

FERAL | Re-wilding the Urban Child through Process Driven Design and an Appreciation of Weeds

By: Kathryn Rennie | MLA | 2019

“The flowering of the human spirit and personality is a continuation of natural evolution. Liberation of the human imagination from the deadening effects of mechanisation and commodification is one of the most pressing ecological issues.”

- John Clark



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| FERAL |

RE-WILDING THE URBAN CHILD THROUGH PROCESS DRIVEN DESIGN AND AN APPRECIATION OF WEEDS

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ABSTRACT |

Due to our rapidly urbanising population, the number of children that have little or no access to nature is increasing. Interactions with nature not only improve the mental and physical development but also foster a consciousness and enchantment with the natural world. As naturalness, proximity, scale, and modifiability of spaces are key aspects that determine the pleasure that children experience in public spaces, neighbourhood parks will become increasingly important part of the urban fabric. The funding model for public open space provisions in South Africa preferences initial capital outlay over maintenance over time. This leads to the creation of parks that decline over time and become unappealing and dangerous to residents of the area. Small-scale neighbourhood parks are the first to feel the effects when there is a reduction in public spending. This project intends to create a new model that requires a paradigm shift from the current funding model to one that assigns funding primarily to a management strategy that allows for continued management and design intervention over the lifetime of the park. There is great potential for these parks to become resilient and heuristic spaces where children can immerse themselves in natural processes and learn to appreciate urban ecology through interaction and play. By acknowledging that landscapes are open systems and by utilising the processes and life forms that thrive in the city, such as weeds, the designer can work with the energy of nature and society to create adaptive spaces that are appealing to children. The benefits of this method are two-fold. Firstly, using plants that are free and prolific allows children to have unprescribed and tactile interactions with nature, and secondly, it will increase the biodiversity of the city by valuing novel ecosystems and harnessing ecological processes. The design is dynamic and flexible made up of primarily catalytic interventions that both expose and accelerate natural processes on site, as well as proposed design responses to the predicted outcomes of these processes. In this way, the designers input acts as a scaffold for natural systems to develop rather than any predetermined outcome. The process of design is never complete, there is no maintaining of a single state. It is a design that is on-going and that adapts to social and environmental change so that it evolves with the guiding hand of the designer. By utilising this method in the design of a public open space in Woodstock, this dissertation tests a new model for designing small scale urban parks that could be replicated

throughout the Cape Town Metropolitan Area. Neighbourhood parks and other undervalued public spaces can become places where humans and nature can come together and have meaningful interactions



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RESEARCH PROPOSAL | INTRODUCTION

So let's play with real life, and teach people to evolve in real life without being afraid of what is hidden."

- Catherine Mosbach

In the Western Cape, we have an incredible array of indigenous plant species and in recent years the push has been to utilise these species in the urban landscape. The problem with this is that most of these species are specialists that need very specific conditions to survive and thus often fail in the highly disturbed and altered urban settings they are placed. Therefore, I would like to challenge the industry to rather look at the generalists who have already proven themselves and that flourish in these harsh urban environments, as the plants to use instead. Having come from an Applied Biology and Geology background and then subsequently worked in the Landscape industry, I feel that this topic both challenges myself to re-assess the way I place value-judgment on certain types of plants and plant communities as well as addresses an issue that I have seen prevail in the design of public urban spaces. Maintenance and water dependence are the major issues that affect the success of soft landscaping and through this topic I want to investigate an alternative model of design practice that utilises the plants and processes that succeed in urban settings.

As someone who was privileged enough to grow up in a rural setting, where nature was all around us and had no defined boundaries, I feel strongly that it is an imperative part of learning and growing as a child to have access to spaces in which you can engage with other living things. The lessons and awareness that this brings with you into adulthood are immeasurable. This is why I intend on focusing my design thinking on bringing nature closer to urban children to make this access to nature a norm rather than a privilege.

This dissertation intends to test out a new way of looking at urban parks and how we design them. A way in which design can enhance and use natural processes and energy flows to create spaces that are ever changing and wild. This type of wildness is one that we, as humans are a part of and that we can influence and should engage with both in design and inhabitation of space. If we reclassify nature as any place where multiple life forms thrive

and wildness as unmediated natural process then we find that both are in abundance in our surroundings.

The challenge with this project is that as humans, we don't like change or uncertainty. We do everything in our power to predict and prevent change. The irony of this is that firstly, change is necessary, now more-so than ever, and secondly, the more we strive to understand and predict, the more we realise that the world is so complex, chaotic and non-linear that it can never be fully known (Corner, 1997). With this innate aversion to change, it is hard to frame an acceptance of the relinquishing control to allow for chance and unpredictability in design in such a way that it can be seen in a new and positive light. Change fosters growth, dilemmas foster problem solving and disturbance demands innovation. Here in lies the crux of this project. How can I, through design, toe the line between safety and risk, between the tame and the wild and between dynamism and stasis? It is the challenge of understanding how much design is enough design.

As Steven Krog (1983) rightly questions: "How is art to progress if someone isn't prepared to take a risk, to put a finger in the flame?". Landscape Architecture is art and this dissertation is a risk, it is putting my finger in the flame, and I hope that it can act as a catalyst for further inquiry.

RESEARCH PROPOSAL | SITUATING THE THESIS IN A SOUTH AFRICAN CONTEXT

In a time of incredible change and enormous environmental uncertainty, how do we prepare the next generation to step up to the challenge of dealing with the climatic and environmental struggles that they face? What is our role as landscape architects in this? I believe that the first step in equipping the next generation with the tools to deal with this inherited crisis is to create spaces that allow them to engage and interact with their own environment. Allowing children the space to explore, engage, question, experiment and problem solve as well as interact with nature in a physical and visceral can be the building blocks for the development of a generation of innovators with sensitivity to their World. To quote Catherine Mosbach "That's the goal of a public space: bringing together many kinds of life in ways that engage our creativity and humanity."

Children are in a position where their freedom and mobility is limited ,which means that the places that they can play must be within walking distance from their homes and preferably a place that they can be passively observed by a caregiver. Due to this, it has been found that children generally identify most strongly with the spaces that are closet to home (Francis 1988). With this in mind, it only makes sense to focus on small scale neighborhood parks as a design study subject. The number of these parks also allows them to work as a network which could improve the socio-ecological functioning of Neighborhoods.

As the world, and in particular Africa, is rapidly urbanising - space is becoming more and more of a privilege and a valuable commodity. Due to this, fewer and fewer families will have access to private green space such as gardens and therefore the role of small-scale community parks and open space in institutions such as schools are going to become ever more important. These areas are notably the public spaces that fall through the cracks when public funds are scarce and demand is high. They suffer from a lack of design input and in particular, maintenance attention. This dissertation intends to come up with a low financial input model for designing the spaces that are first cut when public spending declines.

In Cape Town, these "parks" are, at best, a lawn with a few steel play structures placed haphazardly within it and, at worst, deserts of concrete or

sand littered with broken glass and dumped garbage bags. They are, therefore, as one would expect, often deserted or become spaces for anti-social behavior. This reality proves to me that there needs to be a drastic change in the way in which these spaces are designed and managed. I intend to prove that there is a way that this can be addressed that makes them resilient, not only to environmental change but also to socio-economic change. There is so much potential for these spaces to become hives of life and places in which childhood memories are formed and through my design process I hope to prove this. Through a material lean and stewardship heavy process, I believe I can create a meaningful output model for designing engaging urban green spaces. I, therefore, believe that this thesis topic has very strong relevance to the context of densifying Cape Town within the broader context of the global socio-environmental climate.



RESEARCH PROPOSAL | A CRITIQUE OF THE CURRENT PARADIGM

There are elements of the current paradigm that I would like to address and critique through my research and design. I understand that these elements have value and have a basis in an attempt to understand, protect and create the world around us. I feel though that they can be pushed and challenged to improve our potential in the field of landscape architecture. These critiques are not mine alone but are shared with a number of scientists, educators and landscape architects. Some of these include: Fred Pearson, George Monbiot, Gever Tulley, Rod Barnett, Gilles Clement, George Descombes and Julian Raxworthy, to name a few.

THE CURRENT PARADIGM

VALUING PLANTS ON ORIGIN |

Placing a value judgment on plants by where they come from. ie: Alien vs Indigenous

MAINTENANCE |

The very nature of the word maintenance implies stasis. To maintain is to keep something in a single desired state. Maintenance is an ongoing concern in the Landscape Architecture industry.

ENVIRONMENTAL - SOCIAL BINARIES |

Nature is other from humans and one has to protect nature from humans. Nature is a commodity that needs to be controlled and managed in order to keep it pristine. Society has nothing to do with the environment.

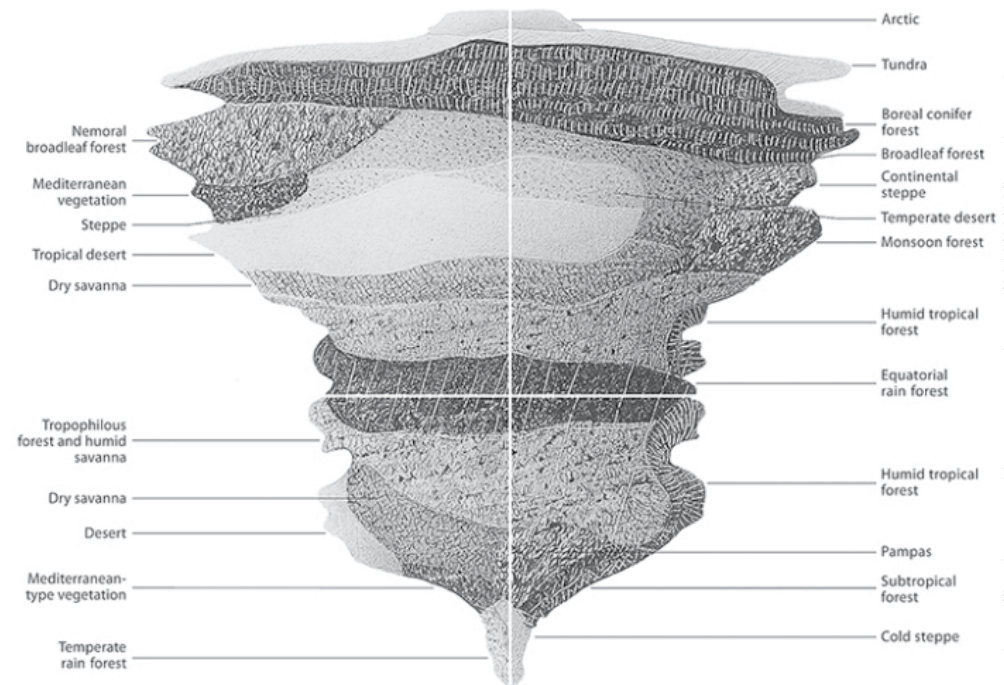
BIODIVERSITY & ECOLOGY |

Biodiversity is the number of indigenous species in a habitat and ecology is the science of studying the connections between these species and the surrounding natural environment.

PREVENTION OF RISK & CONTACT WITH NATURE IN CHILD'S PLAY |

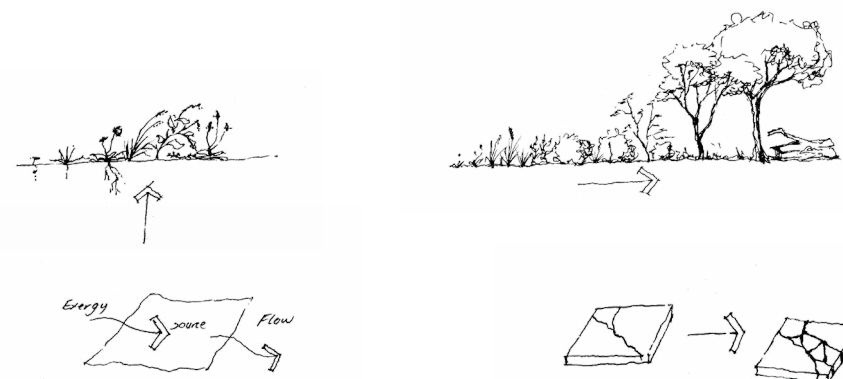
The implementation of rigorous safety standards in the acceptance of play spaces.

PARADIGM SHIFTS



<https://landscapearchitecturemagazine.org/2016/06/28/how-the-garden-moves/>

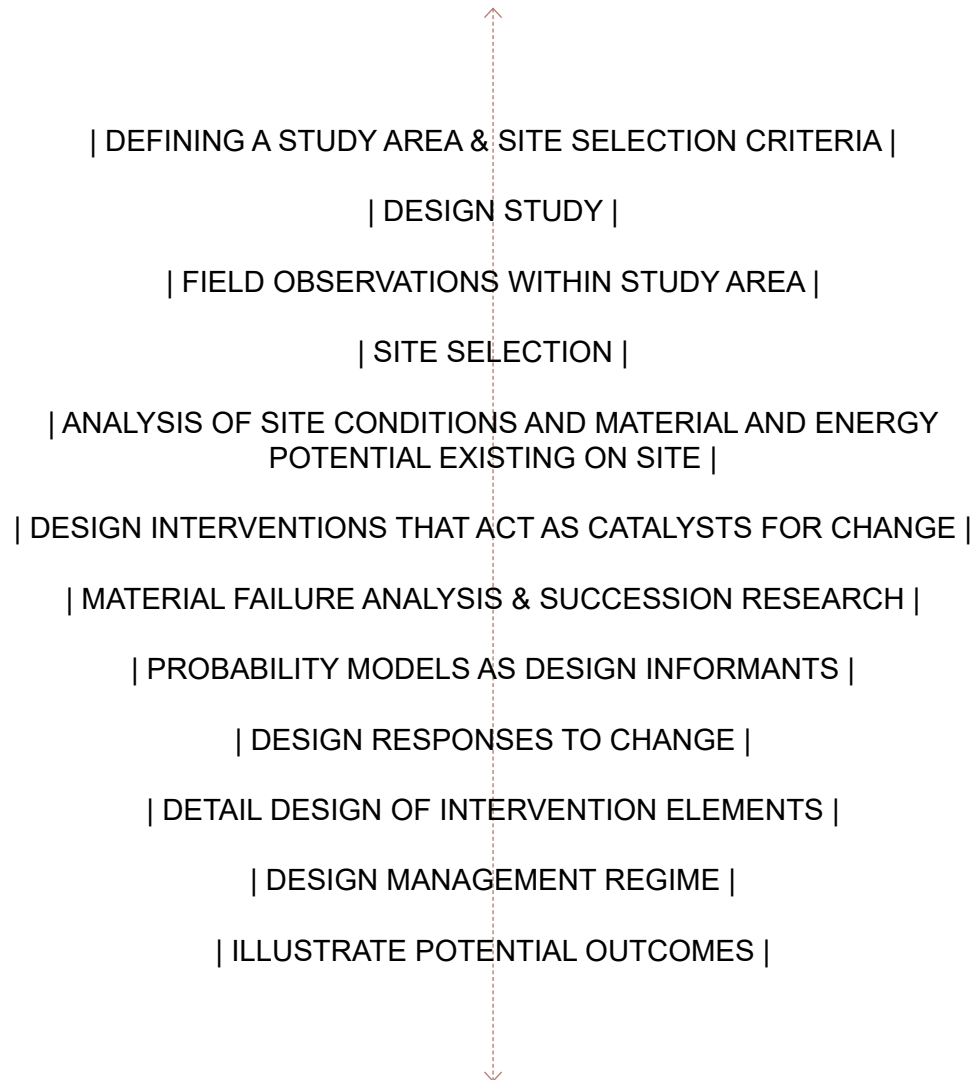
Virtual Pangaea by Gilles Clement



Emergence, Succession, Energy Flows & Entropy as Design Tools

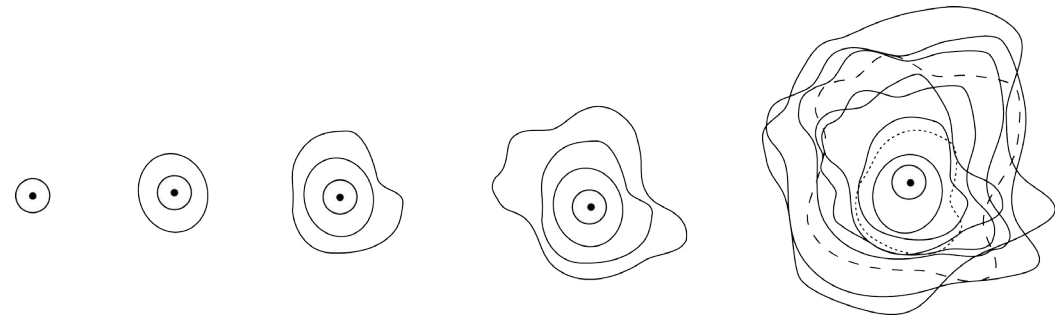
RESEARCH PROPOSAL | METHODOLOGY

The methodology for this dissertation is a combination of traditional methods of design and novel ones. Below is the proposed process of research through design:



There are some significant restrictions to this methodology that I acknowledge and I understand that they reduce the rigor of the dissertation. Most of these restrictions are related to time constraints. As the proposed design method is reliant on time and observation this means that I have had to extrapolate information and make assumptions that one would not have to make if this was a project that rolled out over a number of years. This means that the final design will be just one example of an infinite number of possible outcomes.

Additional restrictions come in with the computing power and the complexity of probability modeling as well as the extent of my knowledge of civil engineering principles. This method of design would ideally involve a multidisciplinary team of specialists that would consult in the initial phases and monitor over the lifetime of the park.



The development of an idea - A Tendency towards Complexity

DESIGN STUDY | A BOTANICAL ENQUIRY OF THE OVER-LOOKED & UNDER-VALUED

“One must wait; the future lies not in any precise place. It lies between. Between the apparently fixed points marking our path. The landscape under construction will always host more vagabonds than permanently secured beings.

Mobile beings, in our image, vagabonds invent solutions for existence.

They accompany us.

Let us join them.”

- Gilles Clement



DESIGN STUDY | WHY WEEDS

The reason for starting this project with a focused study of one of my materials - weeds - was to challenge the current paradigm. Even the decision to use the term “weed” rather than an alternative collective term like “pioneer” is intended to provoke.

This study comprises of 8 portraits of weeds found in my study area as well as combinations of these species in species assemblages that are likely to be found in our urban environment. These portraits are accompanied by a short biography and an example of the habitats in which they flourish. The decision to create these portraits in the historic style of botanical illustration was to invite the reader to observe these species in a way that can show off their beauty and uniqueness.

The study area is an area of Cape Town that has always been incredibly community-centric, something that is under threat by gentrification. The personal tone I have used in the biographies attached to the Weed Portraits are in a sense a metaphorical awareness of this as I hope that the reader can see these plants all as integral members of a plant community that is resilient and necessary.

As landscape Architects and gardeners we are very quick to add a value judgment to plants based on their origin in particular. The term “Alien Invasive” is used prolifically as a negative way to describe certain species whereas “Locally Indigenous” is a stamp of approval. In centering this study around weeds I would like to challenge this and start the conversation around shifting the current paradigm to rather judging plants on their performance, usefulness and ability to flourish in the Anthropocene.

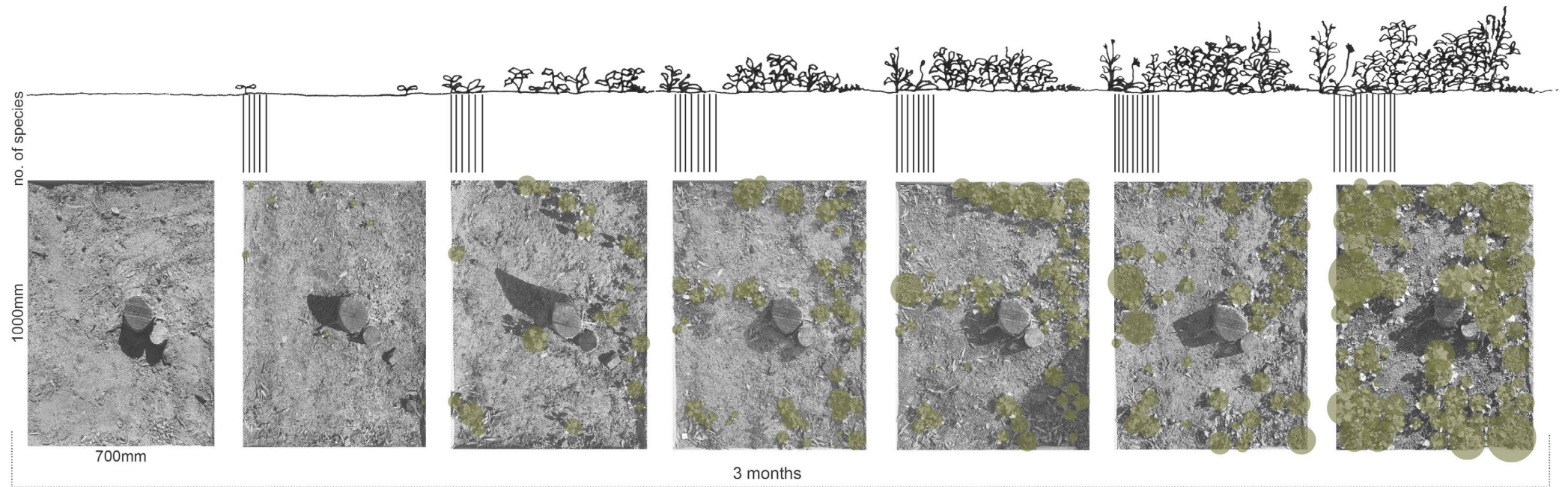
Practically, weeds portray nature in its most self-willed form. No one has planted them in the cracks in the pavement or the verge along the highway, yet they are there thriving, quietly releasing oxygen into the atmosphere and sequestering carbon. The multitude of species that fall under the banner of “Weed” are tough, resilient and readily available so it seems obvious to harness these characteristics in Landscape Architecture projects.

Weeds can be useful, beautiful and intriguing. They all have stories of movement, origin, success and failure. I want to bring to light and showcase the beauty in the overlooked and under-valued species in the plant community.



