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*chapter eight*

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# APPENDICES

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FINAL PRESENTATION

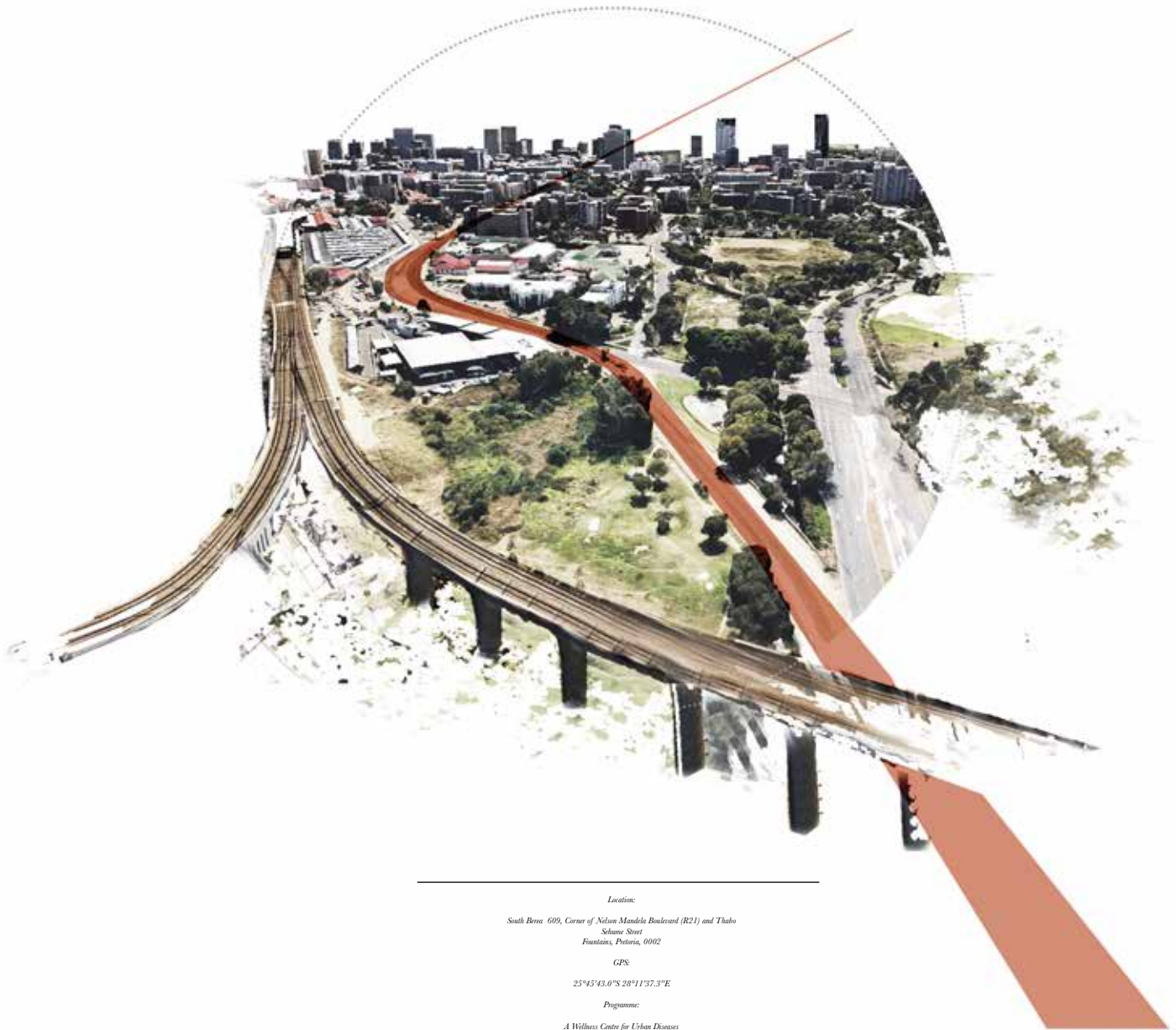
*Introduction & Analysis*



*M. Prof./Arch.*

# RESTORING RECIPROCITY

*Between Man and Nature through Architecture  
as the Mediating Device*



*Location:*

*South Bess 609, Corner of Nelson Mandela Boulevard (R21) and Thabo  
Sefane Street  
Fonteinia, Pretoria, 0002*

*GPS:*

*25°45'43.0"S 28°11'37.3"E*

*Programme:*

*A Wellness Centre for Urban Diseases*

by

Gardiol Crous







Chapter one

# AN ISSUE OF DISCONNECTION



MODERN MAN'S UNIVERSAL & INFRASTRUCTURAL NEEDS



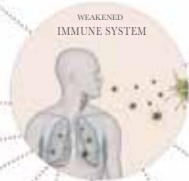
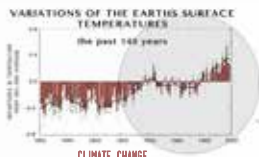
NATURE AS SUBMISSIVE STORE TO PROVIDE RESOURCES



BUILDING CAN'T SUSTAIN MAN'S RAPID CHANGE IN NEEDS AND DESIRES.



NATURE'S RESOURCES CAN'T SUSTAIN RATE OF BUILDING



ANTIBIOTICS



HYGIENE HYPOTHESIS

DROUGHT

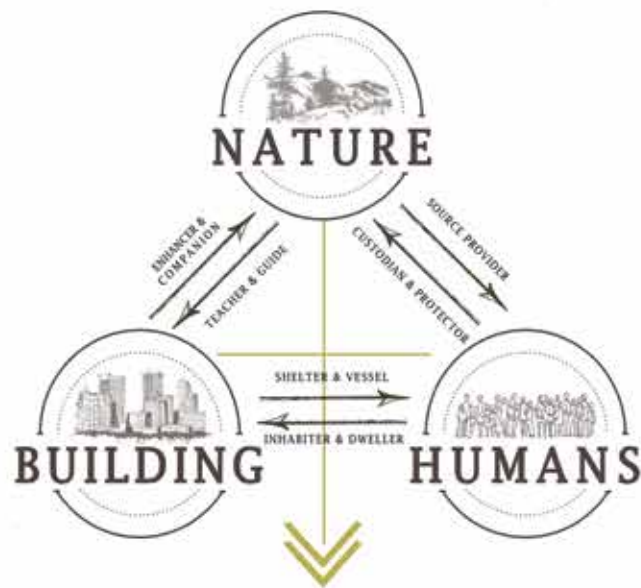
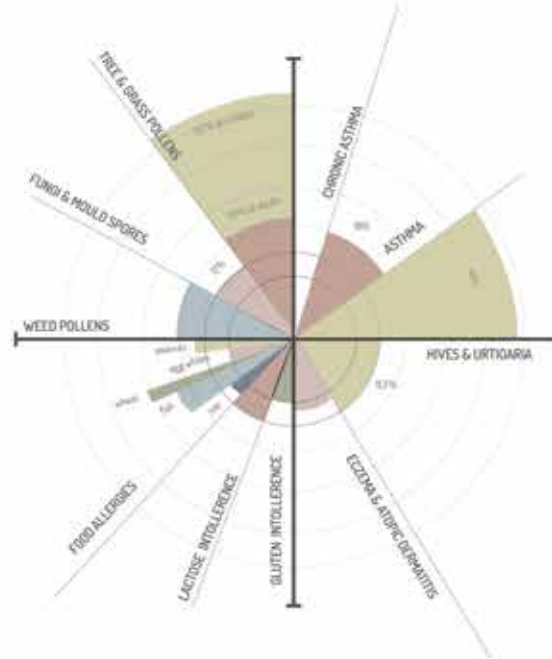




