

We can now begin to explore the possibilities involved with the creation of a spatial network of growth, opportunity and empowerment. It is necessary to investigate the site in its totality, so a large-scale framework proposal must be considered before we proceed with the masterplan design. Designing at this larger scale first will provide a set of principles with which to work, as well as providing clues to the ways in which the University campus links to its surroundings and how it could possibly act as a catalyst to facilitate change.

The first step even before the framework, however, is to identify the overall vision and aims for the project so that they may inform the way forward.

## Part 1: Conceptual Framework



Figure 121 & 122:  
Conceptual exploration  
of possible interventions  
on the UP Mamelodi  
campus (Author, 2008)

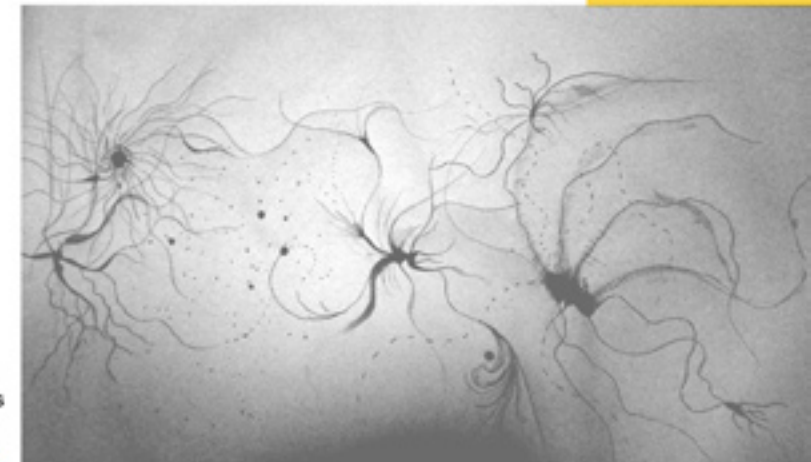
## Vision:

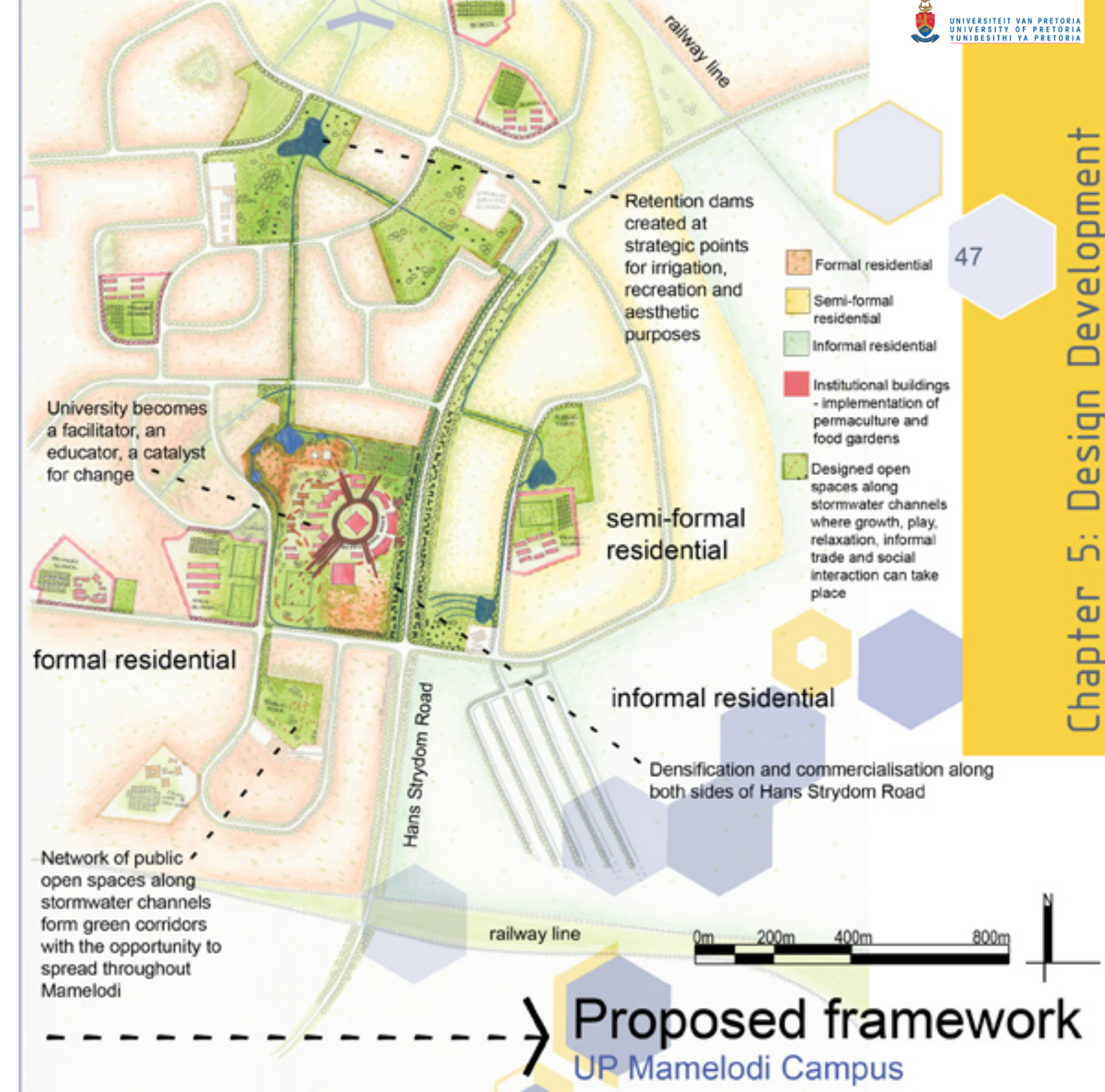
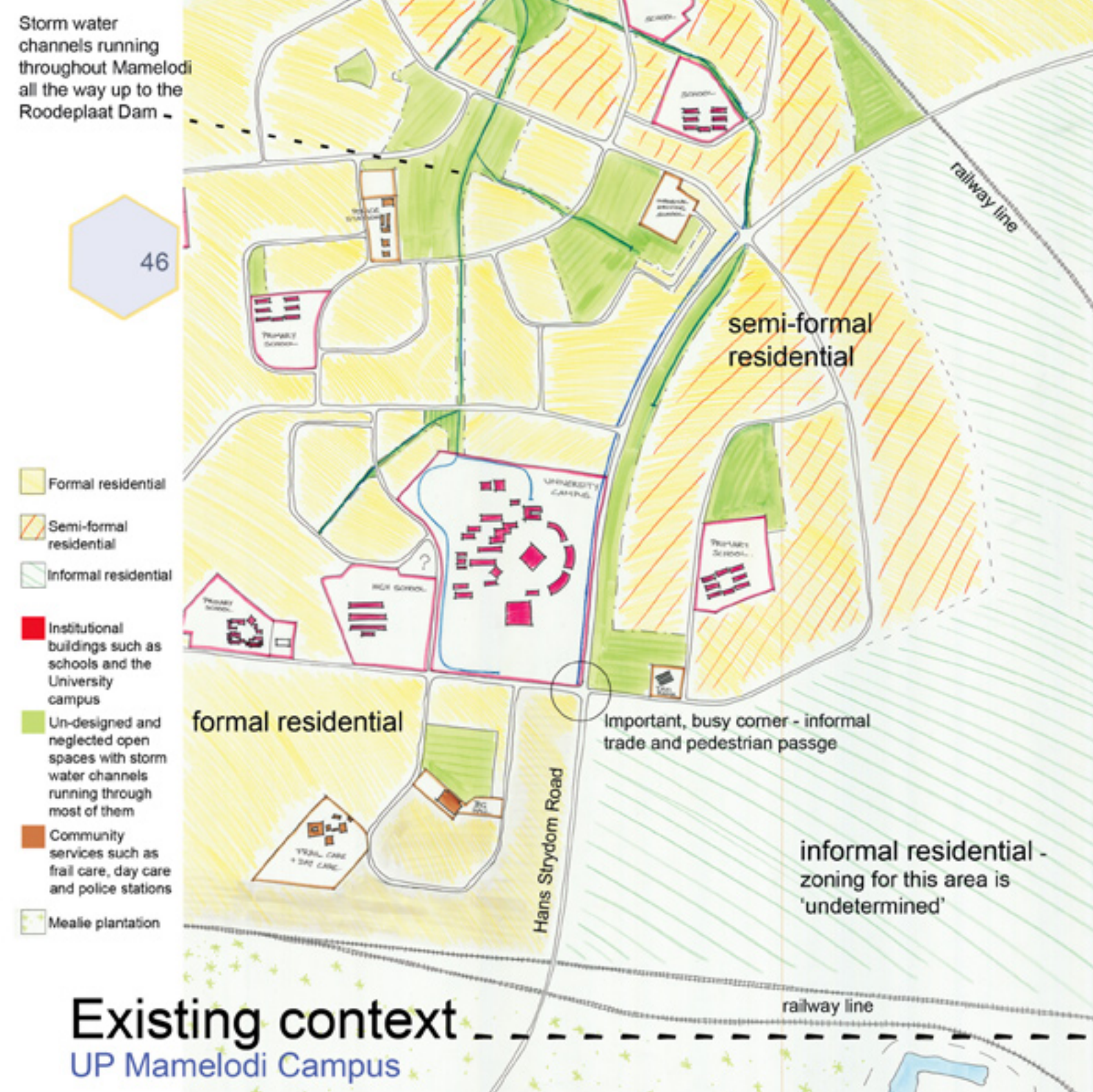
- The University as a catalyst; a facilitator of change
- The University engaging with the community
- Interventions that educate and empower people as far as possible
- A permeable society focussing on community interaction
- Place-making, linkages and connections
- Redefinition of the education system in Mamelodi

