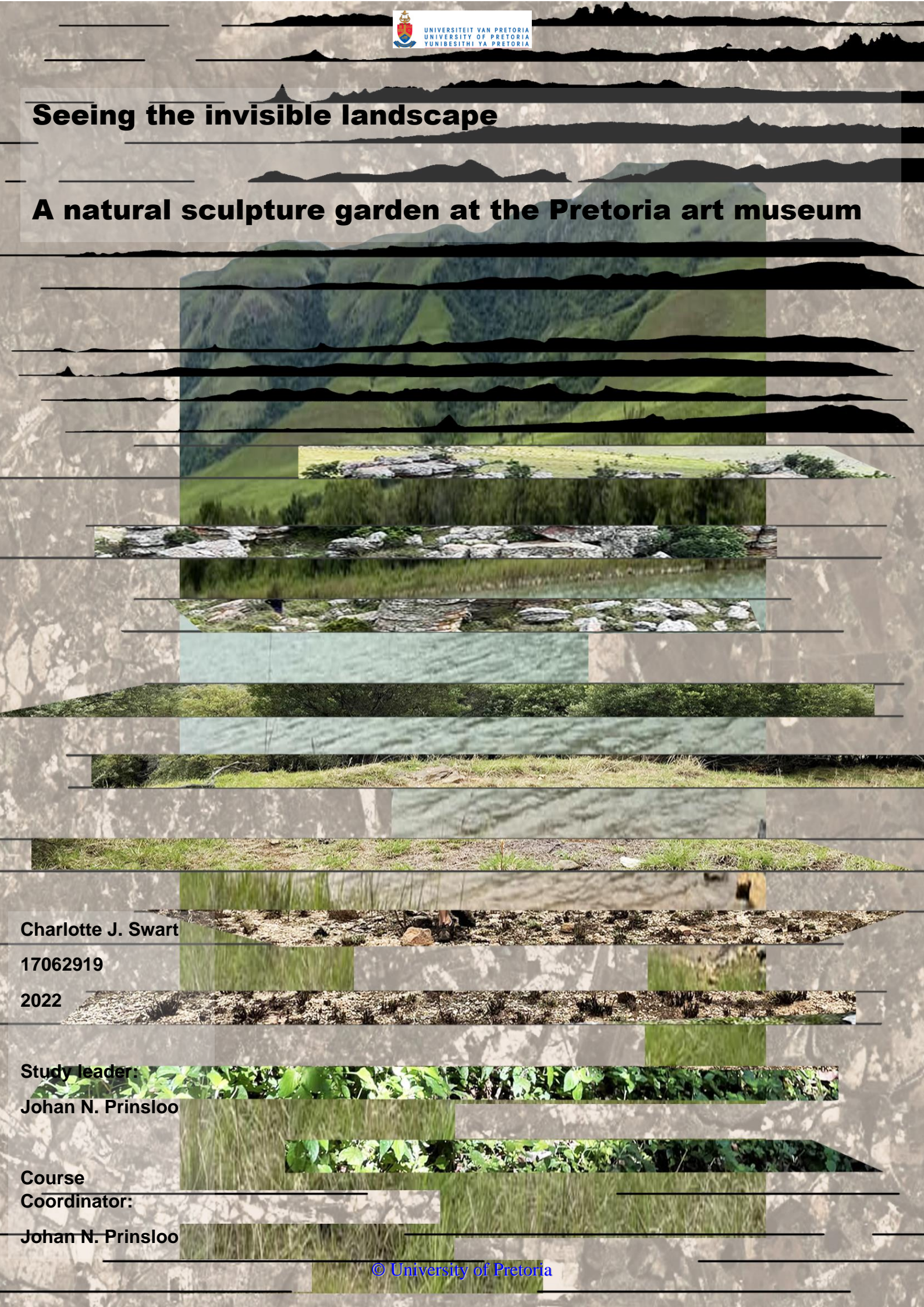


Seeing the invisible landscape

A natural sculpture garden at the Pretoria art museum



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Seeing the invisible landscape: A natural sculpture garden at the Pretoria Art Museum

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Submitted in fulfilment of part of the requirements for the degree Master of Landscape Architecture (Professional)

Department of Architecture, Faculty of Engineering, Built Environment and Information Technology, University of Pretoria, South Africa

November 2022

In accordance with Regulation 4(c) of the General Regulations (G.57) for dissertations and theses, I declare that this dissertation, which I hereby submit for the degree of Master of Architecture (Professional) at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution. I further state that no part of my dissertation has already been, or is currently being, submitted for any such degree, diploma, or other qualification. I further declare that this thesis is substantially my own work. Where reference is made to the works of others, the extent to which that work has been used is indicated and fully acknowledged in the text and list of references.



Signature

05 November 2022

Date

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1. TERMINOLOGY

用語

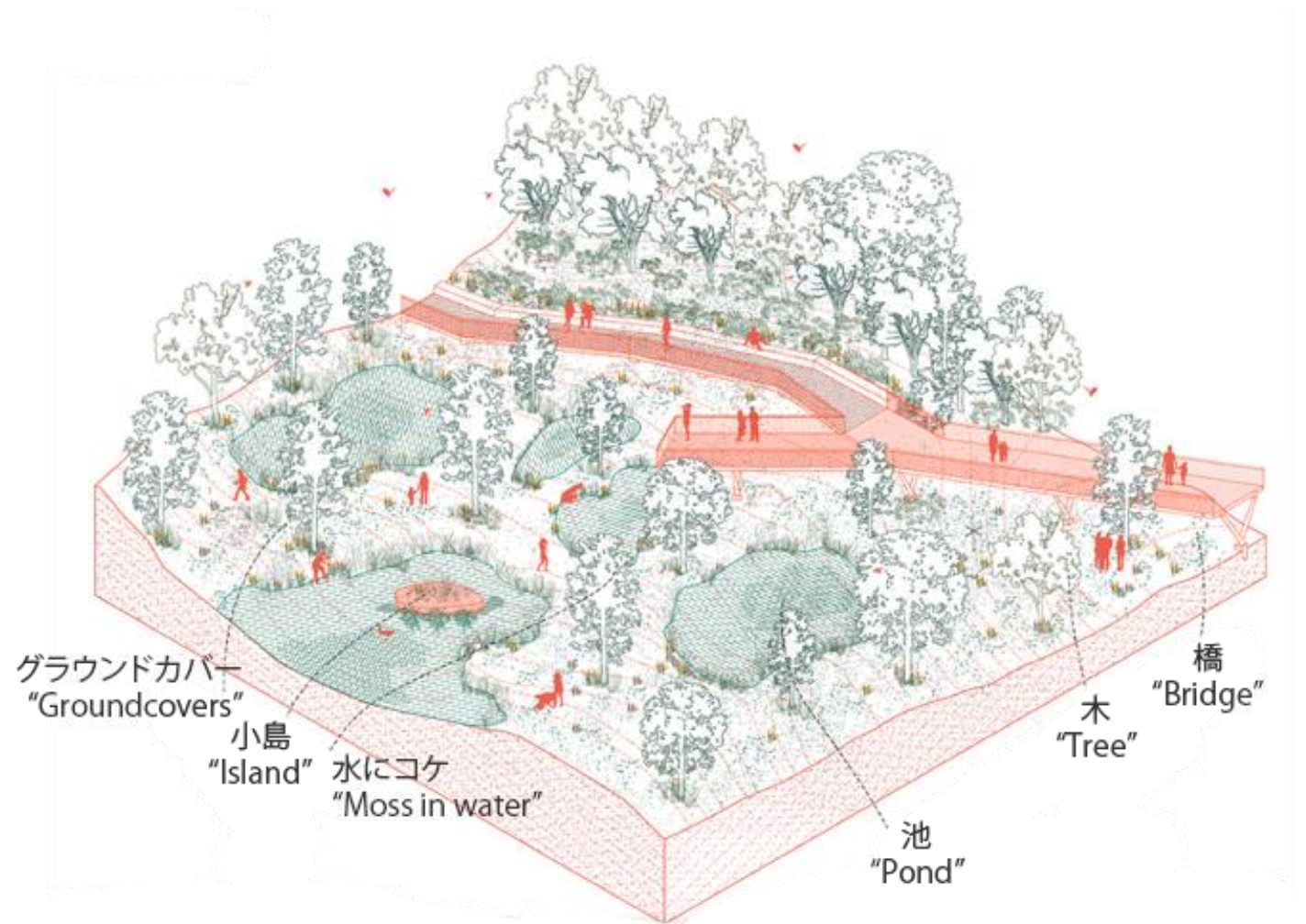


Fig 1: "La Reserva Los Maitenes", Chile (n.d), by Javiera Pizarro with overlayd text by Author 2022.

Karesansui: Dry rock garden, but also dry mountain and water landscapes.

Architects: Referring to all three disciplines within architecture: Landscape architecture, Interior architecture, and Architecture.

Zen: Japanese translation of Chan, which means to meditate. Peace and calmful. An act of meditation. Thinking and contemplating elements.

Sakuteiki: Originally written in Japanese, but was translated into an English version in the late 1900's. It is a historical document which provides principles for the garden designer to invite natural and good spirits into the garden. This document also provides taboos in Zen Garden creation in order to guide the Monk.

Monk: Designer of a garden which is usually approached by a Master.

Master: User which observes the garden from a distance but doesn't create the design of a Zen Garden.

Suiseki stones: Small, thrown away stones.

Sute-Ishi stones: Long, moderate to small sized stones. Often placed at base of rock arrangement to extend to next group of rocks.

Japanism: A trait specific to Japan, this can be in relevance to art or architect.

Japanese gardens: Consists of many garden typologies: dry gardens, forest gardens, river gardens, etc. This thesis will be specifically handling dry garden (zen garden typologies).

2. BACKGROUND

バックグラウンド

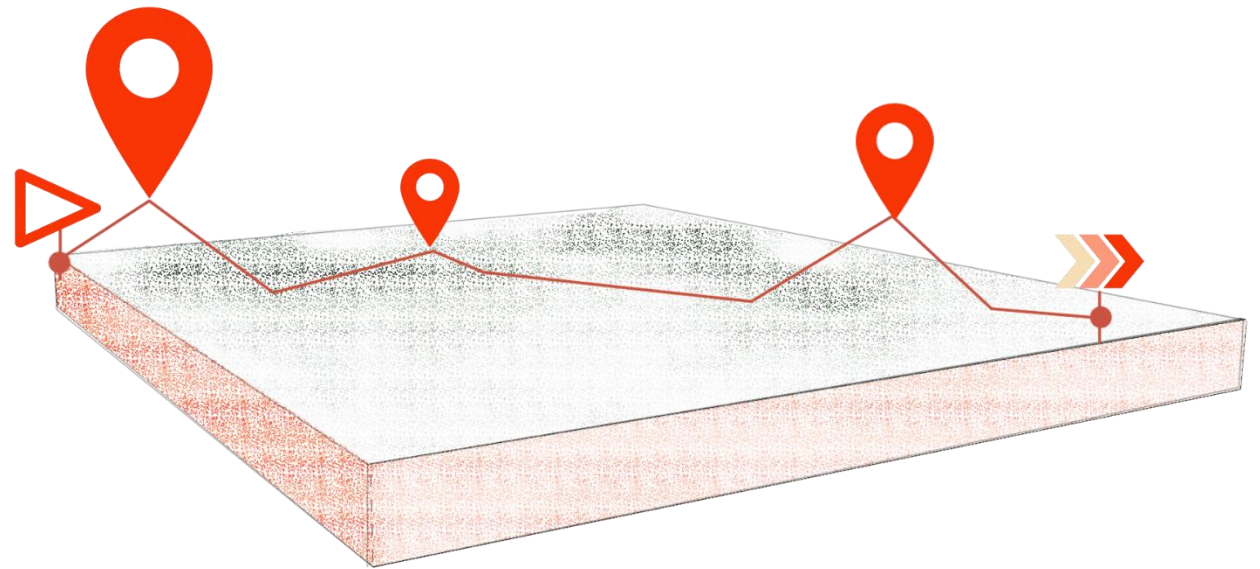


Fig 2: Background as an introduction (Author 2022).

“We train cultivating a will for awareness..... but almost everyone has a sensitive bullshit meter...we’ll notice how we tend to label what we see and then fail to see the thing in itself at all” (Mosko, Noden 2018:70-79)

I find myself constantly overwhelmed by the overabundance of images. My attention diverts from one digital device to the other: upon awakening in the morning, I first grab for my phone to flick through the latest Instagram posts; Netflix for breakfast. As I drive to University, it’s billboard after billboard using evocative graphics to sell newly released products that I don’t need – buy me if you’re smart. During all of this my ringtone keeps beeping for attention. I suspect many others are exhausted by the constant inundation of sensory clutter.

As a student of landscape architecture, I have felt this hyperactive world spill over onto the drawing board. It feels as if there is an ever-present pressure to add complexity to projects: hyper-functional systems, mega-diversity of plants, intricate forms, multi-purpose programmes, innovative materials stacked one upon the other...more is always better.

I position this dissertation as a reaction against design complexity – a search for simplicity in spatial experiences, freed from visual clutter.

This brought me to the tradition of the Japanese Zen garden. It is a way of place-making that has always intrigued me, but not one I knew much about. I was rather insecure about studying an exotic tradition to apply within an African context, not to mention the obvious pitfall of designing a clichéd, spa-like version of a Zen garden: stepping stones and raked gravel circles in Gauteng? Thus, I proceeded to study the principles of this rich tradition to apply truthfully, hoping the end design would embody the Zen qualities of tranquillity and mindfulness whilst being ‘at home’ in its context.

Beyond this personal motivation, there is another reason to find silence in the landscape: public open spaces that are hives of activity and filled to the brim with arresting forms, textures and colours, marginalise those people in our cities that feel ill at ease when confronted with chaos. People with neurological disorders like autism and introverted personality types, not to mention the elderly, feel alienated from the urban spaces landscape architects help to create (Robertson 2018). Although this dissertation does not focus on investigating landscape architecture for such cognitive conditions, it does aim to propose a place in the city where these neglected user-groups can find peace and serenity., I derived a set of criteria (see Table 1) to keep in mind throughout the design process.

The site of the Pretoria Art Museum was chosen for the investigation, as the landscape outside an art gallery is naturally suited to a more contemplative programme – a breathing space from the sensory madness of the city. Furthermore, it soon became clear that the modernist language of the building itself is inherently suited for a garden based on the principles of Zen: the fathers of the Modern Movement drew deeply from ancient Japan. Thus, the Zen tradition is infused in the very architectural language of the site, and not as ‘exotic’ as one may think at face value.

This dissertation is a collection of my attempts to grapple with the translation of an ancient tradition in a contemporary context – both in the mind and with the maker’s hand.

MENTAL INSTABILITIES	Elements of surprise – something jumping up out of nowhere	Feeling enclosed with no visual escape point out of a space	Different textures, colors and patterns intrigues people to discover the area further	Designs need to be simplified to its core – as it's the easiest to read and predictable.	Rapid changes in corners and visual elements should be avoided.	Clear coding for movement should be used to convey function of spaces	Appropriate boundaries should be used which should be coherent and predictable	Hierarchy in flexibility of spaces is preferred and should be clearly defined – creates impression of the user being in control	Exhibition rooms should be near therapy classes. If area was created, it could be used as a conversation starter between people
THE ELDERLY	Have ability to easily access elements	Should have enough space for a wheelchair and staff to help	Allow places for socialization – from large to small groups	Universal accessibility	No unknown or dark corners – everything should be predictable	Façade should resemble the surrounding area to create a sense of familiarity			

(Table 1: Derived from: Makki [n.d]:125-142, Aljunaidy, Adi 2020, Chryssikou [n.d]).

Red = Bad and should be avoided in designs

Yellow = Allowed and encouraged in design

3. ART AND ARCHITECTURE

アートと建築

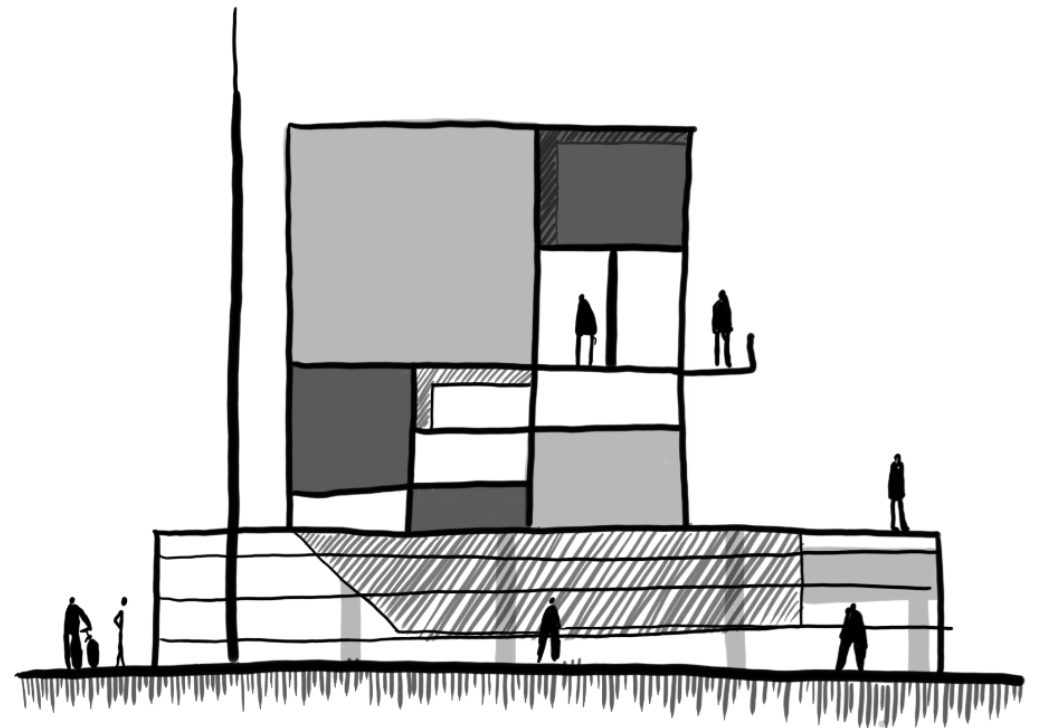


Fig 3: "Composition in Red, Yellow, Blue and Black", Unknown place 1921, by Piet Mondrain (1872-1944) edited by Author 2022.

As explained by Rice [n.d]: “There are three forms of visual art: Painting is art to look at, sculpture is art you can walk around, and architecture is art you can walk through.” It can thus be concluded that everything that showcases emotion can be considered art. Art has the ability to generate form and/or emotions in architecture while architecture can be abstracted to a painting which conveys a story and/or emotion.

As explained by Kuck (1962:2) “Artists are inspired by natural beauty but disciplined by the limitations and techniques of materials”. Due to the previously mentioned relationship between art and architecture, an artist could also refer to a designer or landscape architect. Each material has its own specific characteristics and this can be viewed as both a constraint and an opportunity. The beauty of a sculpture and/or architectural artifact

lies in how one uses these materials without forcing noninherent forms from the material. The truth of materials was first brought up by Wolff (1846) at a congress which advocated for a style which showcases the truth of different materials’ characteristics which thus showcases a level of beauty within itself. One can however argue that this was the first conceptualisation of an architectural methodology (specifically referring to modernism) where the bare minimum of materials is used, however, the materials that are used, is used within its form and construction capabilities. Due to this constraint, new materials would be brought to the forefront to enable designers to construct specific elements in a certain manner.

4. PROBLEMATICS IN CURRENT LANDSCAPE ARCHITECTURAL DISCOURSE

現在のランドスケープ建築の議論における問題点

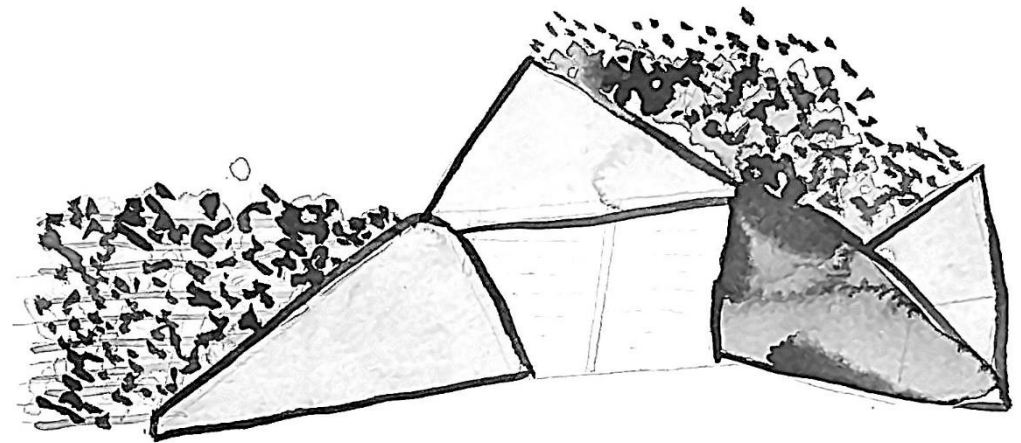


Fig 4: Making designs more complicated (Author 2022).

Landscape architecture consists of two dimensions, one being problem solving (which typically doesn't have one answer to a problem due to instability of external factors) and the second being creating a visually pleasing space (Matlock 2008:35).

Designers try to integrate both beauty and problem-solving methods, however, the latter often receives more attention (Krog 1983:60). Due to this, the artistic touch that architects have learned over time gets lost within the sea of problem-solving methods (which is respective in its own manner) due to time and budgetary constraints. This problem-solving methodology can be traced back to the Modernist movement: everything should have a working component for it to be considered part of the design. As best explained by the leading concept brought forward by Louis Sullivan: "Form follows functions" (Denison, Glancey 2013:171). However, landscape architects could question this concept which in turn can create designs which have a more personal and emotional impact on the users, example: "abstraction follows function' or 'form follows idea" (Nute 1993:80-81).

Moving forward, due to a specific investigation into modernism, the Pretoria Art Museum (located in Arcadia park) will be investigated further to explore the previously mentioned concepts.

5. THE SITE

サイト

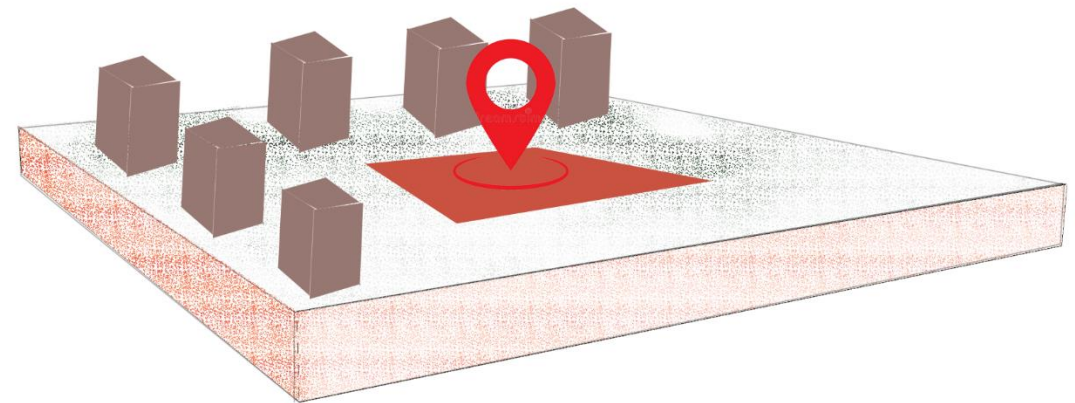


Fig 5: The site (Author 2022).

5.1 SITE LOCALITY

サイトの場所

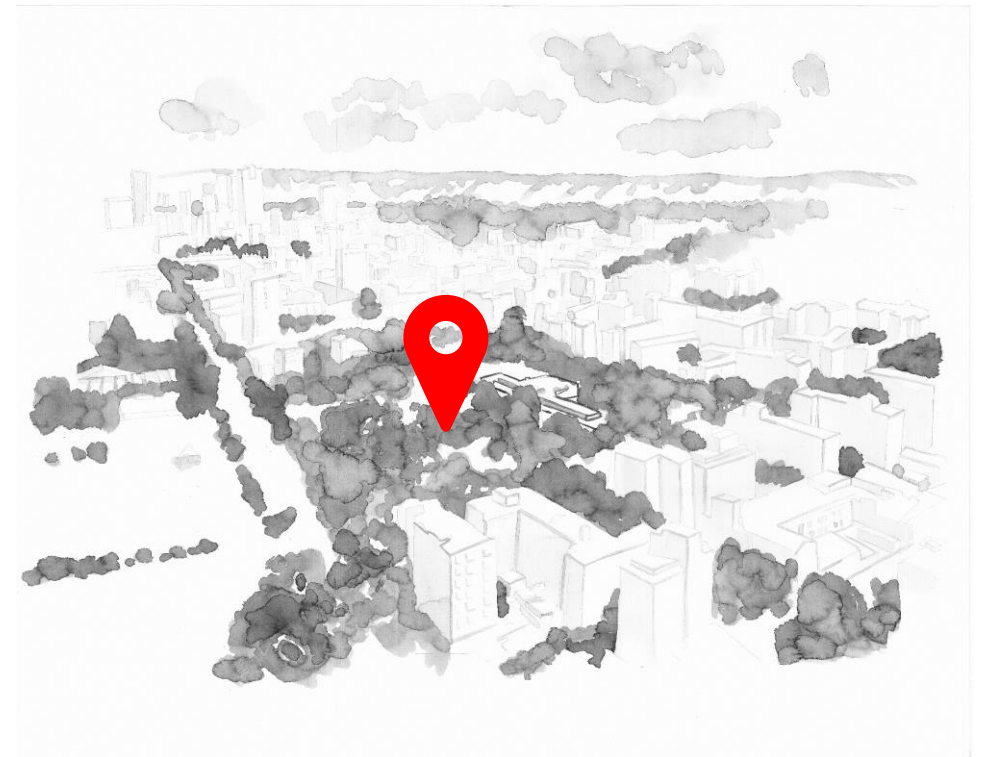


Fig 6: The site location (Author 2022).

Arcadia Park is located 3,1 kilometres from Pretoria CBD, therefore, opens itself up to a wide range of users throughout different hours of the day. Arcadia Park was originally designed to create a middle-class neighbourhood for white families during Apartheid, thus, small green spaces and schools can be seen throughout the neighbourhood (Randal 2017). Due to the increase of vehicular movement, lack of maintenance funding from the municipality and an increase in crime rates, green spaces have become neglected by both the municipality and neighbourhood dwellers.

A 400 meter and eight-hundred-meter radius from the Pretoria Art Museum was used in examining the surrounding green spaces. These numbers are based on proximity for comfortable walking distance (which is 800 meters) and viewing thresholds. The surroundings revealed a variety of strip and neighbourhood parks, however, there is little to no park which allows the mind to wonder and contemplate on elements. As explained by Brown, Venturi and Izenour (1977) one must consider the surrounding site usages because one has an influence of activation on another, thus a new proposed or existing park (and the program of it) cannot be examined in isolation.

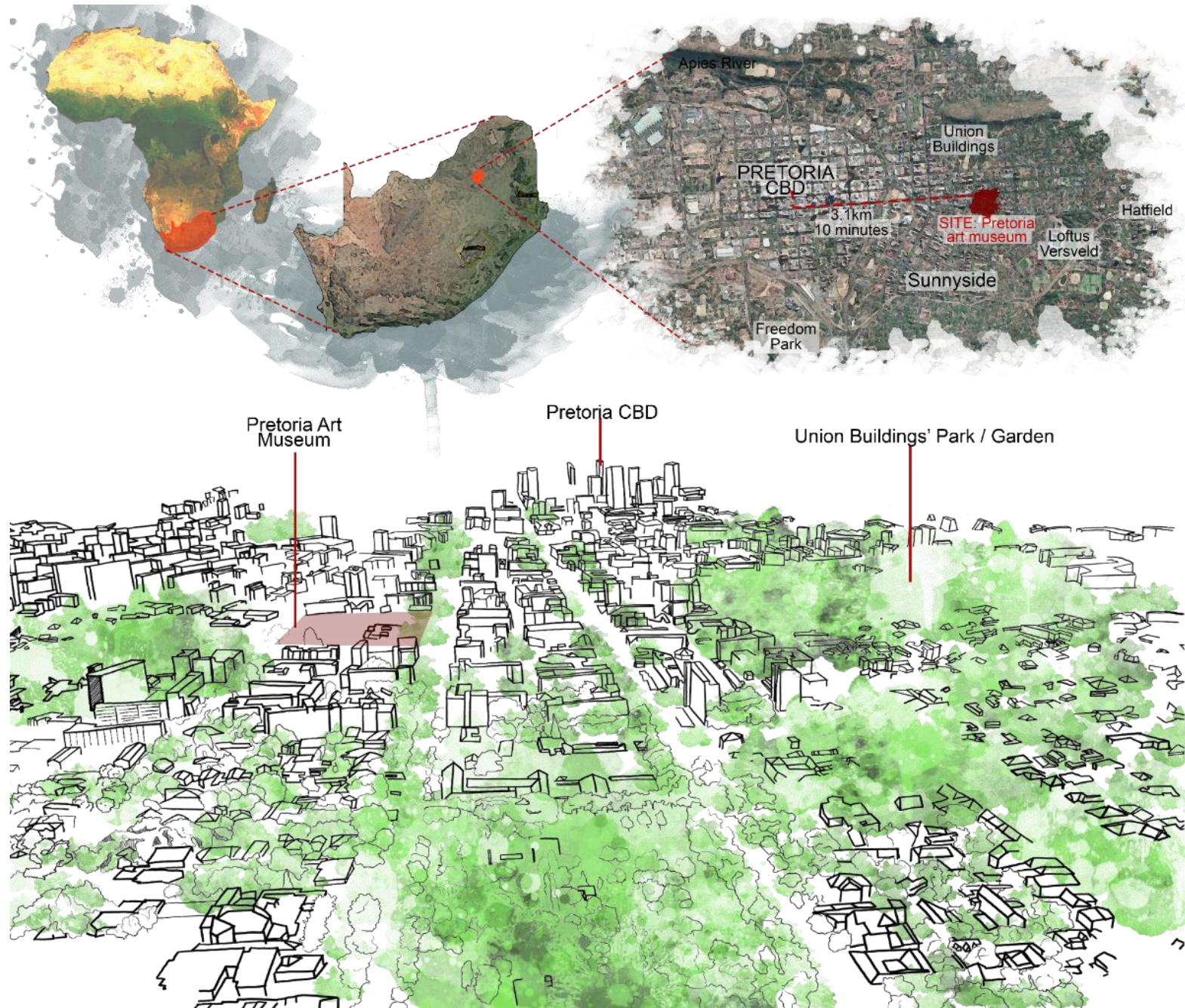


Fig 7: The site location from macro to micro scale (Author 2022).

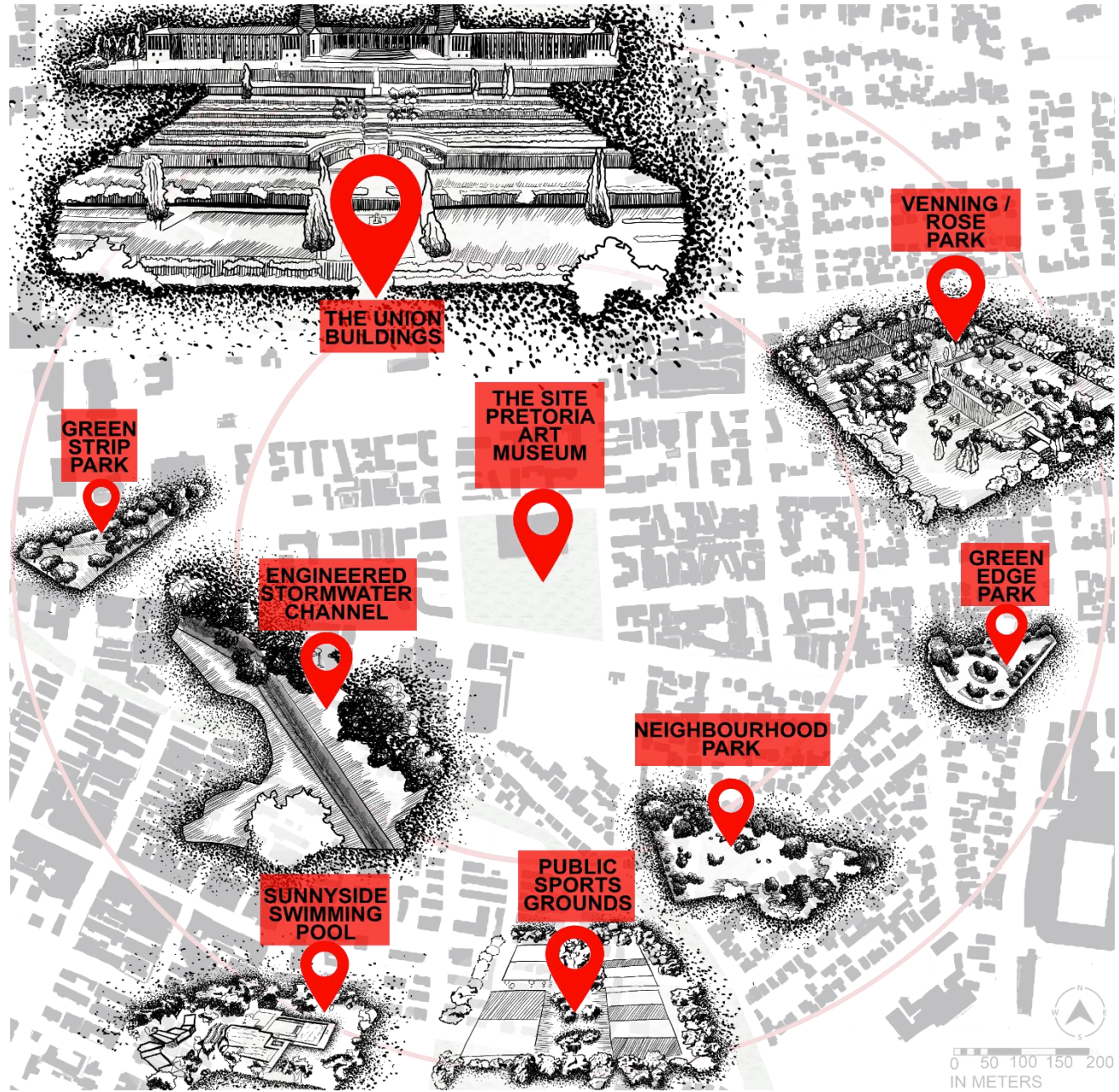


Fig 8: Surrounding sites which influence activity at site to take place (Author 2022).

LAND USE: FUTURE

LEGEND:

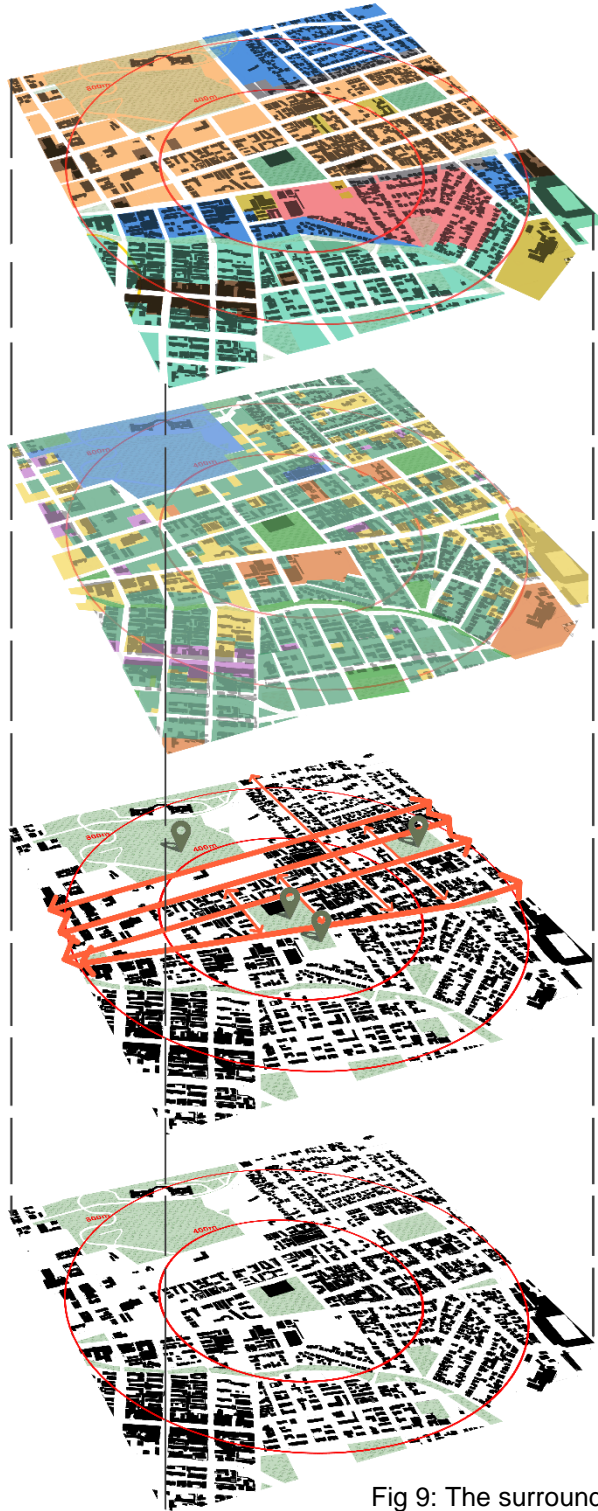
- Mixed usage
- Educational
- Retail
- Suburban density
- Offices
- Other natural areas
- Low density housing
- High density housing
- Future node

CURRENT ZONING

LEGEND:

- Government
- Special
- Educational
- Business
- Residential
- Public open space

Location of green space



More high-density residential areas are proposed to be developed. This showcases the need that the site would be at the heart for an escape for people to rest.

Predominantly residential which would include a mixture of families of ages and races. Green space is however not in balance with the amount of people living in area.

Main roads between green spaces:
Pedestrians cannot easily cross roads.
Any open space is thus valuable for the nearby community

Fig 9: The surrounding area analysis (Author 2022).



Fig 10: Photograph of koppies in the background (Author 2022).



Fig 11: Interior 1 (Author 2022).



Fig 12: Interior 2 (Author 2022).



Fig 13: Economic activity around the site (Author 2022).



22

Fig 14: Abandon landscape



Fig 15: Interior 3 (Author 2022).



Fig 16: Exterior of site 1 (Author 2022).



Fig 17: Exterior of site 2 (Author 2022).



Fig 18: Exterior of site 3 (Author 2022).

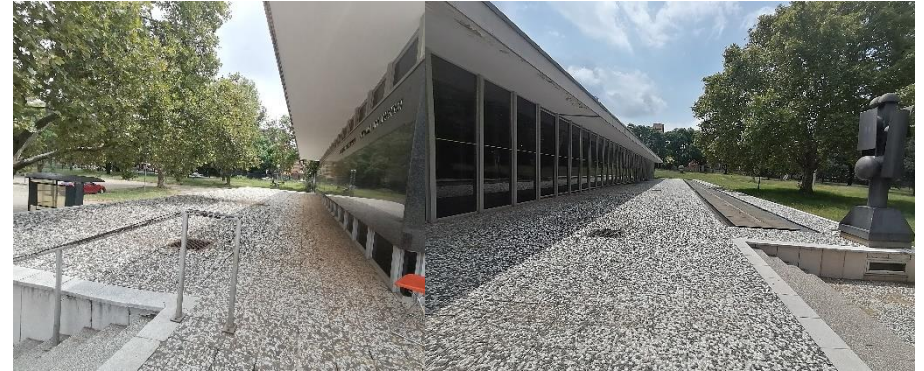


Fig 19: Plinth of building (Author 2022).



Fig 20: Walkway conditions (Author 2022).

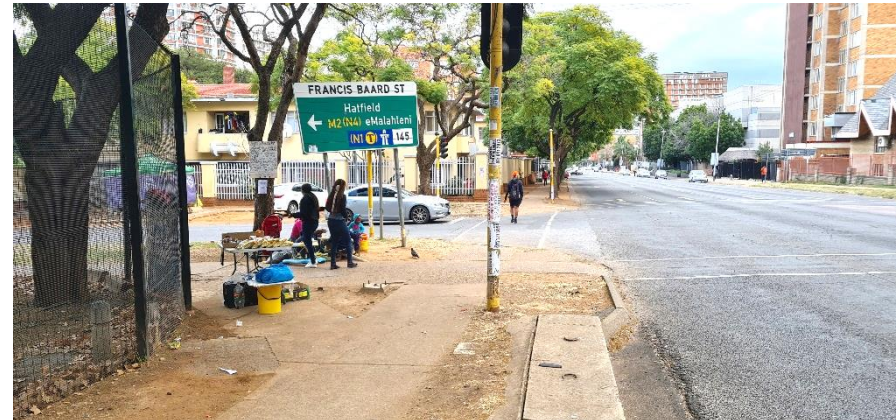


Fig 21: Informal trade at corners (Author 2022).



Fig 22: Informal trade in streets (Author 2022).

5.2. THE SITE

サイト

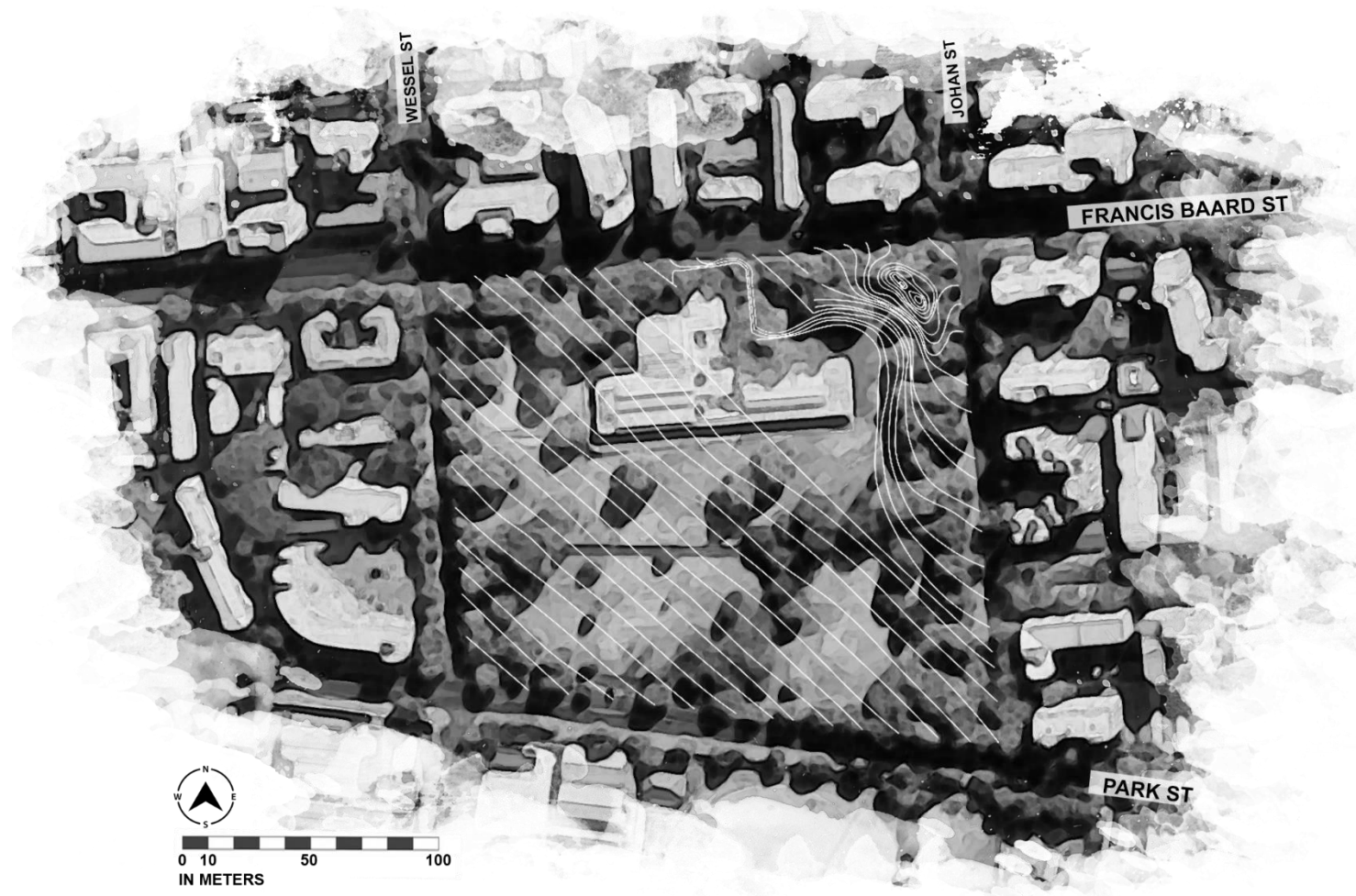


Fig 23: The site (Author 2022).

