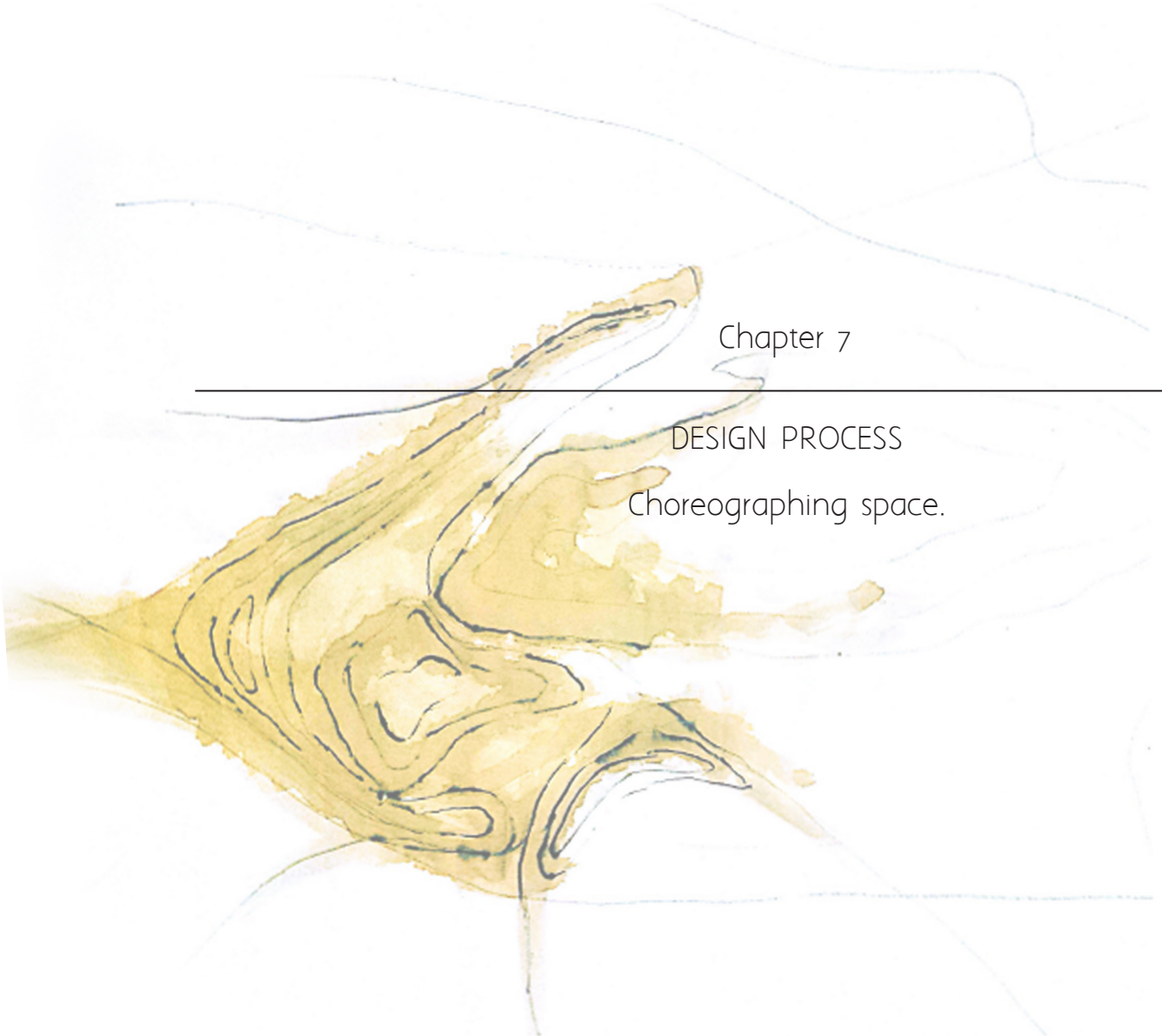


Chapter 7

DESIGN PROCESS

Choreographing space.

7.1 Design approach

This dissertation is largely theory based and strongly relies on the theory discussed within the previous chapters to make the final design a success. This theory is summed up in a landscape manifesto, which will be used to explain the design response accordingly throughout this chapter. Before this is done, it is important to note that there were several outcomes that clearly influenced the design approach stemming from the site analysis.

Fig. 7.1: Site location (Author 2015)

Response to site analysis:

The main design generators is the following:

1 The main use and focus of botanic gardens are directly relateable to the world views as well as economical, social and environmental conditions during that era. As mentioned in this chapter, conditions of the current era is still focused most strongly on the movement for the conservation of nature and sustainable landscapes. The regional landscape is thus of concern when conservation comes to mind. The Gauteng region has a very specific natural environment, being a combination of the grassland and Savannah biome. Within this environment there are several ecosystems that are critically endangered, including critically endangered plants dependent on these ecosystems. The conservation of these plants and creating the ecosystem conditions that they favour in order to grow successfully is a main design generator in this project. The social need during the current era is mostly focused on the didactic aspect of teaching the public about the regional landscape and why this regional landscape is important to protect as well as why they personally would have an interest in doing so.

