

OVEN-BAKED ARCHITECTURE & EMBODIED EARTH

Re-purposing a decommissioned
quarry in Paarl, with a focus on
the interface between people,
architecture and the Earth

by Neil Trouw

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Design Dissertation Report

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I would like to dedicate this dissertation first and foremost to my parents, they have supported me throughout my academic journey and are always there for me

Lastly to my supervisors Mike and Heidi, thank you for being open minded in letting me pursue the ideas that interest me, whilst simultaneously keeping me in check.

ABSTRACT

This dissertation is about architecture. However this dissertation is about what architecture isn't as well. It is an intersectional investigation into the boundaries of architecture and where they lie. This is understood in the context of people, architecture and the Earth. Where exactly does mankind start and end and when do we become nature. How does architecture form the threshold between these conditions. A brick quarry in Paarl forms the site of this investigation. In a place characterized by a confrontation between people and the ground. A scar in the landscape, that begs to be addressed. Through the application of theoretic principles in the design process, a mediating architecture is uncovered.

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PREFACE

“What kind of architect do you want to be?” Is a question that is levelled at me quite often. A question despite being asked by many people, I still do not understand. The reason I do not understand this question is because it presupposes knowing what “architecture” is. This might come across as a bizarre thing to posit after 5 years of architectural education. It is clear what a building is and it is clear what a building isn’t, thus trying to define what architecture is should be simple. The issue comes in when I realised that I don’t know what a building is and what exactly isn’t one. What I mean is that to say that there is such a thing as a building, means there are clear distinctions in terms of where a building starts and ends. To me at least that just isn’t the case.

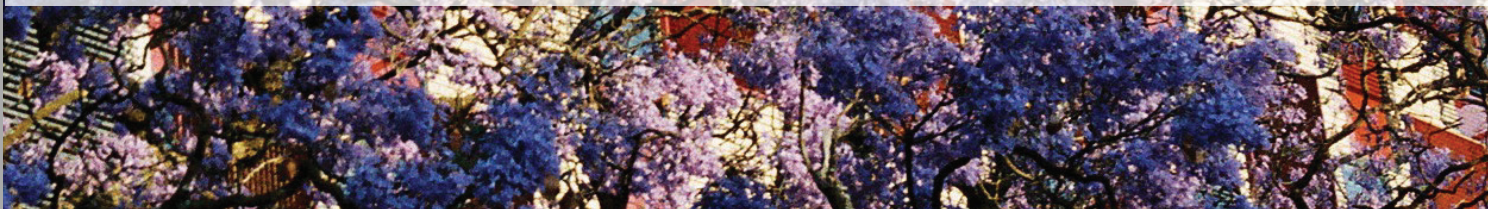
By looking at the things that interest me the most – Japanese culture, philosophy, psychology, and ceramics – I have tried to create my own understanding of what architecture might be. What is also important is not to find an answer to what architecture is. Rather the value of this inquiry sits within the inquiry itself.

SECTION





WE, THE EARTH & ARCHITECTURE



My investigation relies on finding a mediating view of the Earth, architecture and the self. My approach is to understand these three concepts through cross analysing them in pairs. Namely, “Self & Earth”, “Self & Architecture” and “Architecture & Earth”. By doing this I hope to establish a link between our divine experience of the Earth and the environmental importance of architectural approaches. Architecture thus becomes more of a framework with which to facilitate these ideas. I will further look at timber as a material that centres itself within these three ideas. I will look at timber as a pragmatic technology, but also as a technology that bears significant imbued meaning, which aligns with my ideas.

A1. SELF & EARTH

In my investigation of the self and the earth I am primarily concerned with the relationship with people and the Earth. In this I specifically endeavoured to understand this relationship from the Japanese perspective. My reason for this, is the Japanese culture has developed through a sensitivity towards nature. One that is not anthropomorphized, but rather one that doesn't necessarily distinguish us and the Earth as separate entities.

When I use the word 'earth' I am dually referring to both the earth as nature and the globe, as well as the earth as the ground upon which we stand and the plane which architecture meets. I distinguish these to uses of the word 'earth' through the use of capitalisation. Where 'Earth' refers to nature and its connotations, and 'earth' refers to the physical ground upon which we build.

1.1 Imanishi's View of Nature

I believe a good place to start is through Kinji Imanishi, he was a Japanese anthropologist, ecologist and later primatologist. I believe that understanding the ethic of nature from the viewpoint of someone with a scientific background shows just how deeply the Japanese sensitivity towards nature extends (Imanishi, 2002).

Imanishi makes clear his view of nature and the world. It is a view characterized through relationships, one that might be seen as a family with its members that all serve a function. In this view there is no 'us' and 'nature'. The world is not constituted as a random gathering, rather it is a collection of interconnectedness. If the world is a ship with passengers, it is not a world where passengers boarded the ship from somewhere else. Everyone that is on the ship, is of the ship and the ship is of the passengers. This geocentric view sees a co-harmonious relationship between all things on earth as fundamentally being one. Furthermore, what is of importance is the necessity behind the world's composition. The ship had to become the ship in order to facilitate the passengers and the passengers had to become passengers in order to inhabit the ship. In this regard, the relationship is in no way one of happen stance, but one of cosmic necessity. This forms the basis of everything (Imanishi, 2002).

Imanishi recognizes the fact that the world is made up of various things. However, this differentiation follows a different logic to that of Western philosophical thought. The Western rational materialist approach attributes the existence of separate entities to a variation in the characteristics of things. As well as the accumulation of matter in various functional structural arrangements. In contrast to this, Imanishi sees the things in the world as

various and separate due to the separate space they occupy. This means that it is in this occupation of different space that relationships between things is created. Thus, it can be understood that in the Japanese conception of difference, it is due to the relationships formed between entities, rather than the characteristics of the entities themselves. In turn the world is not solely made up of differences. Difference presupposes the existence of similarity; it is in similarity that we can conceive that other things are different. Thus, difference and similarity exist as a fundamental constituent of everything when everything differentiated from a single source (Imanishi, 2002).

Linked to the idea of similarity and difference, comes the notion of recognition, rather than observation. We do not simply see things and make calculations based on those. We recognize things, we have ideas of what they mean. This meaning is determined by our ability to intuit difference and similarity. This is all determined by our affinity to things. This affinity is determined by how many recognizable similarities we conceive in things. This affinity becomes less with the more differences that are present (Imanishi, 2002).

This then has an interesting consequence with regards to the affinity architects have for buildings. Buildings could be said to have more differences to humans than similarities. However, I believe that the affinity that we feel for spaces can be well understood in the language we use. Through the anthropomorphizing of buildings, we project those similarities onto buildings. In this way creating a relationship. We do not see buildings as the world that we inhabit, rather buildings are entities that co-inhabit the same world as us. This proposition in which architecture is similarly an entity means that a real relationship exists between

us and architecture.

1.2 The Linguistic inefficacy of 'nature'

The way we speak has a fundamental link to how we perceive things. In order to understand the relationship between us and the Earth, a grasp of what we mean when we use the word 'nature' is fundamentally important.

Conceiving the Japanese understanding of nature versus a Western one requires attention to be paid to what is meant when we say 'nature'. The Western usage of the word 'nature' speaks of something that derives from itself and is something outside of us as people. Western nature stands in opposition to humans, nature is that which is without. The Japanese language employs *Shi-zen* when translating the English word 'nature'. *Shi-zen* like the word 'nature' refers to that which is of itself. Furthermore, *Shi-zen* also speaks of nature as that which is outside humans. Where the distinction lies between 'nature' and *Shi-zen* is in the denotation of something which stands in opposition. Nature in the *Shi-zen* sense is a state instead of a subject. *Shi-zen* is wherever people do not intervene, or something occurs outside of human intent. Thus, *Shi-zen* is not something that exists as an entity that is encountered. Rather *Shi-zen* inhabits things or is experienced when we come in contact with nature (Callicott 2001).

Furthermore, in the West nature is experienced as an inevitable force that casts while we are cast. In this sense we fall prey to the will of nature. Thus, nature becomes the limiting factor of that which is possible, as we are subject to its indispensability. Thus, nature stands in the way of our freedom, through an understanding of nature we can reclaim some of our freedoms. The Japanese term of *Mu-Joh* finds itself in the transitory

nature of time and how nothing is permanent. All things are subject to decay. This however is not a nihilistic view. Rather it is expressed in "being-time". Time is being and all beings are time, therefore trees are time and all of nature is time. People are also being-time. This is an essential truth, truth brings freedom. There is a freedom associated with *Mu-Joh*. Man is not dispensable in the face of indispensable nature. Rather nature is spontaneous and of itself, thus the Japanese live this spontaneity of nature as a source of their selves (Callicott 2001).

The Western notion of nature also constitutes potential and the way things are. In this way we speak of the nature of fish, which is to swim, similar to the nature of God. In this sense man too has a fundamental nature, denoting possibilities and potential. Thus, this nature is seen as the peak of our potential, for we can only act within our nature (Callicott 2001).

Kitaro Nishida says, "When the world becomes aware of itself, so too the self; when the self becomes aware of itself, so too the world." (Viglielmo 1963) In this way the self does not precede experience, rather the self-arises from experience. We are part of the world, thus when we become aware of the world, the world becomes aware of itself. Myself is nature itself, nature is free, therefore I am free (Callicott 2001).

When comparing the Japanese sense of nature to the traditional Western sense of nature, which in South Africa overrode many indigenous views through colonialism, there is a strong difference in the sense of connectedness to nature. The connection itself is not the only issue, but the nature of the relationship that is set up. To me the western view of nature is one of separation, this then is expounded as that which is without which acts in

opposition to us and acts down upon us. Nature is something that must be overcome, even within ourselves we strive to transcend our very nature. Comparatively, the Japanese sense of nature is one of unity. Although *Shi-zen* speaks of that which is without, this is more a semantic definition in the sense of natural versus artificial, nature is participatory and does not act upon us, it is a means towards freedom.

