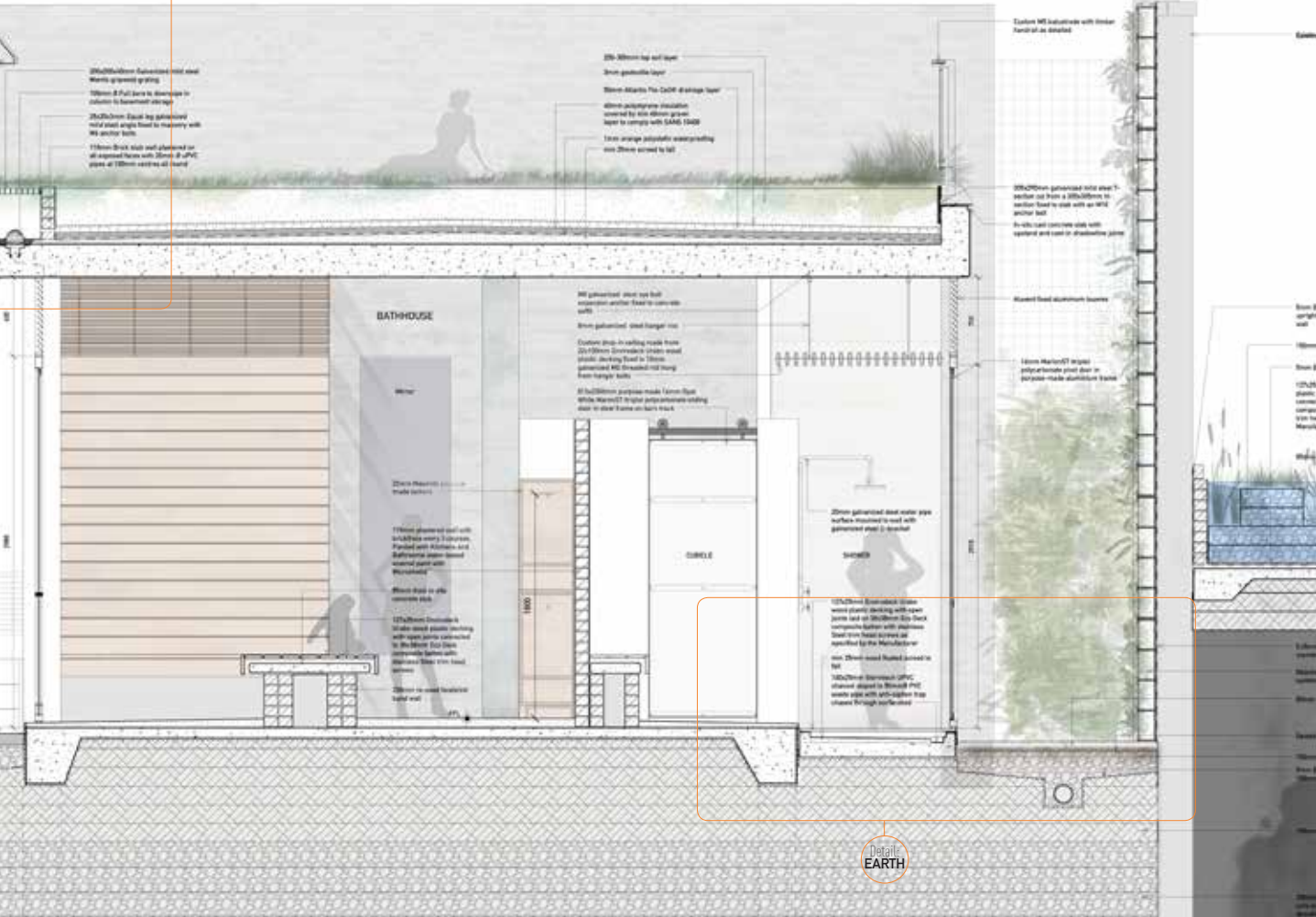
*Figure 6.15. Detail model of roof garden, balustrade and bridge*

*Figure 6.16. 3D modeling of roof garden, slab edge, balustrade and bridge connections*