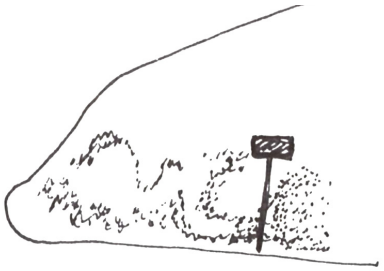


Fig. 7.2 Regional landscape diagram (Author 2015)

2 According to the site analysis, one of the main issues of the botanical gardens is the fact that all the water runoff from the ridge gets lost into the urban water system, which is a very big waste due to the size of the catchment area coming from a mostly natural surface area and can be used more efficiently within the botanical gardens than losing it to a polluted urban water system.

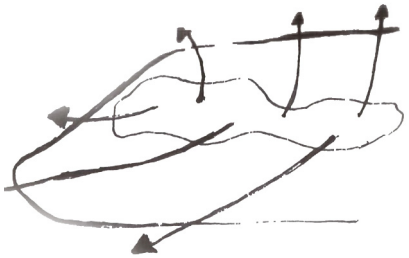


Fig. 7.3: Water runoff diagram (Author 2015)

3 The site can largely be classified according to use currently. This includes a park space, the conserved grassland and the natural ridge, interrupted with theme gardens throughout. An area was chosen within the botanical garden which was in the optimal position to capture the water runoff on site and design this space into a botanical experience that can actually be used as such and not merely written off as unusable land.

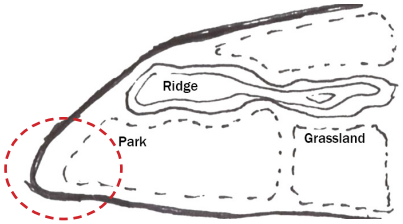


Fig. 7.4: Site use diagram (Author 2015)

4 This specific chosen space was also the most disturbed in terms of invasive species, soil and public utilization, thus most desperately in need of a landscape architectural intervention.

5 The chosen site is situated adjacent to a very busy intersection. This is an advantage as well as a disadvantage. In the bigger picture, the prime location of the botanical garden leads to more visitors during the year as well as the opportunity to lure passers by into the botanical garden. The disadvantage being that there is a large amount of noise coming from the busy roads, making this space unpleasant. Thus a barrier is needed if this space was to become a lingering and enjoyable space.

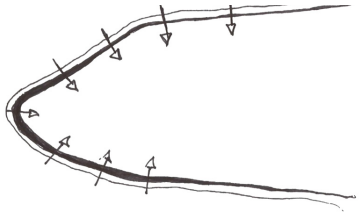


Fig. 7.5: Noise pollution diagram (Author 2015)

6 The wetland across the road makes the specific location within the botanical garden an opportunity to be utilised as a link to serve its purpose as a green node within the city of Tshwane and enable an increase in species biodiversity due to an ease in species reproduction.

Fig. 7.6: Water capture diagram (Author 2015)

7 From the movement analysis came the conclusion that plants must not be a side matter that one moves past to get to another destination, plants is the destination. Thus the movement should be approach in such a way as to guide the audience towards interesting plant performances rather that merely past it.

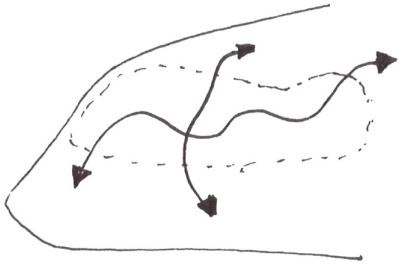


Fig. 7.7: Movement diagram (Author 2015)

8 There are theme displays in the current botanical garden. These focus more on having a wide variety of plants rather then how people experience them and what they can learn from the plants without even having to read it. Thus a regional theme garden is designed that is focused on the experience the audience gets rather than manicured plant beds.

Deliverables:

A series of explorations has been done, which is aiming to create a structure or an ecological stage which will assist with habitat creation and on which the performances will be choreographed. To get to this structure, a number of overlay methods have been used to get to a site plan which will guide the energies on site. To be more clear, a list of deliverables follows:

1 Plan that specifies the landscape "stage", construction guiding the fl ow of energy on site.

2 Suggest pattern onto landscape of where plants will be introduced.

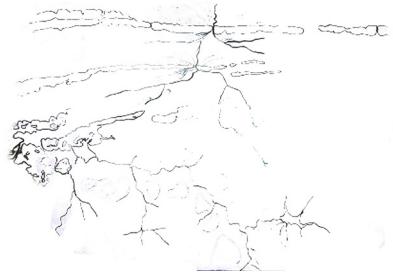
3 Create conditions that might determine what the plants would do, but not defining this by a static boundary. Represent this in an abstract way through perspectives, plans, models, process diagrams that show reciprocity (influence-outcome interactions). These must capture the intended feel rather than a definite end result.