## Aims:

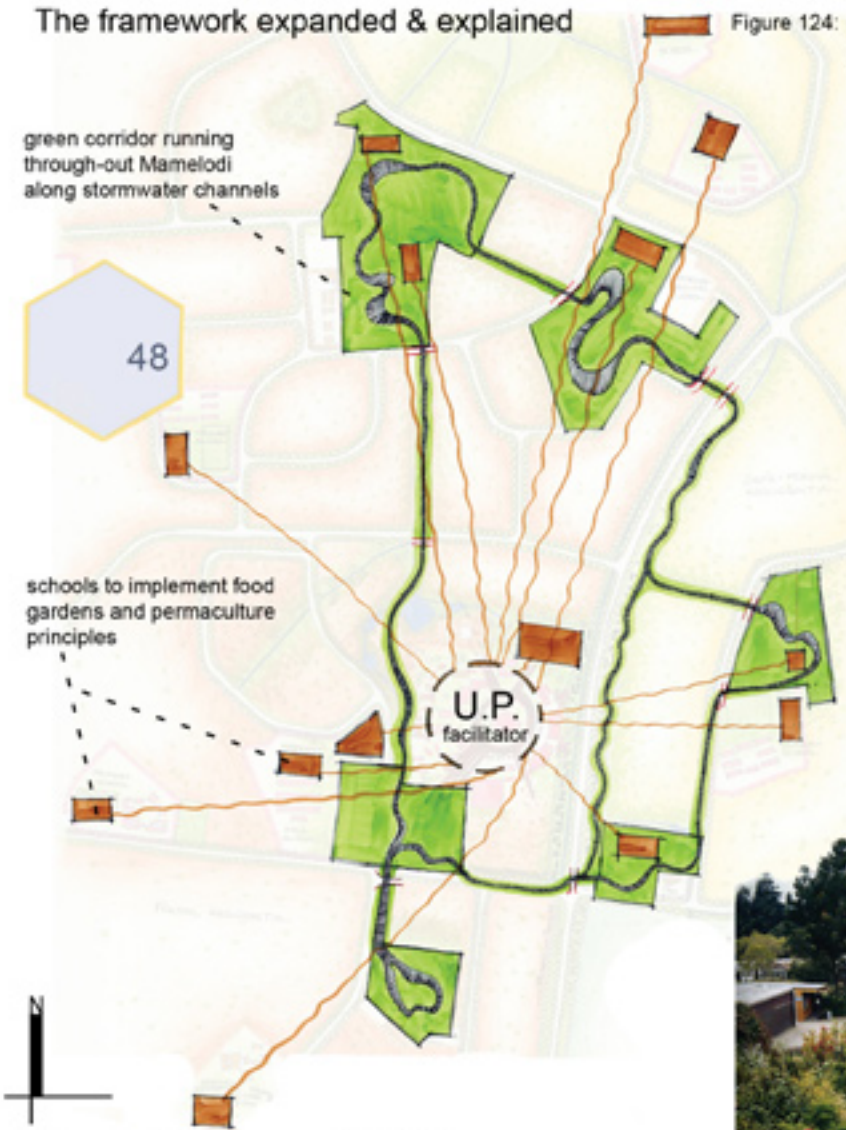
- Economic empowerment
- Social cohesion
- Environmental and ecological repair
- Shifts in perception
- Identity and pride

Figure 123:  
The infectious impact of a catalyst (Author, 2008)





## The framework expanded & explained



University becomes a facilitator:

- Surrounding schools to implement a nutrition program with training and resources to be provided by the university.
- University grounds become a living laboratory where people can learn, teach and develop their skills.

## Food gardens

Educate, empower, inspire, integrate

Figure 124: The spread of knowledge (Author, 2008)  
Diagram showing how the University can link with and benefit surrounding schools

"The Edible Schoolyard addresses several key contemporary social policy agendas in an innovative way. Issues around community cohesion and multiculturalism, public health, education reform and environmental responsibility are all addressed through a visionary yet pragmatic gardening and cooking programme. Through creating a slower, more experiential and less overtly 'skills-oriented' approach to education, it has demonstrated that environmental and social responsibility can be taught to children and have a tangible impact on the community as a whole."  
(Cumberlidge & Musgrave, 2007:78)



Figure 125: Edible Schoolyard, USA, 1994 - present  
(Cumberlidge & Musgrave, 2007:78)

community cohesion

empowerment

experiential education

Figure 126: Green, growth, growing (Author, 2008)

This greening initiative spreads out into Mamelodi bringing about pride and psychological empowerment

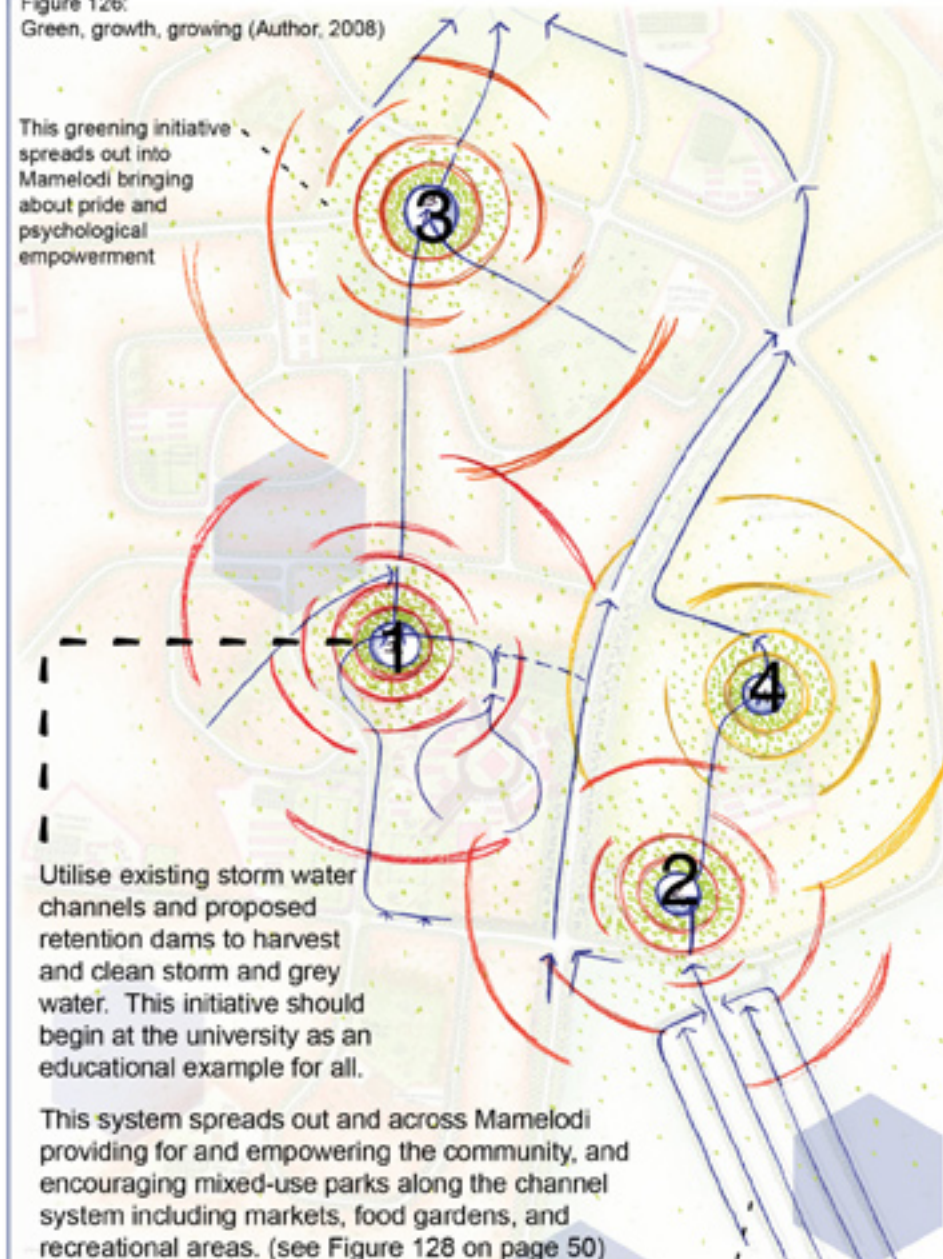
Utilise existing storm water channels and proposed retention dams to harvest and clean storm and grey water. This initiative should begin at the university as an educational example for all.

