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.
Chapter 5: Design Development

Existing context
UP Mamelodi Campus

Proposed framework
UP Mamelodi Campus
The framework expanded & explained

Figure 124: The spread of knowledge (Author, 2008)

Diagram showing how the University can link with adjacent surrounding schools

The Eddie Stobrook 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 landscaping programme. Through creating a closer, 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 & Magrane, 2007:76)

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

This greening initiative spreads and its Mamelodi brings about pride and psychological empowerment

The channel system exists 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 cycled). This channel system forms a green corridor running throughout the township, creating an ecological green zone 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 stormwater 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 in the channel. Mole nursery 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 125: Ritchie Fischcourage USA 1984 - present (Cumberlidge & Magrane, 2007:76)

Figure 127: University as a catalyst (Author, 2009)

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 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

University becomes a facilitator:

- Surrounding schools to implement food gardens and permaculture principles
- U.P. facilitator

Food gardens

Educate, empower, inspire, integrate

Figure 128: Tree-lined swales in the informal sector (Author, 2008)
“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 those exchanges, whilst minimising the travel necessary to accomplish them.


Part 2: Masterplan Design Concepts and Process

Figure 128: Masterplan attempt #1 - storm water channels, food gardens, keep all existing buildings, SW - NE axis (Author, 2008)

Figure 129: Masterplan attempt #2 - storm water channels, main retention dam at lowest point of site (Author, 2008)

Figure 130: Masterplan attempt #3 - move site of University to Hong Kong Road and create portals linking people into the campus (Author, 2008)

Figure 131: Masterplan attempt #4 - allow for the future expansion of the university, use buildings as boundaries, multi-functional zones, soccer field, aquaduct (Author, 2008)

Figure 132: Masterplan attempt #5 - living laboratory, experimental arid climate, open-air classrooms, shade structures, medicinal gardens (Author, 2008)

Figure 133: Final masterplan - modifications to library + public square, storm water channels + food gardens, aquatic, shading structures + open-air classrooms, SW - NE axis, community engagement faculty, multi-functional zones, living laboratory + grey water amelioration, medicinal gardens, experimental housing (Author, 2008)

Final and completed masterplan - combination of previous five attempts

Chapter 5: Design Development
Figure 135: Conceptual ideas

Some initial thoughts and ideas that guided the design progression of the masterplan.

connect

A tree is not just a tree...

Look twice, think deeper, discover...

Serpentine streams & paths

unify

dance to the music of the wind

break free!

Conceptually speaking:

Multifunctional spaces

& medicinal gardens

The Island

Shelly, Feely Herbs

inspiration

ideas

walk the path...

channel = opportunity

gently, voiced bud of activity

Teach, learn, grow
Four phases of implementation

(Author, 2010)

Figure 136: Existing
Unrealised potential and wasted space

Figure 137: Phase 1
1. Shrink secure University area, move tenors and relocate the face of the University to Hans Strydom Road
2. Main dam and aqueduct + relevant channels
3. Medicinal gardens and community food gardens
4. Corridor open air classrooms

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, reclamation of ground water, evaporation and advection
- 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 basing and stalls
- Promote passive surveillance
- Encourage community engagement and involvement
- Create public spaces to be used by the community
- University lives cut into the community
- Densification of people and commercial activities
- Waste recycling (sold, separated and use on or as near to site as possible)
- Make use of sustainable and renewable energy sources

Figure 138: Phase 2
1. Extension of library & its square
2. Interior section around library
3. Sport field, theme gardens & soundcape
4. Housing development in northeast corner
5. Living lab + wetlands
6. Experimental housing

Figure 139: Phase 3
1. Extension and enlargement of the campus according to the group urban framework based on the design principles laid out
Water runs into a main channel, and is subsequently allowed to fill smaller channels running perpendicular to the main one. This is echoed 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.

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

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

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

Figure 145: Mini sluice gate (Author, 2008)
Figure 146: Max feeding channels with smaller irrigation channels (Author, 2008)
Figure 147: Multi-select amelioration dam (Author, 2008)
Figure 148: Water seeps into soil from irrigation channel (Yak & 3 30).
Figure 149: Food gardens provide people with food, something to be proud of and a place to interact with others (Author, 2008)

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

Chapter 5: Design Development

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medicinal gardens A

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

health clinic B

This University has set aside this building as a future health clinic in line with community engagement principles.

soundscapes 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 price and ownership. Old bottles with silts 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.

design trail F

Consists of 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 160: Examples of plants in the succulent rockery (Author, 2006)

Figure 161: Vertical soundscapes create tranquil private spaces (Mago & Robinson, 2007-20)

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

Figure 164: Medicinal gardens are supported and injected by aqueduct structure (Visually modified by author, 2006).

Figure 166: The grassland (Author, 2007)

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

Figure 168: Conceptual ideas for the soccer field (Author, 2006)

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

Figure 170: Meeting and relaxing in the succulent rockery. Photo's in the garden (Author, 2006)
shading structures and woven fences

Involves 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.

living laboratory

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.

Fences are conceived as a necessary security element in South Africa – this however, does not mean that they must be monofunctional 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.
Chapter 5: Design Development

Figure 185: Model showing the interior section of the University from above (Author, 2008)

Figure 186: Model showing the constructed forest (Author, 2008)

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

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

Chill space
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.
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 195: Alternate between the two main grid systems in order to recirculate them (Author, 2008)

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

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. This 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 rigidity. Linking the community and the university, and creating a visually permeable, open and inviting library which is accessible from the outside.

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

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

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