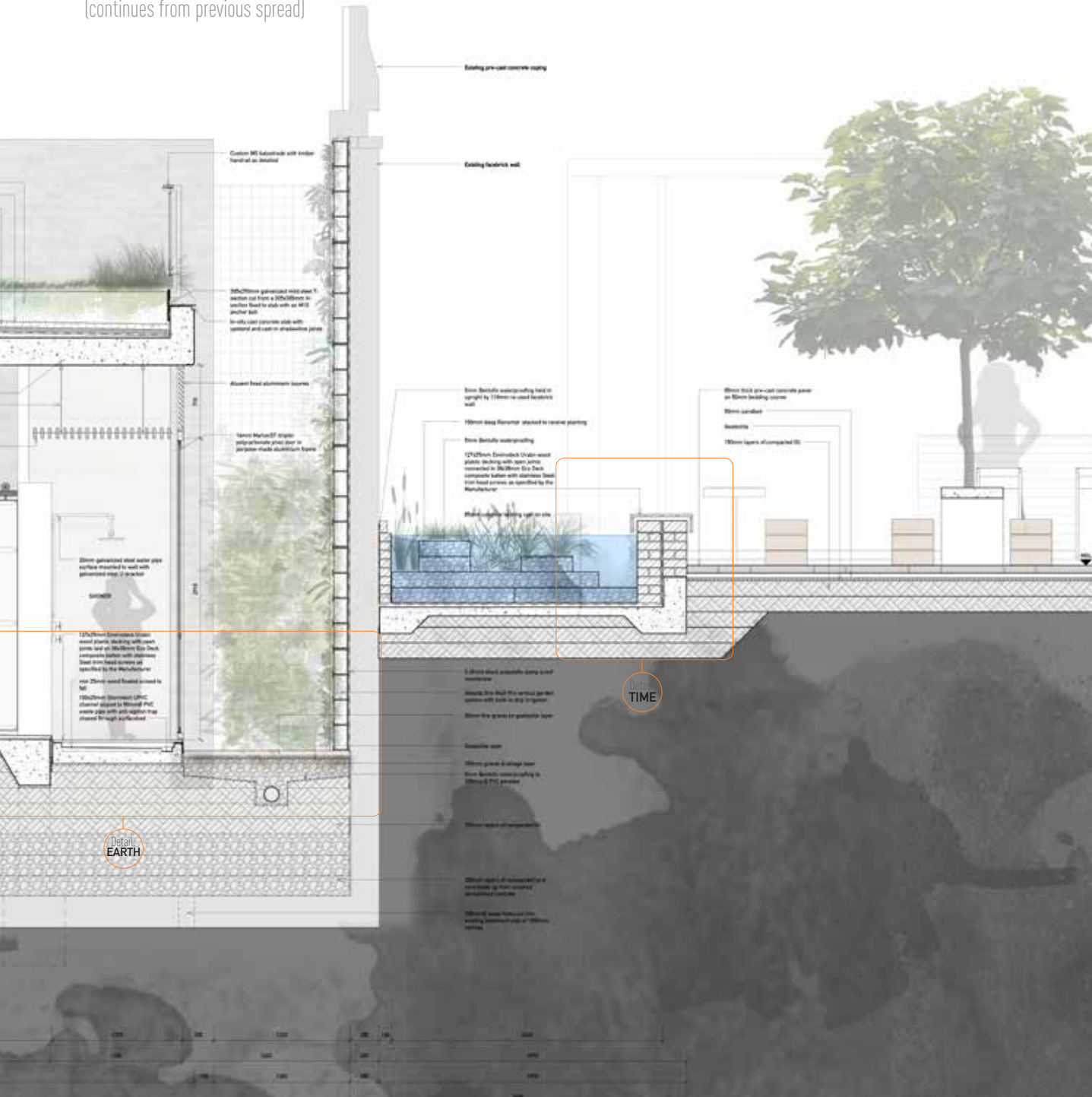




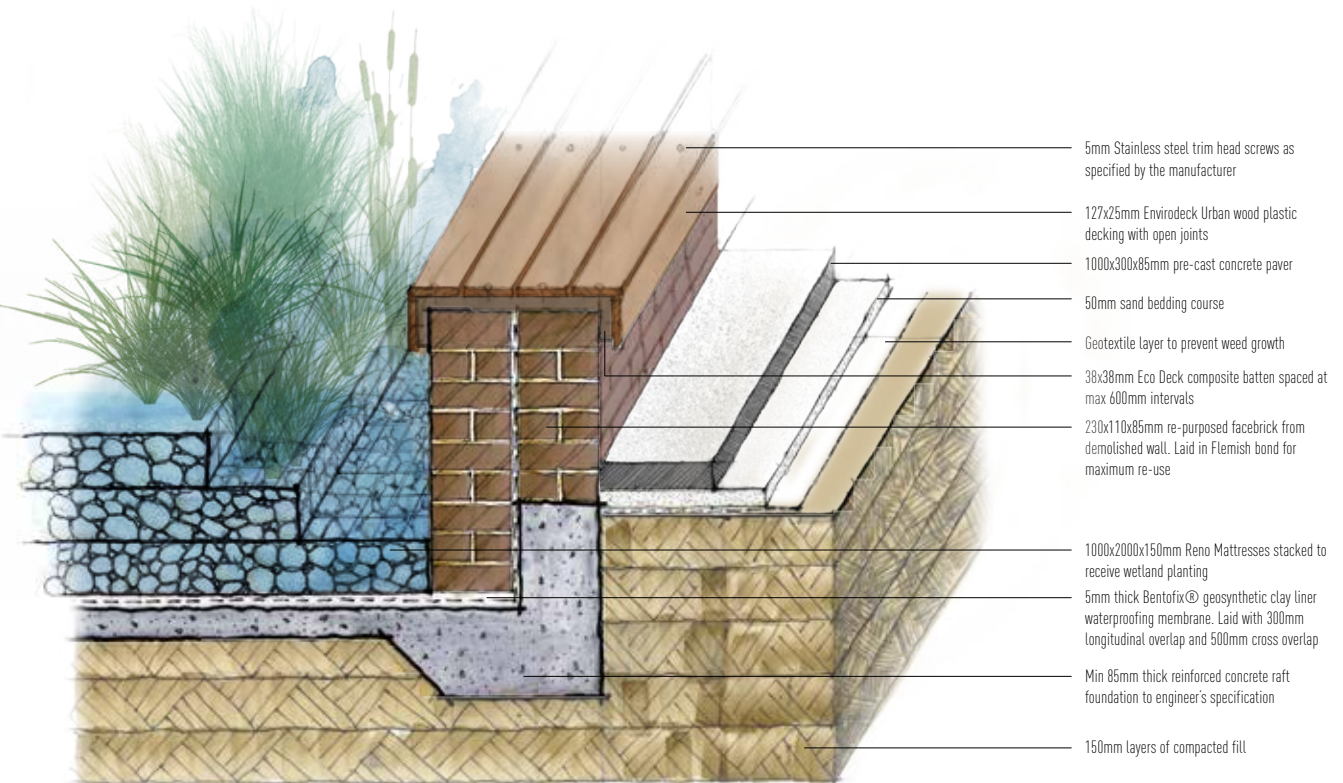
### SECTION D-D\_nts (continues on next page)



# SECTION D-D\_nts (continues from previous spread)



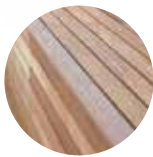
## DETAIL OF TIME<sub>nts</sub> (see section D-D)



### MATERIALS



Re-use facebrick, from demolished wall of existing building, in Flemish bond for most efficient re-use



Envirodeck Urban range wood plastic decking. UV-reisitant. 95% recycled material. LEED qualified Green Product



Harvested stormwater collected from surface and roof run-off cleansed through wetland filtration



Wetland planting (such as: *Nymphaea Nouchali*, *Cyperus Sexangularis*, and *Typha Capensis*) used for biofiltration to remove nitrates from water

Figure 6.18. Detail of Time: Wetland system

100x25mm Stormtech UPVC channel sloped to 50mmØ PVC waste pipe with anti-siphon trap chased through surfacebed to oil trap and further to basement storage for filtration and purification

38x38mm Eco Deck composite batten with stainless Steel trim head screws as specified by the Manufacturer

127x25mm Envirodeck Urban wood plastic decking with open joints

Min 25mm power floated sand cement screed laid to fall (1:100)

430x210x85mm concrete shelf laid to fall prepared to take tiles

100mm Reinforced concrete surface bed to engineer's specification

10mm polystyrene isolation joint topped with flexible PVC waterstop seal

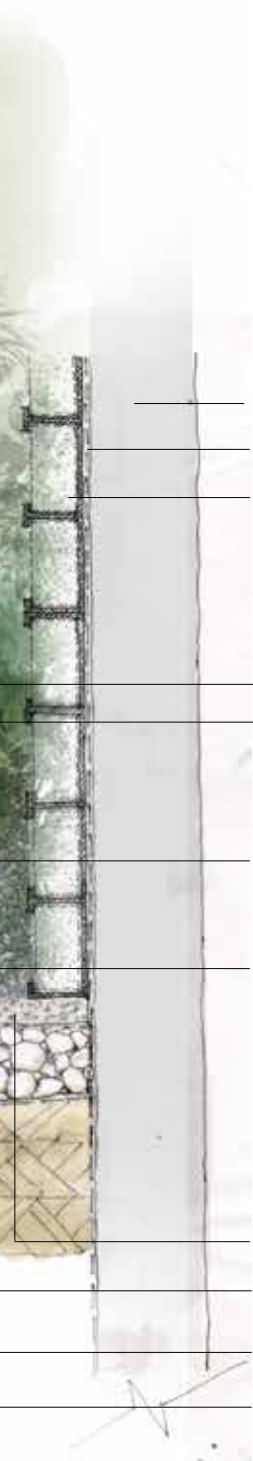
Min 25mm power floated sand cement screed laid to fall (1:100)

85mm Reinforced concrete surface bed to engineer's specification

0,45mm black polyolefin under serfacebed damp proof membrane



## DETIAL OF THE EARTH<sub>nts</sub> (see section D-D)



Existing boundary wall

0,45mm black polyolefin damp proof membrane

Atlantis Gro-Wall Pro vertical garden system with built-in drip irrigation

75x1mm atural anodized aluminium channel

16mm MarlonST (triple) polycarbonate pivot door in purpose-made aluminium frame with aluminium sealing tape on the top to prevent water ingress and Breather tape applied to the bottom edge to allow air to move through the sheet

75x50mm Aluminium bottom rail with antifungus neoprene gaskets

80x100x1mm natural anodized aluminium unequal angle edge trim

50mm Fine gravel layer ground cover

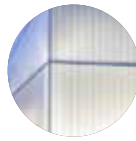
Geotextile layer to prevent weed growth and contain fines gravel

Min 150mm gravel drainage layer

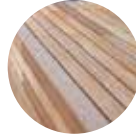
150mm Ø PVC geopipe to basement storage

5mm thick Bentofix® geosynthetic clay liner waterproofing membrane. Laid with 300mm longitudinal overlap and 500mm cross overlaps

### MATERIALS



Multiwall polycarbonate is can range between 60-98% light transmittance. U-value = 2.4 Wm<sup>3</sup>K (Single glazing = 5.5 Wm<sup>3</sup>K). Light weight (2.7kg/m<sup>3</sup> versus 15kg/m<sup>3</sup> for 4mm safety glass) Impact and UV resistant