This system spreads out and across Mamelodi providing for and empowering the community, and encouraging mixed-use parks along the channel system including markets, food gardens, and recreational areas. (see Figure 128 on page 50)

Implementation of tree-lined swales in the informal sector, to channel storm water into dams for food garden irrigation and supplementation of storm water system.

## Storm water system

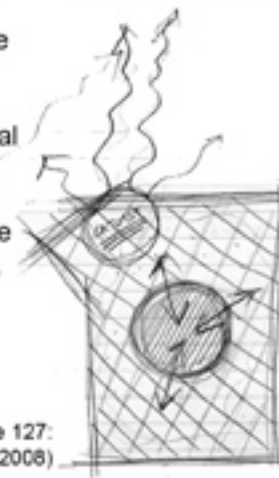
Enabling education, empowerment, connectivity and identity



The channel system existing in Mamelodi has the potential to be enlarged, upgraded, designed and used as a community food park and nursery (especially if grey water starts being pumped in). This channel system forms a green corridor running throughout the township, creating an ecological green lung which could have a larger impact and added benefits with a bit of work.

An NGO on the University campus will be responsible for this greening initiative, i.e. the University becomes a facilitator. This initiative will start at the university and grow up the storm water channel system. The first step therefore is to create a nursery as well as the food gardens on the campus. This nursery will serve as the vehicle for future expansion, providing plants for growth up the channel. More nurseries can be set up as it grows; always start small. The University will provide training for all those interested; students can come and help, and in so doing, learn too (experiential learning). Some of the plants can be sold, as well as the food. In this way, the project contributes to skills, education, employment, food, income and a green Mamelodi.

Figure 127: University as a catalyst (Author, 2008)



Part 2: Masterplan Design Concepts and Process

"Cities were invented to facilitate the exchange of information, friendship, material goods, culture, knowledge, insight, skills, and also the exchange of emotional, psychological and spiritual support." We must maximise these exchanges, whilst minimising the travel necessary to accomplish them.

Engwicht (in Hayward & McGlynn: 1993:85)

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Figure 128: Live, work, play, grow, eat, learn, love (Author, 2008)



Figure 129: Masterplan attempt # 1 - storm water channels, food gardens, keep all existing buildings, SW - NE axis (Author, 2008)



Figure 130: Masterplan attempt # 2 - storm water channels with main retention dam at lowest point of site (Author, 2008)



Figure 131: Masterplan attempt # 3 - move face of University to Hans Strydom Road and create portals inviting people into the campus (Author, 2008)



Figure 132: Masterplan attempt # 4 - allow for the future expansion of the university, use buildings as boundaries, multi-functional fences, soccer field, aquaduct (Author, 2008)



Figure 133: Masterplan attempt # 5 - living laboratory, experimental housing, open-air classrooms, shading structures, medicinal gardens (Author, 2008)



Figure 134: Final masterplan - modifications to library + public square, storm water channels + food gardens, aquaduct, shading structures + open air classrooms, SW - NE axis, community engagement faculty, multi-functional fences, living laboratory = grey water amelioration, medicinal gardens, experimental housing (Author, 2008)

6 See page 56 for a more detailed, larger version

Final and completed masterplan - combination of previous five attempts

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Figure 135:  
Conceptual ideas  
Some initial thoughts  
and ideas that guided  
the design progression  
of the masterplan

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connect



shading structures



unify

Serpentine streams & paths



A tree is not just a tree...

Look twice,  
think deeper,  
discover...

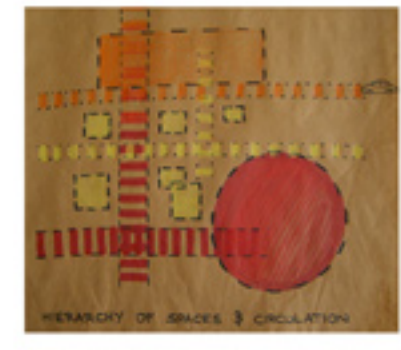
Multi-functional fences  
& medicinal gardens



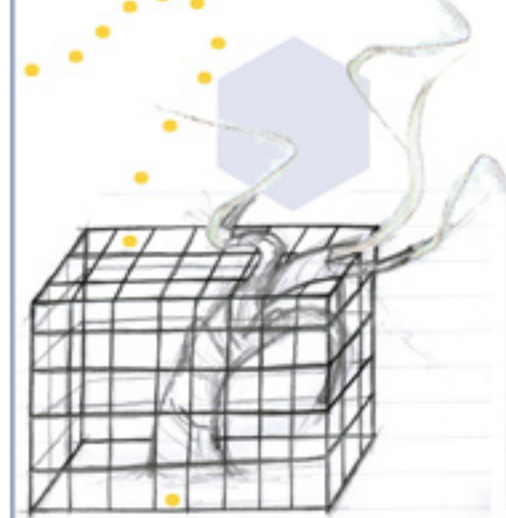
the Island



conceptually speaking...



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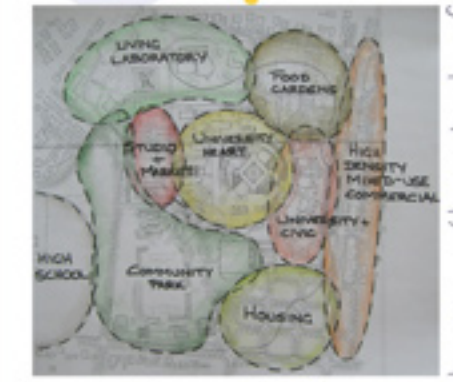


break free!