Live specimens collected for illustration.

DESIGN STUDY | COLONISATION POTENTIAL



Colonisation Potential Study

This is an experiment of colonisation potential. As the first experiment in this dissertation I documented small patch of open ground (a tree hole in the pavement) was documented over a period of 3 months (April - June) to observe what would happen if it were left with no intervention. The result was the growth of a number of plants. By the end of the 3 months 12 species of plant were present and over 50% of the soil was covered. Unfortunately the study of the succession of this patch of soil was cut short as someone took it upon themselves to remove all the weeds from the patch. This was in itself an interesting observation as it clearly shows the challenges of this project in terms of changing peoples perceptions of weeds and seeing them as an urban asset. This small study area has since been weeded a second time and though the plants that grow get continuously removed there is always re-emergence of new plants within days, showing the resilience and tenacity of these species.



DESIGN STUDY | PORTRAITS OF COMMUNITY MEMBERS

“Landscape Architecture is the art of organising these encounters in such a way to increase humans and non-humans, self and other empowerment. That is to enable them the dignity and assurance of their right to self determination”

- Rod Barnett



BOTANICAL ILLUSTRATION
/
PORTRAIT

PLANT DESCRIPTION
/
BIOGRAPHY

HABITAT EXAMPLE
/
HOME

Layout of the following pages



Bibens Pilosa

This medium to tall plant with small cream coloured flowers originated in South America. It flowers in Summer and then in Autumn produces masses of seeds which are disbursed by attaching onto coats of animals and clothes of people. It is happy to grow virtually anywhere although it grows considerably larger in nutrient rich soils. The leaves are edible and can be cooked like spinach. The young leaves are more desirable as they are not stringy. This is a plant that almost everyone grows to know about as the seeds have a tendency to get stuck in your socks.





Convulvulus arvensis

This is a slender climbing plant with small pale pink flowers that originated in Eurasia. It is now found all over the world and is considered a cosmopolitan species. It flowers in mid-late Summer and then produces clusters of round brown seedpods that look a little like miniature acorns. This plant will grow practically anywhere where it gets enough light and it particularly likes repeatedly disturbed soils. It often survives in very dry periods far longer than other plants due to its very long tap root.





Oxalis pres-caprae

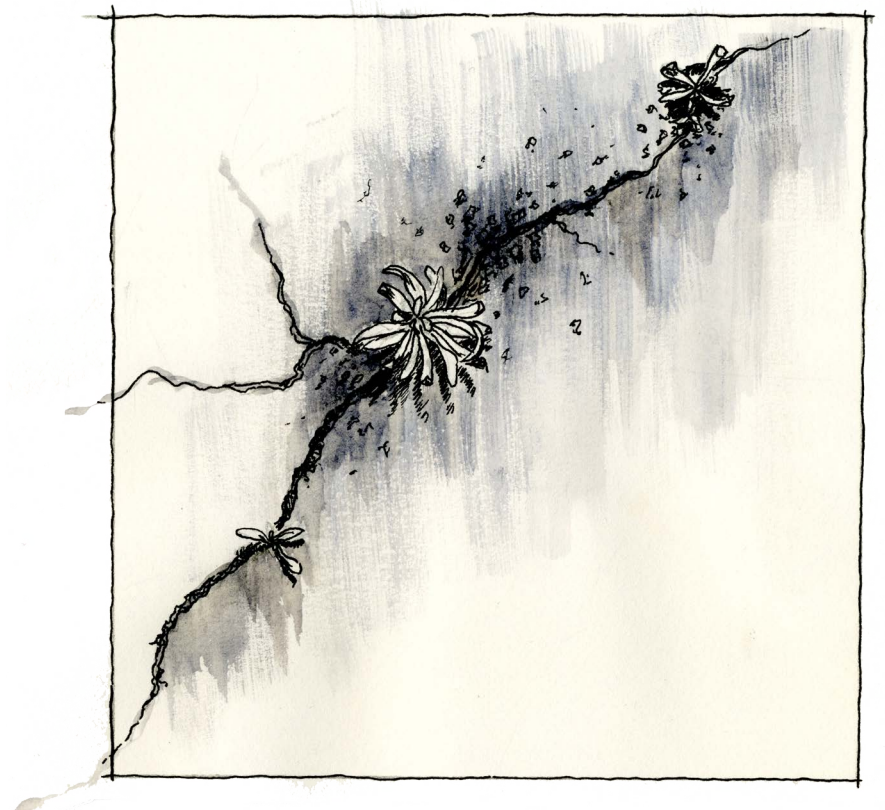
This low growing leafy plant with butter coloured flowers originated in South Africa. It is a perennial, Winter flowering plant. The flowers are light sensitive and only open when there is enough light so at night or on very grey days the flowers stay shut. It is happy to grow in many different environments from cracks on a pavement to grassy verges. It grows a number of small bulbs which, in addition to leaf die-back help it survive the dry summer months. It is a favourite snack for children and adults alike as its leaves and stems have a tangy sour taste. It is traditionally used as an important ingredient in Waterblommetjie bredie.





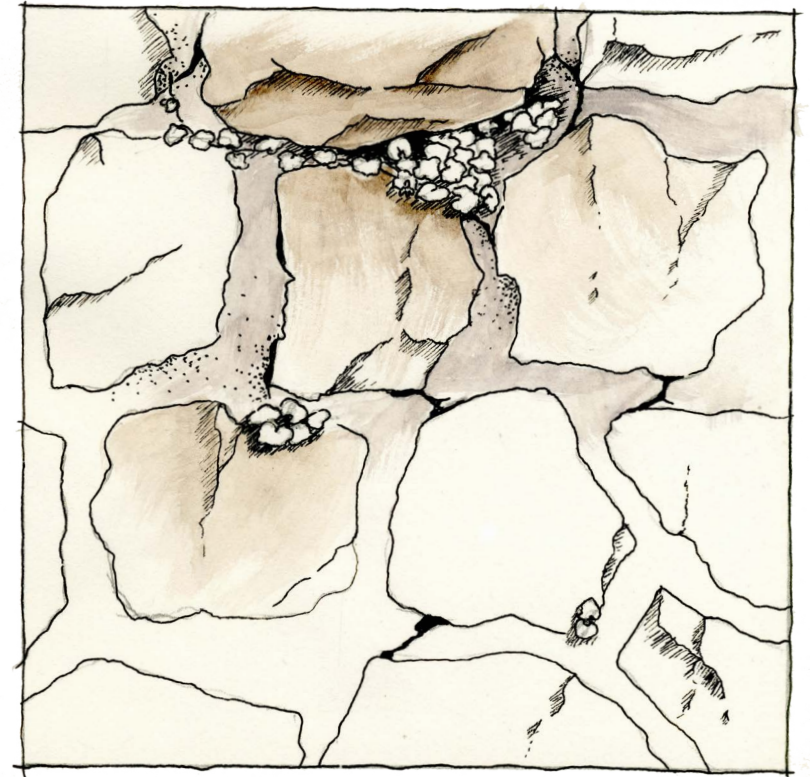
Plantago lanceolata

This flat growing plant with strange cylindrical brown inflorescence originated in temperate Eurasia. It flowers in late Winter – Spring and the flowers are actually a cluster of tiny flowers that are wind pollinated. This plant is happy to grow in virtually any type of environment and climate but does not grow in very acidic soils. It has a long tap root that helps it access water in dry periods. This plant has been globally used as an indicator of historical agricultural activities. It has antibacterial qualities and is used in herbal medicine to cure a number of ailments. The flowers on their long stalks are a great tool for a number of children's' games.



Cymbalaria muralis

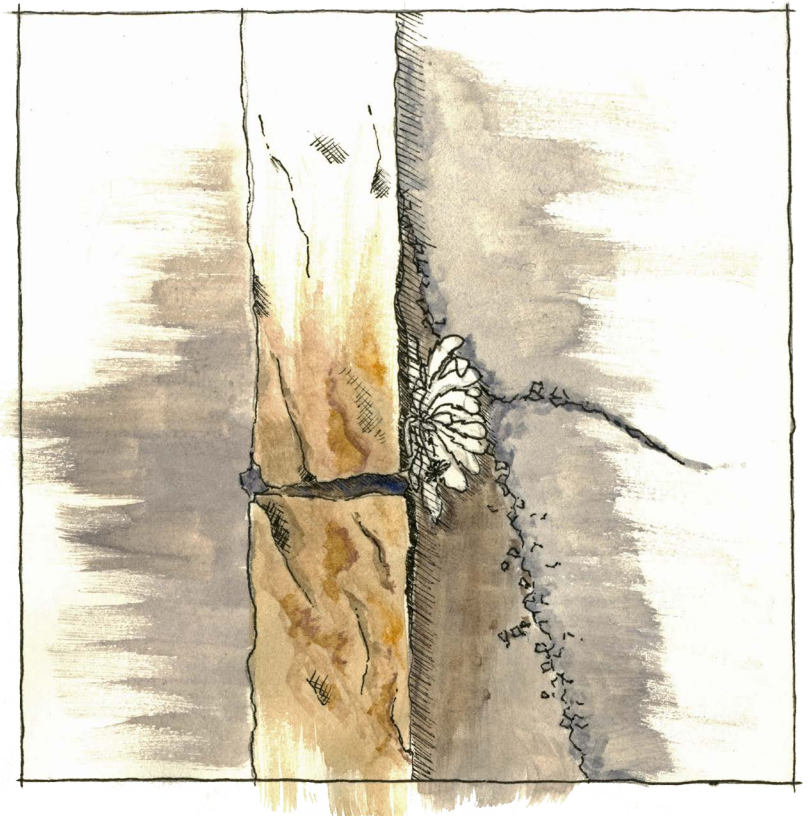
This dainty little creeping plant with tiny purple snap-dragon-like flowers originated in South-East Europe. It flowers from Mid-Winter to Early Summer and the flower stalks are initially positively photo-trophic, which brings the flower towards the light, but once the flower is fertilized it then becomes negatively photo-trophic and therefore pushes the seed away from the light and into cracks and crevasses. This plant grows between rocks and cracks in walls in semi-shade to sun. It is happy to grow in any spot that is well draining. The flowers are perfect to create imaginary creatures as they have what looks like a mouth.





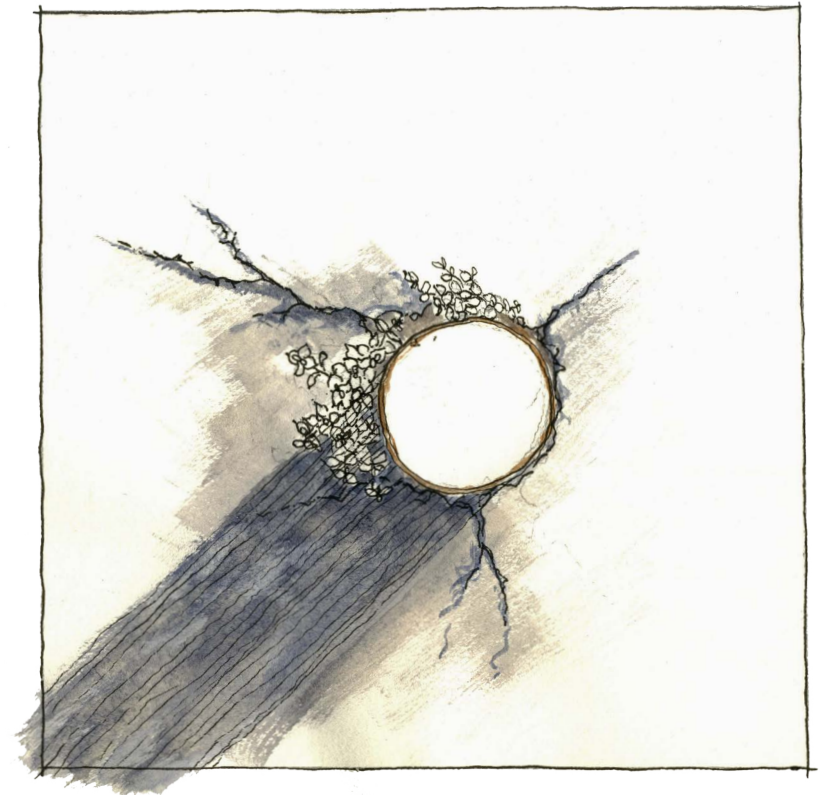
Taraxacum officinale

This well known plant with its cheerful yellow flowers and puffs of wind-borne seeds originated in Eurasia. It flowers almost all year round and is a very important source of pollen for bees during Winter months. This plant grows almost anywhere provided it has a fair amount of light. It is used both as a food source and a medicinal herb. The leaves are the main part of the plant that is used for food and can be eaten both raw and cooked. It is a firm favourite plant with children due to the seed heads that are blown to make a wish and as each seed looks like it has its own little parachute.



Stellaria media

This bright green, slender annual with its tiny, inconspicuous cream coloured flowers originated in Europe. It flowers from Winter to Spring and its name "*Stellaria*" comes from its star-shaped flowers. This plant grows as a ground cover almost anywhere it can get some water and light. Where it is growing in shady areas it becomes more lanky and taller whereas in full sun it grows as a dense mat. It is used both as a food source and in herbal medicine. It is used as a leafy vegetable, often used raw in salads. Its common name is chickweed as it has been grown commercially as chicken food.



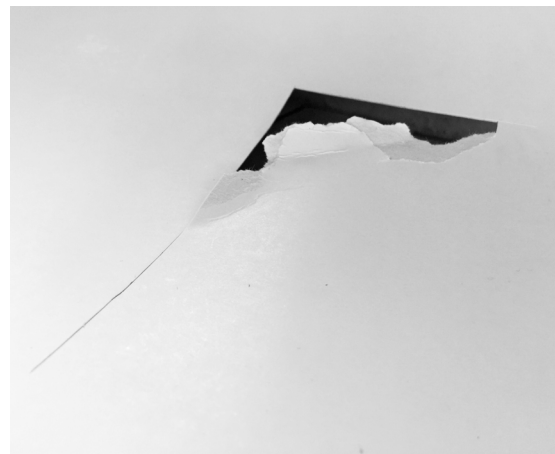
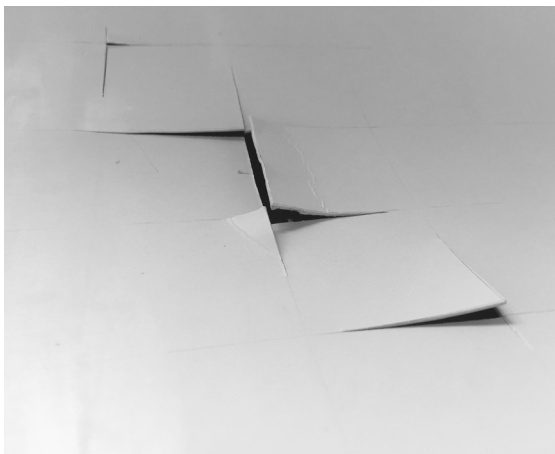


Pennisetum setaceum

This wispy plant with pinkish-purple plumes of seeds originated in East Africa and Asia. Its plumes start to emerge in Spring and mature and stay on the plant into Summer as they turn from purple to light brown. It will grow almost anywhere with full sun. The seed plumes are perfect for children's games as they are soft and robust and can be used for a number of imaginative games.



DESIGN STUDY | FORM ABSTRACTION



This method - abstracting common forms created by decaying and disturbed materials using card was chosen due to the subtractive nature of the material. By removing all other visual elements of these materials it created interesting form. The card was a useful material to use as it allowed for quick active form generation through cutting, tearing, bending and folding. The clean white also allowed for the exploration of light and shadows cast by the forms.

DESIGN STUDY | FORM AS HABITAT



DESIGN STUDY | FORM AS HABITAT



DESIGN STUDY | FORM AS HABITAT



DESIGN STUDY | FORM AS HABITAT



Community Gathering # 4 |
ecological encounters

DESIGN STUDY | FORM AS HABITAT



Planes of Play | An Initial exploration of scale, planes & form as space making tools

DESIGN STUDY | CONCLUSION

I drew a number of conclusions from the study. Firstly, once you start looking and actually seeing the plants around you as you move through the day, you realise just how great the biodiversity of our city is. Due to lack of time and space I only created 8 portraits of weeds but the number of species I had to choose from was incredible. Just the action of going out and finding specimens to illustrate made me realise that the concept of utilising weeds as my primary material in this thesis is viable.

Secondly, the response to the illustrations was a complete surprise, as people, not only those in the industry, responded incredibly positively and were describing these weeds as beautiful. This was intention of the study, for it to show that these plants can indeed be beautiful and are worth observing, researching and being portrayed in a positive light. This was an interesting social experiment as it shows that if you place something that is seen as worthless or ugly in a context that people associate with value and beauty it is possible to change the way people view things. This is a lesson that will be a driving force through the rest of this dissertation.

Thirdly, through interrogating the materials on site and beginning to see the potential not only in the materials themselves but also the forms that they create as they decay and become less ordered. This has inspired me to explore these forms at various scale to investigate their potential to make space. They are already showing their ability to create habitat for plants but it will be exciting to explore their ability to create habitat for people.

Finally, the study illustrated to me the interconnectedness of the elements of the project. The process of creating a design method for this project cannot be linear or binary. This project is going to be a matter of exposing the web of connections that make up an ecology that we are a part of. Landscape is an open system and it comprises of feedback loops between ecology, language, process and everything else.



SITE SELECTION | STUDY AREA

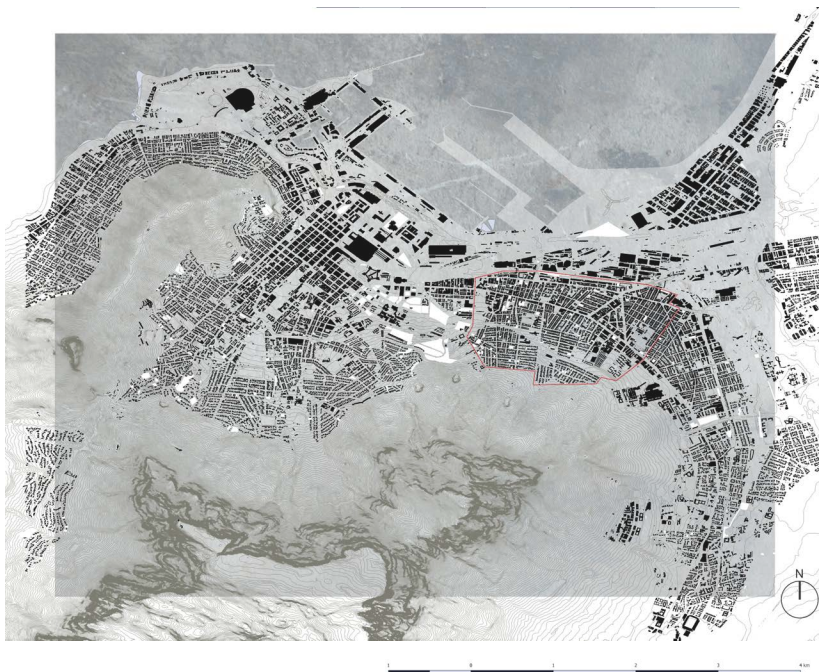


a | Context within the Western Cape

b | Study area in the context of Cape Town Centre

c | The study area that comprises of the neighborhoods Woodstock, Salt River, Walmer Estate & University Estate.

a |
b |
c |



SITE SELECTION | NEIGHBORHOODS ANALYSIS



a |
b |
c |

a | a map of the building footprint of the study area showing the urban grain and schools in the area

b | a map showing the open space network included in this area parks, sports fields and vacant land

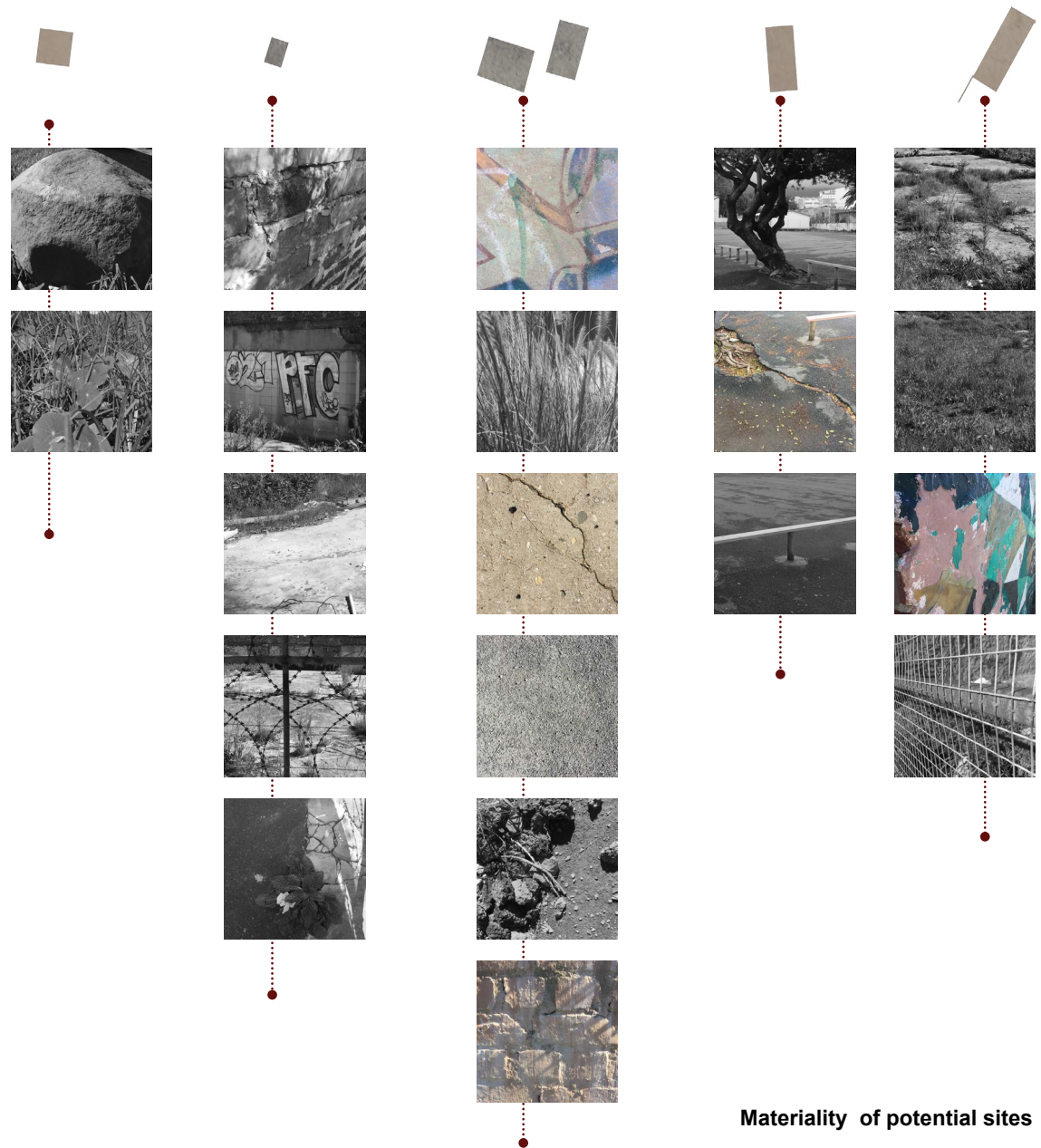
c | a map showing the streets in the area with the emphasis placed on the more pedestrian dominated streets over the car dominated ones

SITE SELECTION | NEIGHBORHOODS ANALYSIS

In addition to mapping the study area I did a number of on foot site visits. This way I was able to get a sense of the activities on and around the sites I had identified as potentials for intervention. Each one of these sites would have been a fascinating site for my dissertation design. Each had it's own challenges and character and ideally they would become a network of park spaces that could serve their immediate surroundings and act as refuge for urban nature. The materiality of each site was unique but they all had a similar language. A language of age, neglect and decay but also of opportunistic life and spontaneity.