4 Habitat creation, such as microclimatic conditions, ecological conditions and social conditions.

Design development process

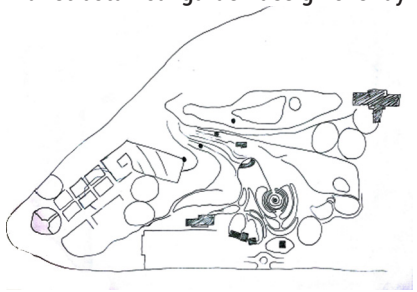
Exploration with overlaying different patterns onto the site, from agricultural (man-made) patterns, to the contours of the Pretoria (regional) landscape, to using hatching as a means to define surfaces in stead of lines. All of these have in some way or another influenced the way of thinking that lead to the final design. This overlay process was mostly to create order within chaos which had lead to an ecological stage on a site that is quite seperated from the context, due to the fact that it is a private garden. These explorations can be seen in the following pages.

Pretoria contours

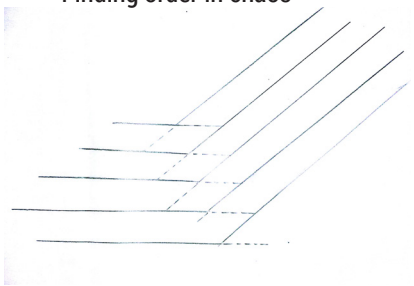


Pretoria contours ovelay

Purist botanical garden design overlay

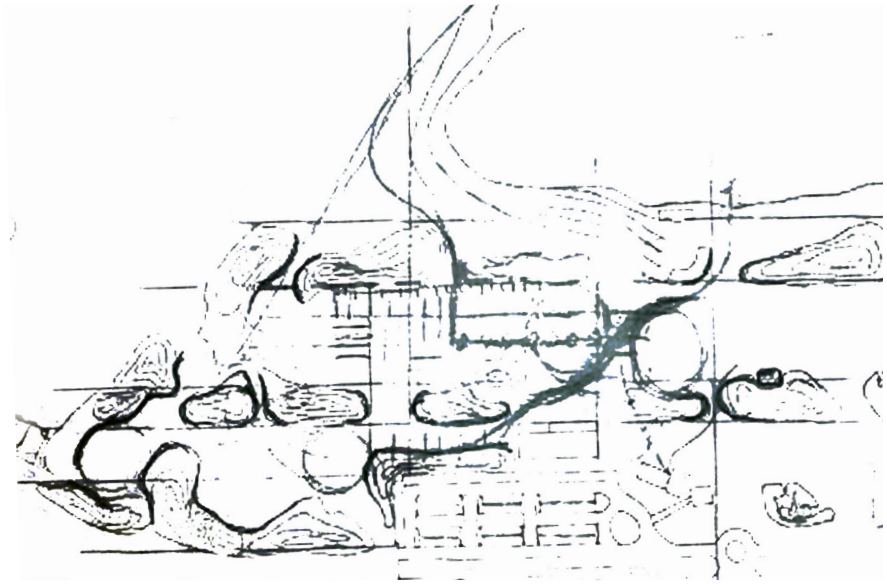


Finding order in chaos

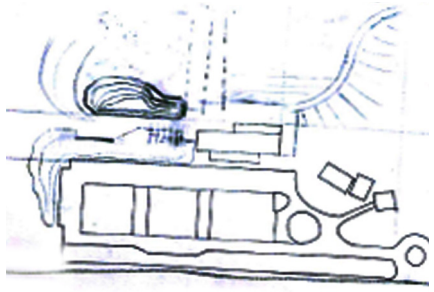


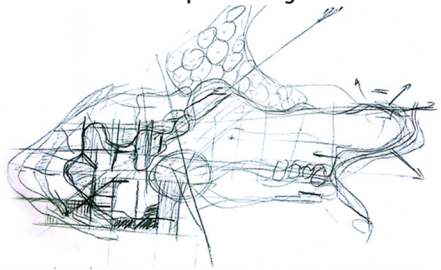
Hatching as means to define surfaces, instead of lines.

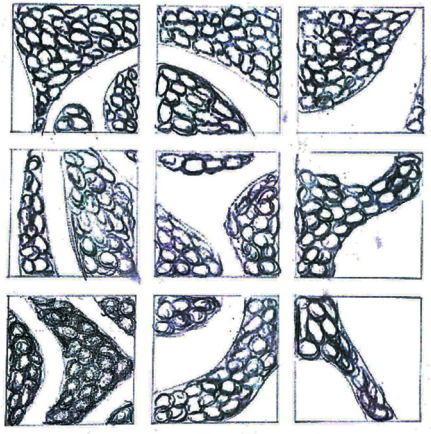
Exploring micro representation of pretoria landscape