dance to the music of the wind



busy, vibey hub of activity



channel = opportunity

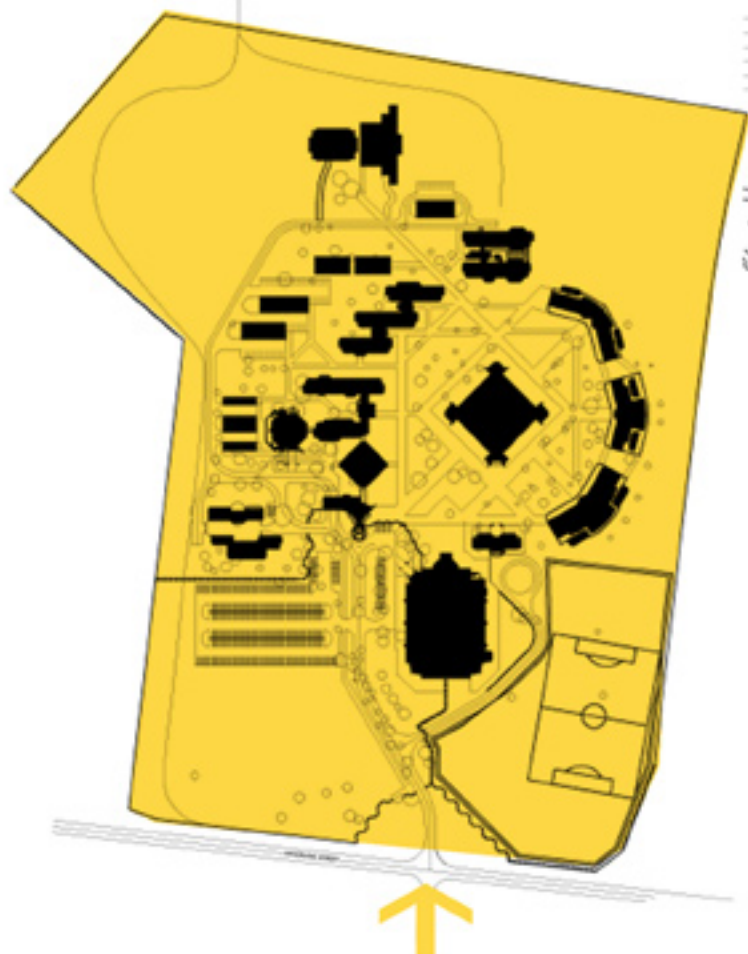


learn  
.....  
teach  
.....  
grow

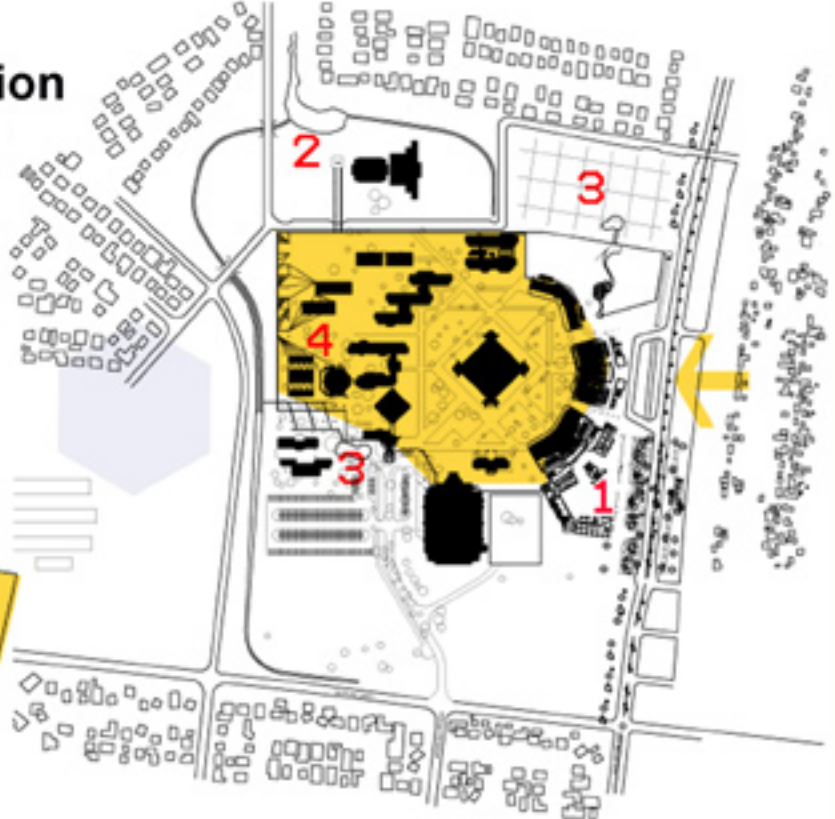
# Four phases of implementation

(Author, 2008)

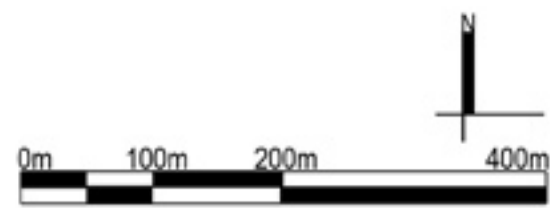
54



**Figure 136: Existing**  
Unrealised potential and wasted space



**Figure 137: Phase 1**  
 ■ Shrink secure University area, move fences and relocate the face of the University to Hans Strydom Road  
 1 Community engagement development on Hans Strydom Road  
 2 Main dam and aquaduct + relevant channels  
 3 Medicinal gardens and community food gardens  
 4 Carport open-air classrooms



**Figure 138: Phase 2:**  
 ■ Extension of library & its square  
 1 Interior section around library  
 2 Soccer field, theme gardens & soundscape  
 3 Housing development in north-east corner  
 4 Living lab + wetlands  
 Experimental housing

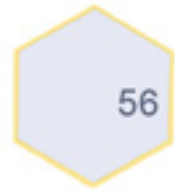
- Design Principles:**
- Building height no more than 12m (4 storeys)
  - Coverage: 70%
  - Complete relaxation of the building line
  - Zoning – mixed-use policy
  - Utilise grey water and storm water as far as possible on site for irrigation, rejuvenation of ground water, recreation and education
  - Length of block 20-40m to allow permeability, with roads every 100m
  - Pedestrian walkways, cyclist paths and street trees (indigenous) + street furniture along roads
  - Pedestrian crossings and an island in the middle of Hans Strydom
  - Encourage informal trading and stalls
  - Promote passive surveillance
  - Encourage community engagement and involvement
  - Create public spaces to be used by the community -
  - University lives out into the community
  - Densification of people and commercial activities
  - Waste recycling (collect, separate and use on or as near to site as possible)
  - Make use of sustainable and renewable energy sources



**Figure 139: Phase 3:**  
 ■ Extension and enlargement of the campus according to the group urban framework based on the design principles laid out

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# Final Masterplan



- 1 residential
- 2 hans strydom road
- 3 university entrance & community engagement
- 4 food gardens & housing development
- 5 living laboratory & experimental housing
- 6 open air classrooms & meeting areas
- 7 medicinal gardens
- 8 health clinic
- 9 soccer field / water amelioration
- 10 soundscape
- 11 themed educational gardens
- 12 arena & function garden
- 13 parking
- 14 relaxation area
- 15 cafeteria
- 16 meet / play / study
- 17 academic & community library



Figure 140: Completed Masterplan (Author, 2008) - more detailed information to follow



Figure 141: Vehicular circulation (Author, 2008)



Figure 143: Taxi's are one of the main methods of transport in Mamelodi (Author, 2008)

Circulation on campus is pedestrian only, with provision made for a multi-storey car park at the edge of the campus where it is easily accessible during soccer matches, functions in the arena, etc.



Figure 142: Pedestrian circulation (Author, 2008)

- University Entrance Point
- Primary Circulation Route
- Secondary Circulation Route



Figure 144: Walk, walk, walk (Author, 2008)

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Water runs into a main channel, and is subsequently allowed to fill smaller channels running perpendicular to the main one. This is achieved through the opening of a mini sluice gate. These smaller channels are completely permeable and allow the water to infiltrate, thereby "irrigating" the food gardens planted on either side of them.

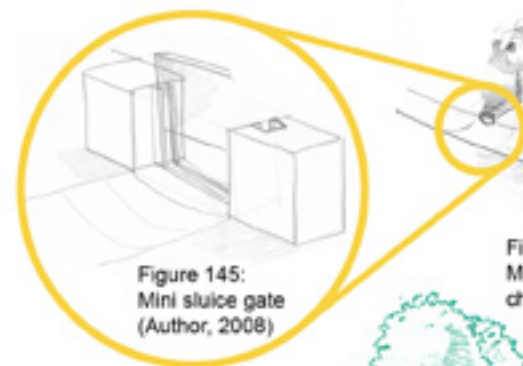


Figure 145: Mini sluice gate (Author, 2008)



Figure 146: Main feeding channels with smaller irrigation channels (Author, 2008)

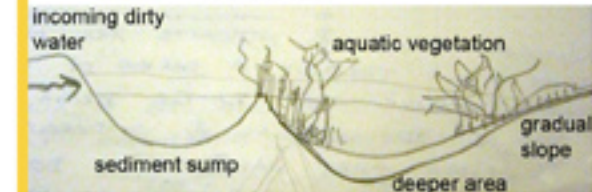


Figure 147: Multi-celled amelioration dam (Author, 2008)

The separation of a pond into multiple cells will enhance pollutant removal and lessen maintenance tasks



Figure 148: Water seeps into soil from irrigation channel (Nel, [S.a.]:30)

community empowerment = food gardens



Figure 149: Food gardens provide people with food, something to be proud of and a place to interact with others (Author, 2008)



Figure 150: Advantages of storm water (Author, 2008)

**Challenge:**  
Storm water is channeled off the site without utilising its potential as an aesthetic and recreational opportunity. It is also a useful resource that is not being tapped.

**Opportunity:**  
Use existing storm water channels both as a means of physical empowerment (food gardens, etc), and psychological empowerment - improve aesthetics, create identity of place and encourage pride and ownership.



Figure 151: Aquaduct supplies water to food garden areas as well as becoming a landmark element (Author, 2008)



Figure 152: Hardscaped channel where people can go to play, admire and meet - channel becomes the focal element, e.g. Exchange Square - Manchester (Author, 2008)