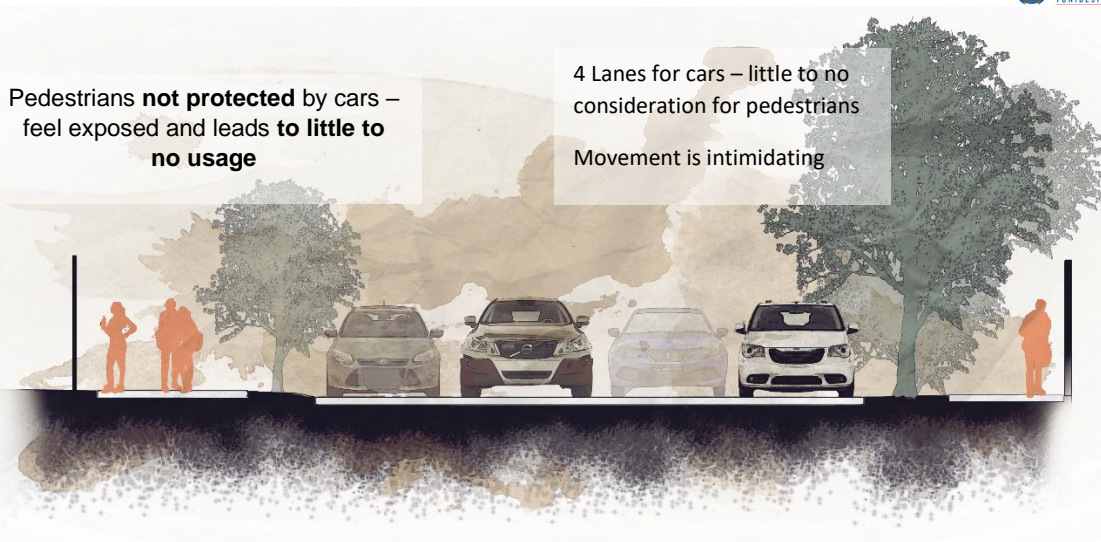


Fig 24: Indicative section: Francis baard (Author 2022).

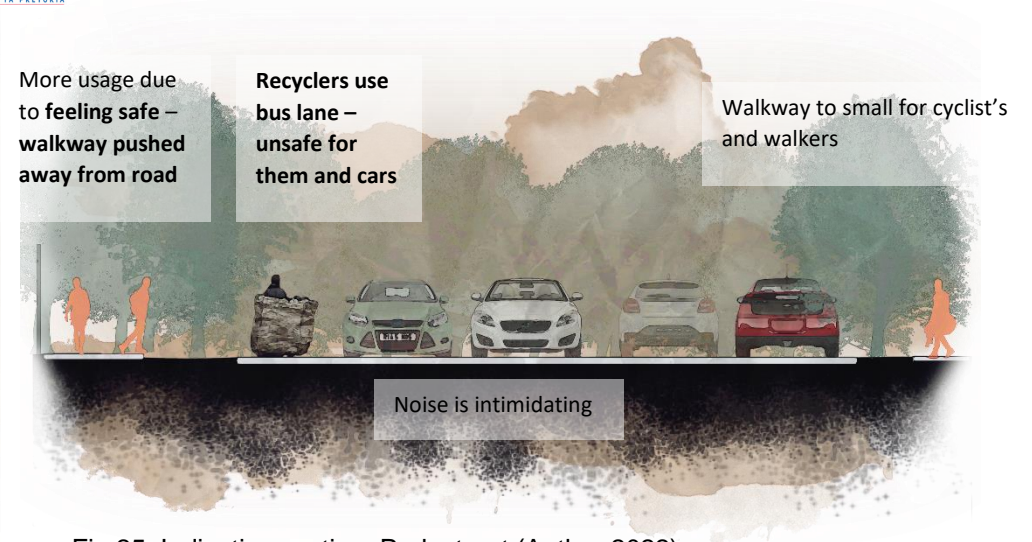


Fig 25: Indicative section: Park street (Author 2022).

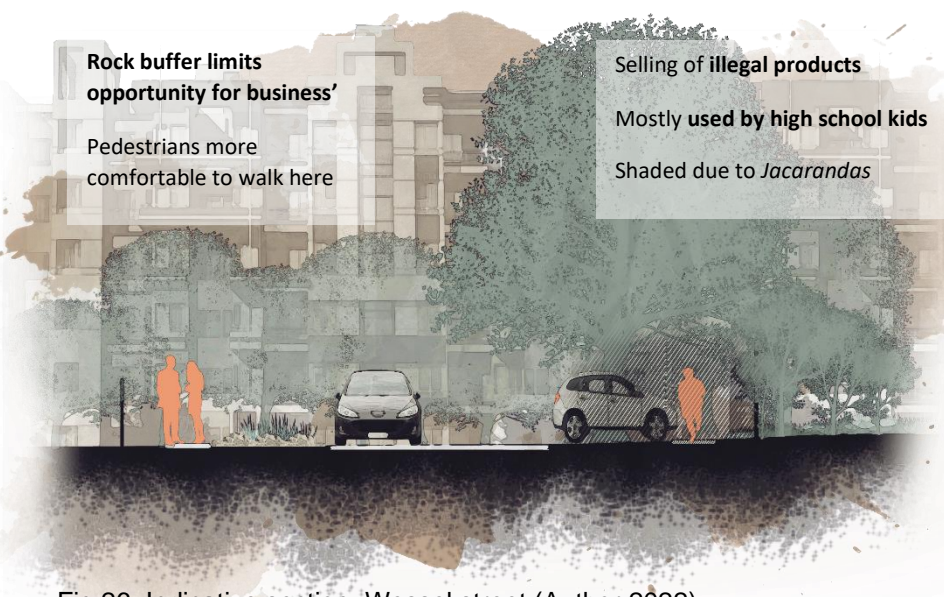


Fig 26: Indicative section: Wessel street (Author 2022).

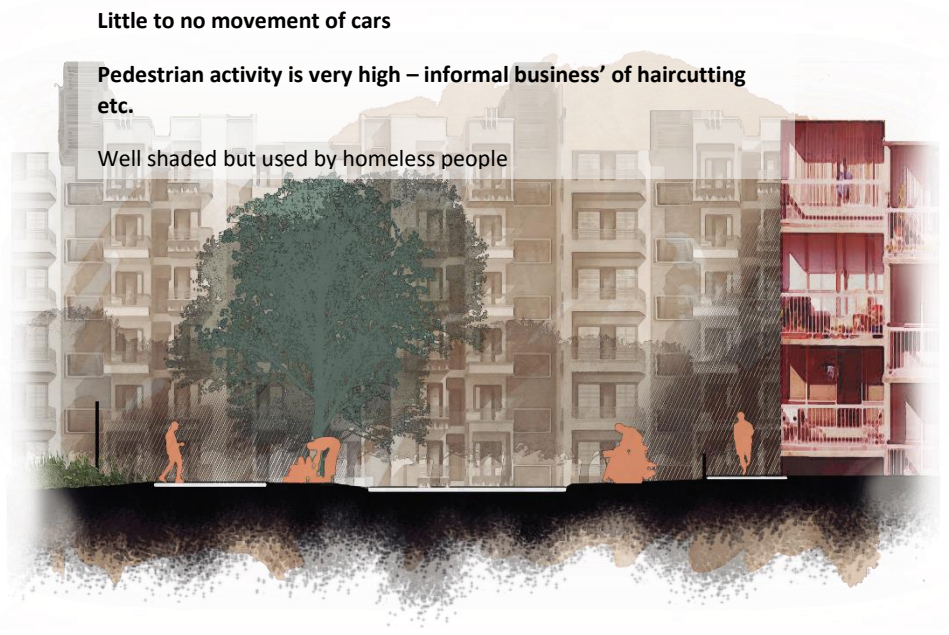


Fig 27: Indicative section: Johan street (Author 2022).



Fig 28: Indicative section A-A through site (Author 2022).

Overgrown with weeds and little to no maintenance
Edges have dense shadows

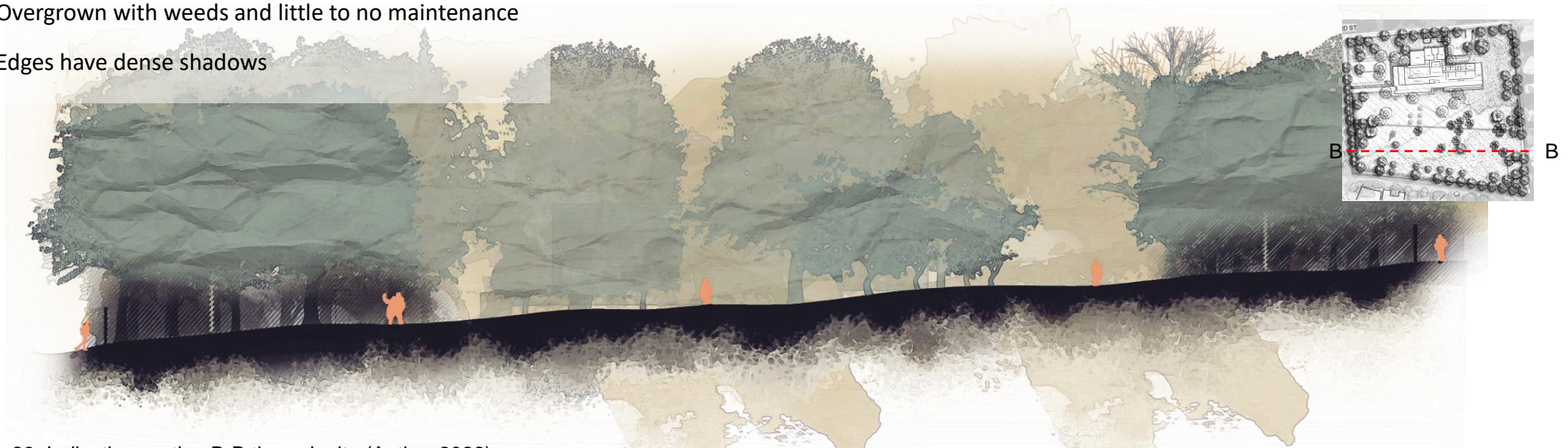


Fig 29: Indicative section B-B through site (Author 2022).

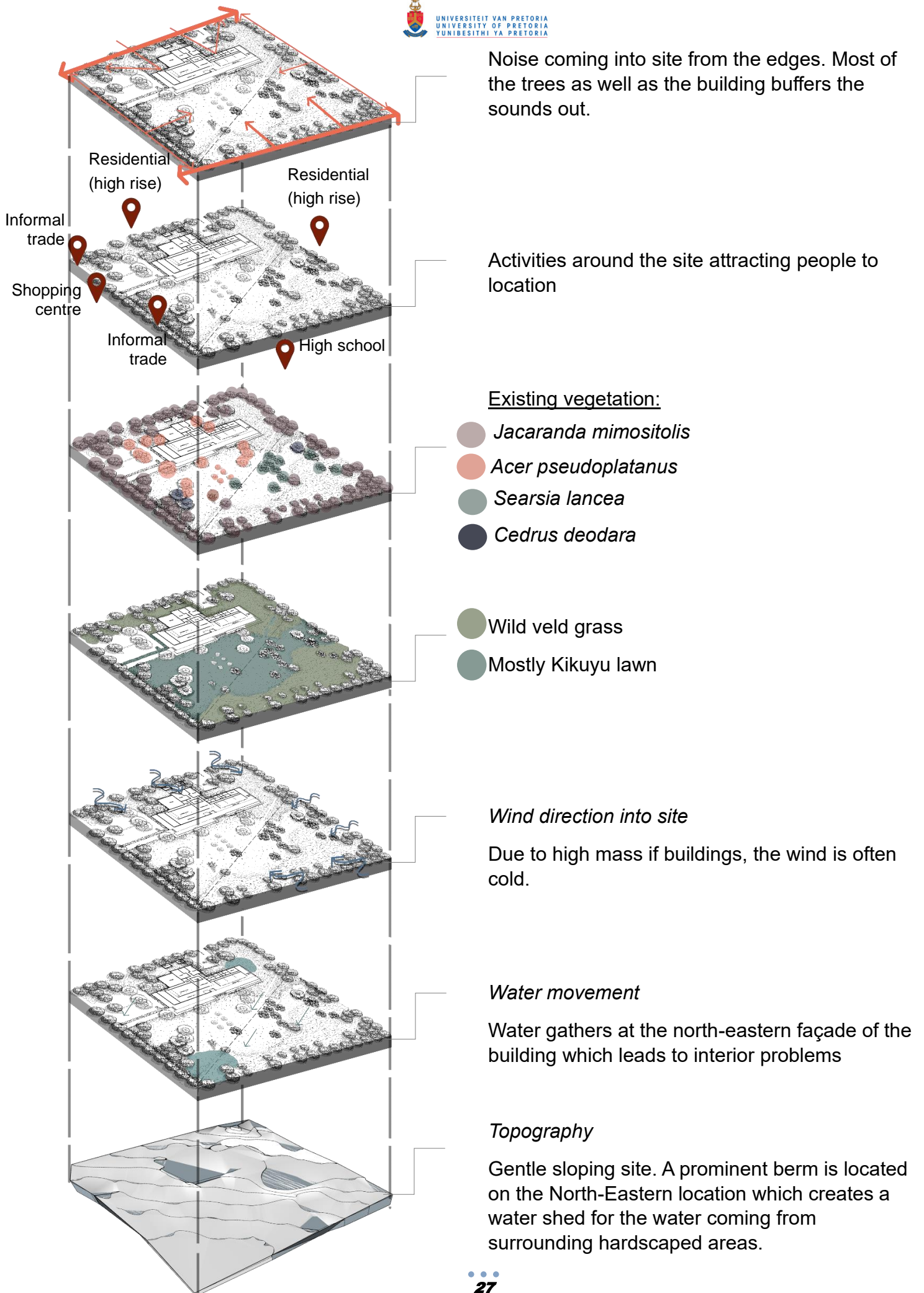


Fig 30: Axonometric of site analysis (Author 2022).

5.3 THE BUILDING

建物



Fig 31: The building (Author 2022).

Constructed in 1962, the Pretoria Art Museum was the first established art museum within Pretoria and had the opportunity to exhibit some of the most famous artists' work, one of many is Van Gogh's artworks (City of Tshwane 2015). The building boasts at having held the most extensive art collection by South-African artists at the start of the 20th century (AbleWiki, 2012).

Due to the lack of involvement from community members and a decrease in exhibitions, the site has become neglected over time. The park has recently been fenced off because of vandalism on artwork and illegal activities taking place on site. After the fence was placed on site the landscape started to become more mistreated over time, which resulted in the municipality neglecting the site. The closing of the area is also an indicator that activities (which occurred spontaneously on site) like soccer and small informal market spaces, were not suited for the site's initial program and historic building.

In order to design an exterior space which has a relationship with the building, one has to understand the building first. Both exterior and interior can be explained as the rejection of ornamentation. The building was designed by modernist architects, namely the company Burg, Lodge & Burg with W. Gordon McIntosh (Judin 2021:20). Due to the choice in designers, a modernist influence can be seen throughout the design of the specific architectural

artifact. Mies van der Rohe utilized expressions such as “skin-and-bones” for modernist architecture (Denison, Glancey 2013:128). This specific term can be deeper described as:

1. The design is diminished to a translucent, hardy, and graceful skin (Denison, Glancey 2013:128).
2. Order is achieved by means of elementary geometrical forms, an uncomplicated utilization of materials, undecorated components, and the repetition thereof (Denison, Glancey 2013:128).

The modernistic approach was considered (by some architects) to be too conceptual therefore lacking the ability to meet users' emotional requirements (Denison, Glancey 2013:123-128). One can however argue that for an Art Museum where focus and emotion is to be found within artwork and sculptures, this is an appropriate approach – the architecture becomes the backdrop for the artwork to play out.

The building was renovated between the years of 1975 to 1999 due to the need for more exhibition space and maintenance of services (City of Tshwane 2015). This in turn led to previously open-air spaces (a designed sculpture garden and external courtyard) to be closed off, consequently, the experience of the relationship between the interior and exterior have been

demolished. For the artworks to stand out, a blank background is used onto which the paintings are hung. Wood bases provided by the Museum are blurred into the background by using monochromatic colours.

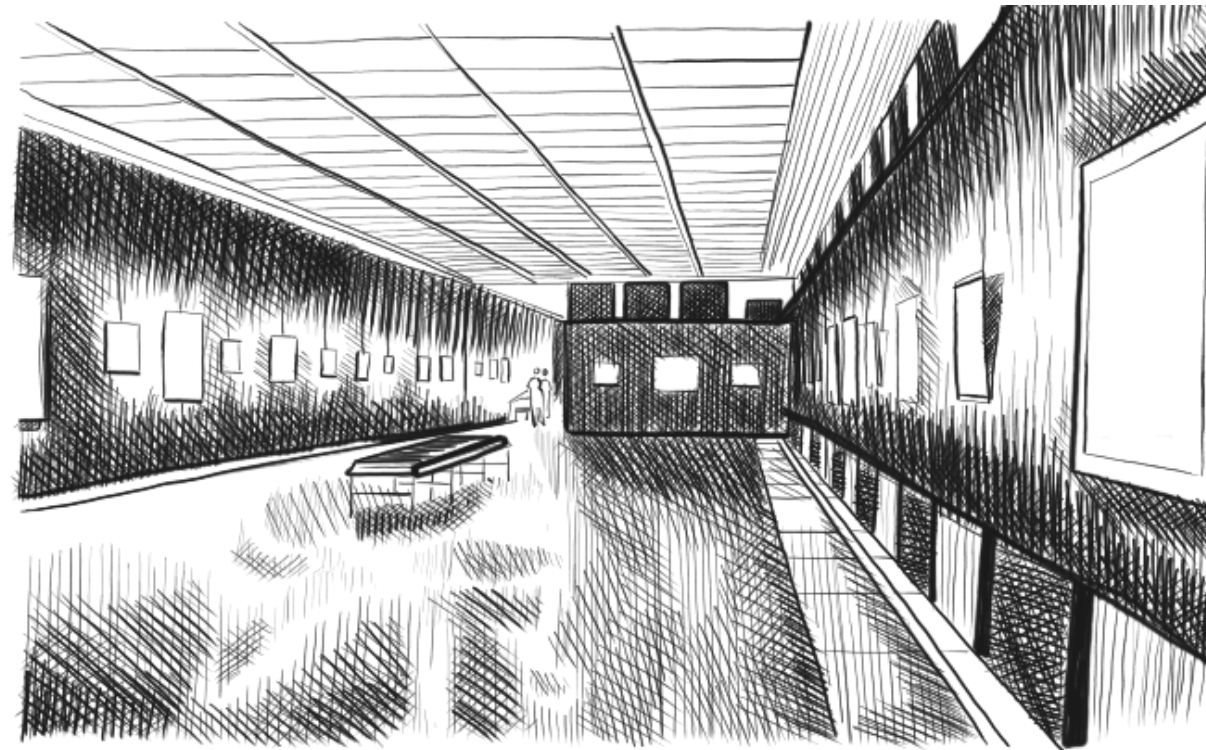


Fig 32: Interior drawing of building (Author 2022).



Fig 33: Interior of building with sculptures in building (Author 2022).

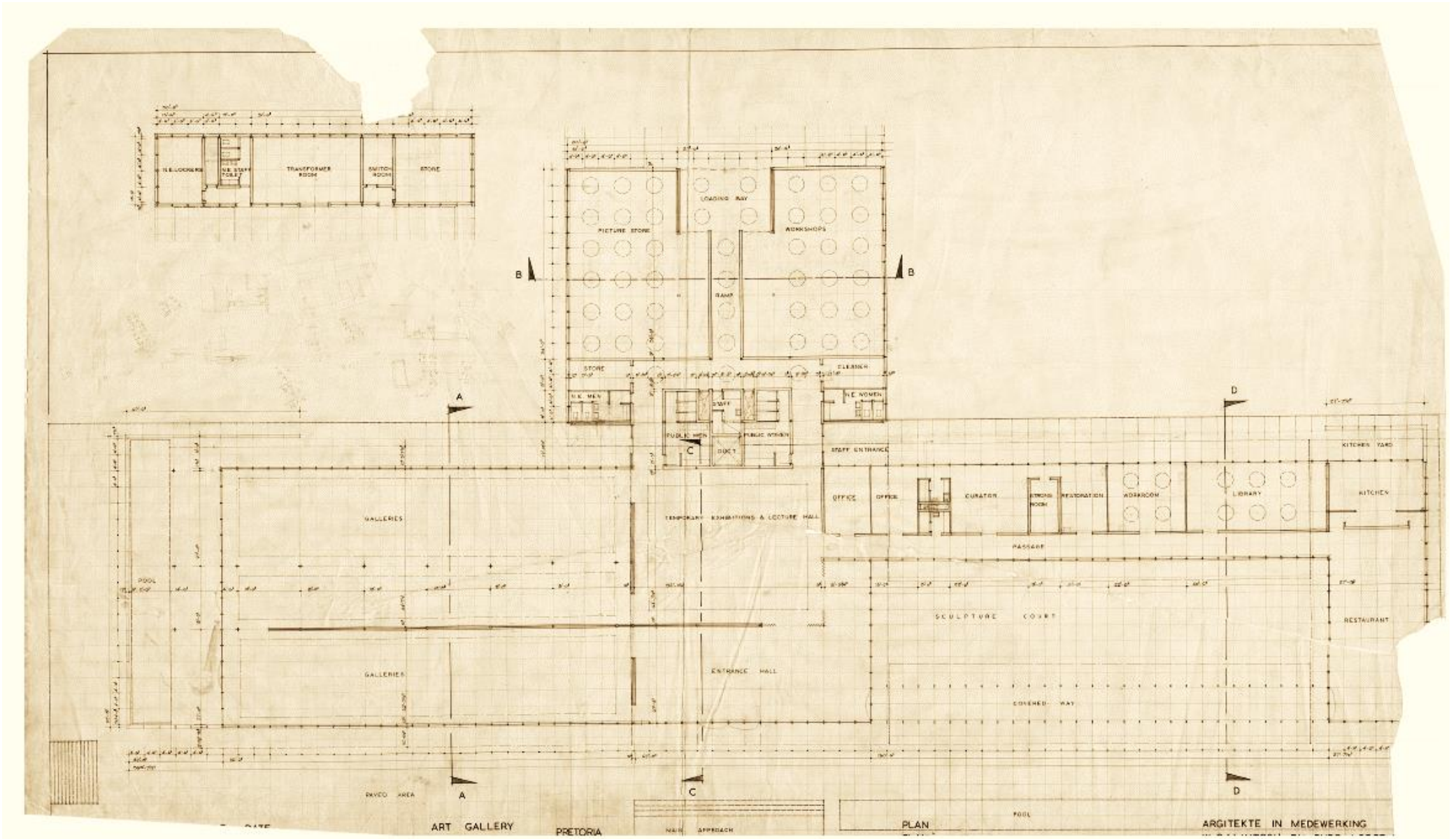


Fig 34: Original building plan (Lodge & Burg 1963).



Fig 35: Previous sculpture garden courtyard behind colonnade (Lodge & Burg 1963).



Fig 36: Building interior in original state (Lodge & Burg 1963).

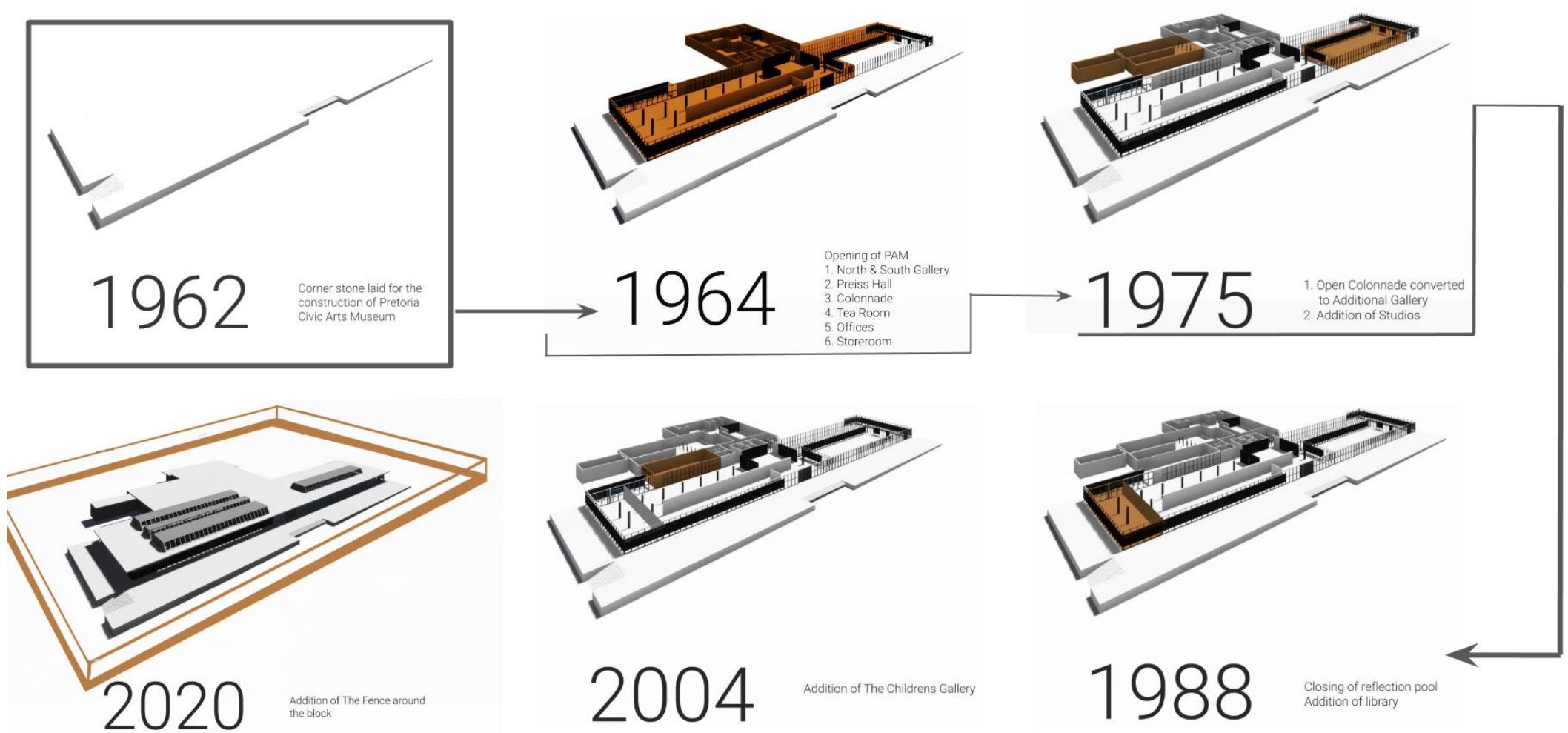


Fig 37: Building changes over the years (University of Pretoria Architecture Honors students 2022).

6. STATEMENT OF PROBLEMS

問題の説明

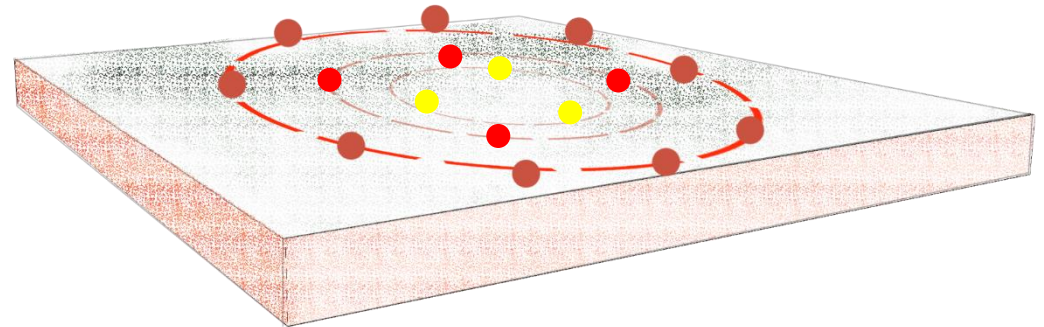


Fig 38: Different scale of problems which should be considered in project (Author 2022).

6.1 PROBLEM 1: OVERALL WITHIN THE INDUSTRY

問題 1: 業界内全体

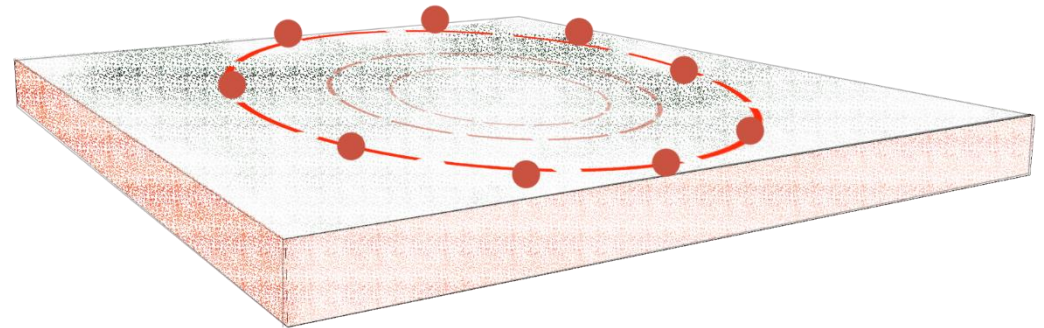


Fig 39: Larger problem within the scale of other problems (Author 2022).

The first problem encountered from site experience was that users disable themselves to fully experience a space due to their high interaction with technology. Users were also seemed to be overwhelmed with exterior sense stimulations, thus, people moved in fast passes to get to their desired destination. This is however a global problem, but for the purpose of this document, the Pretoria Art Museum and Arcadia Park would be used to explain this problem in order to generate a tangible research question within a specific context.

One example which causes a visual over stimulation is the use of digital devices. As seen from the table, most people who use digital devices are working families and students. When cross-examining the amount of people who use digital devices and the age diversity of Arcadia, the following is observed: If the person is younger, the user makes more use of their digital device (see image 32). Due to this problem, people lack the ability to perceive the inconspicuous aspects within the landscape (how wind has shaped the landscape over time, and so forth). As described by Harrison (2003:114): “It is fair to say there exists in our era a tragic discrepancy...poverty in ability to perceive the richness of the visible world”. While technology is considered a tool that aids in connecting us to society, it disconnects us from the physical world we find ourselves in (Wilmer, H et al. 2017:25). Due to

advancement in technology and business’ wanting to grow within the economy, we are often faced with visual cluttering of elements and ideas – namely advertisements. This same problem occurs within landscape design where designers often over-use planting, materials and ideas. Thus, this leads to the first research question: how can an area be designed to not have a stimulation overload on a user?



Fig 40: Visual clutter from the heavy amount of planting textures which have been chosen. “Brooklyn bridge”, Pretoria (n.d), by Attacq [n.d]. (Author 2022).

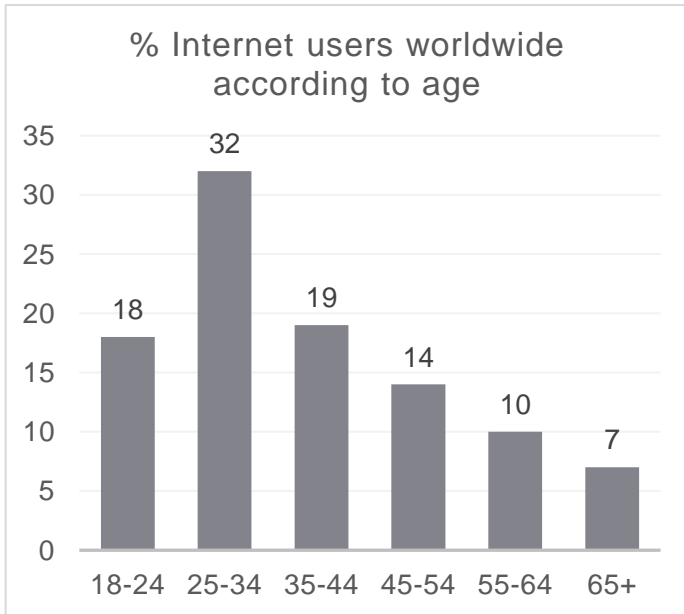


Fig 41: % internet users worldwide according to age diagram (Census 2011) (Author 2022).

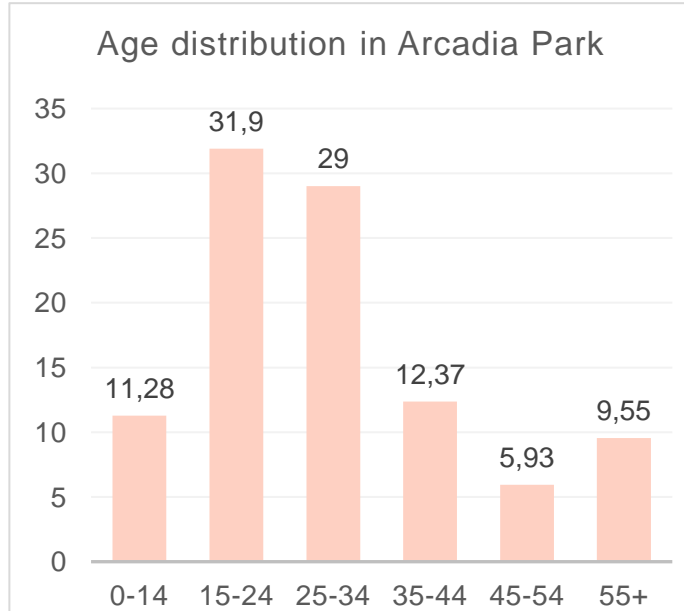


Fig 43: Age distribution in Arcadia Park statistics diagram (Statistika 2019) (Author 2022).

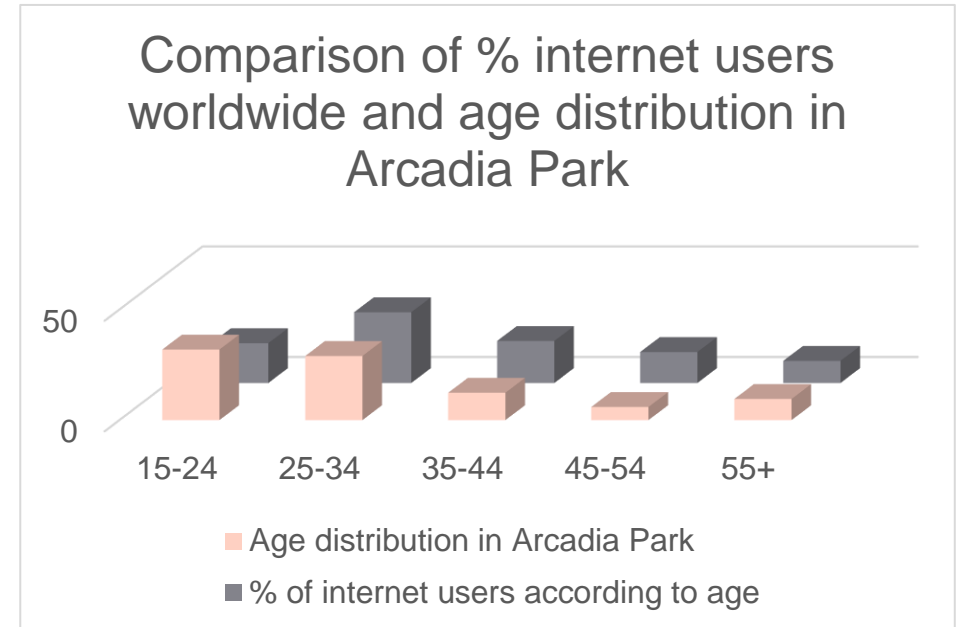


Fig 42: Overlaying statistics (Author 2022).

6.2 PROBLEM 2: ART AND IT'S SURROUNDING ENVIRONMENT

問題 2: アートとそれを取り巻く環境

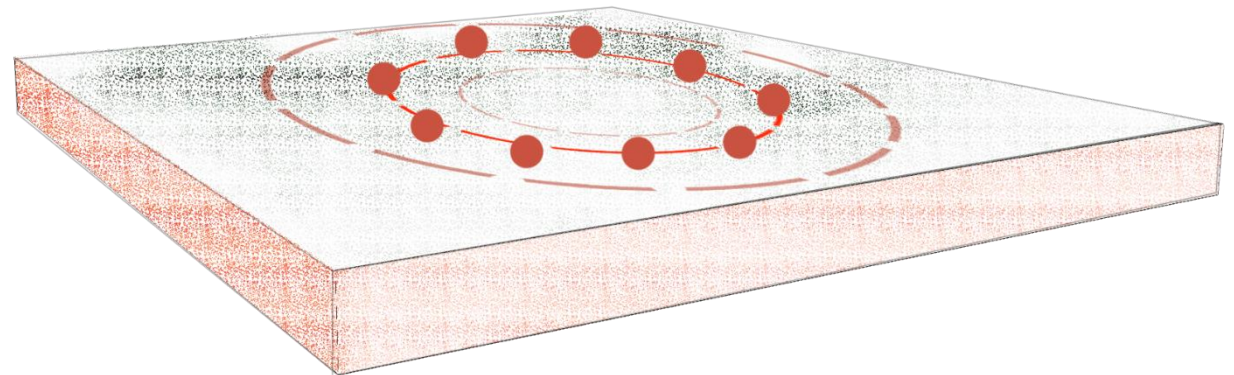


Fig 44: Second problem within the sphere of what the dissertation wants to adress (Author 2022).

The second problem is that the exterior sculptures at the Pretoria Art Museum is not placed with the same care and intention as the interior artwork. As previously mentioned, consideration of background for the artwork and how spaces are created for contemplation are all thought of within the interior of the building, however, the landscape does not reflect this care. Dudkiewicz, Pogroszewska, Durlak, Szmagara (2016) commented that landscape architecture is art, and we are here to protect and create the beauty of it. However, this conceptual thinking is not shown within the exterior of the site due to problems previously mentioned.

landscape enhance the presence of sculptural characteristics/elements?

“The overwhelming majority of contemporary gardens open to the public, including those that incorporate sculpture into their plan, neither conceive of, nor treat art as equal to the idea of a garden” (Florence 2020:2). People within Arcadia Park could perceive the space as messy and unordered due to the lack of maintenance. Nute (1993) explains that clean lines showcase high quality, thus, the quality of the natural quality of the Pretoria Art Museum is missed when people pass by due to overgrown vegetation and sculptures having traces of vandalism. Nature is starting to reclaim the area and even with this taking place, the landscape seems to be visually pleasing, thus, one can also consider the landscape becoming more graceful as its aging. Following these statements, the second research questions is: how can a

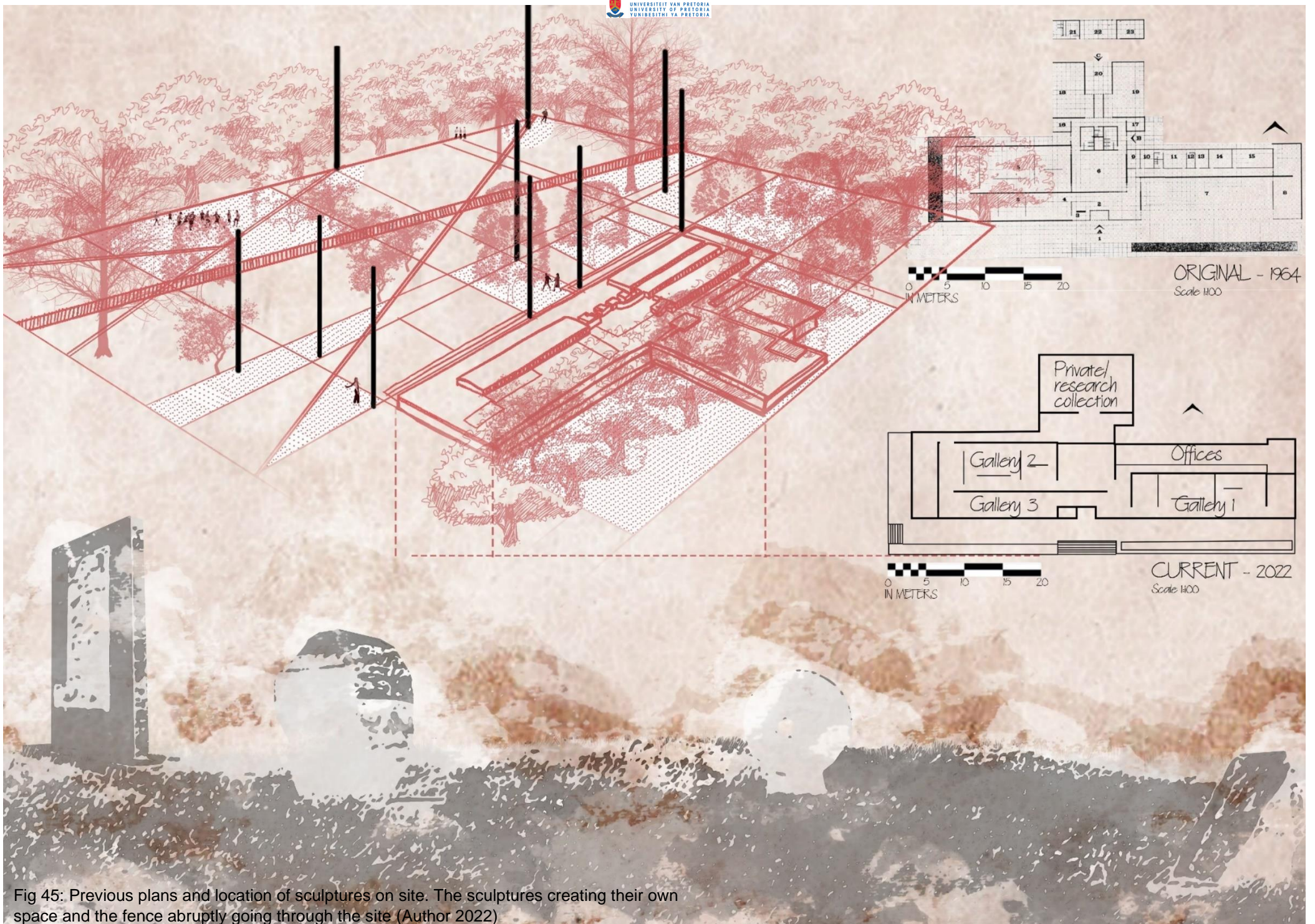


Fig 45: Previous plans and location of sculptures on site. The sculptures creating their own space and the fence abruptly going through the site (Author 2022)

問題 3: サイト固有

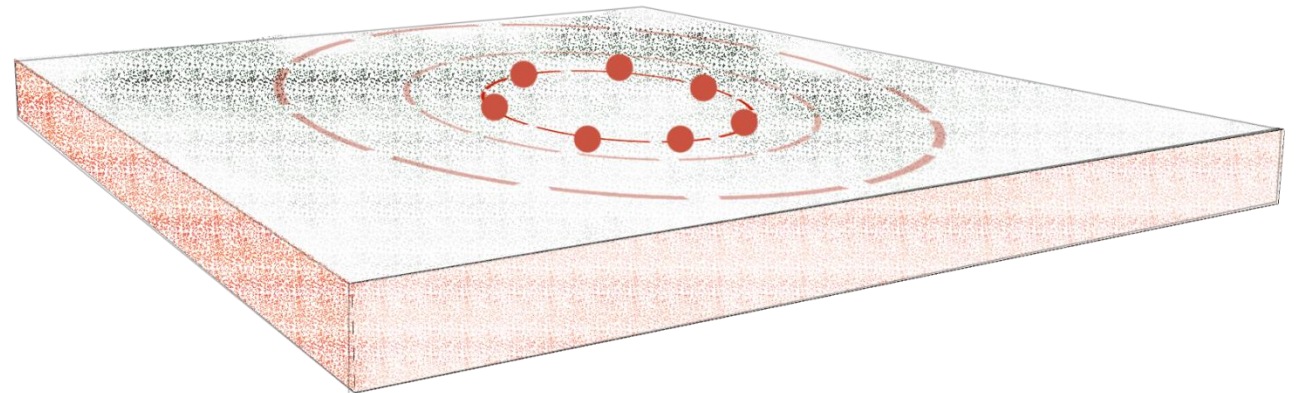


Fig 46: Intense, site-specific problem within the smallest circle of problems (Author 2022).