1.3 Nature Experienced

Shaner looks at the Japanese experience of nature as a means to understand their ecocentric worldview and its significance to environmentalism. Japan has a harmonious view to the place of nature in their lives, specifically in the religious significance that it holds.

In Shinto religious practice the gods were seen to be in attendance in the mountains. What is important to understanding is that this is not meant in a metaphorical sense. This refers to an animistic view in which all things participate in a web of divine presence (Shaner 1989). Thus, the encounter with the divine in nature is of an empiricist quality. The gods in nature are not things that are symbolically represented through nature, where nature gives access to the realm beyond in which gods reside. Rather nature itself is divine, and the things in nature are the gods themselves. Traditionally Shinto followers will tie rope around objects in nature in order to call the *Kami* (gods) to inhabit them, so that they be in attendance.



Figure 1: *Yorishiro*, a place where *Kami* are in attendance

I think the Shinto view of embedded divinity is of particular importance when we think about the intimate connection between people and nature which was discussed earlier. Imanishi talked about how we are all fundamentally of a single source, thus we and nature are the same. Additionally, when we think about *Mu-Joh*, we are part of the same flows as nature and we actively participate in the same cosmic arena. Now if we think again about the Shinto idea of embedded divinity in nature in this light, it fundamentally changes how we view people and their relationship to nature. We are part of the same fabric as nature and thus the divine. We are being-time and thus we are dynamically participating in the divine arena in nature (Shaner 1989).

Shi-zen in nature (that which is of itself) talks to the gods being attendance in a literal sense. In order to have an intimate relationship with nature it is necessary to cultivate a non-symbolic attitude to nature. A divine experience in nature does not point to some transcendental significance beyond us, it is very real in its experience.

There is a Buddhist maxim which tells us to see the world with a childlike mind, the 'original face'. This refers to seeing the world devoid of compartmentalized notions influenced by societal categorizations. Experiencing the world is not about reflection, rationalization and understanding. It exists purely in the realm of experience. In experiencing the world, we become aware of the dynamic flows that everything is constantly participating in (Shaner 1989).

1.4 Mindfulness & Nature

Van Gordon, Shonin and Richardson investigated the power of nature to improve mindfulness practices. They express the idea that when we breathe out, the plants and trees, breathe in our out-breathe. In turn, we breathe in the out breathe of plants and trees (Van Gordon et al. 2018). We are dynamically coexisting. This has a strong link to the idea of dynamic co-existence linked to Buddhist thinking. What is significant about the research into mindfulness and its link to nature that van Gordon et al undertook, is that there is strong scientific evidence that has emerged that supports the idea of nature promoting health. Furthermore, their paper goes on to show that nature plays a key role in emotional regulation of individuals. What fundamentally lies at the crux of the positive impacts of nature, is the idea of an intimate connection with nature (Van Gordon et al. 2018). Thus, we can link this back to Imanishi's conception of a world made up of relationships. In order to fully create a connection of intimacy with nature, a relationship would have to be set up, and conceiving the world as fundamentally interconnected will strengthen said relationship.

Mindfulness practices lie in existing completely in the present moment in the actions we are undertaking. The significance of this is in an embodied experience. You cannot fully exist in the moment if you view your mind as a separate entity from your body and action. Truly existing in the moment requires us to entirely immerse ourselves, through action, through senses through singular thought on the moment. In effect, it requires us to remove abstract notions, wholly becoming part of the world (Van Gordon et al. 2018). This is in direct alignment with the Buddhist maxim of seeing the world with your original face.

Thus, modern scientific rationalisations of mindfulness, in turn gives scientific credibility to the Shinto and Buddhist worldview.



Figure 2: wild plants

A2. SELF & ARCHITECTURE

2.1 Architecture & Divinity

When I think about the intersection of architecture and the divine, an understanding from a primarily Western view is most appropriate. The architecture that we practice in South Africa today is primarily the product of 20th century European influences. This is deeply felt in the language we use, the technology we employ and the automobile-centred cities that our architecture manifests in. I believe if I were to locate the divine in architecture or lack thereof it would be in this post-colonial western influenced architecture.

We as people are aware of conceptions of the sacred and the profane, if at least only insofar as value judgements based on our experience of the world. Historically the western culture exists in a two-world model. One of flesh and earth, the here and now. This is all below a second transcendent tier of the cosmic, where the divine resides. Our lives so to say gather meaning from trying to reach this second world, which is perfect whilst we are here in an imperfect world of suffering. In this view it is clear how we can have notions of the sacred and the profane. It is that which of this world and that which is of us, in contrast to that which is beyond us. It is useful in this case to look at the word divine (Bradley 2002).

The word “divine” has a powerful double meaning. The typical understanding of divine, is that which is of God (that which is of the realm of the sacred). However, “divine” can also be used linguistically as a transitive verb, meaning “to discover or intuit something”. When these two meanings are then brought into consensus, “divine” means to discover or intuit God in an actionable manner. Encounters with the divine are in that

sense not only meetings with such things that are of God but are pathways that lead us to the sacred realm. Divine experience is not observation, it is transformative realisation that implies some form of journey through an experience (Bradley 2002).

Looking back at the aforementioned ‘two worlds’ there is a problem in reconciliation in the modern age following the scientific revolution, where our world and the realm of the sacred can no longer coincide. In the work of Nietzsche this can be understood as either meaning that the truth provided by religion in its promise of a transcendent world above ours being false, or that the truths that are dealt with in science and religion are irreconcilable (Peterson, Vervaeke 2015). Thus, the transcendent realm, is something we as profane beings of the corporeal plane will never achieve, at least not in a literal sense. But this does not exclude divine experience and meaning. “I cannot transcend experience, and experience is my experience. From this it follows that nothing beyond myself exists; for what I experience is, is the self’s states.” (Bradley 2002, p94), Looking at the words of F.H. Bradley, that which exists and is real is that which we experience, therefore our encounters with the divine can never be non-real, in fact the very fact that we experience them proves that they are real in the realist sense of the word. Therefore, that which is divine and divine experience itself exists in the world of flesh, light and ground (Barrie, Bermudez 2016).

What does this then mean architecturally? The first important proposition that I would like to put forward is that architecture and the divine inhabit the same space. This does not explain where architecture and divinity meet, or if they ever meet. Michael Benedikt creates an effective framework with which to approach this conundrum. The first important point that he looks

at is our worldview as a means of understanding how we frame ourselves with regards to experience. Benedikt approaches from two philosophically distinct and seemingly opposing narratives. The first being a solipsistic world view, in which the “I” is the centre of experience and consequently the only verifiable reality is the individual. “I” am the centre of the universe, as all others are generated from “me”. This view correlates strongly to the western importance that is placed on the individual. It follows from this, that reality itself is an experience and therefore any experience that produces a sense of divinity or transcendence, is inextricably divinity itself. In terms of value scales, a church or temple evoking a spiritual realisation, is as equally real as such feelings being evoked by an interaction with the cosmos, such as staring off a mountain peak (Bradley 2002). The second contrasting lens through which to view the world, is derived from Buddhism. In Buddhism everything is encompassed within Brahman, this is the cosmic absolute. It embraces all things equally; it is the thread from which the cosmic tapestry is woven and therefore everything forms part of this tapestry and is of the same thread. The individual is Atman, Atman is given rise to through Brahman. Thus, the individual is first and foremost part of the larger whole. This means that our distinctions of beings and non-beings, inside and outside, is illusory. Although individuals find centre within themselves, this centre cannot be understood to be separate, it is part of a collection of points that coalesce in a unified whole (Bradley 2002).

2.2 Phenomenology & the landscape of meaning

In order to frame an understanding of phenomenology I think it is necessary to understand how phenomenology departed from Western philosophical presuppositions of perception of the 19th century. At the time perceptual frameworks of reality were based on a rationalist notion which sees humans as disembodied cognitive agents, that exist in an object laden world. Perception is the mechanism by which we perceive physical objects, process their relevance hierarchies cognitively and thus ascribe appropriate responses to them. Phenomenology deals with perception as objects in the manner in which they appear to us (Shirazi 2014). Husserl saw phenomenology as the process of illumination. What makes this different from a rationalist perception, is the inscribed meaning behind things, prior to rationalisation. It is predicated on the notion that things are imbued with meaning.

Husserl’s interest in phenomenology, is based on the idea of pre-ordinating naturalistic beliefs and scientific knowledge thoughts, with intuitive original perception. This is a powerful notion, as it requires us to try and remove our experiences from rationalisation, thus the experience will be understood in their original manifestations. The aim is to try and capture pure phenomena. Things themselves as they appear to be, not as representations, but in their essence. Husserl goes on to talk about the existence of two bodies, a physical and lived body. The physical body is the body that the world acts upon, while the lived body is that with which we act in the world. The idea of the lived body is of importance, insofar as it creates a world in which we ‘live’. Live in this sense means to act out, thus there is a life world in which we act out. If we extend this thought, then perception is tied to acting out in the world (Shirazi 2014).

