CHAPTER

8

DETAIL DESIGN

8.1. INTRODUCTION

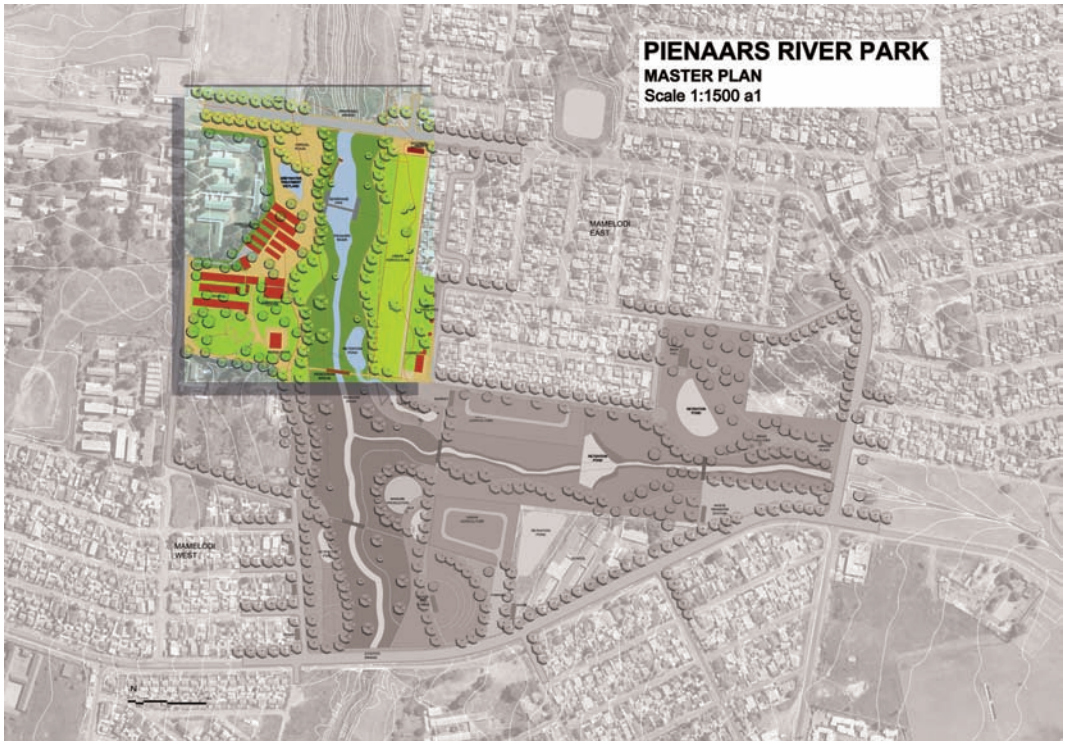


Figure 92: Sketch plan area (Author, 2011)

The author further looks at the northern portion of the park for the detailed design of the river edge and proposes community centre with agricultural facilities, school, hall and information centre (Figure 92) that will provide an opportunity to better demonstrate some of the ideas that can bring people from both sides of the river together in a shared public space and demonstrate role of landscape intervention in reclaiming the river edge.

This chapter first briefly looks at the challenges facing the design and the principles to be taken into consideration for sketch plan area. It will then present the generators for spatial organisation and form that influence the design. The chapter will then explore how the spaces, forms and meaning grow from the site into a series of analytical and design drawings that then evolves into the sketch plan. It then presents the designed areas in detailed drawing and short explanations of how the spaces work and how they fit into the larger park system. The chapter concludes by briefly stating how the design was able to overcome the challenges and learn from the design generators in creating meaningful community life places.

8.2. ANALYSIS

The focus project area features (Figure 93-99):

- large existing trees that include london planes and jakarandas on the west could be used to provide shade and modify micro-climate.
- a raised footpath resulting in a ditch between the river and the buildings can form part of the river system circulation network while bringing people to the river's edge.

- old school buildings informally occupied by members of the community provide an opportunity for re-use saving on resoources that could be used for new structures.
- second pipe crossing river used as a 'bridge' by the locals is a hazard especially during the floods as children drown.
- stormwater outlets inside the 1:50 year floodline causing soil erosion. Area needs to be rehabilitated and outlets moved outside the floodlines.
- a proposed new vehicular bridge on the northren end provides more opportunities for access and linkage.

8.3. DESIGN CHALLENGES

Complicating factors to be taken into account include the 50 year floodlines 400mm sewer lines and electrical servitude (east of river) along the river (Figure 93). The presence of floodline means that no structures are to be built within this area. The floods have also proved to be a hazard some of the buildings to be reprogrammed are within floodlines while the floods have been reported to come close to other buildings.

8.4. DESIGN GENERATORS

Two main generators provide typologies for the design: Tswana lapa system and the river. These are place specific 'precedents' as the Tswana system was used in planning Mamelodi and still exists at the rondavels hundred metres from the sketch plan area. The author believes these elements will give the design a character that celebrates and maintains the spirit of a place.

8.4.1. Tswana *lapa* system

As already mentioned (chapter two), the *lapa* system (Figure 100-103) used a dwarf wall to define spaces, their use and hierarchy in a traditional Tswana homestead. Openings along the walls connect the spaces to more public areas. These walls can be seen in the first images of Mamelodi. The author will use the dwarf wall typology and the application of a typical wall as a multifunctional architectural element that can develop into seating, retaining walls, terraces, landmarks and/ or signage.

8.4.2. River

The river's natural form follows the contours contrasting the more rigid and formal forms in the township. Its playfulness in form makes it an inviting element in the landscape. It widens creating areas where water can settle and becomes narrower forcing water to flow faster just like paths can do in a landscape. If these linear element can be seen in design as a space for things to happen, e.g. people to pause, then it becomes a meaningful connecting place. Water is also becomes an important element in the landscape not only in the river but also in its natural cleansing processes.