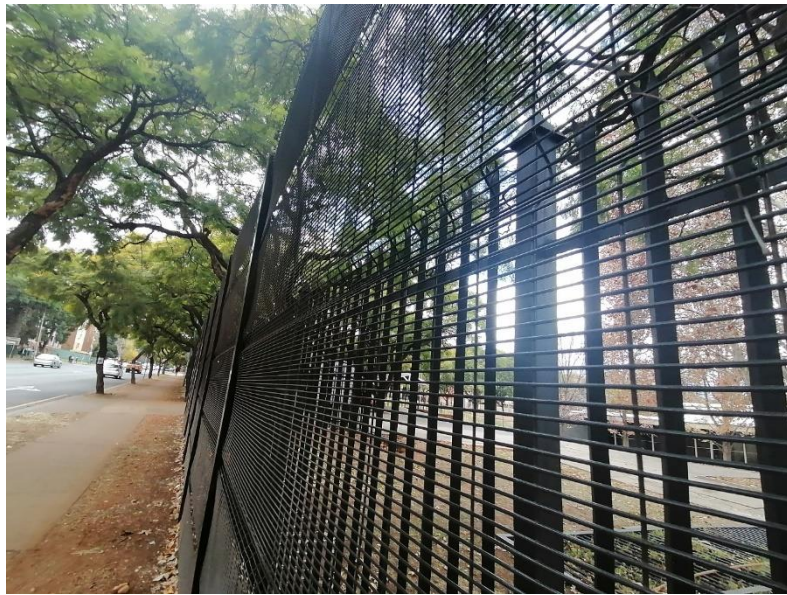


Fig 47: Double fence around the site (Author 2022).

The third problem is the effect of enclosing a garden. Due to fencing and lack of maintenance within the Pretoria Art Museum grounds, the surrounding landscape is neglected and often a missed gem within the city. The garden is perceived to be enclosed; however, a gate is open throughout the day, and anyone is allowed to enter. Even with a garden being enclosed, two different sensations can exist, namely, the beautiful and the sublime. The beautiful is related to a bounded form (an enclosed garden), while the sublime relates to the formless and boundless (vertical expansion and the beauty of a vast, open space) (Aben, de Wit 2001:98). Thus, the third research question is as follows: How can a landscape merge very public and very private spaces while creating an interactive edge?



Fig 48: Fence areas that are broken aren't being repaired – this is about a years' time since it got damage (Author 2022).

SUMMARY OF PROBLEM STATEMENTS

We are often faced with **visual cluttering** of elements and ideas – namely advertisements. This same problem occurs within landscape design where designers often over-use planting, materials, and ideas.

How can an area be designed to not have a stimulation overload on a user?

With a garden being enclosed, two different sensations can exist, namely, the beautiful and the sublime.

How can a landscape merge very public and very private spaces while creating an interactive edge?

The exterior sculptures at the Pretoria Art Museum is not placed with the same care and intention as the interior artwork.

How can a landscape enhance the presence of sculptural characteristics/elements?



Fig 49: Research questions and thesis statement (Author 2022).

THESIS STATEMENT:

The creation of an **enclosure typology** can allow people to **disconnect from the virtual world** and **focus** on the physical, moving world. By using **Zen Garden principles**, garden visitors have the **opportunity and ability to be immersed within created spaces**

7. RESEARCH METHODOLOGY

研究方法

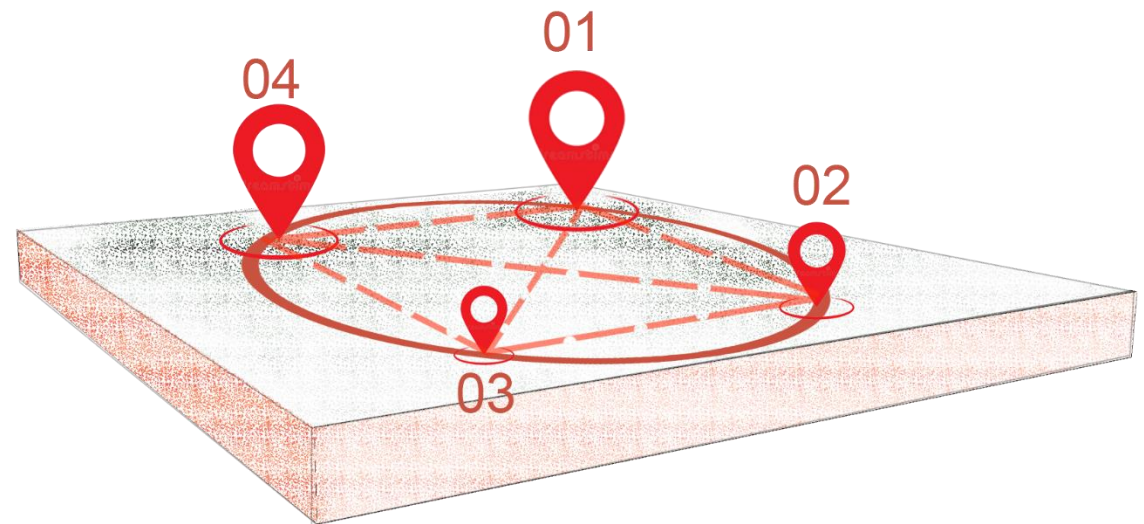


Fig 50: Abstract way of showing the steps that have to be taken for research and design in this project (Author 2022).

“Such preconceived notions that gardens of contemplation are akin to typical 15th century Zen gardens is, in my opinion, a limited mindset that is too narrow in its interpretation.” (Okashimo 2007:12).

Following Okashimo’s statement, the garden should have a relationship with the greater context and should not be a mere recreation of Zen Garden principles, but rather an application and deep understanding of the fundamentals of these principles. As a leading element within the research project, the aim is to investigate and study the surrounding natural areas of Gauteng to gain a deeper understanding of the natural context. This will be accompanied by different site visits to botanical gardens and nature reserves. “To study landscapes is to be part of it. To forge a relation with it, to interact with it, to visit its places... Their material traces guide us when we move around the landscape. We reiterate past paths” (Mlekuz 2012:22).

Throughout the research, an action-based research plan was used – which is more evident later within the booklet. An action-based research plan refers to the researcher doing something (an experiment), evaluating the outcome and thereafter reflect on the process and outcomes. This methodology is not linear, however, it’s a process which is ever changing if the researcher is

purposefully searching for a specific outcome. Within this dissertation, the experiments were used to understand theory as well as testing individual design ideas on it (example: engraving).

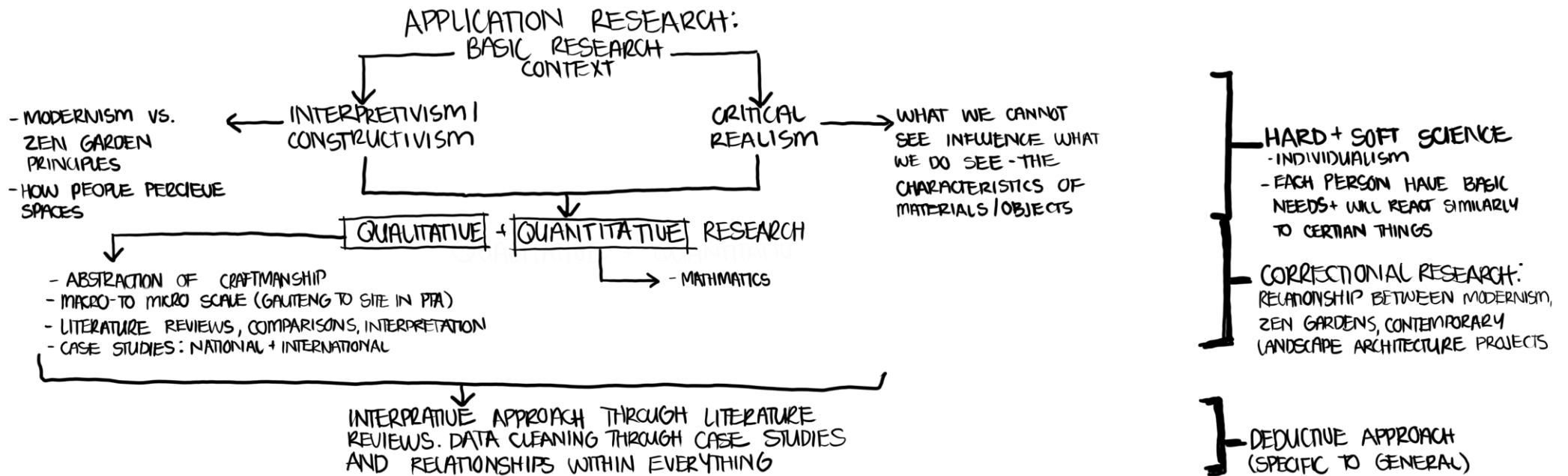


Fig 51: Research methodology in a diagram (Author 2022)

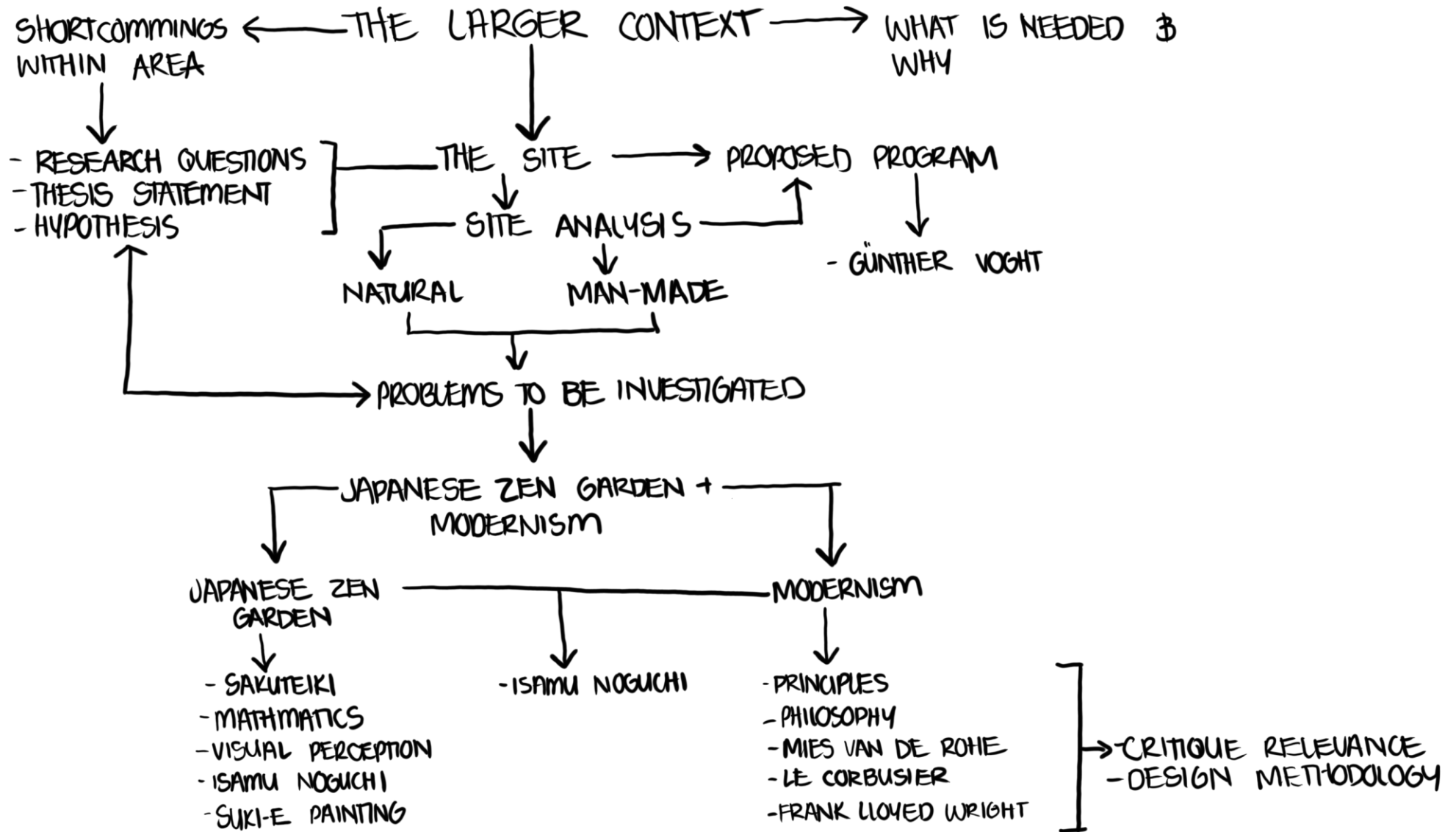


Fig 52: Design methodology for the project (Author 2022)

プログラム

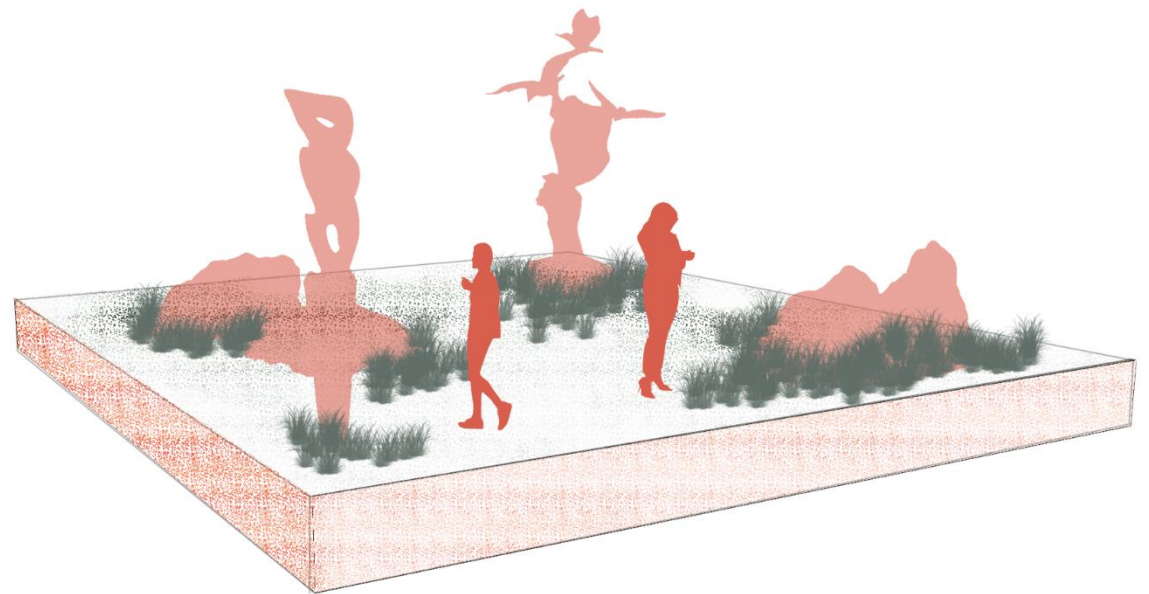


Fig 53: Proposed elements to look at and to contemplate about (Author 2022).

The designer will be using Zen Garden design principles in order to create an immersive, phenomenological experience within the proposed design. As explained by Dudkwiecz, *et al* (2016:242) “Designers triggers associations in the mind of the visitor, the need for contemplation, feelings of pleasure, relaxation, amusement, satisfaction, a sense of grandeur, power, authority or intimidation – art can create these feelings”. By examining the Pretoria Art Museum’s interior program, an exterior sculpture garden is proposed.

A modernist approach refers to the interior and exterior style of the museum while the Zen Garden approach is focused on emerging the user within space and time. There must, however, be a connection between the building and landscape as it is one of the fundamental principles within Zen Garden design: “Art is equal to landscape. Planting is equal to art. Landscape is equal to planting. None takes precedent.” (Florence 2020:4). The importance of art has been made aware of within the modernist movement, as best described by Le Corbusier: “Art is no longer anecdotal, it is a source of meditation; after a day’s work it is good to meditate” (1985:19) and Frank Lloyd Wright: “Ornaments hide the beauty and truthfulness of the material” (Nute 1993:38).

Due to the diverse range of users – the design is proposed to cater for the less thought about community of people: the elderly and people with psychological problematics. The area should thus not

be visually cluttered/overwhelming while simultaneously catering for universal accessing methods.

The sculptures should enhance a sense of natural movement which in turn encourages one of the Zen Garden principles: creating an area that celebrates changes that occur within the landscape (van Tonder 2007).

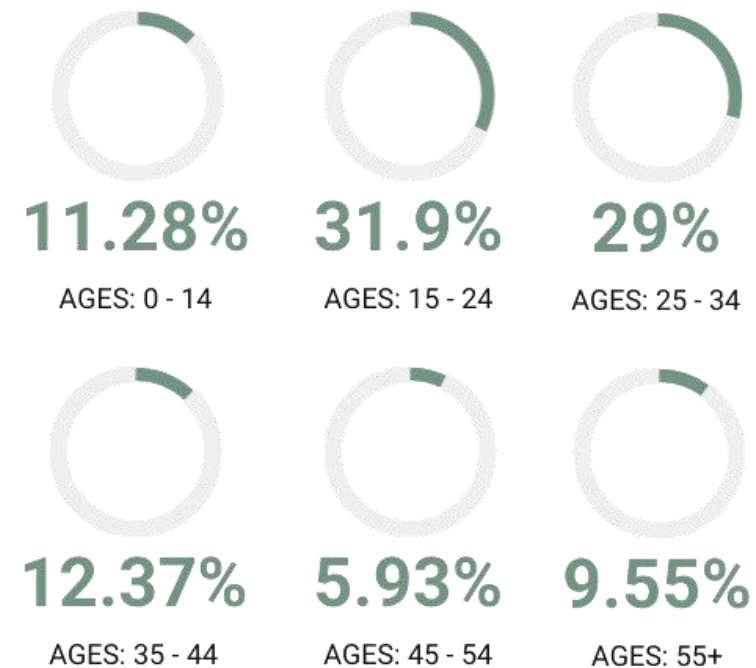


Fig 54: Age distribution in Arcadia Park (Statistika 2019) (Author 2022).



Fig 55: City Of Tshwane logo (City of Tshwane [n.d]).



Fig 56: Norval Foundation logo (Norval foundation 2018).



Fig 57: Benji Liepman (Adventure into art [n.d]).

Due to budgetary constraints from the City of Tshwane, a private-public partnership for clientele is proposed. The Norval Foundation and Benji Liepman, who is the founder of the Nirox foundation, can aid in funding the project. Both these external clientele have been able to produce enough funding for their own projects while allowing them to become part of other foundations. Both externals are driven to allow an upliftment in African artists – which ties directly in with the Pretoria Art Museum's vision and mission, namely: uplifting and celebrating South-African artists (City of Tshwane 2015).

9. PEOPLE OF INSPIRATION FOR DESIGN

デザインにインスピレーションを与える人々

In conjunction with case studies, prominent landscape architects have been investigated because of their design language and methodology.

Isamu Noguchi used fractality and surrealism to create a landscape which integrates both the traditional dry garden methods and Modernism. These influences can be both seen within his artworks and garden designs. Franklin Rosemont explains surrealism in the landscape as the following: "...Aims to reduce, and ultimately to resolve, the contradictions between sleeping and waking, dream and action...It aims to free the imagination from the mechanisms of the psychic and social repression" (1977:online). With reference to this statement, Noguchi specifically aims to design playgrounds for adults— both metaphorically and physically through the use of sculpting the garden as well as pushing the limits of gravity and materiality. His belief was that when the designer unlocks a child-like experience within garden visitors this feeling will lead to visitors wanting to investigate and make sense of the space through viewing and movement.

Secondly is the landscape architect Gunther Vogt. His inspiration for design comes from the site's natural, previous and current,

cycles. The outcome of the projects consists out of bringing the garden visitor closer to nature. Most of his work showcases a sculptural approach while using his knowledge gained from site constraints. One of the most important lessons which can be taken forward is the architect taking constraints and changing it into possibilities with a keen eye to detail.

The third, but not least is Gert van Tonder who proposed psychological ideas of how the Japanese zen gardens were visually and mentally successful. One of the many theories is that Zen gardens unknowingly makes use of Gestalt laws. It should however be recognised that most of his theories does not appear within the *Sakuteiki* itself although some of it does relate back to this main text. Most of the ideas are confined to the traditional small courtyard garden with rocks and limited planting pallets and often makes use of prominent historical Zen gardens in order to explain his theories. Some *Sakuteiki* theories were however ignored in his writings, however, his methodology is focused towards psychology and what impact it creates on the user. Van Tonder explores the main ideas of medial axis viewing points, the usage of fractals in garden design, a touch on the mathematical layout as well as how specific islands are designed and placed within the confined space.



Fig 58: *Pacific Art's Plaza* by Isamu Noguchi (Irvine company office properties [n.d]).



Fig 59: *Pacific Art's Plaza* by Isamu Noguchi (Irvine company office properties [n.d]).

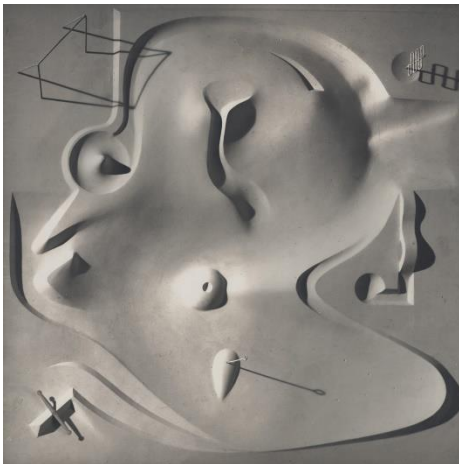


Fig 60: Model for *contoured playground* by Isamu Noguchi (Lincoln [n.d]).



Fig 61: *Novartis Campus Park* designed by Gunther Vogt (Vogt [n.d]).



Fig 62: *Lohs park* designed by Gunther Vogt (Micciche [n.d]).



Fig 63: Project detail by Gunther Vogt (Unknown [n.d]).

10. JAPANISM VERSUS MODERNISM

ジャパニズム対モダニズム

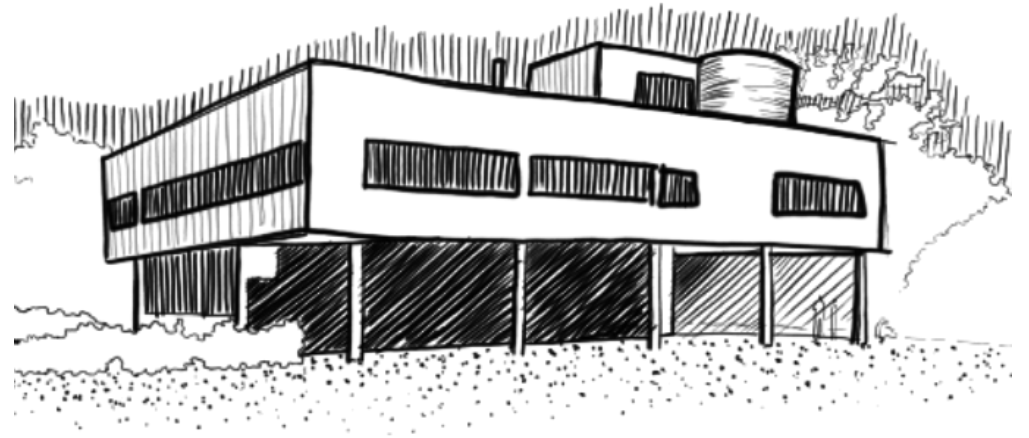


Fig 64: "Villa Savoye", France (1931), by Le Corbusier (1887-1965) (Author 2022).

Frank Lloyd Wright, who was one of the main visionaries for modernism, admitted his use of Zen Garden principles in order to achieve Japanese ideal within his design through a written book called *Frank Lloyd Wright and Japan* (1993).

Japanism flowed to certain artist's during the Modern movement, specifically Ernest Fenollosam, an American art historian, whose ideas are both from Japanese art and more importantly on how the underlying aesthetic principles could be applied to America. Again,

the idea that gardens find inspiration and origination from art is showcased in the overlapping of these two occupations.

On site, the Pretoria Art Museum building style is like the visual qualities of Japanese temples. The site conforms to an evergreen lawn rolling away from the building, like the conceptual vastness of Zen gardens as well as the first approach to modern landscapes. As the visitor moves along the veranda, the horizontal lines exemplify its horizontal placement within the site – which in turn exists in great contrast to the surrounding high-rise buildings.

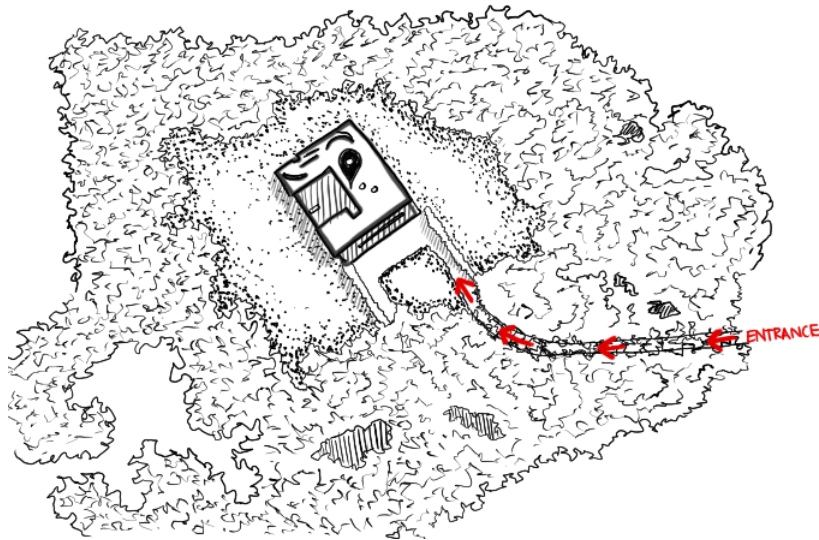


Fig 65: "Villa Savoye", France (1931), by Le Corbusier (1887-1965) (Author 2022).

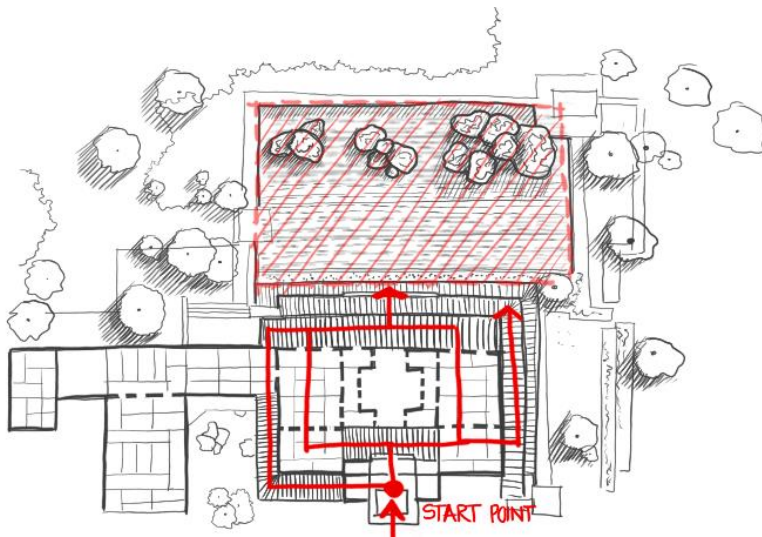


Fig 66: Typical Japanese temple with rock garden (Author 2022).

Modernism had two ways in which the building responded to the landscape, namely (Aben & de Wit 2001:102):

1. The building should be removed from the landscape and placed within an open lawn in order to draw attention to the artifact.
2. The building should be hidden away from the viewer and only specific areas had vistas to the building.

Both Modernism and Zen gardens have one main thing in common when garden visitors enter the site: The user should go on a journey, thus building anticipation, before the building or landscape is revealed. In modernism, it would be either using a vehicular road or hiking trail which cuts through natural elements while within Zen Gardens it is the user who move through a house or temple to view the zen garden. The first approach of modernism in the landscape relates to the *Karesansui* gardens, where an element is placed within an open plane of pebbles. The second approach of modernism in the landscape relates to the strolling Zen gardens.

11. FORM GENERATION

フォーム生成

11.1. VAN TONDERS ANALYSIS OF ZEN GARDENS

ヴァン・トンダーの禅庭園の分析

As previously mentioned, Gert van Tonder's work was investigated in depth in order to make sense of Zen gardens in the 21st century. The following of his writings were investigated, namely:

- Visual perception in Japanese rock garden design (van Tonder, Llyons 2005)
- Eight lessons from karesansui (van Tonder [n.d])
- Structural order in Japanese Karesansui gardens (van Tonder, Lloyens 2003)
- Making and breaking of Gestalt in Traditional Zen Landscaoes (van Tonder, Lloyens, Ejma 2001)

Zen gardens will be used as a base to explain the concepts. The following categories showcases information received from the previously mentioned writings.

11.1.1. TRIANGULATION

三角測量

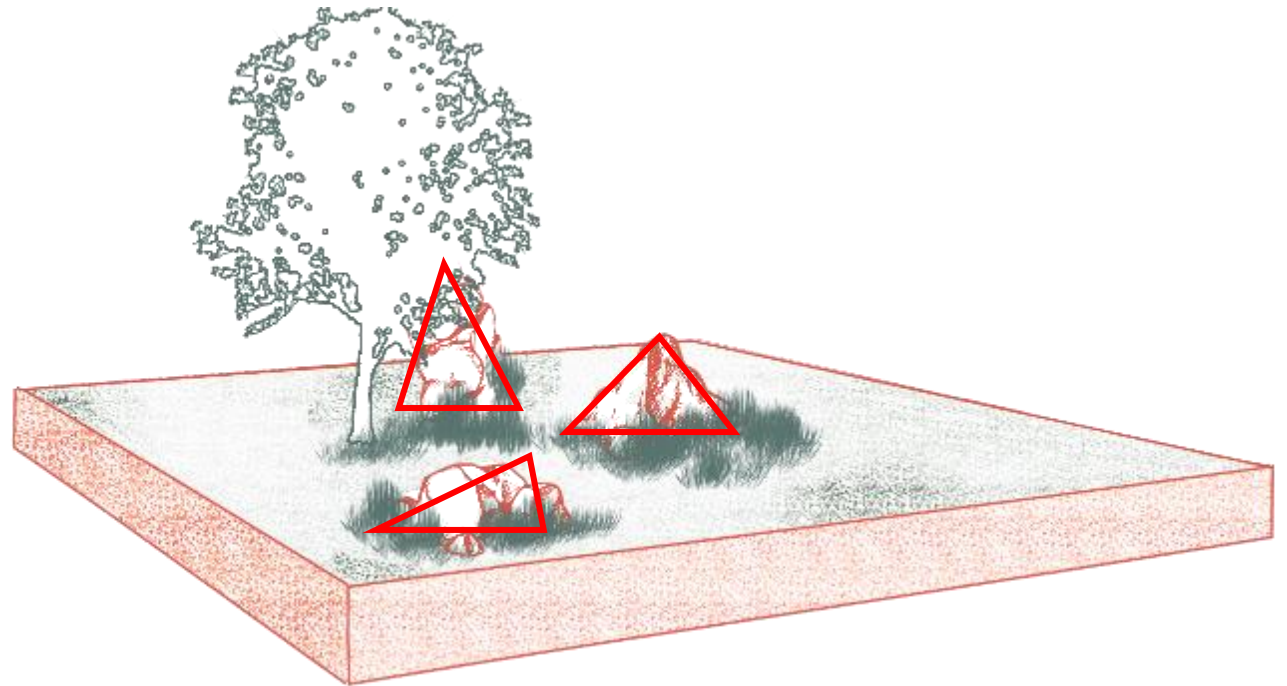


Fig 67: Example of triangulation in rocks (Author 2022).

The specific use of a triangle shape relates back to a main philosophical point of the heavens (or gods), people and earth being connected to one another (van Tonder 2005:363) and viewed as one element which, when one element is influenced all the other is also influenced. The shape of the rocks should be placed in a manner to visually create a triangle. Using *suiseki* stones and *sute ishi* stones can allow the designer to create a visual relationship with different islands of rocks (van Tonder 2005:261). An uneven number of stones is the perfect choice, however, if an even number of stones is used the rocks should be able to be viewed as a group of uneven rocks. By using uneven numbers, the garden creates a more natural perception for the onlooker.

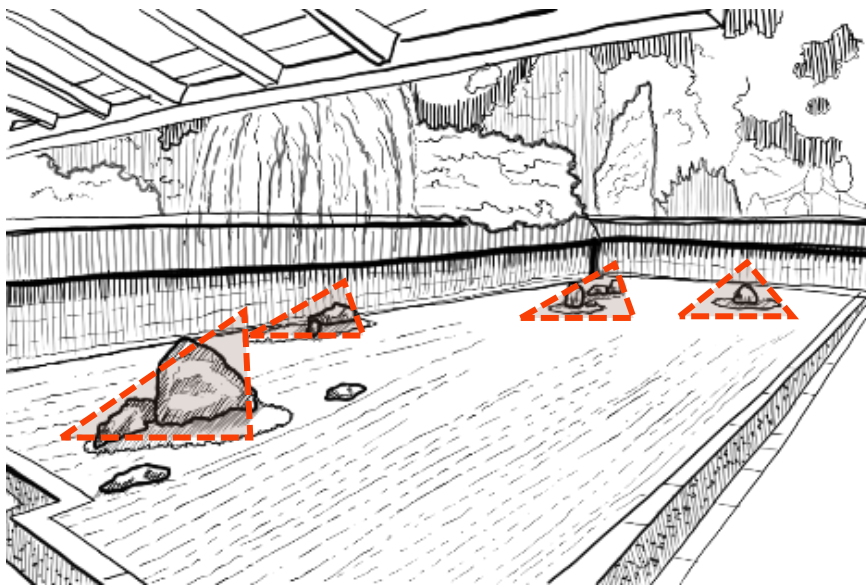


Fig 68: “Ryoanji”, Kyoto (n.d), by Mirei Shingemori (1896 – 1975) interpreted by Author 2022 (Author 2022)

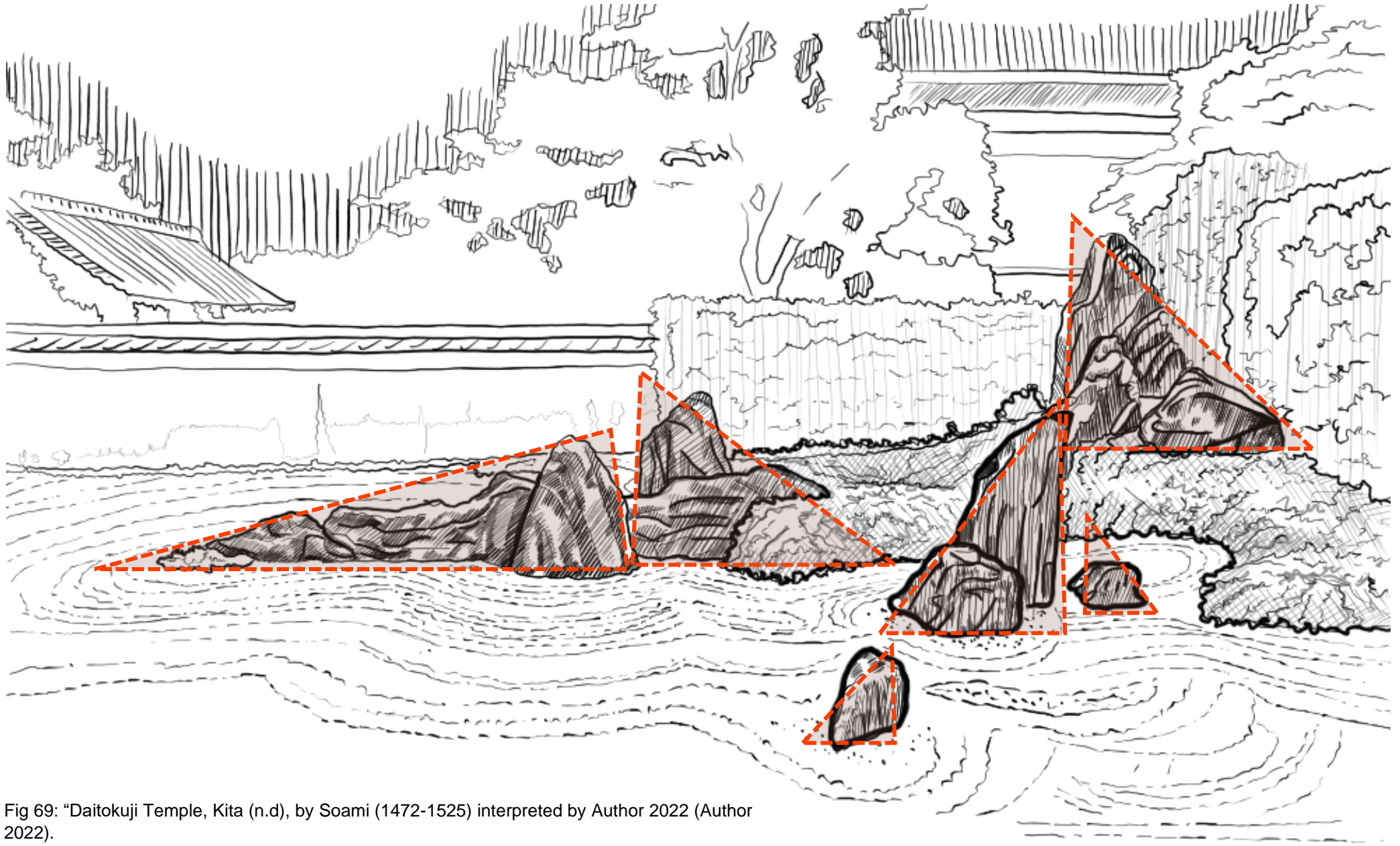


Fig 69: "Daitokuji Temple, Kita (n.d), by Soami (1472-1525) interpreted by Author 2022 (Author 2022).

11.1.2. FRACTILITY

フラクティリティ

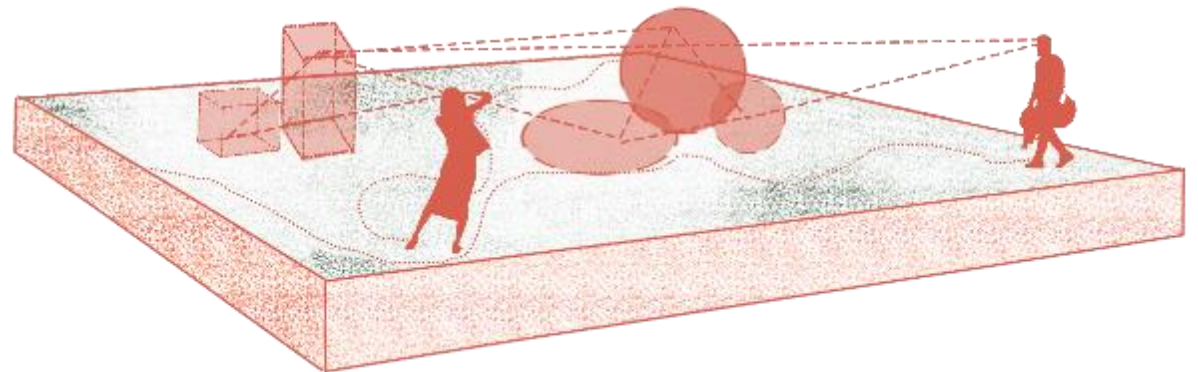


Fig 70: Fractality within the landscape (Author 2022).



Fig 71: "The great wave", Tokyo (1831), by Katsushika Hokusai (1760 – 1849).



Fig 72: "The great wave", Tokyo (1831), by Katsushika Hokusai (1760 – 1849).



Fig 73: "The great wave", Tokyo (1831), by Katsushika Hokusai (1760 – 1849) interpreted by Author 2022.

Fractality is best explained as a continuous use of a shape in different sizes. The well know *The great wave* woodblock print by Hokusai is a good example of this, where a series of the letter "C" is used in the painting (van Tonder, Lyons 2003:212). The use of fractality is seen through triangulation found in the placement of rocks. According to van Tonder, natural patterns are often self-similar. Fractality, when used correctly, creates a sense of coherence and unity within a design.