In enactment Heideggerian phenomenology comes into relevance. Heidegger was interested in perception and knowing, through being. Heidegger set up phenomenology in the intersection of phenomenon and logos. Phenomenon can be understood as that which shows itself in itself. Logos refers to speech, through speech matter is brought into the open. In this sense speech refers to enactment and enactment to being. Thus, through being, we manifest that which shows itself in itself, and let ourselves see that which shows itself, as it shows itself in itself. Heidegger refers to *dasein*, which means 'being in the world. Thus, *dasein* refers to dwelling, and dwells within the world. That which dwells within the world, refers to relational space, as it exists in the world. With a relational understanding of *dasein*, it means that things can only be understood and experienced truly in how they inhabit space and relate to us and the world. Implicitly, things thus exist imbued with meaning, and imbued meaning exists relationally. These relationships are spatio-temporal and interpersonal as we see them (Shirazi 2014).

Along with the idea of being, as a notion of perception, is the understanding of perception as an embodied practice. Modern neuroscience has uncovered the understanding that perception is not a separate cognitive function that we do in a rationalisation process. Perception is embodied (Peterson, Jordan B. 2022). What is meant by this, is that we do not see objects in the salient landscape, identify the objects, correlate their functions and then act upon them. This can be illustrated in people that exhibit utilisation behaviour. Utilisation behaviour is characterised through damage to the left pre-frontal cortex. This expresses itself as people seeing objects and acting out without the ability to inhibit the action. For example, if a person with utilization behaviour

sees a cup, they drink from it, if they see an open door, they walk through it. This has two significant consequences with regards to our understanding of perception. Firstly, it means perception happens pre-cognitively and secondly, we see meaning and then infer objects. This is the exact opposite of the rationalist conception of perception. We do not see a door. We see a walk-through place and know it as a doorway. Furthermore, not only do we first see meaning before objects, meaning is an actionable thing, insofar as perception elicits action (Peterson, Jordan B. 2022).

Bringing this into an architectural framing of the world, we are left with serious implications. We do not design objects in a physical landscape. We create meanings, which initiate action and we infer them as buildings. This means that architecture is fundamentally encoded with meaning in our entire interaction with it. This embodied perceptual participation with architecture further means that the very creation of architecture is enactment and in its enactment is being, being is meaning and meaning is embodied. Thus, through the creation of architecture we are embodied within the architecture. What do we mean then when we design, and what do our designs mean to people when they participate in perceptual interaction with them?

2.3 Space Being Time

The Japanese perceptual participation in the built landscape and its relational coordination with us and our surrounds, is a strong departure point to understand embodied perception.

Yorishiro, “things into which *Kami* descend”. Earlier I spoke of how *Kami* are seen as literally inhabiting the natural world. What is important is in the transient nature of this belief. *Kami* come and go; they do not permanently inhabit things



Figure 3: *Yorishiro* in harbour, Hokkaido (Nute 2004).

Thus, *Yorishiro* shows how the significance of objects is related to specific events in time. These specific events, signifying the arrival and departure of *Kami*, are characterised through natural phenomena occurring. In this manner we can think of time and space not as a metronome, but through discrete objects and occurrences (Nute 2004).

This preoccupation with time and its measure through natural phenomena is illustrated in traditional Japanese homes through

the *tokonoma* alcove. With changes in season and festivals indicating sowing and harvests, the *tokonoma* is adorned with different displays depending on the season or event. It is a calendar that inhabits space and requires action, its meaning is embodied through its use (Nute 2004).

The Japanese tea ceremony and its tearoom do the opposite. The tearoom is small and removed from the outside world, where natural phenomena exhibit the passing of time. There is no past, no future, only now. The present that exists in the tearoom is not the ever changing present that we constantly experience. It is the eternity that exists in the present moment. Time keeping devices are not allowed. The famous tea ceremony saying, ‘*icche go icche e*’ (one time, one meeting), encapsulates the ethos of what is crafted through the ceremony (Nute 2004).

In the phenomenological sense, meaning is master to space. Space is crafted to make space for place, which takes on meaning through embodied participation.



Figure 4: Wabi Tearoom

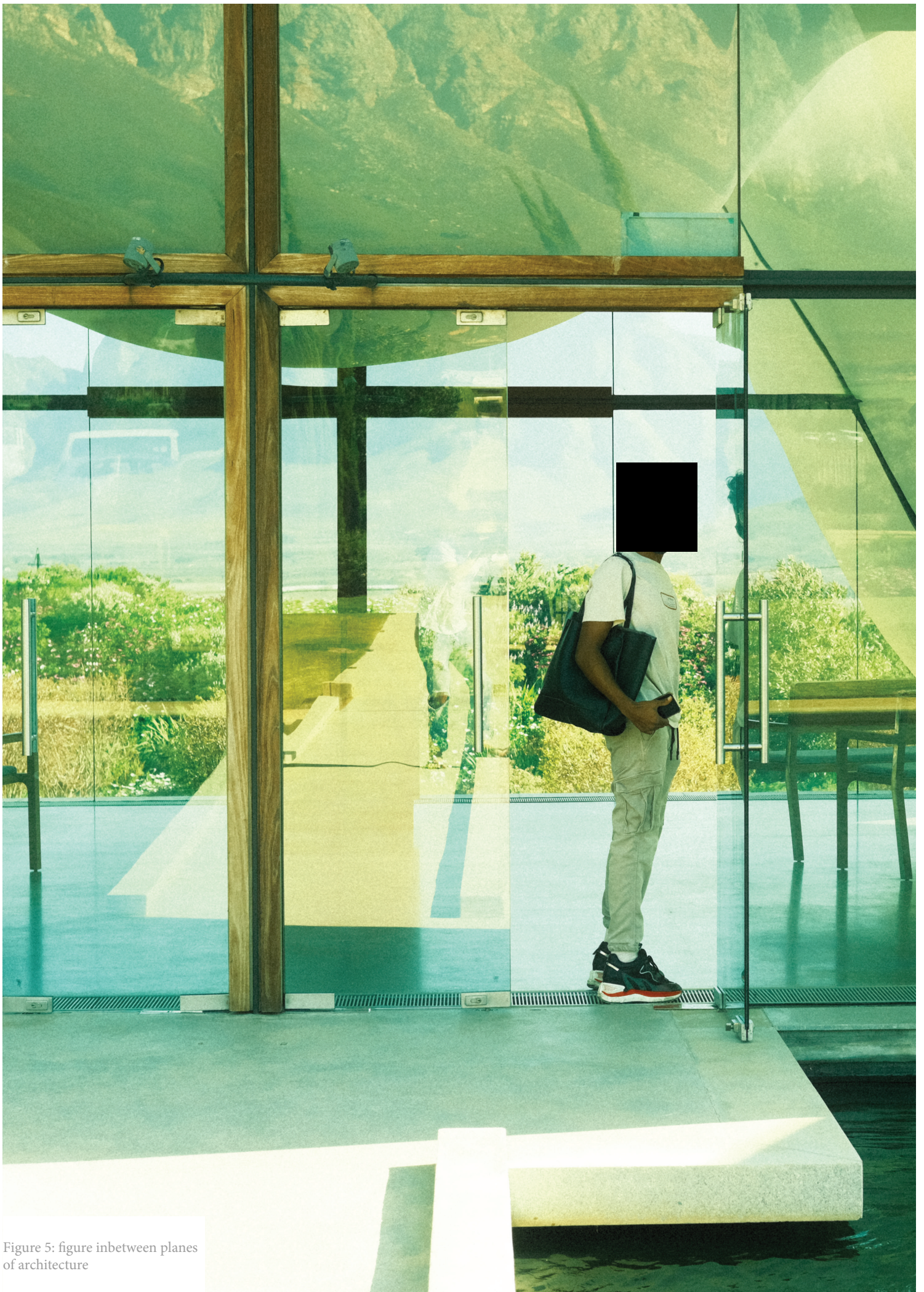


Figure 5: figure inbetween planes of architecture

A3. ARCHITECTURE & EARTH

3.1 Where Architecture Meets Ground

Ground generally refers to the top of the earth or the crust. It is that upon which we build. The term in this sense has symbolic significance. A building is referred to as grounded if it has a well resolved encounter with the earth. Similarly, we use this term in the inverse, a building is ungrounded when its encounter with the earth is not well resolved.

In the architectural lexicon words such as ground, earth, land and soil are equated as being the same. However, this is indicative of a lack of relation to the various meanings that we espouse towards the ground.

I would like to expand on these meanings further. I would like to distinguish between the terms earth and ground. When earth