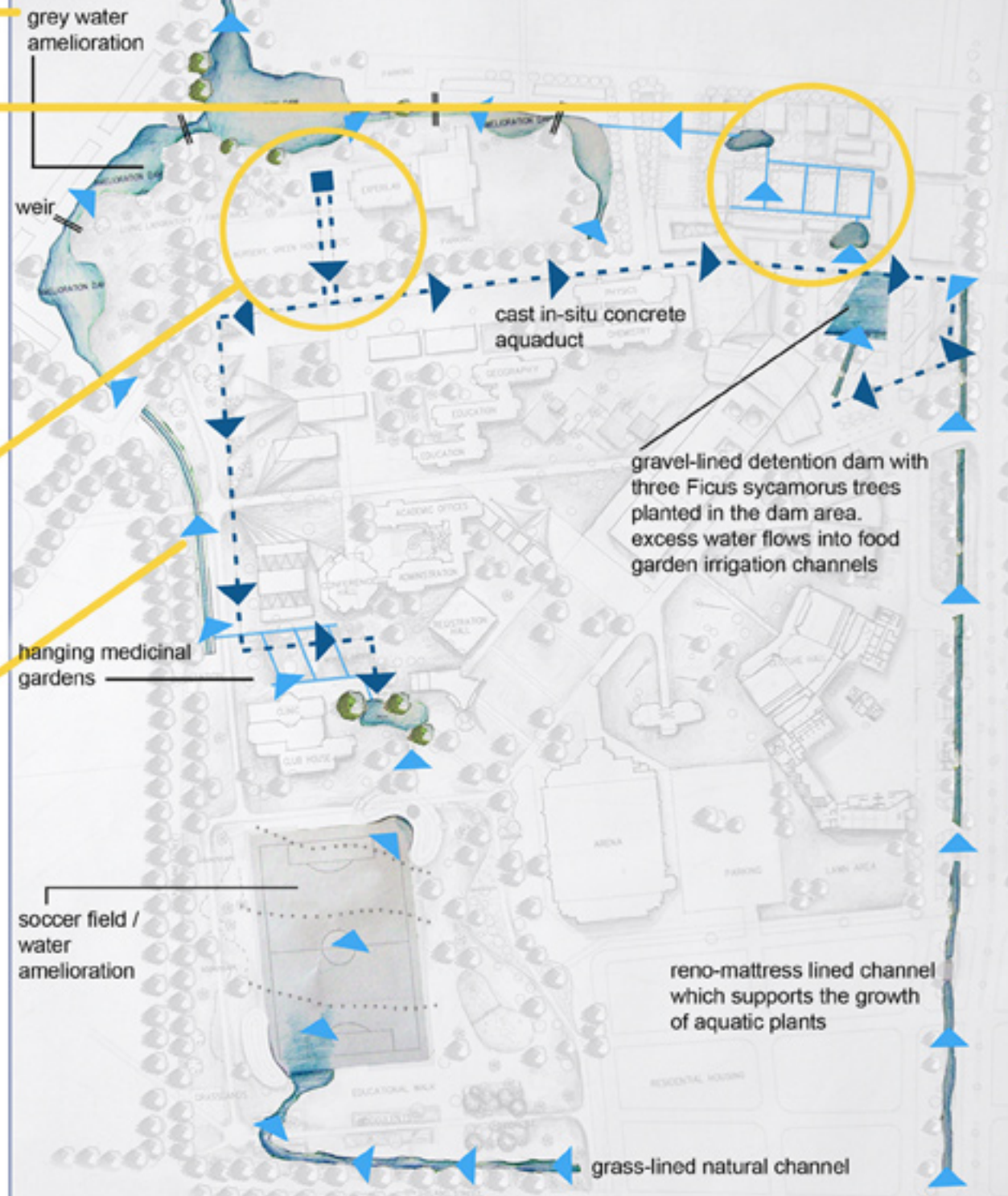


Figure 153: Diagrammatic representation of water circulation on site (Author, 2008)



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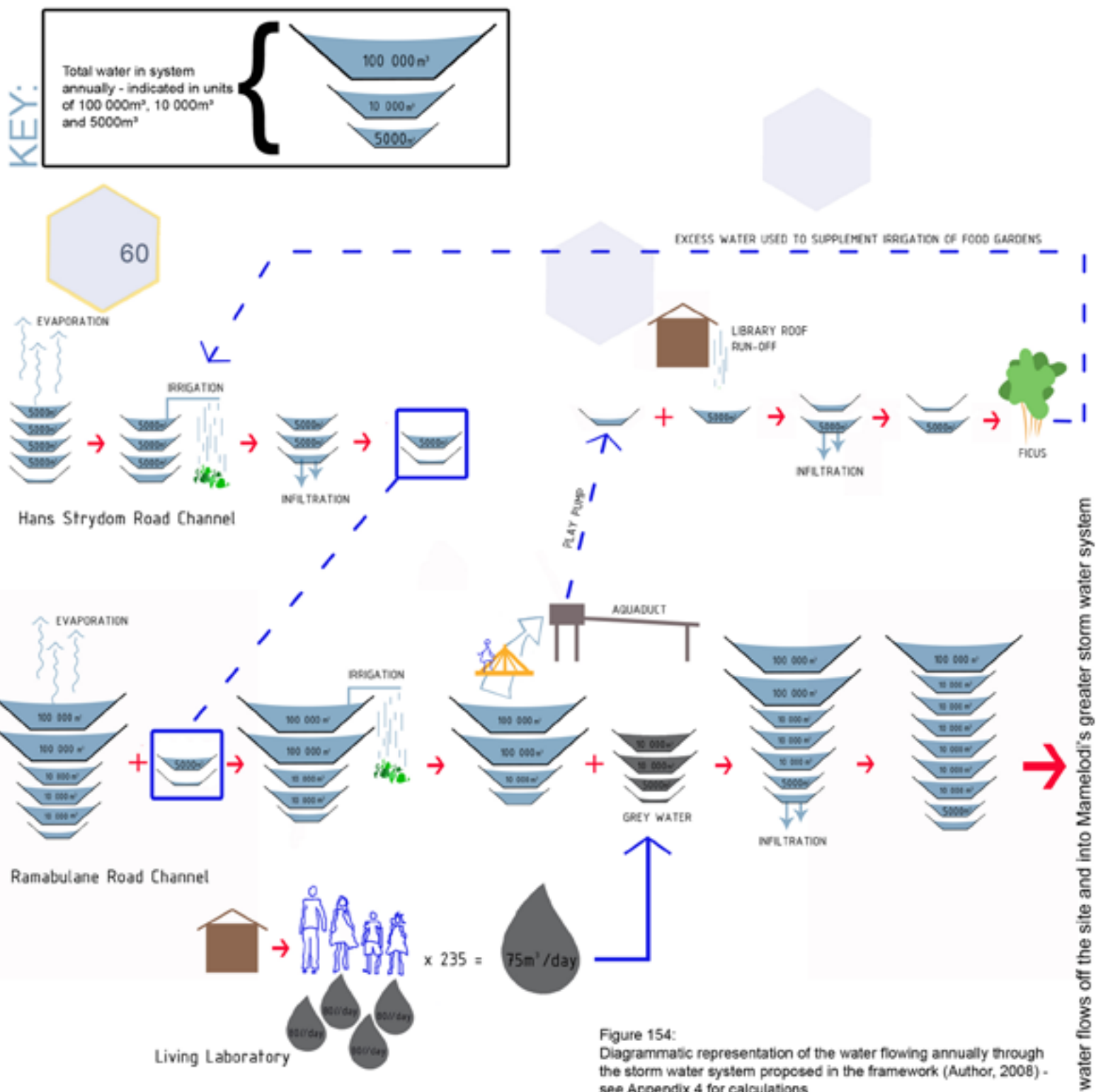


Figure 154: Diagrammatic representation of the water flowing annually through the storm water system proposed in the framework (Author, 2008) - see Appendix 4 for calculations

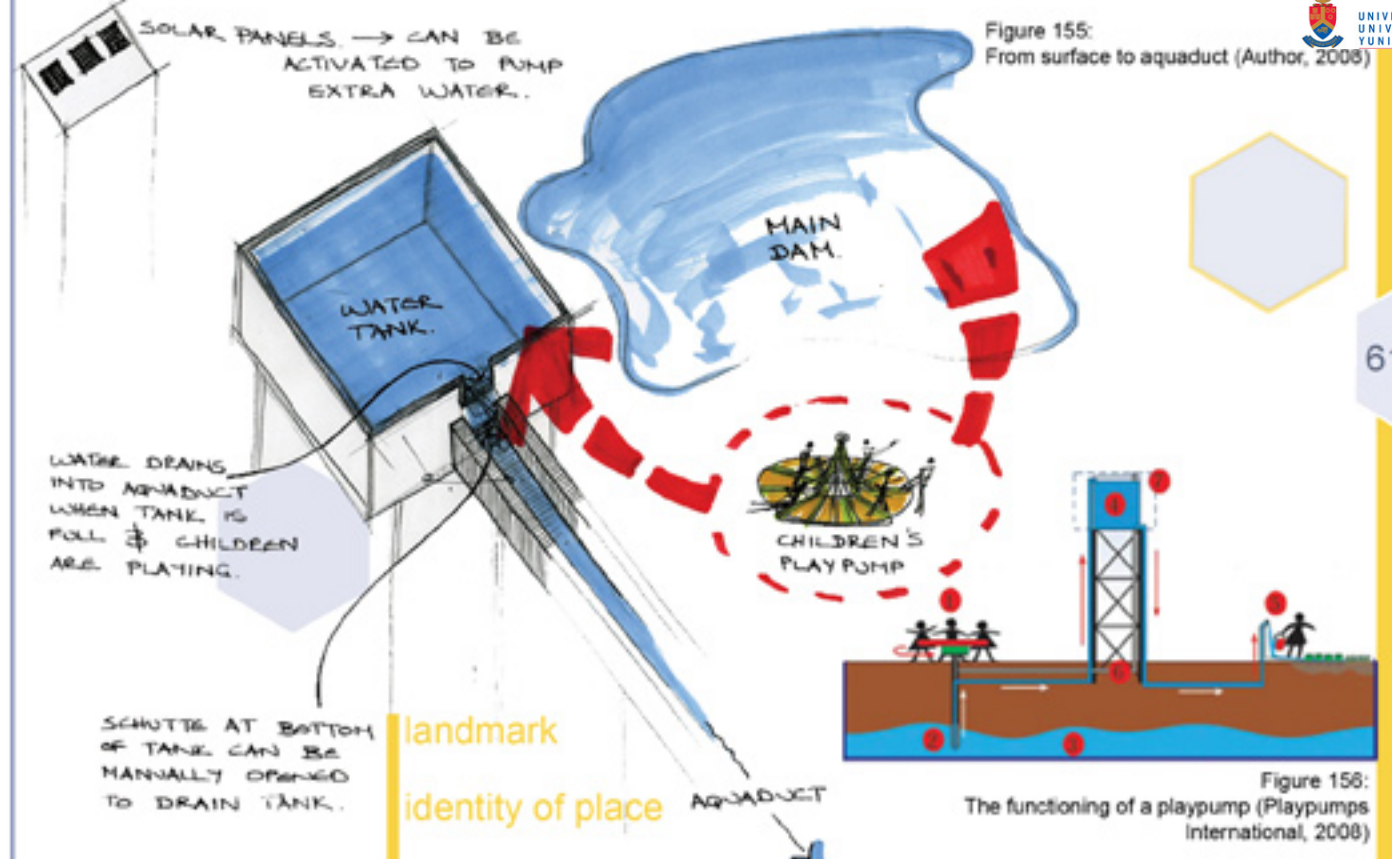


Figure 155: From surface to aquaduct (Author, 2008)

landmark  
identity of place  
community spirit  
unifying element  
multi-functional