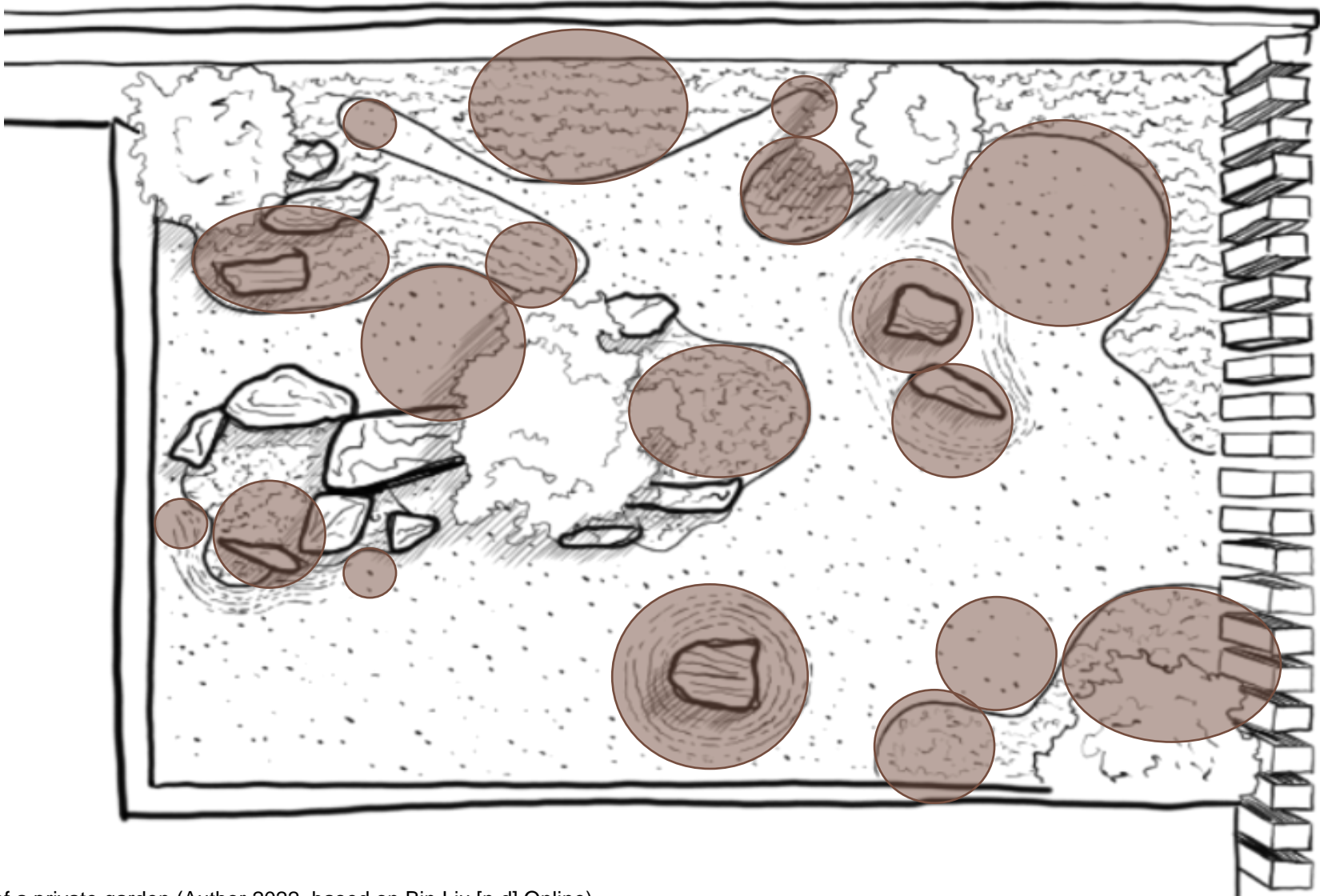


Fig 74: Plan drawing of a private garden (Author 2022, based on Bin Liu [n.d] Online).

11.1.3. EXPANDED SPACE

拡張されたスペース

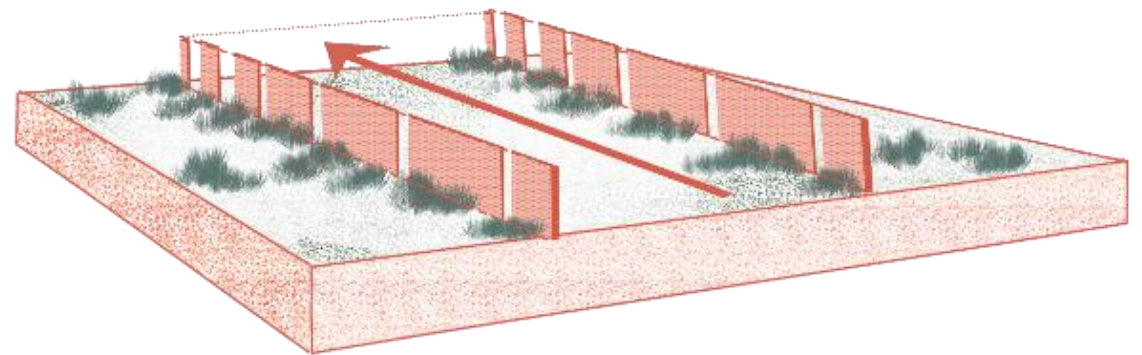


Fig 75: Expanded space diagrammatic representation (Author 2022).

An overlap should occur between the rocks, similar to the idea of “scales on a fish”. A wide range, but still controlled when choosing this, textures of rocks should be used to reinforce a naturalistic appearance (van Tonder 2018:19) This approach is also mentioned within the *Sakuteitki*. When visually overlaying elements, a sense of depth is created (van Tonder, Lyons 2003:212-213).

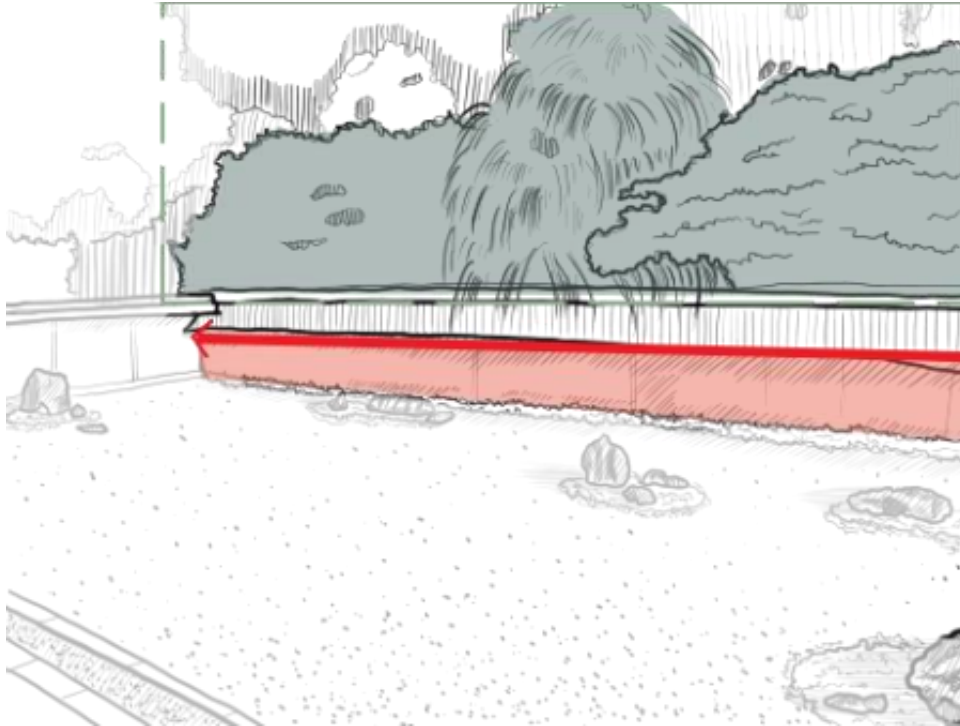


Fig 76: “Ryoanji”, Kyoto (n.d), by Mirei Shingemori (1896 – 1975) interpreted by Author 2022 (Author 2022).

The background wall should be of a neutral colour and sloping to the lowest area of the site. Due to the slope and colour the garden is perceived as a larger, infinite space. Often a stormwater grid is also placed at this lowest area of the site. Walls were often created out of hay or crushed bamboo mixed with clay or other soil (van Tonder 2018:21) to create a deeper perception of naturalness within the garden.

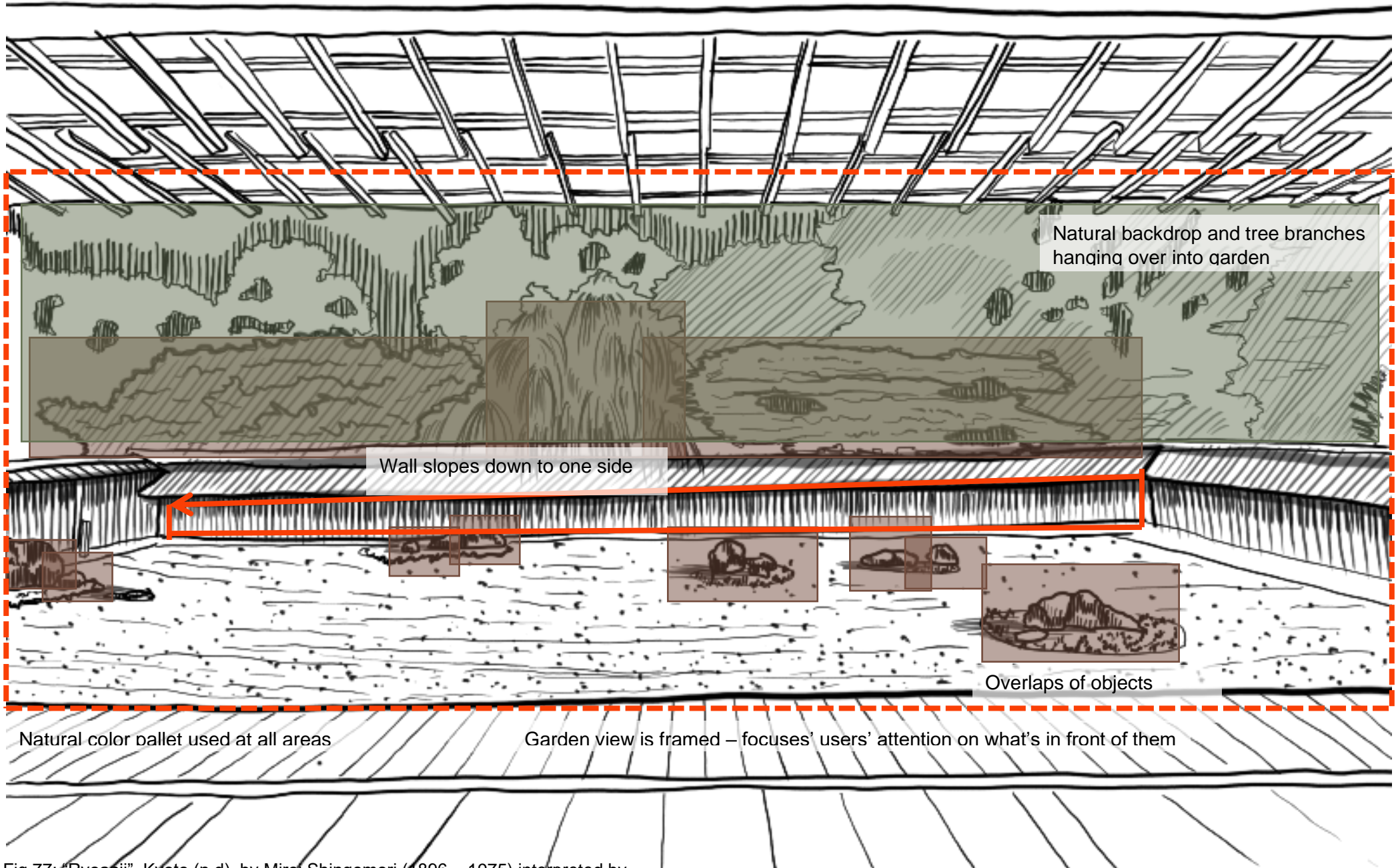


Fig 77: "Ryoanji", Kyoto (n.d), by Mirei Shingemori (1896 – 1975) interpreted by Author 2022 (Author 2022).

11.1.4. DISTANCE BETWEEN ROCKS

岩の間の距離

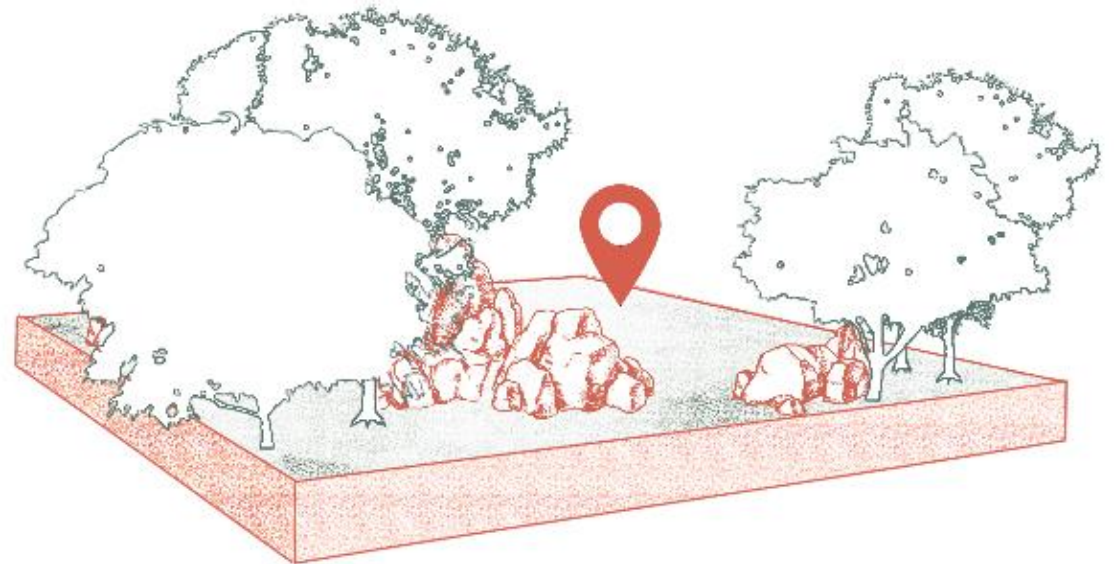


Fig 78: Diagrammatic visualization of distance between rocks (Author 2022).

Van Tonder built up on a theory suggested by Zucker and Davis in 1988 which specifically refers to the sizes of cue size: empty space. When a rock is placed, the height of the rock is measured, and the next island should be located one to five times larger in a horizontal manner to the following island (van Tonder 2005:357). The garden designer should however also consider the effect of the user viewing the stones. In order to make the garden not feel overwhelming or cluttered, the garden visitors' eyes should move between at most four islands at once (van Tonder 2005:359). These visual junctions allow the mind to easily process and group elements when placed in front of an odd textured background.

When a rock is placed on plan, 90° grids are drawn and no other rocks are allowed to be placed on the same line (Geoffrey, Jullicoe 2012:96). This concept reinforces the lack of axis found within natural settings

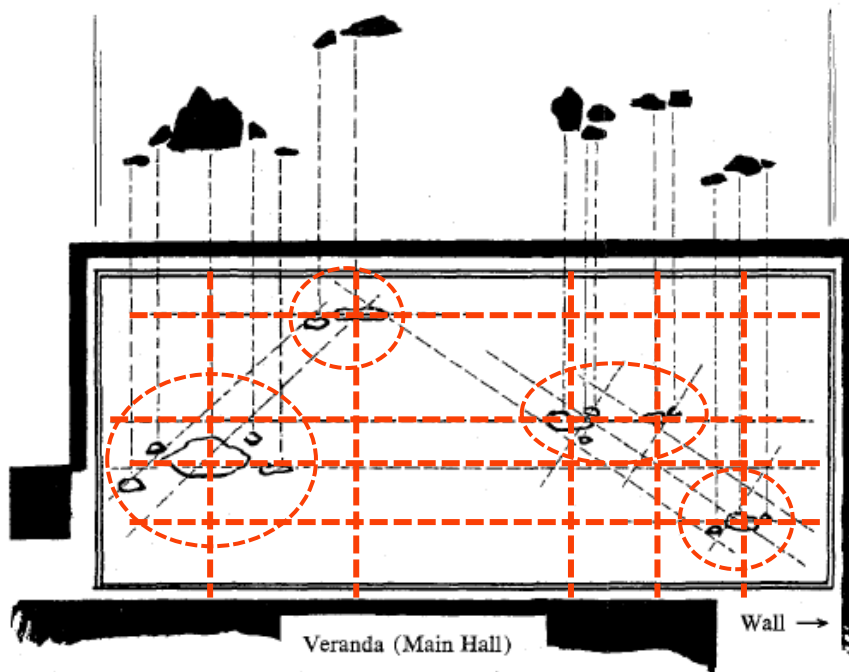


Fig 79: "Ryoanji", Kyoto (n.d), by Mirei Shingemori (1896 – 1975) interpreted by Author 2022.

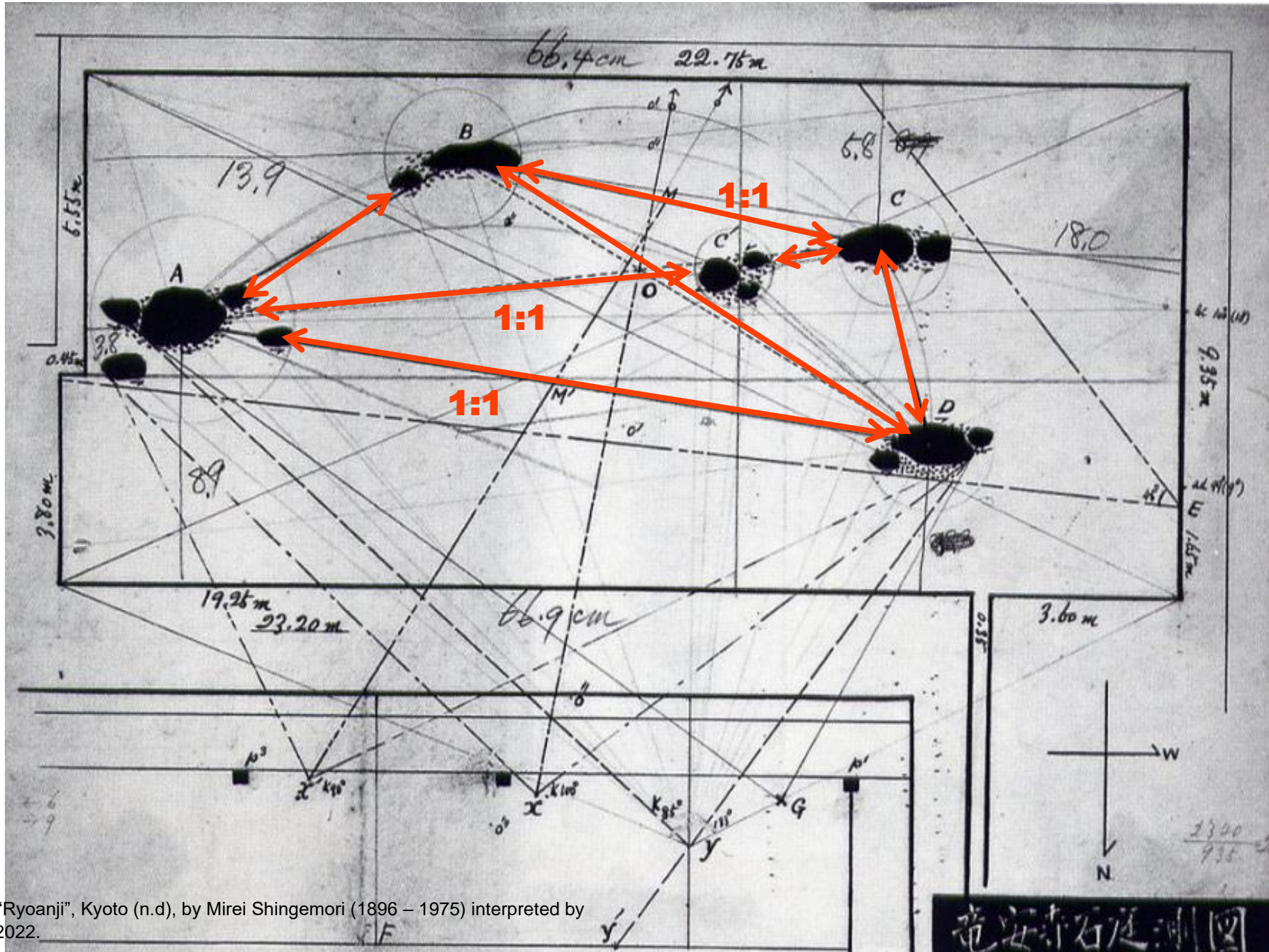


Fig 80: "Ryoanji", Kyoto (n.d), by Mirei Shingemori (1896 – 1975) interpreted by Author 2022.

11.1.5 GESTALT THEORY

ゲシュタルト理論

With psychology growing and changing as time moves, van Tonder found a relationship between Gestalt laws and Zen Garden design. Gestalt laws are used to explain how humans perceive and interpret a space. These principles are a foundational psychological response found in all humans (van Tonder, Lyons 2005:4), due to this, a diverse range of people feel moved and intellectually and/or visually evoked in Zen Garden spaces.

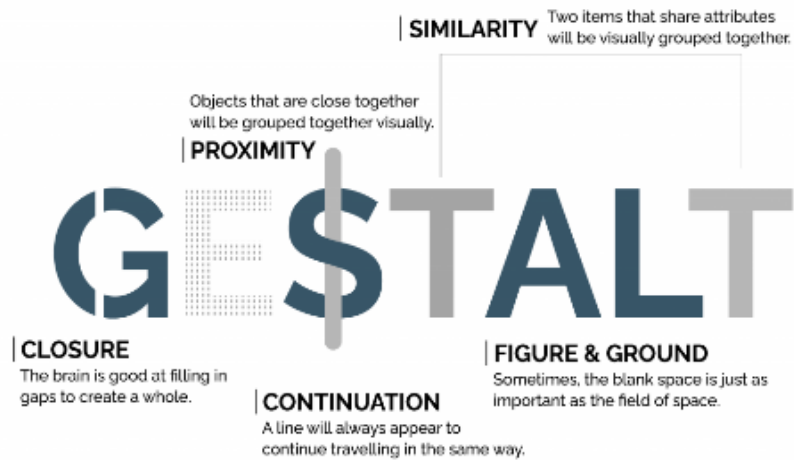


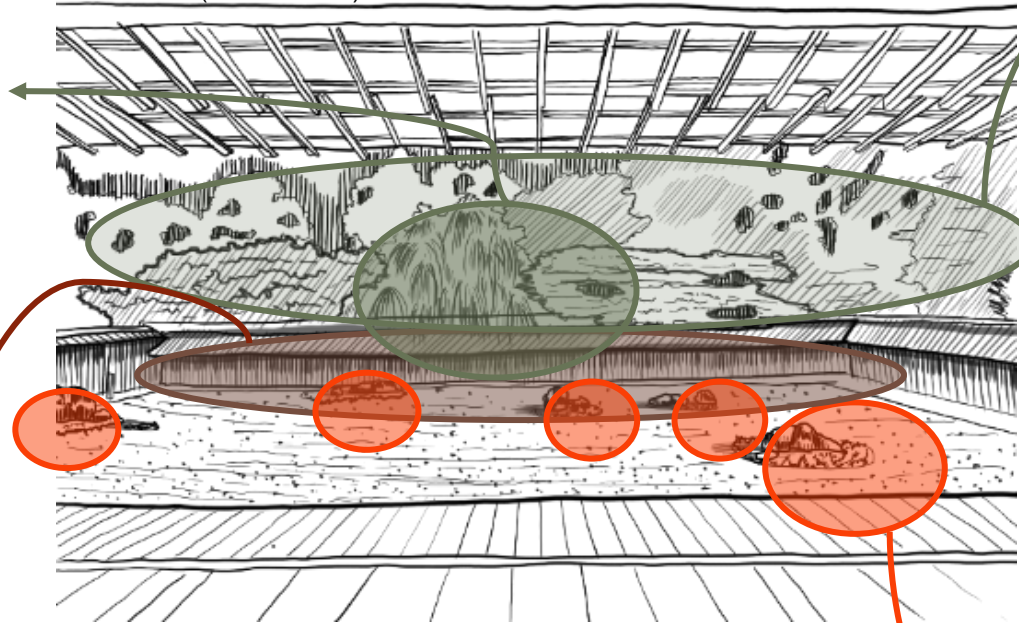
Fig 81: Explanation of Gestalt theory diagram (Radiant [n.d] Online).

11.1.5.1 CONTINUITY

Eye moves from one object to another

連続

Fig 82: "Ryoanji", Kyoto (n.d), by Mirei Shingemori (1896 – 1975) interpreted by Author 2022 (Author 2022).



Tree hanging over into garden – visual connection to lead eye from macro to micro view of rocks

Fig 85: "Ryoanji", Kyoto (n.d), by Mirei Shingemori (1896 – 1975) (JwWebmagazine 2022)



Background has earthy color and is morphed into the impression of a forest to the background

Fig 83: "Ryoanji", Kyoto (n.d), by Mirei Shingemori (1896 – 1975) (JwWebmagazine 2022 Online)



Expanded background of trees creates impression of natural setting

Rock textures and colors similar. Colors of rock compliments wall background.



Fig 84: "Ryoanji", Kyoto (n.d), by Mirei Shingemori (1896 – 1975) (JwWebmagazine 2022)

11.1.5.2. PROXIMITY

Items perceived as a group due to length between objects

近接性

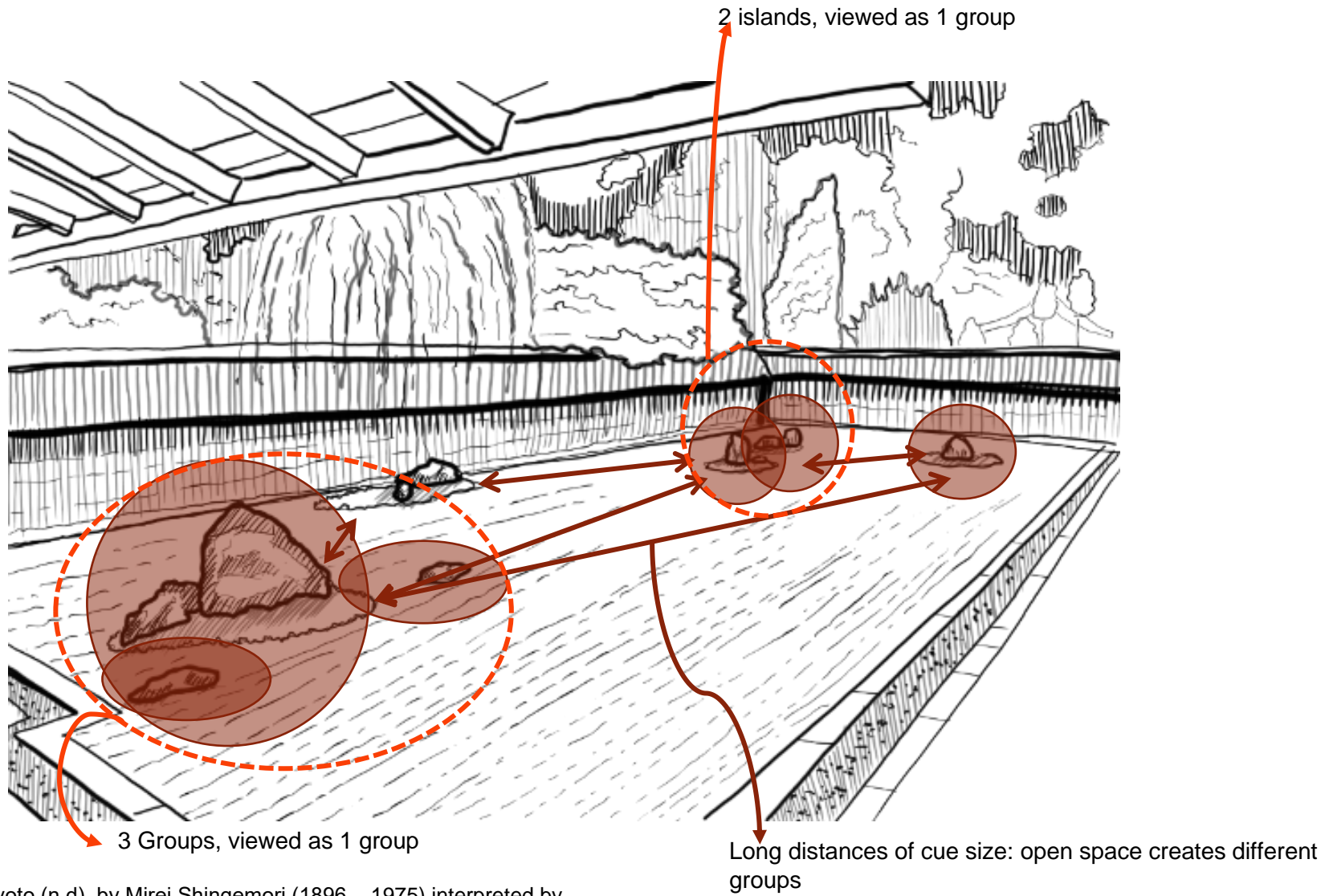
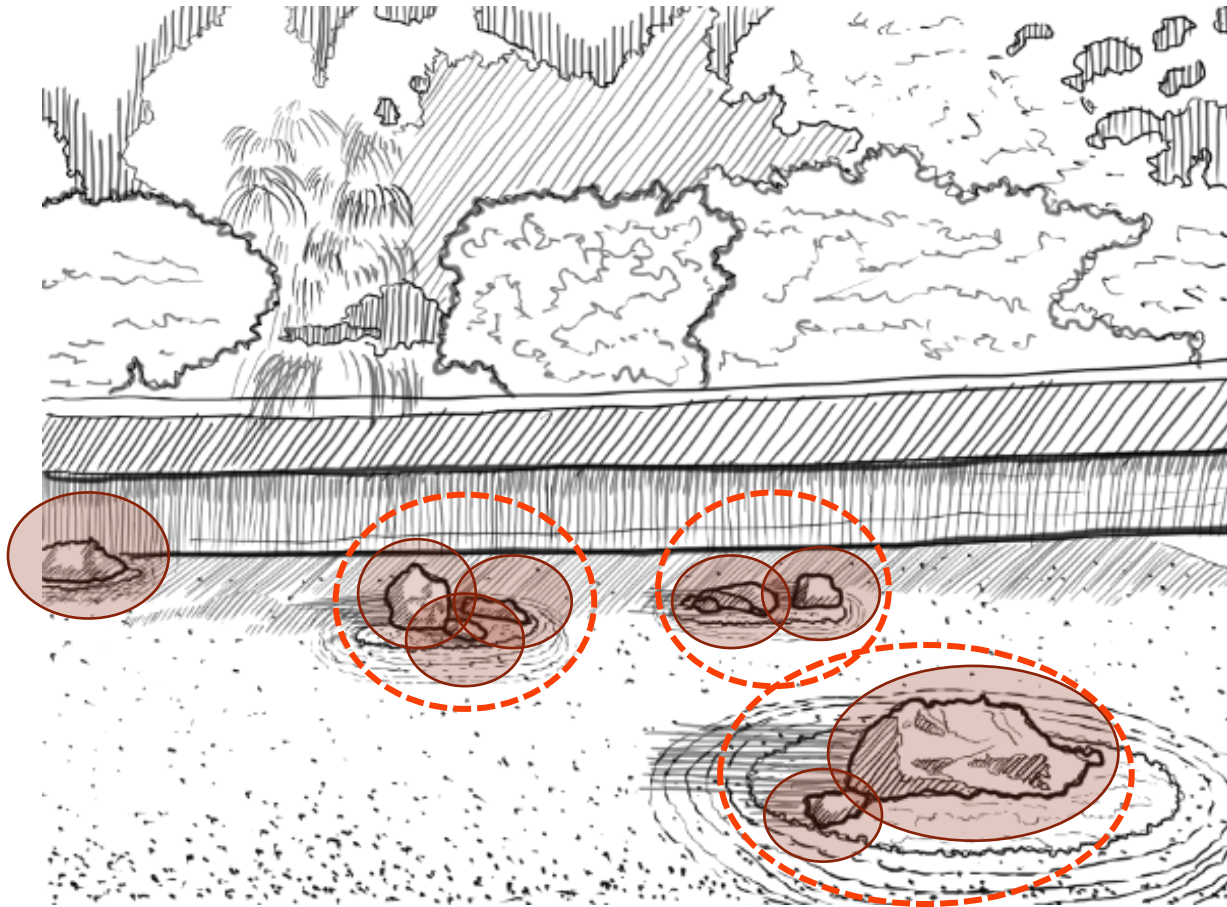


Fig 86: "Ryoanji", Kyoto (n.d), by Mirei Shingemori (1896 – 1975) interpreted by Author 2022 (Author 2022).

11.1.5.3. CLOSURE

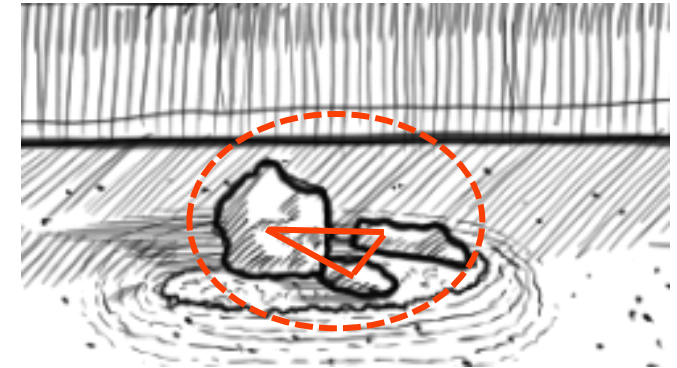
Object is not complete, but looks complete

閉鎖

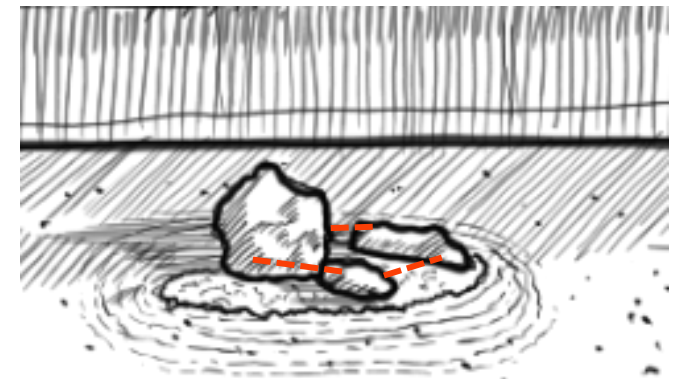


Three rocks, perception of line creates one group

Two rocks, perception of line creates one group



Lines which eyes believes us to see



No lines exist, human's brain connects them

Fig 87: "Ryoanji", Kyoto (n.d), by Mirei Shingemori (1896 – 1975) interpreted by Author 2022 (Author 2022).

11.1.5.4. FIGURE AND GROUND

Eyes see differences in objects

図と地面

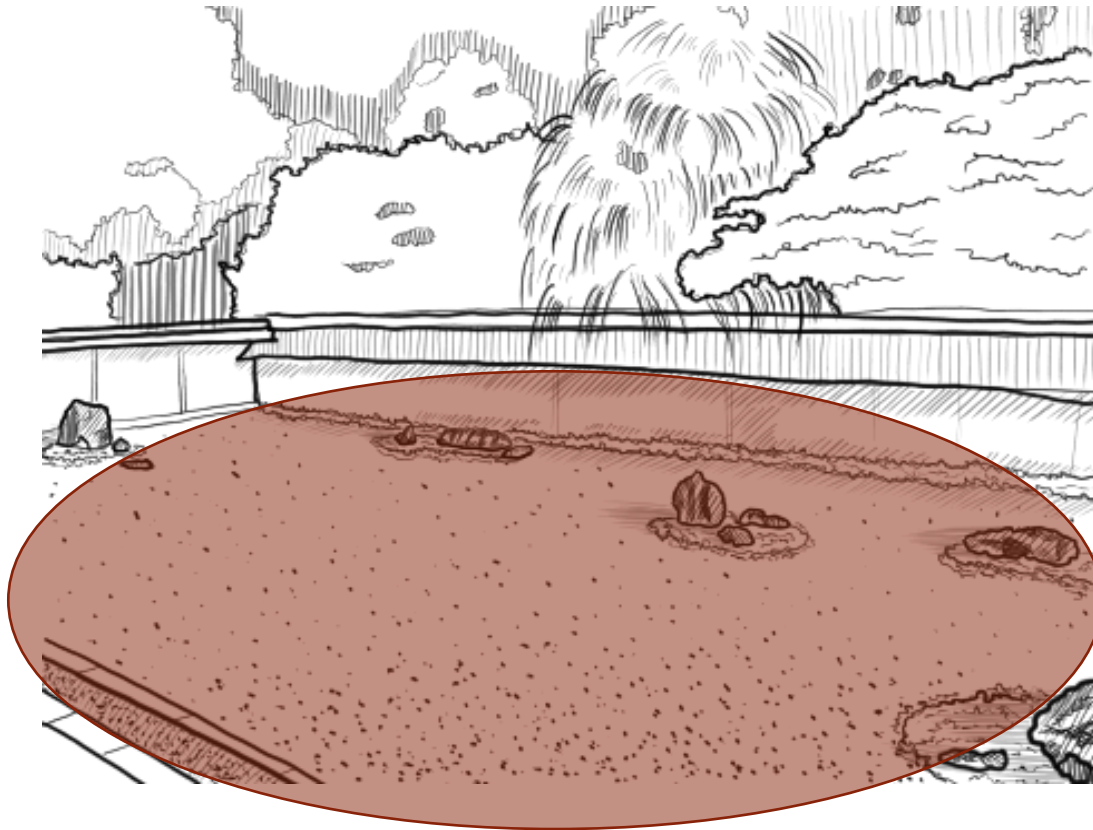


Fig 88: "Ryoanji", Kyoto (n.d), by Mirei Shingemori (1896 – 1975) interpreted by Author 2022 (Author 2022)

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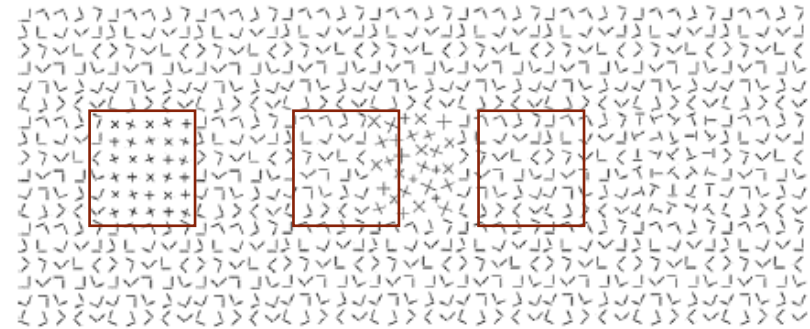
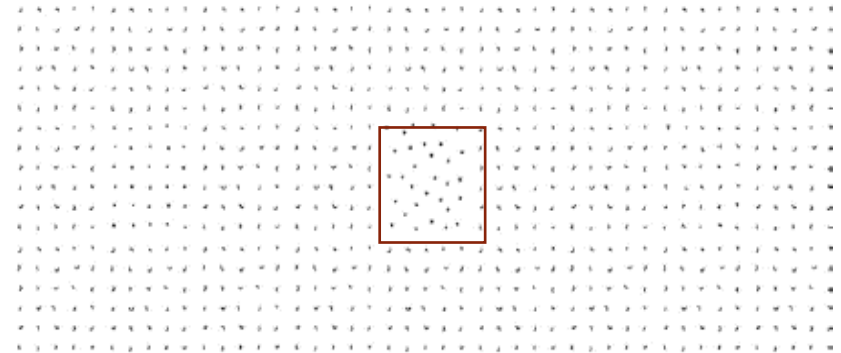


Fig 89: When textures are similar, objects are difficult to distinguish themselves from the background. If placed too closely, the area becomes visually overwhelming. (van Tonder. Lyons:356)

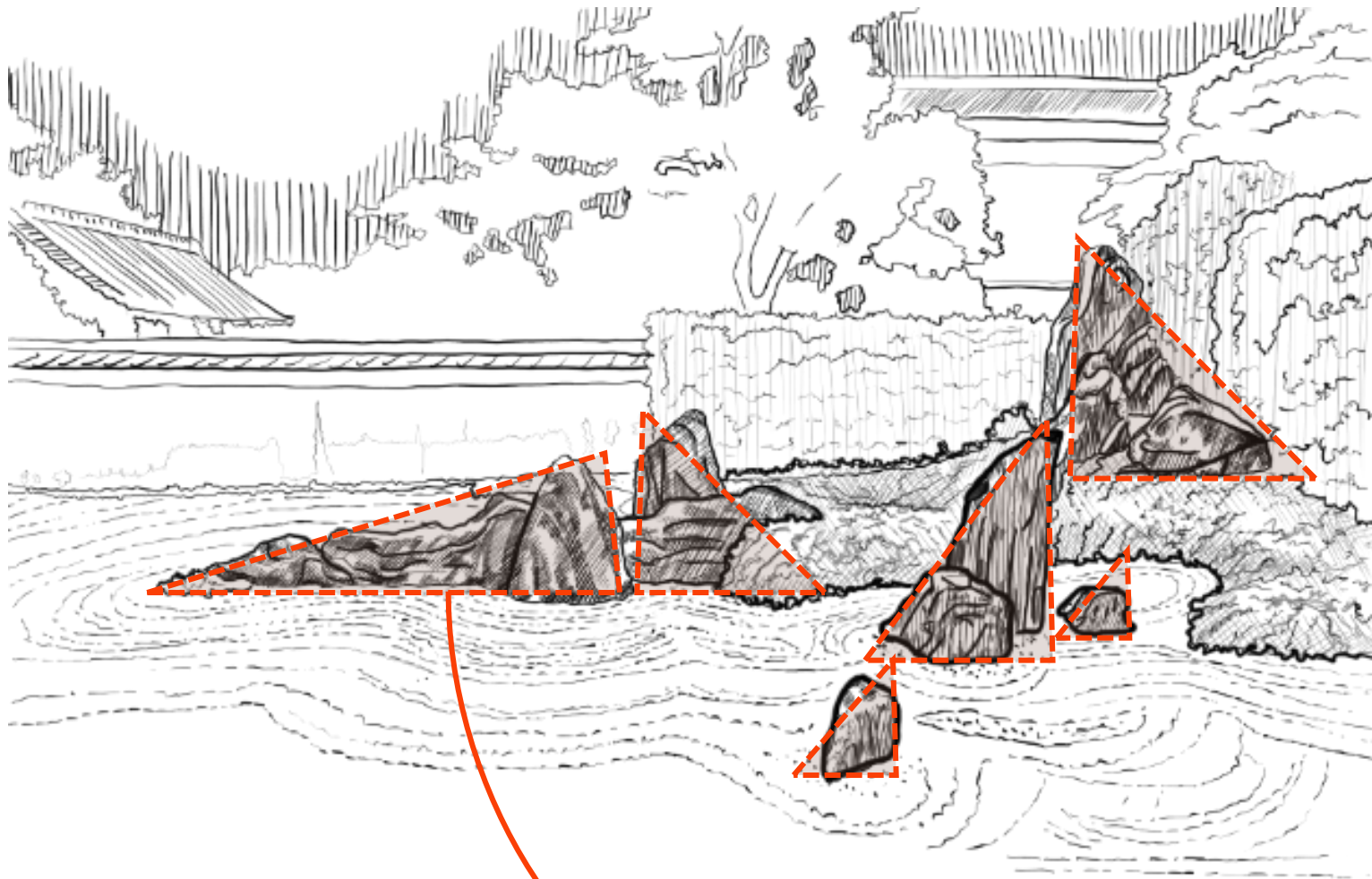
1:5



An object can stand out through an opposite texture and size from the background, but also through the placement and visual breathing space (van Tonder. Lyons:356)

11.1.5.4. SIMILARITY Objects look similar thus perceived as group

類似性



Triangular form from rock placement creates similarity.

Can also be achieved using color, form of singular rocks and textures of soft - and hardscaping

Fig 90: "Daitokuji Temple, Kita (n.d), by Soami (1472-1525)
interpreted by Author 2022 (Author 2022)

11.2. JAPANESE DESIGN PRINCIPLES

日本のデザイン原則

Firstly, one has to start at the beginning to understand the overall the design language. The *Sakuteiki* or also known as *Records of garden making*, which was developed within the 11th century, is well know for it's wide usage in the early era of creation of the *Karesansui* gardens (van Tonder, Lyons 2005:353) and was thus the first to be examined for design inspiration. The usage of the *Sakuteiki* document was to guide the designer to envision the essential characteristics of the macro environment (natural) but within specific space limitations. It should be noted that another document does exist, namely, “*Senzui Narabi ni Yagyō no zu (Illustrations for mountain, water and hillside field landscape design)*” by Ikutoku Zaidan in 1930, however, this document is no longer existent and was initially based on the *Sakuteiki*.