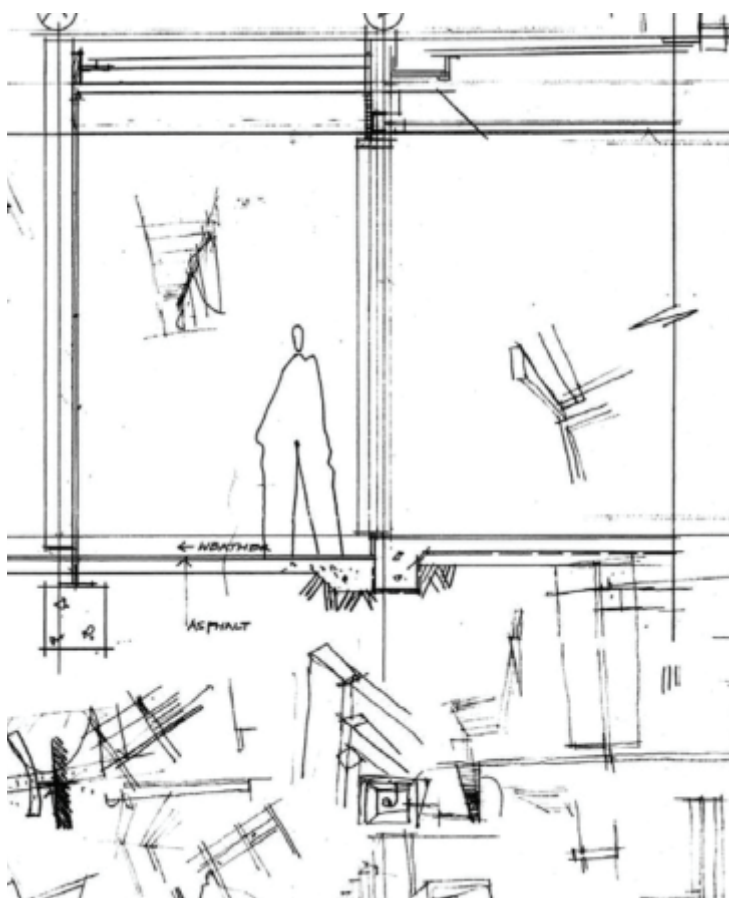


Figure 6: Woodleigh school, Sean Godsell footing details

refers to the ground, it is a naturalistic statement. In this sense earth means, the material substance of the earth (globe). This is a naturalistic term. If we look at the term natural, meaning 'that which is of itself', the term earth in reference to the ground literally is referring to the earth as that of which it is. Furthermore, the usage of the term earth also has a strong relation to the term soil. Soil refers to the biological nature of the ground, it is in the soil that organisms live, and it is in the soil from which life emerges. In this sense, if life is of the earth and the earth is of the earth, then earth and life are one and the same. Ground on the other hand is a much more physical term that speaks of stability and rootedness. When buildings meet the ground, they are coming into contact with a physical entity that anchors them. Sean Godsell is concerned with the way architecture meets the ground. His buildings aim to reduce the trauma inflicted on the ground. Thus, he pays special attention to the point of meeting between structure and ground. This then asks the question of how buildings meet the earth. Apart from meeting with a physical entity that routes a building, how do buildings meet the earth as a living emanating entity (Berlanda 2014).

Architects are conscious of the topography of the earth. However, it cannot be understood as a unidimensional element. The topography is the result of the dynamic interactions between the earth and physical agents like wind, water, and light. Thus, we cannot regard the topography of the earth as a static physical characteristic. It is the result of constantly participating in a dynamic process of transformation. The architecture that we embed into the earth enters these dynamic processes and is influencing and being influenced by them (Berlanda 2014).

The designs by George Hargreaves show that he is abundantly

aware of the dynamic processes that form part of the topography. Hargreaves says, “I am setting a framework on the land, the vegetation, people and water will work in it.” I do however find issue with this statement in the way that the subject and object are set up. Here the framework is the subject and the natural processes are the objects that are acted upon. I would posit that the correct way to phrase this, sets the natural phenomena up as the subject and the framework is acted upon by them in turn.

Lightness speaks of architecture that touches the earth lightly. Architecture is inherently destructive towards the earth as it means. Thus, there is the question of how architecture must touch the ground? In the case of Frank Lloyd Wright, this manifests with the Prairie house in terraced levels that eventually meet the ground, thus the architecture spatially becomes part of the earth (Berlanda 2014) while having a large footprint impact.



Figure 7: Prairie House, Frank Lloyd Wright

3.2 Inside-Outside

Intuitively to all of us that breathe there is an inside and an outside. For many we are inside ourselves and everything else is outside, buildings especially signify an inside and an outside. There is something that lies in-between. *En* is the Japanese word for ‘edge’, ‘connection’ and ‘destiny’. Traditional Japanese buildings and temples have a special structure called the *engawa*. It resides in the back of buildings, overlooking a garden. Spatially it appears to be a veranda, but in its meaning it transcends such a limiting frame. The *engawa* is the edge of and the connection between spaces (Lazarin 2014).

“The streaming river
ever flows
and yet the water
never is the same,
While foam floats
upon the pools,
scattering, gathering,
never lingering long,
So it is with man
and all his dwelling places
here on earth.”

“Hojoki” – Kamo no Chomei 1212 p1

Kamo Chomei elicits the Buddhist sense of non-attachment. Set aside claims of reality and give yourself up to the stream of transience that encompasses the world. This sentiment finds its place in the phrase *mono no aware*. *Mono* means to be aware. While aware is a compound derived from *ah* and *hare*, ‘awe’ and ‘surprise’. This can best be seen in the beauty of things

that are transient and fleeting. Beauty is expressed through things that are immediate, existing in a precipice of time. Cherry blossoms that are falling embody aware. Cherry blossoms bloom for a few weeks a year and are then blown off their branches. Falling 5cm a second, the beauty exists for a moment as the blossoms drift towards decay. The blossoms falling have come to represent death, however they simultaneously represent beauty (Lazarin 2014).

Ma, is that which resides between things. It is not space as such, rather it is a condition. The term *hashi* which means bridge, is that which protrudes into *ma*. *Hashi* can also be understood as ‘*en*’. To cross a bridge, is not simply to pass from one space to another, it is the resolve to abandon one side and delve into *ma*, to enter transience and enter into another space. Thus, that which is the edge and the connection, is also the bridge. *En* does not denote boundary. Its stretches and blurs it, forming a continuity (Lazarin 2014).

Keeping these ideas in mind, I would like to return to the original proposition of the *engawa*. The *engawa* is *hashi*, it is the projection that resides in *ma*. Space gets stretched and warped by it. I will explain this by expanding on the architectural function of the *engawa*. The *engawa* functions as the threshold space that connects the house and its garden, it is also a connecting passage between rooms. Rooms have *shoji* screens towards the *engawa*, where the *engawa* is the threshold between interior and garden. Its openness can be adjusted through the *shoji* screens, in this way the *engawa* forms an aperture, determining the degree of ‘insiderness’ or outsiderness that is experienced. The *shoji* screens can be completely removed, evaporating the barrier between inside and outside completely.

Often, swallows enter homes and make their nests, the earth moves freely in and out of the residence.



Figure 8: Entsuji Temple, View of garden from *engawa*

The *engawa*'s true intention lies in its relationship to the garden. The Japanese garden aspires towards borrowed scenery. This is done by curating and cultivating the garden in such a manner that it integrates into the far-off landscape. The *engawa* and the apertures that are created through the *shoji* play a key role in setting up specific vistas. Space is bent and the far-off landscape is pulled closer and begins where the garden ends. The *engawa* becomes an inhabited telescope in which this bending of space and time takes place where the earth reaches maximal proximity (Lazarin 2014).

The most important aspect that must be understood about the *engawa* and the integration of inside-outside and the integration of nature into architecture, is that it is a condition not an element or device. This is evident in its spirit, that persists in contemporary Japanese architecture.

Yokomizu used a box made up of bubbles, where the intersection of bubbles would leave outside spaces inside the building. Here *en* permeates through the building (Steele 2017).



Figure 9: Tomihiro Museum by Yokomizu

Fujimoto further explored the idea of *en* in House N. A series of perforated boxes eliminates ideas of true inside and outside. Boundaries of building and earth are completely blurred, all spaces exist in and out of *ma* (Steele 2017).



Figure 10: House N, Sou Fujimoto

3.3 Exploring Where Architecture Intersects Earth

In this model making exercise I was primarily interested in the intersection between architecture and the earth. My model starts from a conceptual landscape, characterized by a depression and a protruding rock element. The structure attempts to touch the ground as lightly as possible, whilst simultaneously creating an enclosing structure that holds the landscape. The architecture becomes a mediating force between the tension of recession and protrusion.

Along with the desire to touch the earth lightly, I wanted to explore the idea of space as an implied zone. This was done

through the rigorous application of thin members along a cartesian plane, creating volumetrics through their intersections. This has the effect of creating clear implied space, along with a blurring of threshold.

Analysing the model after the fact I believe it achieves two interesting things. Firstly, it barely interacts with the 'earth', secondly in its open nature it allows for the free flow of the dynamic processes that inhabit space. Thus, it has opened up to me how a strong earth architecture link can be formed, without overt architectural action. Rather it can be achieved through spatial relationships and dynamics.