*Aspirin*

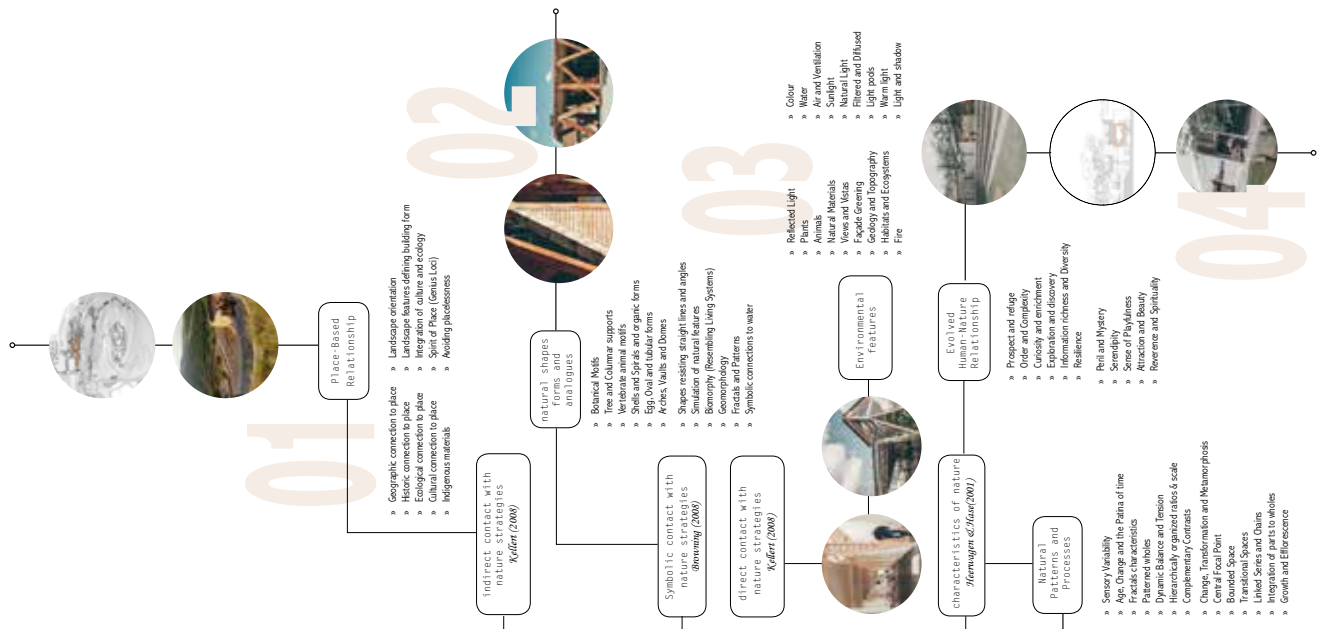
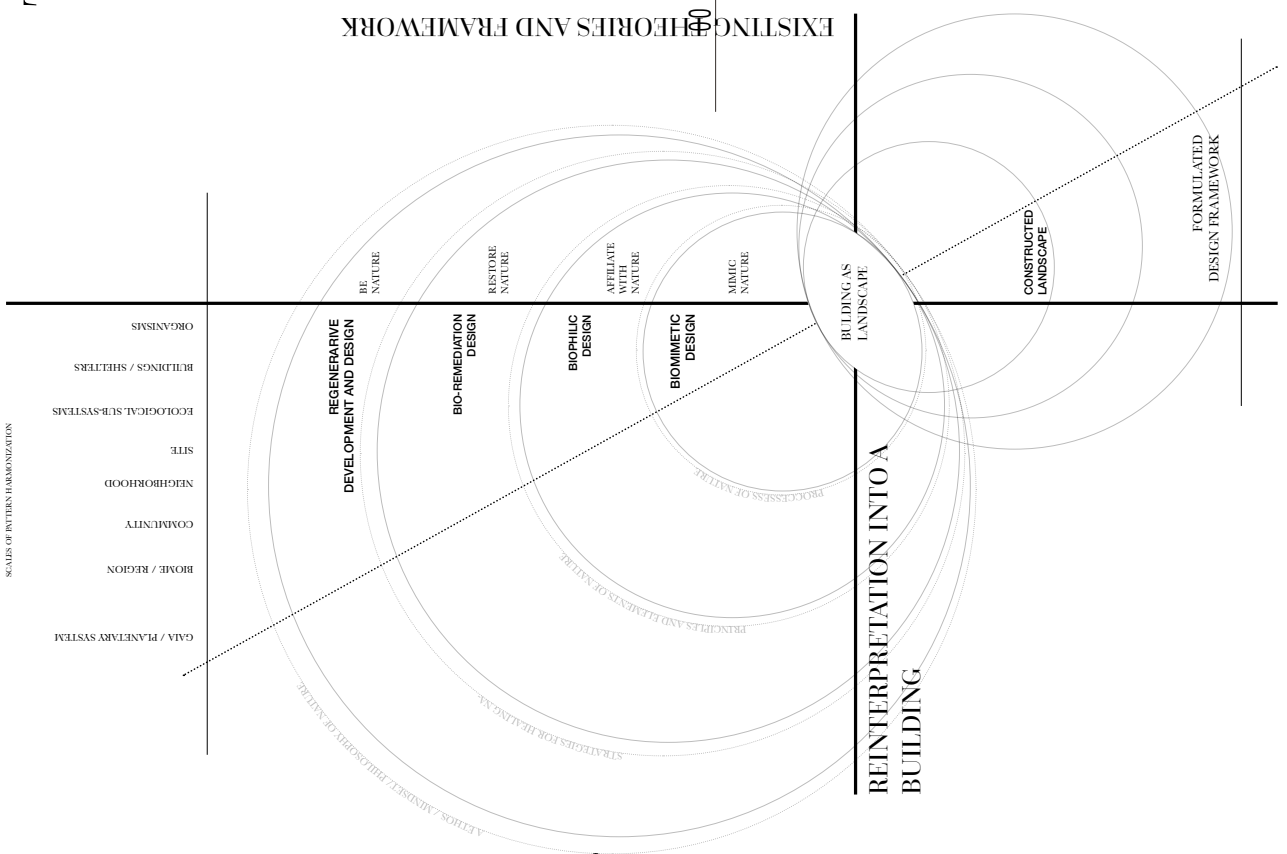
# A WELLNESS CENTRE

FOR URBAN DISEASES



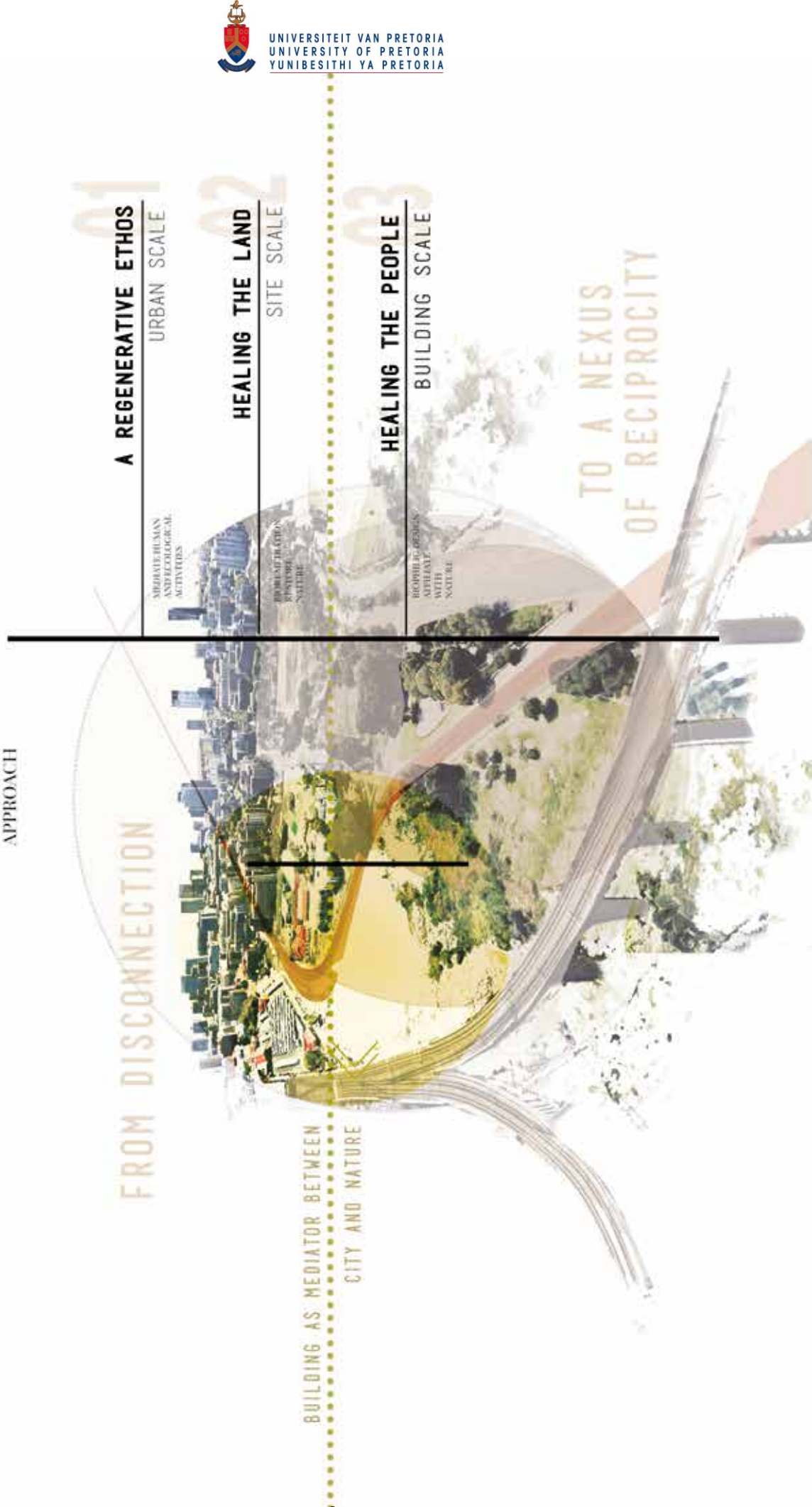
# THEORETICAL

## APPROACH



# CONCEPTUAL

## APPROACH





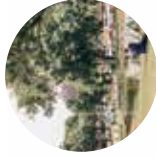
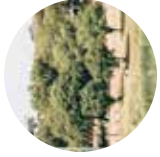
*Chapter five*  
**THE CONTEXT OF PRETORIA**