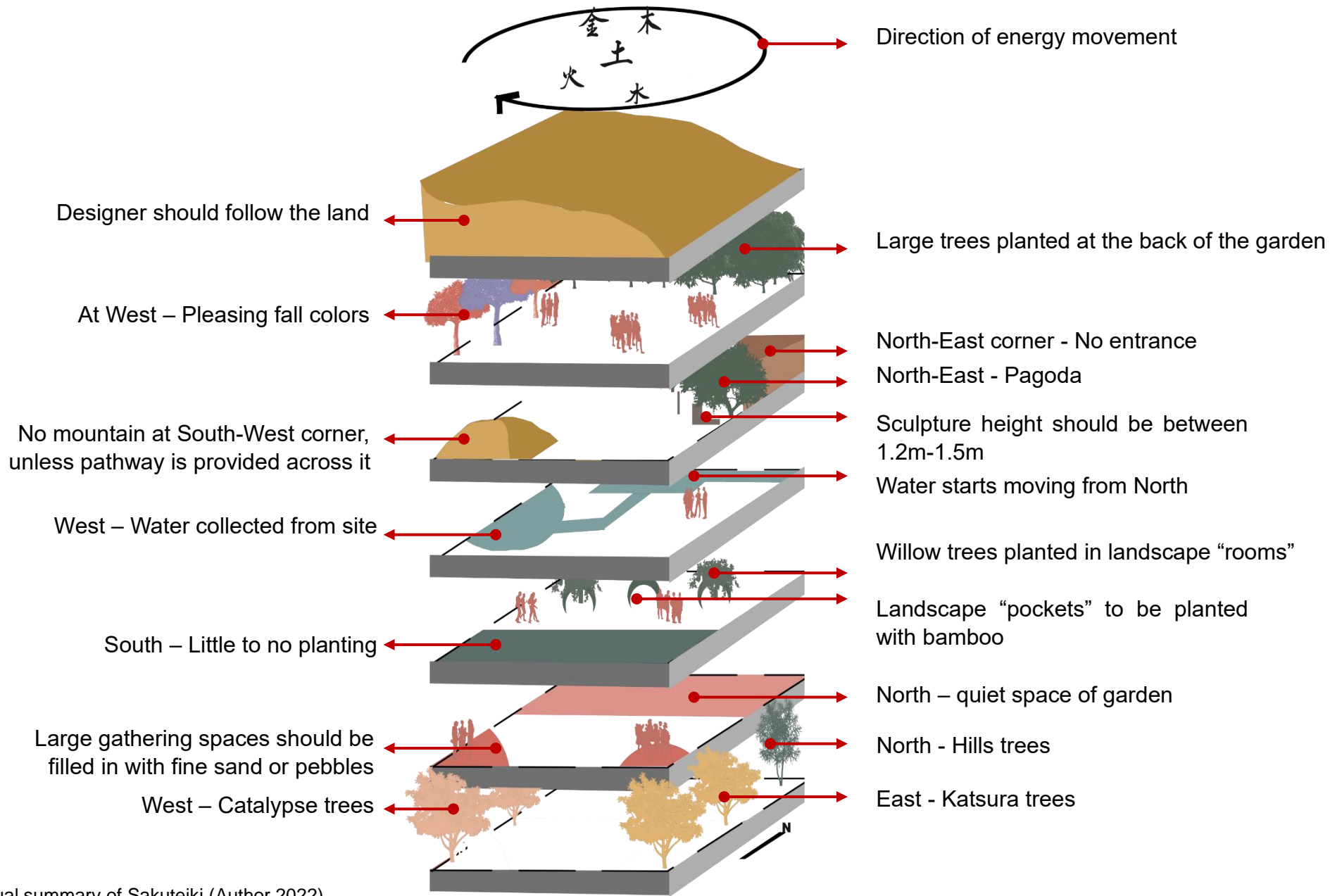


Fig 91: Visual summary of Sakuteiki (Author 2022).

Secondly, after investigation of the *Sakuteitki* and *Karesansui*-gardens, four main themes exposed themselves. These concepts can be further broken down into 3 themes, namely: Sensory cues (the rocks should be in a triangular form, the spacing between them is important to enable viewers to read the garden as a whole, edges (achieving infinity within a confined space, what role does the wall play within design) and movement (physical or mental).

It is of great importance to note that these principles will be used as a guideline for design. The proposed design will be tested against these theories as part of the design process.

The foundational elements of Zen Garden design (outlined in the *Sakuteitki*) does not have to be followed in Gauteng in an prescriptive manner due to:

1. Most of the principles which have been described has been informed by gods roaming within the garden – this is not applicable due to the wide variety of belief systems and people within Arcadia
2. The “taboos” mentioned within the text is influenced by everyone in the household and is not referring to a public space, which have everchanging characters moving through and within spaces.

However, the principles can be abstracted to its foundational elements and used as design informants to achieve a Yin-Yang balance in the landscape. It is however important to understand the taboos as one cannot be ignorant about the implications of these elements when following a design-methodologically rich tradition.

Materiality in the approaches of form generation is of great importance. The materials which have been chosen for the experiments is in accordance with importance of earth elements mentioned within the *Sakuteiki*, namely, water, fire (wind), wood, metal and earth. Moving forward into the experiments, all of the discoveries were made on a scaled model (1:500) of the site in order to later translate it easily onto paper.

Concept 1:

Concept 2:

Concept 3:

Concept 4:

Enclosure

Natural backdrop

Seeing the unseen

Material as character builder

Sensory ques



Movement from dark to light



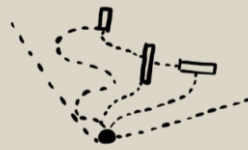
Nature – inspiration & reference



Ordinariness makes elements special



No ornament – distracts user



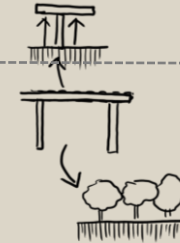
Wandering of mind & spirit



Specific views to macro area – impression of larger area

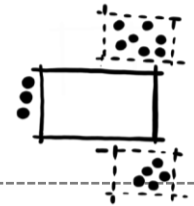


Layering of shadows and soft lighting

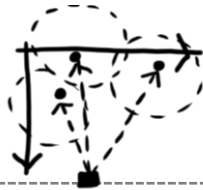


Objects should have meant – hypothetical / physical

Edges



Certain number of visitors at areas:7-5-3



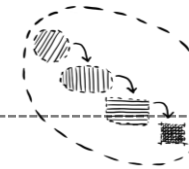
View to macro area – morphs impression of edge



Each element has its own function – no two are the same



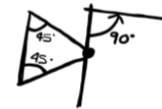
Truth of materials should be visible



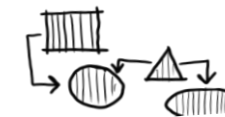
All forms = collection of one main form



Infinity within enclosed space

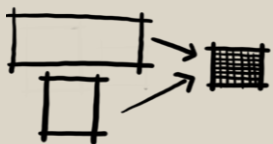


Mathematical layout to create order and visual perceptions

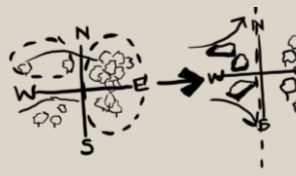


Each material has its own character and should be respected. Each should balance each other out

Movement



Ideal truth of natural environment



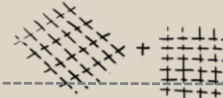
Understand natural process' & use in creative way for design



Placement of certain species = order is created



Preferred: Old and worn materials = timelessness



Different grids overlayed for design

Romanticism of nature

Form & function is one, human scale of elements

No revealing of whole garden at one point

Use of evergreen trees: Garden is permanent

Fig 92: Sakuteiki in concept form

Concept 1:

Concept 2:

Concept 3:

Concept 4:

Enclosure

Natural backdrop

Seeing the unseen

Material as character builder

Sensory ques

Edges

Movement

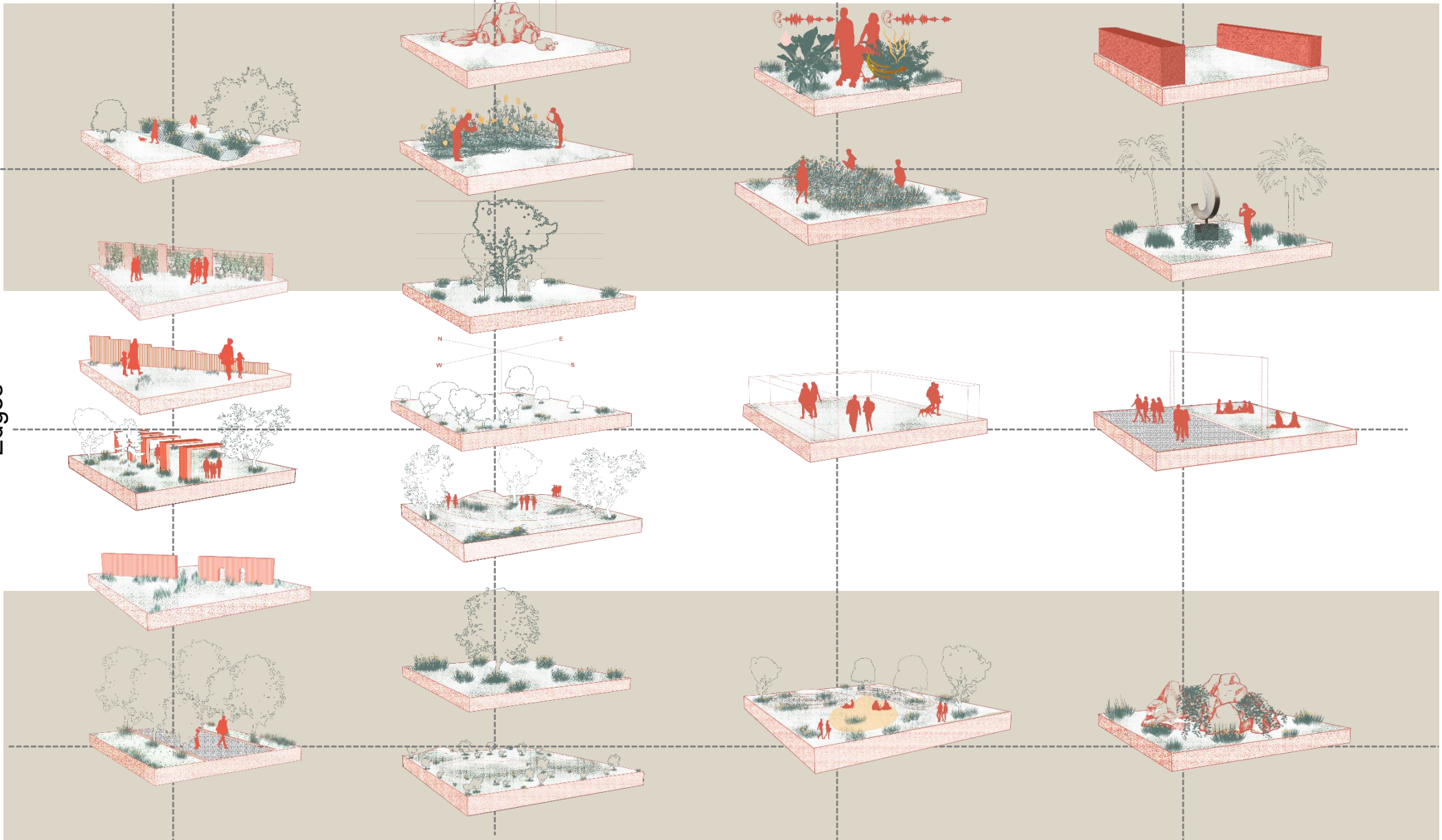


Fig 93: Concepts of *Sakuteiki* which can be used for a Gauteng setting

11.2.1 WATER

水



Fig 94: Water (Author 2022).



Fig 95: Water experiment after water was poured on (Author 2022).

The site model was filled with flour and water has been poured onto the highest area of the site. The water was carefully poured with a syringe to mimic the way water flows on site. When left for seven days for drying the water folded the flour into undulating plains which created balanced spaces of enclosure and openness. The final model was traced over for form creation. This was one of the most influential model experiments for the generation of form for the design. The result could be explained as though the forms were cut out from the earth and created surfaces similar to the Pretoria koppies found in the distance of the site.



Fig 96: Water experiment after left for a few days (Author 2022).

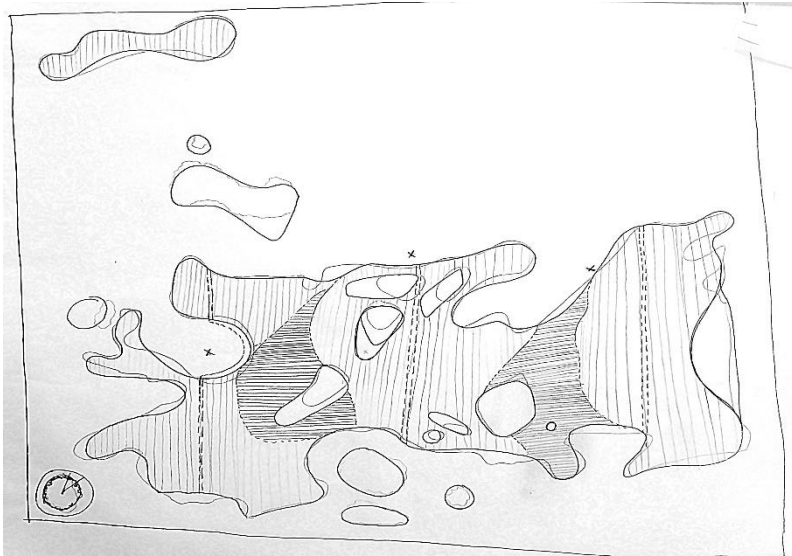


Fig 97: Plan iteration one of possible design from water experiment (Author 2022).

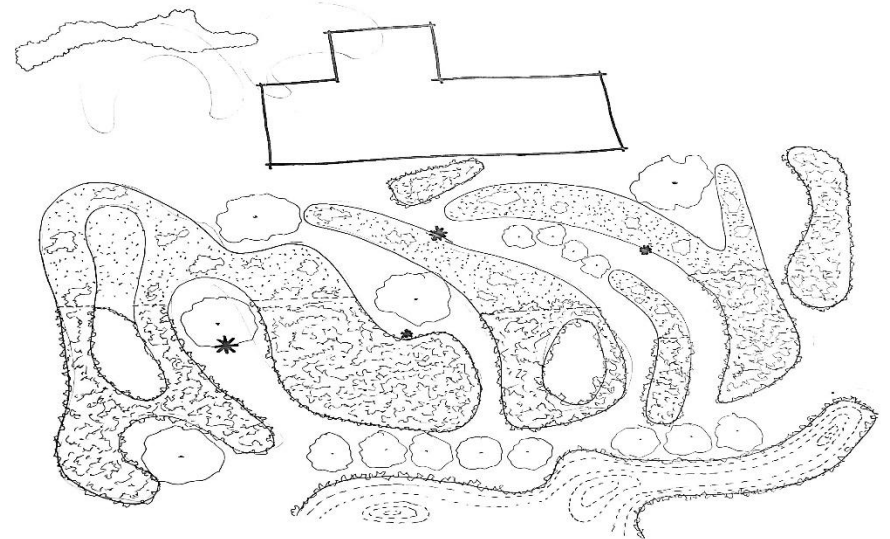


Fig 98: Plan iteration three of possible design from water experiment (Author 2022).

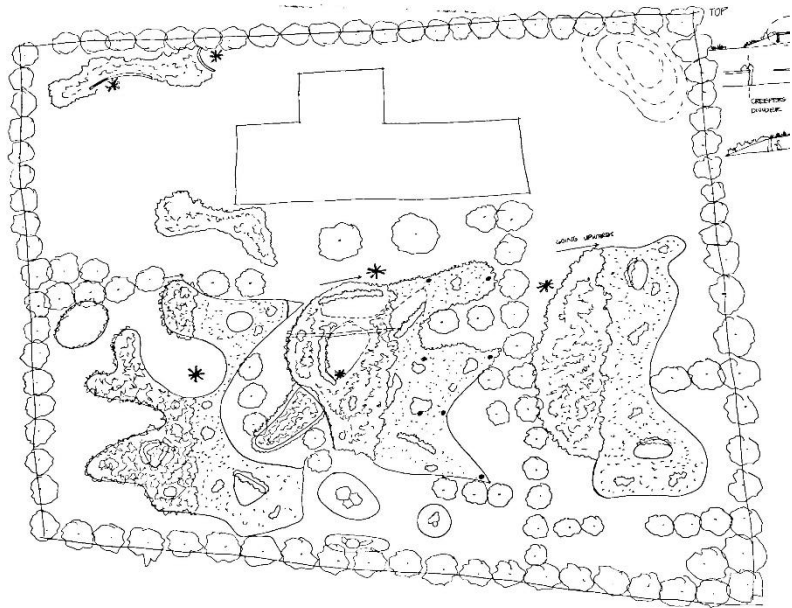


Fig 99: Plan iteration two of possible design from water experiment (Author 2022).

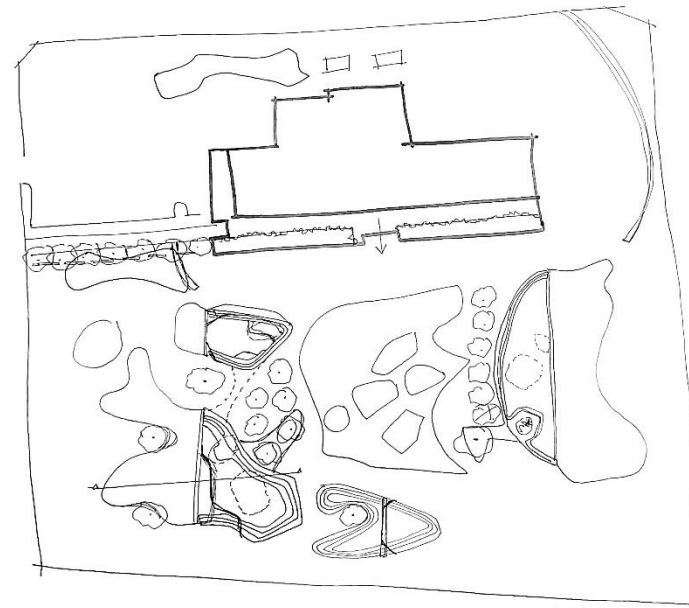


Fig 100: Plan iteration four of possible design from water experiment (Author 2022).

11.2.2 FIRE

火



Fig 101: Fire (Author 2022).



Fig 102: Fire experiment photo one (Author 2022).

This experiment followed a two-fold approach to the experiments. The first experiment was conducted in relation to fire itself. Due to the everchanging nature of fire, one must consider that a coherent fluid language does occur when studying fire. In order to create a coherent fluid-like language which fire creates, a match was lit and blown out. When the match was blown out, a picture was taken of the smoke which was created. This experiment was repeated over 30 times in order to receive a coherent form. These photographs have been overlaid and traced using charcoal. By using a charcoal medium, one can easily duplicate the flowing motions of the smoke as well as areas of high intensities (where most smoke occurs) versus areas of low intensities (where little to no smoke occurred).



Fig 103: Fire experiment photo two (Author 2022).

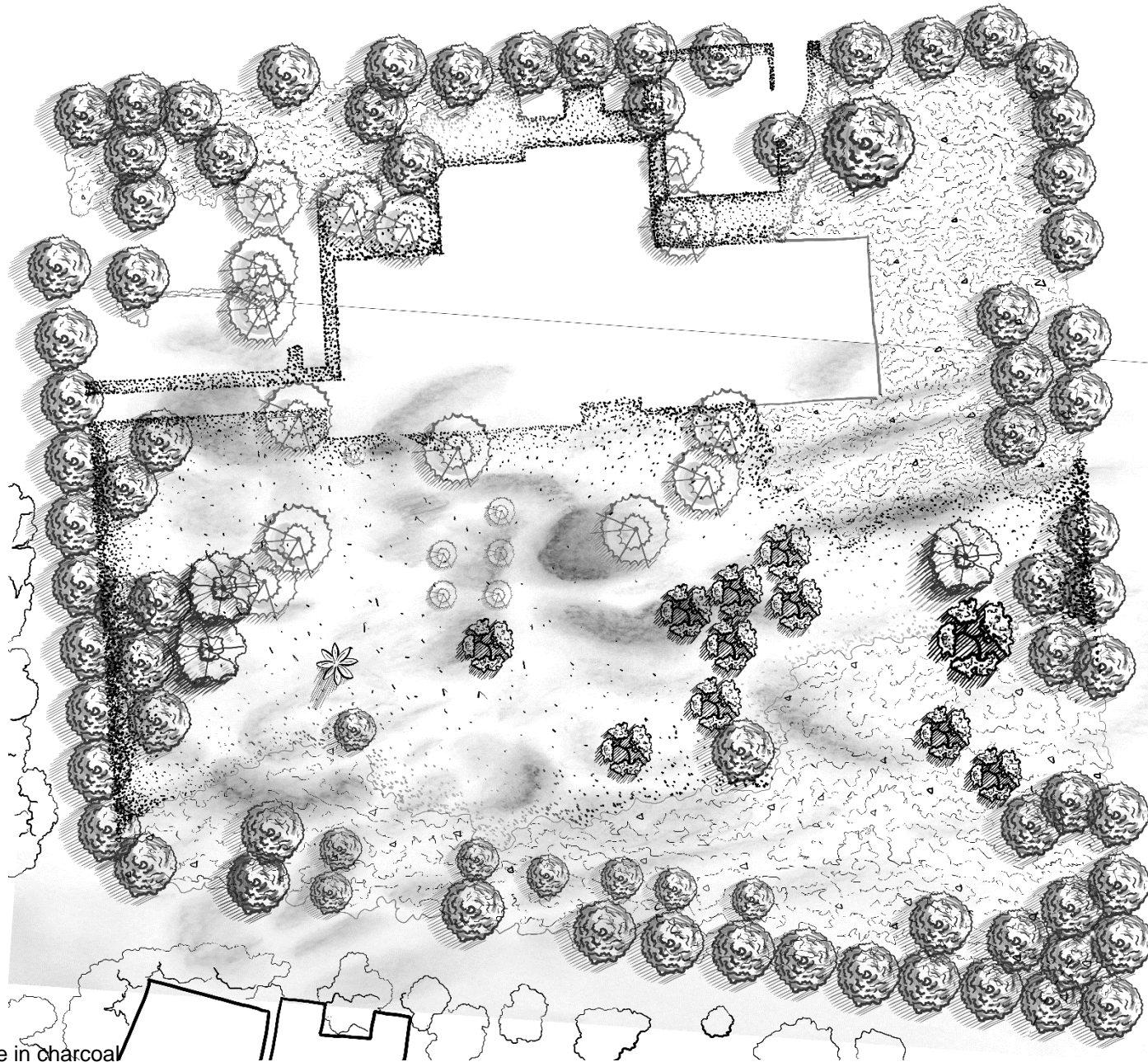


Fig 104: Shape of fire made in charcoal over plan for design iteration (Author 2022).

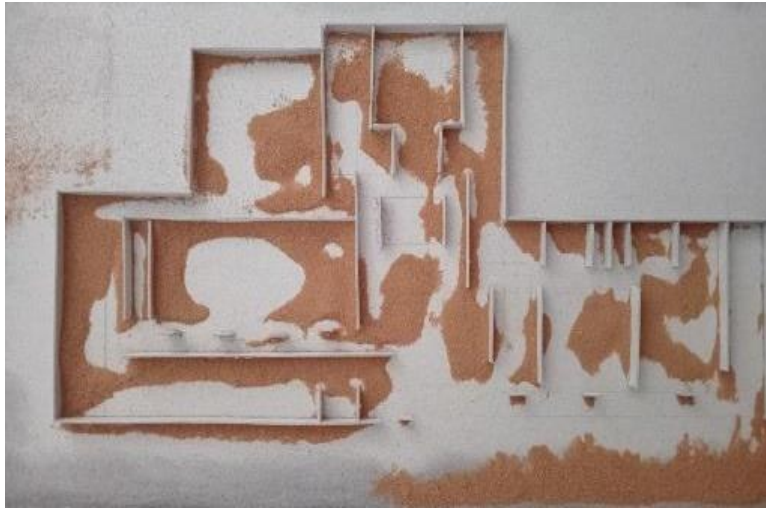


Fig 105: Wind blowing in building inspired by Gavin Cook's thesis (Author 2022).

The second experiment studied the nature of wind. This experiment was inspired by a similar one in a dissertation by Gavin Cook (2018). For the design to have a relationship with the language of the building, a site model of the building was built on a scale of 1:20. Sand was placed on the interior and a hairdryer was used in order to move the sand. The hairdryer was moved in accordance with the wind direction on site. The sand patterns were traced onto bumf and overlayed on a site plan, but the shapes were unsuccessful due to the dependence of the interior walls in the building. This experiment was however not completely unsuccessful as it provided an opportunity for the exterior to possibly flow into the interior.

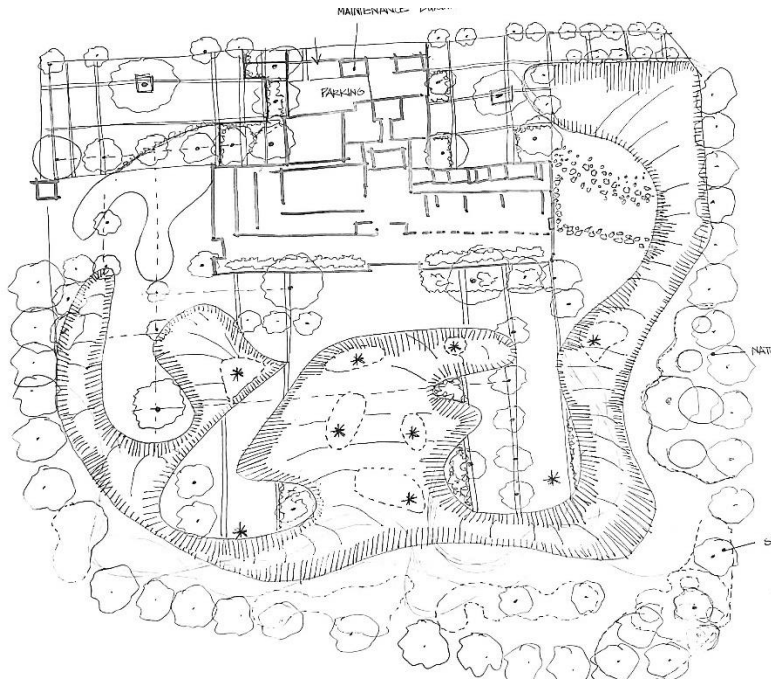


Fig 106: Plan exploration of outcome from wind experiment (Author 2022).

11.2.3 WOOD

木材

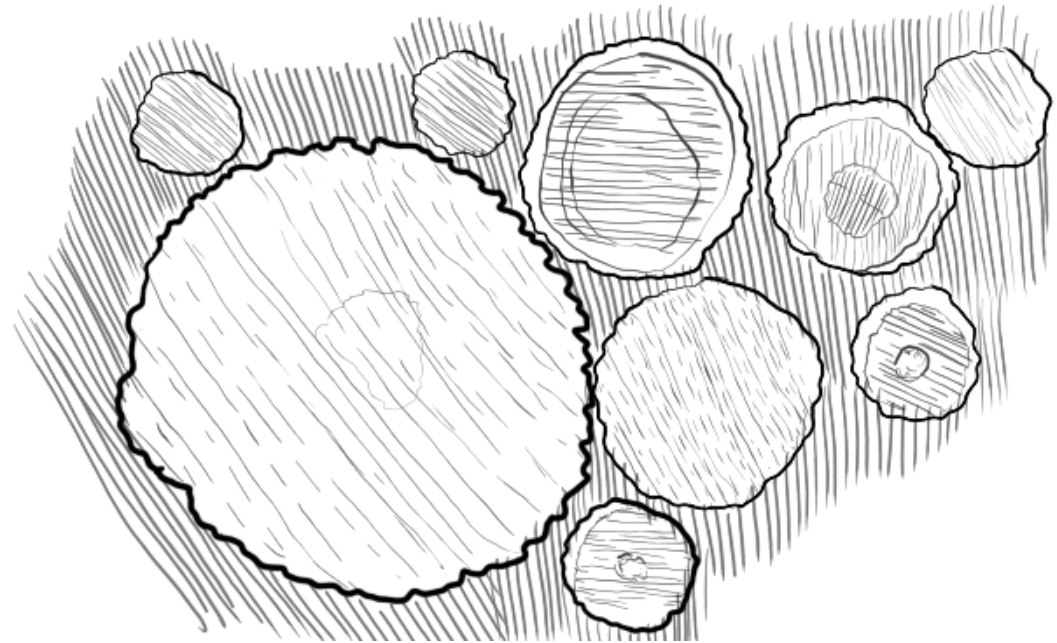


Fig 107: Wood (Author 2022).



Fig 108: The tree chosen for experiment (Author 2022).

A tree was chosen in accordance with the wide variety of textures which it offered. A well textured tree bark suggests the notion that wood can be fluid or straight (as explained in accordance with the 5-phase theory mentioned earlier). If one were to choose a less textured bark, little to no design inspiration can be taken forward as one is left with a flat area, with little to no inspiration. Regarding the model itself, clay was flattened and put onto the tree. It was pushed into the tree in order to get a fully realistic texture which showcases the tree bark's characteristics. The modelled clay was placed on a 1:500 scale of the site and showcased a wide variety of undulating planes and textures which also expresses the movement of water. This model was used to refine the project in terms of existing systems, namely the movement of water.



Fig 109: Clay placed over tree bark to get texture (Author 2022).



Fig 110: The outcome when pulled off the tree – focus on texture (Author 2022).



Fig 111: Whole experiment with different textures (Author 2022).

11.2.4. METAL

金属

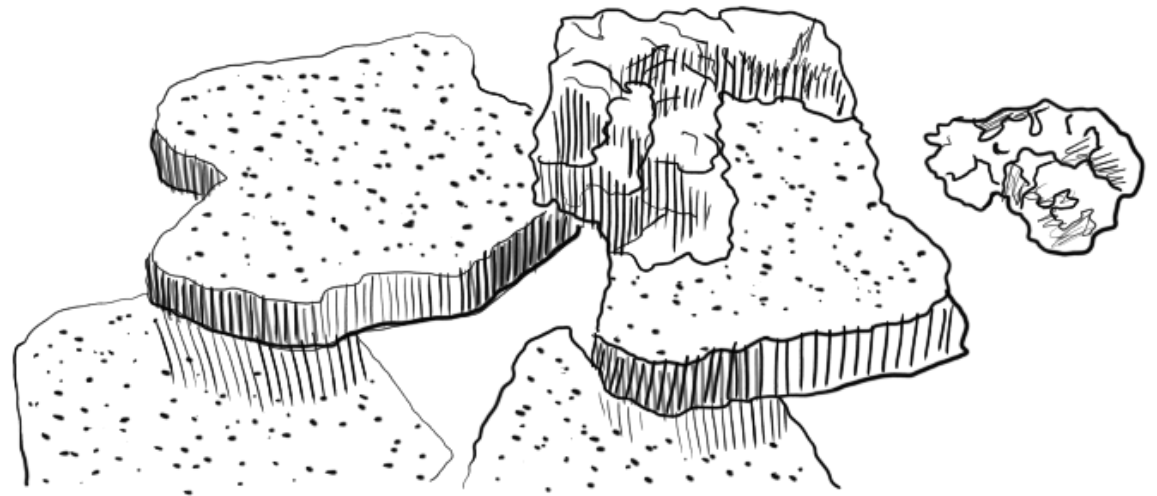


Fig 112: Metal in different forms (Author 2022).



Fig 113: Close up of magnet and metal shavings (Author 2022).



Fig 114: Path left when moving shavings around (Author 2022).

Upon consideration of the manufactured nature of metal, one is left with straight lines accompanied with a smooth surface. In order to experiment with metal within its more natural form (which often looks like rock and found in between soil particles), metal shavings were used due to its sand like qualities which is in more accordance to its natural form found within nature. The second step involved a magnet which was used underneath the model in order to move the shavings. The experiment was however not as successful, as the shavings did not move as much as expected, however, a small path was created by the movement – all the shavings where the magnet moved were witnessed to be lying horizontally instead of being randomly orientated. Where the magnet however stopped, a star like form appeared at the area. This star like form also builds up on design influences like fractality within the design.

11.2.5. EARTH

地球

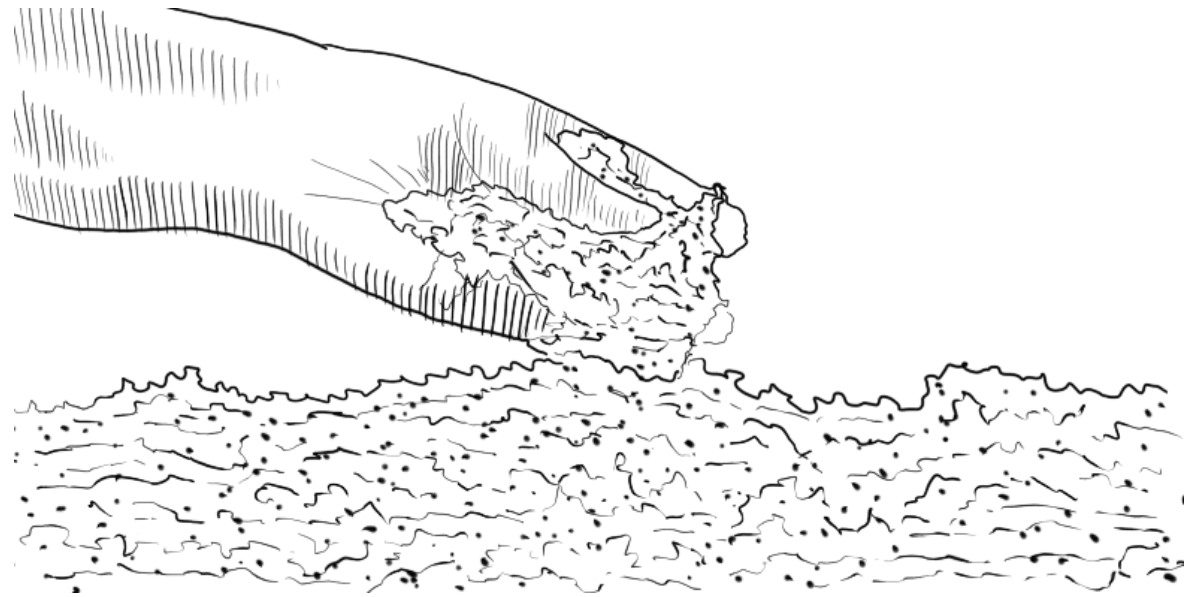


Fig 115: Earth (Author 2022).

The earth model also had two experiments instead of one. The first being the usage of clay. Due to clays' nature to be sculptural, it was used to create berms and indents within the model. The aim was to create berms where loud noises enter the site to create a somewhat noise buffer while providing an opportunity for people to move between different levels and spaces. The model later was not used within the process due to the building location and location of berms not working as one. It, however, allowed for contemplation on what the meaning of an enclosed garden is.



Fig 116: Clay model when dried up (Author 2022).

The second experiment used the previously mentioned flour model. Before water was applied to the model, experimentations were also done in a similar manner as explained above. The model was sculpted according to the fall of the land and evened out using a craft knife. Flour has an inherent fine texture which is easily mouldable to experiment shapes with – like certain soils. Due to the fragility that flour offers to movement, shapes and spaces are easily created and often informed by the characteristic of the material itself. The experiment dealt with berms itself and the nature of these elements. At the end, this experiment did not inform much of the design in terms of form but rather of the change of levels



Fig 117: Earth model exploration with flour option one (Author 2022).



Fig 118: Earth model exploration with flour option two with trees (Author 2022).



Fig 119: Clay model fully dried up and shrinking (Author 2022).



Fig 120: Clay model still wet and being worked on (Author 2022).

11.3.6. GEOMANCY

ジオマンシー

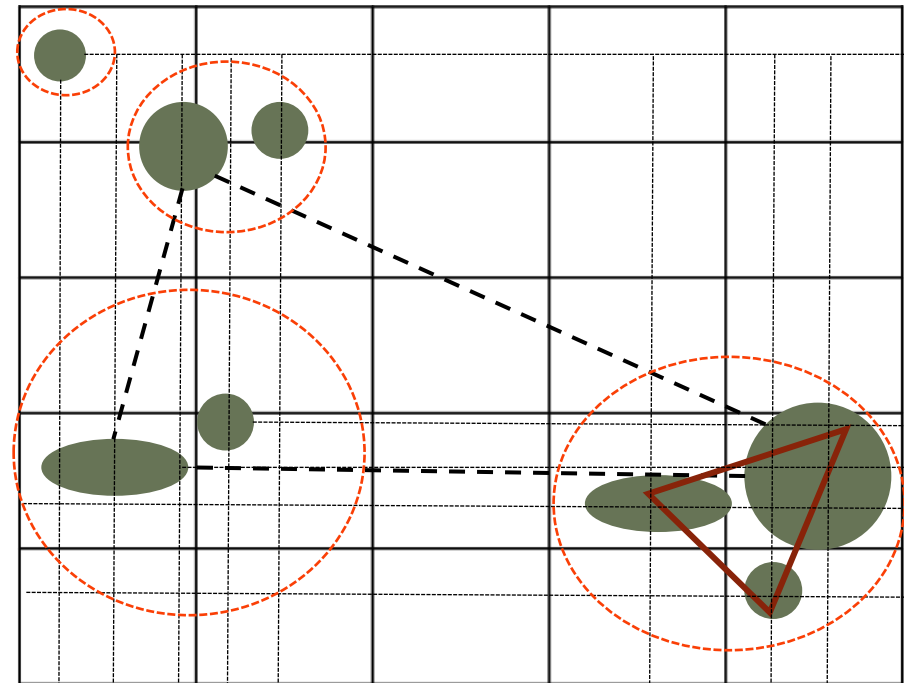


Fig 121: The building (Author 2022).

For the design to feel infinite within in a confined space as well as allowing for contemplation and creating elements of surprise and wonder, a mathematical order of placement of rocks were developed. Although this methodology was not as clearly defined and explained within the *Sakuteitki* itself, it has been analysed by different people and creates a guide for the designer to successfully design a *Karesansui* garden.

The most important concept is that one rock should always be hidden from the viewer, therefore, there is always one extra rock for the number of monks who view the garden (example: if three monks view the garden, four rocks should be located within the garden). The mathematical approach depends on the location of where the monks sit, if the rocks would be provided by someone and how many, if the monks are going to be static or active as well as if they're on the edge or within the garden.

The numbers 7-5-3 is of importance for the *shichi-go-san* ceremonies (Metha & Tada 2008:68). This means that in one area there can be seven people, five in another and three in another area there can be, there importance is that they shouldn't all be within the same area. The importance of these numbers is not

explained within the *Sakuteiki*, however, the mention of uneven numbers in usage of elements is the most important for viewing and choosing certain materials.

The following methods is extracted from the following text: A Zen Master, a Zen Monk, a Zen Mathematician (Nexus 2018: 459-474). The text has been simplified in to allow for better interpretation of the methodologies. The following abbreviations will be used further on:

Masters = M

Two Masters = M2

X = Changeable amount, not defined number

S = Stones

Problem one:

Placing S_x , when one Master sits at one side of the garden, the Masters only see $X-1$ stones (one extra stone then the total amount of stones given).

1. Mark out where the Master will sit (M_x)
2. Draw angles of 30° , 45° and 3° off centre from all M points
3. Place one stone on the 3° centre line – monk has a choice of this
4. Use cue size: open space method proposed by van Tonder
5. As rocks is placed, draw a 90° grid from the rocks

*Note: Rocks are not allowed to be on the same grid line as other rocks

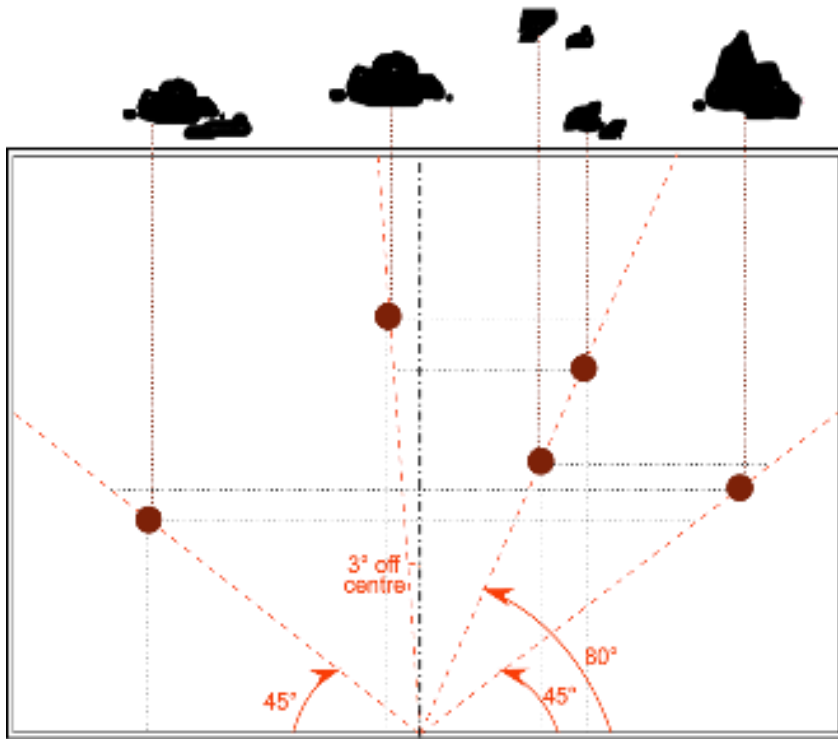


Fig 122: Nexus 2018:4 interpreted by Author 2022 (Author 2022).

Problem two:

Place S_x in garden so that when X amount of Masters sit at one side of the garden there is one stone hidden from them.