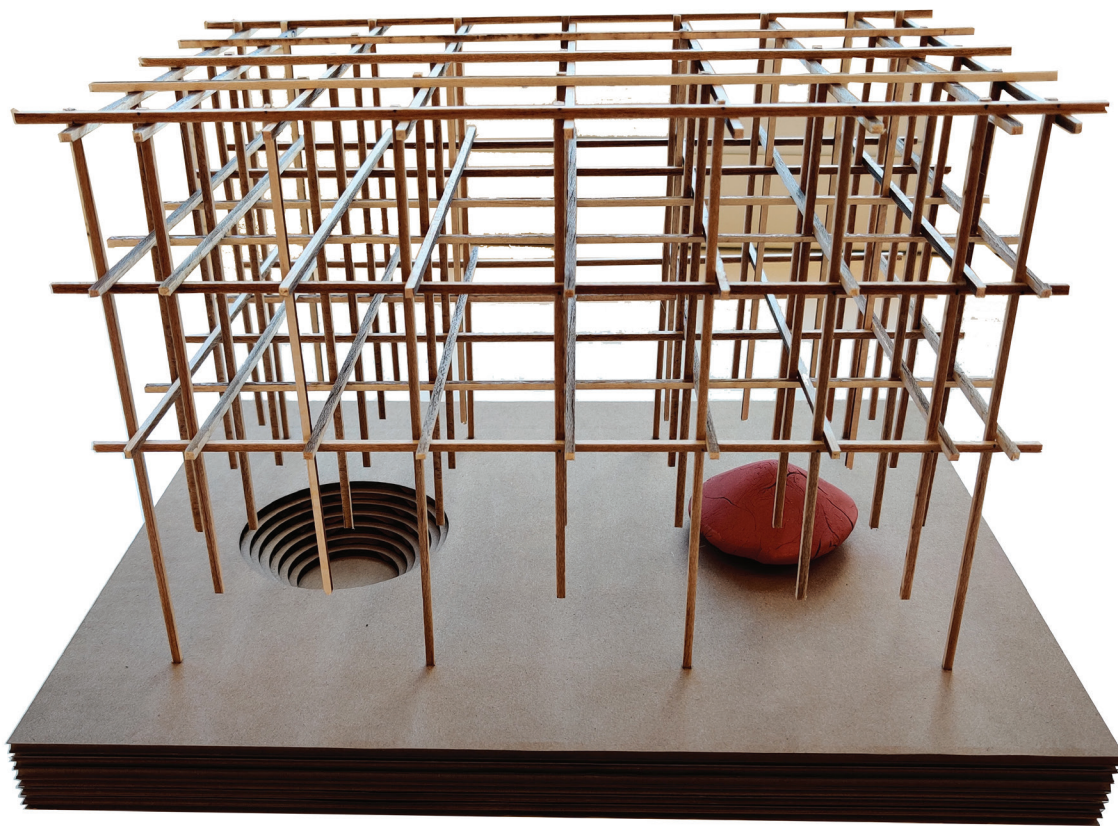
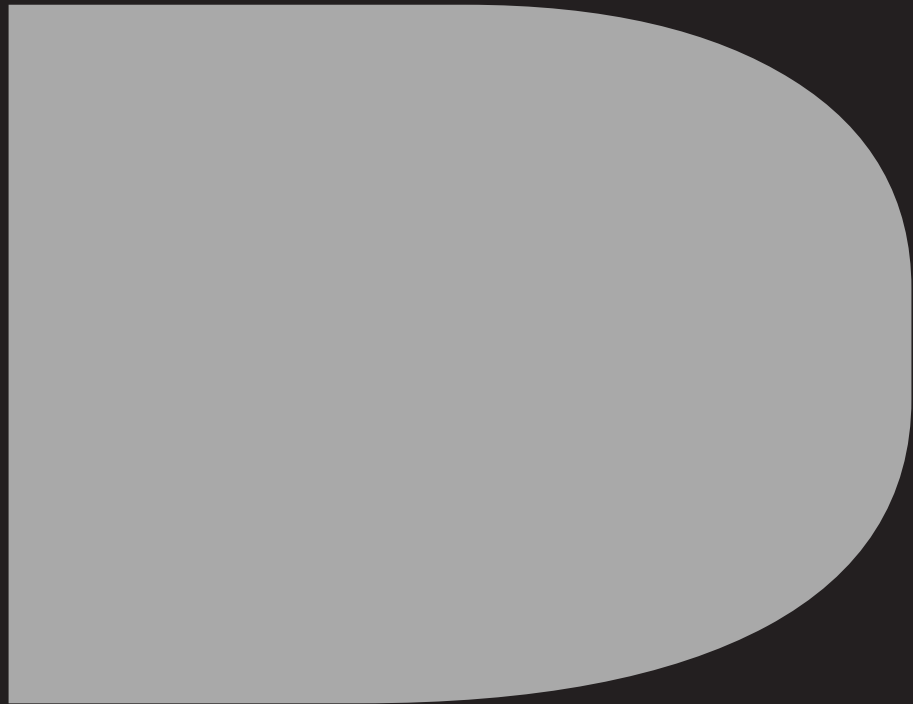
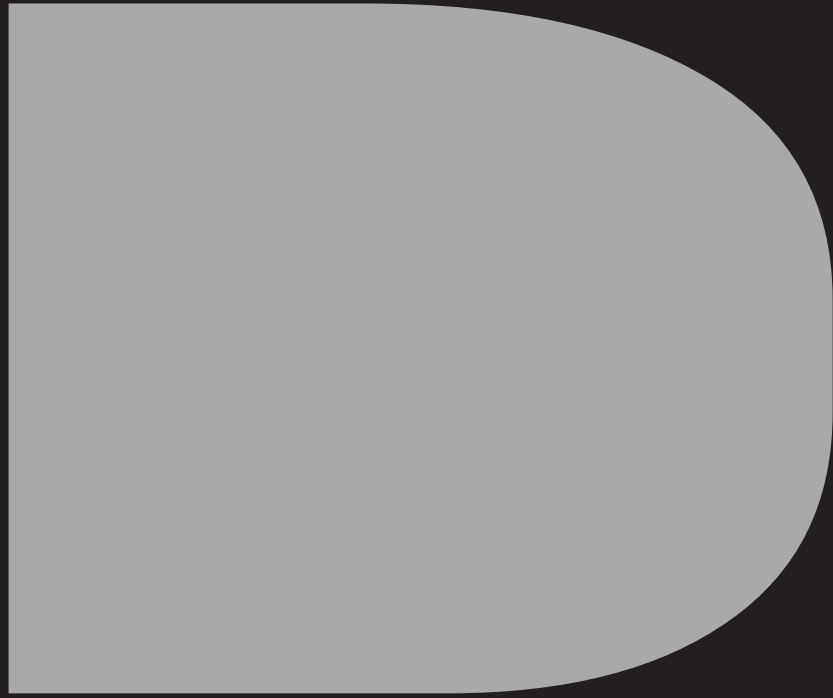


Figure 11: Threshold Investigation Model

SECTION





LOCATING THE EARTH

Locating the Earth is the search for both arena and player. In the integrated view of We, the Earth and Architecture, place takes on significant meaning in how all things participate in a dialogue. Thus, the ideal site is the where man and Earth are in dialogue and calls for the mediating device of architecture to bring together the trinity.



Figure 12: Illustrative map of landscape



LOCATING

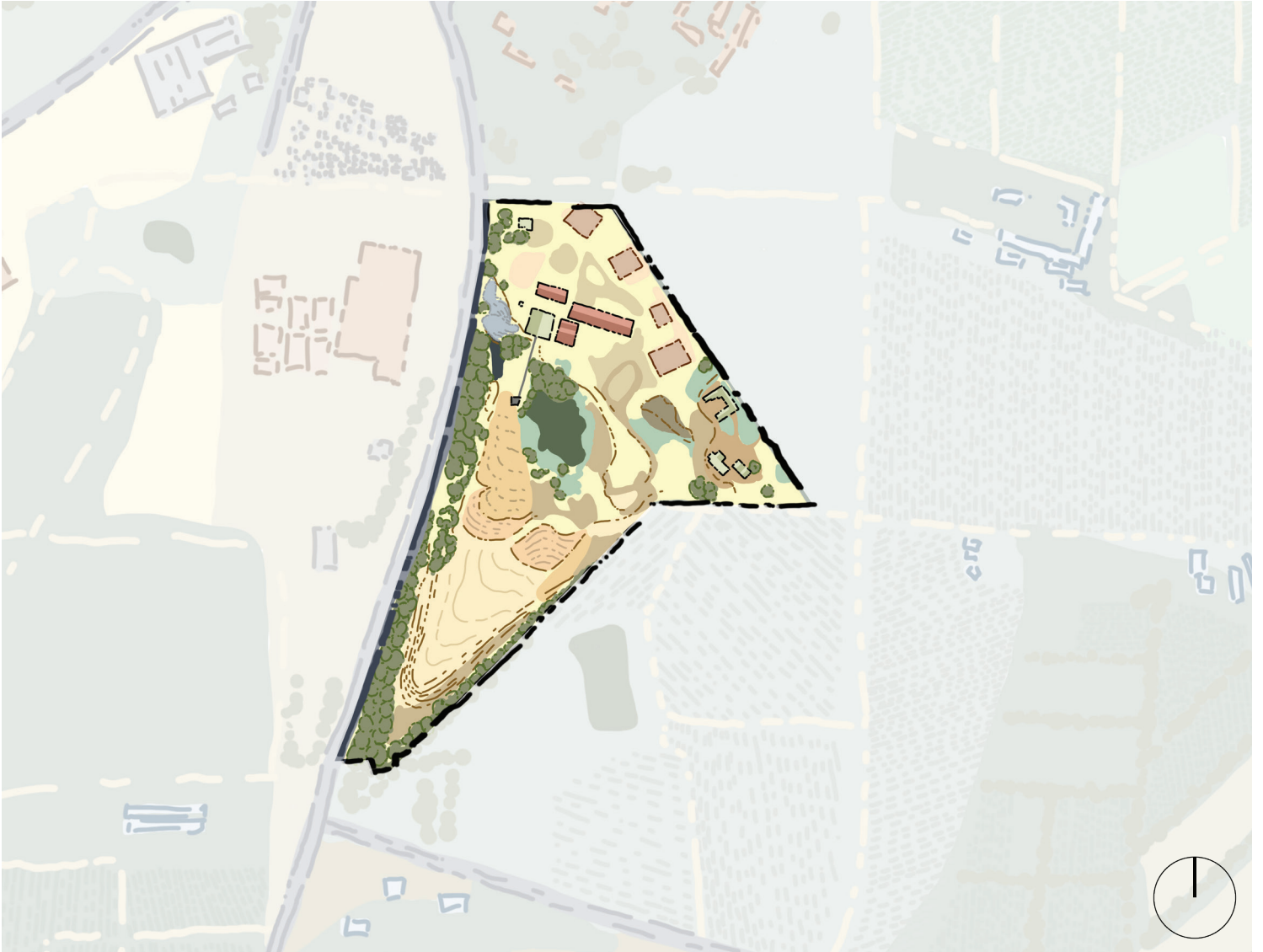


Figure 13: Illustrative view of
McMillan Bricks

McMillan Bricks is a third generation brickfield. This site embodies the notion of conflict between man and earth and the connection between earth and architecture. Earth is extracted from the site and is then churned and pulverized, shaped and moulded. The moulded earth is then fired and after that we call the earth “bricks”. with these bricks we build architecture with which to hide from the Earth. Leaving behind a scar in the landscape, standing empty like a vacant valley, but instead of God, this valley was shaped by people.