*— haptas fane —*  
**APPROACHING SOUTH BEREA**  
ENTRANCE INTO PRETORIA



*— together live —*  
**URBAN FOYER OF PRETORIA**



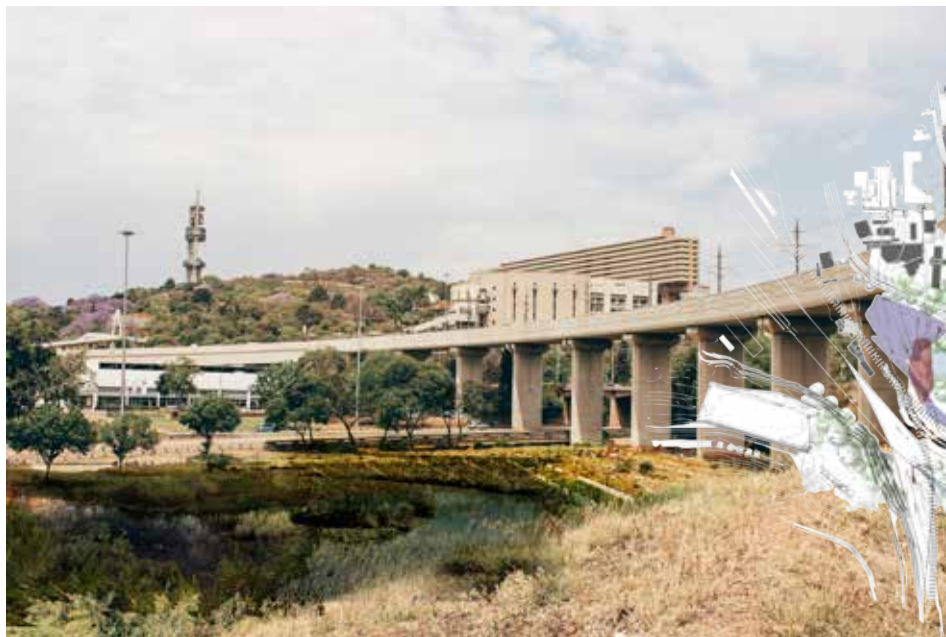
— *hegtes five* —  
**URBAN & SITE STRATEGIES**

**HEALING THE LAND**



**URBAN AGRICULTURE**

*connecting green spaces as a productive ecological corridor*



**CONSTRUCTED WETLANDS**

*along riparian within natural flood plains along Apies river*



*Cucumis spicata* - Cabbage tree



*Olea africana* - Wild Olive



*Combretum molle* - Wild Bushwillow



*Euphorbia ingens* - Candlebush tree



*Argemone africana* - Wild Fleach



*Celtis africana* - White Strikwood

**APPROPRIATE PLANTING PRACTICES**

*of indigenous species with low water needs*



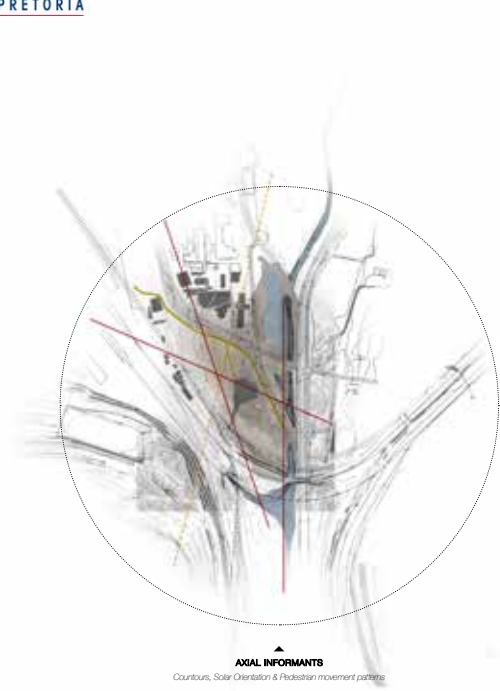
*Chapter five*

# SITE ANALYSIS & MAPPING

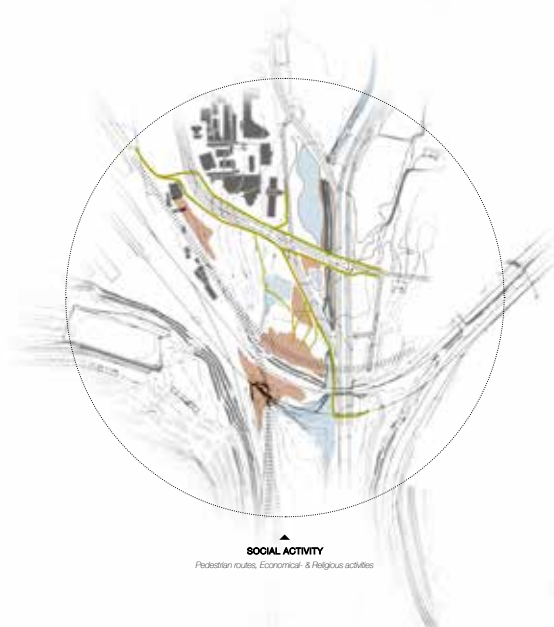




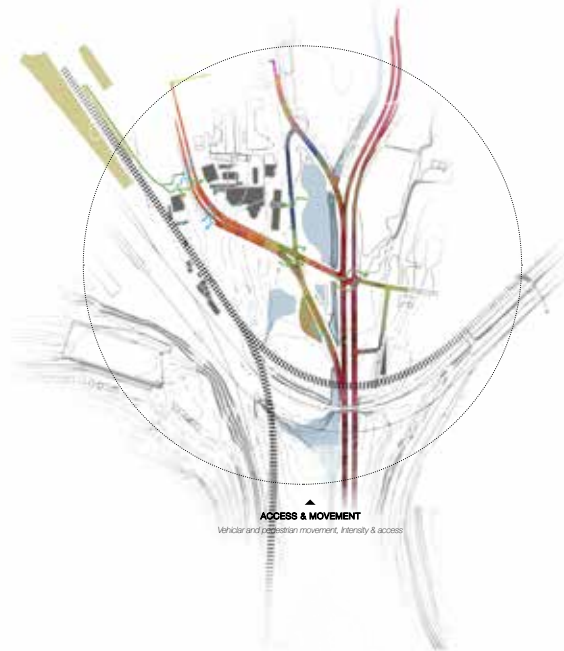
**ECOLOGY**  
*Brownfields, Water networks & Green Corridors*