1. Mark out where the M will be able to sit – use discretion to not clutter area
2. Draw lines from M area using 60° , 45° and 30°
3. Where lines cross, place hidden stone
4. Use cue size: open space method to place 1st stone (red). This stone is not the hidden one.
5. Use 45° angles to place rest of stones for the rest of the M 's

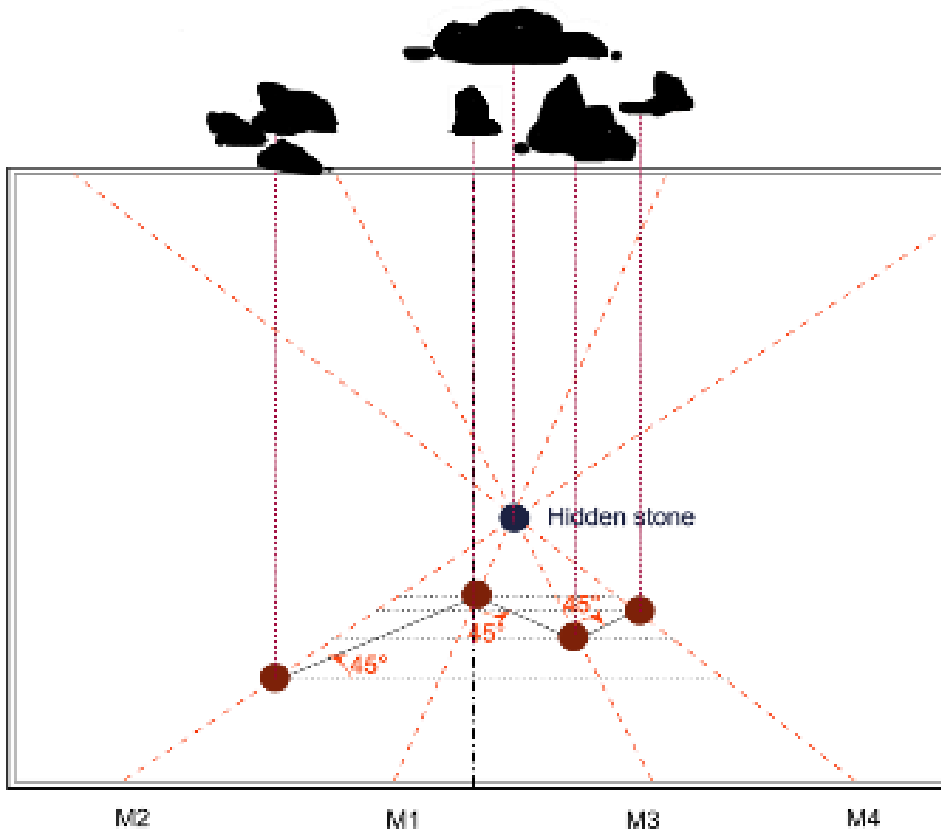


Fig 123: Nexus 2018:4 interpreted by Author 2022 (Author 2022).

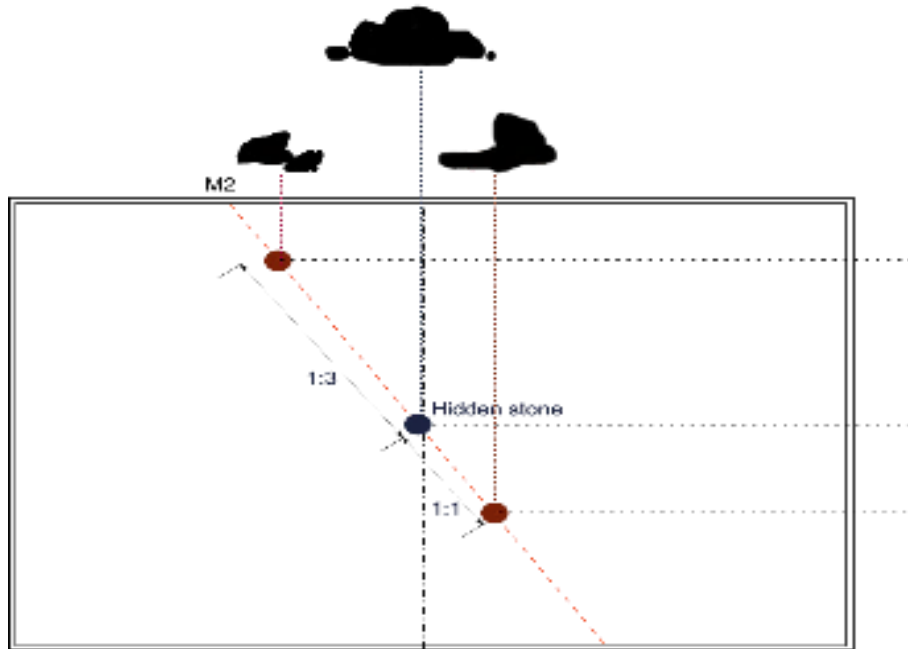


Fig 124: Nexus 2018:5 interpreted by Author 2022 (Author 2022).

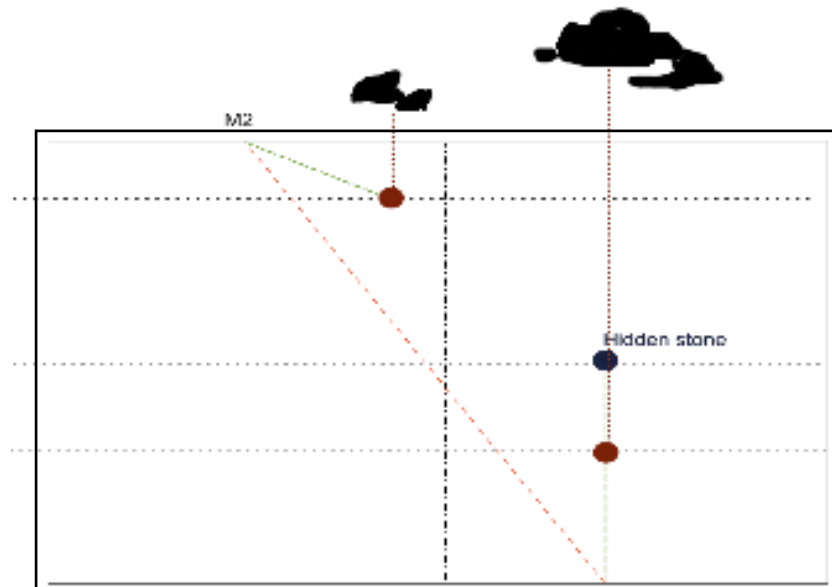


Fig 125: Nexus 2018:5 interpreted by Author 2022 (Author 2022).

Problem three:

Three Stones are given, however, only two Masters will sit at edge of garden. One stone should be hidden from the Masters when they view the garden.

1. Mark out where the Mx will be able to sit on the two sides of the garden (preferably start with them sitting on opposite sides)
2. Connect M's using a line, where centre line of the garden and M line cross the hidden stone should be placed
3. Use cue size: open space to get placement of 2 other stones (or rest of stones)
4. **Moving to frame B:** From M2, draw 45° while using the 90° grid to extend into second box (b). Where the lines cross, a stone should be placed
5. From M1, draw a 90° line. While using the 90° grid to move stones from frame A to frame B. Where the grids cross in frame B, the hidden stone is placed
6. When the hidden stone position is fixed, the 90° grid can be used for two areas where the Masters can sit (M1 and M3) see Frame C.

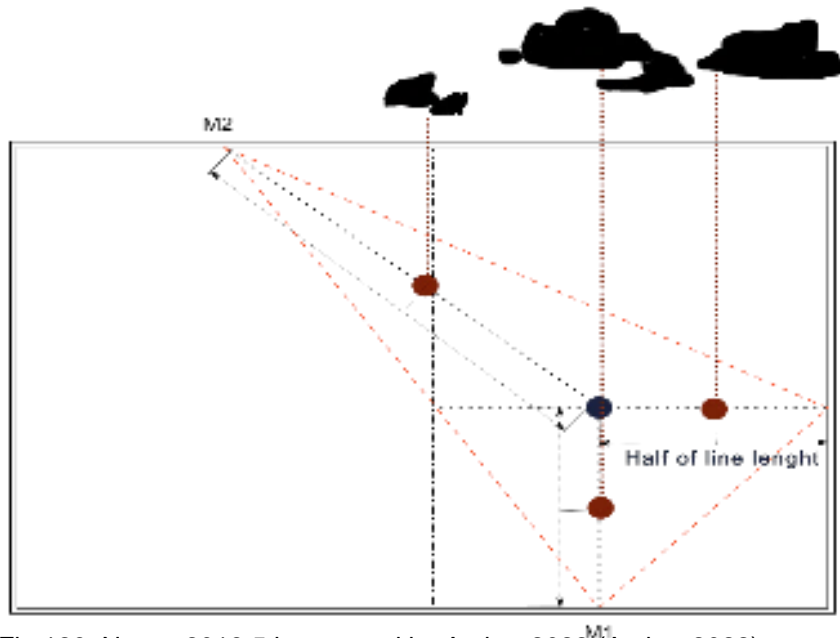


Fig 126: Nexus 2018:5 interpreted by Author 2022 (Author 2022).

7. Frame C: Connect the hidden stone and M2, and where line cross with centre line, a stone should be moved (frame B) and placed there.

8. Frame C: Get the middle point from the two 90° lines from the hidden stone, and two last stones should be placed in the middle of this grid

Problem four: (May need few iterations)

M3 are sitting at the edges of the garden. S4 should be placed in garden while one stone is hidden from all the Masters

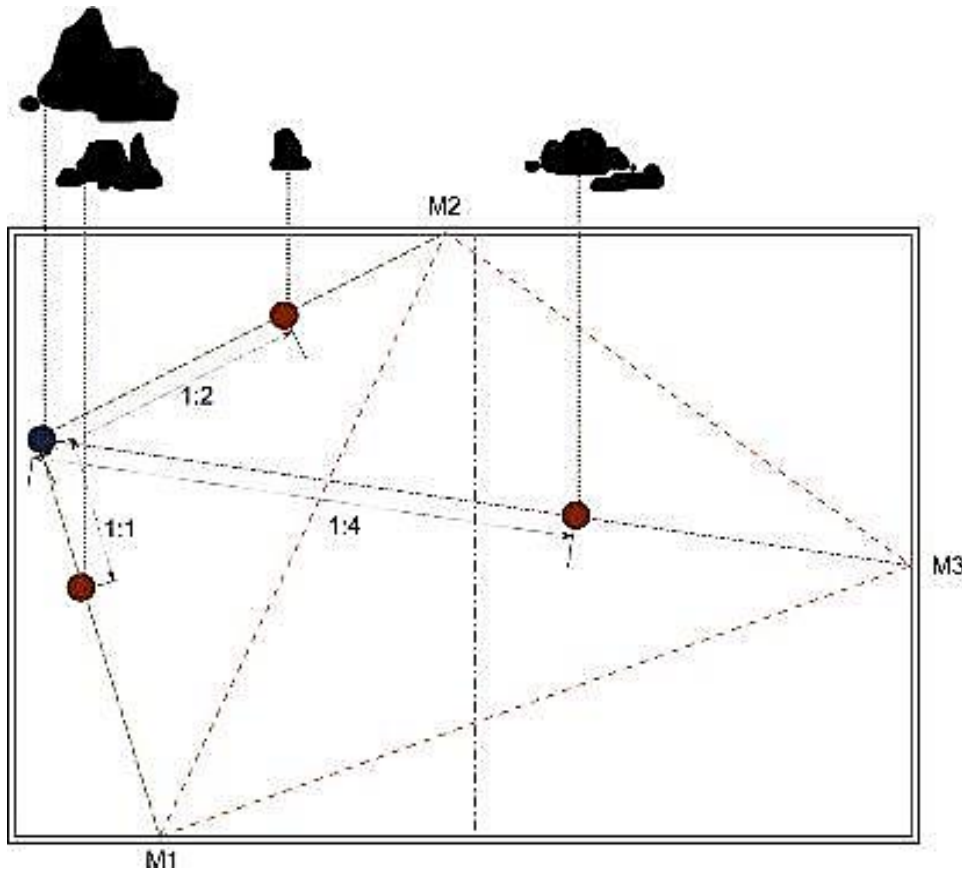


Fig 127: Nexus 2018:5 interpreted by Author 2022 (Author 2022).

1. Connect the areas where Masters are proposed to sit by using a line (no rocks are allowed to be placed on these lines)
2. 45° , 60° and 30° lines can be used to be drawn from M1 and M2 – the different angles is dependent on the size of the garden and should be considered when examining the density
3. Where the two lines from M1 and M2 meet, the hidden stone is placed (green line)
4. From the hidden stone, a line should be drawn to M3
5. On the lines, cue size: open space should be used to consider where the next rocks should be placed

Problem five: (May need few iterations)

Sx is given with 1 stone to be hidden. X-1 Masters would be sitting within the garden.

1. Connect the areas where Masters are proposed to sit by using a line (no rocks are allowed to be placed on these lines- indicated in red)
2. Using 45° , 60° and 30° in order to experiment where stones should be placed without touching the connection lines.
3. Where all the experimented lines cross, the hidden stone should be placed.
4. From the hidden stone, the cue size: open space method can be used on experimental lines

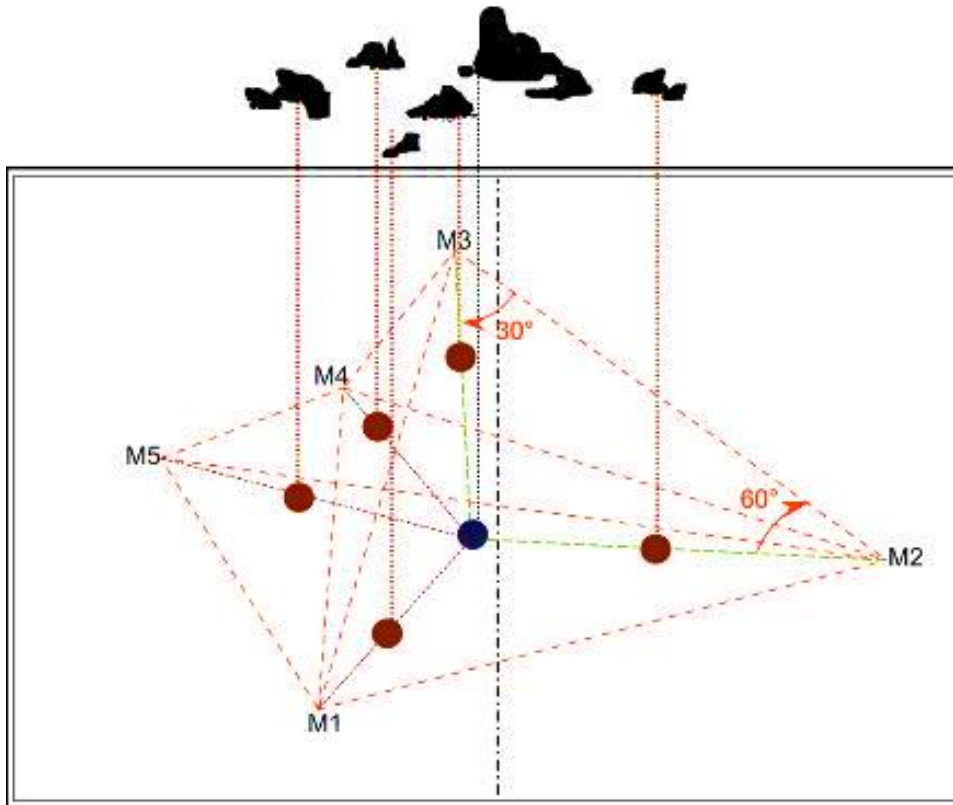


Fig 128: Nexus 2018:7 interpreted by Author 2022 (Author 2022).

Problem six: (May need few iterations)

Two Hidden stones are given, when Masters sits at boundary, one rock should be hidden from them. Placement of Masters can be decided by the Monk.

1. Depending on the number of stones given, there should be an extra stone for the number of M's that will use the garden (example: 4 stones if 3 Masters will be visiting the garden)
2. Placement of Masters is chosen in accordance to Monk's free will
3. 45°, 60° and 30° is used for different line directions (experimentation) from the Mx's positions
4. Where most lines cross, a triangle is drawn inside the garden. The rocks are only allowed to be placed within this triangle.
5. Starting where the most lines cross, the rocks is placed on the experiment lines (refer to number 3).
6. If rocks are still left over, cue size: open space size can be used from the existing rock placement.

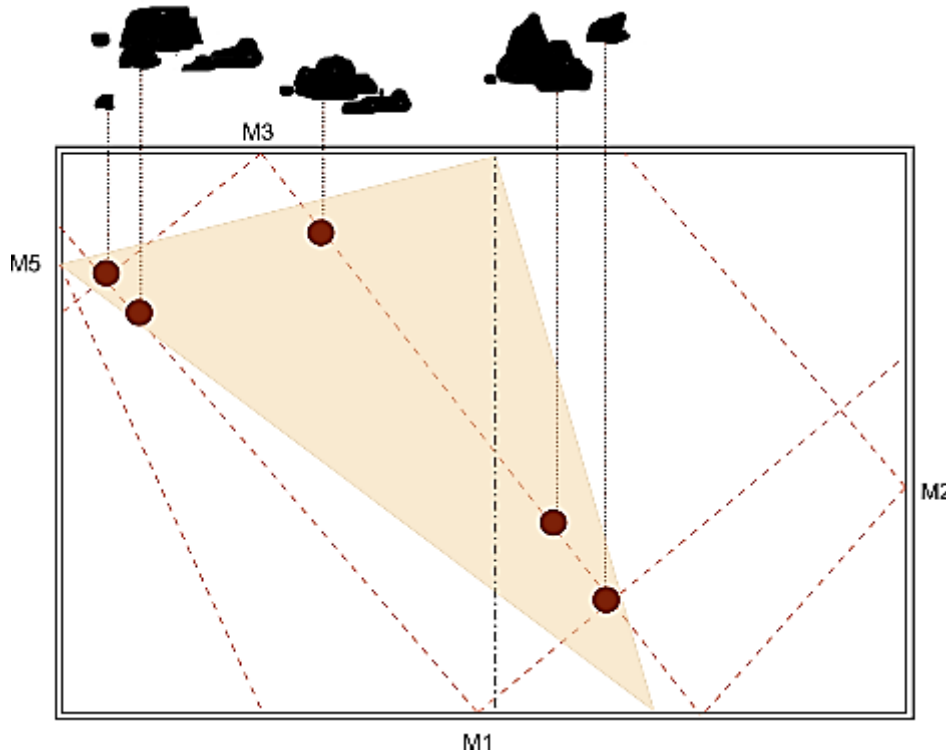


Fig 129: Nexus 2018:8 interpreted by Author 2022 (Author 2022).

* Note, when placing the rocks, it should be thought of in 3D as well to not over place rocks in one area but should rather be spread out.

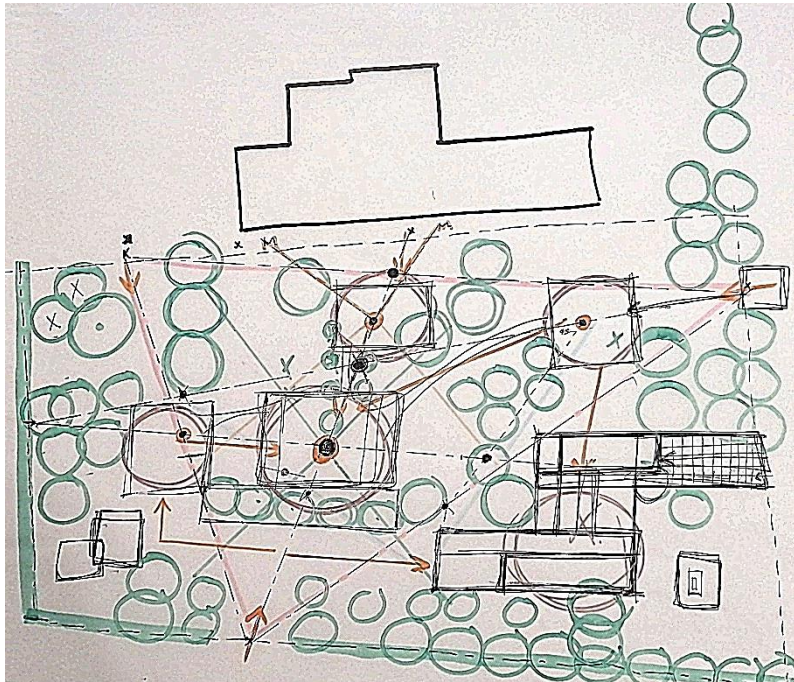


Fig 130: Iteration one with geomancy on site iteration one (Author 2022).

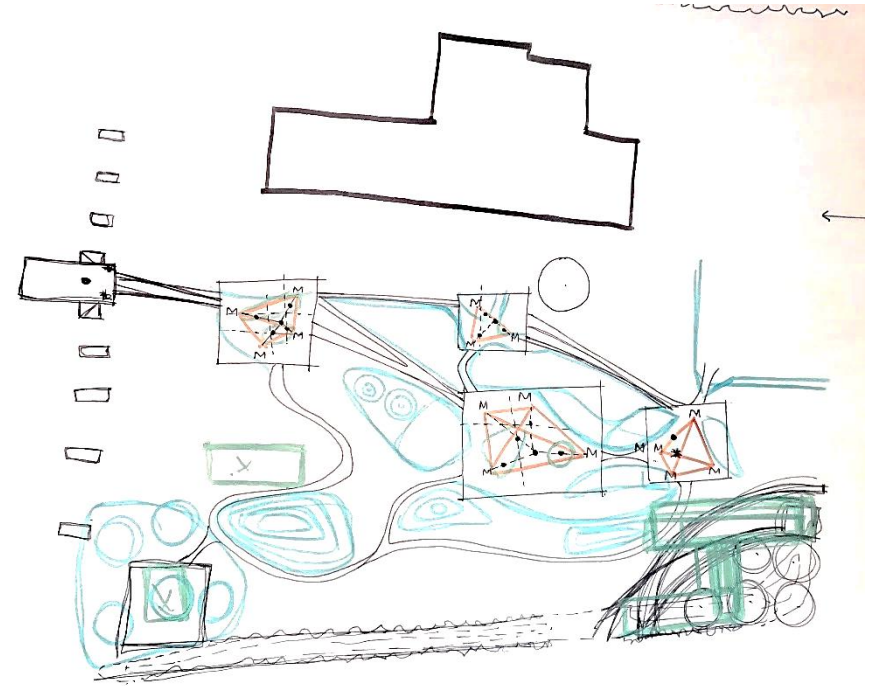


Fig 131: Experiment with geomancy on site iteration three (Author 2022).

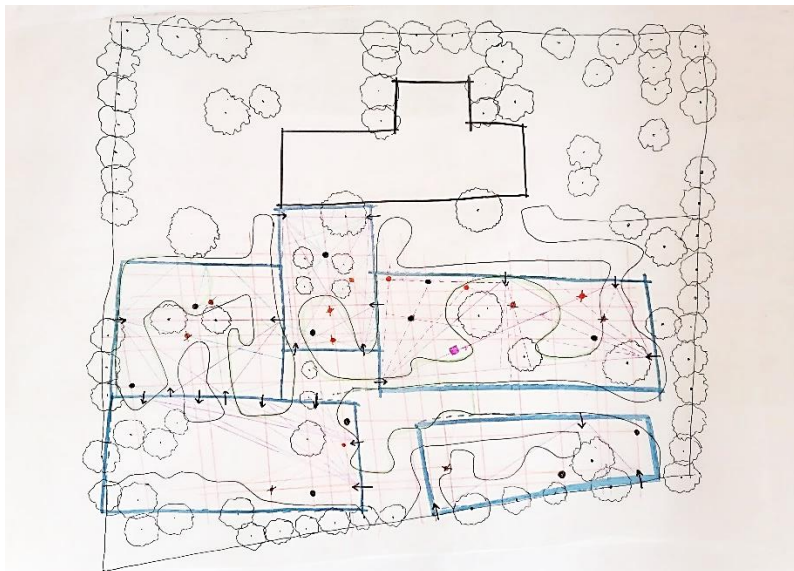


Fig 132: Experiment with geomancy on site iteration two (Author 2022).

12. FORM IN JAPANESE GARDENS

日本庭園のフォルム

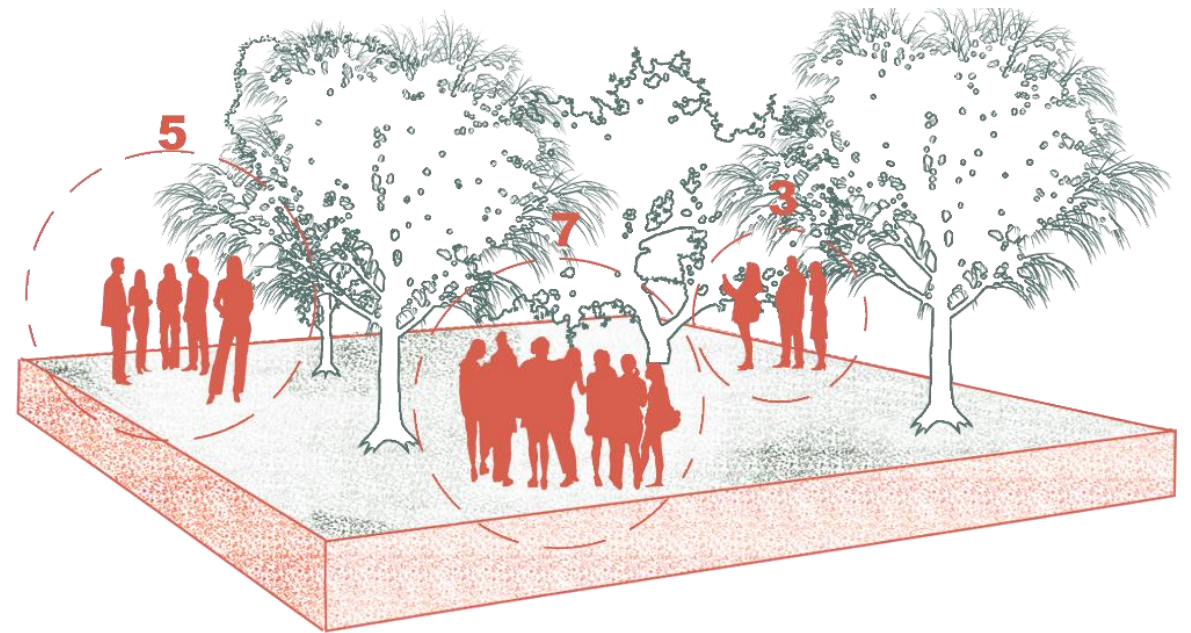
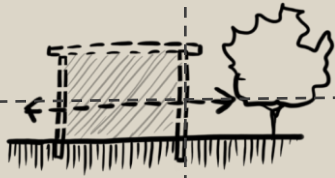
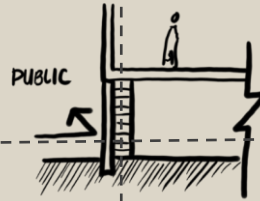


Fig 133: Form giving in Japanism (Author 2022).

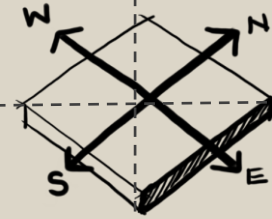
CONSTRUCTION METHODOLOGY FOR GARDENS



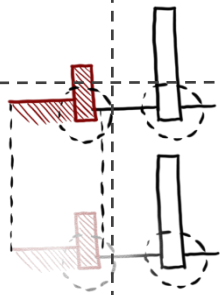
Due to lack of insulation from exterior elements to the building, materials that are used on the interior can be used on the exterior as well



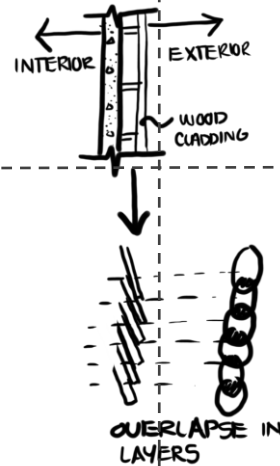
Structures that are lifted up from the ground is usually filled in with wood or concrete to keep unwanted animals and people out



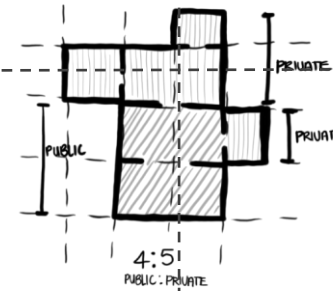
Although there is many superstitions on how one should design in accordance with the axis. This believe is rather considered a rule of thumb for designers due to climatic constraints



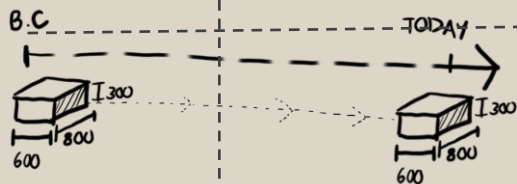
Elements are designed in such a manner to easily add something new or to remove something from the structure



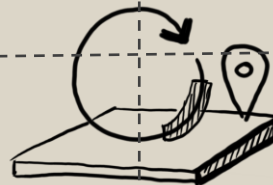
Due to no insulation, wood is attached to the exterior and usually overlaps with one another



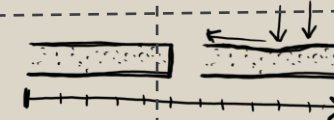
There's an equal ratio of spaces that are public versus areas that are private.



Designers do not aim to rethink the standardization process brought forward from their forefathers



Try to use locally available materials and due to low cost for human labor it is designed in such a manner to be easily assembled on site



Materials in its pure forms is preferred as it wears down over time and showcases true character due to movement over the elements



Fig 134: Japanese house drawing with inner courtyard showcasing the relationship between trees and columns but also the difference in meaning (Author 2022).

As seen within Modernism, namely the prominent statement: Form follows function, in Japanism the perception of form is essentially a pattern for function to be played out. Order was later applied to create depth of eloquent and meaningful relationship between nature and the user itself. An example to showcase the pattern of function is a thin white wall coupled with a strong, dark column conveys the true meaning of supporting elements and non-supporting elements. The column being supportive, while the thin wall becoming a non-supportive element (Carver 1999:23). The above mentioned can be seen within the boundary of the garden.

13. THE DESIGN

デザイン

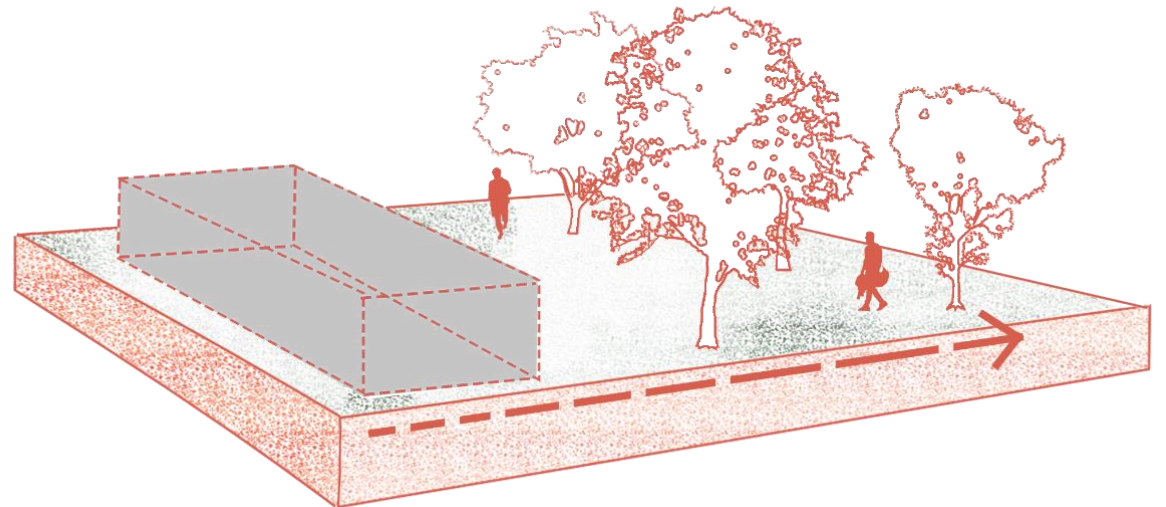


Fig 135: Moving to exterior design of the building (Author 2022).

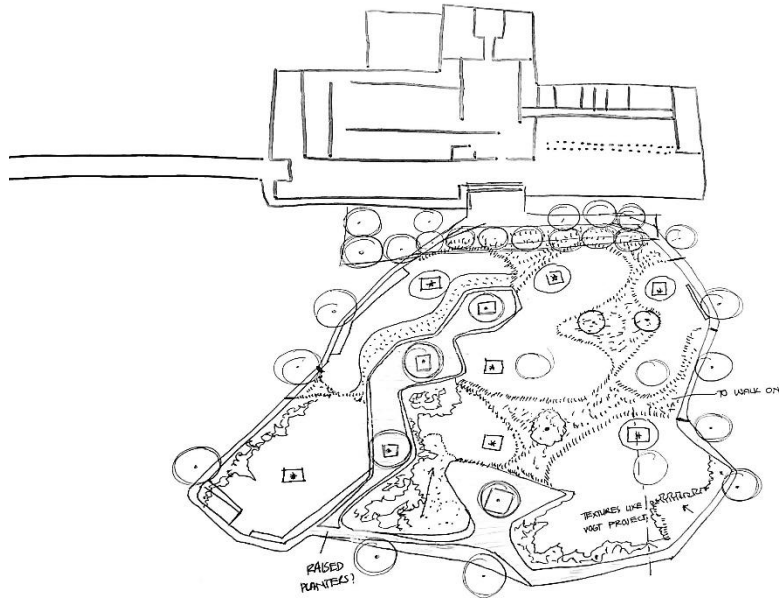


Fig 136: Iteration one for design (Author 2022).

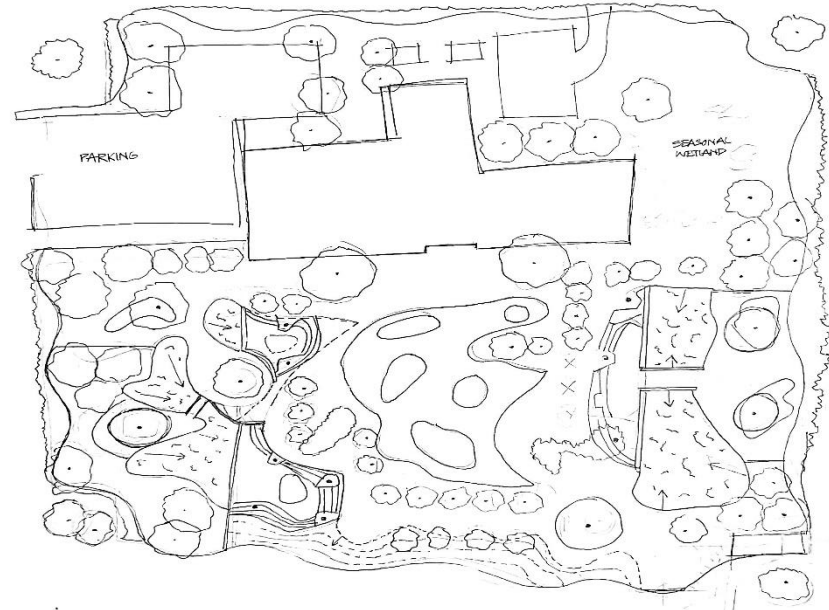


Fig 137: Iteration three for design (Author 2022).

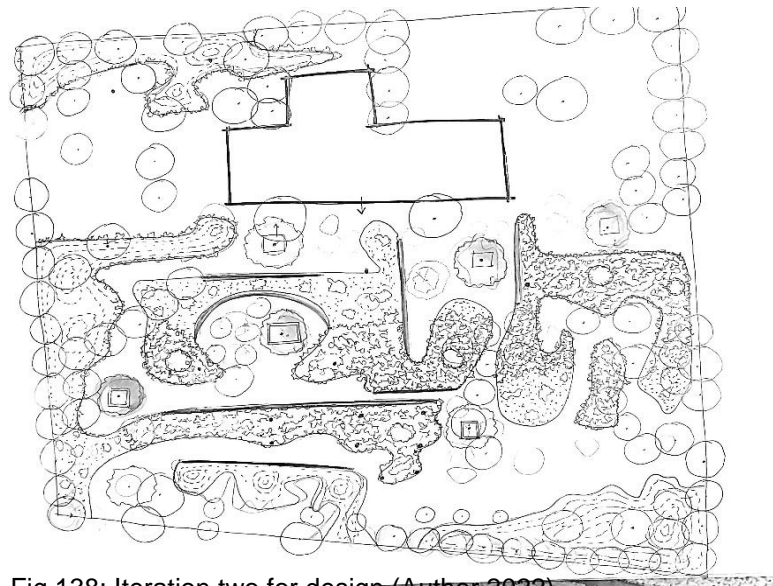


Fig 138: Iteration two for design (Author 2022).

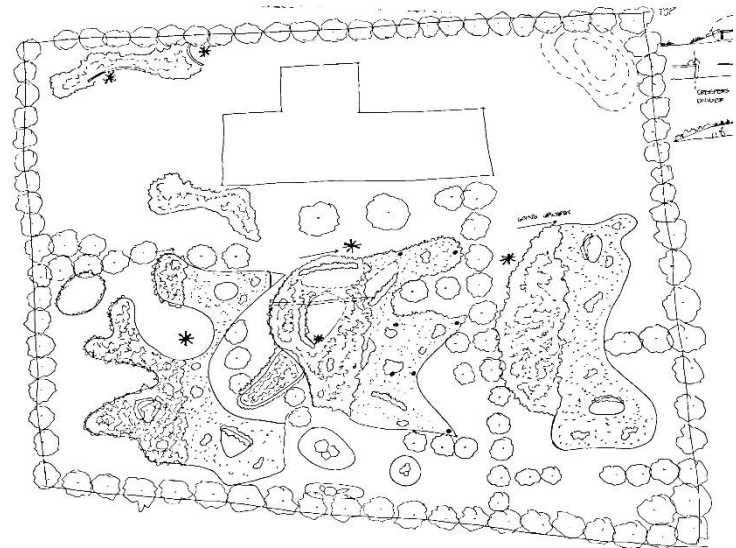


Fig 139: Iteration four for design (Author 2022).

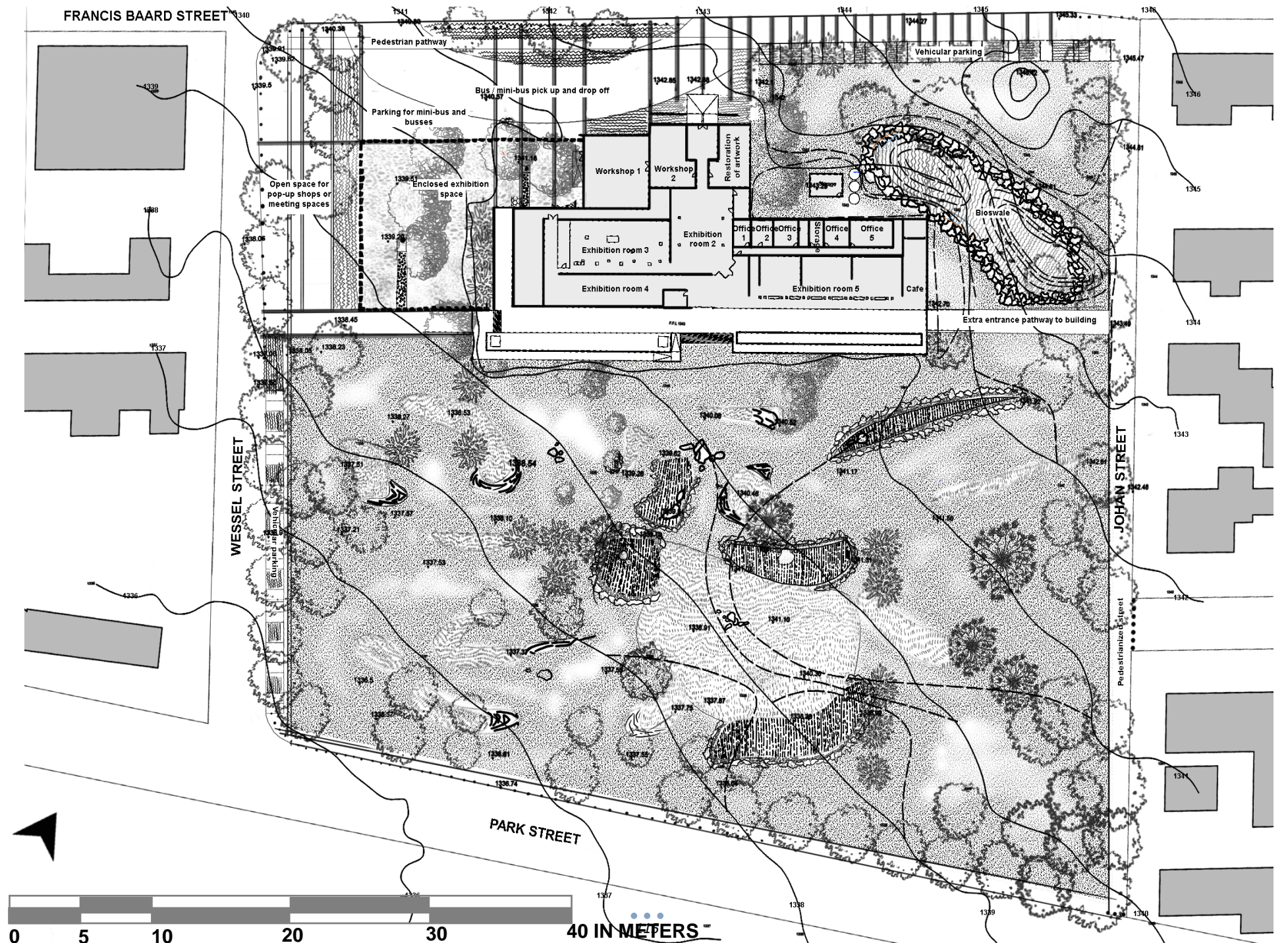


Fig 140: The sketchplan (Author 2022).

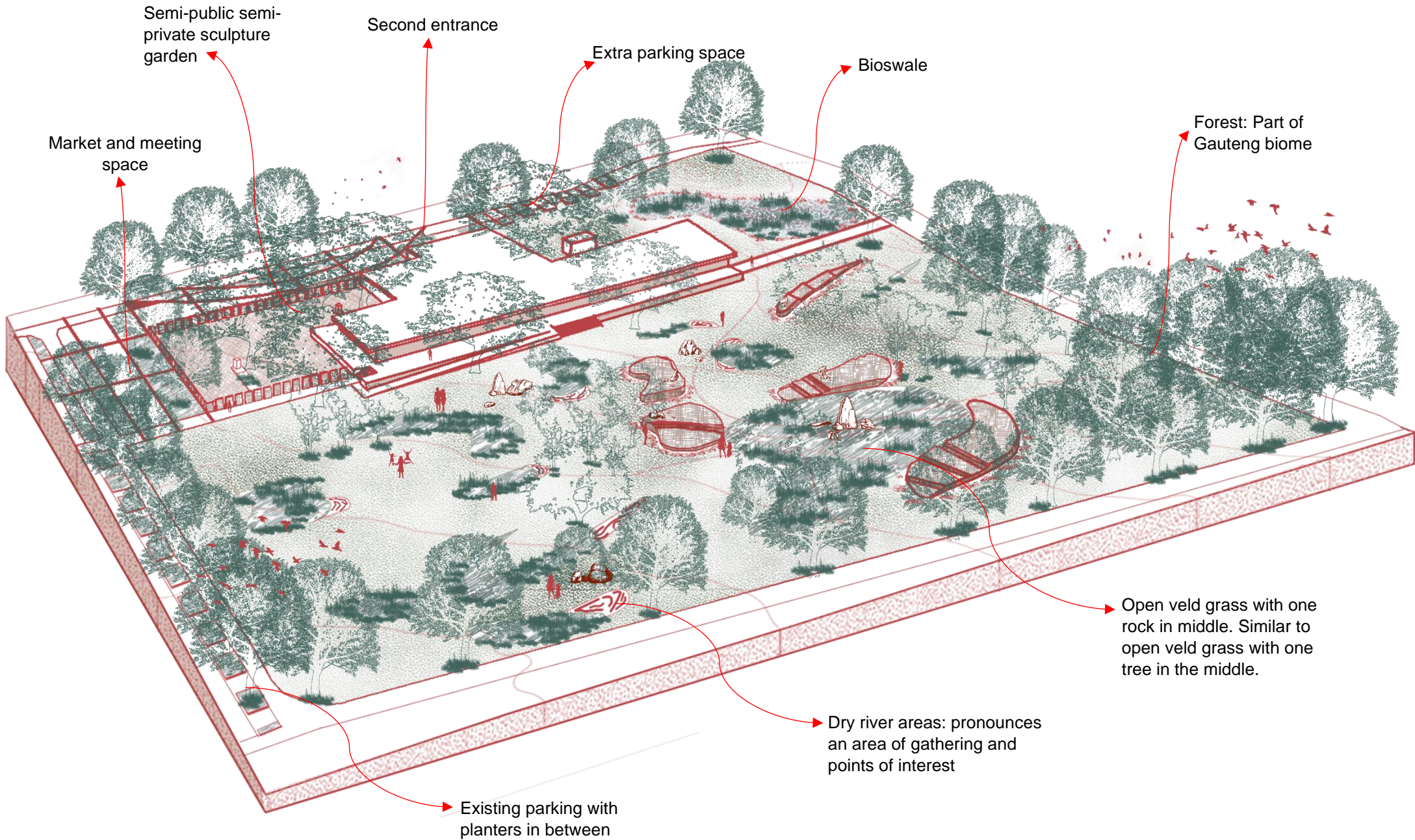


Fig 141: Axonometric of sketchplan (Author 2022).