Figure 93: Analysis (Author, 2011)

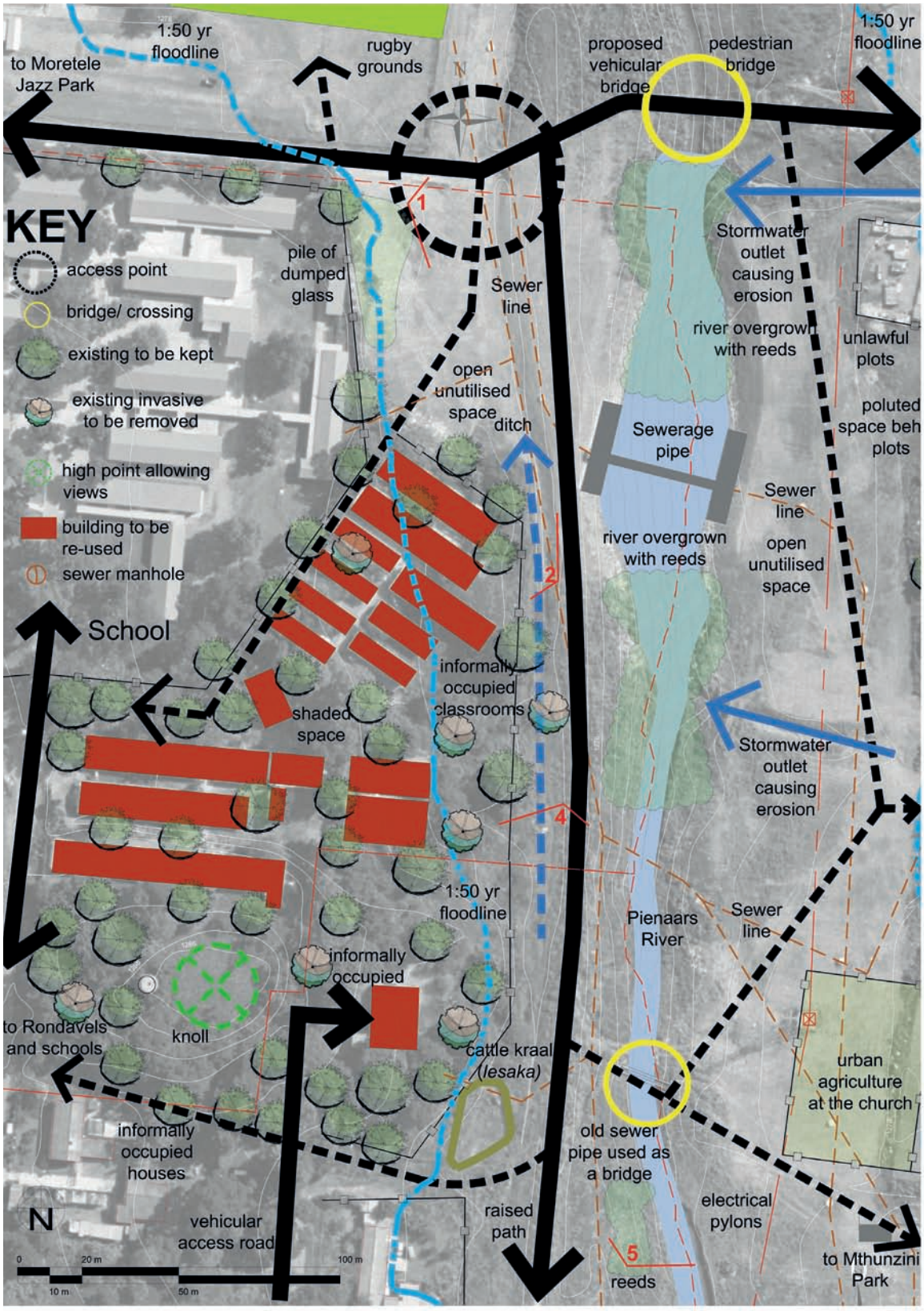


Figure 94: View of river from the bridge (Author, 2011)

Figure 95: Informally occupied building (Author, 2011)

Figure 96: Tree to provide shading (Author, 2011)

Figure 97: Raised pathway (Author, 2011)

Figure 98: View towards Magaliesberg Mountains

Figure 99: Old sewer pipe used as a bridge'

8.4.3. Space, Form and Meaning: Sketch plan development

According to Dee (2001:72), as landscape structures, walls can be used in design to link architecture and landscape or to 'connect' a site to its underlying geology, thereby creating regionally distinct space. In lapa system they are sometimes used to link different spaces. The choice of materials will therefore be very important in either linking or contrasting these depending on the effect the author is looking for. Walls can be conceived of as backdrops onto which images may be projected, words written or dramas and games played out (Dee, 2001:72). The walls sometimes form play structures for children who like climbing onto things. The users are allowed to re/appropriate the walls and use them in ways that best suit them.

When these two generators, river and *lapa*, are expressed in the landscape they

The first residents in Mammelodi sitting outside the new rondavels in the lapas. The design of the garden, importance of the gate and its notice reflects an urbanity which defies the countrified housing. (Photo: PCC, 1947).

Figure 100: Rondavels with lapa in Mamelodi (Walker & Van Der Waal, 1991: 8)

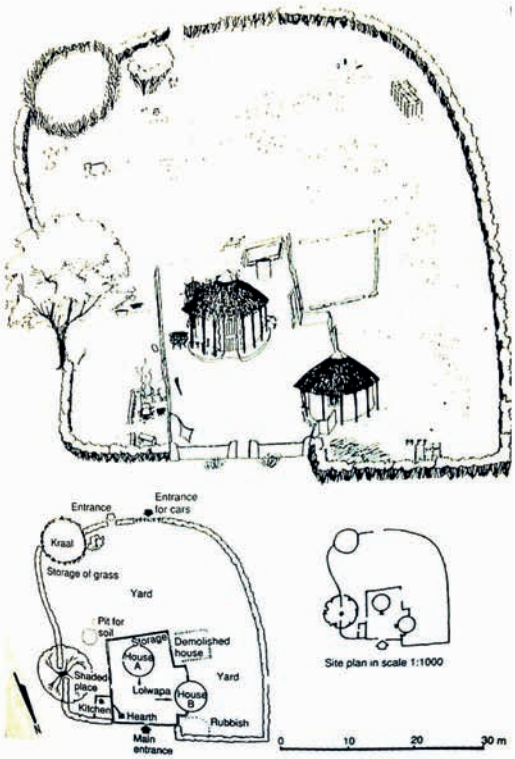
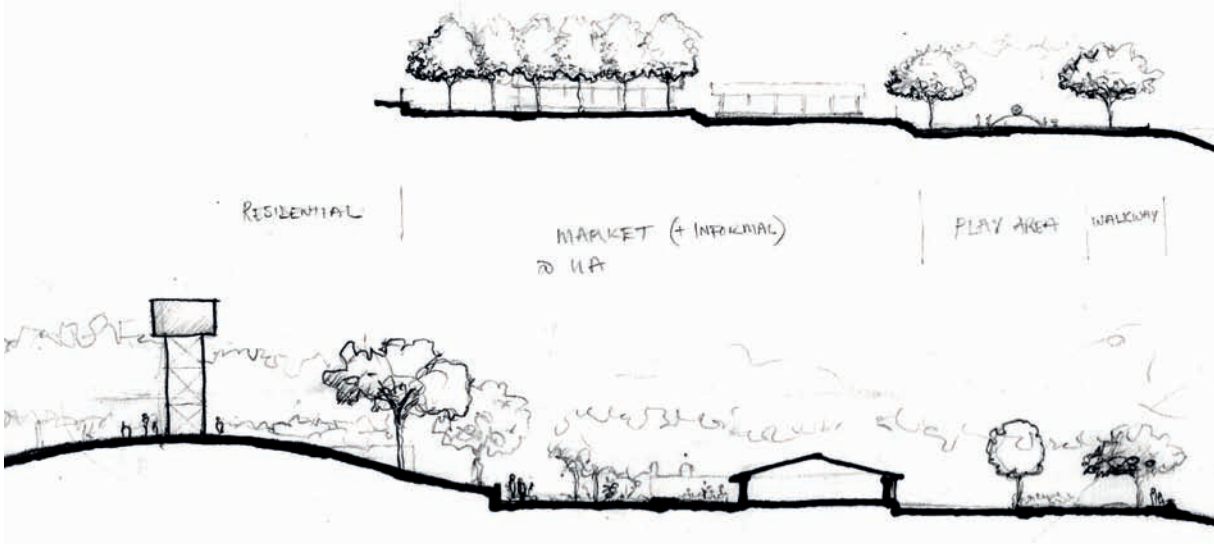