**AXIAL INFORMANTS**  
*Courtyards, Solar Orientation & Pedestrian movement patterns*



**SOCIAL ACTIVITY**  
*Pedestrian routes, Economical & Religious activities*



**ACCESS & MOVEMENT**  
*Vehicular and pedestrian movement, Intensity & access*

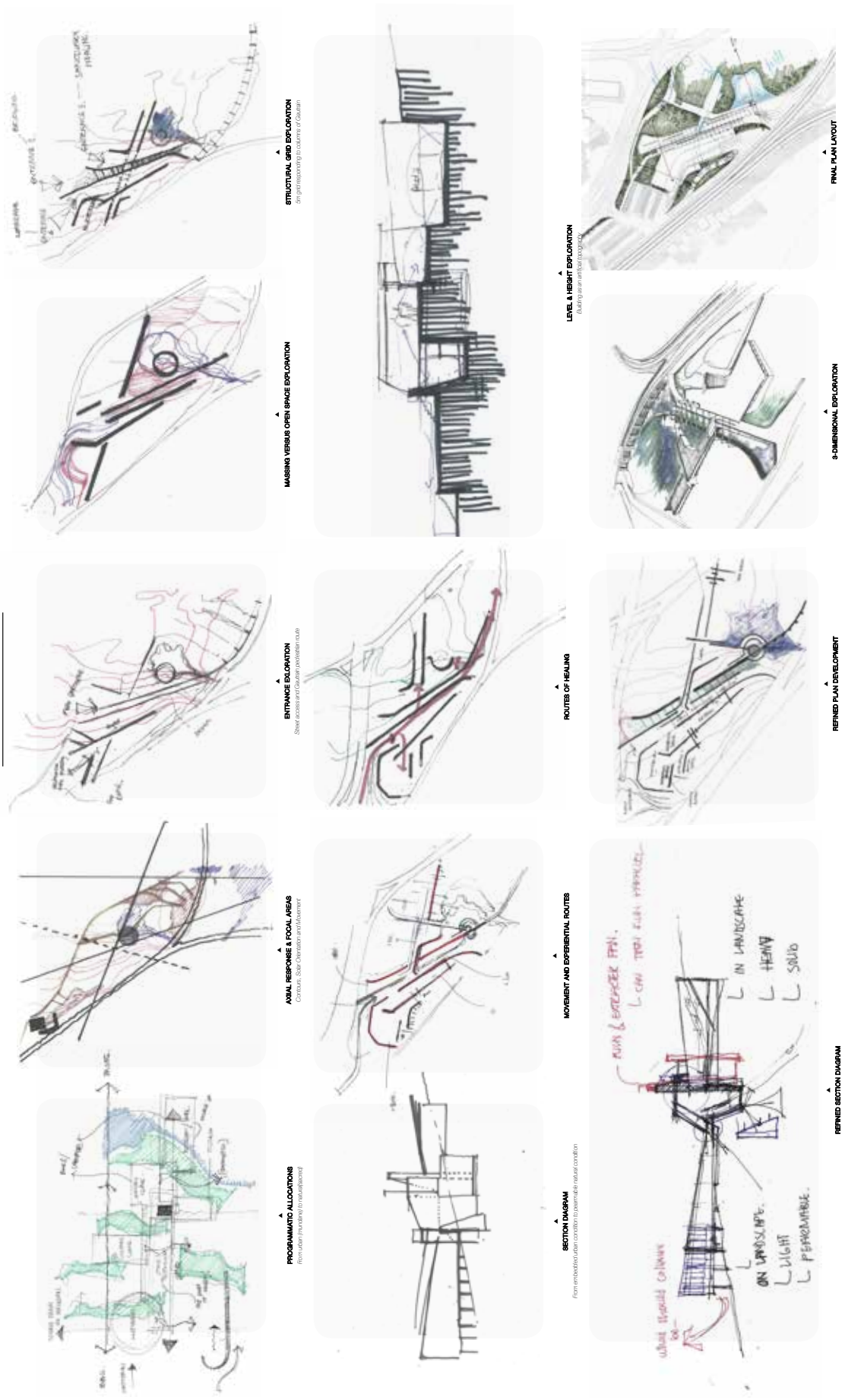


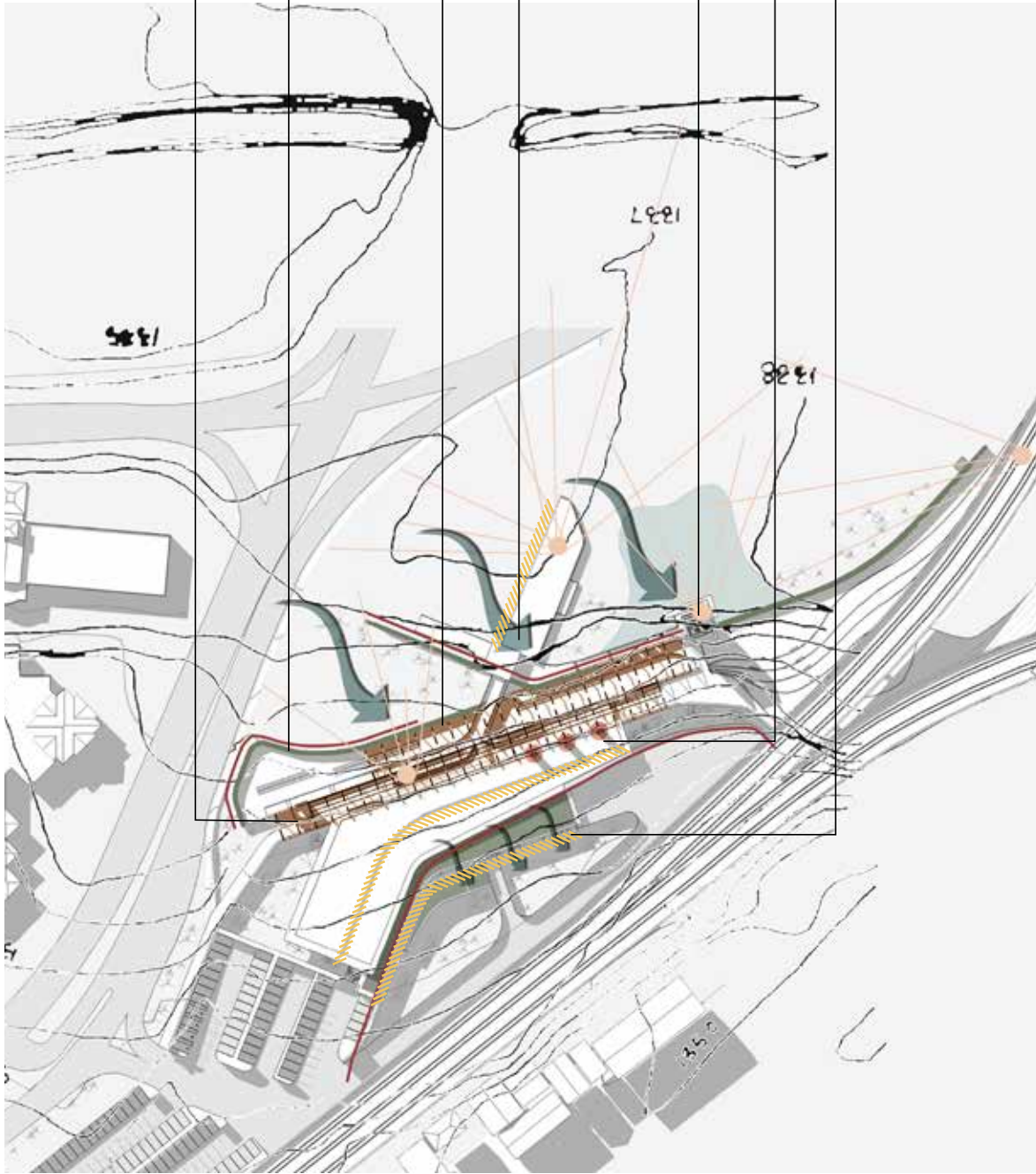
**TOPOGRAPHY**  
*Fall of the site in the North-East Direction*