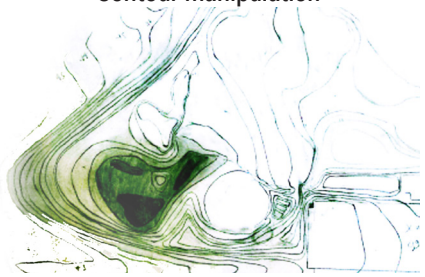
Conceptual images





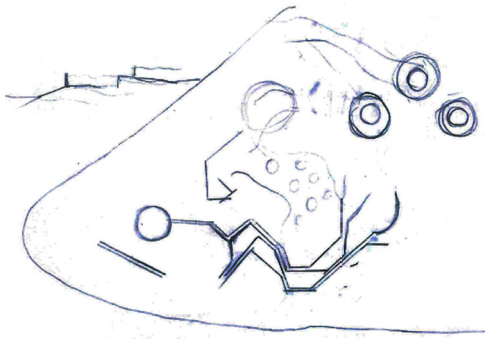


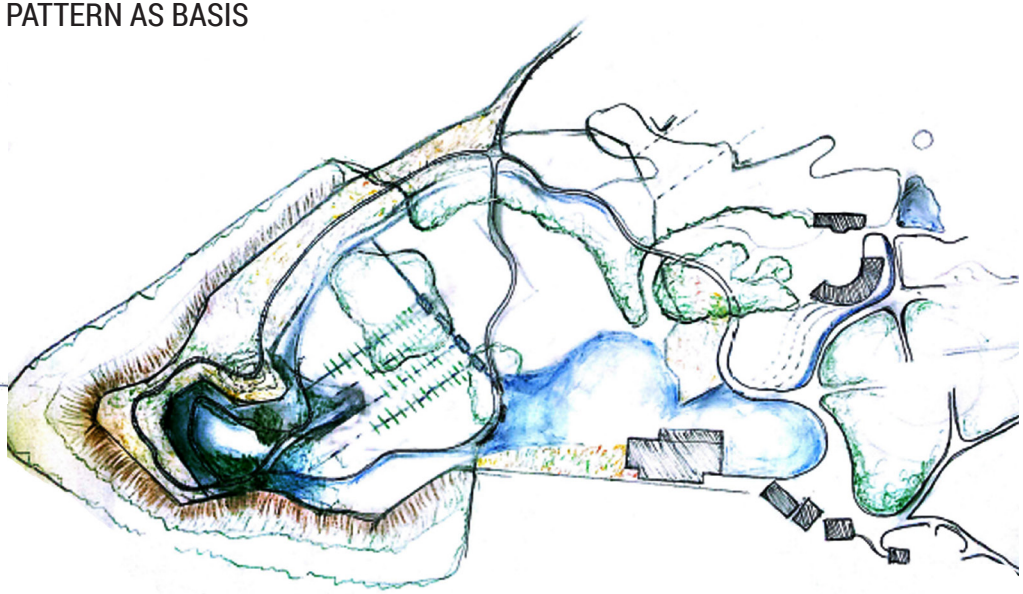
Contour manipulation



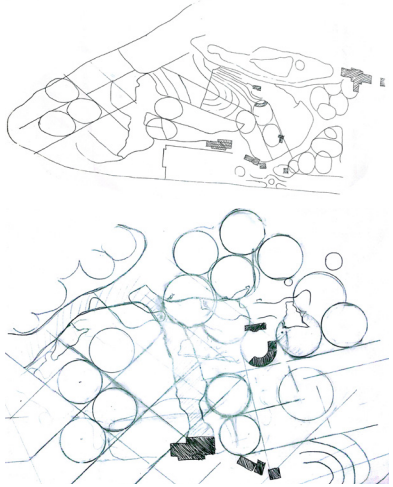
Designing with contours, creating landscape stage.

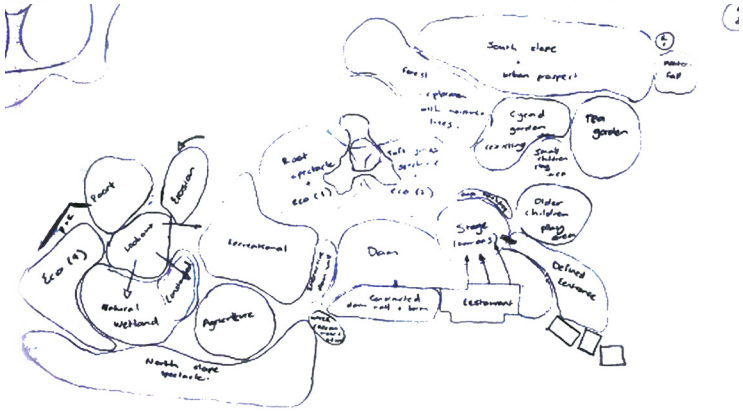
EXPLORATION WITH AGRICULTURAL PATTERN AS BASIS

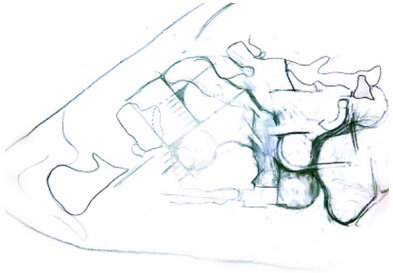


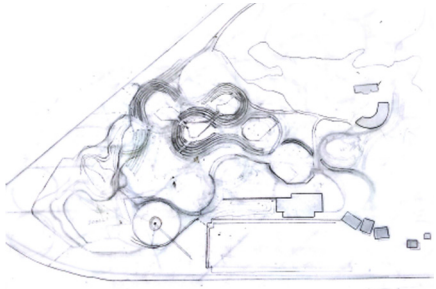


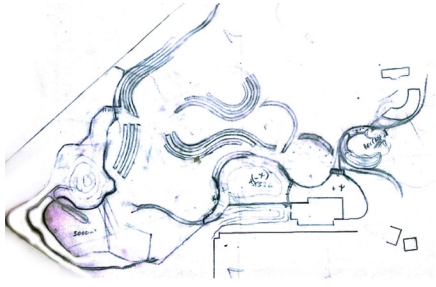
Agriculture overlay pattern symbolizes the human patterns on landscape causing pretoria grassland to be critically endangered.