Corner of Fenton Rd & Pope Street, Salt River



Materiality of potential sites

SITE SELECTION | CRITERIA

I used the following criteria to identify a number of potential sites:

Situated in Cape Town Metropolitan Area

Situated in a moderate - high density neighborhood

A currently un- or undervalued outdoor space

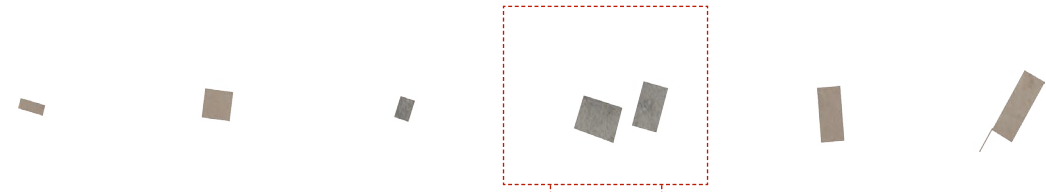
Embedded in a residential neighborhood

A place that I am able to visit regularly

These criteria lead me to identify a network of sites within the suburbs of: Walmer Estate; University Estate; Woodstock and Salt River. This was done through a physical observation of the potential sites in the area.

Once this network of sites was identified I then chose a site to interrogate further through design. This site consists of two leveled platforms separated by a rarely used street. It is relatively large and very exposed. The site is also the second closest of the potential sites to Table Mountain and is adjacent to Queens Park. Queens Park is a recreational precinct that is relatively well used by the neighborhood. It consists of a dog park, a sports field, a fitness obstacle course, and a children's park. Although there is a children's park as a part of this precinct, I have yet to see anyone utilising it. It is a typical neighborhood children's play area with a mown lawn and a selection of steel play structures all surrounded by a palisade fence. Queens Park seems to be a primarily adult oriented recreational space with no attractive place for children.

Though this site is slightly larger than I was anticipating for this project, I chose it because I was excited by the opportunities it held to test out some of my most risky design ideas. There are also a number of schools in the area that it could service. Queens Park High School is directly adjacent to the site allowing the possibility of including its outdoor space into the design.

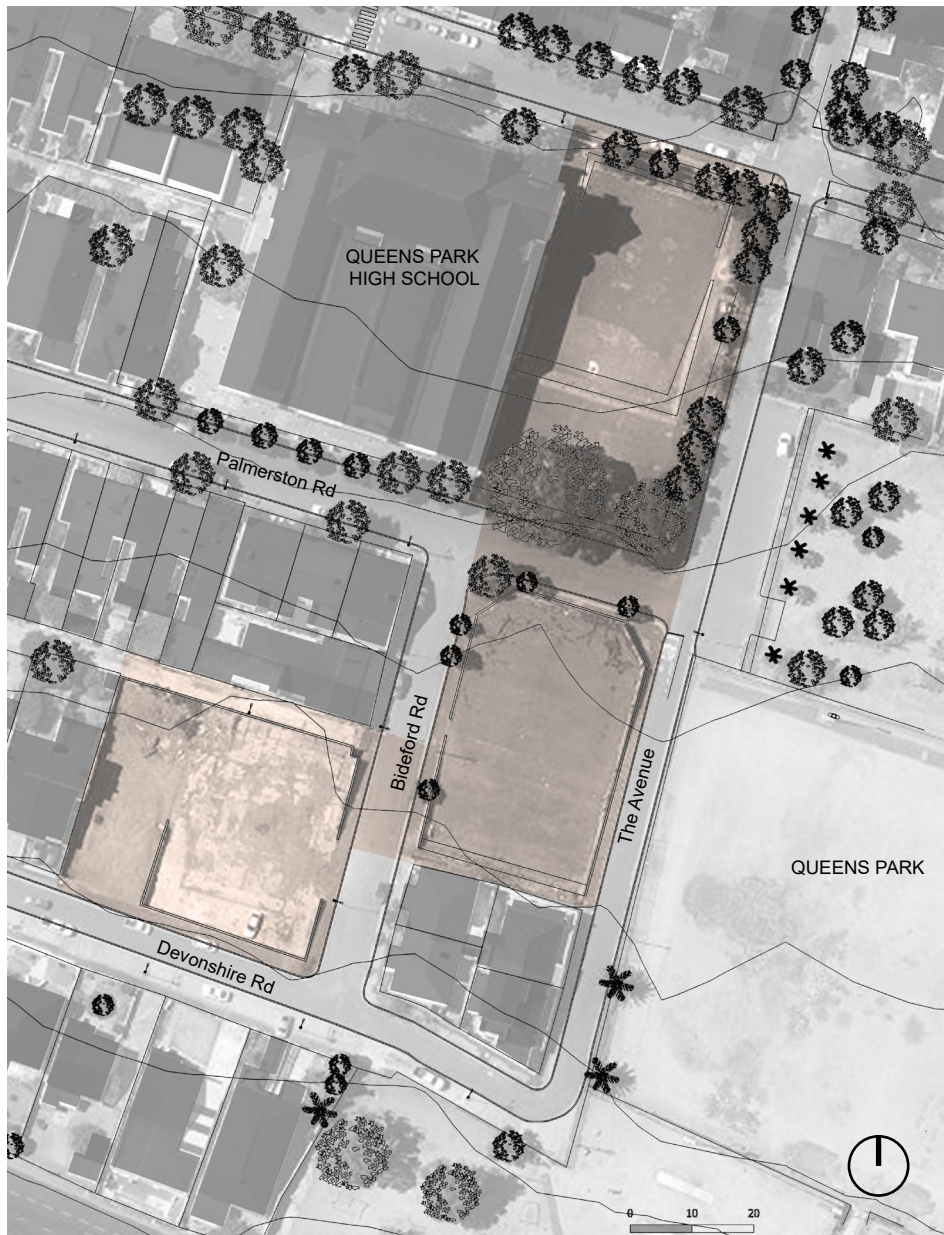


Chosen Site - Cnr. The Avenue & Devonshire St



Framework Diagram

SITE | CNR DEVONSHIRE ST & THE AVENUE



Base Map of the Site

The site includes the two leveled platforms that currently stand vacant and the school yard of Queens Park High School. The 1966 Cape Town Survey maps show that the platform to the North East of the site was previously a tennis court and on the platform to the South West there were garages. Also to be taken into consideration, though not actively designed is the Roodebloem Laubscher Burial Ground which sits to the West of the site. At the moment there is no evidence that this space is of heritage value when you visit the site.



Ink Impressions of the Site

SITE | ANALYSIS

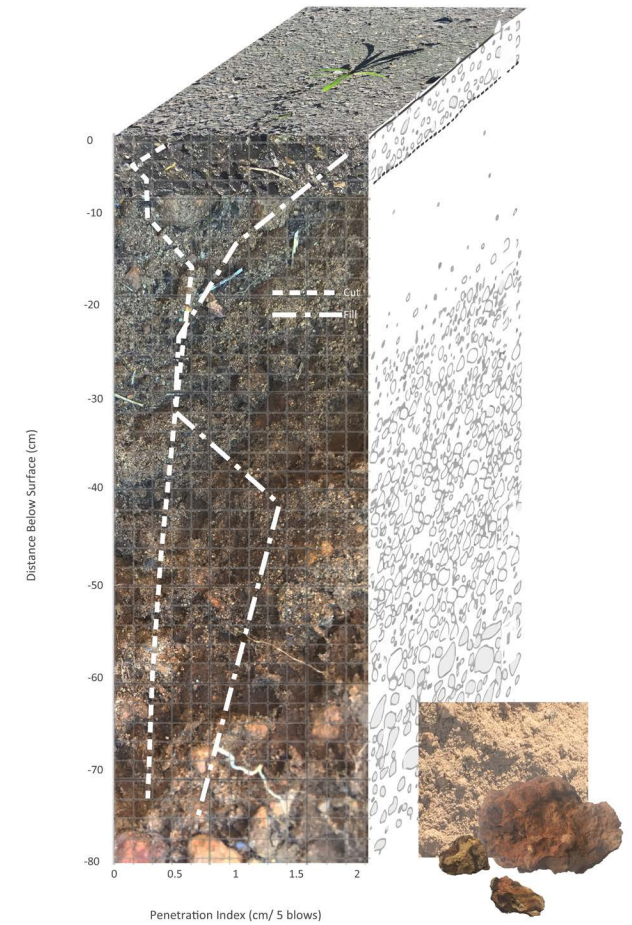


Dynamic Cone Penetrometer (DCP)

Soil tests were done to determine the type and structure. The tests showed that the soil is Plinthic with Ferruginous nodules indicating a fluctuating water table and there was very little rubble in the sample showing that the fill is likely the cut from elsewhere on site. The DCP test showed that the density on the cut side of the site is higher than on the fill side which means that the soil material is likely to erode more easily at the North End of the site.



Hand Auger



Results from Soil Testing

Scale 1:500 @ A1
 Average Gradient 1:14
 Total Level Change 10,5m

A

Existing Site Section

A

SITE | PHOTOGRAPHS



MATERIAL MATTERS | THE USE OF SECOND-LAW THINKING & ENERGY FLOWS TO REDUCE ENTROPY PRODUCTION IN LANDSCAPE ARCHITECTURE

“for anyone who thinks and works ecologically, the most important aspect is the management of energy.”

– Louis Le Roy

The whole world, including the built environment is governed by the laws of thermodynamics. The first law of thermodynamics states that no energy can be created or destroyed and the second law states that during any process or change in energy state work capacity is destroyed and entropy is created (Stremke, van den Dobbelsteen & Koh, 2011). This second law is the one that is incredibly important to understand when we think about sustainability. If we engage second law thinking when addressing sustainability, then we can remove all the emotional and cultural complexities from the word and attempt to understand it at its most basic.

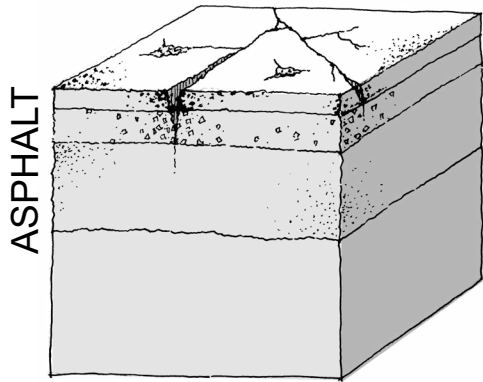
Since the industrial revolution, humans have managed to harness material with extremely high work capacity such as oil and coal and we have used these high work capacity materials to fuel all the processes required for expansion of civilisation. The problem with this model of energy use is that by using these high work capacity materials to fuel processes that only require low grade energy the result is an enormous amount of entropy production, primarily in the form of pollution. The built environment is a major contributor to this global entropy production. Just the concrete industry alone contributes to 8% of the greenhouse gas production (Lehne & Preston, 2018). This is something that we need to address in the way in which we design and build projects in the future.

Due to the nature of landscape we, as landscape architects, sit in a unique position where it is relatively easy to make a marked difference to entropy production through our designs. Landscapes are dynamic open systems that are in constant flux and therefore state change. This means that they are continuously creating entropy, primarily in forms of material “waste” or heat. Functioning ecosystems are successful because they are an assemblage of life forms that both produce and consume entropy. They develop complex systems and interactions which allow material and heat to cascade into higher

and higher entropy states but at every step of the way that energy is used by another organism in this way the total energy use of functioning ecosystems is highly efficient. In addition to this, photosynthesis is a process that actually reduces entropy by utilising dispersed (highly entropic) energy in the form of carbon dioxide to produce glucose, a high work capacity product (Stremke, van den Dobbelsteen & Koh, 2011).

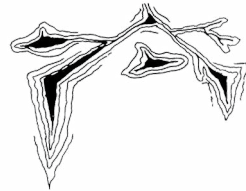
The dynamism and complexity of landscape is what makes it an ideal space to reduce entropy by inserting our anthropogenic energy needs into the energy flow existing. One way to reduce our entropy production in landscape architecture projects is to see the existing site conditions not only as constraint or design informants but as potential energy. Once we start looking, we will begin to see that there are numerous potential energy sources on every site that can be harnessed to produce low-grade energy state changes. Some of the commonly overlooked potential energy sources found on sites are: wind, water, sunlight, gradient, existing materials, existing plant growth, soil fertility, to name a few. All these elements won't efficiently fuel a jumbo jet, but they can be used for a surprising number of landscape interventions that don't need a high-grade fuel source to be produced. It is now time to start thinking ecologically and utilising energy flows in the implementation of our designs.

MATERIALITY EXPLORATION | THE PROCESS OF DECAY & GROWTH

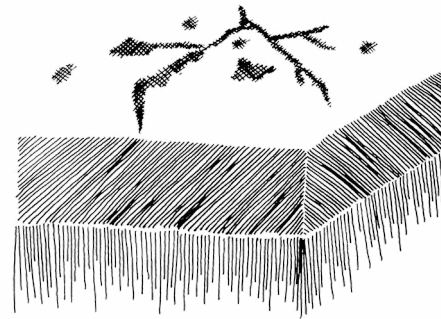


ASPHALT

DECAY



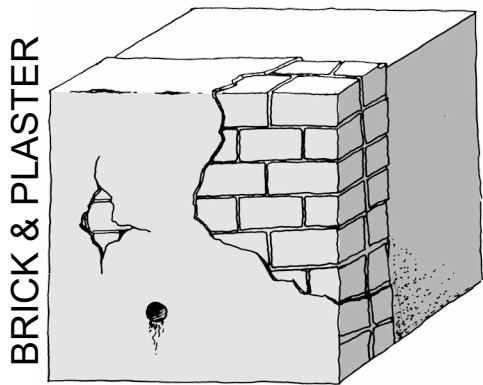
COLLECT



STORE

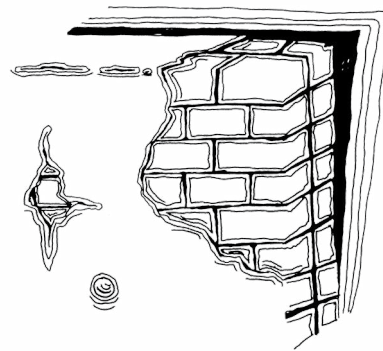


GROW



BRICK & PLASTER

DECAY



COLLECT

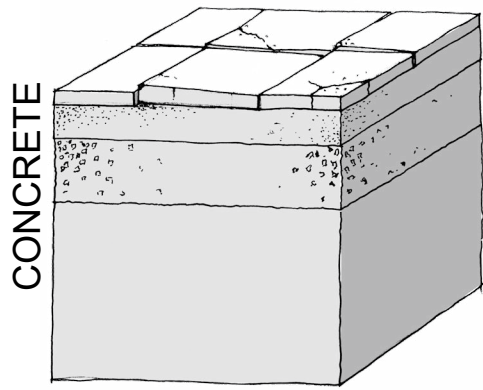


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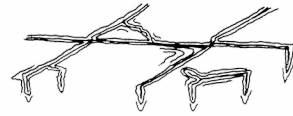


GROW

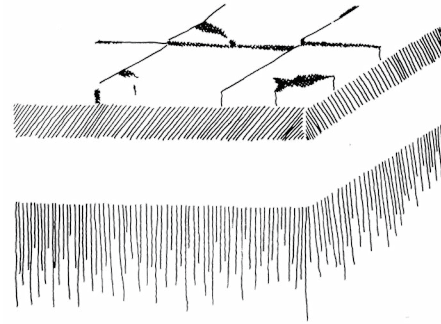
MATERIALITY EXPLORATION | THE PROCESS OF DECAY & GROWTH



DECAY



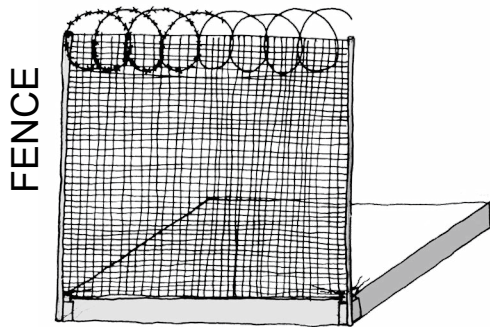
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STORE



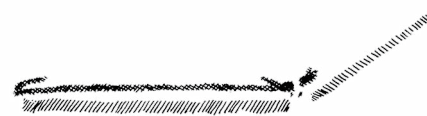
GROW



DECAY



COLLECT

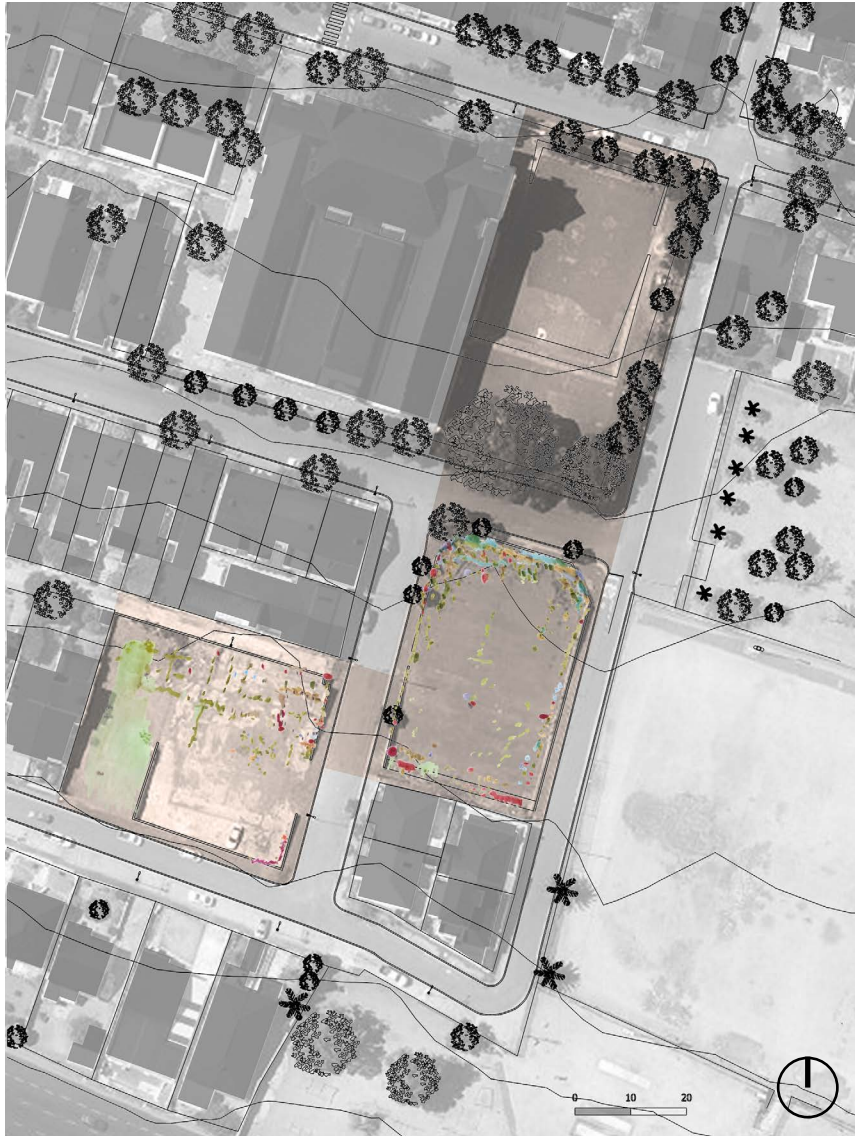


STORE



GROW

MATERIALITY EXPLORATION | SPECIES SURVEY & GROWTH PATTERNS

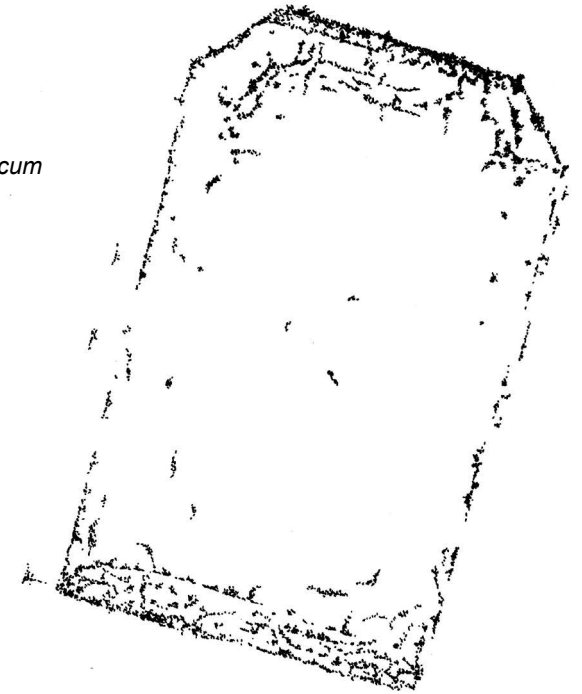


Species Distribution Map



IDENTIFIED SPECIES

- | | | |
|--------------------------------|--------------------------------|-----------------------------|
| <i>Pennisetum setaceum</i> | <i>Stellaria media</i> | <i>Polygonum aviculare</i> |
| <i>Bibens pilosa</i> | <i>Malva arborea</i> | <i>Arctotheca calendula</i> |
| <i>Plantago lanceolata</i> | <i>Hypochaeris radicata</i> | <i>Erodium moschatum</i> |
| <i>Oxalis pres-caprae</i> | <i>Echium plantagineum</i> | <i>Erodium malacoides</i> |
| <i>Pennisetum cladisetinum</i> | <i>Rapistrum rugosum</i> | |
| <i>Medicago lupita</i> | <i>Euphorbia helioscopia</i> | |
| <i>Verbena officinalis</i> | <i>Centranthus ruber</i> | |
| <i>Parietaria pensylvanica</i> | <i>Tropaeolum majus</i> | |
| <i>Erigeron canadensis</i> | <i>Hypochaeris radicata</i> | |
| <i>Convolvulus arvensis</i> | <i>Lactuca serriola</i> | |
| <i>Cymbalaria muralis</i> | <i>Nothoscordum borbonicum</i> | |
| <i>Taraxacum officianale</i> | <i>Euphorbia maculata</i> | |



Pattern & Distribution of Growth on site

SPATIAL PRACTICE | IMAGINATION & CHILDHOOD MEMORIES AS SPACE MAKING TOOLS - Thinking Like a Child when Designing for children.