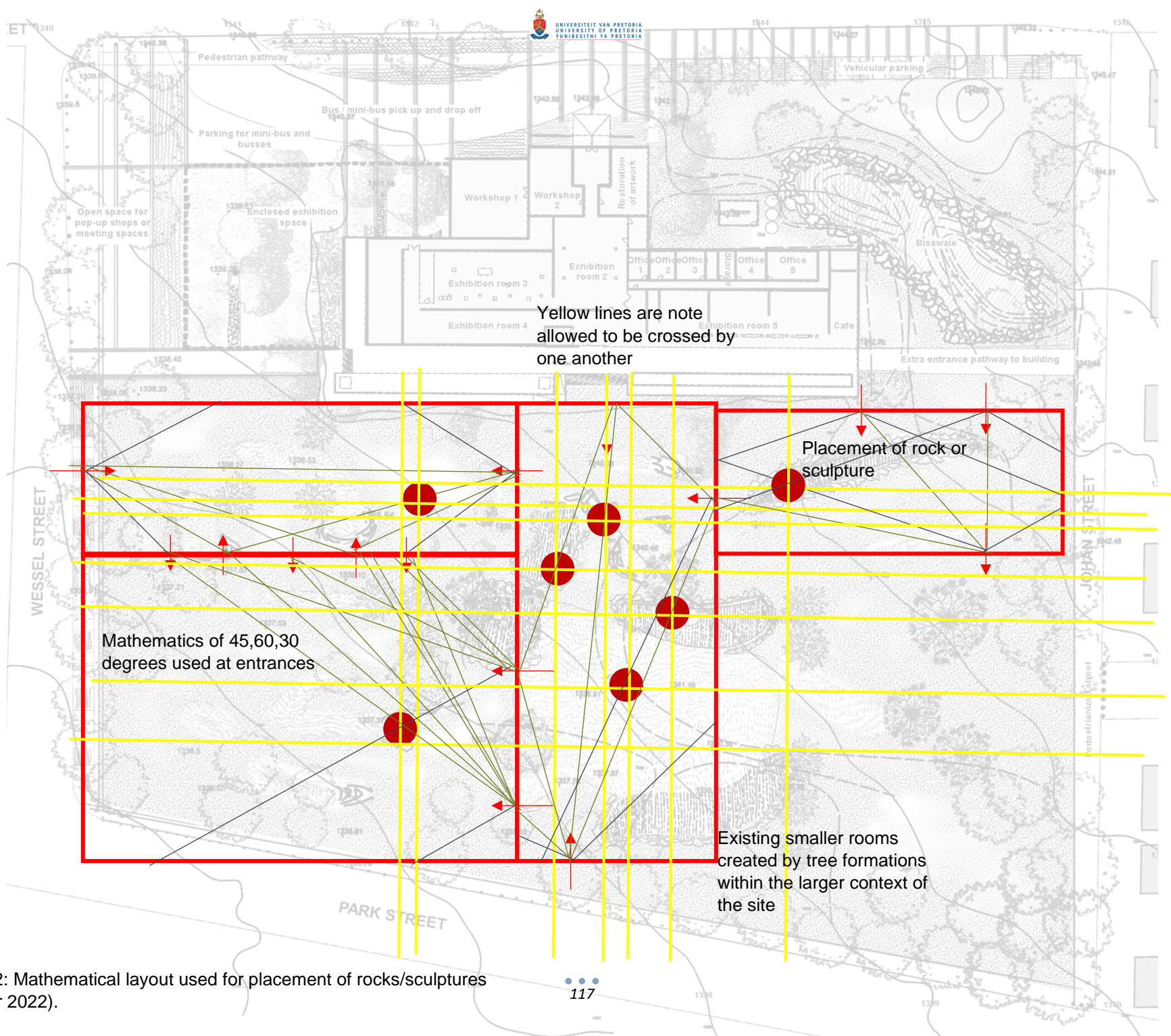


Fig 142: Mathematical layout used for placement of rocks/sculptures (Author 2022).



Fig 143: Perspective at dry river beds (Author 2022).

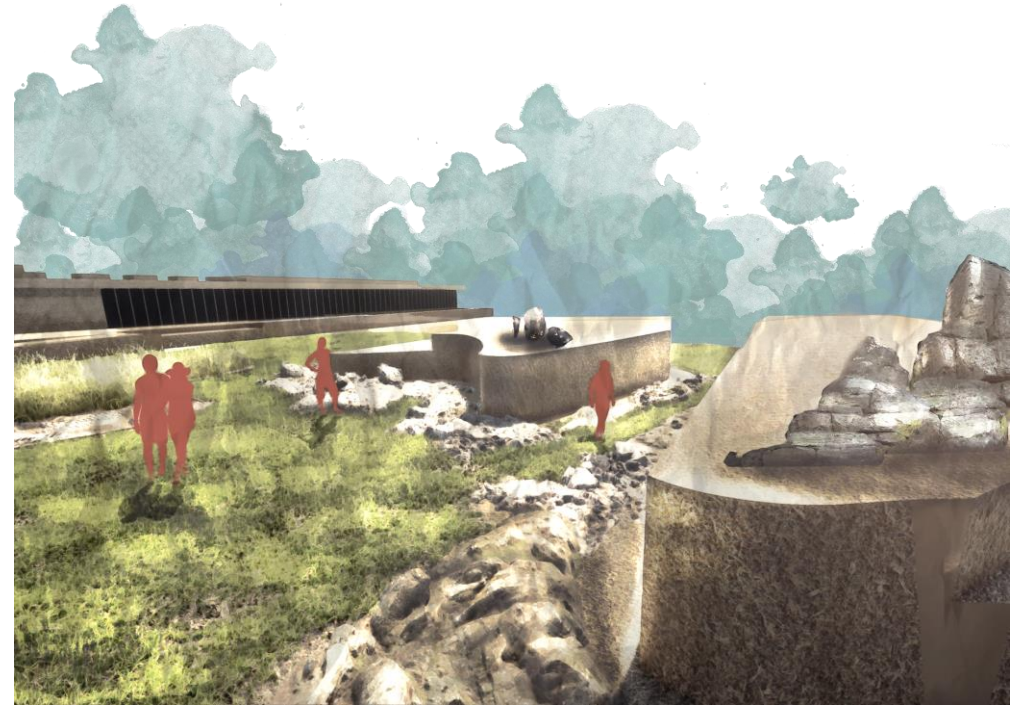


Fig 144: Perspective between stepped elements and the building relationship (Author 2022).

13.1 BIOME OF GAUTENG

ハウテンのバイオーム

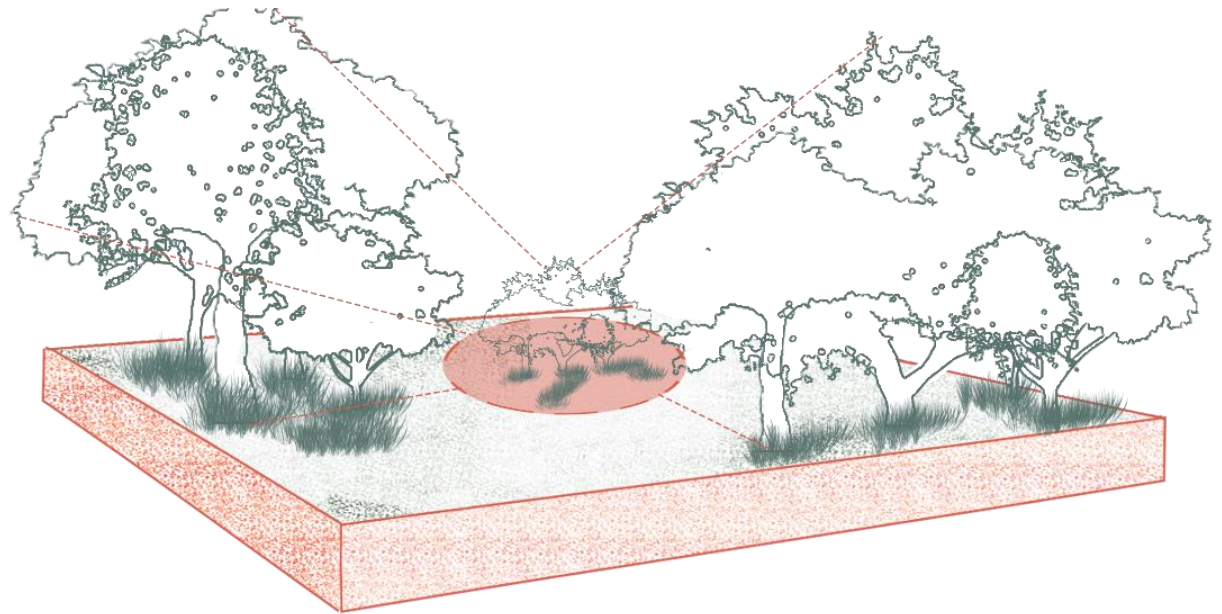


Fig 145: South-African biome but only focusing on Gauteng's biome (Author 2022).



Fig 146: Changes of tree cover at Pretoria botanical garden (Author 2022).



Fig 147: Changes of tree cover at Faerie Glenn nature reserve (Author 2022).



Fig 148: Changes of tree cover at Hennops hiking route (Author 2022).



Fig 149: Changes of tree cover at the Johannesburg Botanical Garden (Author 2022).

One must consider the forces and energies within the natural landscape of Gauteng in order to design a Zen Garden successfully due to the underlying principles. The concept is to follow the nature of the objects, rather than altering it (Xi Yeng 2016).

“Re-creating wilderness, or designing space according to purely aesthetic premises, is hardly suited to the demands of the site... Only those who understand nature, who know what goes on behind the scenes, can truly enjoy it” (Müller 2012:112-325). One should not replicate the natural area, but rather understand the fundamental process and work with it in a creative manner. When doing so, the designer is guaranteed (to an extent) that the garden will be able to survive for many years to come and visitor will be witnesses to the passing of time within the garden.

Moving into site specific information, the Pretoria Art Museum is located within the Savannah biome, more specifically on the Moot Bushveld Plains (Mucina, Rutherford 2006:440-465).

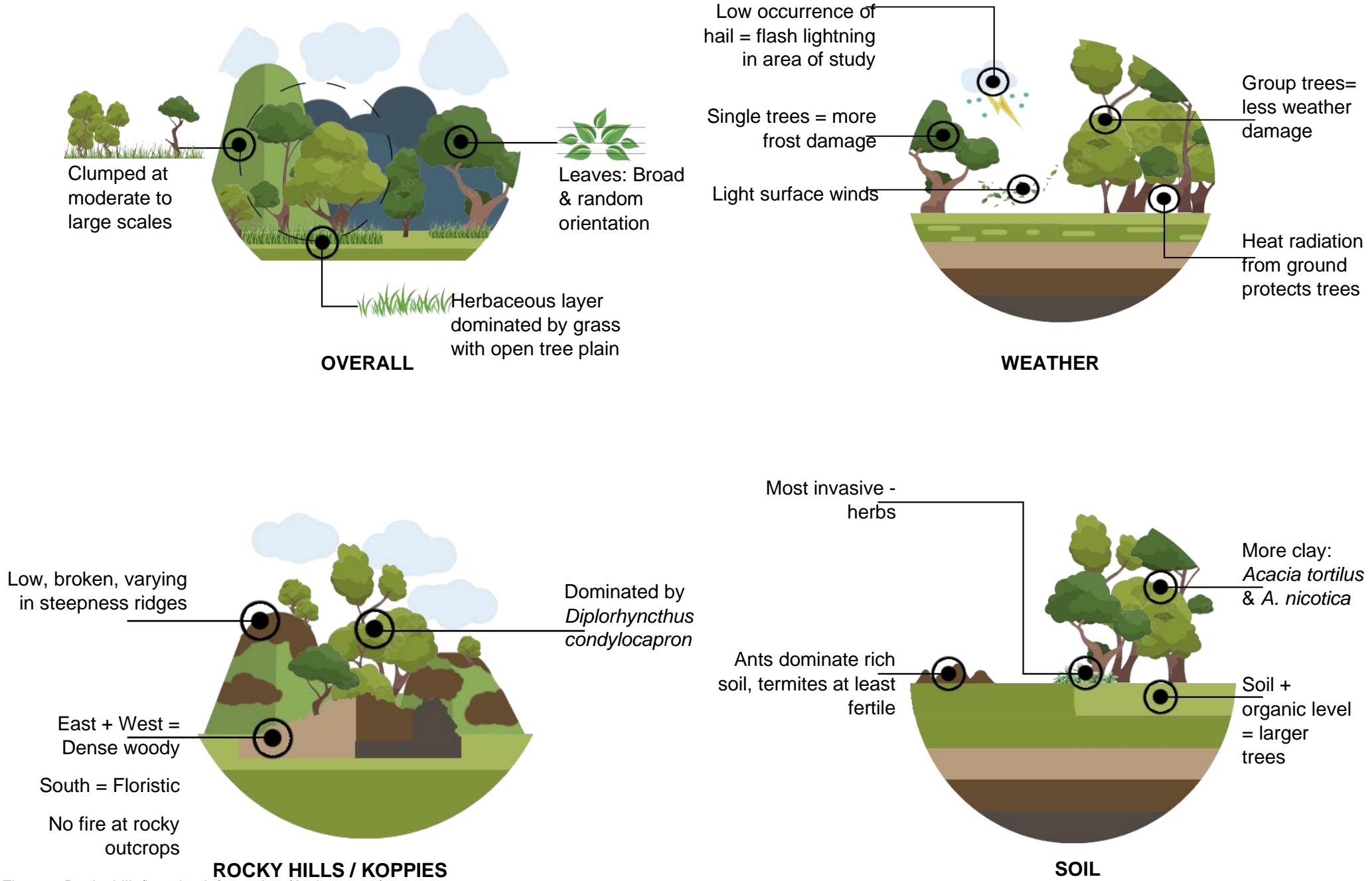
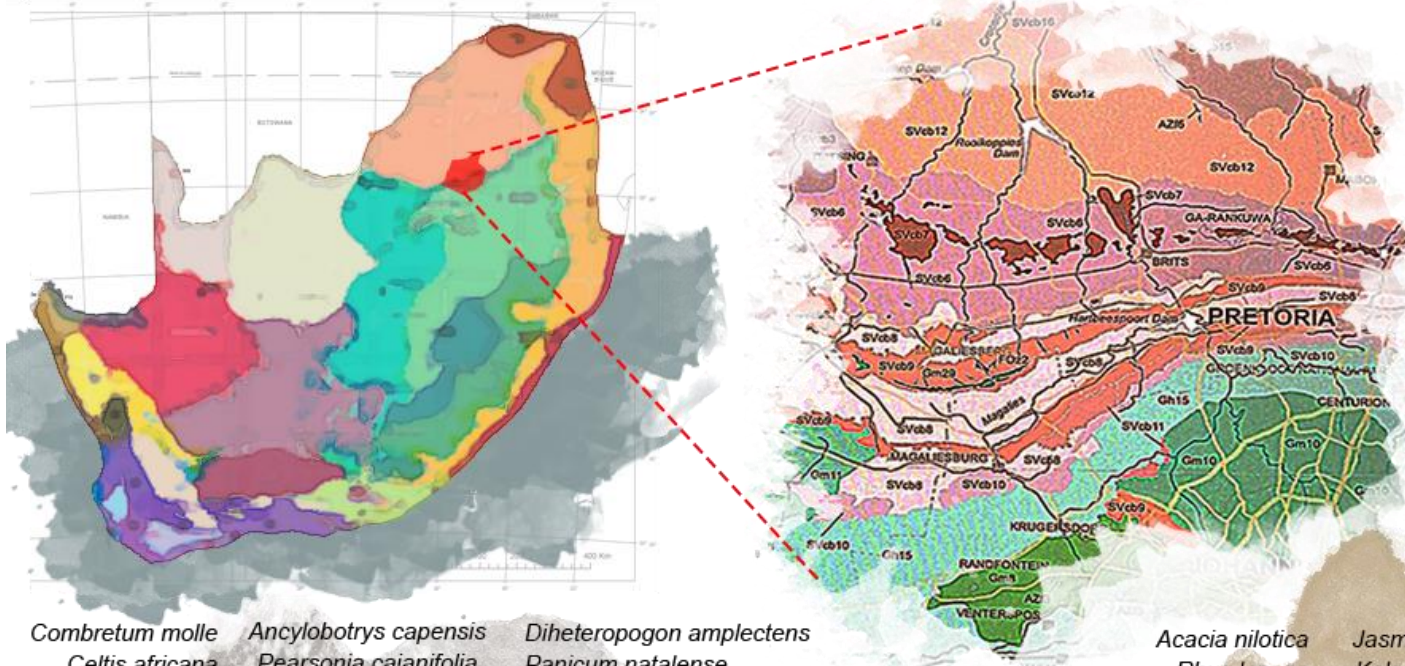


Fig 150: Rocky hills/koppies information (Author 2022).

BIOME OF PRETORIA: SAVANNA BIOME

- SVcb 9: Gold Reef Mountain Bushveld
- SVcb 8: Moot Plains bushveld



Combretum molle *Ancylobotrys capensis* *Diheteropogon amplexans*
Celtis africana *Pearsonia cajanifolia* *Panicum natalense*
Ziziphus mucronata *Hypoxis hemerocallidea* *Tristachya biseriata*

Acacia nilotica *Jasminum breviflorum* *Heteropogon contortus*
Rhus lancea *Kalanchoe paniculata* *Chloris virgatus*
Euclea undulata *Teucrium trifidum* *Aristida congesta*



GOLD REEF MOUNTAIN BUSH-VELD



MOOT PLAINS BUSHVELD

Fig 151: Biome of Gauteng summary (Author 2022).

Limited usage of plants is chosen in accordance with their relationship to the macro natural area and characteristics towards the rocks. These two elements are to have a coherent relationship with one another through texture and colour (van Tonder 2003:216). The *Sakuteiki* does however make it clear that one should study nature and use the knowledge gained to create a garden (2008:59), however, the designer should be aware of the taboos of a tradition as well.

Vegetation is not mentioned in most of the ancient writings, although only few text's mention shrubs and trees (Kuck 1957:1). Trees and rocks should however be of similar sizes but how it appears naturally should also be taken into consideration (Kuck 1957:3). Colours and textures of plants should be harmonious but is considered subordinated. According to the more recent writings, little to no delightfully appearance plants should be used as it showcases that the person is focused on the materialistic world (Kuck 1957:5-8).

Due to the above, the designed areas would have similar visual appearance to not visually clutter and overwhelm the spaces. An example of this is, as one looks out onto a veld of wild grass (not knowing the specific species), one would say it's one field of only one type of grass. This example is applicable to the area due to people

in the surrounding community not all being professionals in planting species. The concept is that many species can be proposed, however, it the specific species should have a similar appearance to them.

Trees are used to showcase the larger space. It is often used as a method to show that the space goes beyond it's 3 walls (Hobson 2007:5). Within the Japanese culture, a specific methodology is followed for pruning trees, namely, *Niwaki*. The intention is that trees can be shaped and formed according to the designer's imagination – similar to drawing or painting (Hobson 2007:9). Even within shaping of the tree, a very discreet triangular form is used (Kuck 1957:7) The inspiration for the shapes of the trees relies on 3 different approaches, namely: the area itself (geographically, climate, and landscape), religious connections and the cultural aesthetics of Japan or the area in which it is designed (Hobson 13). Different methods are used to achieve different looks, however, moving forward, the trees on site would either be that of an irregular shape, or umbrella shape. These shapes are characterised to be seen within the biome of Gauteng (Mucina, Rutherford 2006:446).



Fig 152: Planting design (Author 2022).

PLANTING STRATEGY



Fast growers
Low maintenance



Low to moderate water requirements



Mostly indigenous and using some species found in-situ

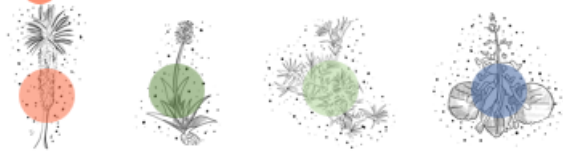


Little to no variety
Should not need complex systems



Planting in mixes should be of similar texture and colour to one another

MIX 1



Aloe ferox
Cape aloe

Merwillia natalensis
Blue mountain lily

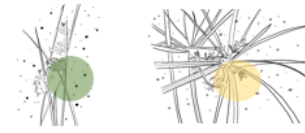
Asparagus densiflorus
"sprengeri"
Sprengeri fern

Plectranthus verticillatus
Swedish ivy

Layout:



MIX 2



Juncus inflexus
Hard rush

Cyperus alternifolius
Umbrella sedge

Layout:



Existing tree:
Acer pseudoplatanus
Himalayan cedar

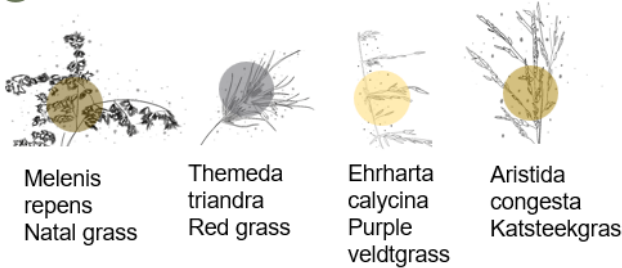


Existing tree:
Jacaranda mimositolis
Jacaranda



Harpephyllum caffrum
Wild plum

MIX 3



Melenis repens
Natal grass

Themeda triandra
Red grass

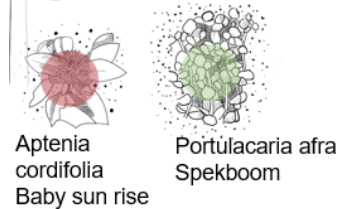
Ehrharta calycina
Purple veldtgrass

Aristida congesta
Katsteekgras

Layout:



MIX 4



Aptenia cordifolia
Baby sun rise

Portulacaria afra
Spekboom

Layout:



MIX 5



Cynodon transvaalensis 'skaap plaas'



Existing tree:
Cedrus deodara
Himalayan cedar



Celtis africana
White stinkwood



Celtis africana
White stinkwood

Fig 153: Planting choices and layout for planting in beds (Author 2022).

Upon studying the northern and western façade of the building, it seems to have minimal interaction with the streetscape due to its harsh, unpenetrated wall. Due to this, a proposal to create an entrance at the northern wall is put to the forefront. Upon consideration of the newly introduced entrance, a strong axis is created which binds the interior to the exterior, thus, the building becomes the intermediate space (or buffer space) before entering the contemplative garden. Due to the high amount of wasted space within the building, a proposal of a workshop is brought forward. These workshops can be held by professional artists or upcoming

artists for a wide variety of users which includes (but not limited to): school children, teenagers learning new skills, the elderly and families. If sculptures are created in the workshop, it can be exhibited outdoor which in turn creates a conversation piece. The open space would have extruding mounds which abstracts the idea of the koppies in the background of the site, thus, bringing the macro into the micro. These mounds would be stepped which in turn will allow the user to experience the abstracted koppies at different human scaled levels.

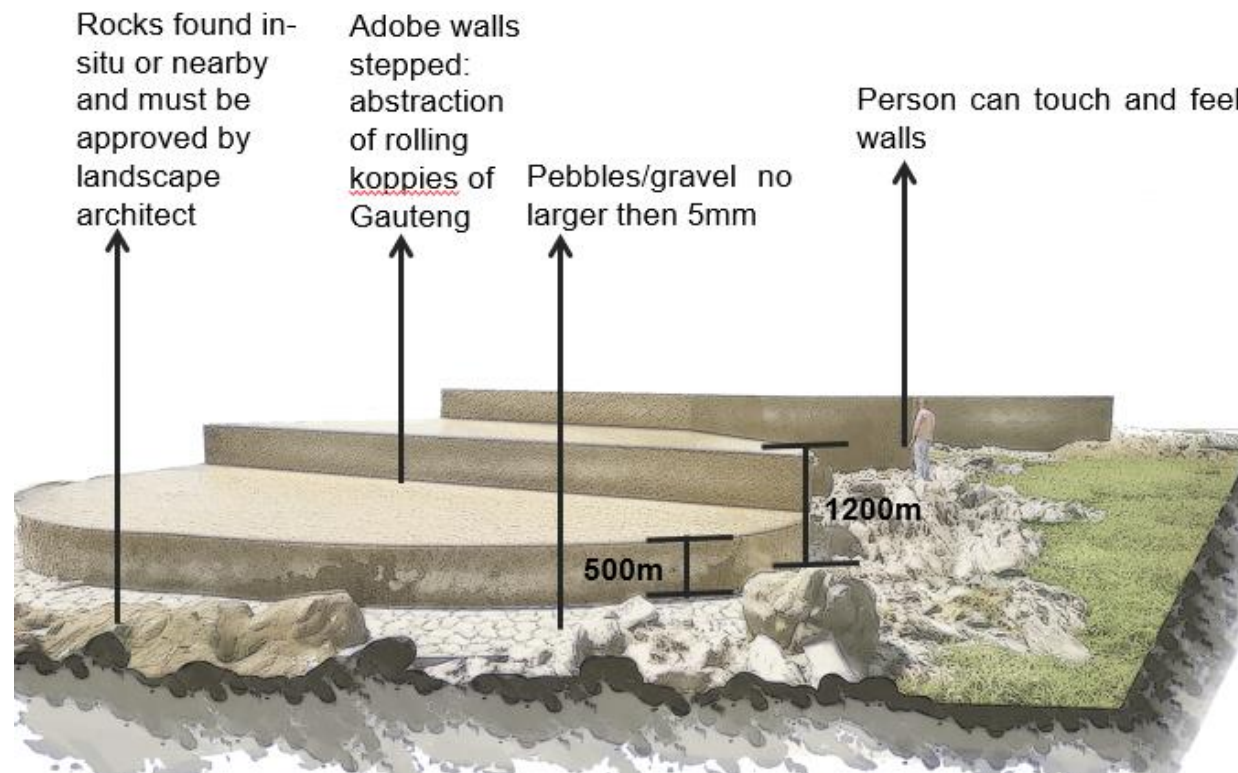


Fig 154: Stepped Adobe walls with different human scale experiences (Author 2022).

To the north, the design is proposed to be an open, vast earth space which is punctured by rocks. The ground level is abstracted as a river and showcases geological features of Gauteng. Moments of seamlessly endless field of wild veld grass is showcased while having rockery in between where people can gather expresses how water moves and gathers on the surface of a grassland.

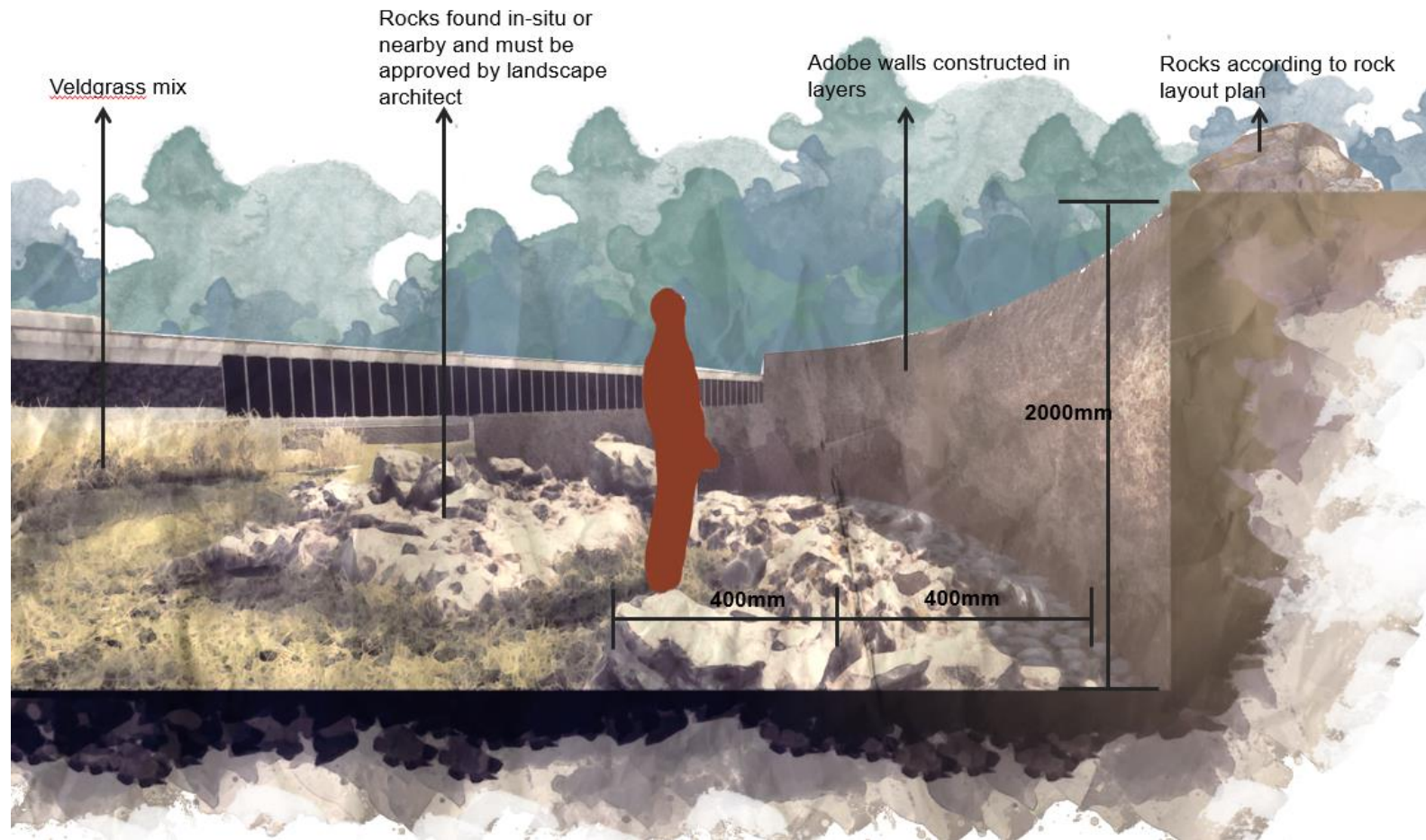


Fig 155: Human scale of adobe walls and ability to touch wall (Author 2022).

Case study: *Geological Mimesis: the green* by Günther Vogt, Basel, 2010. The area of focus is part of a larger scheme of a proposed design. Vogt overlaid different typographical maps in order to create an edge which allows the soft, green lawn to merge with the harsh edge of the foot paths. By getting the shape correct, he took it another step further by adding rocks at the edges to create a smoother gradient. In the middle of the lawn, some rocks can be seen protruding through the surface, which reminds the user of the larger context in which they find themselves in. The rocks which have been used in found within the area and was transported to the site for construction purposes.

Case Study: *Discovery of a fluvial landscape: European central bank* by Günther Vogt, Frankfurt, 2013.

The concept for the design was found within the location of the site itself. The site is located near a river which, from time to time, receives heavy downward flow. Vogt abstracted the idea of river and placed elements within gravel islands which symbolizes the flood line and heavy seasonal flow. Vegetation is allowed to grow in between these gravel areas, which showcases a more natural aesthetic to small islands which rivers create due to their flow movement.



Fig 156: *Geological Mimesis: the green* (2010) Basel by Gunther Vogt (1957-): Top view of design (Vogt [n.d]).



Fig 157: *Geological Mimesis: the green* (2010) Basel by Gunther Vogt (1957-): Edges (Vogt [n.d]).



Fig 158: *Geological Mimesis: the green* (2010) Basel by Gunther Vogt (1957-): Within lawn spaces (Vogt [n.d]).



Fig 159: *Discovery of a fluvial landscape*: European central bank (2013) Frankfurt by Gunther Vogt (1957-): View of elements in the landscape (Vogt [n.d]).



Fig 160: *Discovery of a fluvial landscape*: European central bank (2013) Frankfurt by Gunther Vogt (1957-): Different types of rocks used (Vogt [n.d]).



Fig 161: *Discovery of a fluvial landscape*: European central bank (2013) Frankfurt by Gunther Vogt (1957-): View from a distance (Vogt [n.d]).

Case study for materiality:

A pre-casted concrete system is proposed to create rocks which will be stacked on top of one another in these specific areas. The textures are to be created by chosen rocks found within Gauteng and packed in a very precise and specific manner.



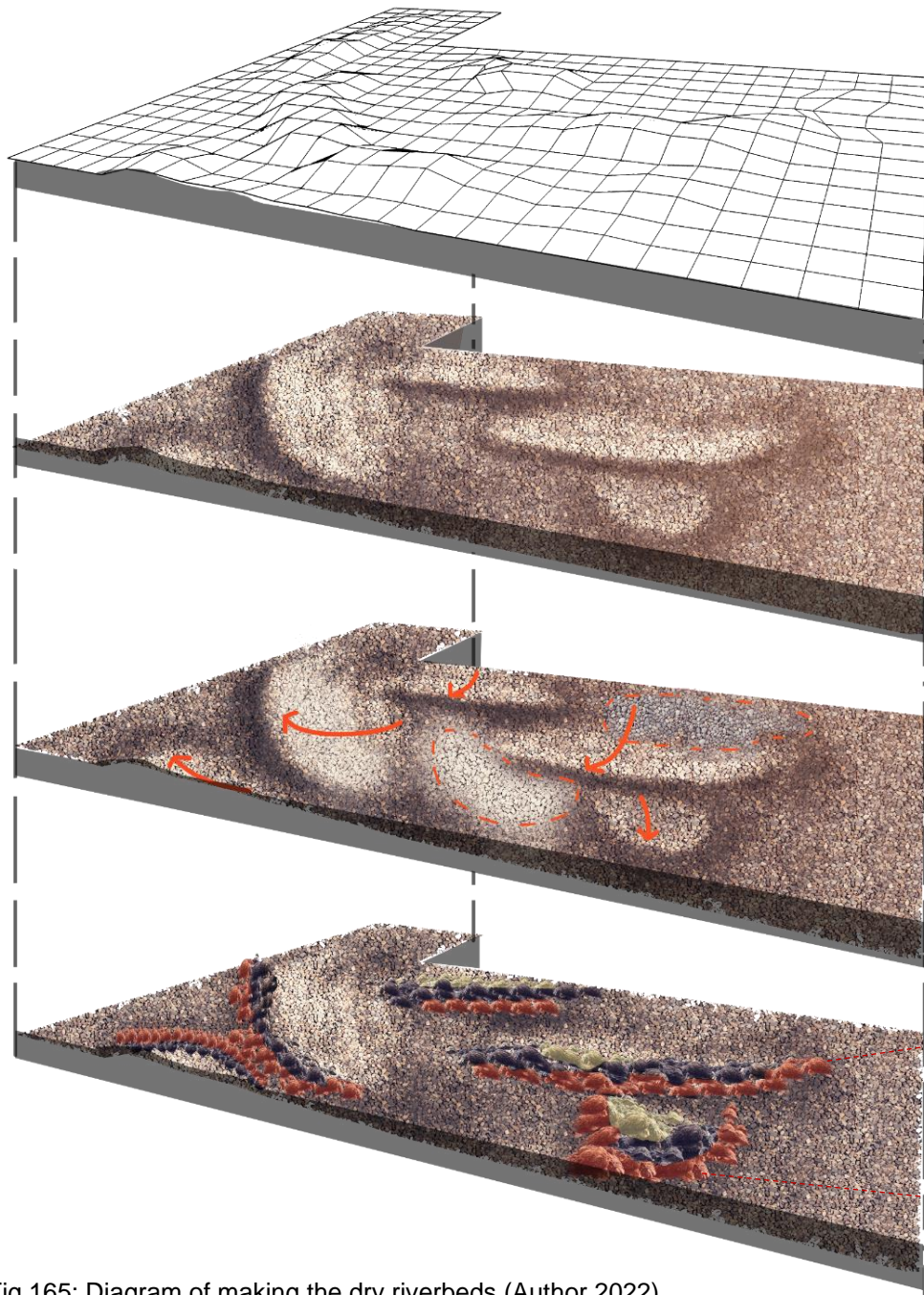
Fig 162: Pre-casted concrete system almost done installed (Cortex 2004).



Fig 163: Pre-casted concrete system underground system (Cortex 2004).



Fig 164: Pre-casted concrete system Being installed on site (Cortex 2004).



These areas are specifically chosen as a place to showcase a place of gathering which can occur here.

Earth is moved in accordance to landscape architects instruction on site

Different pebbles and gravel textures can be brought in to showcase how a river moves and its different types of soil which moves within it as well.

Different layers of stacking of the rocks. A more permanent option is chosen because the shape should stay the same – showcasing small islands within streams or rivers which is formed over time

Pre-casted rocks



Fig 165: Diagram of making the dry riverbeds (Author 2022).



Packing is done. A stainless-steel edging is placed between the lawn and the gravel



Wild veldgrass is encouraged to grow within areas in order to create a more feeling of natural occurrences



The area should however not become overgrown with grass; thus, maintenance should be done to the point where one can still view the rocks.

Fig 166: Riverbeds explaining the different islands which can be formed within rivers/ streams with vegetation in them (Author 2022).

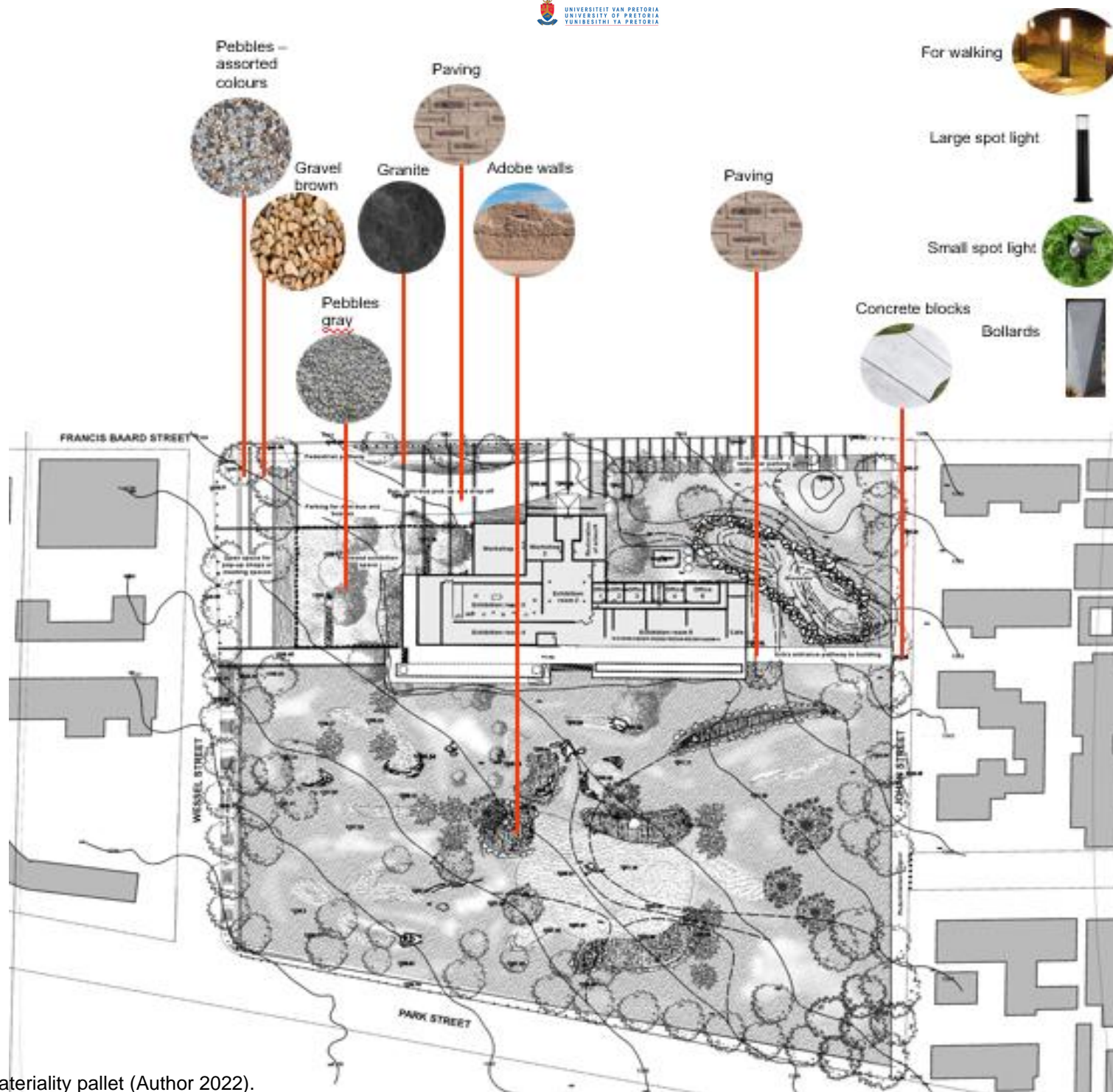


Fig 167: Materiality pallet (Author 2022).

Spaces around the building, specifically the north-western corner of the site are proposed to be enlarged to cater for informal market spaces and resting areas for pedestrians. These open areas are to be robust but also pedestrian friendly. These areas are thus of hard materials which soft indicative lines build into the design. The placement of the area is also near the more built-up area while the park ties (which has little to no hard landscaping) connects to the soft, open and natural area of the site and surrounding areas (specifically the soccer field across the road).

Due to only one of the residential buildings having an entrance on Johan's' Street, it is proposed that Johan Street becomes fully pedestrianized due to the existing high number of citizens using this area for activities. The specific building which one enters from Johan Street can be entered from the back, thus, the entrance can be rerouted for accessibility. The garden is specifically catering for the elderly and people mental constraints (e.g.: Autism). A list of criteria was put together which should be followed when designing the spaces. These elements should be avoided when designing.

From the onset of the dissertation, I was investigating ways of introducing sculptures into the landscape. However, I found that

the *Sakuteiki* suggest that rock is fundamental to everything because of its nature due to its inability to be replicated. The only element which comes close to this importance, is water, although, both have their own respective characteristics (Cunnigham 2016:33). Therefore, sculptures have been removed and rocks are rather introduced into their placement. From the start of Zen Garden creation, Masters were in awe of the “the dust of the earth” rather than amazing, impressive statues and elements within the garden because the masters are seeking for truth (Kuitert 1988:6).