Figure 101: A typical plan of a dwelling unit belonging to one household (Silitshena & Mcleod, 1992: 239)



can form context distinctive and inviting social spaces. Paths brought closer to the water's edge allow people to connect with nature and perform religious rituals. This can be heightened where the river has plant and animal life. Bridges and boardwalks can be used to access and cross the river especially in areas that fall within the floodlines. This form can be used, following contours, to define the pathway system and used in conjunction with the dwarf walls to define spaces along the boulevard. The organic shape can be used to link spaces and define transition zones between the water's edge and the built environment (Figure 105-113).

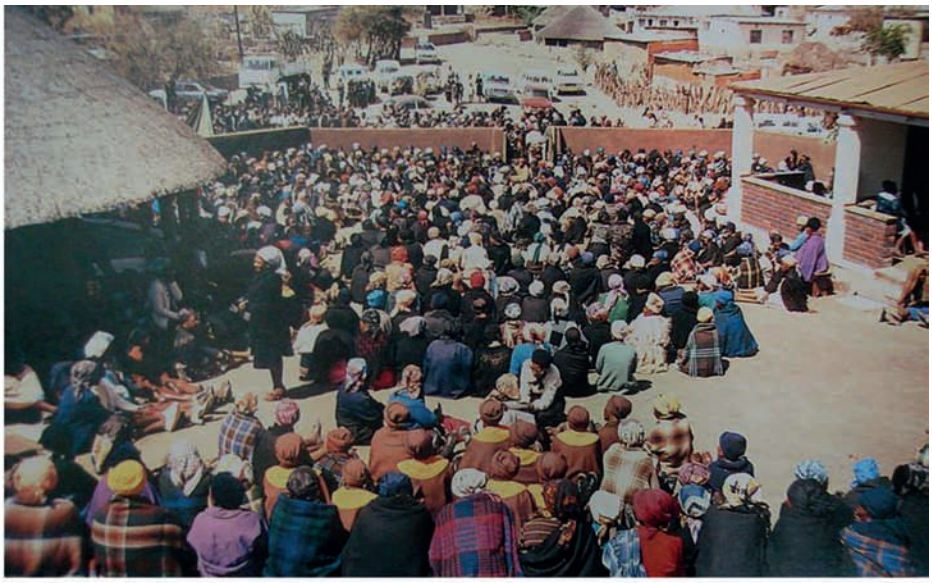


Figure 102: Lelwapa in Mochudi, 1981 hosting a funeral service (Grant & Grant, 1995: 39)

Figure 103: View from lapa towards the river in Ranaka, Botswana (Author, 2011)