'We may therefore conclude that imagination is not an empirical power added to consciousness, but it is the whole of consciousness as it realizes freedom.'

- Jean-Paul Sartre (2004)

Our knowledge of space has greatly improved over time. We now know that space is not just a void, not just a scaffold or backdrop in which life plays out but it is rather an integral and influential part of societal function and the making of memories and identities (Lefebvre, 1991). With this in mind, I feel it is our responsibility as creators of space to engage our imagination in a way that allows us to visualise how space will be occupied by the communities and individuals that are being designed or. As my thesis project is aimed primarily, but not exclusively, at children, understanding the needs and imagining the experience of the user will likely delve into one's childhood memories.

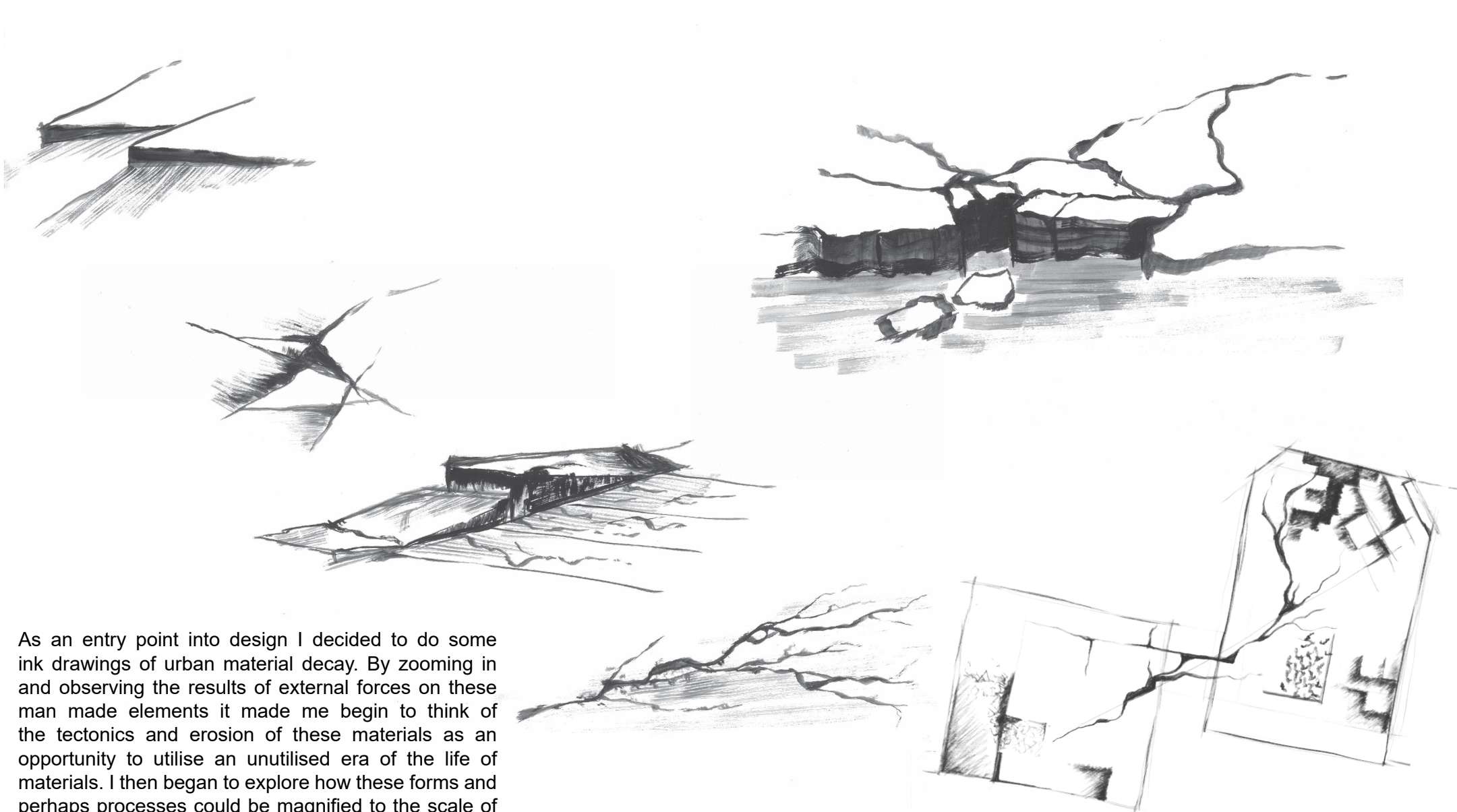
In his paper *Negotiating between Children and Adult Design Values in Open Space* (1988) Mark Francis highlights the research of Roger Hart and Robin Moore who, independently, found that naturalness, proximity, scale, and modifiability were imperative to the pleasure children experienced in public spaces. This research also found that it was far more likely for children to identify a piece of natural land or a vacant lot as their favourite place to play over a formal playground or schoolyard (Francis, 1988). Rachel Sebba (1991) also concludes that children experience nature in a meaningful and direct manner. The natural environment is a stimulator and real element of experience, rather than a backdrop or plane on which children play. This research, I believe, shows biophilia, and a desire for freedom and the space for imagination as integral to children and the way they inhabit space.

The importance of these spatial qualities for children in play has been found to continue in importance into adulthood in the form of childhood memories. Almost all adults identify their favourite or most significant place of their childhood as being outdoors (Sebba, 1991). The quality and longevity of a positive childhood

memory is directly related to the amount in which a child is allowed to truly engage with the activity with both the body and the senses (Sebba, 1991). This is important as these memories create compassion and connection to spaces and nature as experienced in adulthood. This is where childhood memories become a powerful tool in design. In the recall of these memories lies a power to imagine being a child again and therefore imagine how a space would feel and see potential in the elements of nature. These memories allow wonder and imagination to guide design in a way that can create something magical. This retrospection can, in turn, allow the next generation to benefit from the power of creating a visceral and sensory connection to space through the formation of their future childhood memories.

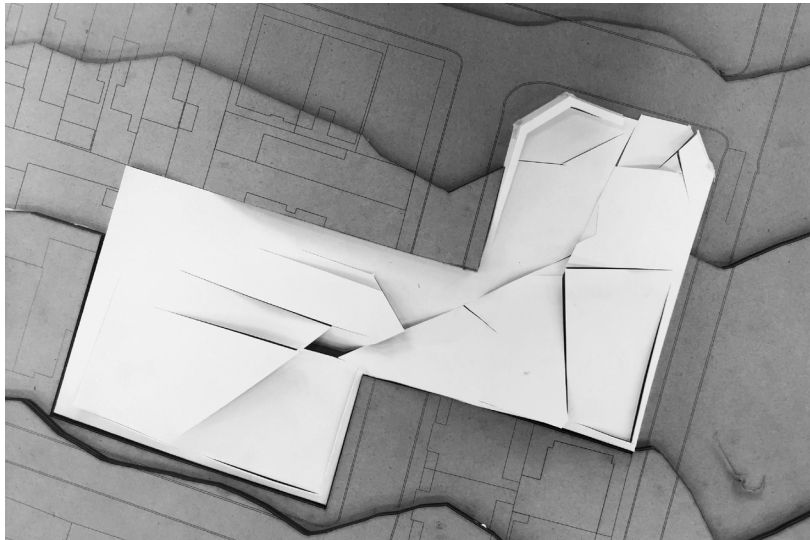
My thesis is an unexpected ode to my childhood. The experiences that have been etched in my memory - those that have been integral in the formation of my world views and the ways I respond to both space and nature - are those that were steeped in discovery, independence, imagination, and scraped knees. In the end, the aim is still to make those forts and fairy gardens - only the scale has changed.

ENTRY INTO DESIGN | CRACKS & FISSURES

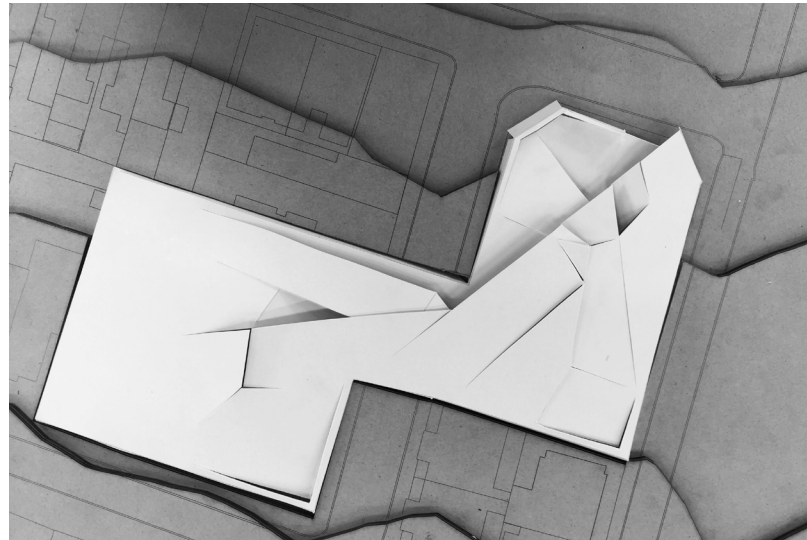


As an entry point into design I decided to do some ink drawings of urban material decay. By zooming in and observing the results of external forces on these man made elements it made me begin to think of the tectonics and erosion of these materials as an opportunity to utilise an unutilised era of the life of materials. I then began to explore how these forms and perhaps processes could be magnified to the scale of the site.

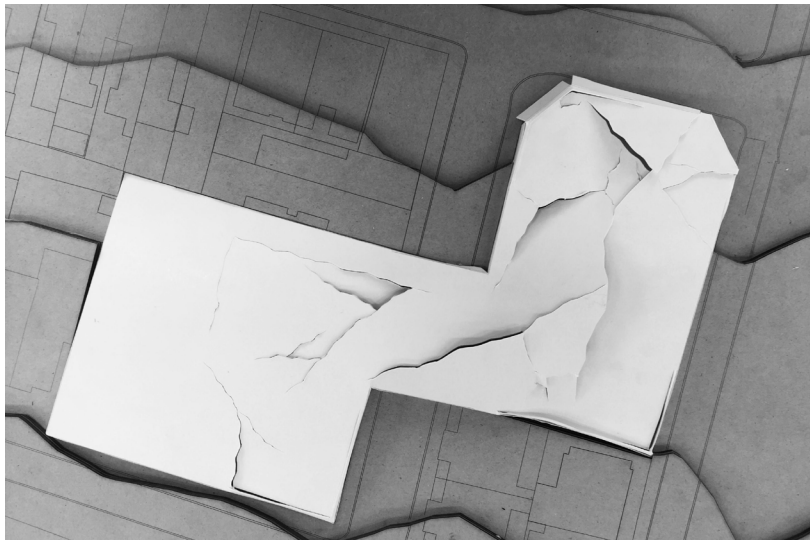
ENTRY INTO DESIGN | EXPERIMENTAL MODELS



Model #1: A test of the technique



Model #2: Concrete



Model #3: Asphalt



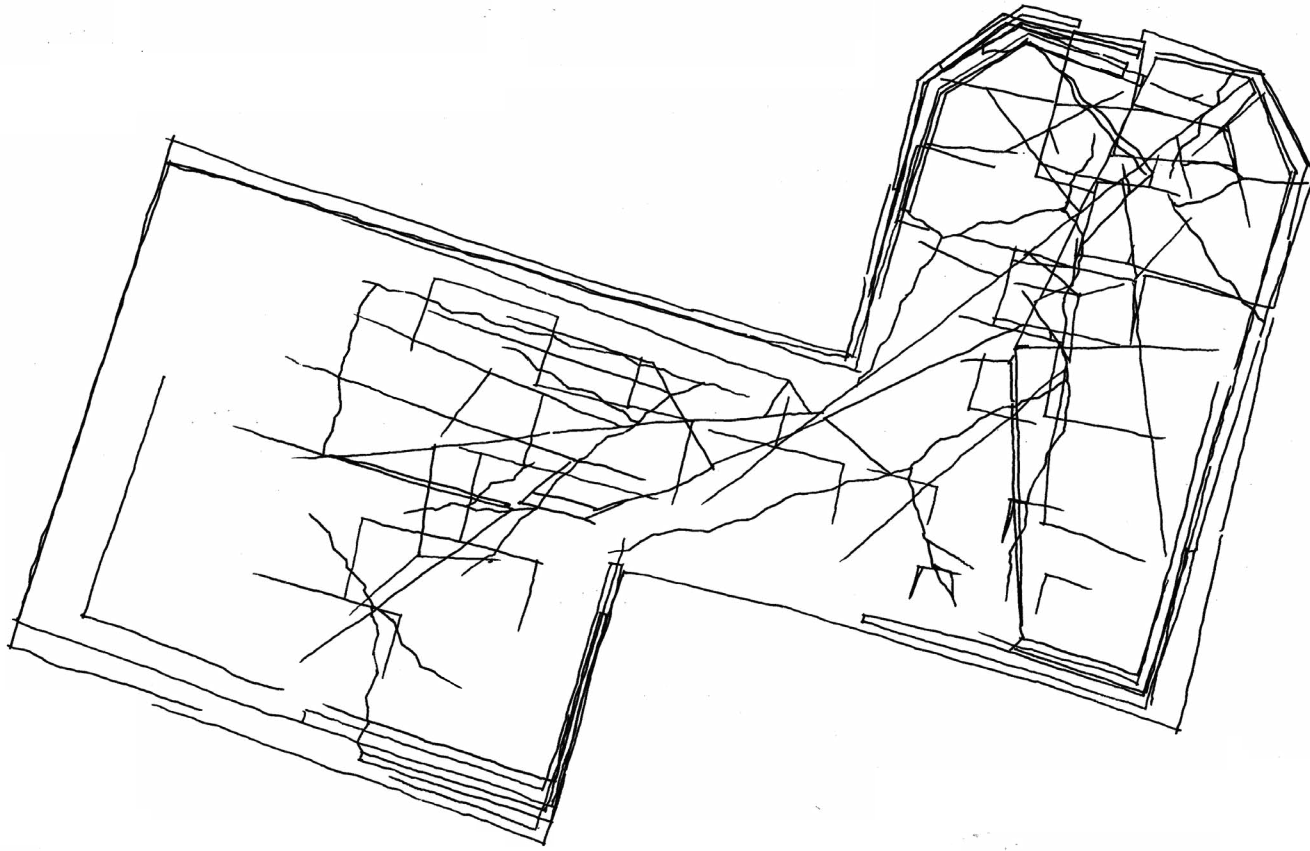
Model #4: Brick

I built a contextual model base with the site cut out of it. This allowed me to make multiple different models and easily slot them into the site context to begin to get a sense of how abstracted forms could translate into space.

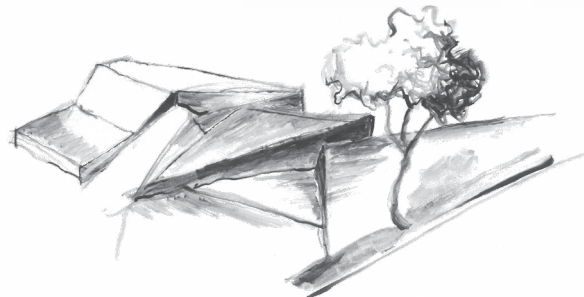
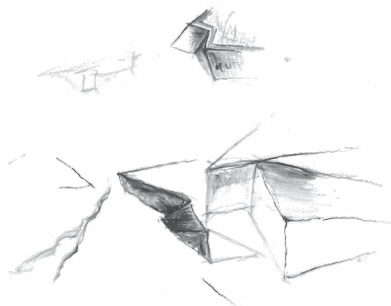
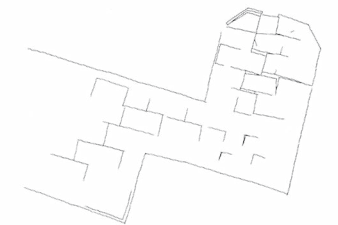
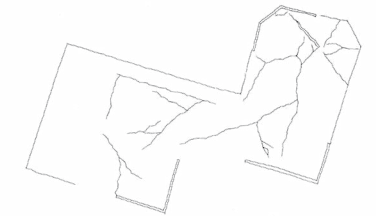
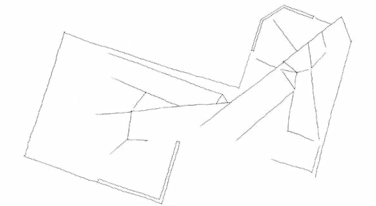
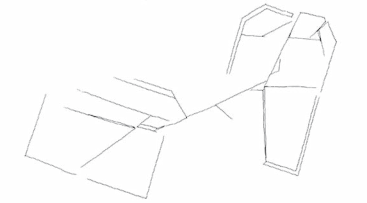


The formation of space

ENTRY INTO DESIGN | DECAY ABSTRACTED ONTO SITE



Model forms overlaid



Exploration into the forms at scale though conceptual ink illustrations

FORMING | FORMING THROUGH RELINQUISHED CONTROL

“Our habit of judging the beautiful is so intimately linked to form that the invisible part of the miraculous, that which could be the very subject of it, remains hidden to us.”

- Gilles Clément (2011) pg. 288

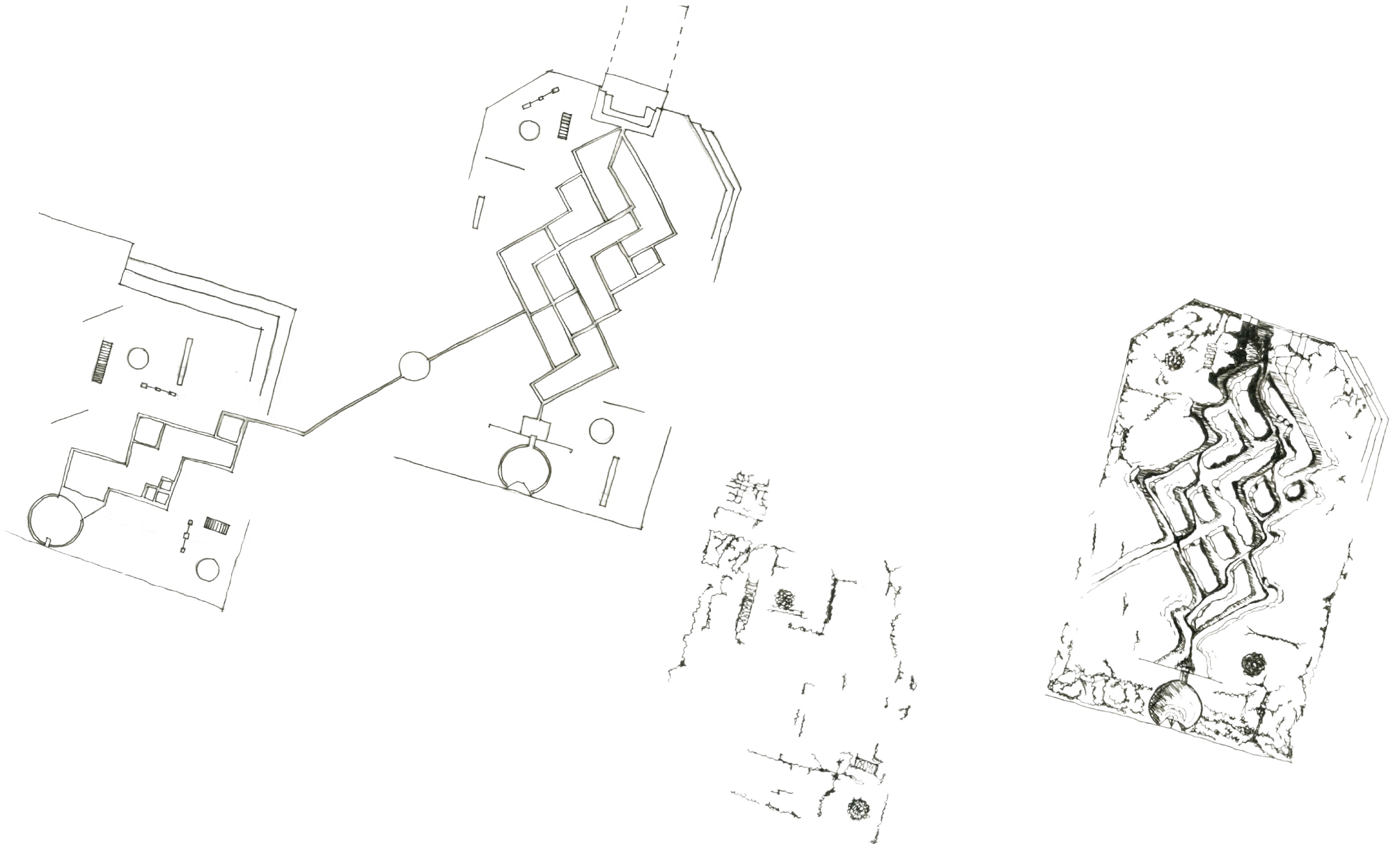
How does a designer cultivate an appreciation for the life and processes that society over-looks? Form creation is perhaps the most complex and important part of my thesis project. The success of this project lies with the ability of form to comfort the user with familiarity whilst still allowing them to be confronted with the sense of change, poetics and wonderment of the unfamiliar or overlooked. Although the intention for this project allows it to be categorised as a re-purposed, an operative, and even a revelatory landscape project, the importance of this project lies within the process of continuous, iterative design and the natural processes at play within the city. Therefore, I feel that the generation of form in this project needs to both emanate from, as well as, highlight these processes. It is this process-driven design theory that has led me to look at Gilles Clément as an inspiration for form generation.