Envirodeck Urban range wood plastic decking. UV-reisitant. 95% recycled material. LEED qualified Green Product



Glazed ceramic tiles used on walls and surfaces in wet areas



Shaded plants used with vertical planters to promote biophilic relationship



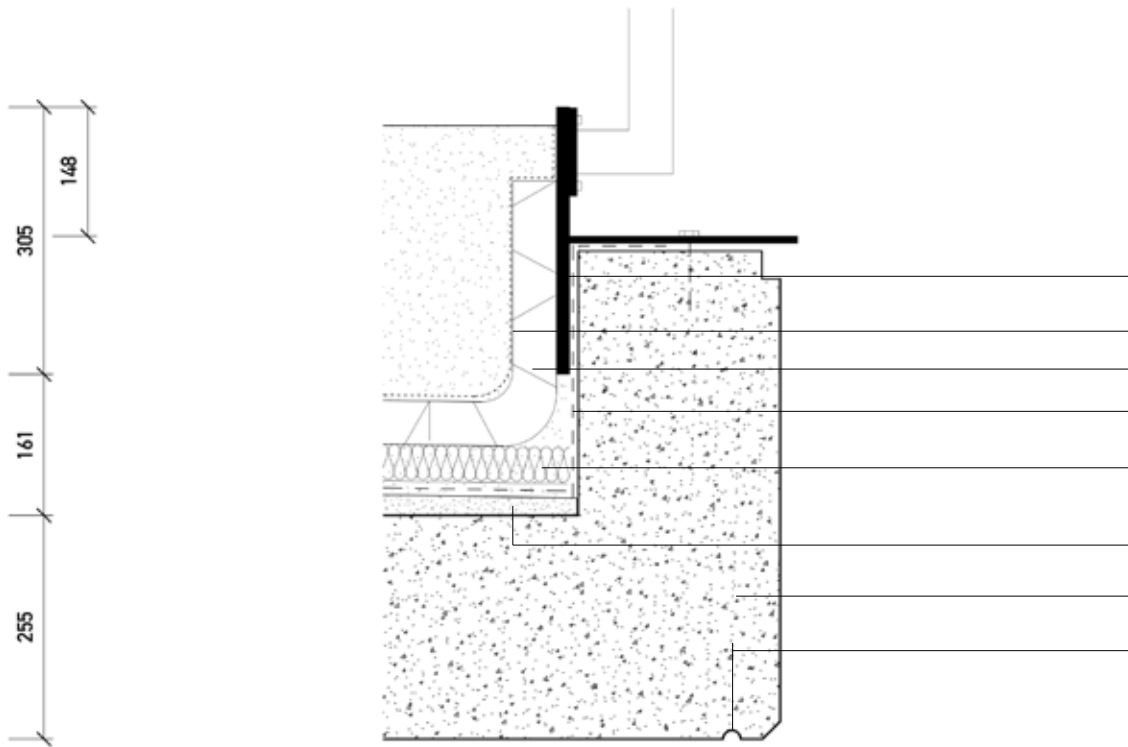
Screeded floors and plastered and painted walls used due to low maintenance requirements

Figure 6.19. Detail of the Earth: Bathroom Cubical and atrium space





Figure 6.20. View of  
bathroom courtyard



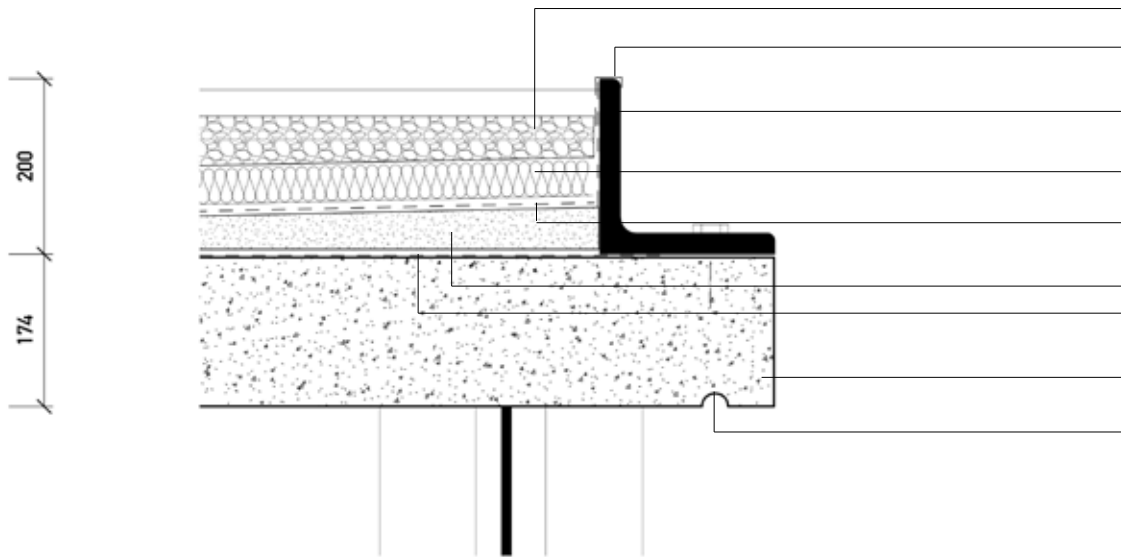
## THREE SLAB EDGE COMPARISON DETIALS

\_nts

### NEW SLAB WITH ROOF GARDEN (ACCESSIBLE ROOF)

- 305x290mm galvanized mild steel T-section cut from a 305x305mm H-section fixed to slab with M10 anchor bolts at 1000mm centres
- 3mm geotextile layer
- 50mm Atlantis Flo-Cell® drainage layer
- Apply 1 layer bituminous torch on water proofing membrane with 100mm side laps and 150mm end laps, sealed to primed surface to falls and cross-falls by "torch fusion"
- 40mm polystyrene insulation covered by min 40mm gravel layer to comply with SANS 10400
- Min 25mm thick sand cement screed laid to fall with wood troweled finish
- 255mm Reinforced concrete slab with 300x230mm upstand beam
- Saw cut drip line

Figure 6.21. Slab edge comparison one



## NEW FLAT ROOF WITH GRAVEL (NON-ACCESSIBLE ROOF)

Min 40mm gravel layer

1mm Galvanized mild steel flashing

200x200x16mm galvanized mild steel equal leg angle fixed to roof slab with M10 anchor bolts at 1000mm centres

40mm polystyrene insulation covered by min 40mm gravel layer to comply with SANS 10400

Apply 1 layer bituminous torch on water proofing membrane with 100mm side laps and 150mm end laps, sealed to primed surface to falls and cross-falls by "torch fusion"