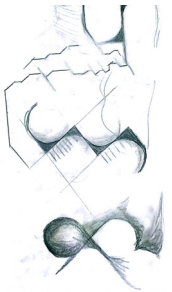


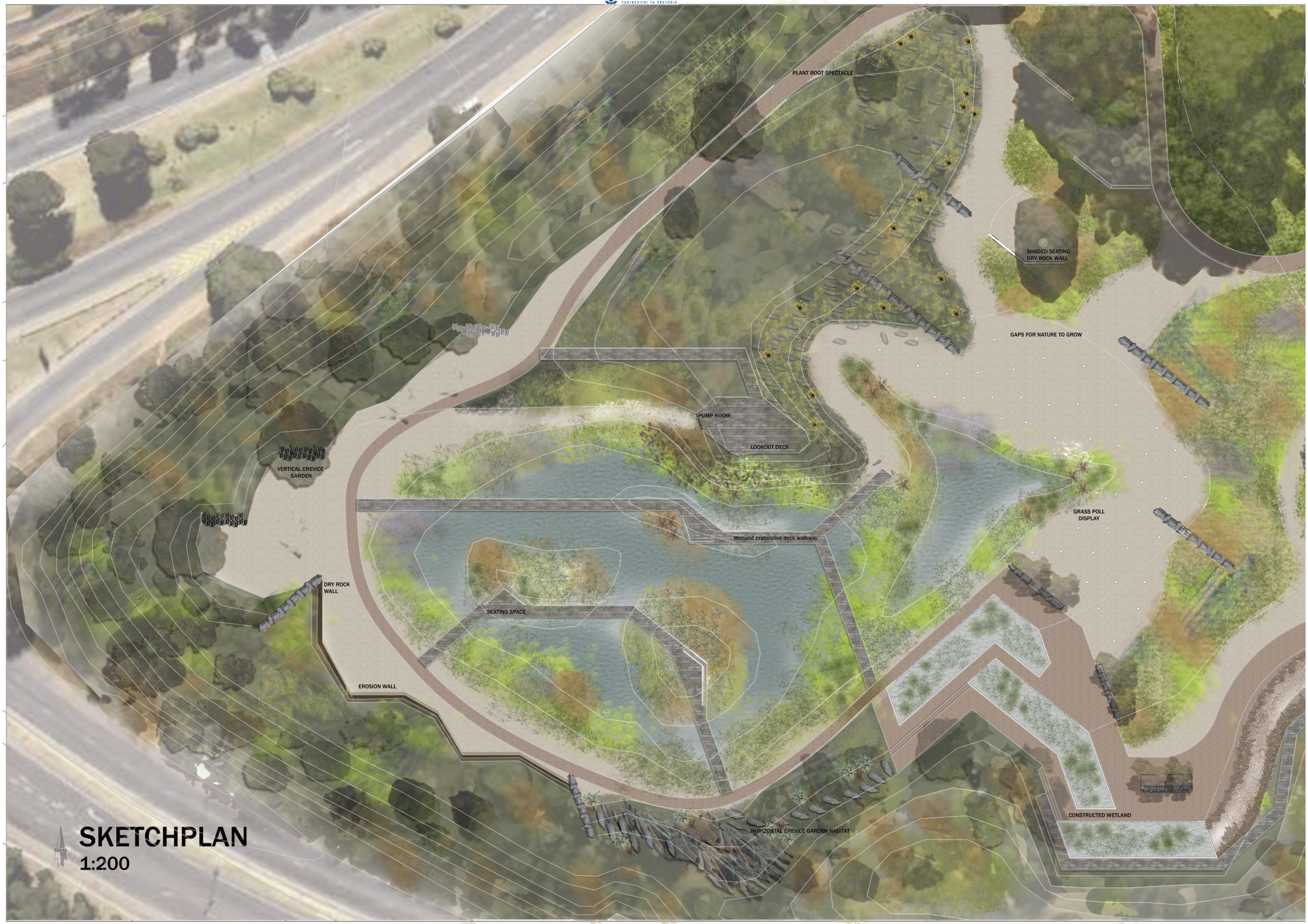












SKETCHPLAN

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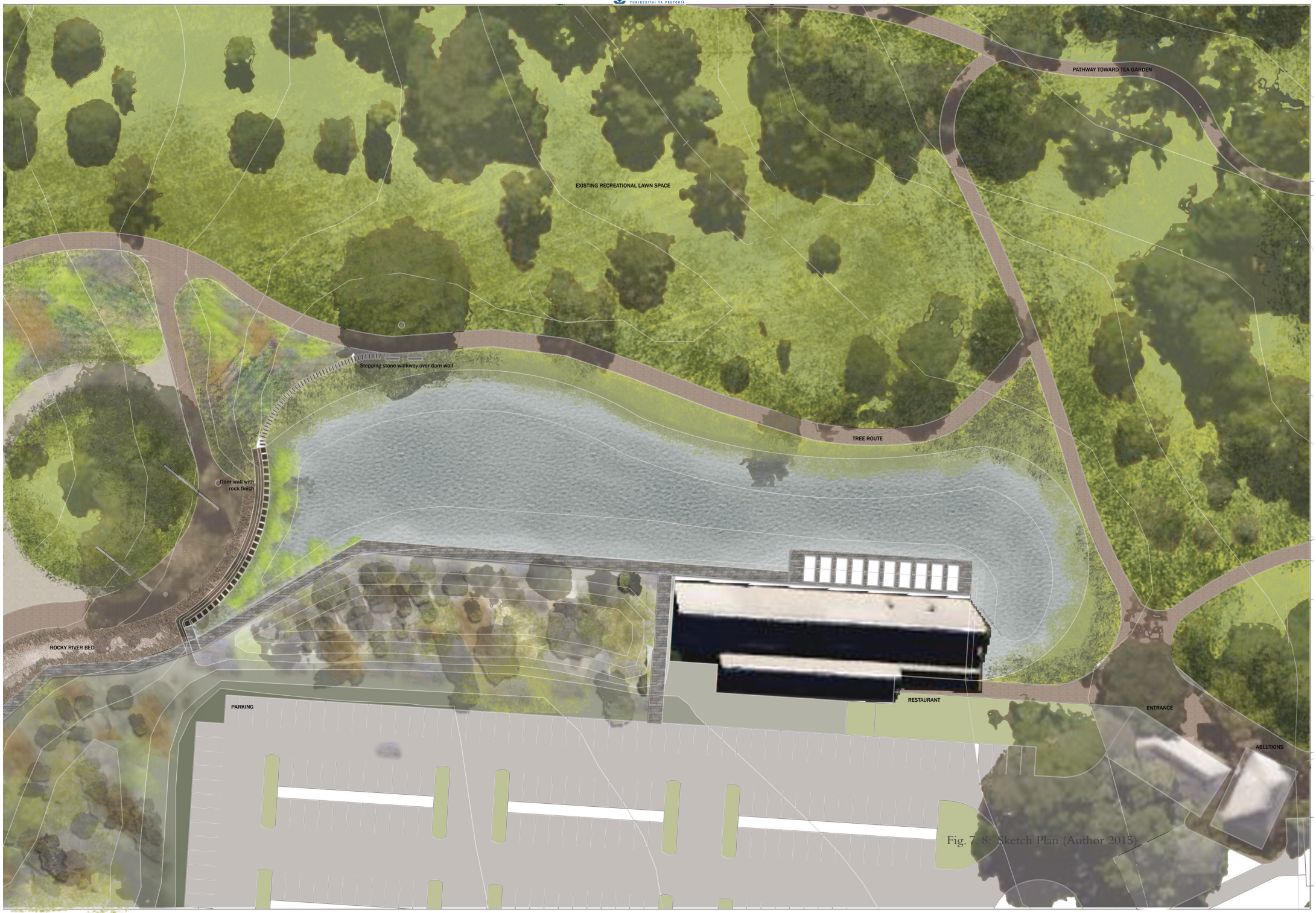


Fig. 7.8: Sketch Plan (Author 2015)

Design outcomes:

The landscape architecture manifesto has been used to inform the design of the botanical garden.

1 Our understanding of nature should be made visible through ecological design. Ecological processes need to be visible in order for them to be expressive.

Fig 7.9: Gaps for nature to grow (Author 2015)

Through an understanding of the endangered ecosystems being protected, the different vegetation types are separated into their specific habitats, making these different habitats visible through isolating them and leaving "gaps for nature to grow" as Giles Clement puts it. These gaps are intended to draw people in from the primary routes in order to encourage interaction and exploration instead of "purist" manicured plant beds. The gaps is merely compacted earth, which will allow plants to transgress into areas not used by the audience. This also allows for a garden - gardener relationship with nature where nature performs and the gardener reacts according to what the garden is delivering, thus allowing change over time. The habitats are further extruded by using the elements of the ecological basis that defines the habitat and shaping them into a pattern in order to make the ecological elements visible. These elements (rock walls constructed as a dry wall using the specific rock type that supports plant growth within that habitat) also extend into the "gaps" which interrupts the movement of people thus drawing their attention to interesting plants instead of having the plants merely as a side matter.

2 Refuse to create boundaries that confine nature and define movement. We should allow edges to transgress, merely guide energies, and design with change as medium.