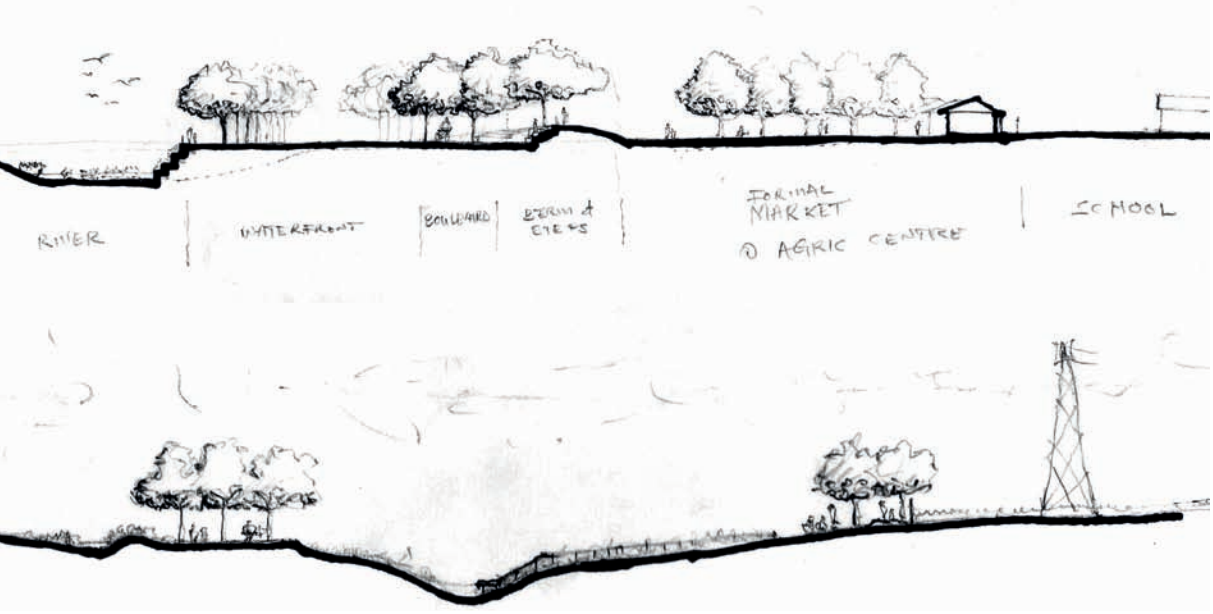
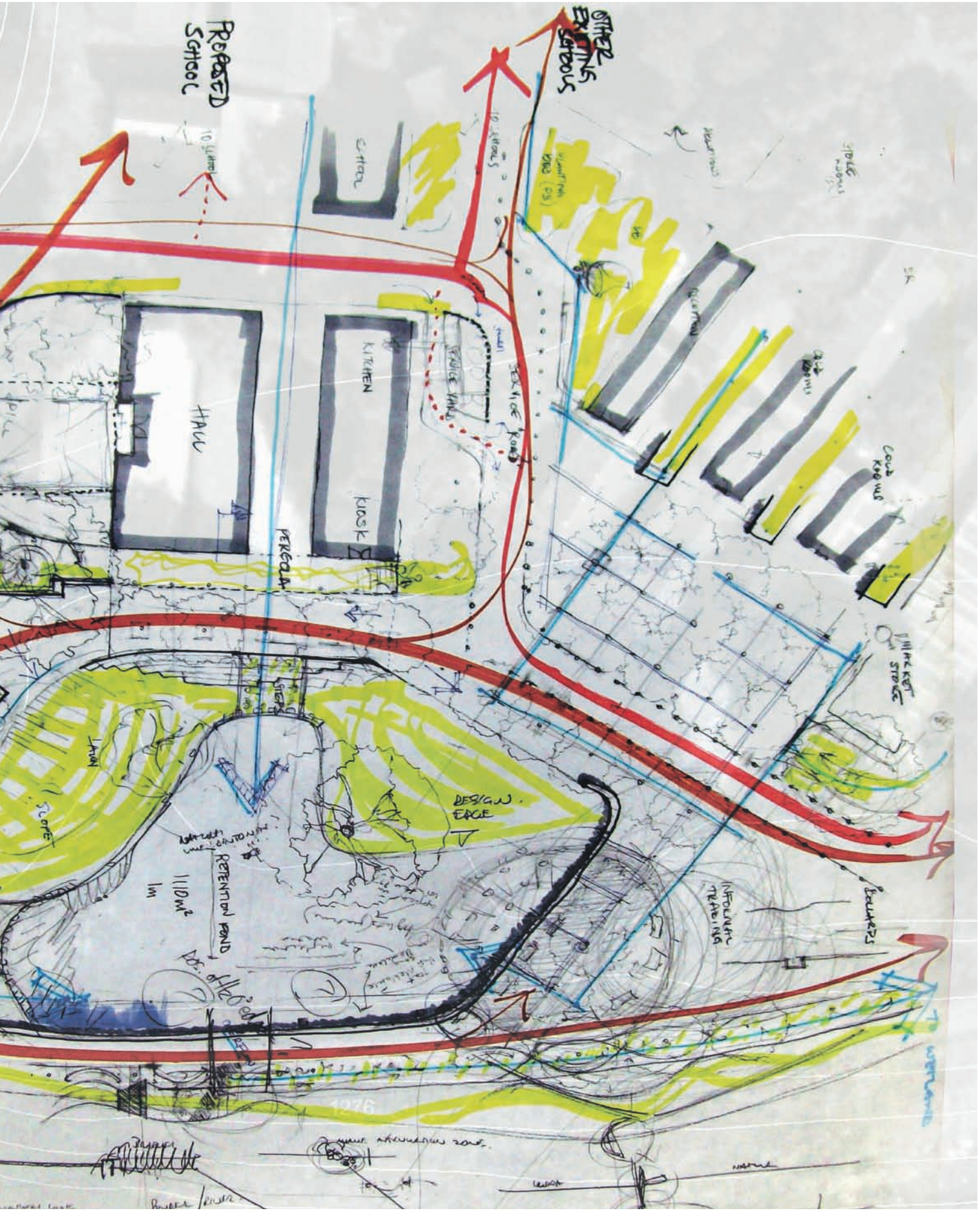


Figure 104: Concept sections showing relationship of built environment to the river's edge (Author, 2011)

Figure 105: Improving community facilities (Author, 2011)

Figure 106: Creaiting community sapces along river's edge (Author, 2011)

Figure 107: Sketch plan concept (Author, 2011)


PROPOSED SCHOOL
HALL
KITCHEN
KIOSK
PERGOLA
DESIGN EDGE
RETENTION POND
LAWN
SLOPE
1110m²
1m
INFORMAL TRADING
BOULDERS

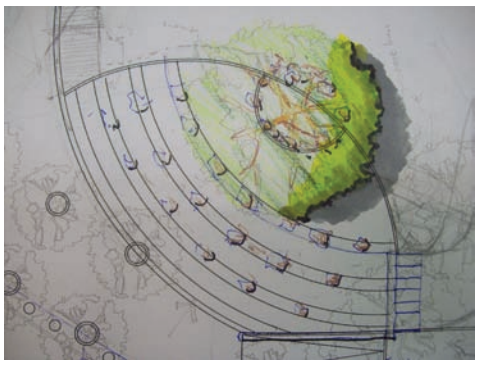


Figure 108: creating seating under tree (Author, 2011)

Figure 109: Building spills out into landscape (Author, 2011)

Figure 110: River's edge mimicks the form of the river (Author, 2011)

Figure 111: Retaining walls become seating (Author, 2011)

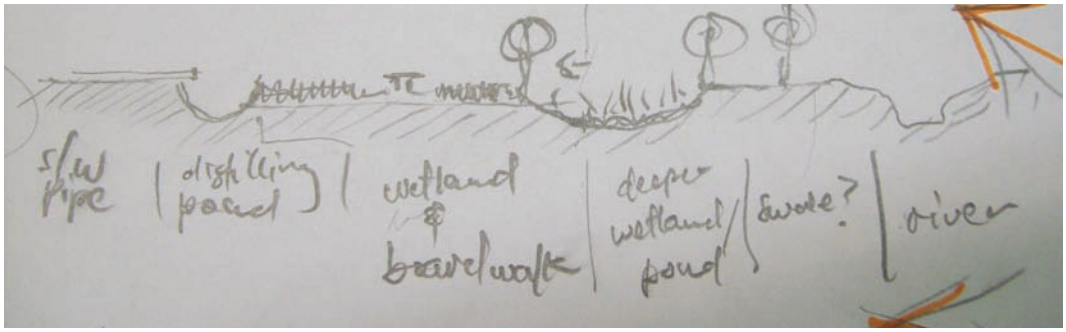


Figure 112: Treating stormwater (Author, 2011)