SITE

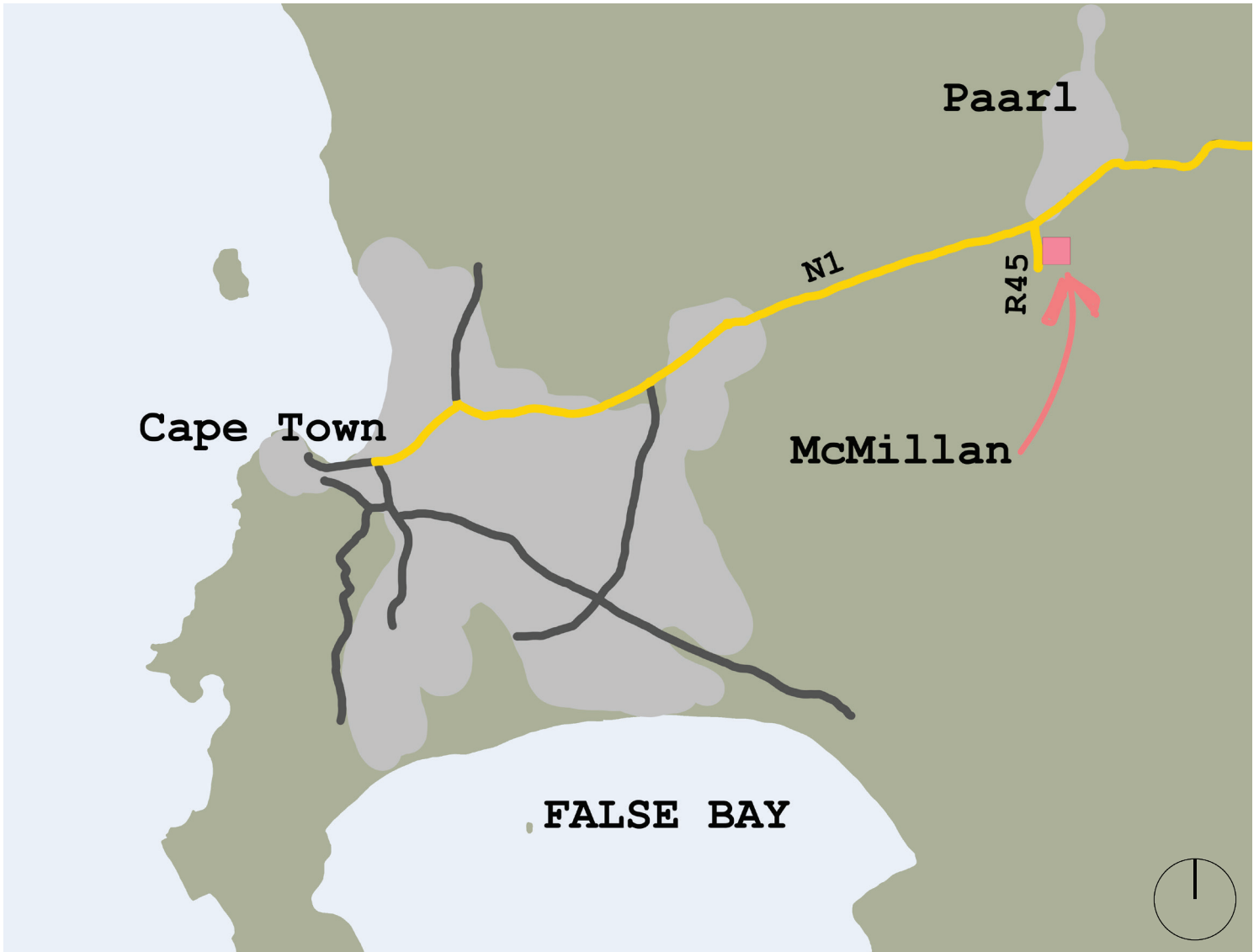
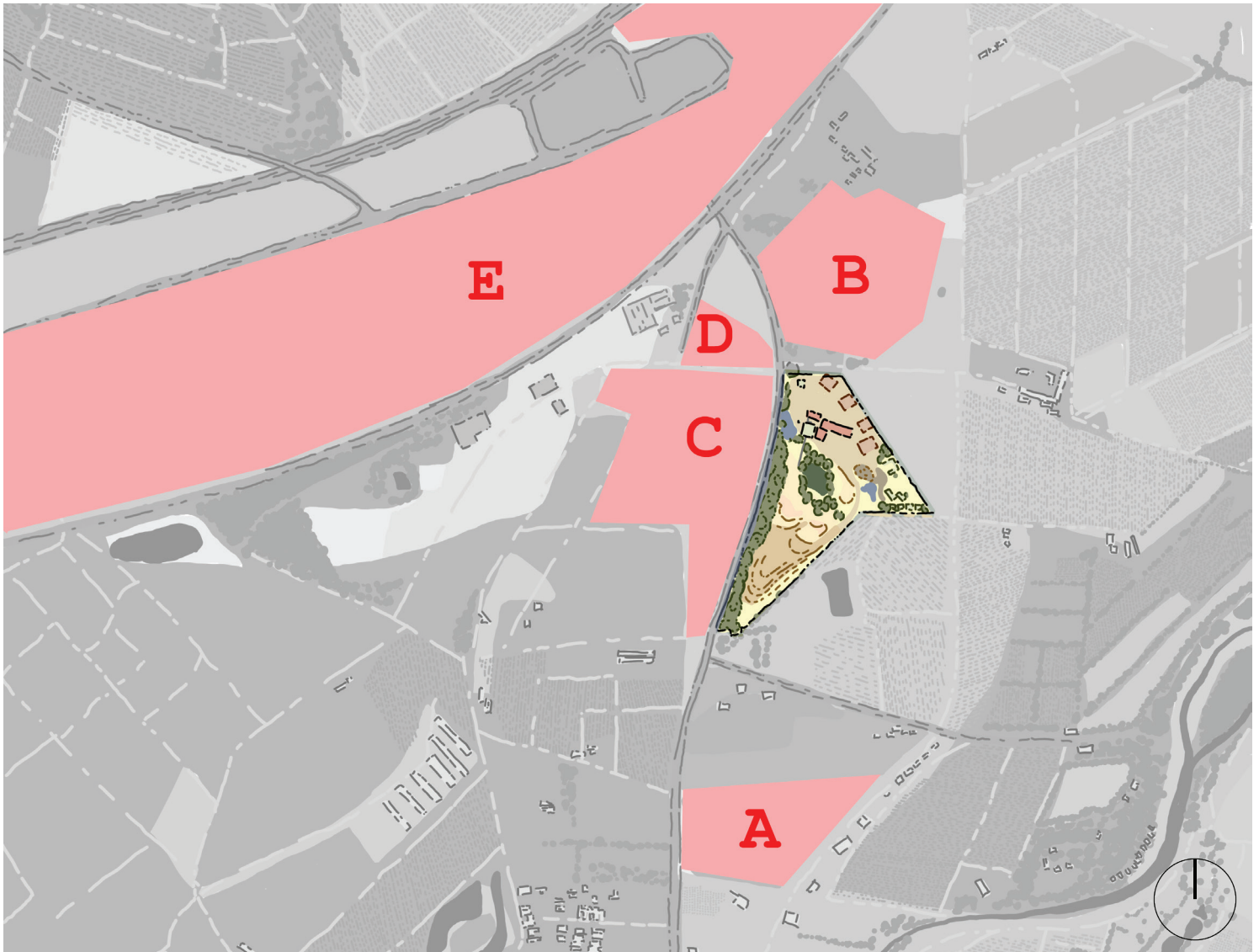


Figure 14: McMillan regional location of McMillan Bricks

SITE ADJACENT



Looking at the larger world that surrounds the McMillan quarry the first thing that is apparent is how little there is. For the most part there is mainly agricultural land, predominantly vineyards. However there are certain other elements in this landscape that form part of the tapestry of the low density urban fringe. Something that is not currently apparent, but is a trend in the Southern Paarl peri-urban fringe is the erection of high income housing developments. The presence of two secondary schools, as well as the industrial belt places this region as the ideal location for the continuation of the housing trend.

Figure 15: Surrounding Context of McMillan

Green School South Africa

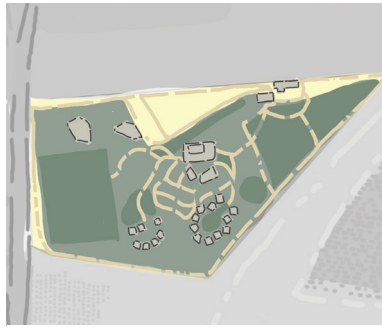


Figure 17: Green School South Africa

Paarl School of Skills

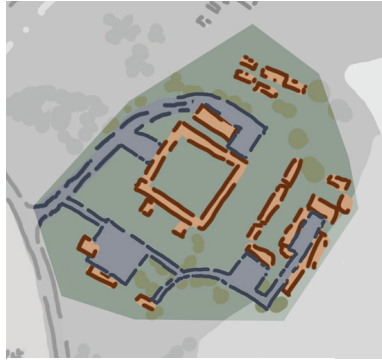


Figure 18: Paarl School of Skills

Paarl Brickfields



Figure 19: Paarl Brickfields

Informal Settlement



Figure 20: Informal Settlement

Industrial Belt



Figure 21: Industrial Belt

green school south africa is a private school, from preprimary to matric. with a focus on environmental concerns.

paarl school of skills is a special school for mildly impaired learners. the school teaches academics and vocational skills for learners aged 14 to 18.

paarl brickfields is a brickfield located across the road from mcmillan bricks.

an informal settlement sits adjacent to paarl brickfields and is home to many of the workers of the brickfields and surrounding industrial area.

an industrial belt is formed along the N1 freeway.