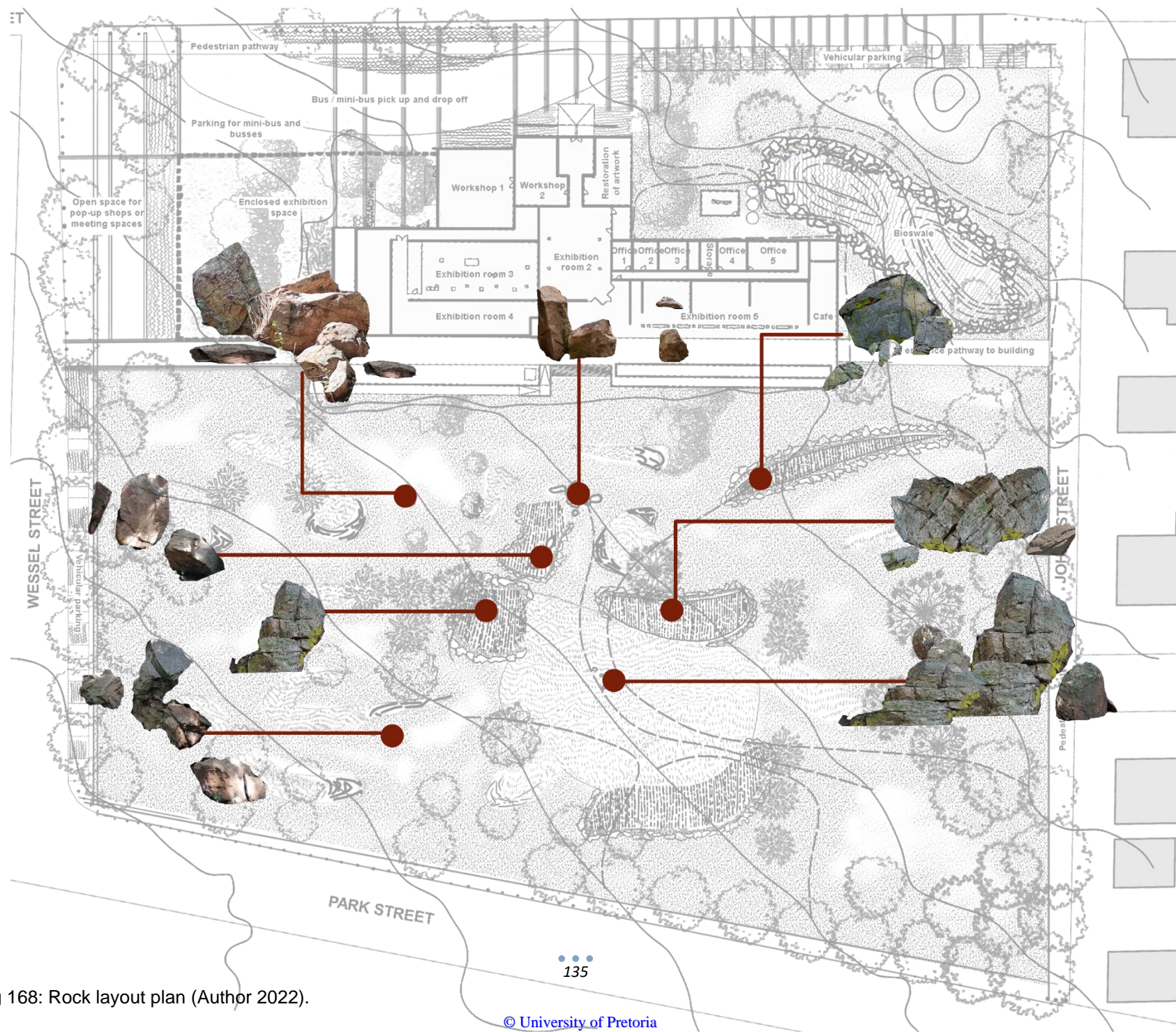


Fig 168: Rock layout plan (Author 2022).

Rock composition

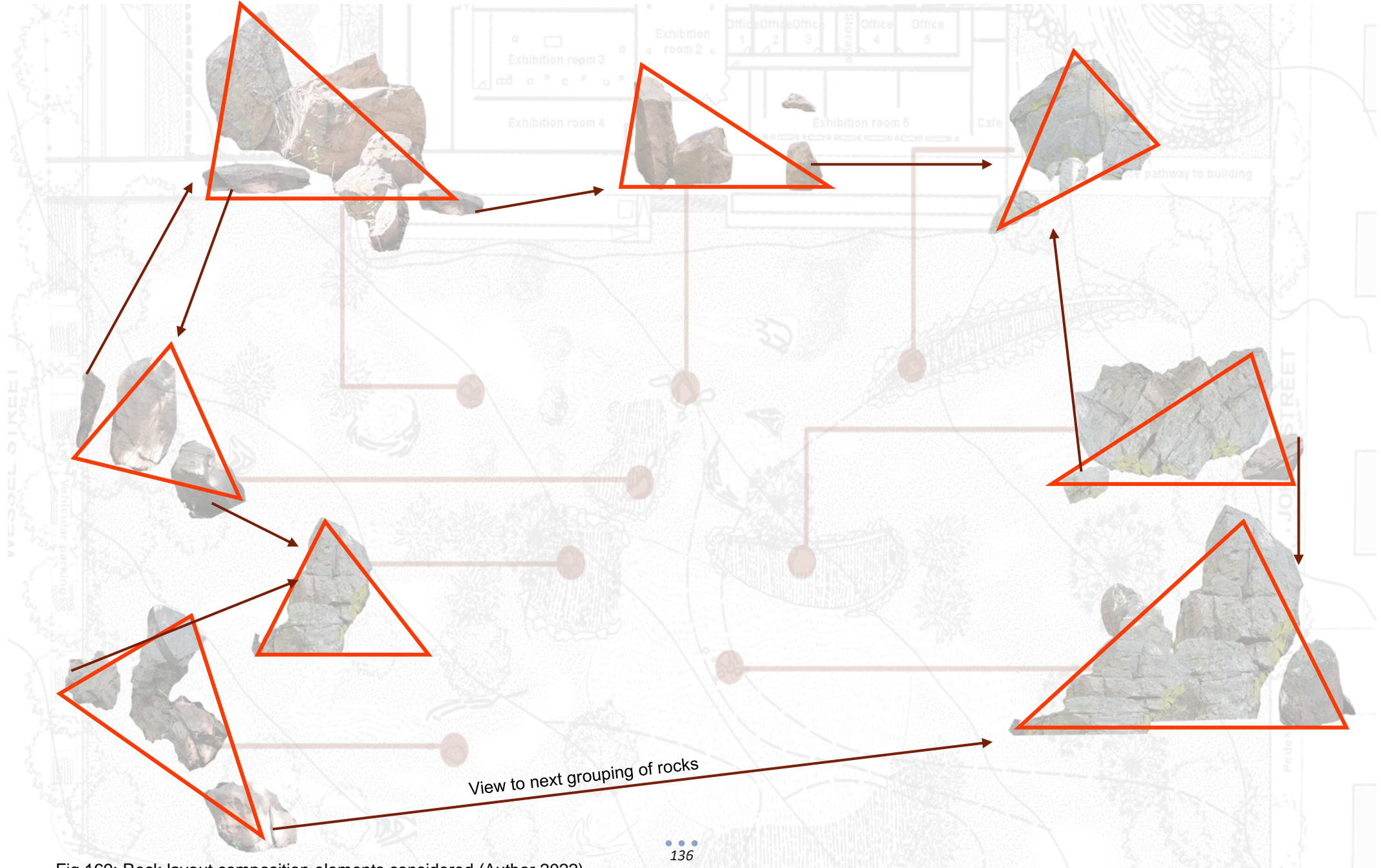


Fig 169: Rock layout composition elements considered (Author 2022).

13.2 MATERIALITY EXPLORATIONS

マテリアリティ調査

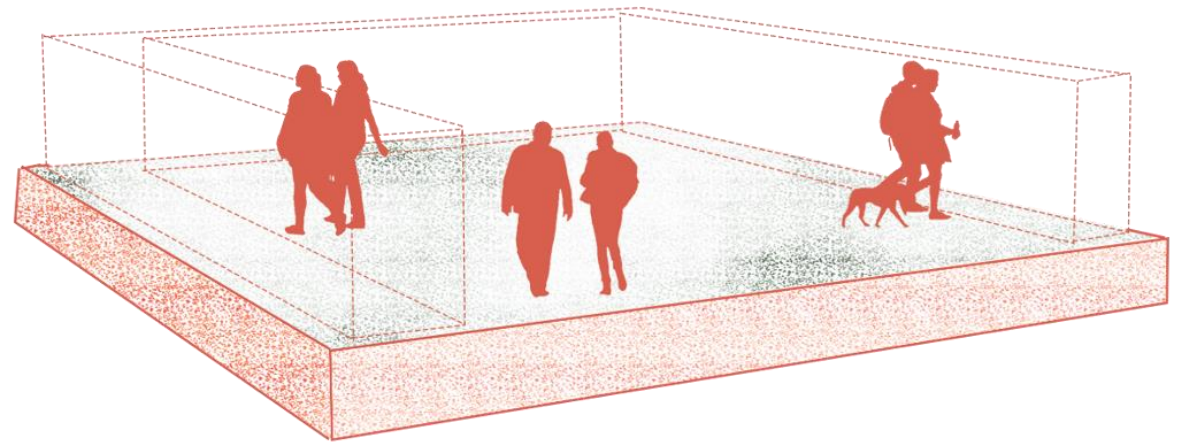


Fig 170: What materiality can be instead without being visually cluttered (Author 2022).

As explained by Kuck (1962:2) “Artists are inspired by natural beauty but disciplined by the limitations and techniques of materials”. Each material has its own specific characteristics, and this can be viewed as both a constraint and an opportunity. The beauty of a sculpture and/or architectural artifact lies in how one uses these materials without forcing non-inherent forms from the material. The truth of materials was first brought up by Wolff (1846) at a congress which advocated for a style which showcases the truth of different materials’ characteristics which thus showcases a level of beauty within itself. One can argue that this was the first conceptualisation of an architectural methodology (specifically referring to modernism) where the bare minimum of materials is used, however, the materials that are used, is used within its form and construction capabilities. Due to this constraint, new materials would be brought to the forefront to enable designers to construct specific elements in a certain manner.

“To regain stillness in one’s *kokoro* (spirit, heart and mind), to calmly return to oneself, only gardens – nature- can offer the space to feel such grace...working people who spend 24 hours a day inside buildings with a regulated room temperature where it’s difficult to sense the changes in time and season, such a space is essential” (Shunmyo 2011:34).

As seen from previously mentioned research, referring specifically to the materials out of which the gardens are made, namely: earth (sand, pebbles, rocks, gravel). As technology has advanced, an exploration of different textures of rammed earth is proposed for the project due to its ability to carry heavy vertical weight (Minke 2006). It should be noted that rammed earth walls cannot carry horizontal load and should be protected from water damaged (example: a rammed earth cannot be used for a retaining wall due to its back exposure to moisture and horizontal load being placed on the wall.) Japanese gardens showcase the mixture of time and space as well as developing a revelation of wonder within garden visitors (Harrison 2003).

Three different soil materials have been found for the experiment:

1. River sand
2. Building sand
3. Plaster sand

One would typically have to test the soil currently on site by a professional.

Four different textures were explored and made:

1. 90% soil and 10% concrete
2. 70% soil and 30% concrete
3. 70% soil, 15% grass and 15% concrete
4. 70% soil, 15% wood cuttings and 15% concrete

When making the mixture, it should be making clots. If the mixture is too wet, more soil can be added.

Firstly, a wooden box was created for the rammed earth to be placed into. If a pattern were made on the framework, a small sander was used to create grooves of different depths and lengths onto the wood. This way of pattern making can be created by a steel haired wood brush or any other appropriate appliances.

90% soil with 10% concrete

Due to the high amount of soil, the end product was easier to carve away to create patterns. The mixture with building sand and concrete created a layer which was difficult to sculpt on. The rest of the sand mixtures have been very easy to sculpt with. As one creates a deep line for the base of the texture, a gradual carving away should be done around the object.

70% soil and 30% concrete

Carving with this amount of concrete was a lot more difficult and resulted in patterns which looked man-made. Upon reflection, this mixture is more suitable where engravings have been made on the formwork (see image 179).



Fig 171: Three different kinds of soil and cement (Author 2022).



Fig 172: The mixture (Author 2022).

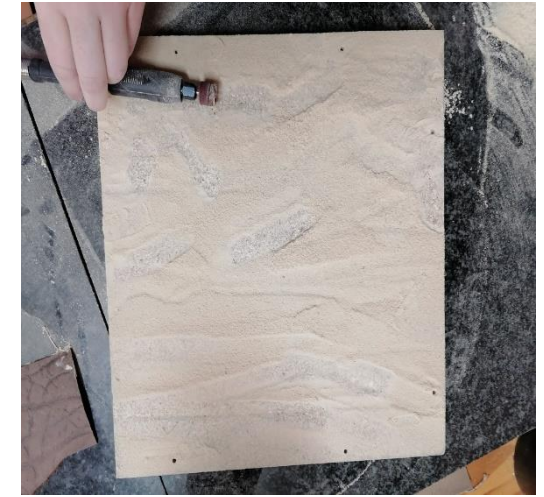


Fig 173: Groves made by hand-grinder (Author 2022).

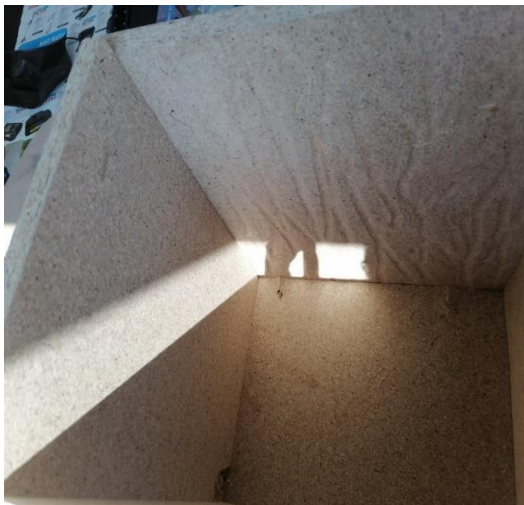


Fig 174: Option 1: Groves made by hand-grinder now assembled into a box (Author 2022).



Fig 175: Option 2: Smooth surfaced box (Author 2022).



Fig 176: Mixture inside the box (Author 2022).



Fig 177: 70% soil and 30% concrete with carved form work (Author 2022).



Fig 178: 90% soil and 10% concrete smooth framework and carved by hand (Author 2022).



Fig 179: 70% soil and 30% concrete and carved by hand (Author 2022).



Fig 180: 70% soil, 15% grass and 15% concrete with woodchips in concrete mixture (Author 2022).



Fig 181: 70% soil, 15% grass and 15% concrete (Author 2022).

70% soil, 15% grass and 15% concrete

The result showcased a very natural textured surface with grass protruding out from the block (see image 181) The surface was soft enough to create patterns if needs be. It is preferred to create patterns after the formwork has been removed as pre-created patterns would not be easily visible to visitors. As time moves on, the grass would turn from green to brown. This method was more predominantly used within the traditional manner of exterior wall construction within the Japanese tradition. Excess grass from maintenance done on site can be captured and used within this mixture.

Although a thorough investigation was done into rammed earth, it is of a better option to do adobe walls.

Rammed earth walls will over a long period of time fall away and the boulders on top would fall with it. The first proposed manner is that elements will be taken off during the movement of time, however, this possesses a risk to pedestrians' safety.

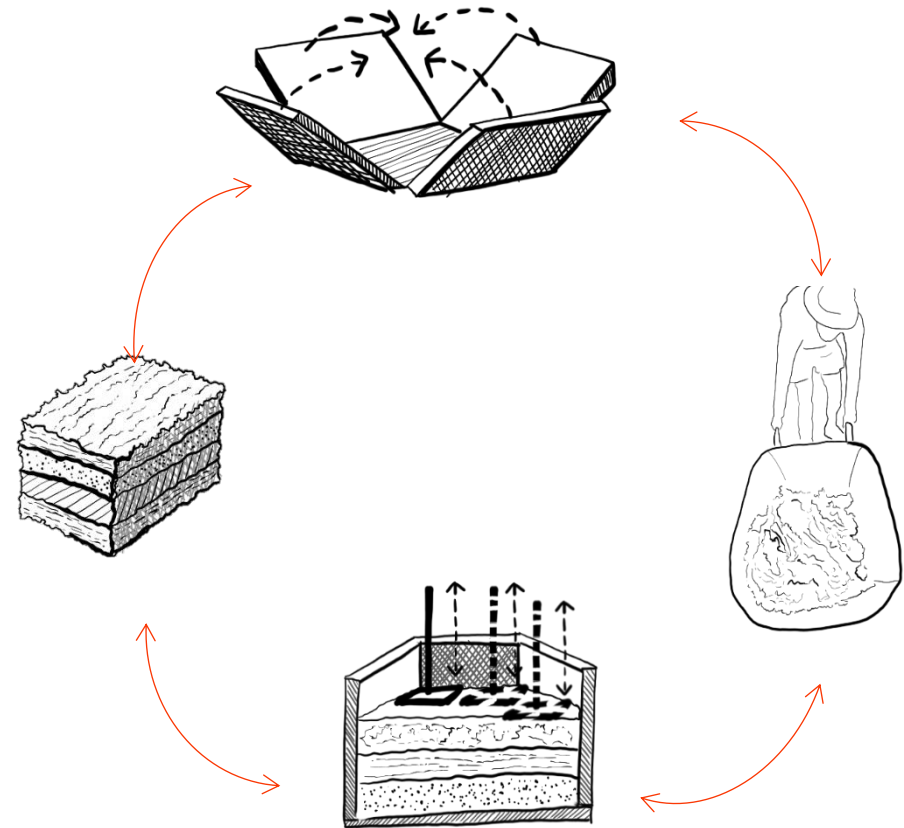


Fig 182: Construction of Rammed Earth wall (Author 2022).

Adobe walls are made out of mud and mortar. After the bricks have been made, they are set in the sun to dry (Blondet, Garcia [n.d]), in contrast, will create fine lines of where the walls meet, however, over time, as stormwater moves over the areas, the lines would become more prominent, however, the rocks would still be safe.

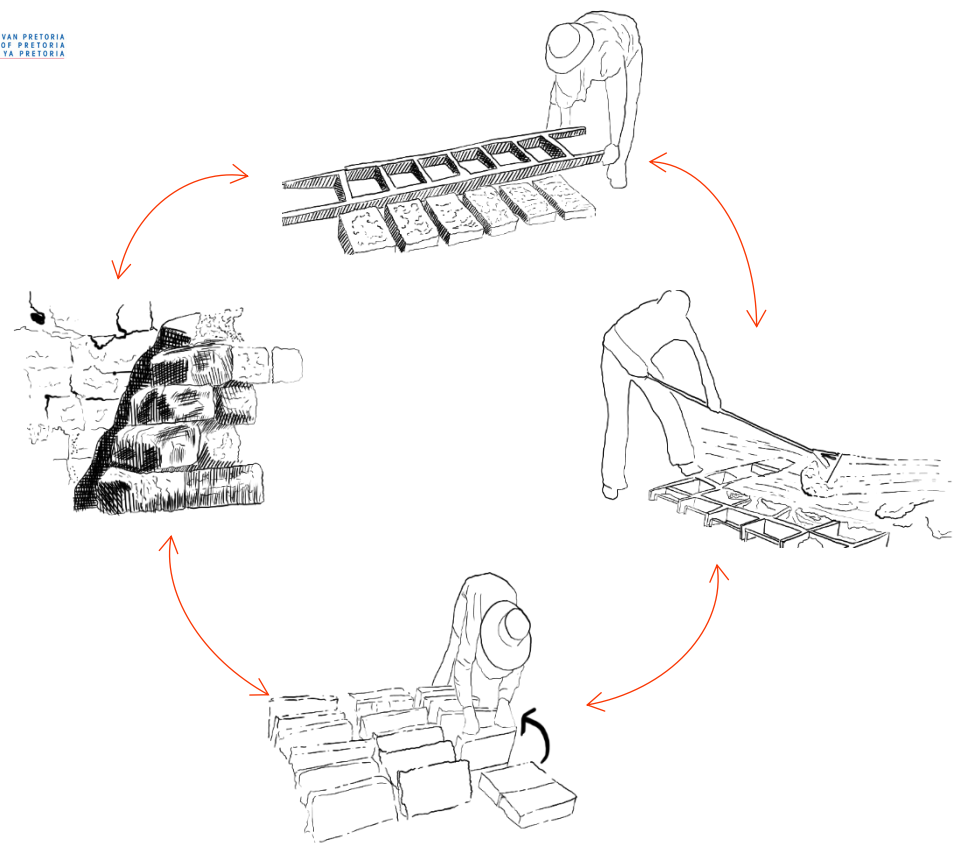


Fig 183: Construction of Adobe wall (Author 2022).

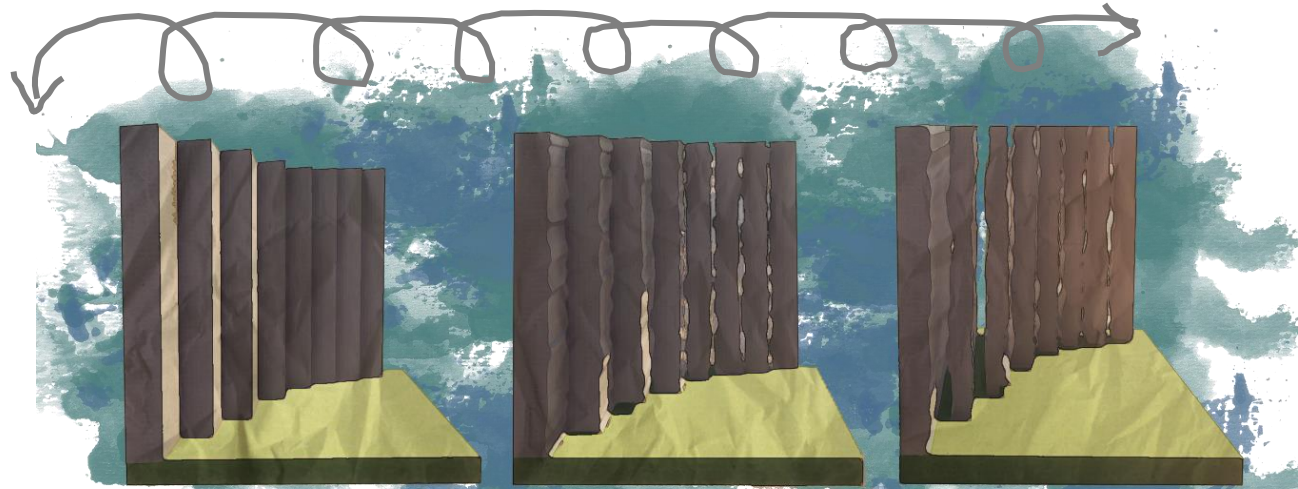


Fig 184: As time moves on, degradation will start and openings within elements will be showcased. This shows the movement of time which is often forgotten within the landscape (Author 2022).

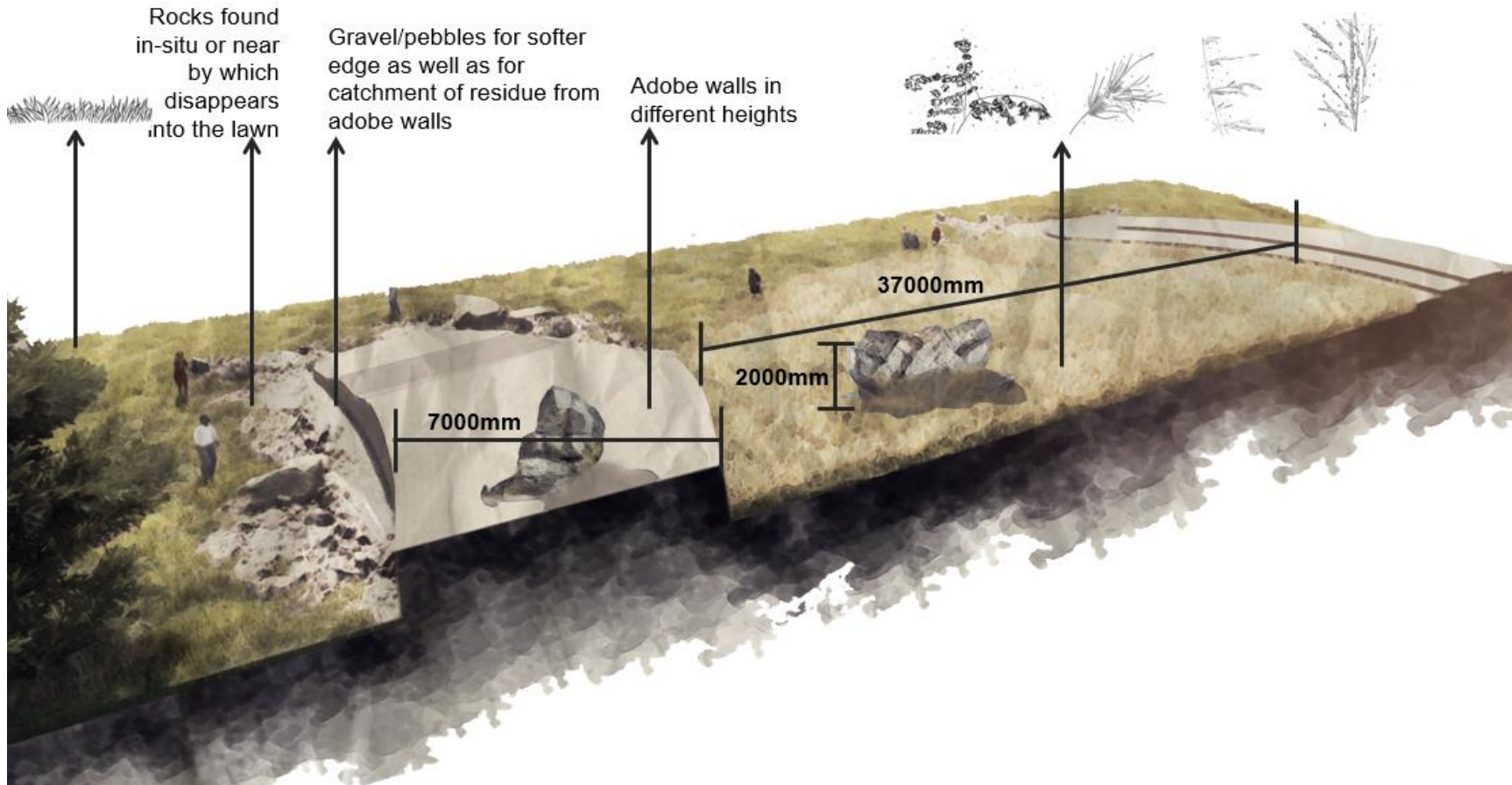


Fig 185: Different experiences: Vastness vs closedness (Author 2022).

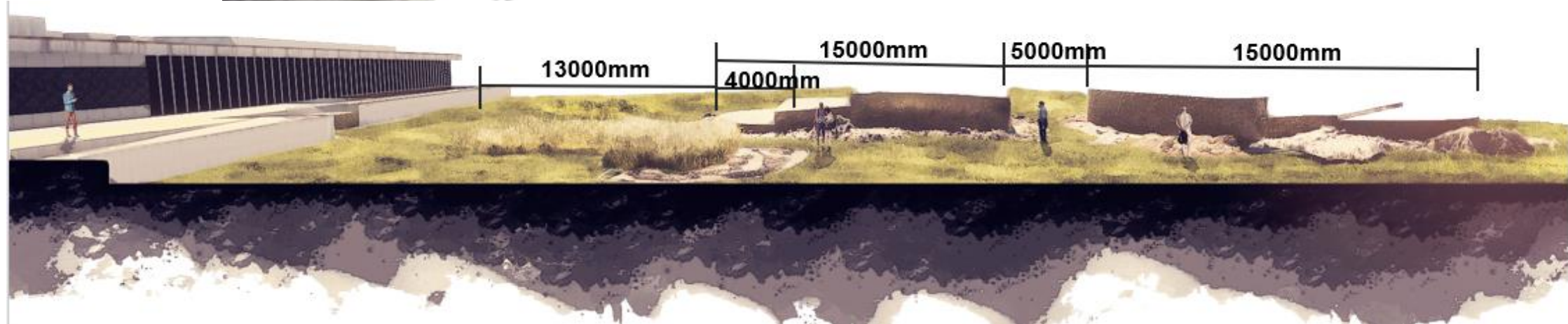


Fig 186: Different levels but still have relationship with building height (Author 2022).

13.3 LIGHTING

点灯

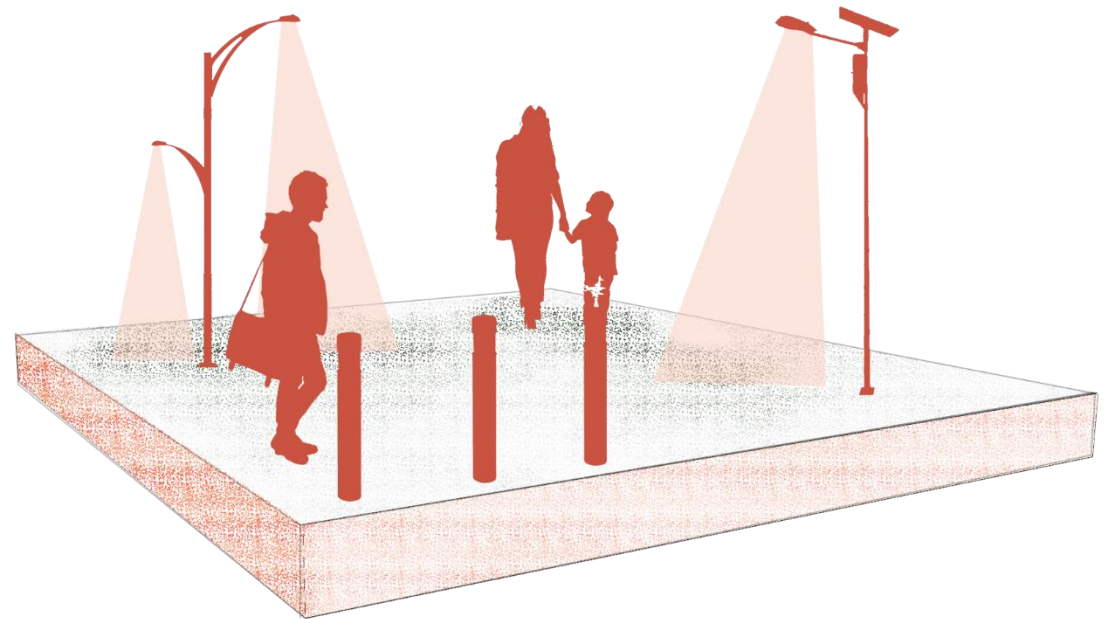


Fig 187: Lighting for the design (Author 2022).

“Application of shadow and light with each other has been from the works that gives mystical sense to the space” (Arjmandi, Tahir, Shabankareh, Shabani, Mazaheri 2001:228).

Upon studying the techniques of Japanese Zen gardens, layering of shadows is of great importance. Lights are strategically placed to showcase lines elements. Special colours of green, blue and purple will be used due to its calming characteristics for people with mental disabilities and the elderly (Babakhani 2017:3) .

Light could create the impression of form and sensation of unity within interior and exterior spaces. Light can be perceived as a spatial unit which can be public, private or both. Light is a symbol of divine wisdom and an element of goodness and purity; therefore, white walls are used as an enclosure elements within Japanese gardens. Due to the previously mentioned, architects often underestimate the importance in influence of colour and light (Arjmandi ed. 2001:289). This importance can be seen within the Zen Garden where a disciplined manner of choosing stones of common/different textures and colours play a role in design process. The textured nature of some rocks, a smooth surfaced rock should be placed nearby a rough textured rock to balance the light and shadow and vice-a-versa. Colours have the ability to not only be perceived within a visual realm, but also invisible (Babakhani 2017:4-5). A certain colour

gives off a certain radiation which in turn creates unconscious emotions within the user (Babkhani 2017: 3). The Zen garden thus consists out of three main colours, namely: scales of grey, brown and green. All of these colours, if not seen, does enviously allow the person to feel one with nature – hence monks contemplate with eyes closed but can feel the earth in a deeper manner and allows mental barriers to be broken to create a space of meditation (Babakhani 2017:5). The usage of colour and light within Zen gardens is minimal, as the garden should rather be experienced during the day when the user can understand the movement of time.

Due to the minimal usage of colour in both Modernism and Japanism, the colour pallet would consist out of the following: brown, grey, and green. All these colours refer to the earth and connecting the user to the earth. In return, visitors are not bombarded by colours, and focus is placed on the experience of walking within the garden and being focused on specific elements where the eye leads them.

Upon studying the techniques of Japanese Zen gardens, layering of shadows is of great importance. Lights are strategically placed to showcase lines elements. Special colors of green, blue and purple will be used due to its calming characteristics for people with mental disabilities and the elderly (Babakhani 2017:3)



Fig 188: Night: at drop-off centre (Author 2022).

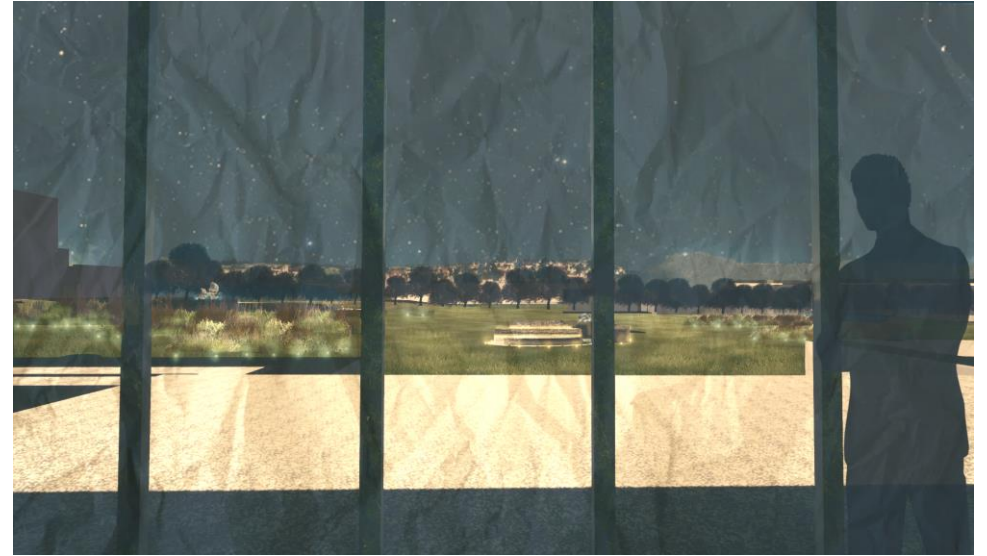


Fig 189: From interior to exterior view (Author 2022).

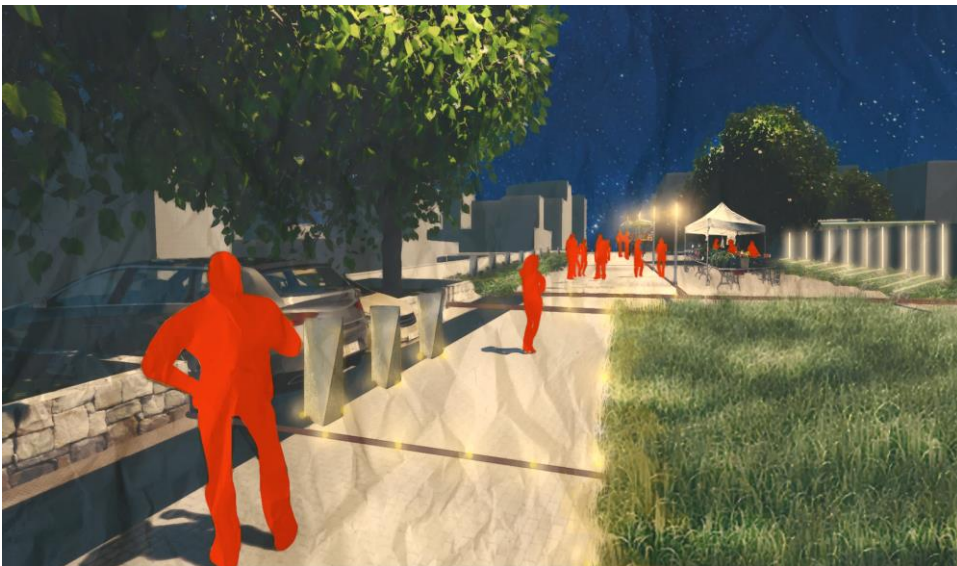


Fig 190: At entrance and open space for markets to be held (Author 2022).



Fig 191: At dry river beds inside the garden (Author 2022).

14. FINAL THOUGHTS

最終的な考え

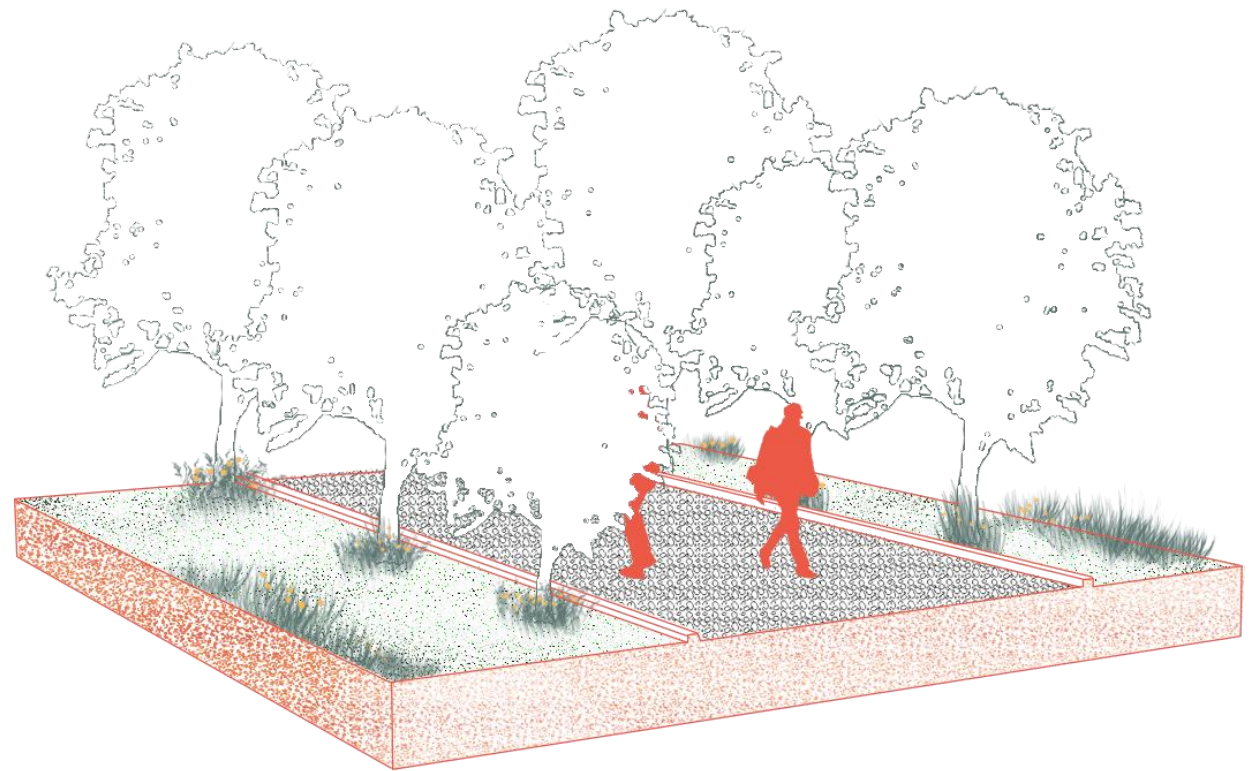


Fig 192: Thoughts before leaving (Author 2022).

Japanese Zen gardens is not an instantaneous act out of religious purposes or inspiration, both rather was rather considered a calculated, intellectual activity (Kuitert 1988:4). As the garden typology have become westernized and lost the psychological impact due to naive design solutions, there is methods and information which can be used to regain the impact and meditative qualities which the historic gardens have successfully carried out. This specific landscape architectural style is more than meets the eye, however, we as humans tend to over romanticize a style which is in reality a very sensitive topic.

Although advancement in time has brought us many great things, we seem to have lost the capabilities to think clearly and meditatively about problems and solutions. The effect of not being in open spaces to allow for contemplation and enjoyment can be seen through statistics of our recent pandemic. The statistics of mental health problems increased by 8% in South-Africans in 2020 (Msomi [online]). This could be due to our disconnection to people, our surroundings being very technological and our inability to go for a stroll in a garden space.

Going for a drive out we are bombarded by elements that grab our attention at different times of the day: advertisement boards,

phones, and computers. One needs to stop and have mental breathing space - this can be seen by businessmen - and woman having two digital devices, namely one for work and one for personal usage. Moving forward, Japanese Zen Garden design was only scraped on the surface in this thesis, however, it showcases big promises that Landscape architecture can have a deep psychological and mental impact on users without designers knowing about or thinking about it.

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16. FIGURE LIST

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Fig 159-161: v] Vogt, D. [n.d]. *European Central Bank, Frankfurt a. M. Discovery of a fluvial landscape*. [Image]. Available at: < https://www.vogt-la.com/european_central_bank_fr > [Accessed: 07 November 2022].

Fig 162-164: Cortex. 2004. *Land.tiles*. [Image]. Available at: < <https://www.materialsandapplications.org/events/2003/4/18/landtiles> > [Accessed: 07 November 2022].

Fig 165: Diagram of making the dry riverbeds (Author 2022).

Fig 166: Riverbeds explaining the different islands which can be formed within rivers/ streams with vegetation in them (Author 2022).

Fig 167: Materiality pallet (Author 2022).

Fig 168: Rock layout plan (Author 2022).

Fig 169: Rock layout composition elements considered (Author 2022).

Fig 170: What materiality can be instead without being visually cluttered (Author 2022).

Fig 171: Three different kinds of soil and cement (Author 2022).

Fig 172: The mixture (Author 2022).

Fig 173: Groves made by hand-grinder (Author 2022).

Fig 174: Option 1: Groves made by hand-grinder now assembled into a box (Author 2022).

Fig 175: Option 2: Smooth surfaced box (Author 2022).

Fig 176: Mixture inside the box (Author 2022).

Fig 177: 70% soil and 30% concrete with carved form work (Author 2022).

Fig 178: 90% soil and 10% concrete smooth framework and carved by hand (Author 2022).

Fig 179: 70% soil and 30% concrete and carved by hand (Author 2022).

Fig 180: 70% soil, 15% grass and 15% concrete with woodchips in concrete mixture (Author 2022).

Fig 181: 70% soil, 15% grass and 15% concrete (Author 2022).

Fig 182: Construction of Rammed Earth wall (Author 2022).

Fig 183: Construction of Adobe wall (Author 2022).

Fig 184: As time moves on, degradation will start and openings within elements will be showcased. This shows the movement of time which is often forgotten within the landscape (Author 2022).

Fig 185: Different experiences: Vastness vs closedness (Author 2022).

Fig 186: Different levels but still have relationship with building height (Author 2022).

Fig 187: Lighting for the design (Author 2022).

Fig 188: Night: at drop-off centre (Author 2022).

Fig 189: From interior to exterior view (Author 2022).

Fig 190: At entrance and open space for markets to be held (Author 2022).

Fig 191: At dry river beds inside the garden (Author 2022).

Fig 192: Thoughts before leaving (Author 2022).