Figure 156: The functioning of a playpump (Playpumps International, 2008)

Figure 157 & 158: Both water collection tank and aquaduct can be used as focal elements that provide a place with a specific character and identity. They have the potential to become landmarks within Mamelodi, and a source of community pride (Author, 2008) (Musgrave & Cumberlandge, 2007:14)





Figure 164: Examples of plants in the succulent rockery (Author, 2006)



Figure 165: The grassland (Author, 2007)



Figure 166: Typical aquatic plants (Author, 2007)



Figure 167: A forest of different tree species (Author, 2007)



Figure 168: Conceptual ideas for the soccer field (Author, 2008)

**education trail F**  
Comprises 4 'urban rooms', each representing a different type of vegetation - a forest, a succulent rockery, a wetland and a grassland. These rooms provide areas in which to sit and relax, as well as educational, experiential 'classrooms'

**soccer field D**  
Soccer for Hope is an NGO that uses soccer as a means of education and communication with the youth about drug and alcohol abuse and HIV-AIDS

**function garden E**  
Aesthetically pleasing flower garden where members of the community can picnic, take wedding photos, go to relax, and so forth

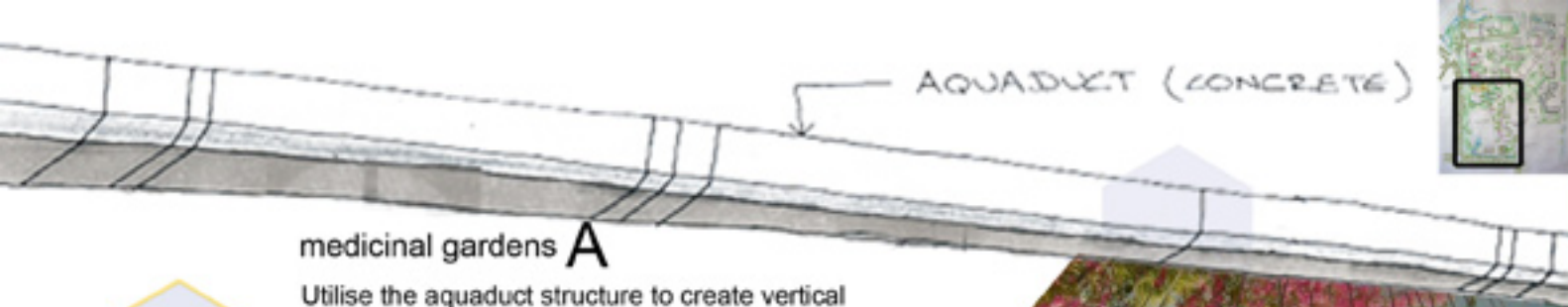
**Figure 169:**  
Soccer is a very popular sport (Author, 2008)



Figure 170: Meeting and relaxing in the succulent rockery 'room' (Author, 2008)



Figure 171: Photo's in the garden (Author, 2008)



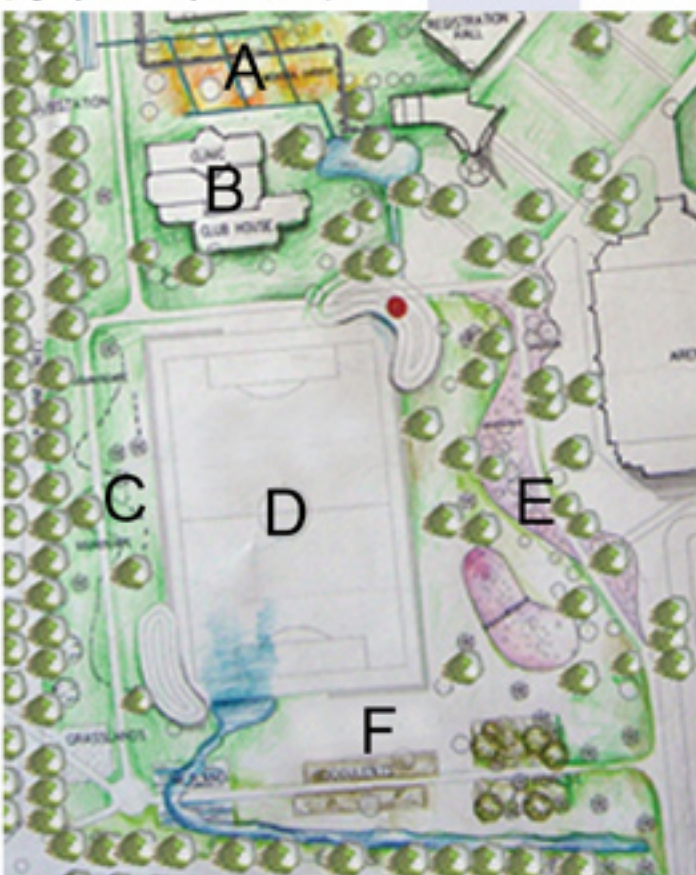
**medicinal gardens A**  
Utilise the aquaduct structure to create vertical gardens and tranquil spaces of medicinal value, both physically and psychologically.

**health clinic B**  
The University has set aside this building as a future health clinic in line with community engagement principles

**soundscape C**  
A soundscape is a sound or combination of sounds that arise from an immersive environment. It consists of natural sounds, like animal vocalizations and the sounds of weather; and environmental sounds created by humans through musical composition, sound design, or as a byproduct of ordinary human activities, including conversation, work, and play (Wikipedia, [S.a.]).  
The soundscape will consist of, among other things, Aeolian harps with a twist... Called "Plastorgans", these recycled, innovative musical instruments double as community art works, stimulating feelings of pride and ownership. Old bottles with slits cut into them are decorated by local community members, and due to their low-cost can be changed and redecorated as often as possible, rendering them the perfect ephemeral sculpture garden.



Figure 160: Medicinal gardens are supported and irrigated by aquaduct structure (Digitally modified by author, 2008)



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Figure 161: Vertical landscapes create tranquil private spaces (Margolis & Robinson, 2007:30)

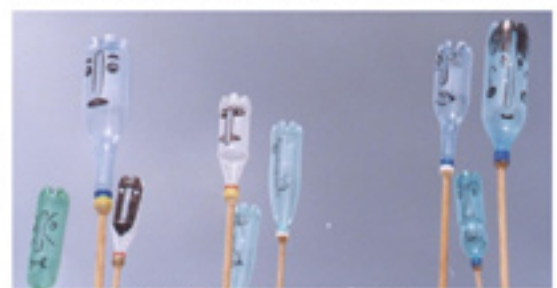
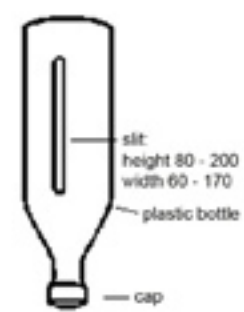


Figure 162 & 163: Plastorgan (Ferment, [S.a.])

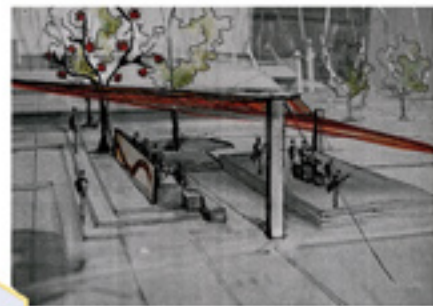


Figure 172: Small stage area for informal concerts, etc. (Author, 2008)

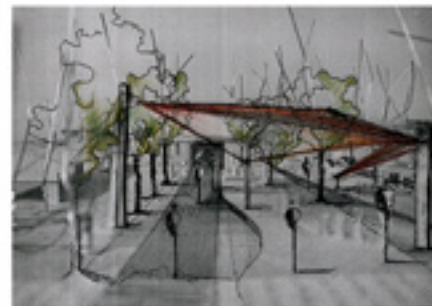


Figure 173: View of pathway leading into the University under the shading structures (Author, 2008)



Figure 174: Woven fences with niches opening to both sides to invite user participation (Author, 2008)

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## shading structures and woven fences **G**

Involve the community in the creation of shading structures over and around the existing carports. This creates both a sculptural place that community members can identify with and take pride in, as well as a space which is robust and multifunctional and can be used to host workshops, or as outdoor classrooms, market spaces, etc.