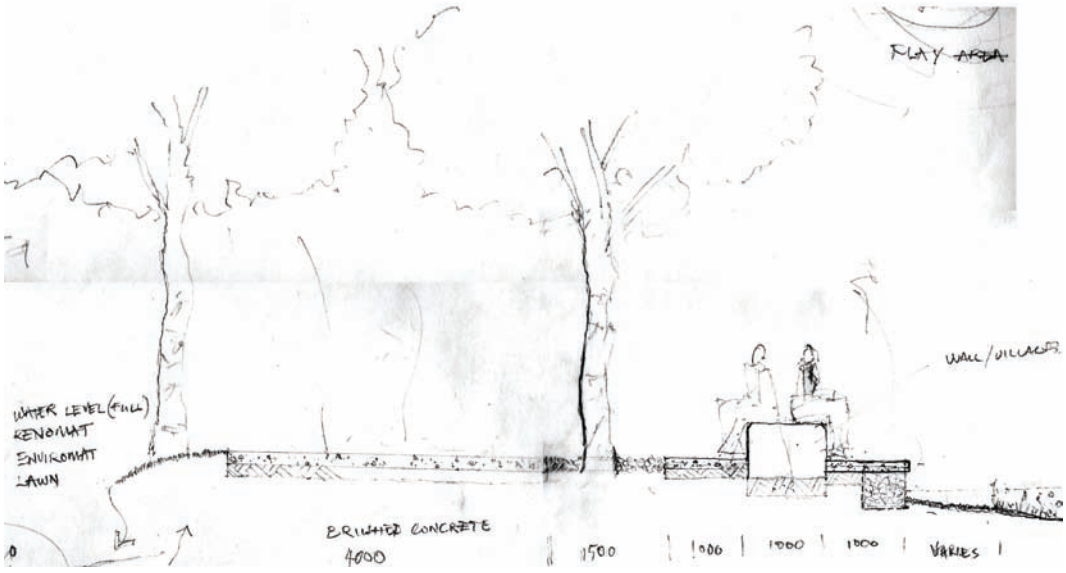


Figure 113: Creating interactive spaces along the river's edge (Author, 2011)

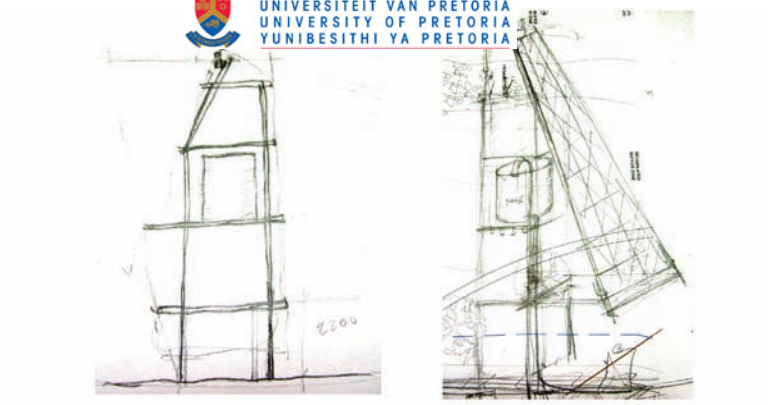
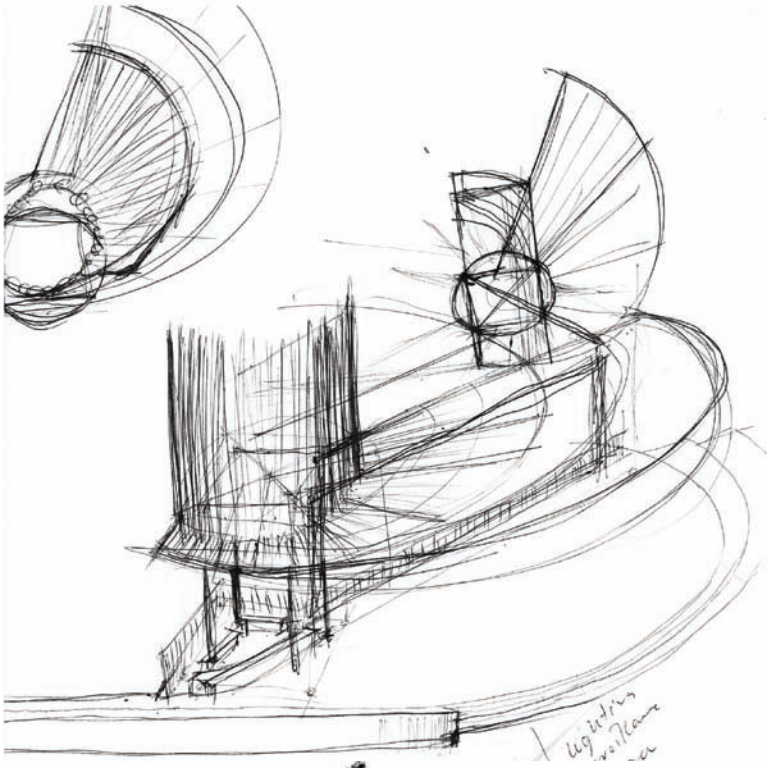


Figure 114: Tower - designing a landmark (Author, 2011)



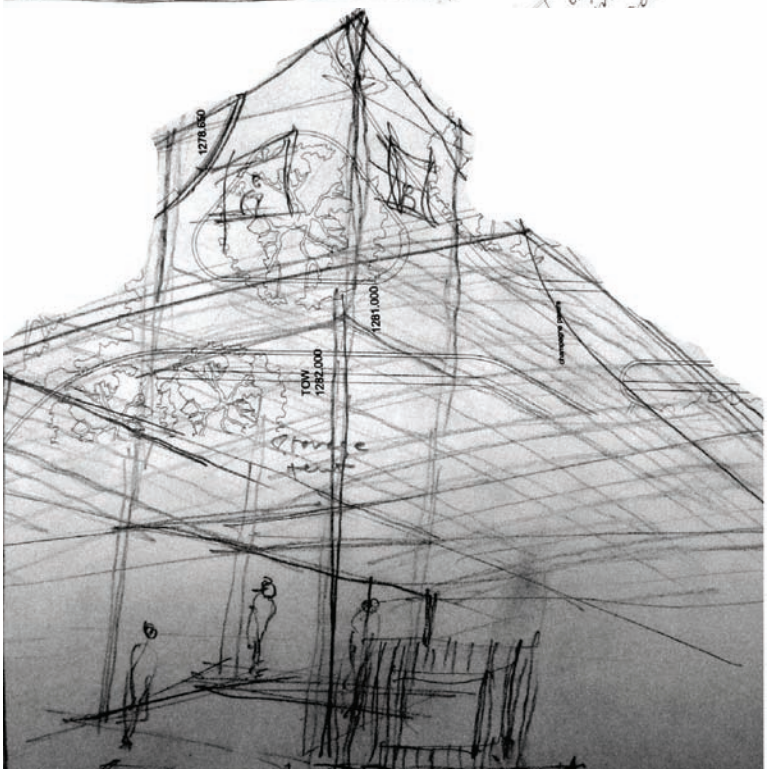


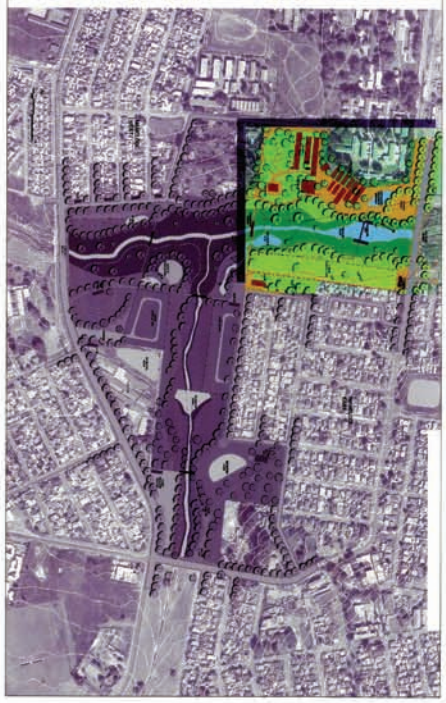
Figure 115: Tower - roviding surveillance (Author, 2011)