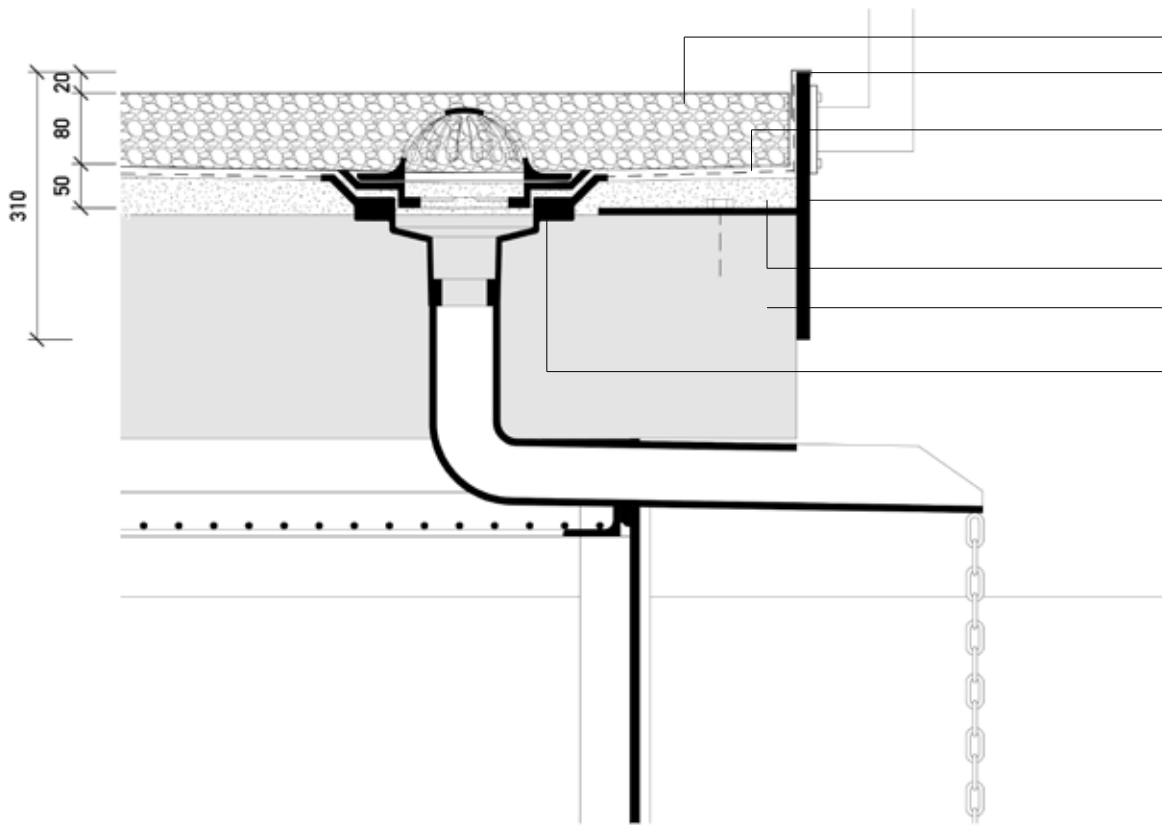
Min 25mm thick sand cement screed laid to fall with wood troweled finish

Apply 1 layer bituminous torch on water proofing membrane with 100mm side laps and 150mm end laps, sealed to primed surface to falls and cross-falls by "torch fusion"

170mm Reinforced concrete slab

170mm Reinforced concrete slab

Figure 6.22. Slab edge comparison two





## EXISTING FLAT ROOF WITH GRAVEL (ACCESSIBLE ROOF)

Min 40mm gravel layer

1mm Galvanized mild steel flashing

Apply 1 layer bituminous torch on water proofing membrane with 100mm side laps and 150mm end laps, sealed to primed surface to falls and cross-falls by "torch fusion"

305x290mm galvanized mild steel T-section cut from a 305x305mm H-section fixed to slab with M10 anchor bolts at 1000mm centres

Min 25mm thick sand cement screed laid to fall with wood troweled finish

255mm Existing reinforced concrete slab

100mm Ø Full bore to spout outlet with chain attached

170mm Reinforced concrete slab

Figure 6.23. Slab edge comparison three

chapter 6: **SYNOPSIS**

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This drawing in this chapter illustrate the refinement and emotive qualities of the design and technical processes preceding it. They express a layering of space, ecosystemic design and, ultimately, a fragility of experience carried through from large forms to the intricacy of details.

## CONCLUSION

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The design fulfils the principle aim of the project, which is to create a fragile intervention that connects the social realm with the built fabric. It shows the merit of intervening in an existing context, as well as the necessity for the built environment to be reconfigured in order to fully utilise the value of the past, through its infrastructure, while addressing current urban issues and conditions.

The project further demonstrates the need to address local issues in an appropriately contextual way. This, in turn, should also anticipate future problems such as climate change and development deficiencies such as water and electricity shortages and flash floods. Sustainable principles such as solar power and water harvesting and storage are embedded in the design and liberate the project from such concerns and validates future projects to do the same. Further, the worth of establishing a relationship between landscape and the built environment is evident, especially as a tool for transformation.

From the proposal stage of this thesis, the intent behind the project was to explore real-world issues related to urban public life, and demonstrate how architecture can address them. The project does not strive to express the glamour of architecture, but rather, its ability to serve humanity in a quiet, dignified manner.



# APPENDIX I

## PROCESS GRAPHS & CALCULATIONS

This appendix justifies the water calculations in terms of catchment, demand, and tank sizing

# the WATER BUDGET

## 1. Climate Data

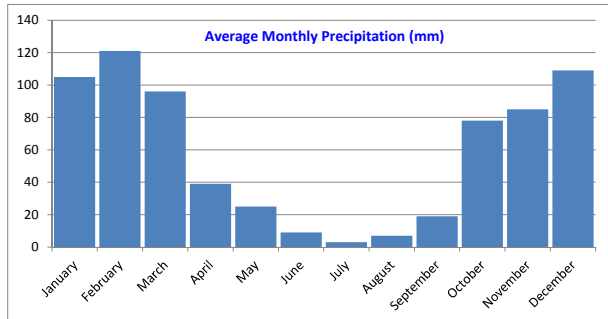
Place: **Johannesburg**

Position: **25°44'S, 28°11'E**

Height: **1330m**

Period: **1961-1990**

MONTH	Temperatur				Precipitation		
	Highest Recorded	Average Daily maximum	Average Daily Minimum	Lowest Recorded	Average Monthly (mm)	Average number of Days >= 1mm	Highest 24hr rainfall (mm)
1. January	36	29	18	8	105	14	160
2. February	36	28	17	11	121	11	95
3. March	35	27	16	6	96	10	84
4. April	33	24	12	3	39	7	72
5. May	29	22	8	-1	25	3	40
6. June	25	19	5	-6	9	1	32
7. July	26	20	5	-4	3	1	18
8. August	31	22	8	-1	7	2	15
9. September	34	26	12	2	19	3	43
10. October	36	27	14	4	78	9	108
11. November	36	27	16	7	85	12	67
12. December	35	28	17	7	109	15	50
<b>YEAR</b>	<b>36</b>	<b>25</b>	<b>12</b>	<b>-6</b>	<b>696</b>	<b>87</b>	<b>160</b>

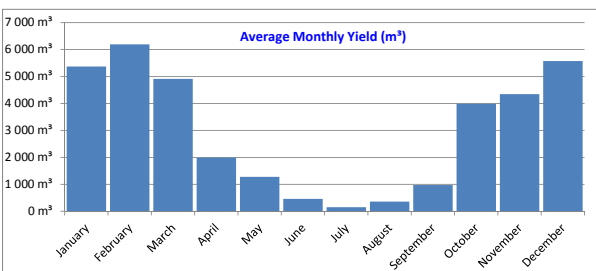


## 2. Yield

Yield (m³) = P x A x C (Where P=precipitation (m), A=area (m²), and C=run-off coefficient)

Area of Catchment (Per surface)	Area (m²)	Run-off Coefficient
Roofing	3 000,00 m²	0,9
Paving	19 371,00 m²	0,8
Veldgrass	625,00 m²	0,4
Lawn	8 900,00 m²	0,4
Planting	550,00 m²	0,3
Gravel		0,7
Grey water	29 000,00 m²	1
<b>TOTAL:</b>	<b>61 446,00 m²</b>	<b>0,83</b>