In his projects, Derborence Island in Parc Henri Matisse and The Garden of Labels in The Garden of the Third Landscape, Clément has allowed the process to almost entirely create form. This is the process of colonization and succession, a process that he has relinquished control over. The product of this decision is places of new nature that are ever-changing in their form (Skinner, 2011). They are untidy, different and hard to pinpoint where the design lies within the landscape. How Clément makes this release of control appreciated by the public is twofold – Firstly, he places these areas within recognisable spaces and therefore appreciated. The areas of wild are bounded and juxtaposed against something familiar, Derborence Island placed in an area of mowed lawn and The Garden of Labels as an element in the industrial space of the project. Secondly, Clément has added scientific value to these spaces, allowing them to be research grounds for measuring and documenting the processes at play (Gandy, 2013).

Through these two projects, the concept of relinquishing control and utilising colonization and succession as tools for form-making has been showcased as a success in creating landscapes that promote inquiry and question existing landscape paradigms. This is an example of an extreme and I believe that even more power lies with adding an element of spatial and temporal guidance – gardening. Gardening is essentially continuous form making through the engagement with and manipulation of growth. I feel that the real strength of design through process is a combination of allowing nature to act and then making continuous, small design decisions that guide the form in the desired direction. This sentiment is shared with Skinner (2011) who comments: “Rather than plan the garden ahead of time on a drafting table with a list of species, she [the gardener] helps the garden to emerge in collaboration with the functional inventions of plants” (pg. 264).

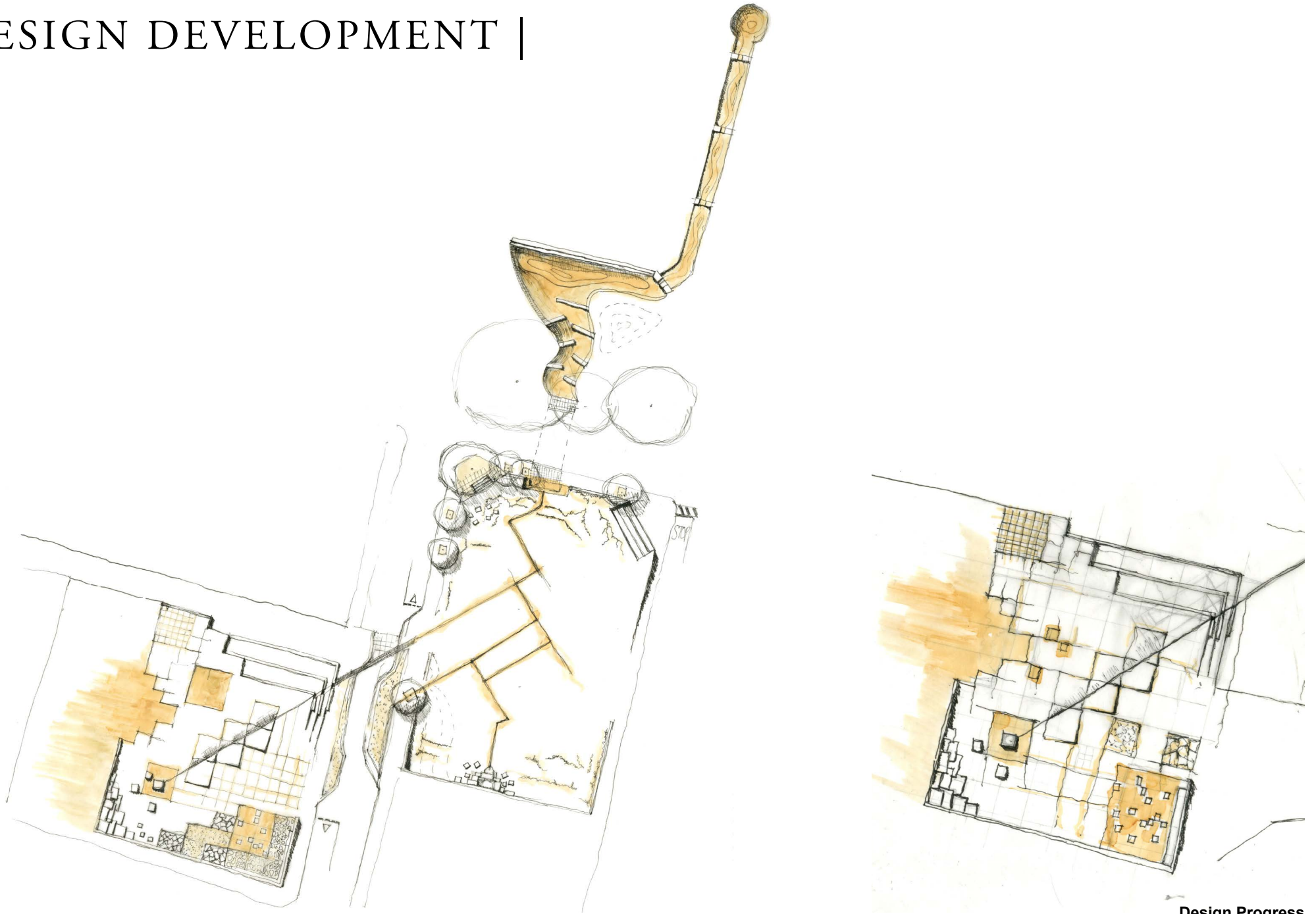
This leads to the critique I have for the projects mentioned here - the elements of wildness have excluded the general public. By making these works physically inaccessible, Clément also makes them experientially and intellectually inaccessible (Gandy, 2013). This makes them read more as installations rather than spaces. This exclusion of humans seems to contradict many of Clément’s own theories, in particular, Une écologie humaniste (Gandy, 2013). In my thesis, I hope to build on the works of Clément. To use many of the same processes and theories he engages with but also, to encourage interaction with the wild elements and natural processes of the space. Through an interrogation of how much design is enough design, I intend on using form founded in the materiality of the sites to create a scaffold on which growth, change, interaction and ecological process can all build. In doing so I hope to create a landscape of wonder, play and appreciation for the life acting all around us.

DESIGN DEVELOPMENT |



Early Design Iteration - Exploring the grid and abstraction of the forms of regular play equipment as 2D forms that decay over time

DESIGN DEVELOPMENT |



SYSTEMS LOGIC | THE ART AND SCIENCE OF NOT KNOWING

“Every clear statement is either a simplification or a falsehood.”

- William Kentridge

As humans, we are inherently terrified of the unknown. It is this fear that has led to the development of science. We have an innate desire to understand our environment, to describe, to explain and to predict all that is around us. This is a powerful driving force of innovation and efficiency. Sometimes, however, the acceptance that many aspects of the world are unknown, and unknowable can, in itself, be a powerful tool.

Nature is an aleatory system. According to Corner (1997) ““Nature,” refers to the amorphous and unmediated flux that is the “actual” cosmos, that which always escapes or exceeds human understanding.” There is no fixed or truly predictable outcome to ecological and evolutionary processes. Even as we strive to predict outcomes and understand complex systems, we cannot account for every single variable or the element of chance. Therefore, even our most complex modeling of processes and systems are a simplification of the actual. Evolution is itself an act of chance. The genetic mutations that allow for variation that in turn allows for evolution to take place are accidents that allow for the survival and adaptation of species.

As with science and nature, art is also driven by the elements in life that are unknowable. Krog (1983) argues that landscape architects need to not only accept this but embrace it during the process of design. He believes that for Landscape architecture to be art we need to allow for the process of creating to determine a product rather than to work towards a pre-conceived idea of what should be. As writer Donald Barthelme expresses – “[Art] is a process of dealing with not- knowing; a forcing of what and how”. Art created in this way - through intuition, chance and the elements of life that are immeasurable, is a process of cultural evolution.

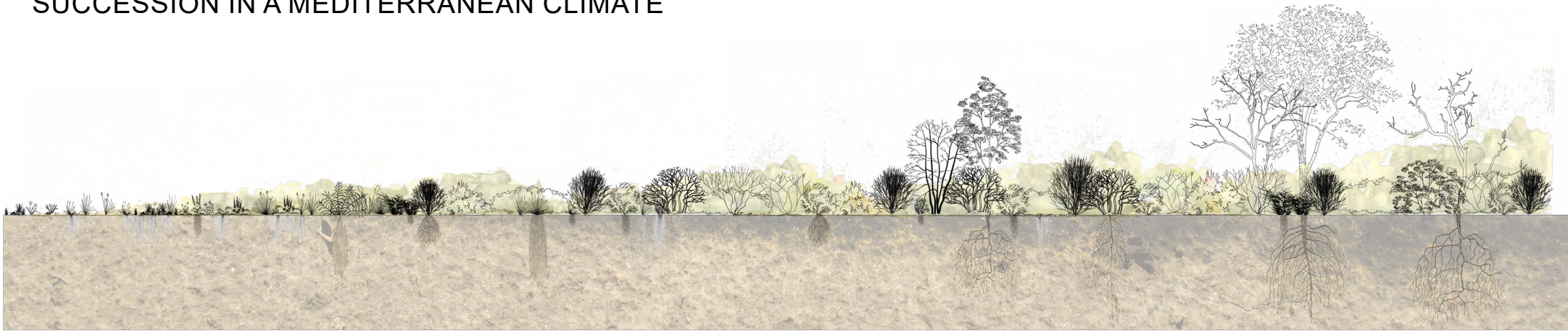
If both nature and creation (science and art) are dynamic systems that are driven by chance, change and an unpredictable future, then why is it that as

landscape architects we are so determined to produce a knowable product? We use plants as our material, one that inherently changes over time, and yet we produce illustrations of our creations at a moment in time that we believe the project to be at its ideal and therefore finished. From there, this state must be maintained. Where is the magic in that? Dynamism, change and uncertainty are the drivers of inquiry and innovation. If we create spaces that do not allow that then we are starving the users of their chance to observe, question or imagine outcomes. As Krog mentions in his essay Creative Risk-taking (1983) “The artist’s purpose must not be to explore the frontier and then return to document his/her discoveries for a sedentary and complacent audience, but rather to create a laboratory for the audience to investigate the physical and psychological boundaries of its own perception.”

I believe that through accepting an element of the unknown and creating with change in mind we can create landscapes that both serve society and the environment whilst allowing space for exploration and inquiry into our relationships with the world around us. We can change our way of design from predetermining a static object or creating and controlling a simplified system to a more reactive and responsive process of design. A continuous process, that creates catalysts for change, then observes and reacts to the systems at play and in this way design spaces that enable dynamic relationships to emerge. Corner (1997) calls for a new way of thinking that harnesses this. To quote his exact words – “Similarities between ecology and creative transmutation are indicative of an alternate kind of landscape architecture, one in which calcified conventions about how people live and relate to land, nature, and place are challenged and the multivariate wonders of life are once again released through invention.”

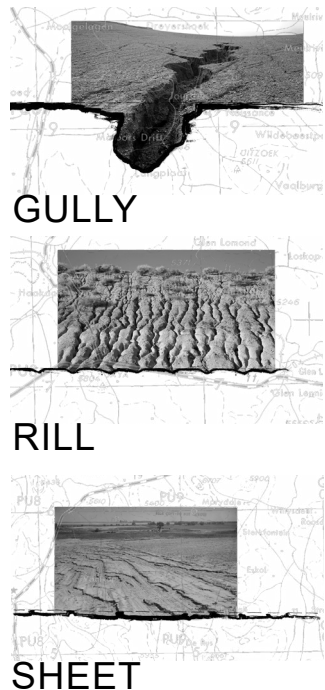
DESIGN RESEARCH | PROCESSES & INFORMANTS FOR DESIGN

SUCCESSION IN A MEDITERRANEAN CLIMATE

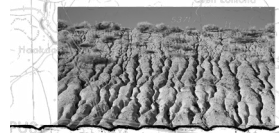


Time →

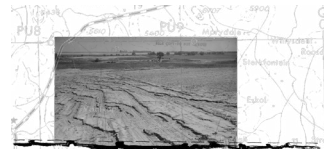
EROSIVE LANDFORMS



GULLY

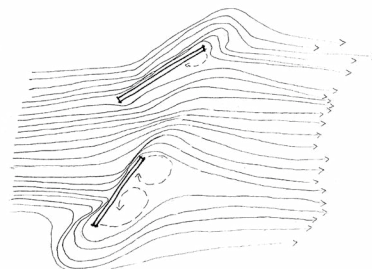


RILL

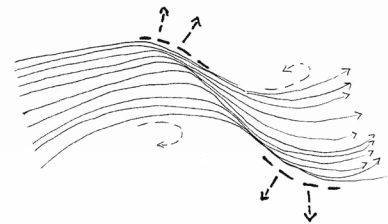


SHEET

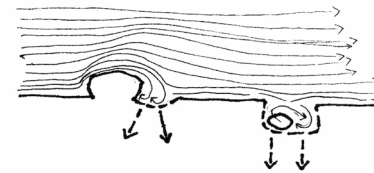
↑ VELOCITY
↑ VOLUME



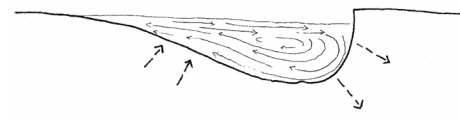
EDDY FORMATION PLAN



FORMATION OF MEANDERS PLAN



SCOURING & POTHOLE FORMATION



FORMATION OF MEANDERS SECTION

DEPOSITIONAL LANDFORMS

↑ SEDIMENT LOAD
↓ SLOPE



BRAIDING



ANASTOMOSING

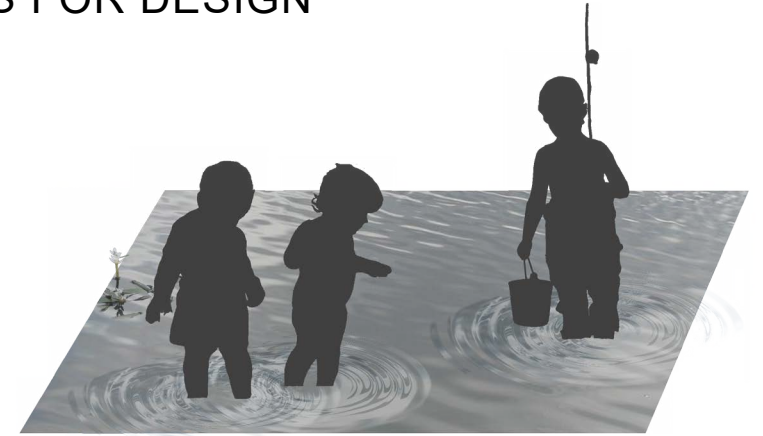


MEANDERING

DESIGN RESEARCH | PROCESSES & INFORMANTS FOR DESIGN



DIG



WADE



PICK



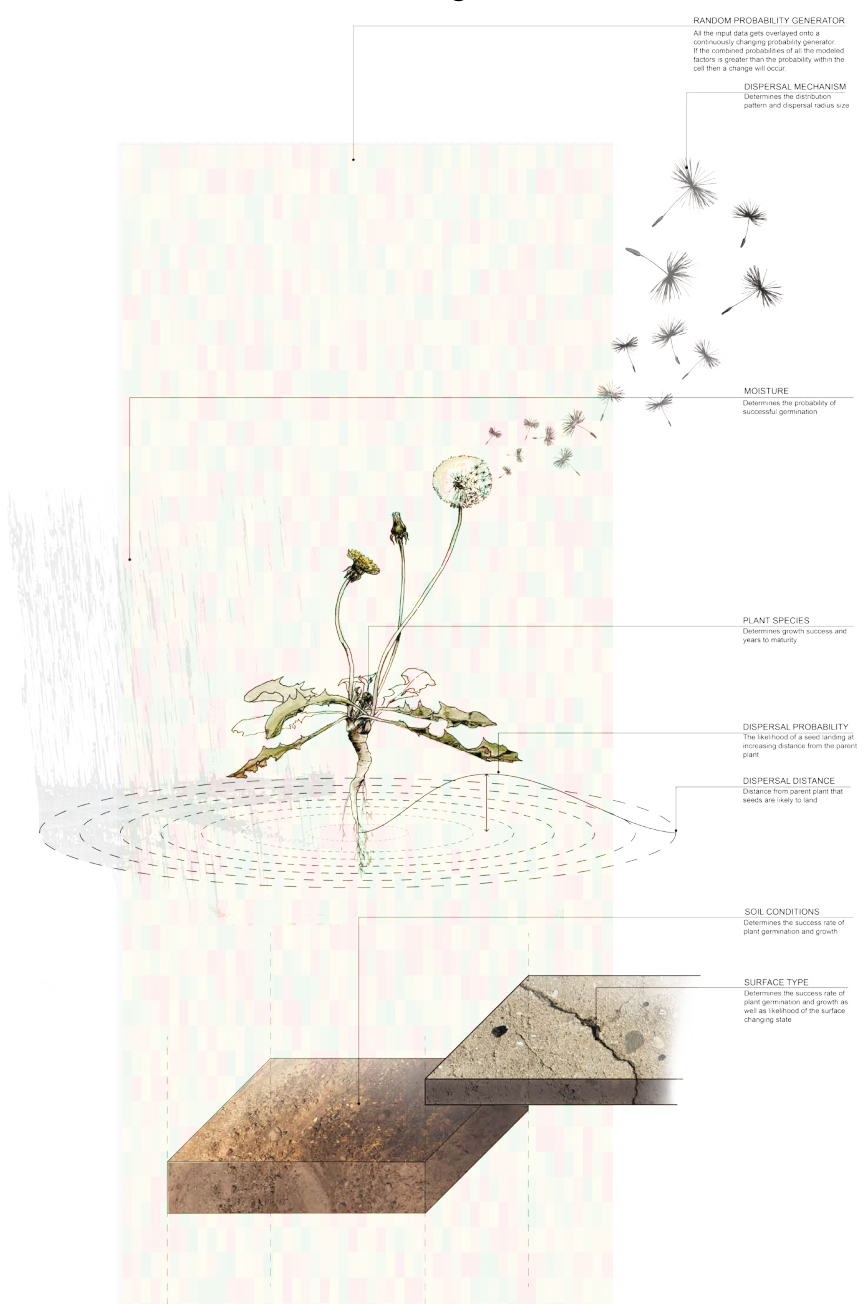
CLIMB
pg. 44



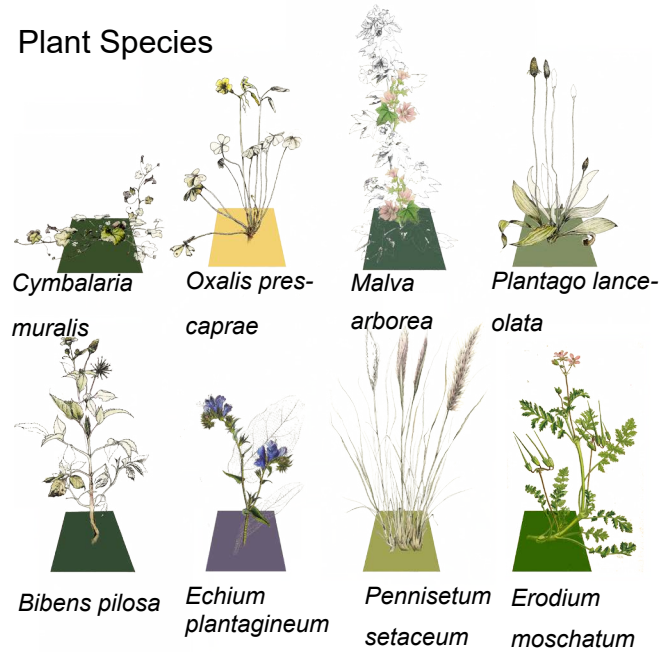
COLLECT

DESIGN RESEARCH | PROCESSES & INFORMANTS FOR DESIGN

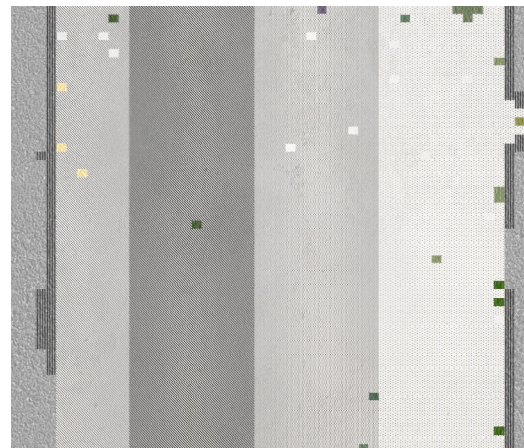
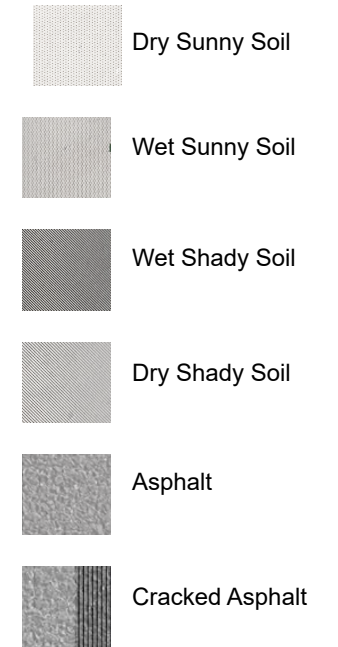
Plant Colonisation Modeling