Figure 116: Sketch Plan (Author, 2011)

LEGEND

- POST TOP LIGHT
- LITTERBIN
- MARQUE-TENT AREA
- SEATING WALL
- TREE SURROUND
- PLAQUE
- TABLES, CHAIRS & UMBRELLAS
- BOLLARD
- HANDRAIL
- SCREEN WALL

LOCALITY PLAN



8.5. SKETCH PLAN

The sketch plan layout and functioning features shared meeting spaces as outdoor rooms of different sizes for gatherings and interaction creating new connections along the river system. It grows from the *parti* diagram in that it uses continuous movement pathways along the green spine that connects people but most importantly orientates them to the linear public open space to celebrate their efforts in joining the previously disconnected community.

The designs pushes back the floodline towards the river by using cut and fill process to take soil from the proposed wetland and ponds and use it to fill the area creating an elevated surface. This solves the problem of buildings being flooded while also opening up the spaces between the buildings and the river for community use.

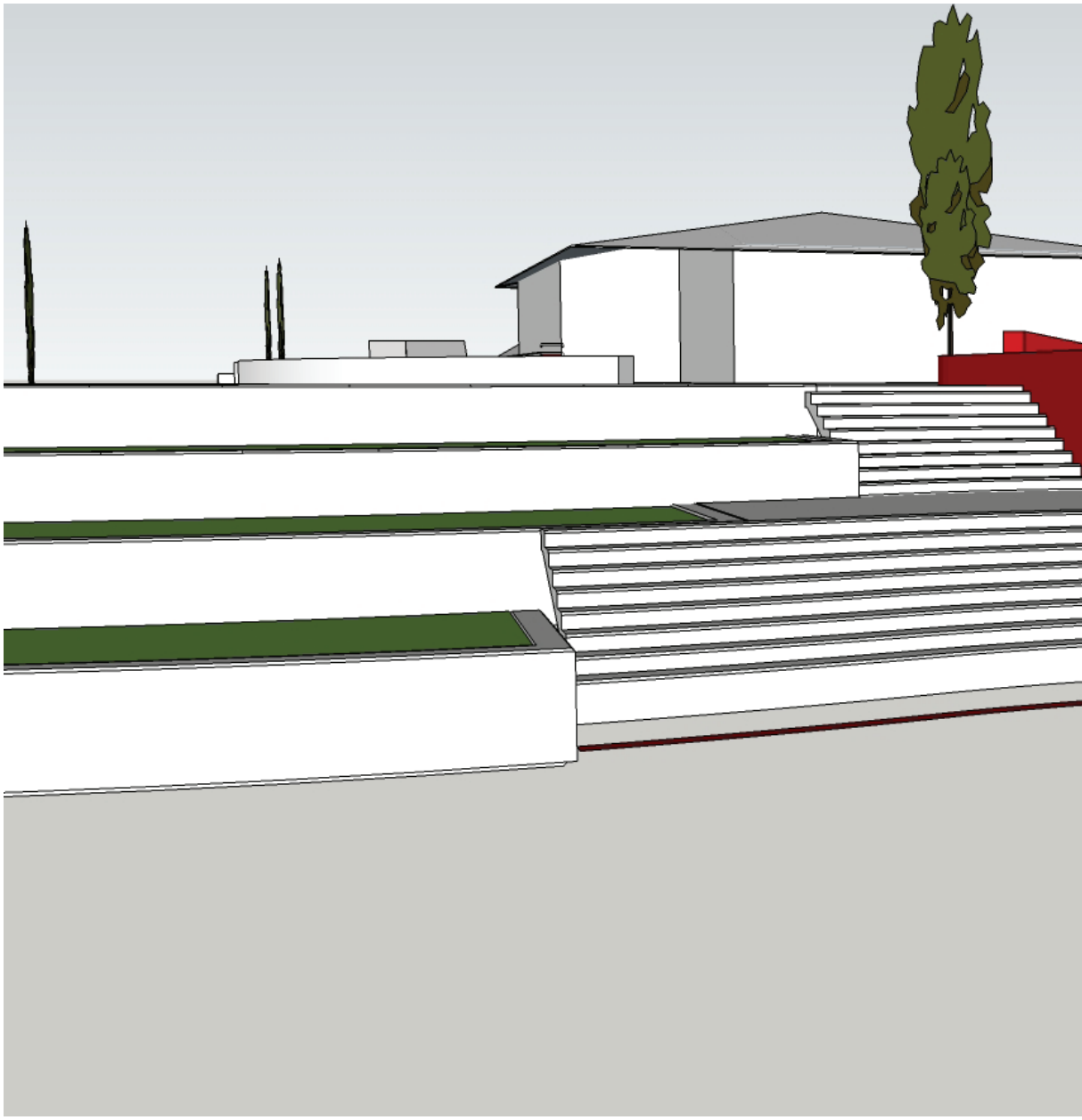


Figure 117: Information Centre, steps, terraces and ramp (Author, 2011)

8.5.1. Community Centre

The Centre includes an office, kiosk, kitchen and hall that will also serve the school. It will function as the main hub for the community. The office, using the old guest house is located at the south. It will serve as information point for the community and visitors. Because it is elevated (Figure 117) compared to other buildings, it will provide for a lovely view towards the river and over other activities around the Agricultural and Community Centre.

The hall area hosts a spill-out area where students and other community members can sit and enjoy their meals from the kiosk and kitchen in a more enclosed and quieter space under the large existing Jakaranda trees. The hall will host school and community indoor meeting and other functions like parties and weddings. Users are again invited to sit on the terraces and lawn (Figure 117) area that take advantage of the natural slope and face the central pond, events area and the river.

8.5.2. Seating Wall, River Edge and Bridge

A wooden boardwalk and bridge provide crossing of the river linking the community centre to the rest of the park and residential area to the east of the river. The bridge (Figure 118) sits just above the 50 year floodline allowing the minimal contact with the riverine area while keeping users safe in times of floods.

The river edge is divided into the grassed kick-about area along the pathway and bicycle track (Figure 119) as well as the riverine area. The soilcrete pathway separates the *cynodon dactylon* area from the naturalised veld grass area making it easier to maintain while defining a definite edge for children to know when they are close to the river water line.