Community members will also be involved in the weaving of fence murals thereby ensuring that the transition zone between the University and the surrounding residential areas is welcoming and becomes a part of the local community.



Figure 175: Woven fence - The Eden Project, Cornwall, U.K. (Author, 2006)



Figure 176: Simple structures - interesting patterns (Author, 2007)

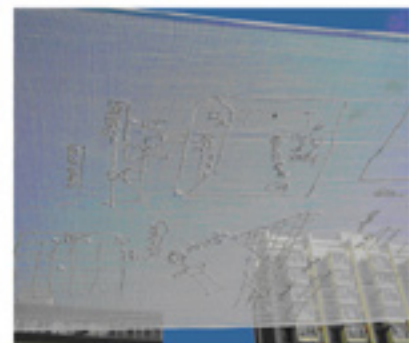


Figure 177: Shading structures that create shadow art on the ground - Cascoland, Johannesburg (Author, 2007)

## living laboratory **H**

The University leases out a portion of its land for 50 years to a housing company like SHIFT. In conjunction with the University, the land becomes a living research laboratory for experimental housing. The Chemical Engineering, water utilisation unit, as part of the community engagement initiative, does short practical courses on cleaning grey water, etc. Students and community members are therefore encouraged to get involved and obtain both information and skills, as well as a sense of self-fulfilment and accomplishment.

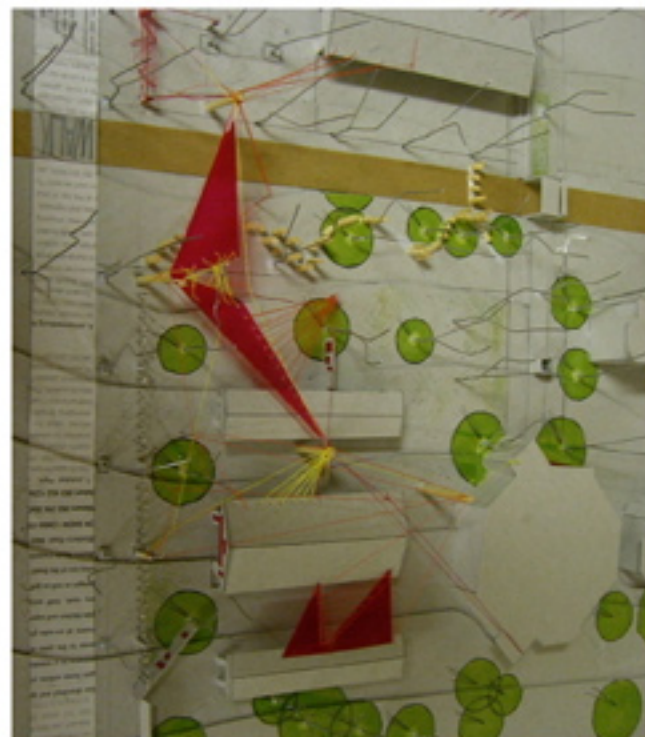


Figure 178: Conceptual model exploring use and connection of car ports and the surrounding spaces (Author, 2008)

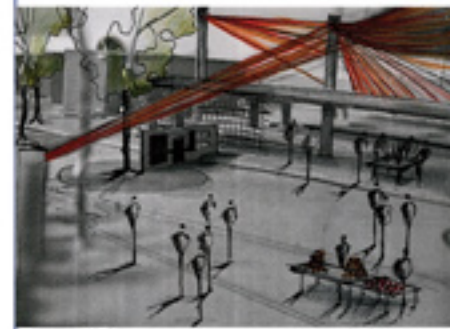


Figure 179: Car ports as market spaces with storage areas (Author, 2008)



Figure 180: Fence as furniture - Park JB Lebas, France (Gaventa, 2006:121)



Figure 181: Adaptable and comfortable (Give and Take. Centuori & Rock, 2003)

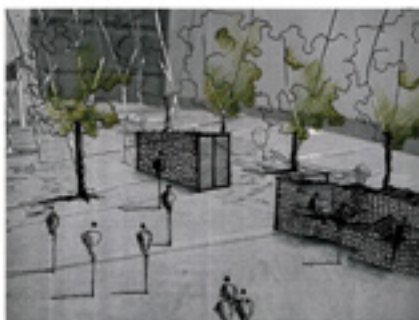


Figure 182: Fences that double as seating elements to both sides (Author, 2008)

## multifunctional fences **J**

Fences are conceived as a necessary security element in South Africa – this however, does not mean that they must be mono-functional and boring. Multi-functional fences ensure that the security element remains, but that boundaries are not as formal or rigid, and that fences can be used from both sides, thereby encouraging interaction between people within and without. They give a “come closer” invitation rather than a “go away” message.



Figure 183: Fences that double as seating / market space (Author, 2008)

## car port outdoor classrooms

Create an opportunity for the final urban framework to occur – implement open air classrooms and workshops in a temporal setting in order to bring people onto the campus. This enables it to become functional in a way that is meaningful and of value to the community. The existing carports provide an ideal setting for such an intervention. Teach art and music classes, small business and book keeping skills, craft workshops, community building workshops, nutrition and planting information sessions, aids awareness workshops, basic literacy skills, etc. These spaces can also function as meeting and gathering spaces.

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cafeteria area **K**

Consisting of a variety of vendors and stalls. Located adjacent to the study and meeting areas, and just off a main circulation path.

Amphitheatre-type space **L**

Stepped grassy seating space with an informal stage area and projection screen. Links the interior section of the University with the community park and soccer field.

under and around the library **M**

Hardscaped area for easy maintenance and circulation. Raised, open-air study space under library building. Mediation between built forms and natural forms - trees protude through holes in the concrete slab 'softening' the raised concrete walkway and creating a feature.

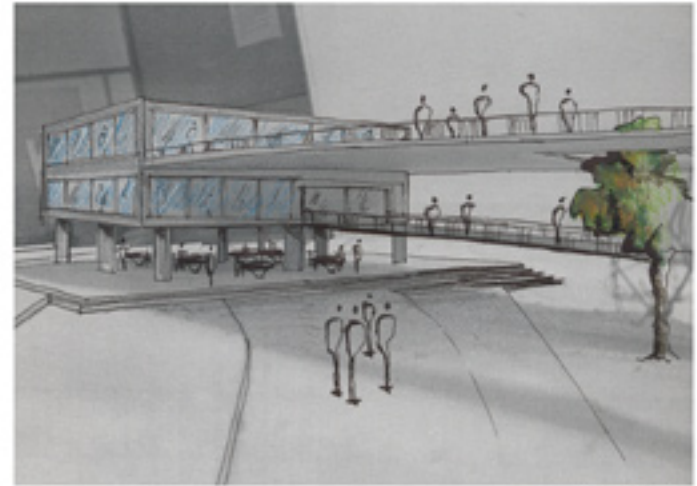
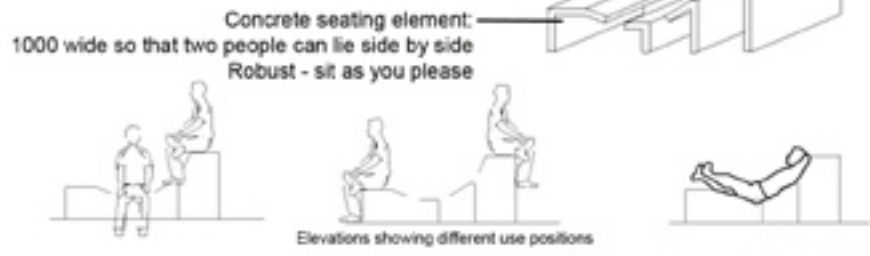


Figure 185: Underneath the library (Author, 2008)

chill space **N**

Open grassy area with plenty of large shade trees and concrete seating elements. Adjacent to the lecture halls, it is located in the perfect position to relax after class, meet with friends, eat a quick lunch, and so on.