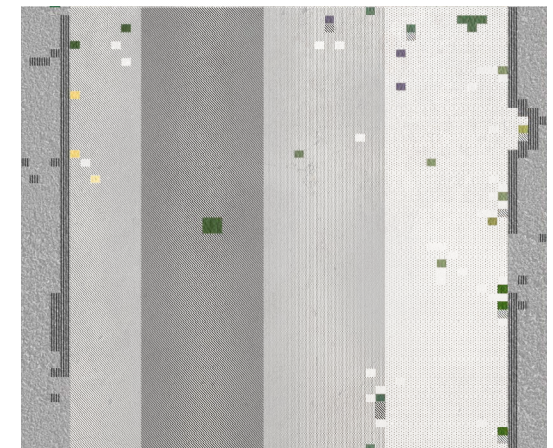
Plant Species



Initial Conditions

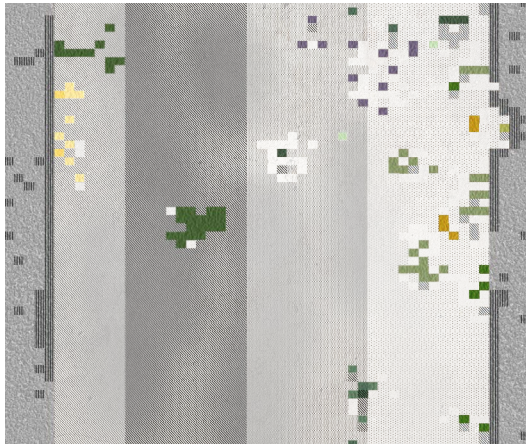


Initial Conditions
pg. 45

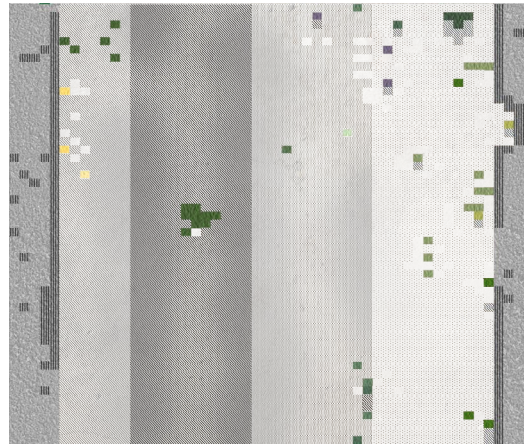


1st Growing Season

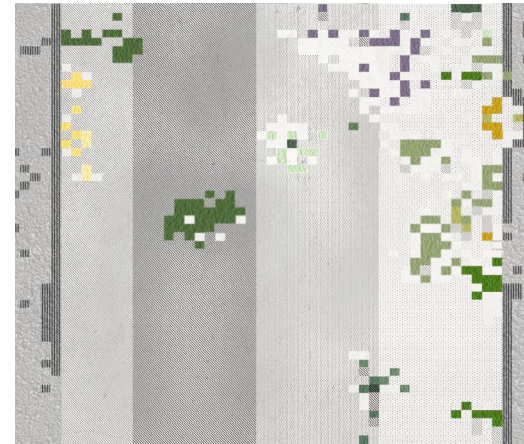
DESIGN RESEARCH | PROCESSES & INFORMANTS FOR DESIGN



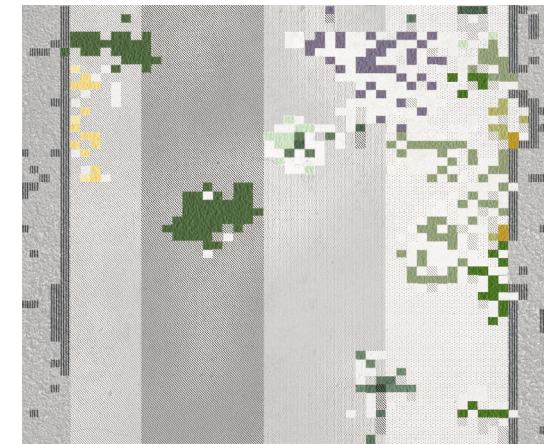
2nd Growing Season



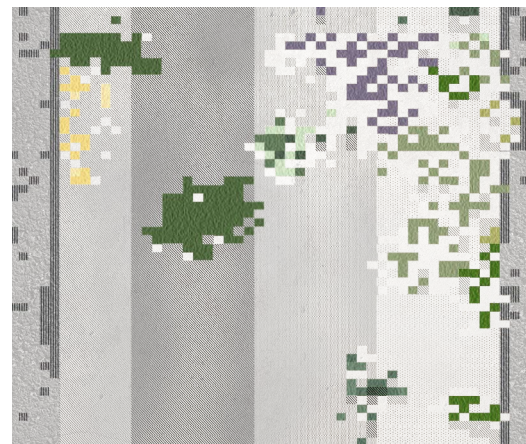
3rd Growing Season



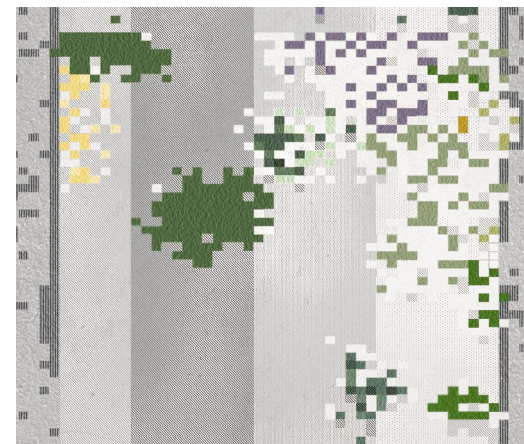
4th Growing Season



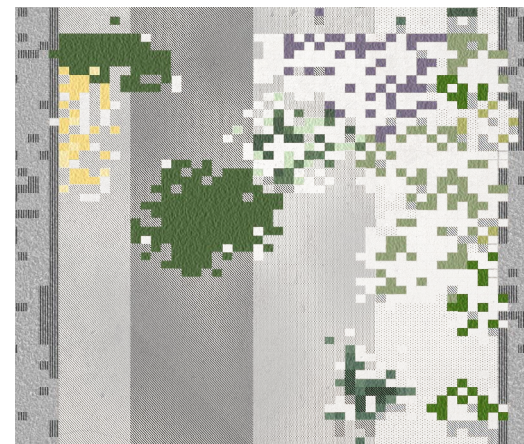
5th Growing Season



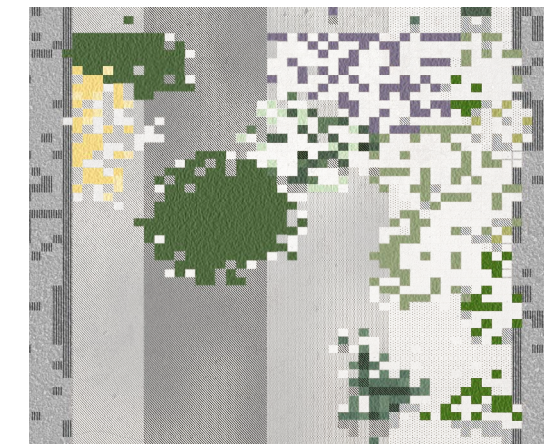
6th Growing Season



7th Growing Season



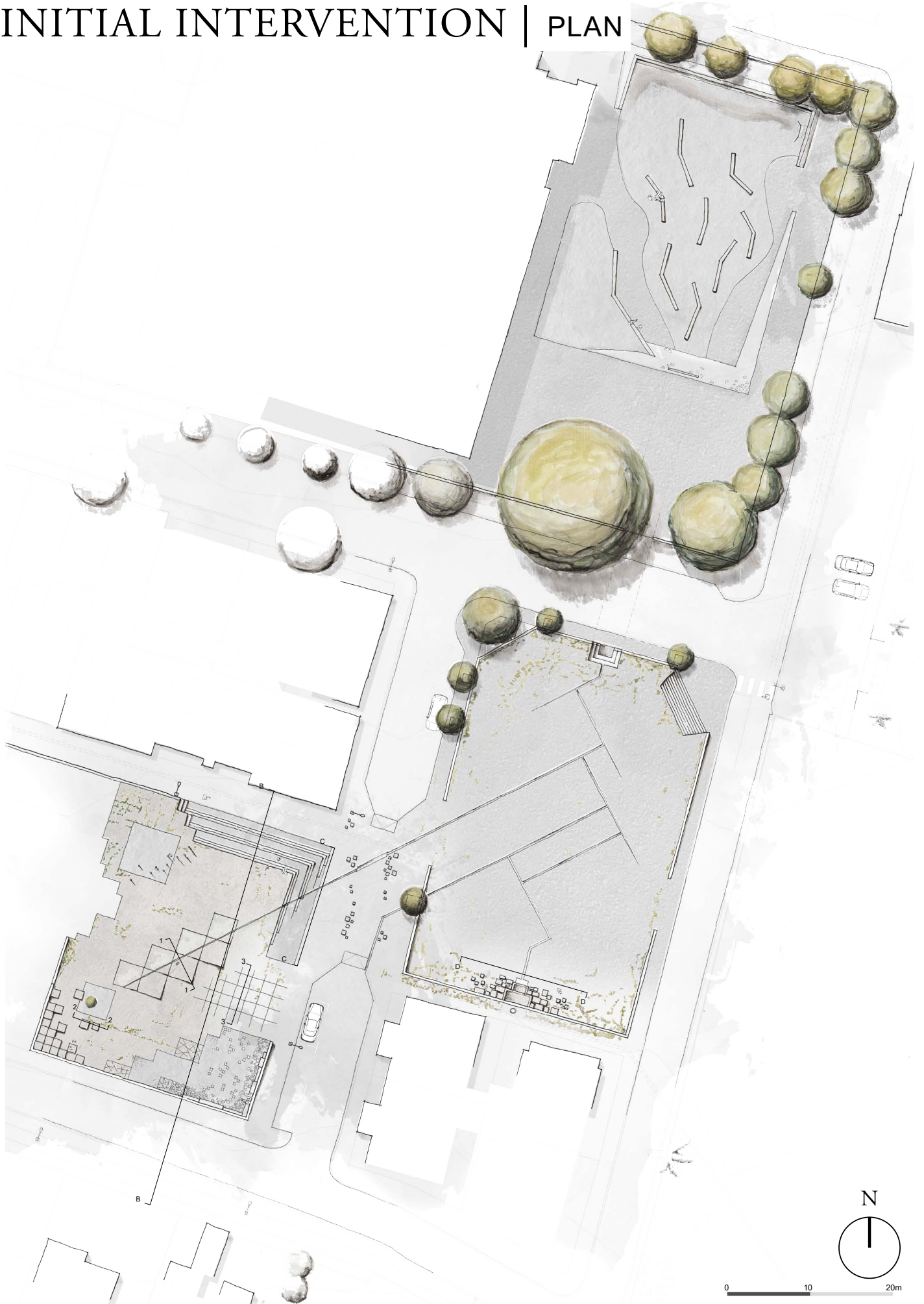
8th Growing Season



9th Growing Season

THE RESULTS OF A SINGLE MODEL SIMULATION FROM INITIAL STATE TO AFTER GROWING SEASON 9

INITIAL INTERVENTION | PLAN



INITIAL INTERVENTION | SECTION



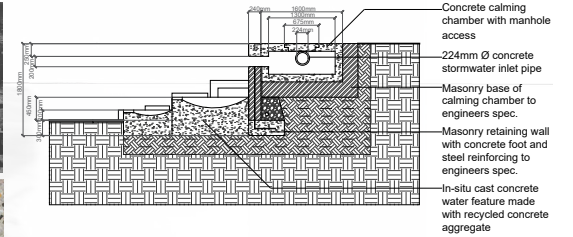
SCALE 1:100 @ A1

INITIAL INTERVENTION | DETAILS

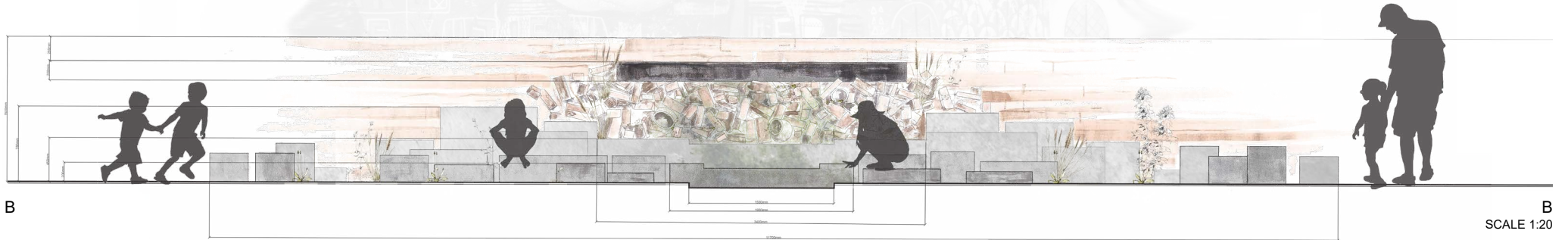
WATER ENTRY DETAIL | ELEVATION OF THE ENTRY POINT OF THE STORMWATER ONTO THE SITE

NOTE: All scales correct at A1 paper size

This feature is designed as an urban abstraction of the seeps and streams on Table Mountain.



MATERIAL PRECEDENT TECHNICAL DETAIL OF STORMWATER ENTRY POINT SCALE 1:50

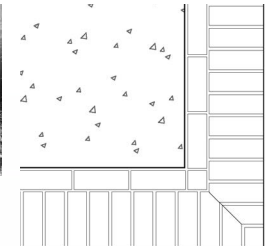


STAIR DETAIL | ELEVATION OF STAIRS THAT ACT AS THE INTERFACE BETWEEN THE SHARED ROAD SPACE AND THE YOUNGER PLAY ZONE

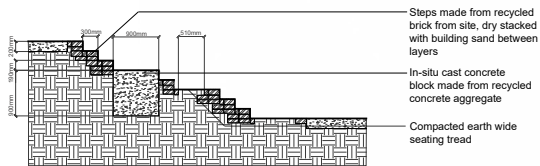
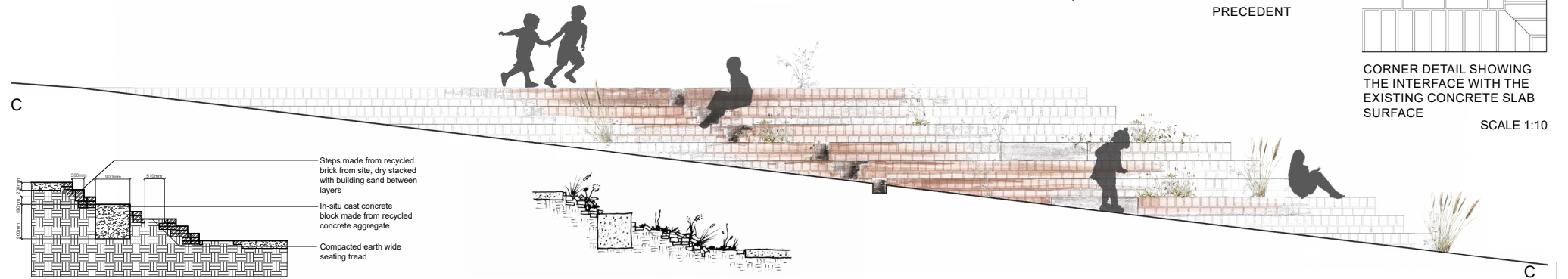
The steps are dry stacked recycled bricks from existing retaining wall. They are intended to dislodge and decay over time. Inspired by Le Roy's Eocathedral



PRECEDENT



CORNER DETAIL SHOWING THE INTERFACE WITH THE EXISTING CONCRETE SLAB SURFACE SCALE 1:10



TECHNICAL DETAIL OF STAIR CONSTRUCTION

SCALE 1:50

DIAGRAM OF STAIR DECAY
 Stairs are designed to slowly transform into a vegetated slope over time leaving the concrete blocks as a reminder of the prior organisation

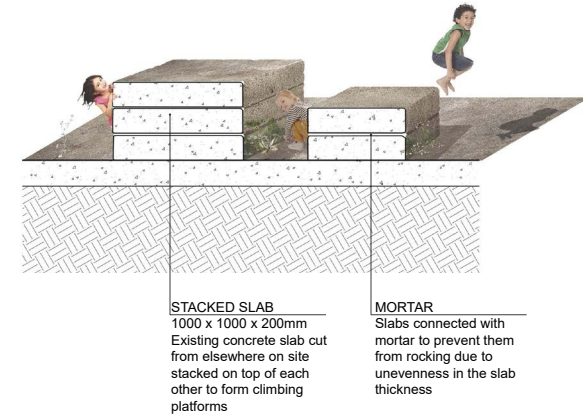
SCALE 1:50

SCALE 1:20

INITIAL INTERVENTION | DETAILS

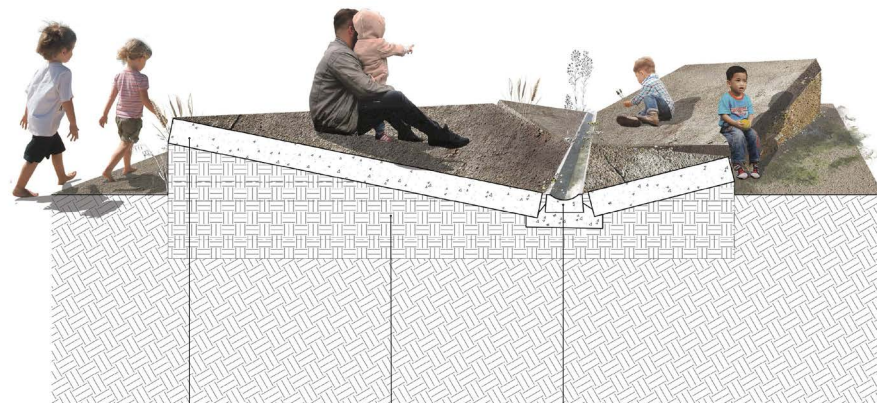
The initial interventions on site are designed to activate the space. The ones detailed here are elements of the concrete surfaces area of the site. They all use the existing surface material in different ways to create play elements. The existing surface material is used firstly to reduce material input on to site and secondly to keep the sense of place of the site. This site has been a vacant lot for decades and therefore has the sense of urban decay. Ruins and abandoned urban areas have their own aesthetic appeal and it is one that children are particularly drawn to. By using the existing (old) material in new ways I hope to spark the imagination of the users as they see the site as a place of opportunities and discovery.