Figure 118: Bridge (Author, 2011)

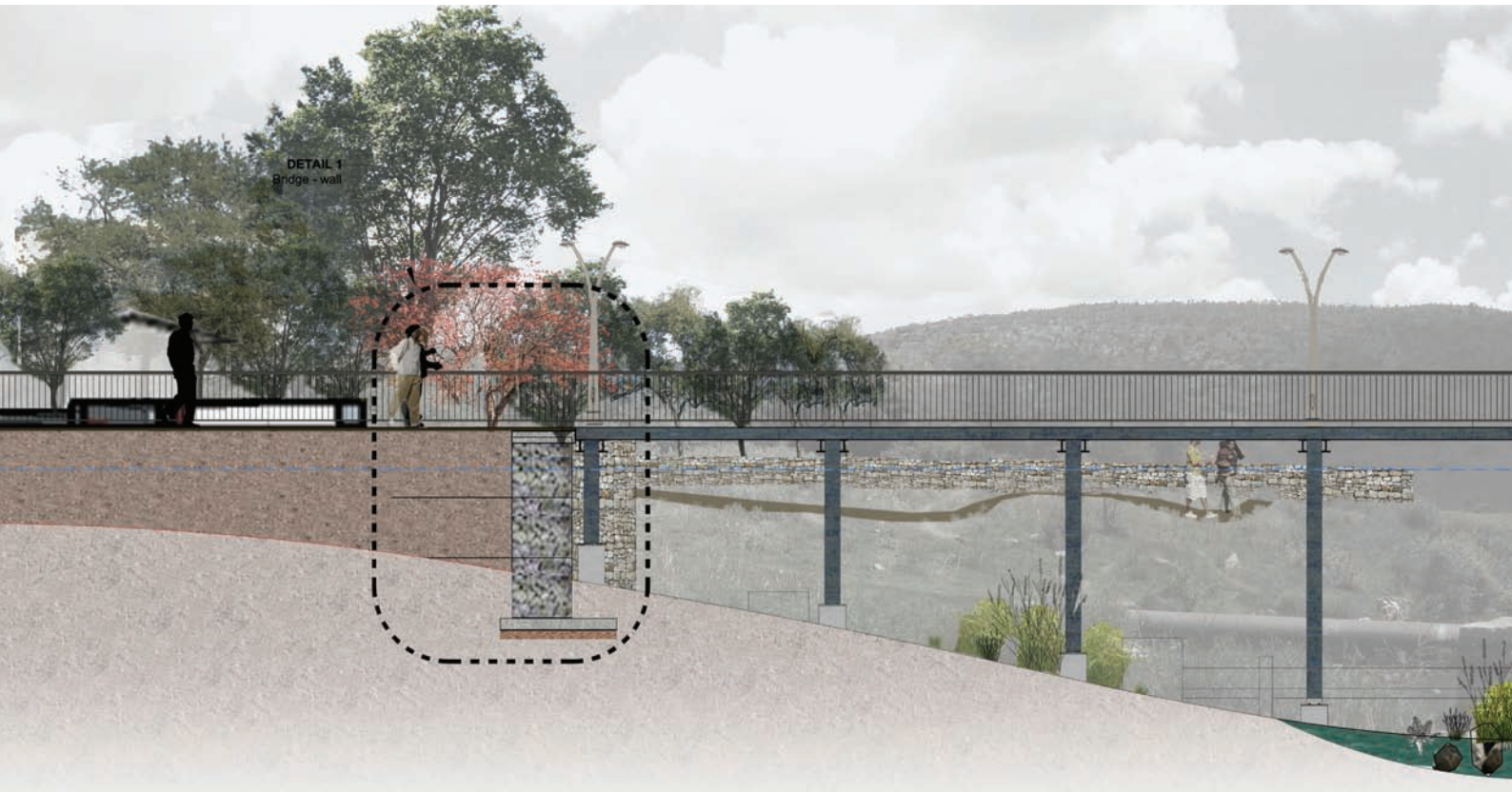


Figure 119: Shaded seating along pathways (Author, 2011)

8.5.3. Wetland, Fish Pond and Zero-Depth Water Feature

Water elements/ structures use recycled water to form the central magnet of this site pulling together other spaces in front of the building and linking them to the river's edge. The terraced wetland (Figure 122) area lets-in water from the treatment chambers where water goes through an oil trap and ultraviolet treatment making it safe to play. Colourful indigenous planting in the wetland attract wildlife from the river while forming a soft edge transition from the hard pathway paving to the pond. The fish pond (Figure 121) is kept at a constant water level throughout the year taking only the amount needed from the treatment wetlands off-site.

Figure 120: A well lit river system (Author, 2011)

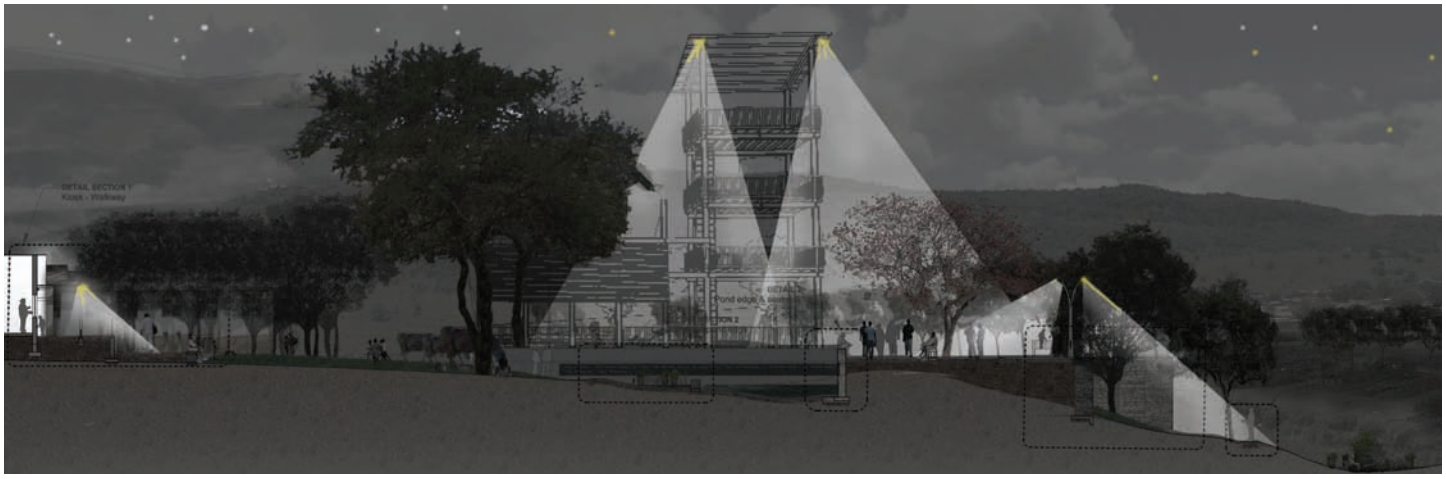


Figure 121: Creating people-spaces (Author, 2011)

A zero-depth water feature (Figure 122) uses water from the solar powered pump to achieve a risk play area while parents are provided with seating all around the water area enabling them to keep an eye on their children. The solar pump circulates the water in the pond making sure it's aerated to oxygenate it especially during the day.