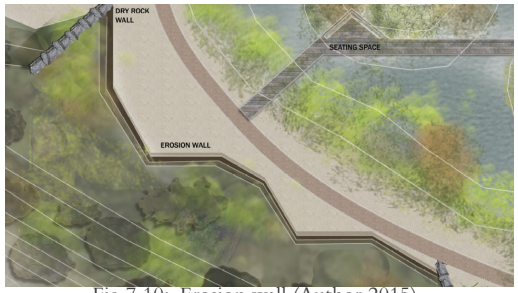


Fig 7.10: Erosion wall (Author 2015)

This statement is clearly visible in the gaps that is left between the different habitats as mentioned in statement 1 above. Another design element that shows this statement quite dramatically is the erosion wall:

The eroding wall exposes soil profiles to the elements as well as to the human eye. The wall changes over time, which ensures that the visitor will have a different experience each time they visit the garden. The soil profile will be inverted over time, disposing the top soil at the bottom first. This will create a different stage on which different species will eventually start to perform on. The edge of this eroding will transgress constantly, showing the dynamic aspect of nature.

3 Set a stage for the performance of nature through the creation of environmental conditions for plant habitats, but allow nature to grow and evolve intuitively and improvise and transcend through its inherent potential to embrace change.

Each habitat is created specifically to support plant growth and create the desired microclimate for the endangered plant species. These crucial geological and ecological elements is not necessarily used in a way that it occurs naturally but rather used to create patterns in the garden to draw attention to the uniqueness of each habitat. This can be seen in the use of dry rock walls and also in the crevice gardens, both vertical and horizontal.

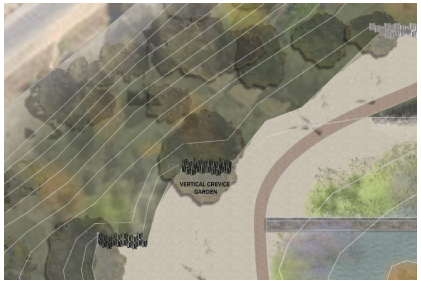


Fig 7.11: Vertical crevice garden (Author 2015)

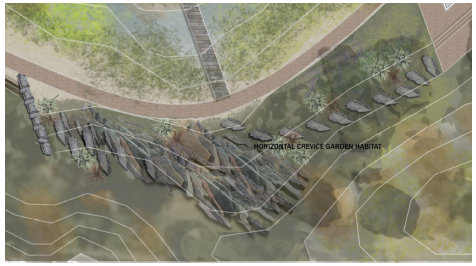


Fig 7.12: Horizontal crevice garden (Author 2015)

Fig 7.13: Montreal Botanical garden - Crevice garden (Yockey 2007)

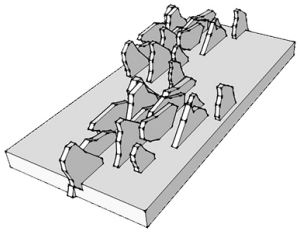


Fig 7.14: Crevice garden (Author 2015)

Fig 7.15: Horizontal crevice garden (Jans 2008)

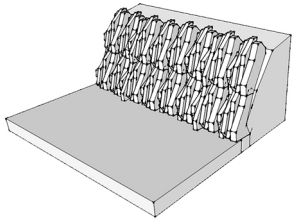


Fig 7.16: Horizontal crevice garden (Author 2015)

4 The view of plants as groups of interrelated species modifying and interacting with each other, rather than as separate and fixed, demonstrates flexibility — a main motif of landscape form.

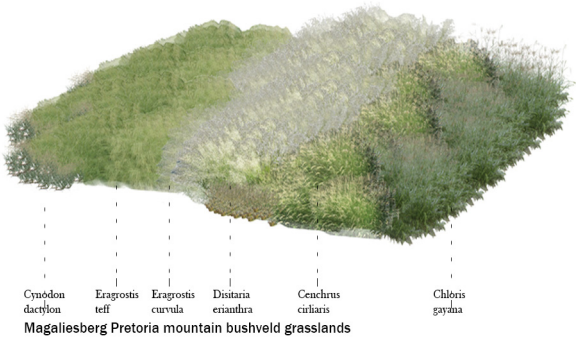


Fig 7.17: Plant mix (Author 2015)

5 Plants should be the main focus and attraction in botanical gardens and not merely what we pass by in order to get to a destination.

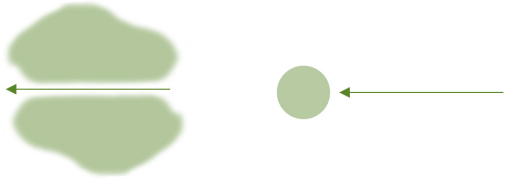
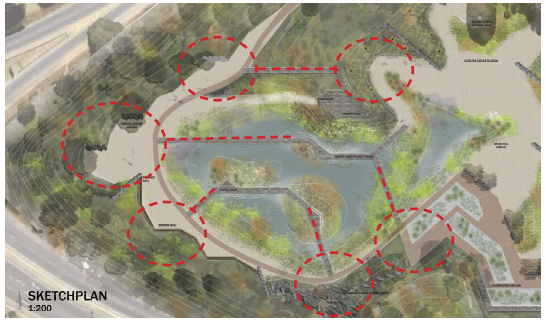


Fig 7.18: Movement towards plants rather than past it as a border(Author 2015)



6 Allow landscape to be unpredictable. Maintenance does not determine whether the garden is aesthetically pleasing.

This statement sounds quite bold, but what is being said is that when there is left over spaces in the garden, such as in between rocks in niches, if plants start to establish themselves in these spaces, it is worth so much more for the biodiversity of the garden to leave these plants to grow. Even if it is weeds that is establishing first, if they are not invasive weeds, they will create environment for more plants to start establishing, again leading to a higher biodiversity. It is necessary to start seeing this as the real beauty, rather that clean manicured edges.