**REMEDICATION & RECIPROCALITY**  
*Areas of Contamination & Potential Restoration of Reciprocal Relationship*

# DESIGN DEVELOPMENT





Tree and columnar references

Botanical motifs and organic forms

Façade greening on site

Natural ventilation

Views and vistas

Celebration of fire within building & fire

Daylighting

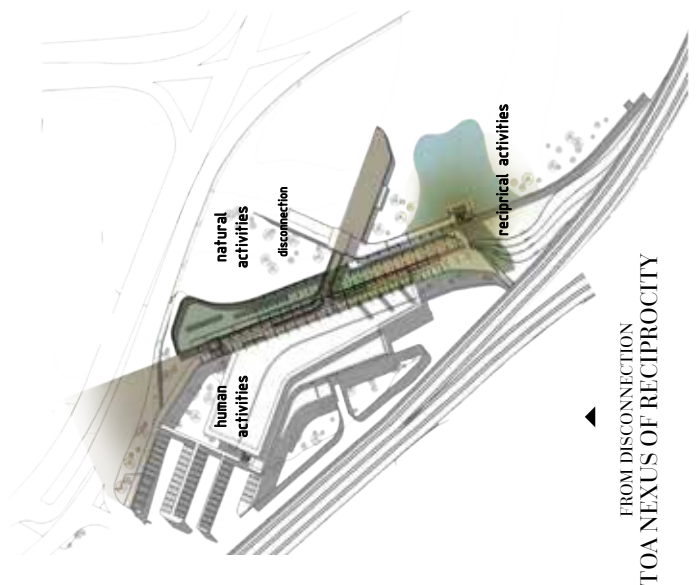
*Chapter 02*

# BIOPHILIC DESIGN INFORMANTS

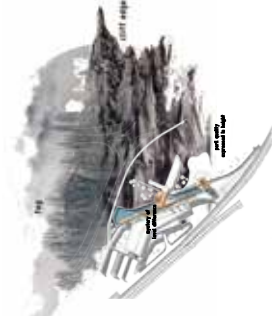
HEALING THE PEOPLE

# REINTERPRETING CHARACTERISTICS OF NATURE

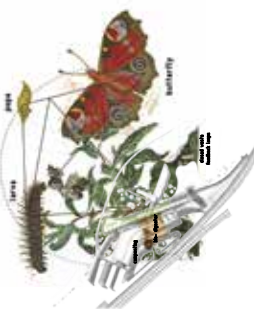
## HEALING THE PEOPLE



FROM DISCONNECTION  
TO A NEXUS OF RECIPROCALITY



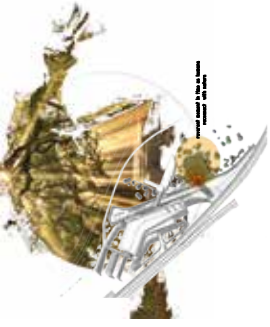
PERIL & MYSTERY



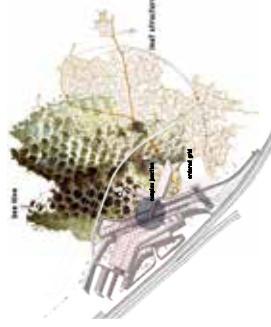
PROSPECT & REFUGE



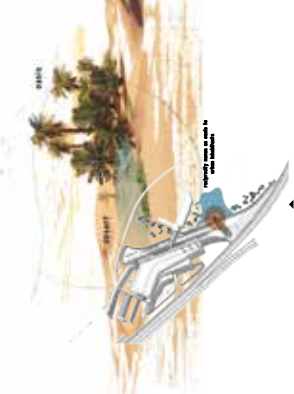
RESILIENCE



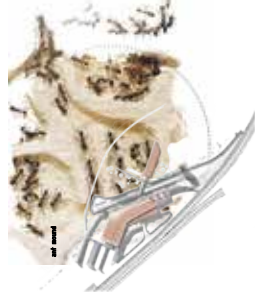
REVERENCE & SPIRITUALITY



BALANCE & TENSION



CURIOSITY & ENRICHMENT



GROWTH & EFFLORESCENCE

BOUNDED SPACE

ORDER & COMPLEXITY

RESILIENCE





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*chapter eight*

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# APPENDICES

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FINAL PRESENTATION

*Design Outcomes*





*Chapter seven*  
**ENTRANCE LEVEL PLAN**  
SCALE 1:200







— *chapter eight* —  
**NORTH- EAST ELEVATION**  
SCALE 1:100





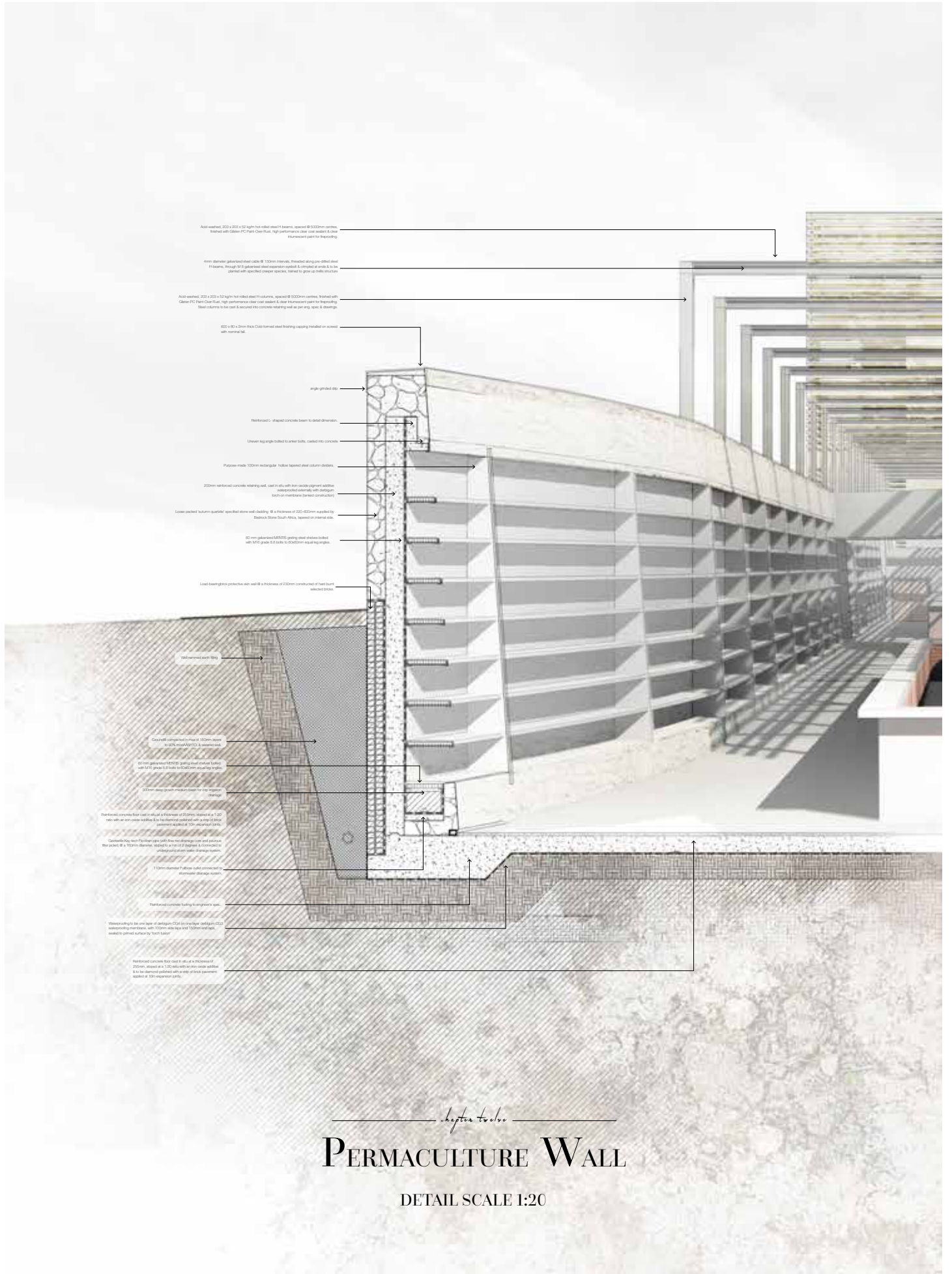




*Legenda*

# DISCONNECTION SECTION

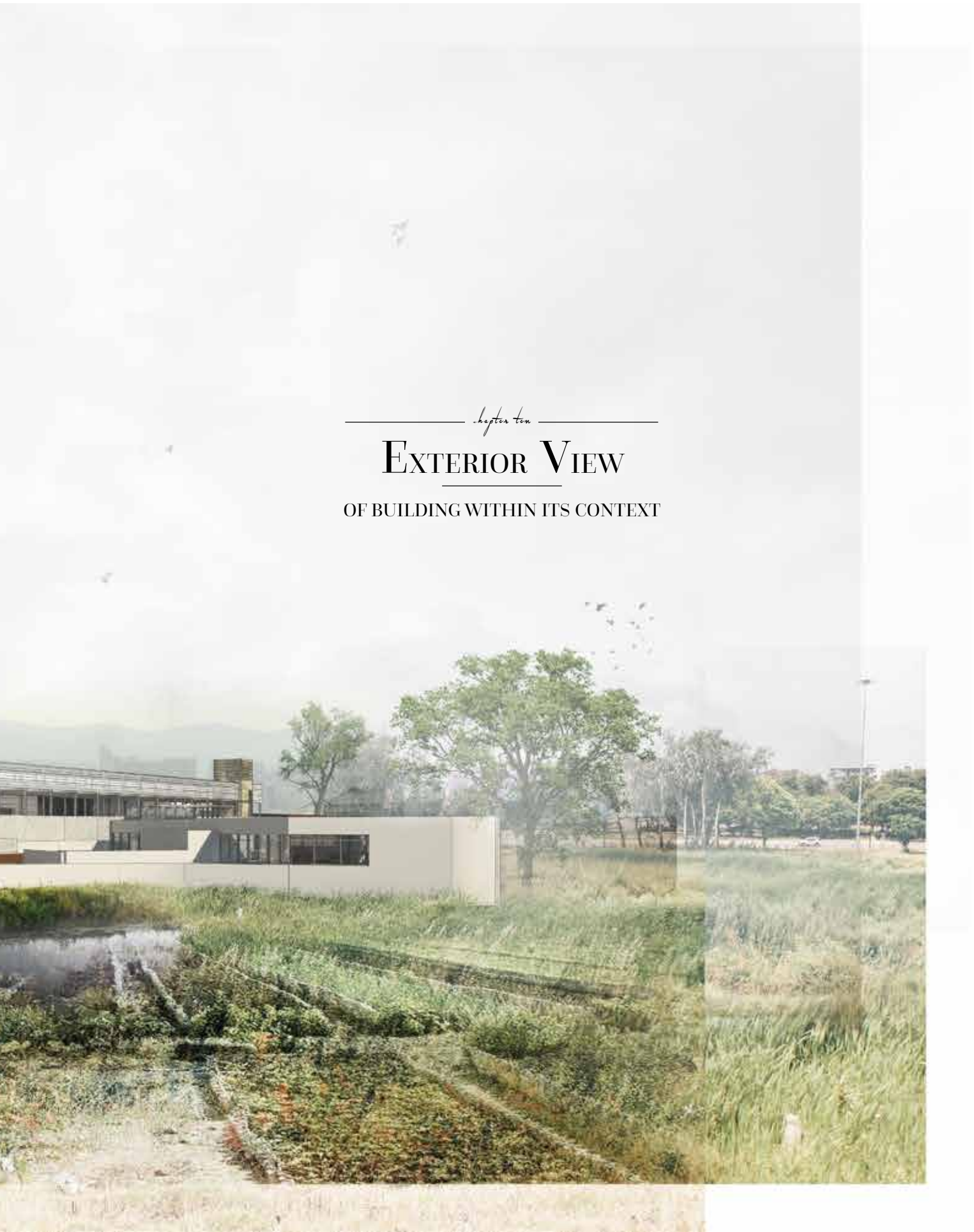
SCALE 1:50



Chapter Twelve  
**PERMACULTURE WALL**

DETAIL SCALE 1:20





*chapter ten*

# EXTERIOR VIEW

OF BUILDING WITHIN ITS CONTEXT



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*chapter eight*

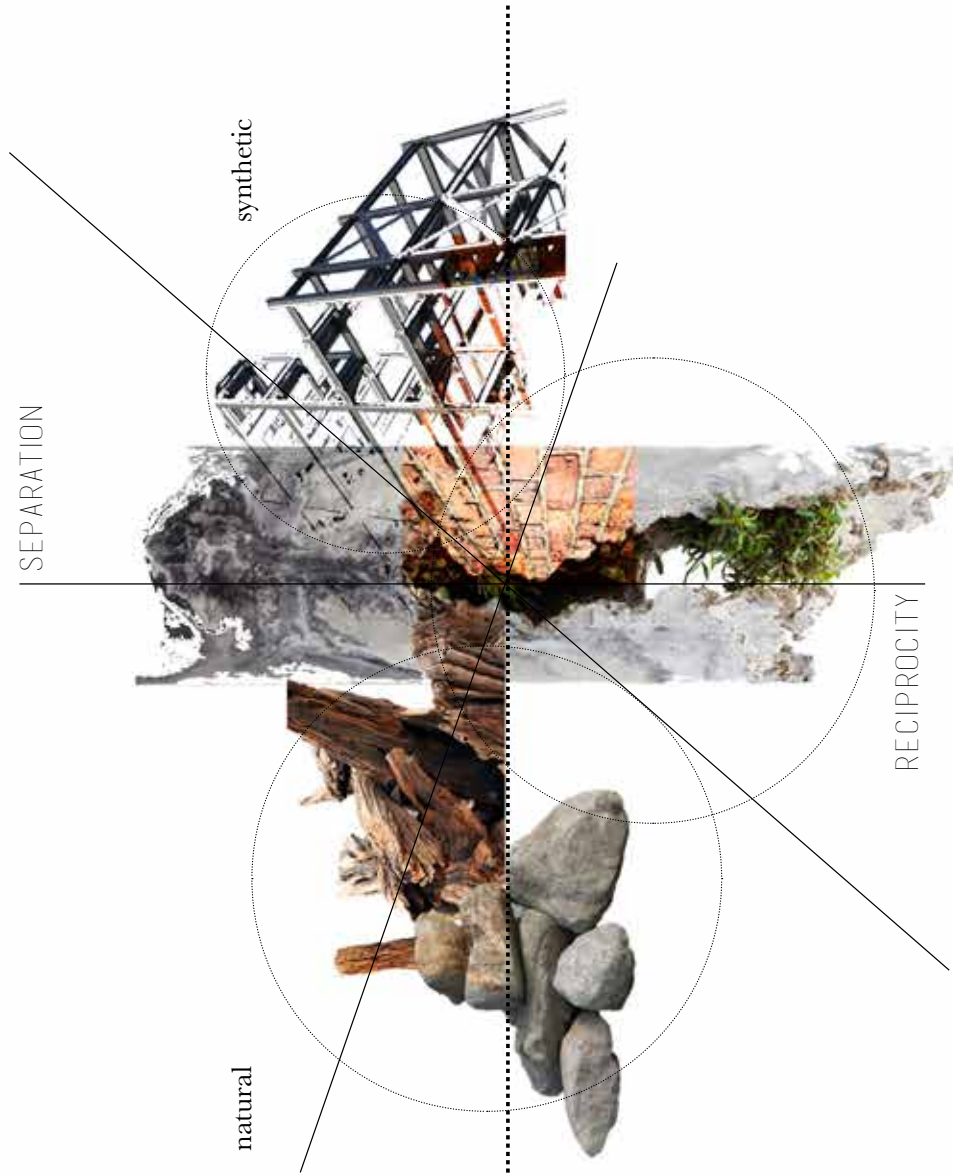
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# APPENDICES

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**FINAL PRESENTATION**

*Technification Outcomes*



*— haptica eleven —*  
**TECHNICAL CONCEPT**

# MATERIALITY

## NATURAL



### STONE

The **seasonal** and **resilient** characteristics of natural stone will be utilized to make direct associations with nature as well as provide inherent mass as a thermal design strategy.