MONTH	Precipitation	Area	Run-off Coefficient	Yield
	Average Monthly (mm)			P(m) x A(m²) x C
1. January	105 mm	61 446 m²	0,83	5 373 m³
2. February	121 mm	61 446 m²	0,83	6 192 m³
3. March	96 mm	61 446 m²	0,83	4 912 m³
4. April	39 mm	61 446 m²	0,83	1 996 m³
5. May	25 mm	61 446 m²	0,83	1 279 m³
6. June	9 mm	61 446 m²	0,83	461 m³
7. July	3 mm	61 446 m²	0,83	154 m³
8. August	7 mm	61 446 m²	0,83	358 m³
9. September	19 mm	61 446 m²	0,83	972 m³
10. October	78 mm	61 446 m²	0,83	3 991 m³
11. November	85 mm	61 446 m²	0,83	4 350 m³
12. December	109 mm	61 446 m²	0,83	5 578 m³
<b>YEAR</b>	<b>696 mm</b>	<b>61 446 m²</b>	<b>0,83</b>	<b>35 616 m³</b>





### 3. Demand (Irrigation and Domestic)

#### IRRIGATION DEMAND

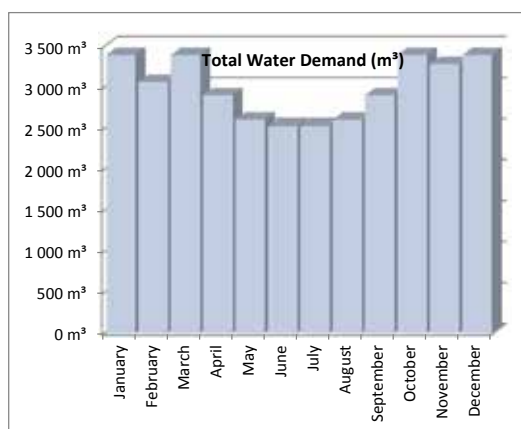
	Planting Area (m <sup>2</sup> )	Irrigation Depth per week (m)	Irrigation Depth per month (m)	IRRIGATION DEMAND (m <sup>3</sup> )
January	8 900 m <sup>2</sup>	0,040 m	0,177 m	1 577 m <sup>3</sup>
February	8 900 m <sup>2</sup>	0,040 m	0,160 m	1 424 m <sup>3</sup>
March	8 900 m <sup>2</sup>	0,040 m	0,177 m	1 577 m <sup>3</sup>
April	8 900 m <sup>2</sup>	0,030 m	0,129 m	1 144 m <sup>3</sup>
May	8 900 m <sup>2</sup>	0,020 m	0,089 m	788 m <sup>3</sup>
June	8 900 m <sup>2</sup>	0,020 m	0,086 m	763 m <sup>3</sup>
July	8 900 m <sup>2</sup>	0,020 m	0,086 m	763 m <sup>3</sup>
August	8 900 m <sup>2</sup>	0,020 m	0,089 m	788 m <sup>3</sup>
September	8 900 m <sup>2</sup>	0,030 m	0,129 m	1 144 m <sup>3</sup>
October	8 900 m <sup>2</sup>	0,040 m	0,177 m	1 577 m <sup>3</sup>
November	8 900 m <sup>2</sup>	0,040 m	0,171 m	1 526 m <sup>3</sup>
December	8 900 m <sup>2</sup>	0,040 m	0,177 m	1 577 m <sup>3</sup>
<b>YEAR</b>	<b>8 900 m<sup>2</sup></b> (Average)	<b>0,032 m</b> (Average)	<b>1,646 m</b> (Total)	<b>14 647 m<sup>3</sup></b> (Total)

#### DOMESTIC DEMAND

	Number of Individuals	Water / capita / day (Litres)	Total Water / month (Liters)	DOMESTIC DEMAND (m <sup>3</sup> )
January	1	58 545 l	1814 895 l	1 815 m <sup>3</sup>
February	1	58 545 l	1639 260 l	1 639 m <sup>3</sup>
March	1	58 545 l	1814 895 l	1 815 m <sup>3</sup>
April	1	58 545 l	1756 350 l	1 756 m <sup>3</sup>
May	1	58 545 l	1814 895 l	1 815 m <sup>3</sup>
June	1	58 545 l	1756 350 l	1 756 m <sup>3</sup>
July	1	58 545 l	1756 350 l	1 756 m <sup>3</sup>
August	1	58 545 l	1814 895 l	1 815 m <sup>3</sup>
September	1	58 545 l	1756 350 l	1 756 m <sup>3</sup>
October	1	58 545 l	1814 895 l	1 815 m <sup>3</sup>
November	1	58 545 l	1756 350 l	1 756 m <sup>3</sup>
December	1	58 545 l	1814 895 l	1 815 m <sup>3</sup>
<b>YEAR</b>	<b>1</b> (Average)	<b>58 545 l</b> (Average)	<b>1775 865 l</b> (Total)	<b>21 310 m<sup>3</sup></b> (Total)

### 3. Total Demand

	IRRIGATION DEMAND (m <sup>3</sup> )	DOMESTIC DEMAND (m <sup>3</sup> )	TOTAL WATER DEMAND
January	1 577 m <sup>3</sup>	1 815 m <sup>3</sup>	3 391 m <sup>3</sup>
February	1 424 m <sup>3</sup>	1 639 m <sup>3</sup>	3 063 m <sup>3</sup>
March	1 577 m <sup>3</sup>	1 815 m <sup>3</sup>	3 391 m <sup>3</sup>
April	1 144 m <sup>3</sup>	1 756 m <sup>3</sup>	2 901 m <sup>3</sup>
May	788 m <sup>3</sup>	1 815 m <sup>3</sup>	2 603 m <sup>3</sup>
June	763 m <sup>3</sup>	1 756 m <sup>3</sup>	2 519 m <sup>3</sup>
July	763 m <sup>3</sup>	1 756 m <sup>3</sup>	2 519 m <sup>3</sup>
August	788 m <sup>3</sup>	1 815 m <sup>3</sup>	2 603 m <sup>3</sup>
September	1 144 m <sup>3</sup>	1 756 m <sup>3</sup>	2 901 m <sup>3</sup>
October	1 577 m <sup>3</sup>	1 815 m <sup>3</sup>	3 391 m <sup>3</sup>
November	1 526 m <sup>3</sup>	1 756 m <sup>3</sup>	3 282 m <sup>3</sup>
December	1 577 m <sup>3</sup>	1 815 m <sup>3</sup>	3 391 m <sup>3</sup>
<b>YEAR</b>	<b>14 647 m<sup>3</sup></b> (Total)	<b>21 310 m<sup>3</sup></b> (Total)	<b>35 957 m<sup>3</sup></b> (TOTAL)



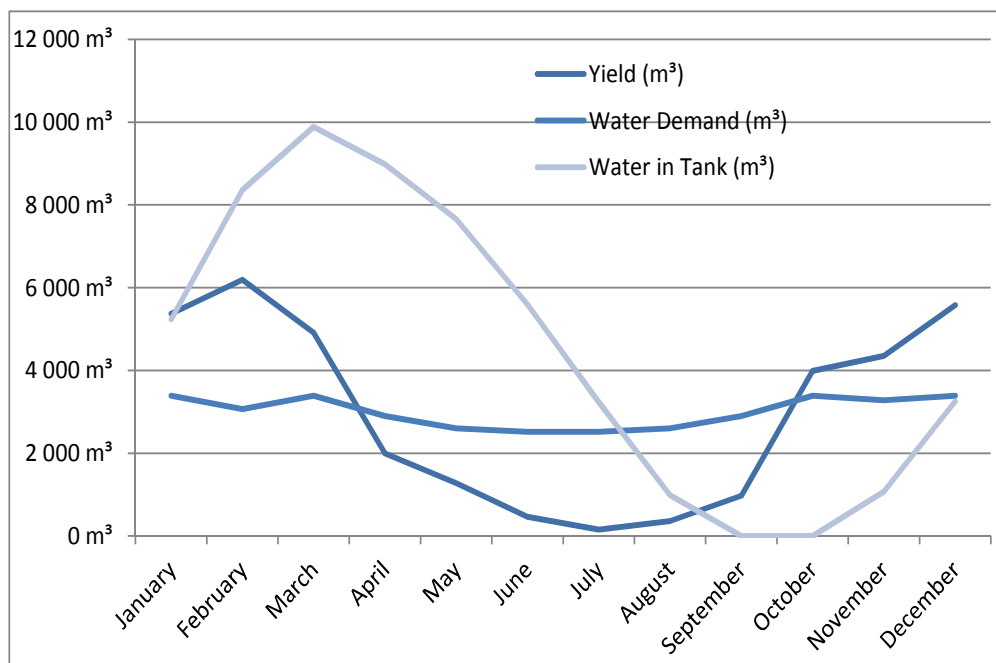
#### 4. Water Budget Exercise + Safety Factor + Number of Tanks needed