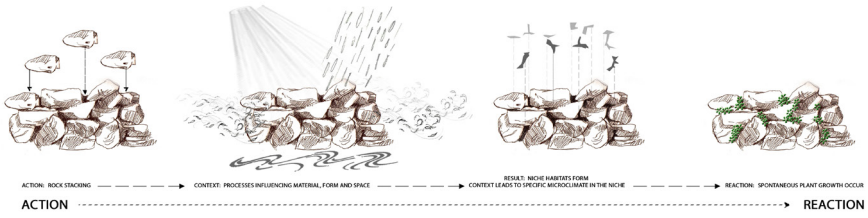


Fig 7.19: Dry rock wall construction (Author 2015)

7 Do more than represent nature; allow nature to represent itself. Redefine the role of the landscape architect and the way that landscapes are represented.

As is seen on the sketch plan in fig. 7.8, the plan is merely a suggestion of where the plants will be introduced, it does not represent the final shape of the garden. The garden will determine the final shape, not the landscape architect. The patterns will merely guide where people will most likely move and where plants will start to grow, but how it actually happens will only be determined over time.

8 The sequential spatial experience of the landscape should immerse the audience in nature and confront, excite and captivate the visitor. This can be done by using repetition/pattern to compose and order the landscape.

The movement through the garden is designed to be as free as possible, whilst keeping it interesting with set points of interest along any chosen route. Thus, the sequence of experience works any way the audience chooses to experience it. The pathways that are quite direct, aim to move people towards interesting parts of the garden that would be found interesting. This movement also creates pattern in the landscape, giving unity within the garden. These points of interest, as well as patterns interrupt the audience in their movement, confront them and aim to show them something exiting about nature that would capture their interest and immerse them in nature, such as the eroding wall, the root spectacle, the wetland and the dam wall.

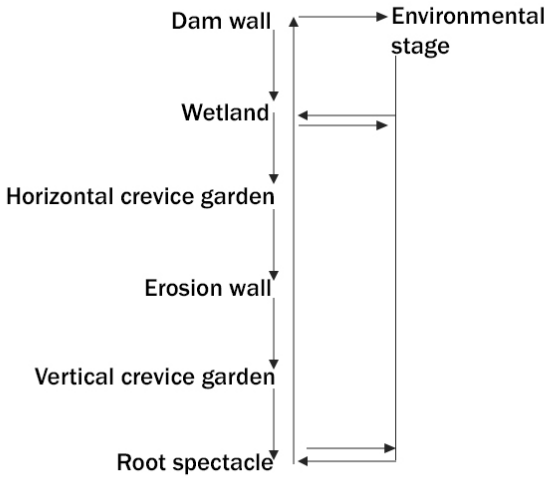


Fig 7.20: Sequential movement diagram. (Author 2015)

9 Refuse to create a preconceived plan, narrative or set way of movement.

Although a set plan is created, the shapes one sees on this plan is not set. There is no clear borders, but merely a vision of how it could look. The movement is defined by having primary routes and secondary routes. The primary routes are not your usual paved pathways but rather a material that makes compacted earth waterproof (Stalok paving). Thus, the primary route blends in completely with the secondary routes (open areas left as exposed compacted earth). This encourages people to stroll off the set out path and explore the garden, discovering the beauties of nature for themselves. Also the movement now stays completely free, in the sense that the audience can decide where they want to walk, not the landscape architect.

Fig 7.21: Stalok paving for primary routes (Author 2015)

10 'Region' is a unifying theme or identity to which local inhabitants relate.

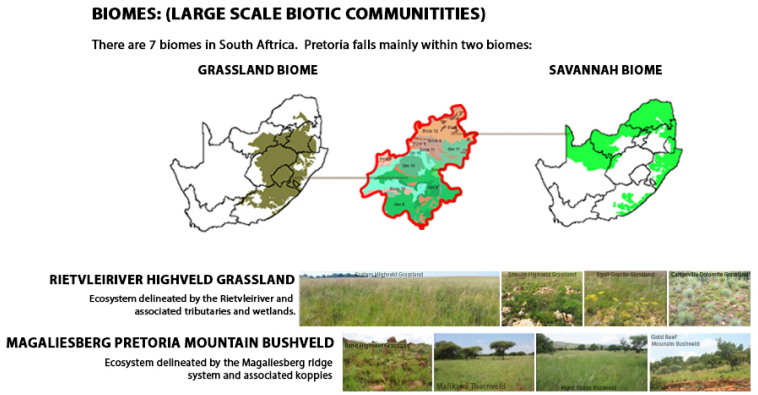


Fig 7.22: Regional landscape diagram. (Author 2015)