### ON-SITE CLAY AND SOIL

On-site soil that will be excavated on site during the construction of the building will be stored where additional **compostable soil** is needed.



### TIMBER

Pure plywood will be used in multiple ways in **laminar spaces** in order to express its tactile qualities and affiliation with nature.



### VEGETATION

Exotic growing and productive green walls will be employed as fundamental tools to establish a **physical link with nature**.



#### JASMINUM POLYKYTIUM (Pink Jasmine)

Minimal water requirements  
Attracts multiple insects  
Semi-deciduous  
Requires semi-shade to full sun.



#### THEMBRALALIA (Yellow Brick Top Shrub)

Self-seeding creeper  
Evergreen  
Requires semi-sun



#### SENECIO TAMBRES (Candy Crops)

Semi-deciduous  
Requires shade



#### GLEMITHS BRACHIEI (Thunder's Lily)

Evergreen  
Requires full sun



#### COMBRETUM BRACTEOSUM (Hemp Hat)

Produces fruit that attracts birds  
Evergreen  
Requires full sun



#### TRACHELOSPERMIUM JUSMIDORS (St. James)

Evergreen climber  
Minimal water requirements  
Requires shade

## SYNTHETIC



### STEEL

The **exotic** qualities of steel as a **weather device** will be implemented to create surface contrast with the **seasonal** natural materials. The steel members will be **acid-washed** and painted to **eventually** undergo processes of **weathering** to indicate the **patina of time**.



### POLYCARBONATE SHEETING

Wall and roof sheets made of polycarbonate will be applied to **enable light to be diffused** on entering the building while simultaneously **enabling laminar spaces** against floor girders. The sheets will be **acid-washed** to reduce the need for additional **insulating structures** reduced, as the material has a low unit weight with a long life span.



### CONCRETE

Concrete is a **low-maintenance and robust material** that will be applied in floor slabs, roof and beam structures, foundations and retaining substratures.



### BRICKS

Brick will be implemented for wall structures throughout the building and will be given a **weatherable cobble-lipped finish** in order to create a **complementary contrast** with the stone walls. In some internal spaces the warm natural colour and properties of the brick will be exposed.

## RECIPROCAL



### PERMEABLE PAVEMENT

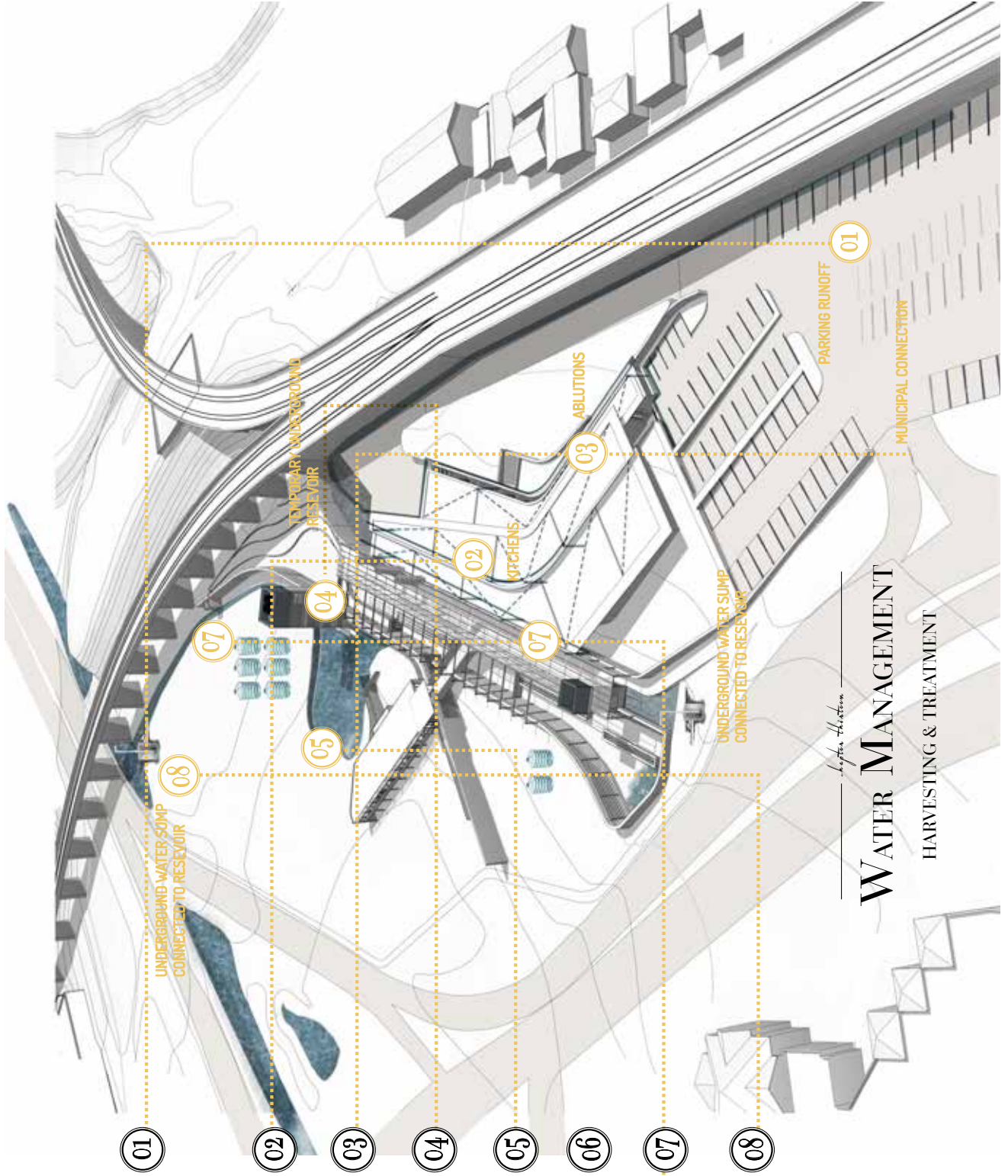
Permeable concrete paving will be implemented for **external surfaces** including parking, roads and pedestrian routes in order to provide a hard surface to support vehicular and pedestrian traffic while allowing water to infiltrate the ground. It will facilitate the process of **filtering excess water runoff** by trapping suspended solids as well as minimizing the effects of erosion.



### BIO-CONCRETE

Bio-concrete supports the natural and enhanced growth of **algae and organisms** such as fungi, microalgae and moss, allowing the development of a **beneficial living matrix**. The material absorbs and reduces atmospheric CO<sub>2</sub> regulates internal thermal conductivity and has suitable aesthetic and environmental properties (Bromfield, 2013).

Bioconcrete is composed of a structural concrete layer that is mixed with conventional carbonated concrete together with magnesium phosphate cement and then waterproofed to protect this layer from possible water damage. In the contrary, the **biological layer** has the capacity to capture and retain rainwater by having an intermittent coating layer with a **renewable waterproofing purpose** that allows water and treatment to gather on it and **enable biological growth of organisms** (Bromfield, 2013).



01 Water is harvested from roofs as well as external hard surfaces, filtered through a grid to remove floating debris, and then directed towards temporary galvanized steel water tanks, for purposes of further treatment.

02 Wastewater and grey water accumulated from the three kitchens and washing basins are directly taken through a fat trap and then directed towards the temporary galvanized steel water tanks, for purposes of further treatment.

03 Black water is directed towards the municipal sewerage connection and not dealt with in this scheme.

04 The water that has been stored in temporary water tanks is then directed towards multiple treatment chambers beneath the central water tower, and taken through an oil trap and sedimentation filter.

05 Water required for irrigation is stored in the retention pond and wetland-based biological system and will retain dissolved nutrients that are beneficial for plants.