		YIELD from onsite runoff (m <sup>3</sup> )	DEMAND total onsite water demand (m <sup>3</sup> )	Monthly Balance	Water in Tank/Reservoir (m <sup>3</sup> )
Month	January	5 373 m <sup>3</sup>	3 391 m <sup>3</sup>	1 982 m <sup>3</sup>	5 235 m <sup>3</sup>
	February	6 192 m <sup>3</sup>	3 063 m <sup>3</sup>	3 129 m <sup>3</sup>	8 364 m <sup>3</sup>
	March	4 912 m <sup>3</sup>	3 391 m <sup>3</sup>	1 521 m <sup>3</sup>	9 885 m <sup>3</sup>
	April	1 996 m <sup>3</sup>	2 901 m <sup>3</sup>	-9 05 m <sup>3</sup>	8 980 m <sup>3</sup>
	May	1 279 m <sup>3</sup>	2 603 m <sup>3</sup>	-13 24 m <sup>3</sup>	7 656 m <sup>3</sup>
	June	461 m <sup>3</sup>	2 519 m <sup>3</sup>	-20 59 m <sup>3</sup>	5 597 m <sup>3</sup>
	July	154 m <sup>3</sup>	2 519 m <sup>3</sup>	-23 66 m <sup>3</sup>	3 232 m <sup>3</sup>
	August	358 m <sup>3</sup>	2 603 m <sup>3</sup>	-22 45 m <sup>3</sup>	987 m <sup>3</sup>
	September	972 m <sup>3</sup>	2 901 m <sup>3</sup>	-19 28 m <sup>3</sup>	0 m <sup>3</sup>
	October	3 991 m <sup>3</sup>	3 391 m <sup>3</sup>	600 m <sup>3</sup>	0 m <sup>3</sup>
	November	4 350 m <sup>3</sup>	3 282 m <sup>3</sup>	1 068 m <sup>3</sup>	1 068 m <sup>3</sup>
	December	5 578 m <sup>3</sup>	3 391 m <sup>3</sup>	2 186 m <sup>3</sup>	3 254 m <sup>3</sup>
<b>YEAR</b>		<b>71 573 m<sup>3</sup> (Total)</b>	<b>35 957 m<sup>3</sup> (TOTAL)</b>		

Greatest volume of water in tank/reservoir at any time is the minimum capacity of the tank	<b>9 885 m<sup>3</sup></b>
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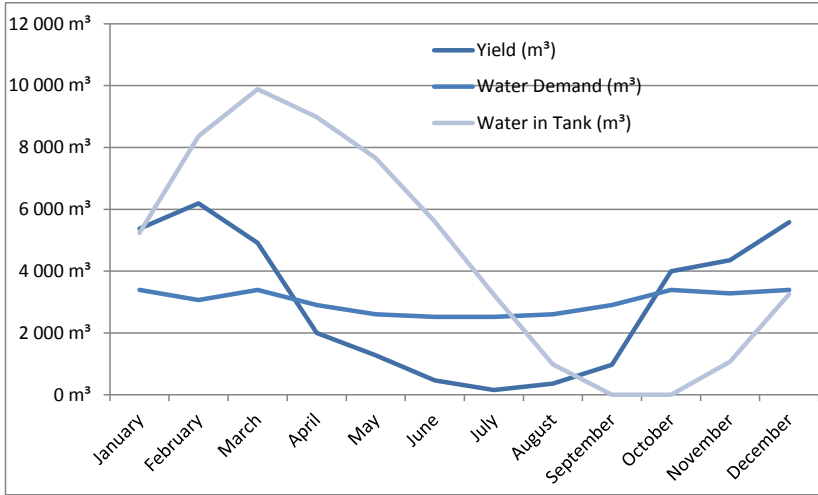
<b>Safety Factor:</b> <span style="color: red; font-weight: bold;">1,5</span>	<b>Final Tank/Reservoir Size:</b> <span style="font-weight: bold;">14 827 m<sup>3</sup></span>
---	--

<b>Proprietary Tank Volume:</b> <span style="color: red; font-weight: bold;">2090 000 l</span> (e.g. Jojo Tanks) <span style="font-weight: bold;">2 090 m<sup>3</sup></span>	<b>Number of Tanks needed:</b> <span style="font-weight: bold;">8</span>
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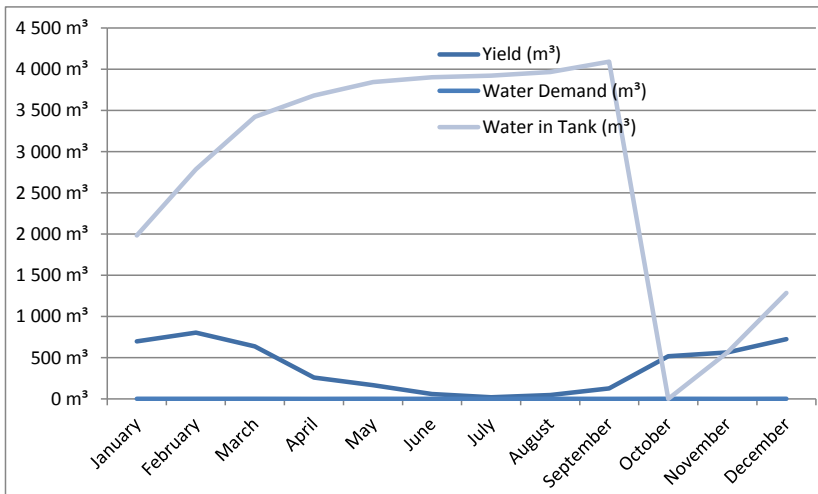


**WATER BUDGETS:**

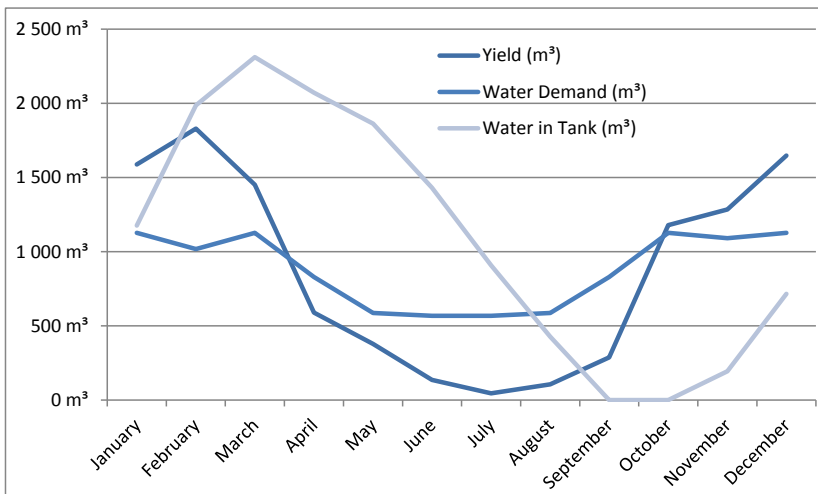
CATCHMENT BASIN 1:

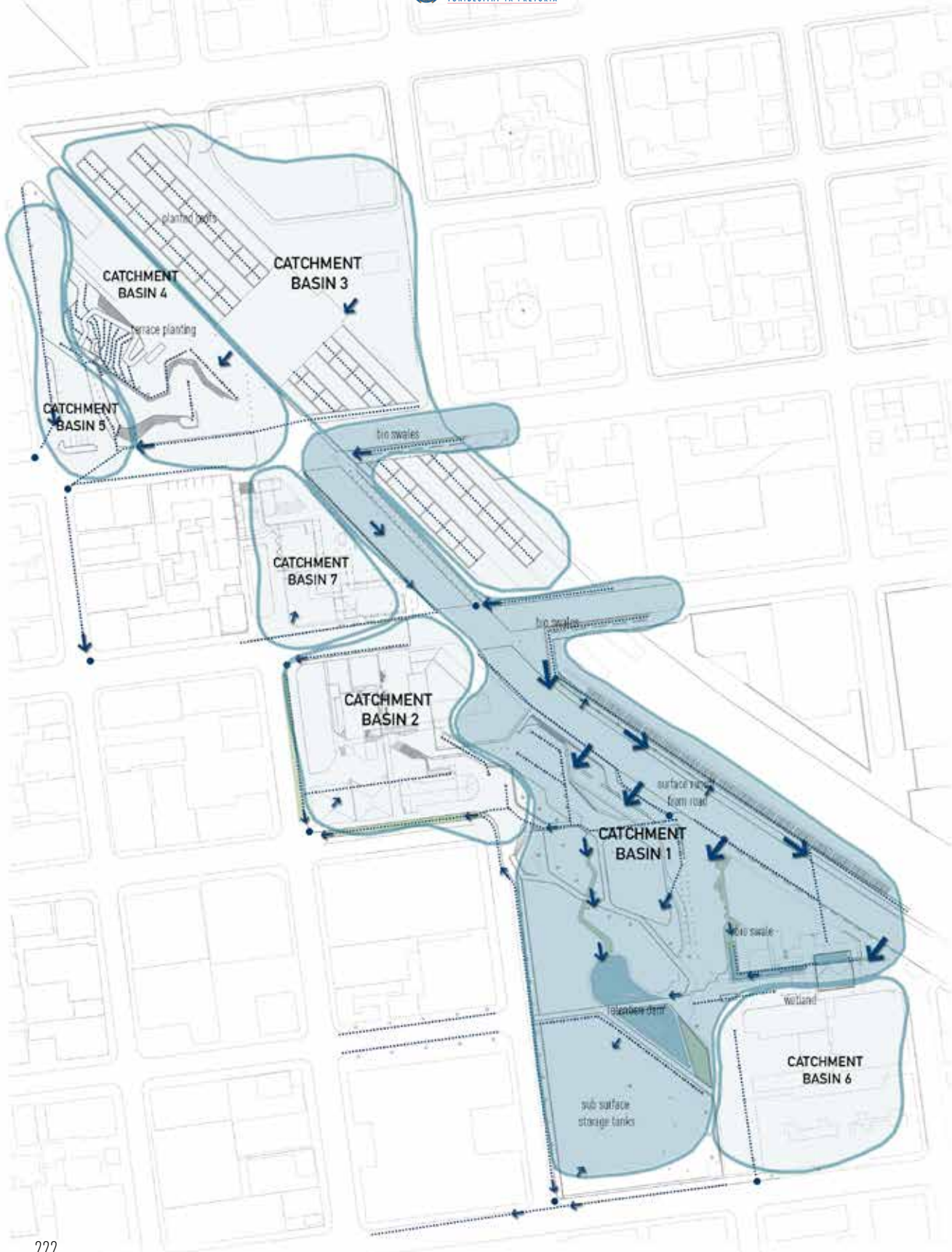


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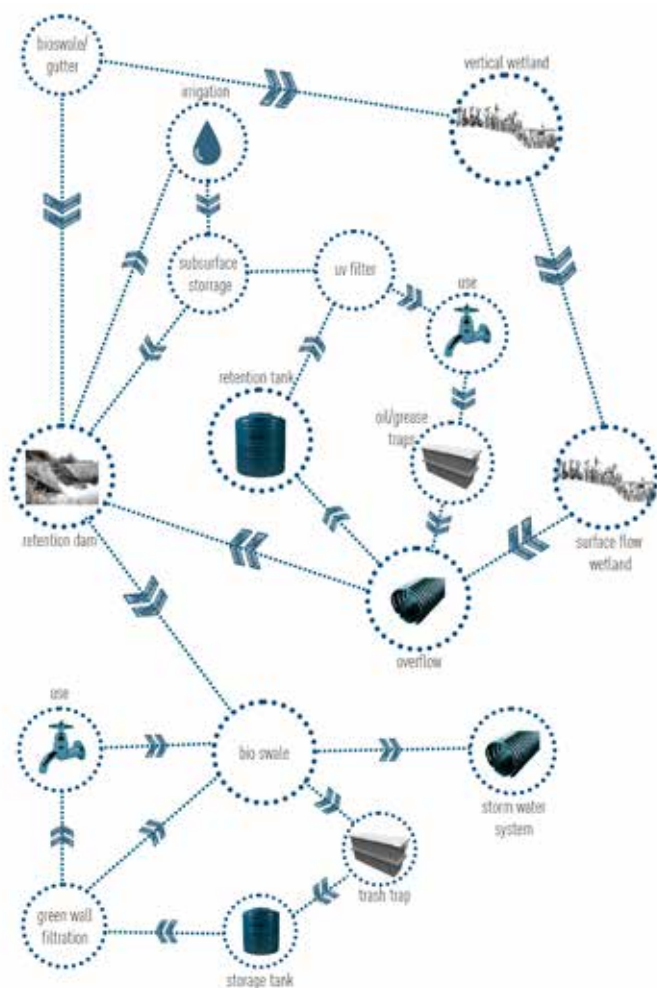


CATCHMENT BASIN 3 & 4:





## WATER MANAGEMENT STRATEGY DIAGRAM



## WATER MANAGEMENT STRATEGY AT MACRO FRAMEWORK LEVEL

THE DIAGRAM AIMS TO ILLUSTRATE THE WATER MANAGEMENT STRATEGY ACROSS THE SITE. WATER FLOWS FROM THE NORTHERN END OF THE SITE (THE STATION) TO THE SOUTHERN PORTION (THE PARK) THROUGH A SERIES OF DETENTION AND PURIFICATION STRUCTURES. THE STRATEGY AIMS TO:

- HARVEST ALL SURFACE RUNOFF
- ALLEVIATE THE GRID AND DETAIN PEAK FLOODS
- PURIFY AND STORE WATER
- RECYCLE ALL WATER USED ON SITE
- RECYCLE GREY WATER