Figure 122: View of the wetland and river's edge (Author, 2011)

8.5.4. Events Space and Surveillance Tower

The events space (Figure 123) is an open paved space for multiple activities like weddings, gatherings, small concerts, play and motion picture shows. The space can be covered with tents of sizes not larger than 400 square metres to support the hall.

Figure 123: Events space (Author, 2011)

Figure 124: Events space at night (Author, 2011)

The tower forms a multifunctional landmark (Figure 123-125) in this area with attached uses like surveillance cameras, a shade structure, water storage for irrigation and a support structure for the solar panels that capture the sun's energy for pumping water from the pond to the zero depth water feature and from the greywater treatment ponds to the tower then the agricultural centre where it is used for cleaning vegetables before packaging. The tower also provides floodlighting at night keeping the area safe (Figure 124).

Figure 125: Defining pedestrian and vehicular circulation (Author, 2011)

8.5.5. Agricultural Centre and Informal Market

The gricultural centre and market located on the northern end of the boulevard employ residents, being a place to sell vegetable from the local gardens as well as being a place for agricultural education for the township. The centre spills out onto a Celtis grove area and open air informal market where farming produce and associated activities are taken out into the public spaces. The Celtis grove provides ample seating under the trees where people will have conversations about daily life. It will also allow the visitors to see the vegetables being packaged and sold.

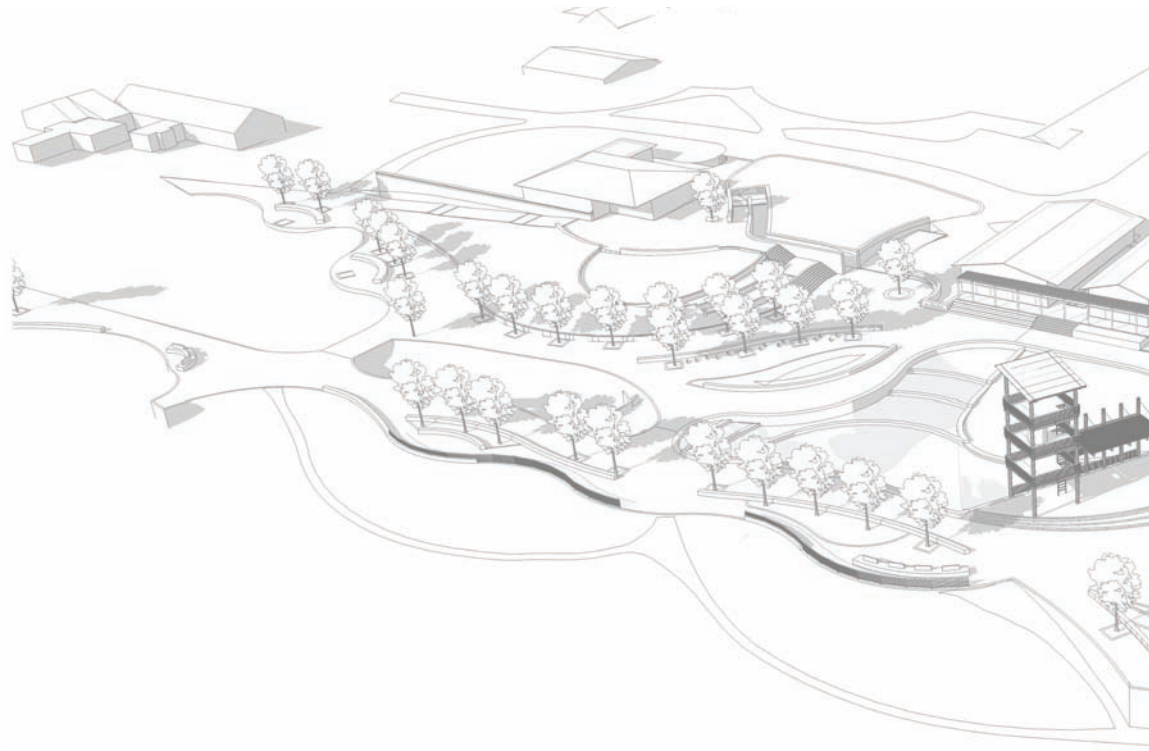
Service access for vehicular is limited to the bollard lined path (Figure 125-126) that also separate the Celtis grove from the events space. There is no material change in paving to show that the area is a pedestrian orientated space.

8.5.6. Picnic and Braai Facilities

The eastern side of the river features open green areas with a strings of walkways mimicking the flow of the river. It stays relatively less busy and repairs the area that experienced erosion caused by a stormwater outlet pipe inside the flood plain. The outlet is moved to a wetland outside the floodlines and the area if turned into a siltation wetland and pond for the excess water coming from the vegetable garden. The water from the pond is solar pumped to a storage water tower in the garden for reuse in irrigation.

Ample seating under trees and braai facilities area provided closer to the pond to attract picnickers and strollers to these quieter areas. The use of the soilcrete pathway to separate the grassed area from naturalised area is also applied here. The pathways can be used by joggers for exercising.

Figure 126: Axonometric drawing of the focus project (Author, 2011)



8.6. CONCLUSION

In an attempt to design a meaningful community place, the project has employed the following design principles as introduced and discussed in chapter 6:

- Community design
- Safety
- Connection and linkage
- Integration of uses
- Robustness
- Sustainability

The chapter concludes that the design (Figure 126) was able to manipulate the contours and reposition the floodline which consecutively allowed the author to reprogram the created open spaces above the floodlines into events spaces, play areas and market for public use. The proposed functions for the reprogrammed buildings allows for supportive activities that will activate the area for long hours, including in the evenings when the hall and event space hosts movie shows and concerts. All these spaces show a response to the river edge connecting people visually and physically to the water's edge. The dwarf wall derived from the Tswana's *lapa* system is used as an architectural element to define spaces, access points, provide seating and become a play structure that children can climb onto. It takes different forms mostly 'natural', mimicking the form and flow of a river. The design also demonstrates how stormwater could be reused for both aesthetic and sustainability reasons in ponds and for irrigation. The central water area holds the spaces together and creates a sense of arrival at the community and agricultural centre both from the north and south. Indigenous planting is used in the wetlands and elsewhere while robust materials are chosen for paving and seating.