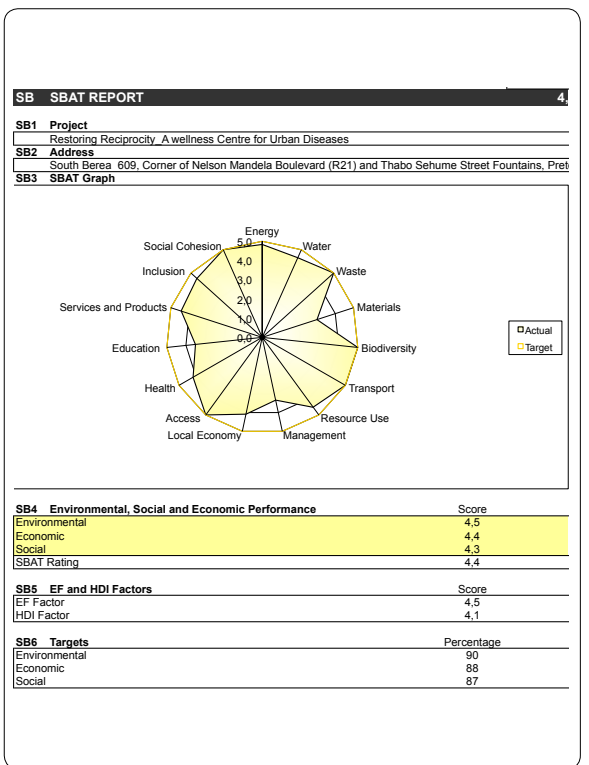
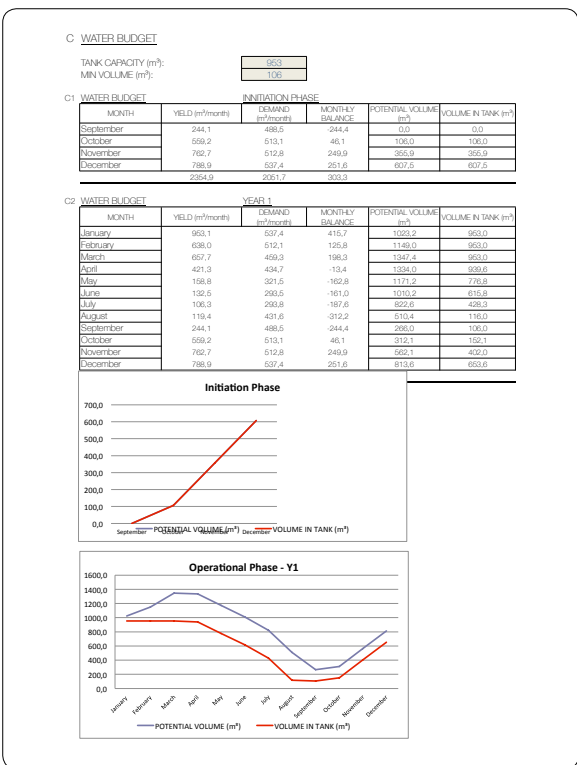
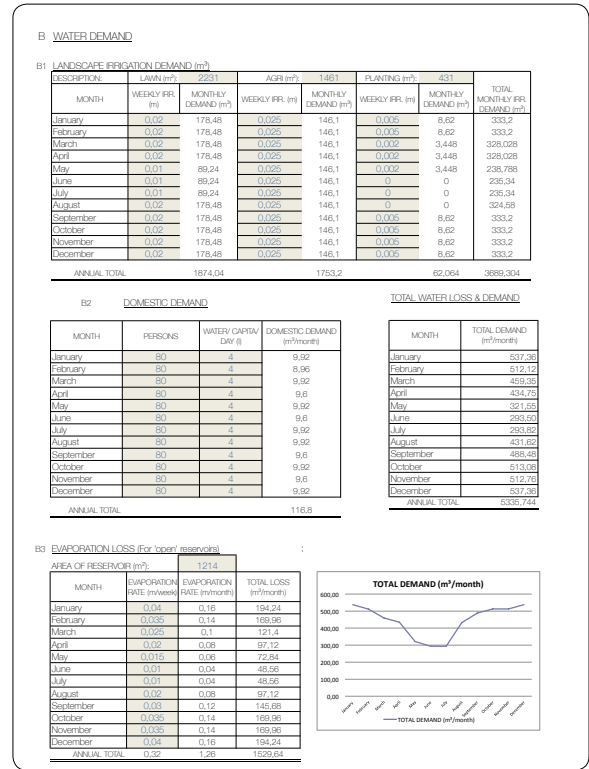
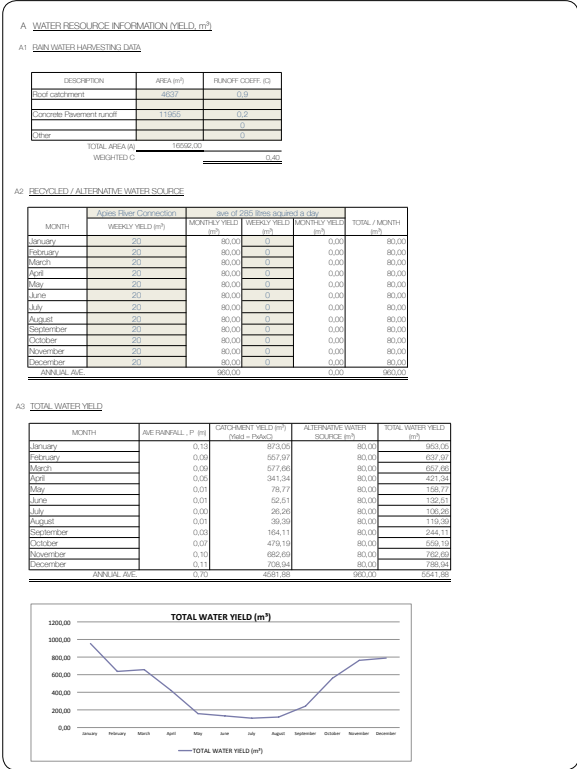
06 Water used for domestic purposes is treated further in a different treatment chamber to remove harmful pathogens.

07 Water is then pumped up during the night into a storage tank 20m above ground within the water tower, in order to achieve a sufficient water pressure of 2bar.

08 An additional average of 285 litres of water will be acquired a month to support urban agricultural requirements with the site and urban precinct. It will be argued that the rights to a percentage of water will be acquired from the Apes River through a sump and channeling system that will feed water into the retention wetland.