Views on Site



Figure 22: McMILLAN site map

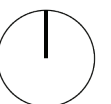




Figure 23: Green bricks drying



Figure 24: Clamp kiln



Figure 25: Old chimney



Figure 26: Quarry view



Figure 27: Clay conveyor



Figure 28: Excavated earth

Site Heritage



In terms of understanding the value of the built fabric of the McMillan brickfields, the truth is there is not much value in the architecture. Where the true value resides is in the machinery, that speak of the movement and manipulation of the earth. It through these machines that earth becomes architecture.

Figure 29: Closeup sitemap of site buildings



Figure 30: Clay processing equipment



Figure 31: Clay powder hopper



Figure 32: Clay extruder

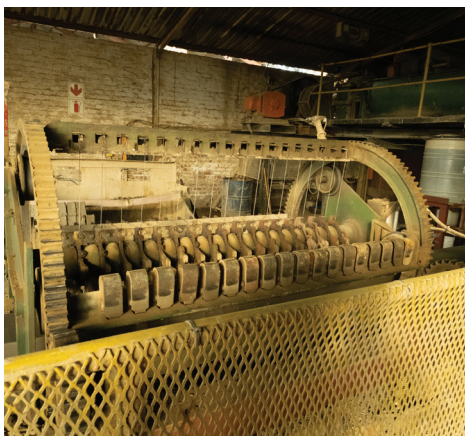
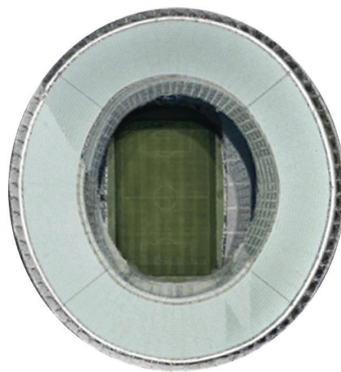


Figure 33: Brick slicer

Coming to Terms With Scale



Company Gardens



Greenpoint Stadium



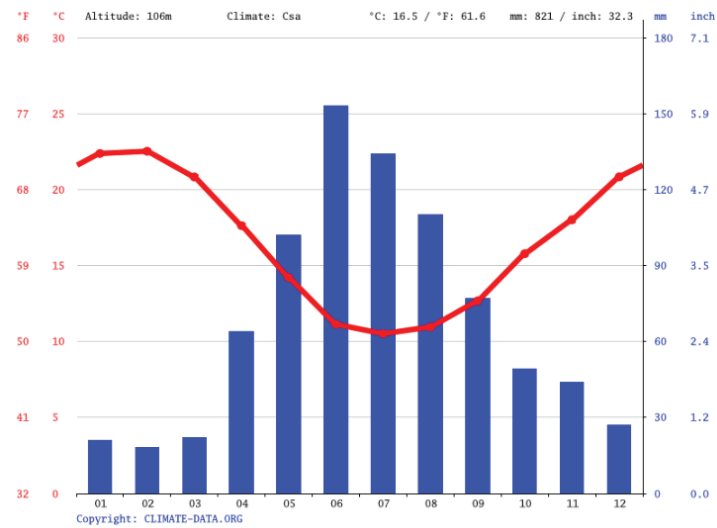
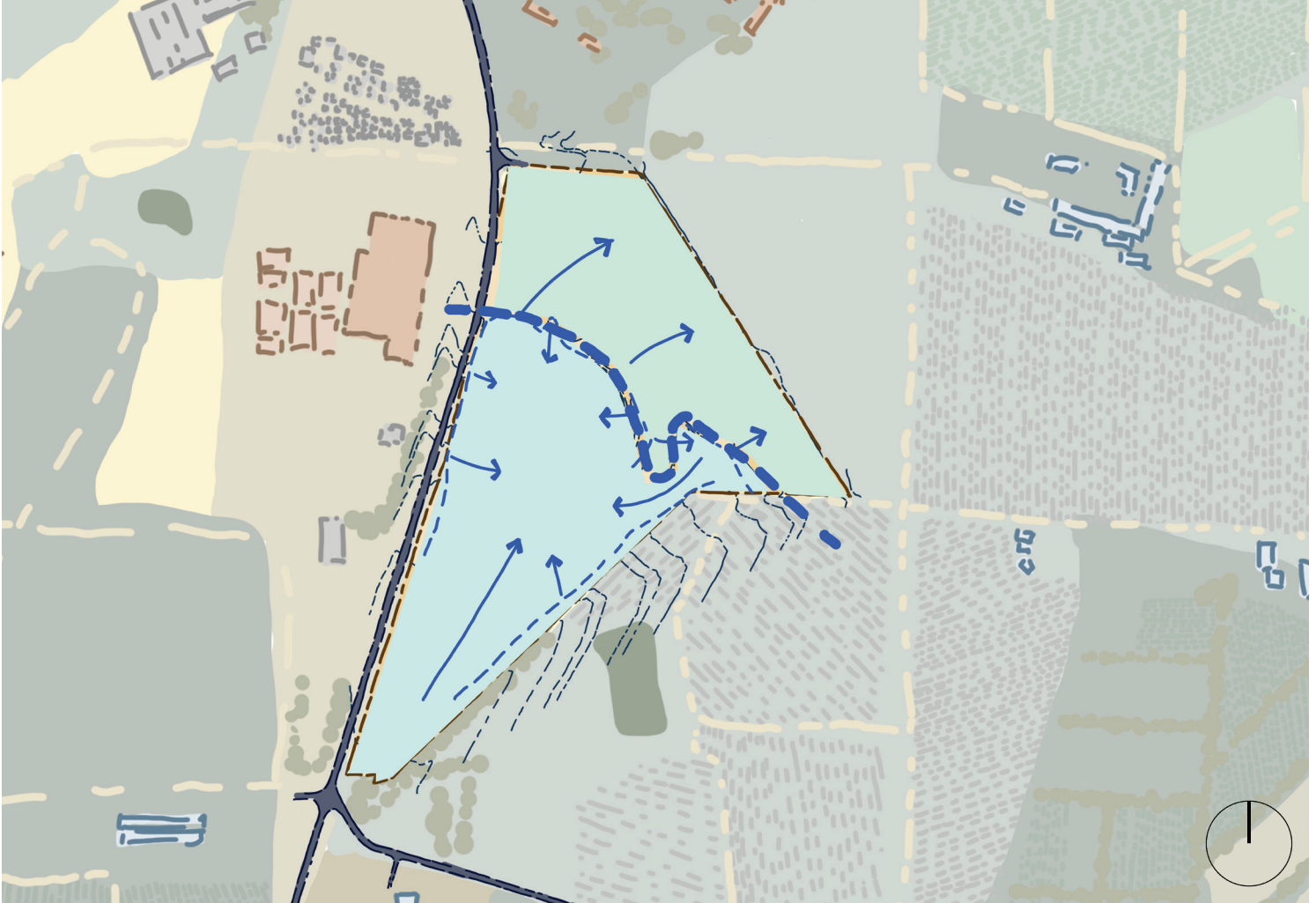
Centlivres



Cruise Ship

Figure 34: Site scale conceptualized

Water on Site



McMillan Quarry falls in a winter rainfall region. The quarry edge forms a ridge. Two separate watersheds on site. Thus the southern excavated half of the site forms a basin which pools water, whilst north of the quarry edge, runoff naturally runs to the north east of the site.

Figure 35: Rainwater data

Figure 36: Site surface runoff

SECTION





SHAPING THE EARTH

In this section I presuppose a scenario in which McMillan Bricks stops operations. What does the future of the site look like?

Shaping the earth is the endeavor of understanding how the earth becomes space. The earth has potential to be shaped into space through cutting, stacking and mounding, enclosures arise. From the earth comes the material on top of which space is created atop the earth. Within these potentialities i seek to find the architectural aperture that straddles the intermediary between us and the Earth through the earth.

Guiding Design Principles

En

“En” is the expression of edge. In considering and understanding edge, is to reflect on what is in and out and what lies in-between such notions. “En” exists in the space between space.

Confront the earth

Confronting the earth, is to notice the earth. In being aware of the earth, the connection to the earth is paramount. Whether that is to sit on top of, cut into or straddle lightly. What is importance is the awareness and intentionality.

Being Time

Being Time comes through confronting the earth. Time acts on all things, as it acts upon us. It is the stream that connects all things. Present in the moment, felt through the passing age. In being time, all things are connected.



Figure 37: En

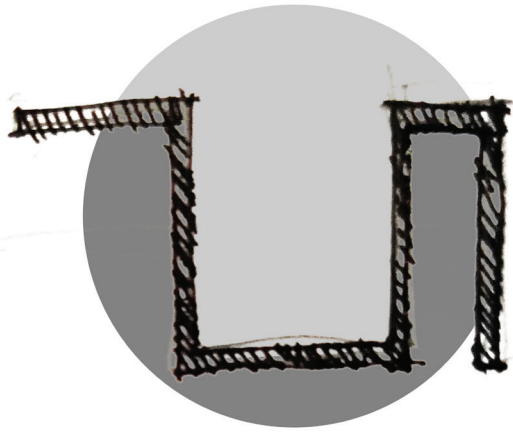


Figure 38: Confront the earth

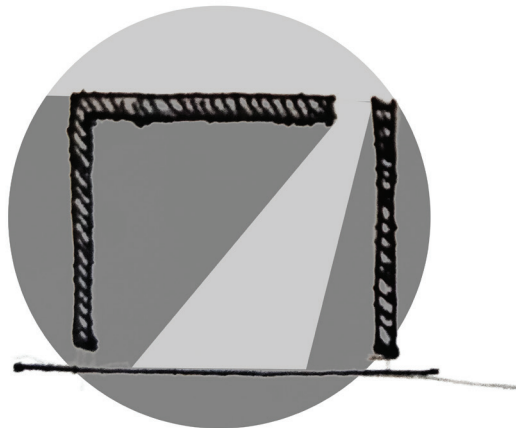


Figure 39: Being time

Site Development Strategy

The large nature of the site requires a holistic spatial strategy. The northern reaches of the site that is on grade with the surrounding landscape will be residential on par with the spatial development trend of the southern Paarl region. The excavated region on the southern part of the site is cultural. The purpose for the cultural zone is to celebrate the quarry.