NOTE: All scales correct at A1 paper size



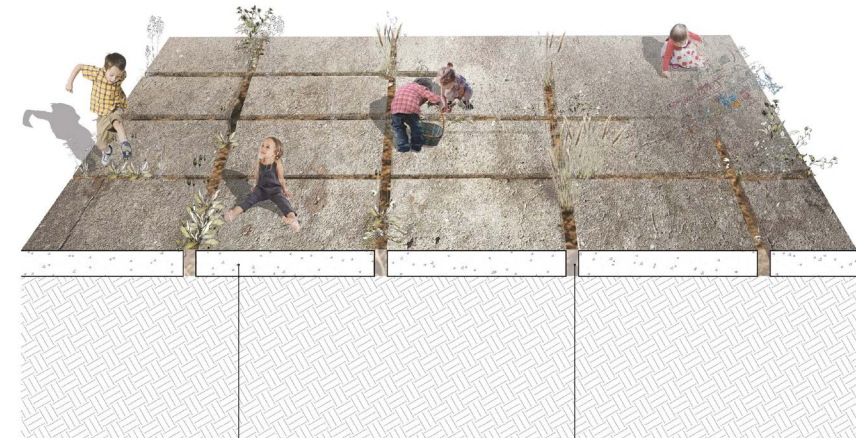
Section 22 - STACK

Scale 1:25



Section 11 - TILT

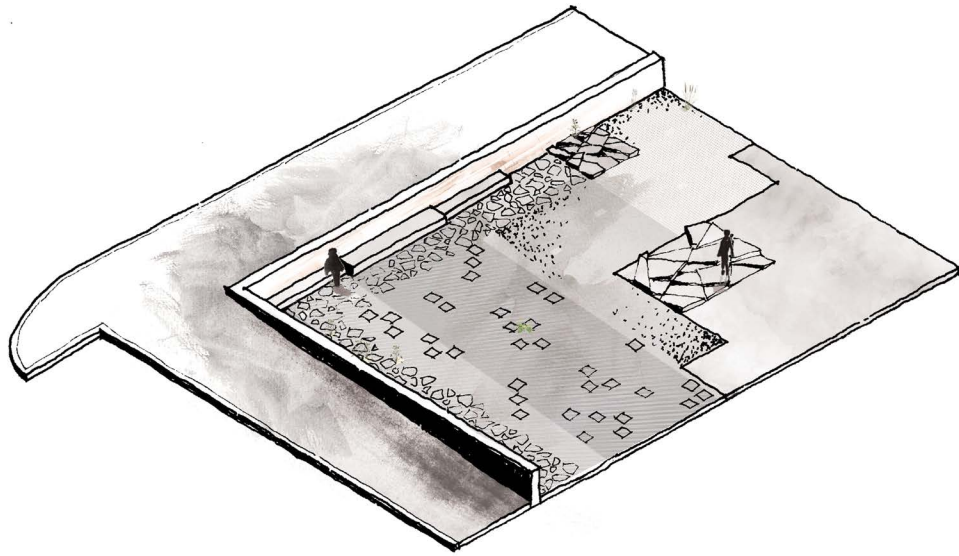
Scale 1:25



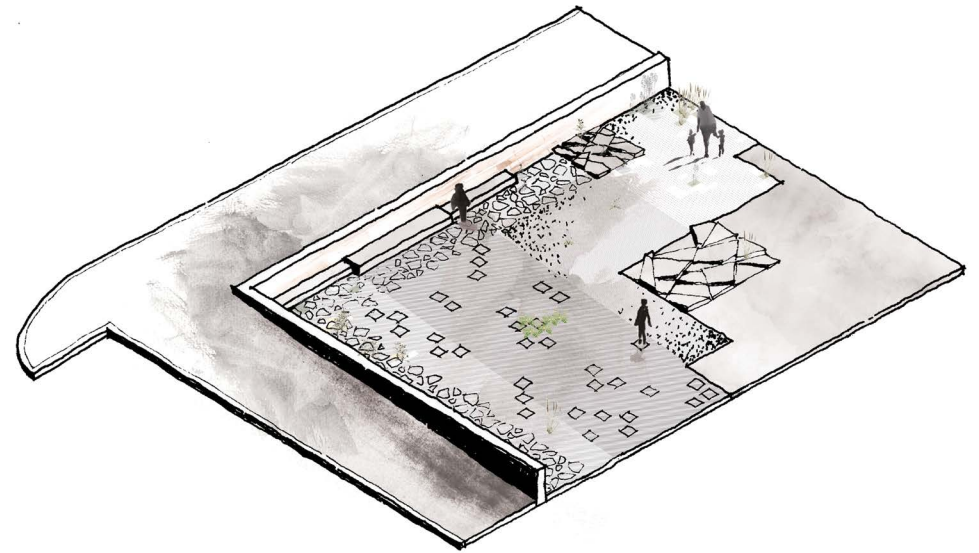
Section 33 - CUT

Scale 1:25

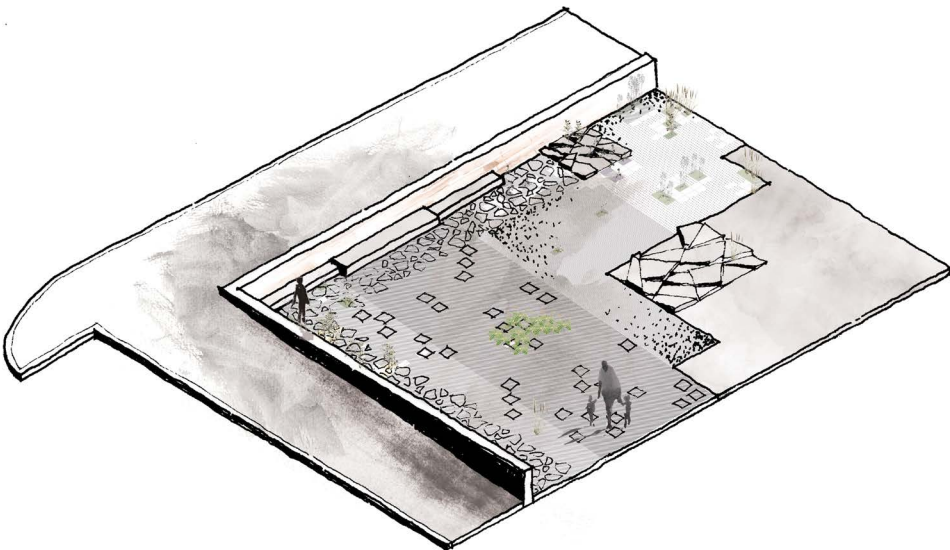
CHANGE OVER TIME | GROWTH



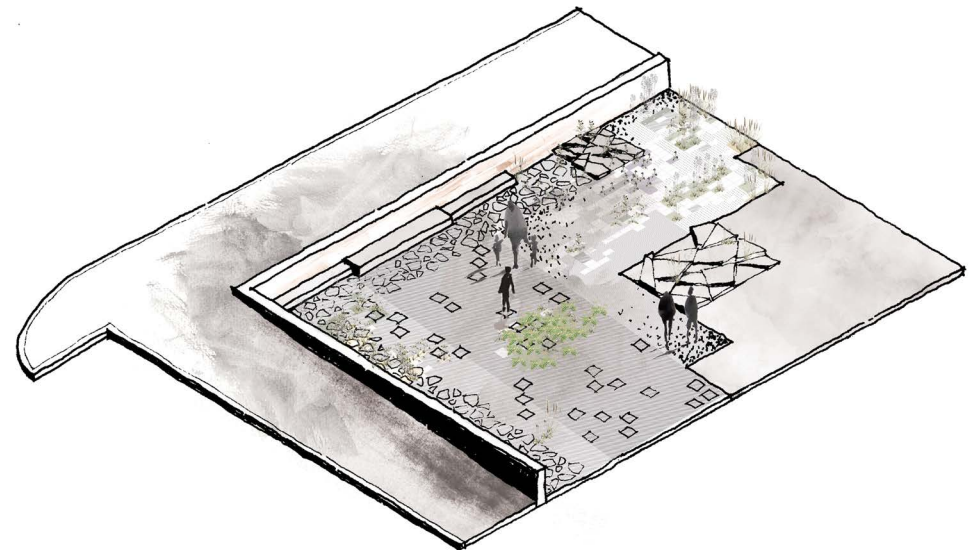
Year 0



Year 2

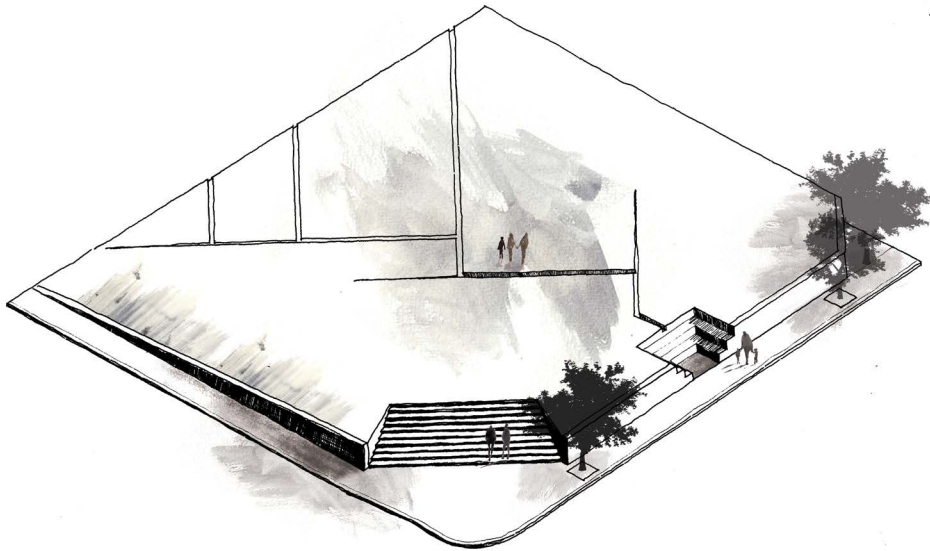


Year 4

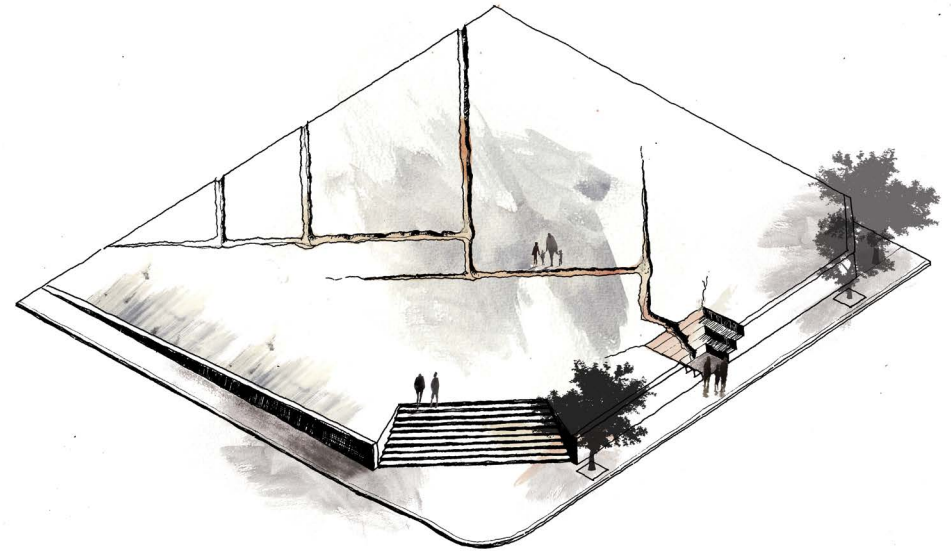


Year 8

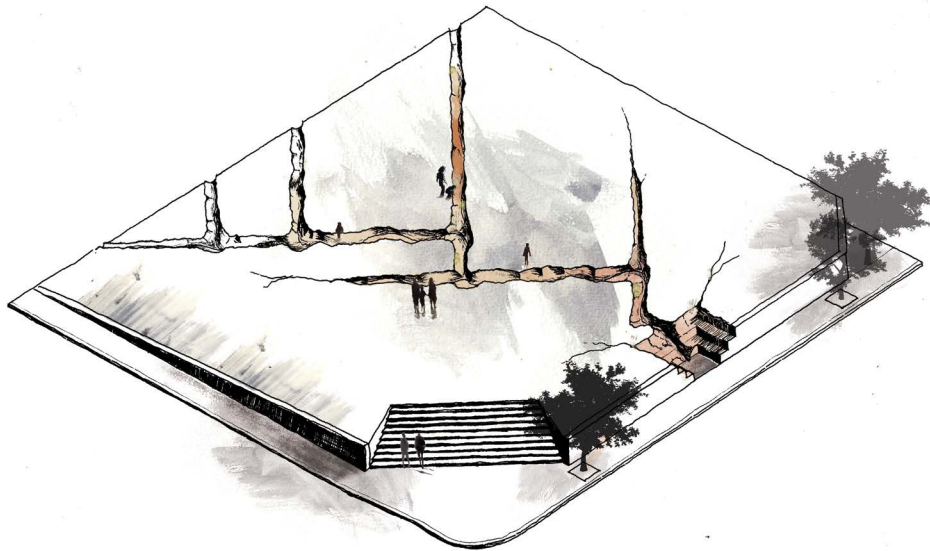
CHANGE OVER TIME | EROSION



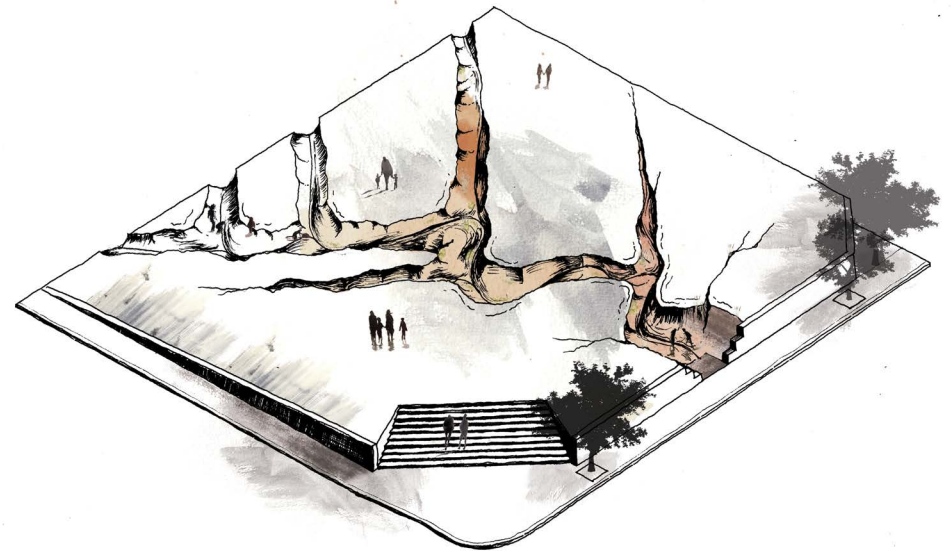
Year 0



Year 2

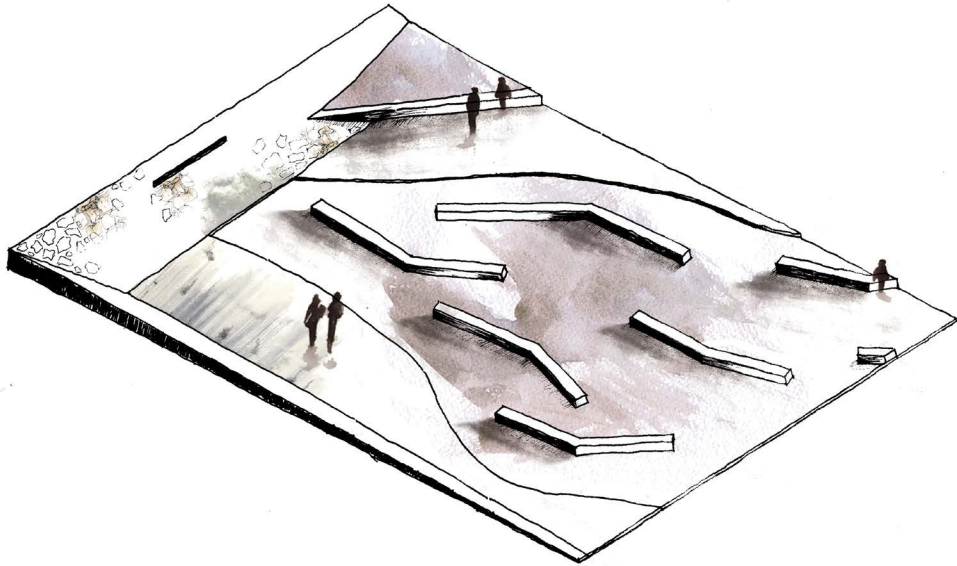


Year 4

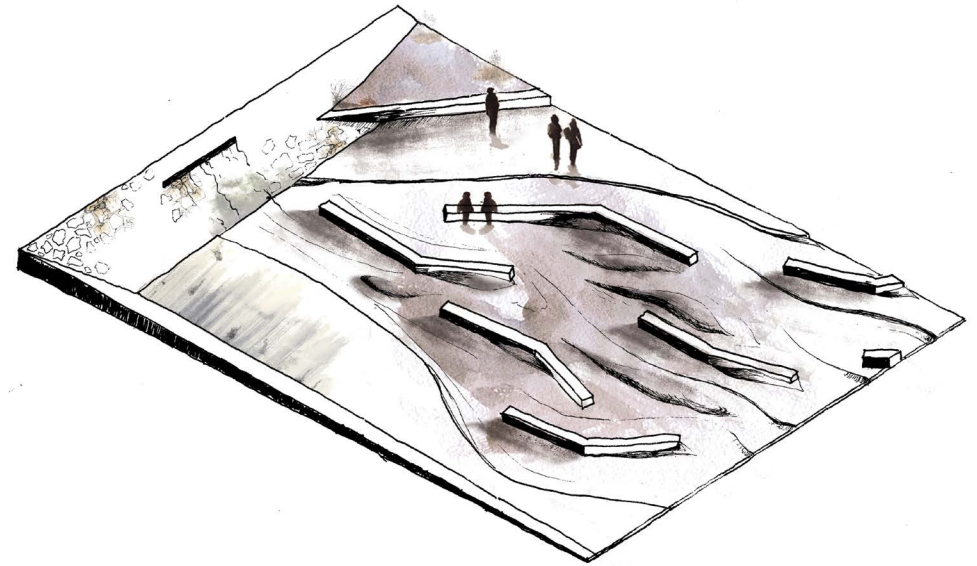


Year 8

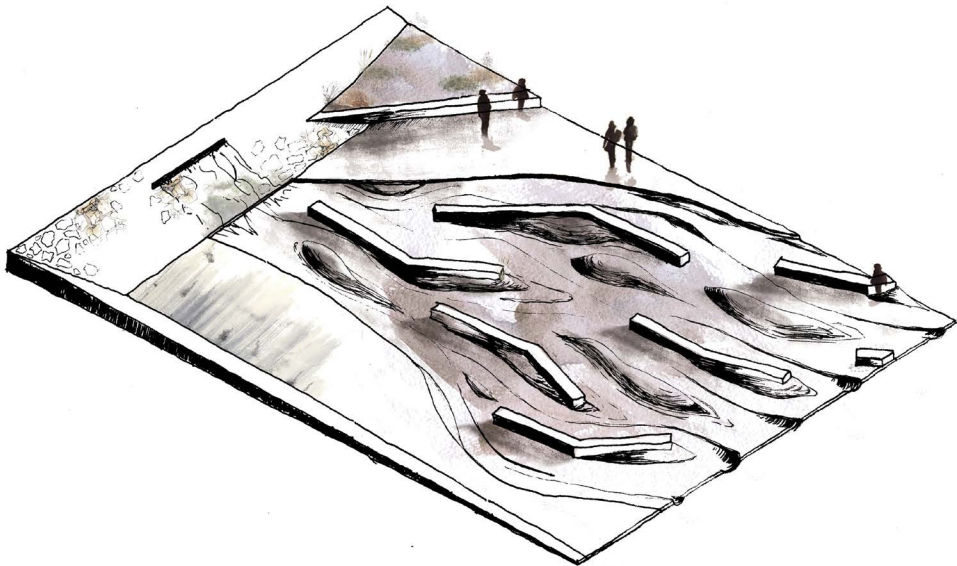
CHANGE OVER TIME | DEPOSITION



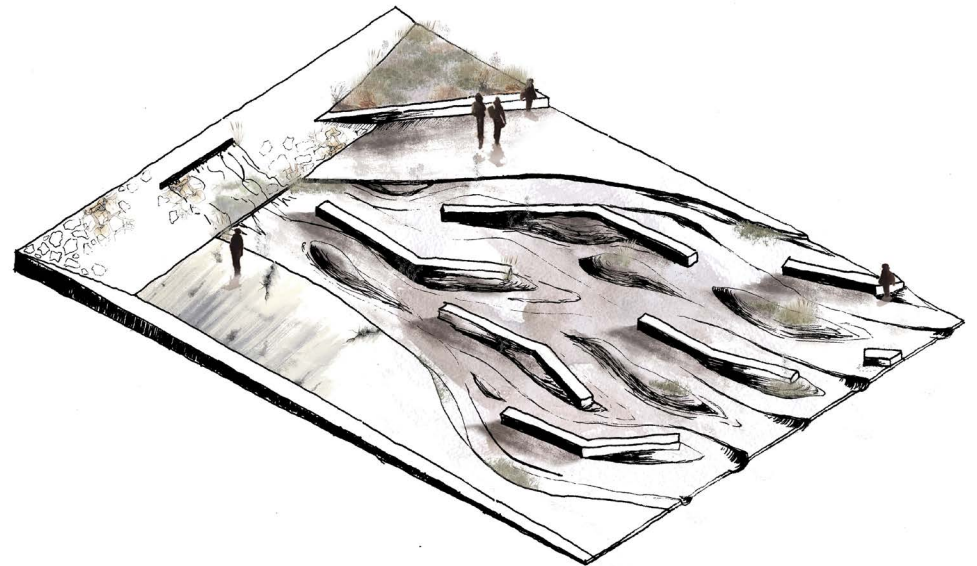
Year 0



Year 2

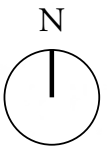
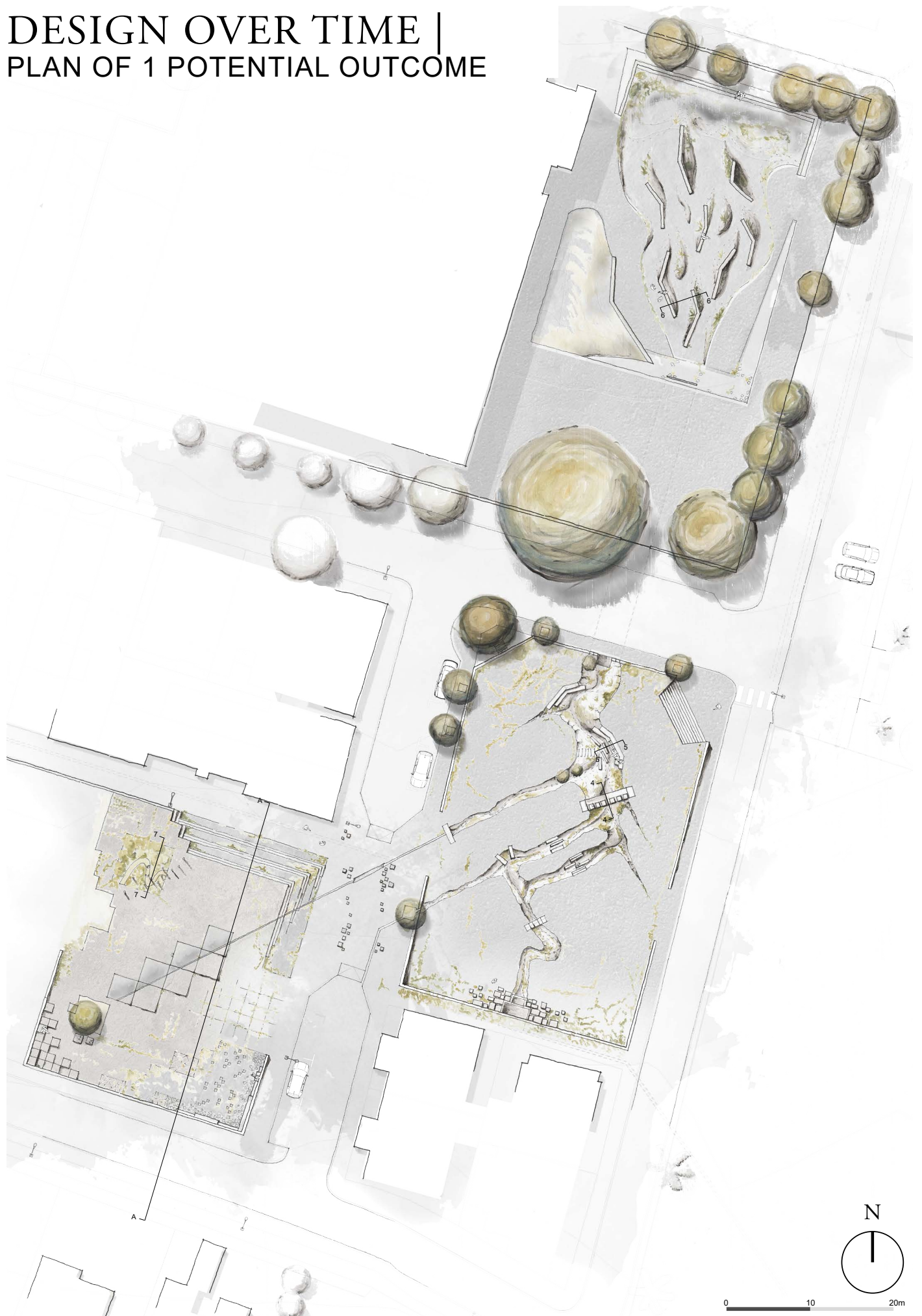


Year 4



Year 8

DESIGN OVER TIME | PLAN OF 1 POTENTIAL OUTCOME



0 10 20m

SCALE 1:200 @ A1

DESIGN OVER TIME | SECTION

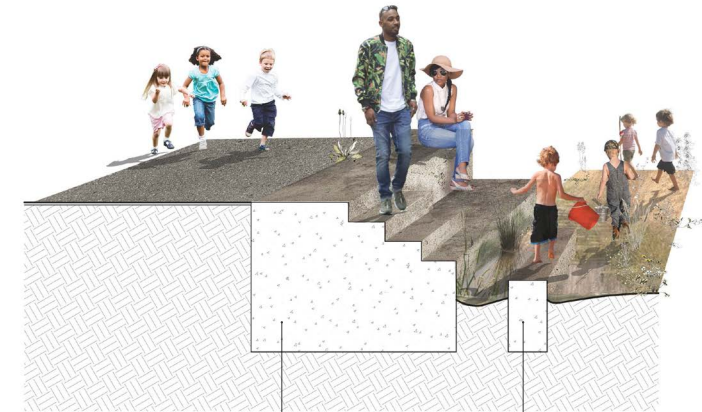


SCALE 1:100 @ A1

REACTIVE INTERVENTIONS | DETAIL

As the site changes and develops over time, continuous assessment of the safety and functioning of the space will be required. The changes that take place will need to be responded to in order to prevent them from becoming hazardous and to create spaces that function effectively as play and recreational spaces. This will lead to the input of reactive interventions which act to stop erosion, stabilise banks and create crossings, where necessary. These elements will be site specific and respond the developments of the site. They can be multi-functional in most cases and can also be educational as the community can be involved in their implementation and they can act as examples of methods of erosion control.