*Lepetsa Hlatshway*  
**WATER MANAGEMENT**  
HARVESTING & TREATMENT

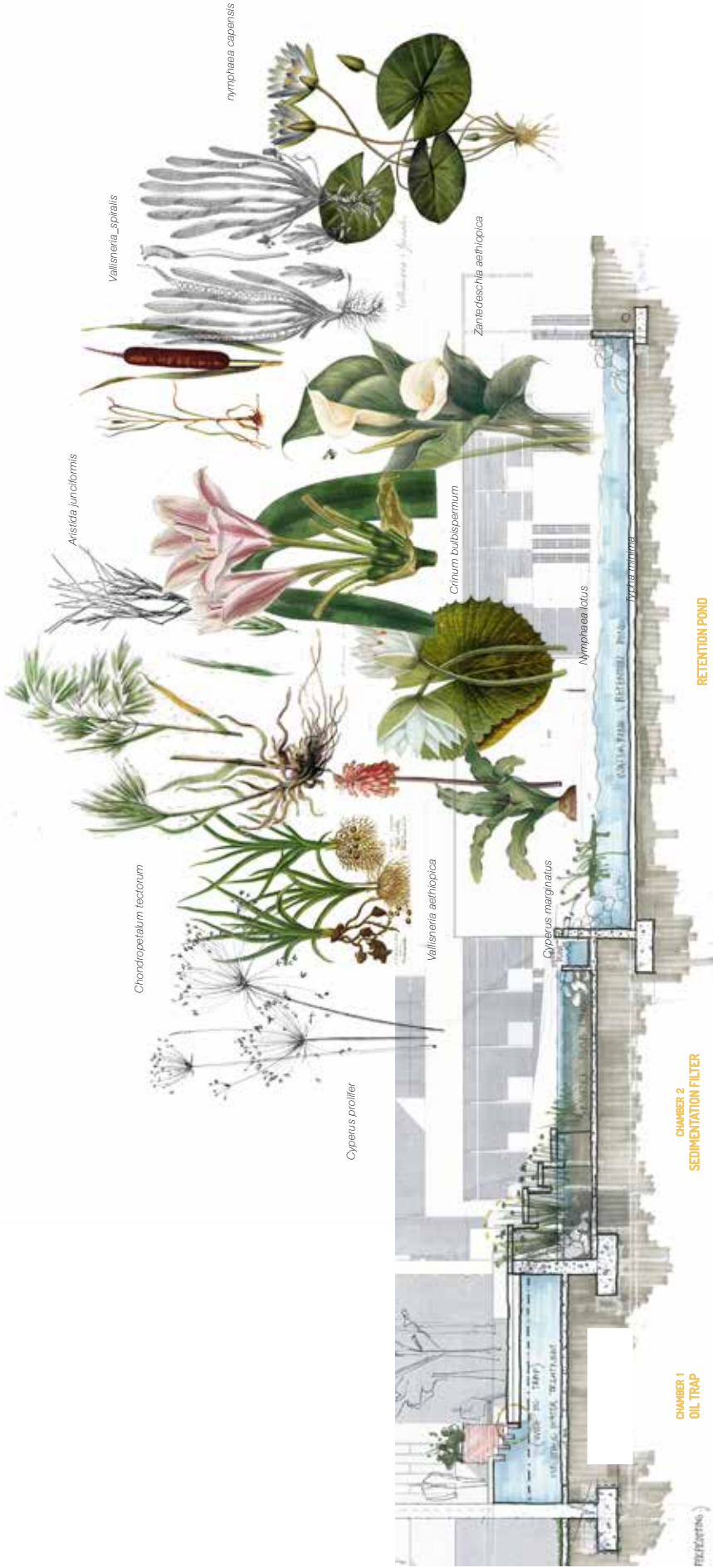




Chapter thirteen

# SUSTAINABILITY CALCULATIONS

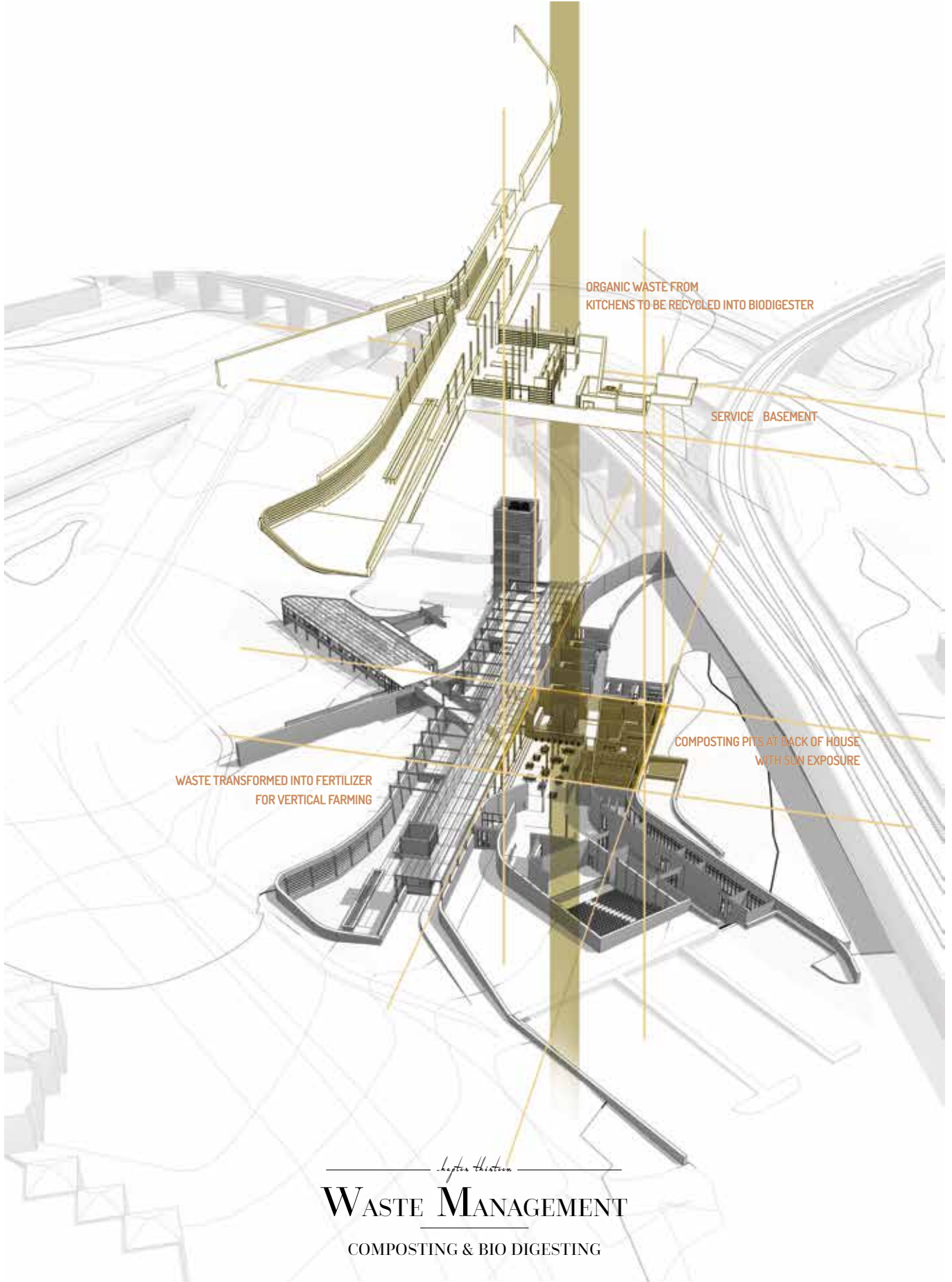
## SBAT, WATER DEMAND, YIELD & BUDGET

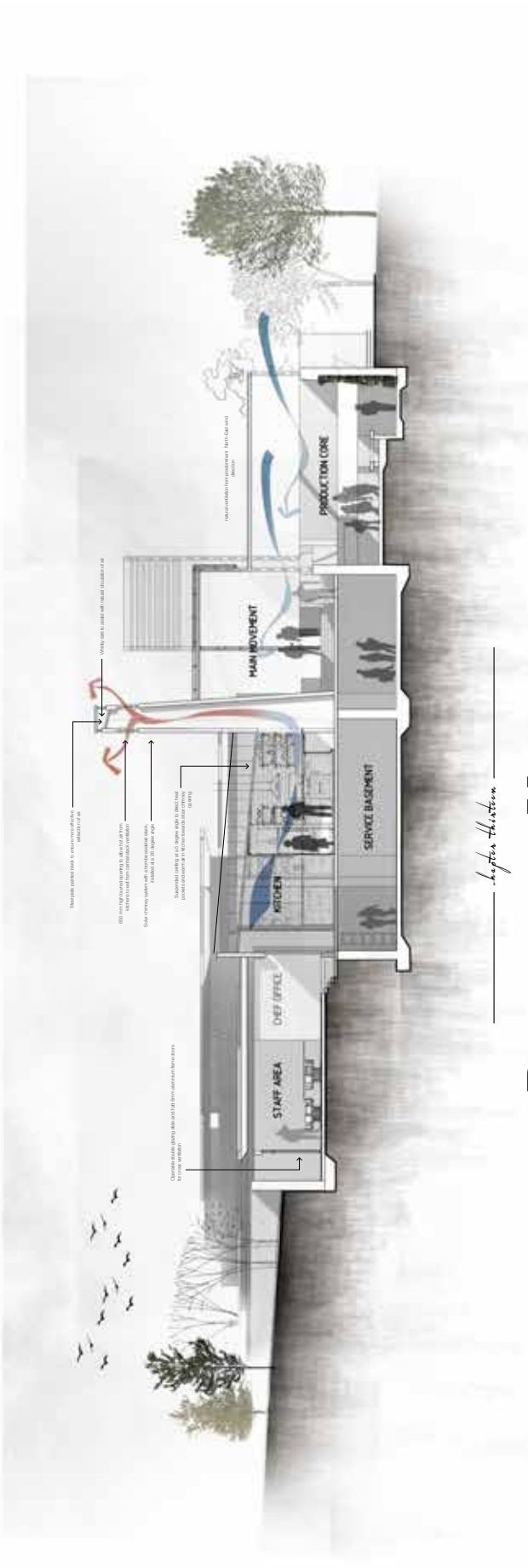
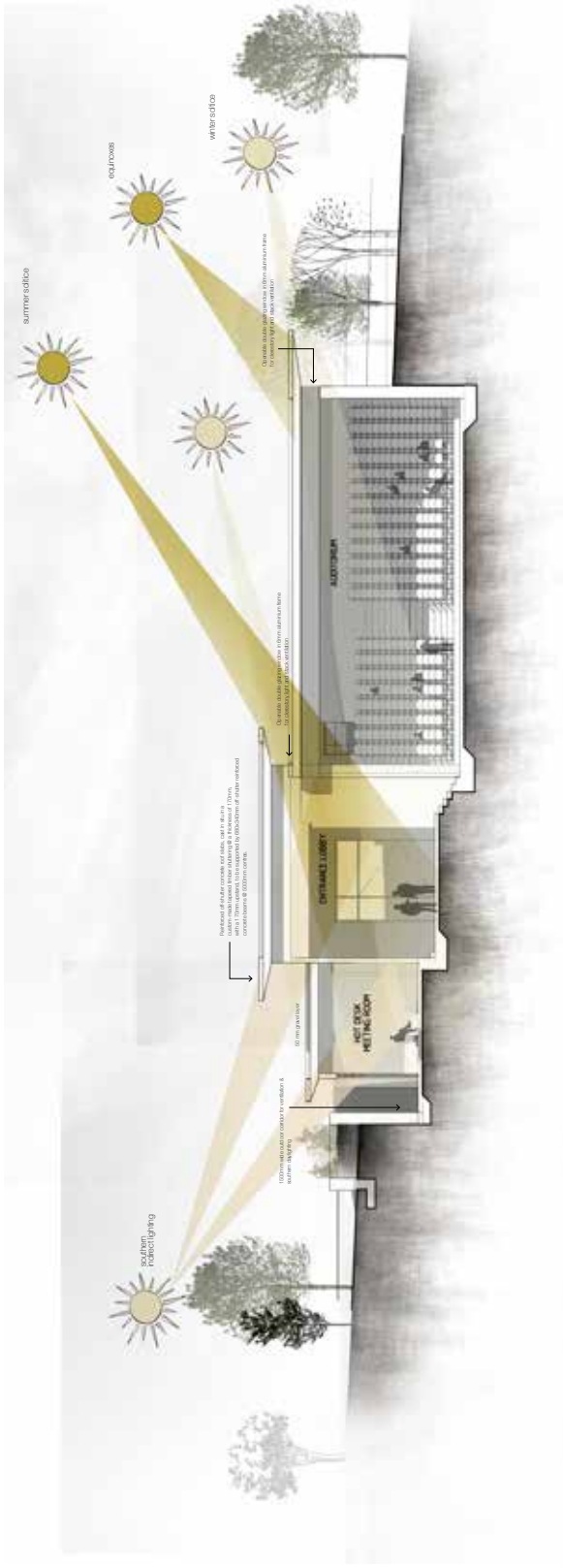


*Isiphe Hinton*

# WETLAND

TREATMENT STRATEGY





— *Angela Hartman* —

# DAYLIGHTING & VENTILATION

SCALE 1:100



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*chapter eight*

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# APPENDICES

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FINAL PRESENTATION

*Model*