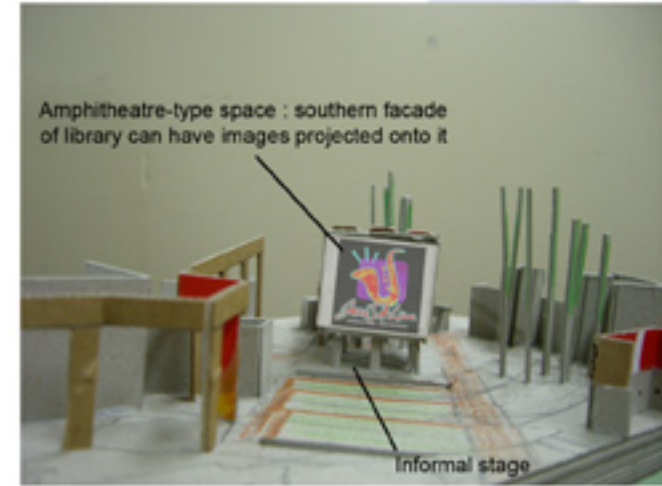


Concrete seating element: 1000 wide so that two people can lie side by side Robust - sit as you please

Figure 187: Conceptual seating elements (Author, 2008)



Figure 184: Model showing the interior section of the University from above (Author, 2008)



Amphitheatre-type space : southern facade of library can have images projected onto it

Informal stage

Figure 186: Model showing amphitheatre-type space and projection area (Author, 2008)

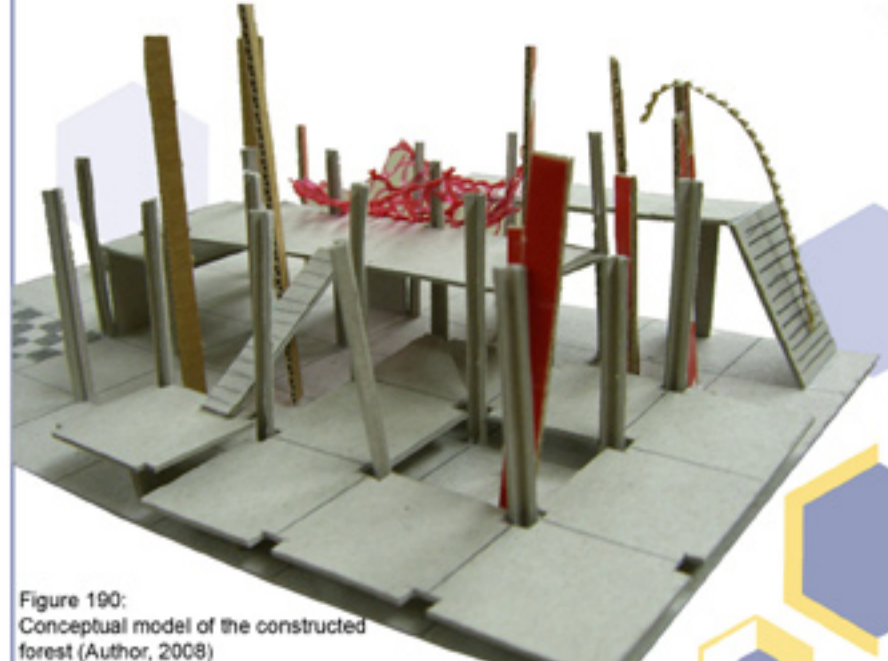


Figure 190: Conceptual model of the constructed forest (Author, 2008)



Figure 188: Model showing prominence of vertical elements (Author, 2008)



Figure 189: Model from the top showing raised platforms and hammock-type structures (Author, 2008)

the constructed forest **O**

- Different levels
- Vertical elements - trees & supports
- Hammocks
- Shading structures
- Play spaces - slides, ropes, ladders, swings, etc.
- Meeting, working, relaxing, seating

66

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Figure 191: Model showing the existing layout and library building (Author, 2008)



Figure 192: Attempt at emphasising the circular element (Author, 2008)

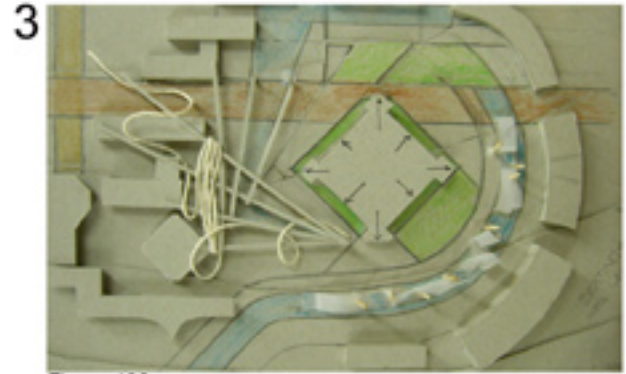


Figure 193: Attempt at integrating the different grid systems (Author, 2008)

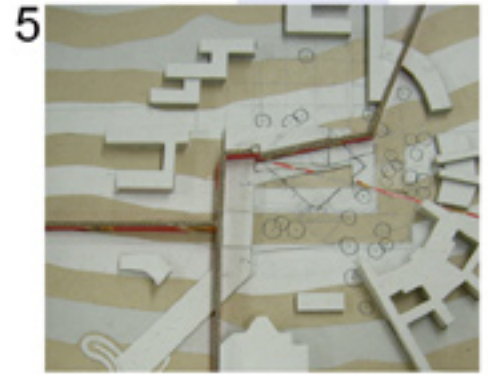


Figure 194: Connecting the 2 corners of the site and making the library accessible from the outside (Author, 2008)

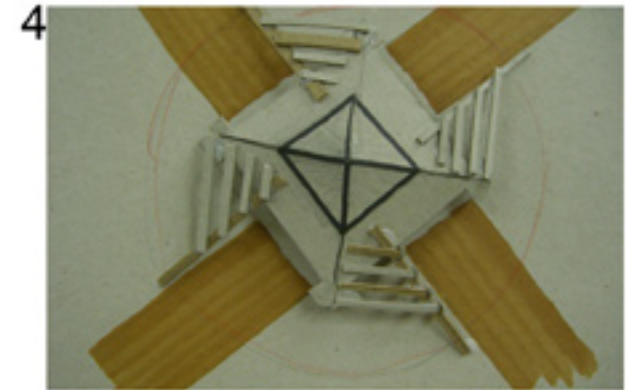
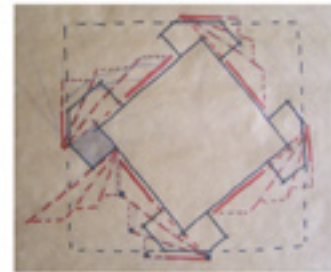


Figure 196: Alternate between the two main grid systems in order to reconcile them (Author, 2008)



Figures 195, 196, 197: Diagrammatic attempts (Author, 2008)

**Challenge:**

- Existing library:
- rigid and restrictive
  - visually impermeable
  - inaccessible to the public.



Figure 199: Connection and modification of two existing buildings (Author, 2008)



Figure 200: Transition zone between public and semi-public, created by overhang (Author, 2008)

**Solution:**

The proposed community library tries to mediate between the demolition of the existing library and keeping it as it is now. The new library is created by linking the existing building with one of the existing lecture halls. The structural supports of the existing library will be kept while the ground floor walls will be broken out to increase permeability (1), thereby creating an open-air study hall. The books will be shifted one floor up and a second floor will be built on top (2). The first floor will connect to the old lecture hall (3), which will be remodelled into the community library (4). These interventions succeed in breaking the rigid geometry, linking the community and the university, and creating a visually permeable, open and inviting library which is accessible from the outside.

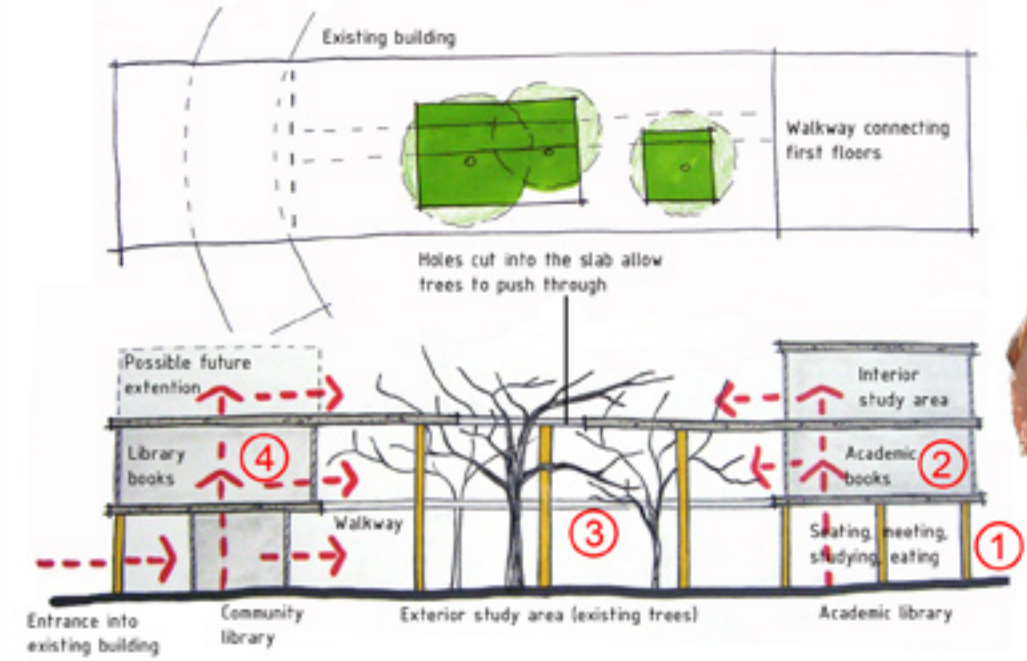


Figure 201: Diagrammatic plan and section of proposed library building (Author, 2008)