## HARVESTING AND PURIFICATION SYSTEMS:

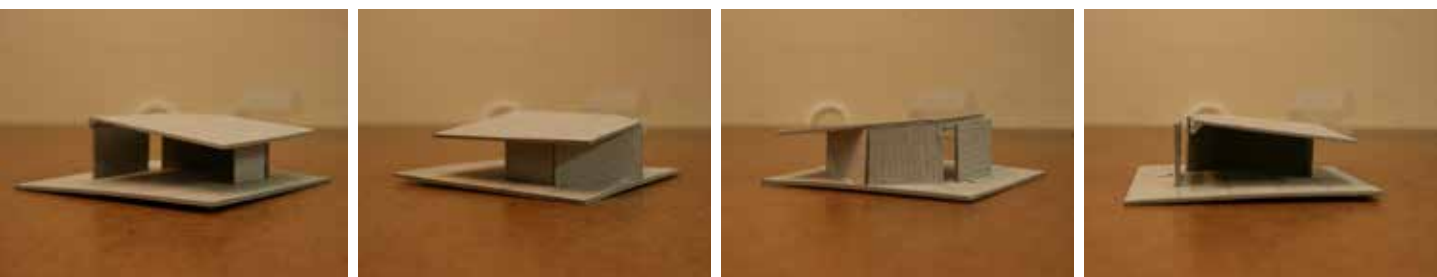
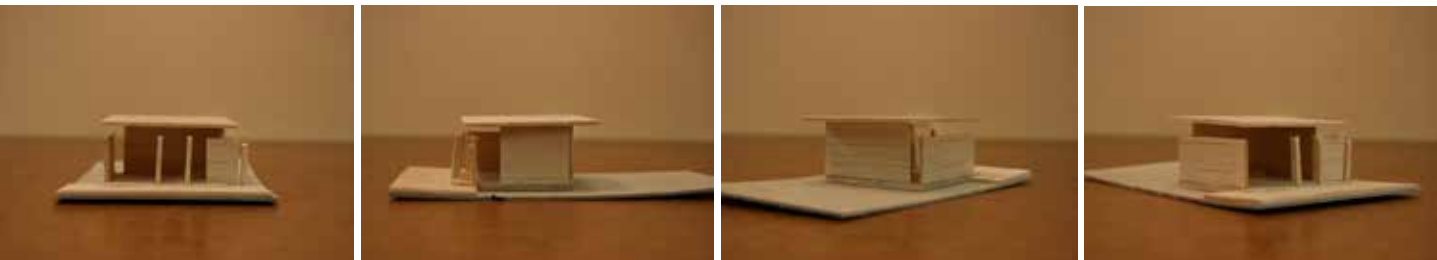
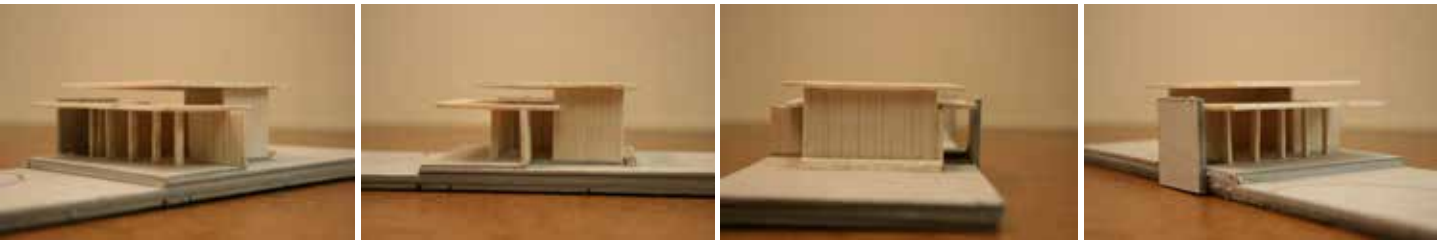
THE WATER MANAGEMENT STRATEGY CONSISTS OF A SERIES OF SYSTEMS AND LANDSCAPE STRUCTURES, WHICH ALLOWS FOR WATER HARVESTING:

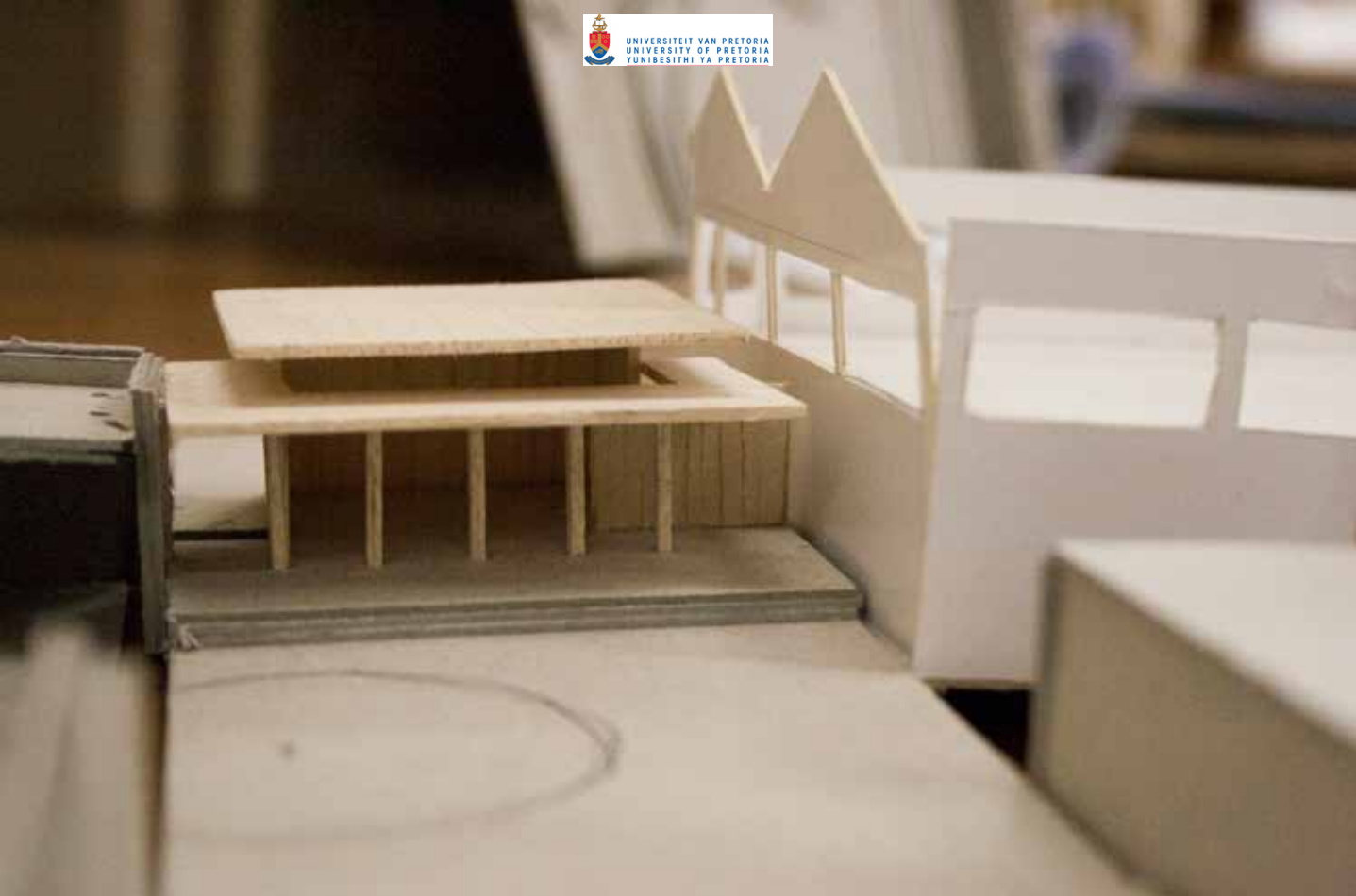
- BIO SWALES
- RAINWATER GARDENS
- DETENTION FACILITIES
- RETENTION DAMS AND TANKS
- VERTICAL WETLAND
- SURFACE FLOW WETLAND

THESE COMPONENTS ARE LINKED TO FORM A NETWORK FOR WATER HARVESTING AND PURIFICATION:

## the DESIGN PROCESS

As the design process is not linear, some processes continue to evolve while others need to be learnt from and let go. This is a collection of such processes.





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## DECLARATION

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October 2014

In accordance with Regulation 4(e) of the General Regulations (G.57) for dissertations and theses, I declare that this thesis, which I hereby submit for the degree of Master of Architecture (Professional), at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

I further state that no part of my thesis has already been, or is currently being, submitted for any such degree, diploma or other qualification.

I further declare that this thesis is substantially my own work. Where reference is made to the works of others, the extent to which that work has been used is indicated and fully acknowledged in the text and list of references.



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