NOTE: All scales correct at A1 paper size

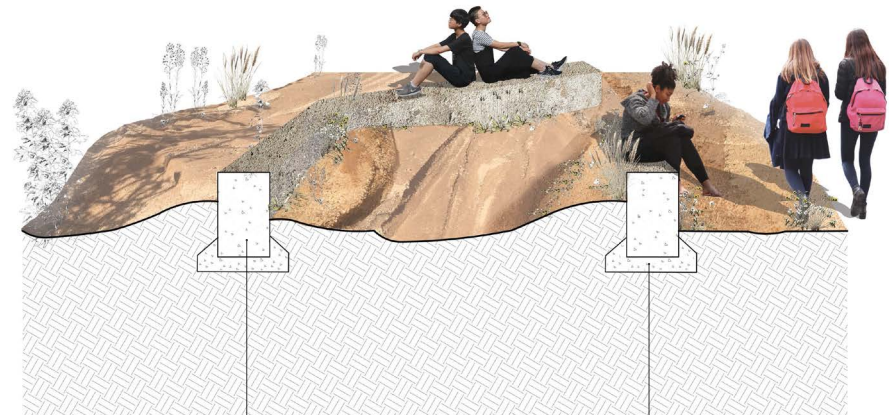


BANK STABILISING STRUCTURE
var x 1500 x 1200mm
In-situ cast shuttered concrete retaining structure stepped down 500mm every 800mm to create seating. Steps added at crossing points. Concrete made with recycled concrete aggregate

IOWA VEIN
var x 300 x 550mm
In-situ cast shuttered concrete wall set parallel to the eroding surface to prevent down cutting. Concrete made with recycled concrete aggregate

Section 55 - BANK INSTABILITY PREVENTION

Scale 1:25



SEATING WALLS
var x 400 x 450mm
In-situ cast shuttered concrete wall set at oblique angles to the water flow direction. Concrete made with recycled concrete aggregate

CONCRETE FOOTING
To engineers specification

Section 66 - DEPOSITION ACCELERATION

Scale 1:25

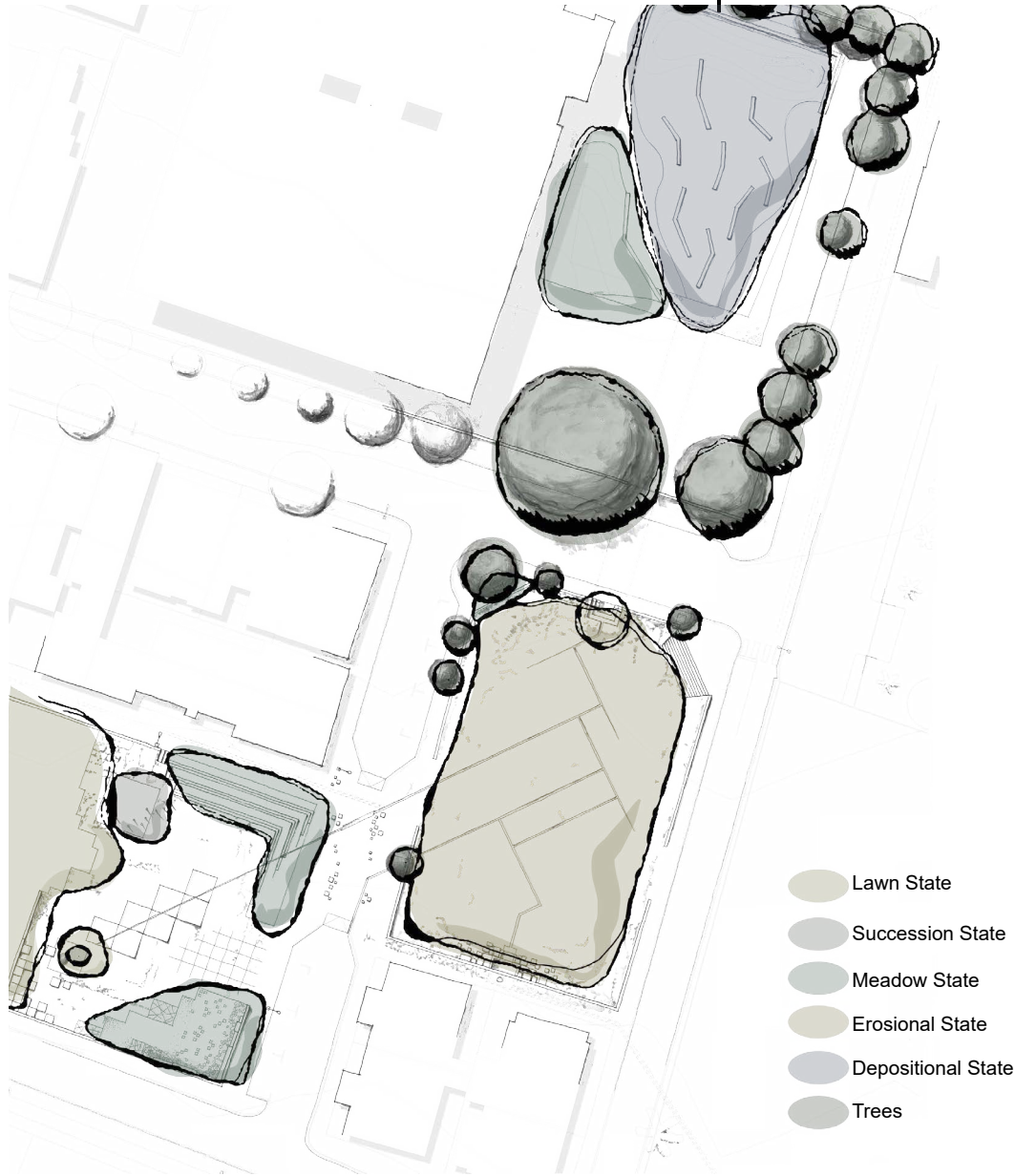


SILL
1200 x var x min 2000mm
In-situ cast shuttered concrete sill with a raised section of 600 x 600mm blocks set 300mm apart. Concrete made with recycled concrete aggregate

Section 44 - BACK CUT PREVENTION

Scale 1:25

MANAGEMENT REGIME | CONTINUED DESIGN INTERACTION



“The Shore Edge” along the river Ter in Girona, Spain.

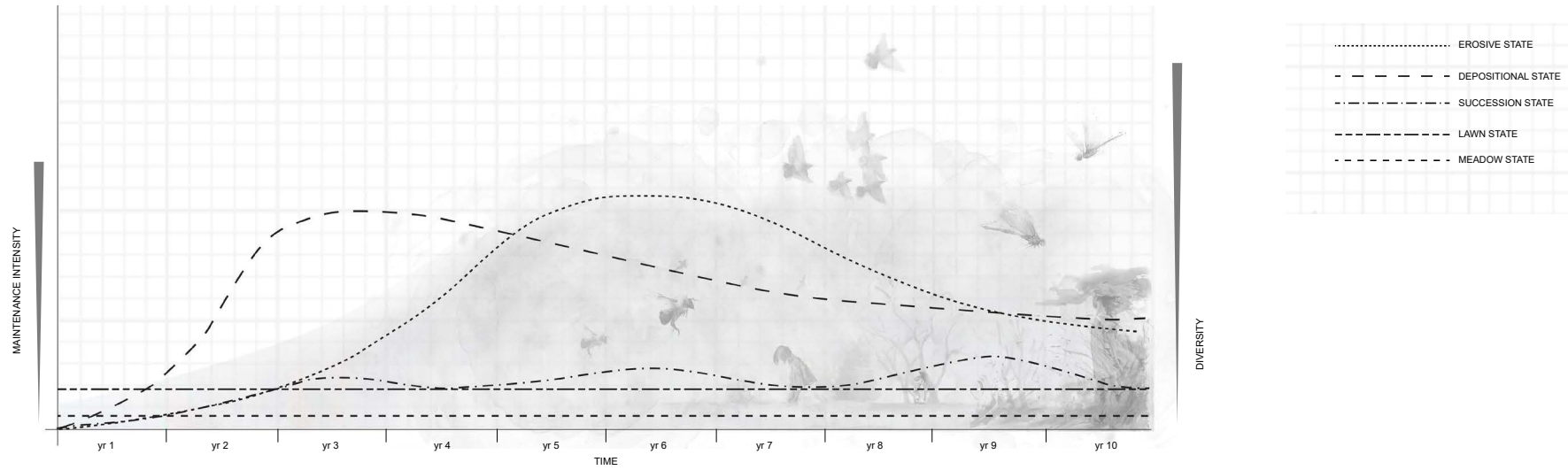
Marti Franch

This project uses the cities maintenance teams and explores a new way of managing fringe areas that were previously under valued. Using mowing regimes and scrub clearing he has created spaces that require no additional capital outlay than that which the city already spends on maintenance teams. These spaces are carefully and obviously designed in a way that requires an ongoing engagement with the project. The spaces created are flexible, resilient and fully reversible. This project fully embraces the dynamic character of the landscape.



Photographs by: François Poupeau

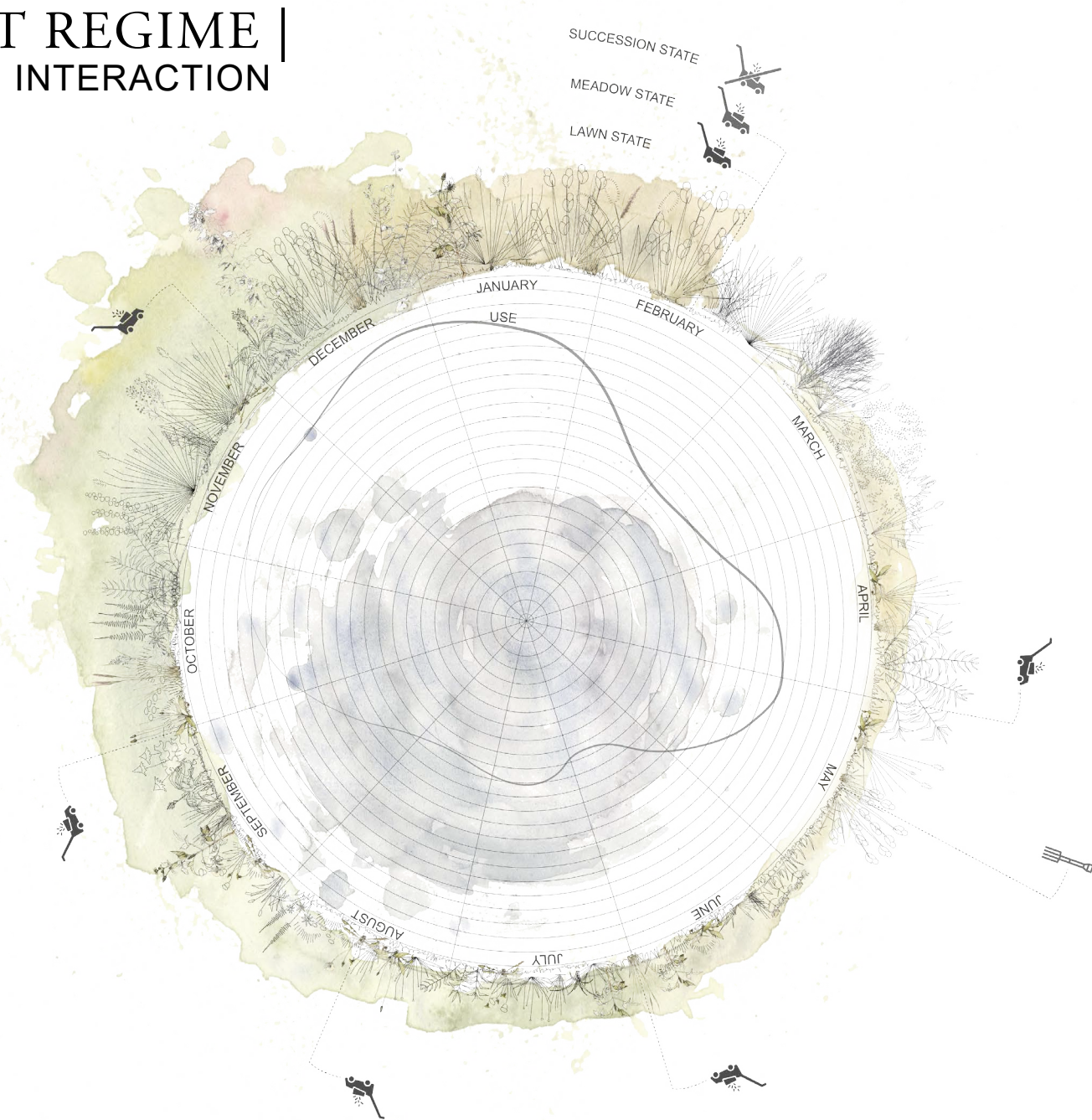
MANAGEMENT REGIME | CONTINUED DESIGN INTERACTION



MANAGEMENT INTENSITY OVER TIME



MANAGEMENT REGIME | CONTINUED DESIGN INTERACTION



ANNUAL GROWTH & MANAGEMENT CYCLE

DESIGN THINKING | DESIGN DECISIONS

The intention with my design was to determine how much design was enough design. The design is a culmination of very intentional catalytic interventions designed to activate both human activity and natural processes on site. Each element of the site is designed to be habitat for plants to grow and for children to play. This is realised by creating roughness in the built elements and opening up soil to allow for plant colonisation wherever possible. In addition to this the reintroduction of stormwater onto site not only increases the success rate of plant growth but also brings with it seeds of plants from other areas and attracts other life forms such as birds, frogs and insects. All of these elements are very attractive to children. On the South West portion of the site I have played with the surface material to experiment with the options it allows. This surface is concrete and I therefore couldn't treat it in the same way as the tarmac surfaces covering the rest of the site as concrete is structural and could therefore fail catastrophically if undermined. I chose to instead to remove areas of concrete to expose the substrate below to seeds and water to allow plants to colonise those areas and then used the pieces of concrete slab that were removed to build up areas for children to climb or sit on.

Erosion acts as a large part of the design process and is utilised in a positive way to create the topography of the site wherever possible. It is also used as an educational tool as the site becomes a ever evolving space that is changing and being created by the same processes that create canyons and valleys but on a scale and time-frame that is accessible to children. Erosion on site is guided and accelerated by cutting a channel through the tarmac surface which allows the water to undermine the hard surface and erode away the underlying material causing the edges to collapse and a valley to form. The channel is cut in such a way that the Northern end is cut deeper than the Southern end which initiates flow through the creation of gradient. It is also not a single straight line but rather it zigzags across the site. It is cut in this way both to allow the erosion to effect more of the site and, once again, to accelerate the process. The zigzag pattern forces the water to change direction and in doing so creates more turbulent flow which will erode laterally more than the laminar flow of a straight channel, which will erode primarily vertically.

The school yard was included originally because I had a space requirement for deposition of the eroded sediments and settling of sediments in suspension before the excess water gets piped back into the stormwater system. I soon realised that this created an exciting opportunity to bring a soft and educational outdoor space into the school yard which as it is existing is completely hard and lifeless. The design of this area of the site involves daylighting the stormwater again after it has been piped under Palmerston road and allowing it to flow over an area with very little gradient. This change in gradient reduces the velocity of the water which allows for deposition to take place. The tarmac surface is removed from this area to allow for plants to grow as the landscape stabilises over time. Within this depositional environment, a number of low seating walls have been built. These act as seating in the Summer when the area will be primarily dry and in the Winter when most deposition is taking place they act as deposition accelerating structures. They are placed in such a way that they spread the water to reduce flow velocity and create eddies which slow the water down even further. The water then flows into a settling pond which is where the suspended particles can settle out and the water can seep into the ground and reduce the volume of stormwater and recharge the groundwater.

Every element of the design is about creating opportunity for interaction with nature at a scale that is fascinating to the mind of a child. I hope that this design creates a space that toes the line between wild and designed that can be seen as an asset to the community and can be inhabited by children in an autonomous and heuristic way.

“The artist’s purpose must not be to explore the frontier and then return to document his/her discoveries for a sedentary and complacent audience, but rather to create a laboratory for the audience to investigate the physical and psychological boundaries of its own perception. No life-changing revelation or astounding news need result - a momentary knitting of brow or widening of eyes is sufficient, provided the work of art has made some contribution to one’s perception of the world. I do not suggest this as the ultimate orientation of art or landscape architecture. Art is a product of the society which creates it and is therefore ever subject to change. Our over-programmed society simply demands art of experience.”

- Steven Krog (1983)



REFERENCES|

- Clément, G. (2011). In Praise of Vagabonds. *Qui Parle*, 19(2), 275 – 297. DOI: 10.5250/quiparle.19.2.0275
- Corner, J. (1997). Ecological and Landscape as Agents of Creativity. In N-M. Lister & C. Reed (Eds.), *Projective Ecologies*. Cambridge, MA: ACTAR
- Francis, M. (1988). Negotiating between Children and Adult Design Values in Open Space. *Design Studies*, 9(2), 67-75. Doi:10.1016/0142-694X(88)90032-4
- Gandy, M. (2013). Entropy by Design: Gilles Clément, Parc Henri Matisse and the Limits to Avant garde Urbanism. *International Journal of Urban and Regional Research*, 37(1), 249 – 278. doi:10.1111/j.1468-2427.2012.01164.x
- Krog, S. R. (1983). Creative risk-taking. *Landscape Architecture*, 73(3), 70-76.
- Lefebvre, H. (1991). *The Production of Space*. Oxford, England: Basil Blackwell.
- Lehne, J, & Preston, F. (2018) *Making Concrete Change: Innovation in Low-carbon Cement and Concrete*. Chatham House Report. Retrieved from: <https://reader.chathamhouse.org/making-concrete-change-innovation-low-carbon-cement-and-concrete#>
- Sartre, J-P. (2004). *The Imaginary*. New York, USA: Routledge.
- Sebba, R. (1991). The Landscapes of Childhood: The Reflection of Childhood's Environment in Adult Memories and in Children's Attitudes. *Environment and Behavior*, (23)4, 395–422. Doi: 10.1177/0013916591234001
- Skinner, J. (2011). Gardens of Resistance: Gilles Clément, New Poetics, and Future Landscapes. *Qui Parle*, 19(2), 259 – 274. https://warwick.ac.uk/fac/cross_fac/iatl/study/ugmodules/climatechange/reading_list-copy/skinnergardensofresistance.pdf
- Stremke, S, van den Dobbelsteen, A, & Koh, J. (2011) Exergy landscapes: Exploration of second-law thinking towards sustainable landscape design. *International Journal of Exergy*, 9(2), 148-174. DOI: 10.1504/IJEX.2011.038516

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APPLICANT'S DETAILS	
Name of principal researcher, student or external applicant	Click here to enter text. <i>Kathryn Rennie</i>
Department	Click here to enter text. <i>Architecture, Planning & Geomatics</i>
Preferred email address of applicant:	Click here to enter text. <i>katy.grows@gmail.com</i>
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	Name of Supervisor (if supervised): Click here to enter text. <i>Clinton Hindes</i>
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Project Title	Click here to enter text. <i>Feral: Re-wilding the Urban Child</i>

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- the research will not compromise staff or students or the other responsibilities of the University;
- the stated objective will be achieved, and the findings will have a high degree of validity;
- limitations and alternative interpretations will be considered;
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