Figure 40: Site spatial division

The intention of the location of my design within the site is that of linking device between the top of the quarry and the quarry base. This site location becomes a threshold in of itself, connecting the top of the quarry to the basin. It is a cultural and historiographical device, documenting the site in its participation of the site.

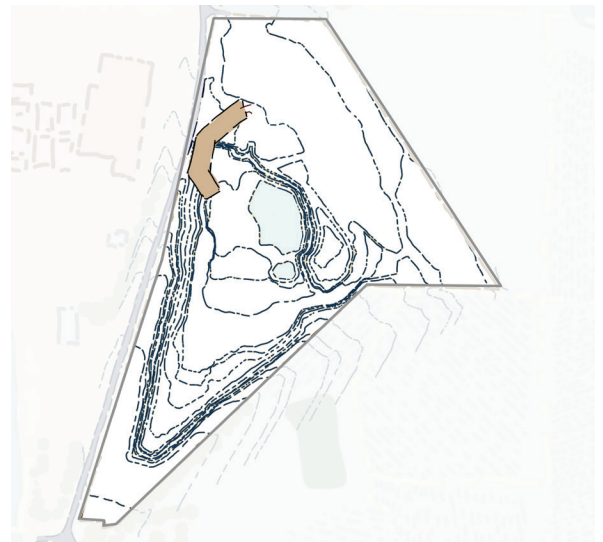


Figure 41: Design location on site

My second intention is that of an experiential route throughout the cultural zone of the site. The experiential route focusses on the spatial experience of the excavated quarry, it also becomes a route with which to experience the passage of time as the quarry is decommissioned.



Figure 42: Experiential route

The architectural intentions of the linking device is echoed along the experiential route. In this manner the quarry becomes a large room. In this way the Earth is experienced as room and the architecture is in turn formed from the earth.

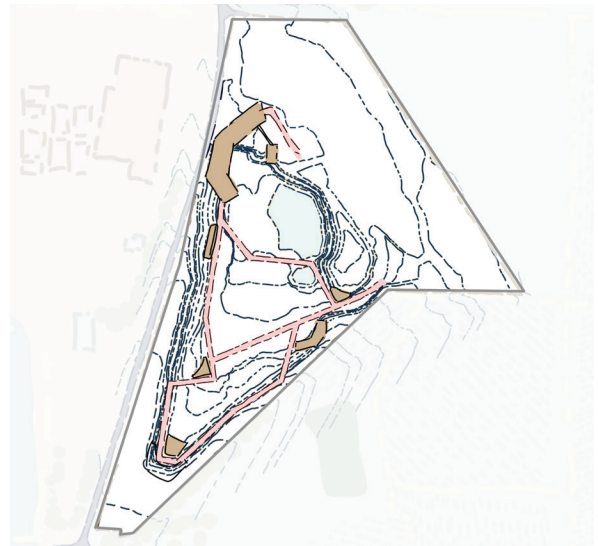


Figure 43: Interventions along route

Housing is not the central focus of my design focus. Thus the housing section of the site will be approached gesturally. Allocation will be made for future development to take place without designing it specifically.

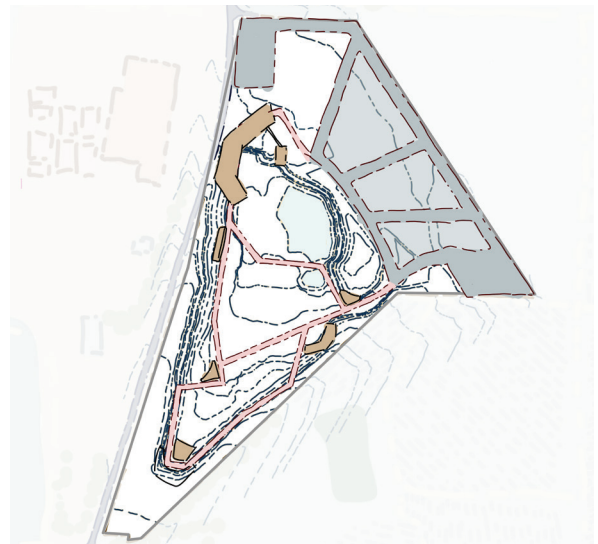


Figure 44: Gestural topographic intervention

My intention with the state of vegetation in the quarry is indirect. Vegetation and the natural erosion and decay of the quarry are all things that occur naturally over time. In this manner my approach is to spread seed deposits and let natural vegetation return on its own and simply let the site be acted upon by the flow of time. That which remains barren, remains barren, that which flourishes, flourishes.

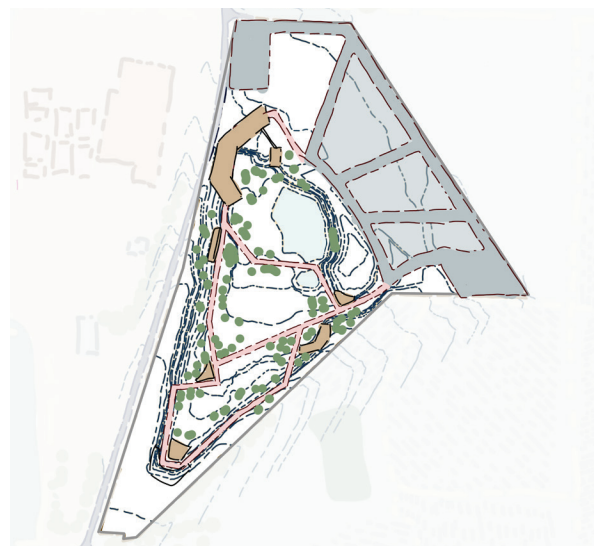


Figure 45: Vegetation on site

A Celebration of Bricks



LSE Saw Hock Student Centre
London
O'Donnell + Tuomey Architects

Figure 46: LSE Saw Hock Student Centre

LSE Saw Hock Student Centre is located in a convergent intersection of various road networks. This has led to the need for a unique building form. The folded and chamfered facade is designed in such a way to respond to specific lines of site. The structure is clad in a continuous skin of brickwork. Thus the brickwork often has very particular intersections. The architects have created special bricks that respond specifically to exact intersections. The project serves to celebrate the versatility of the standard brick unit in the different courses that are employed, whilst simultaneously celebrating the bespoke potential held in ceramic building materials.

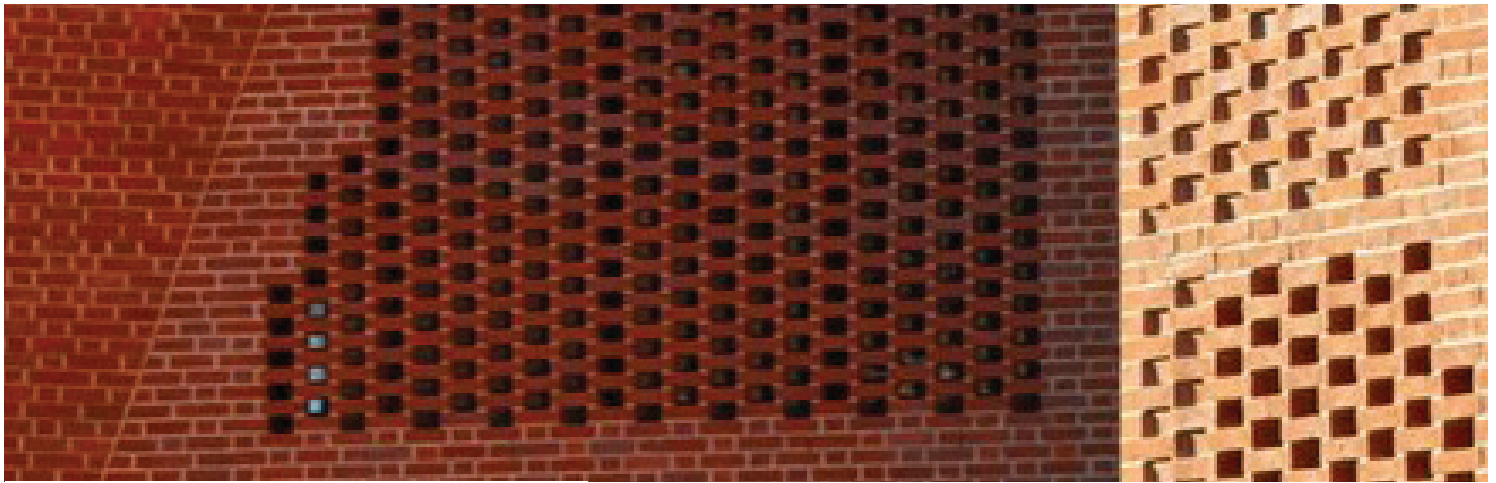


Figure 47: LSE Saw Hock Student Centre brick treatment

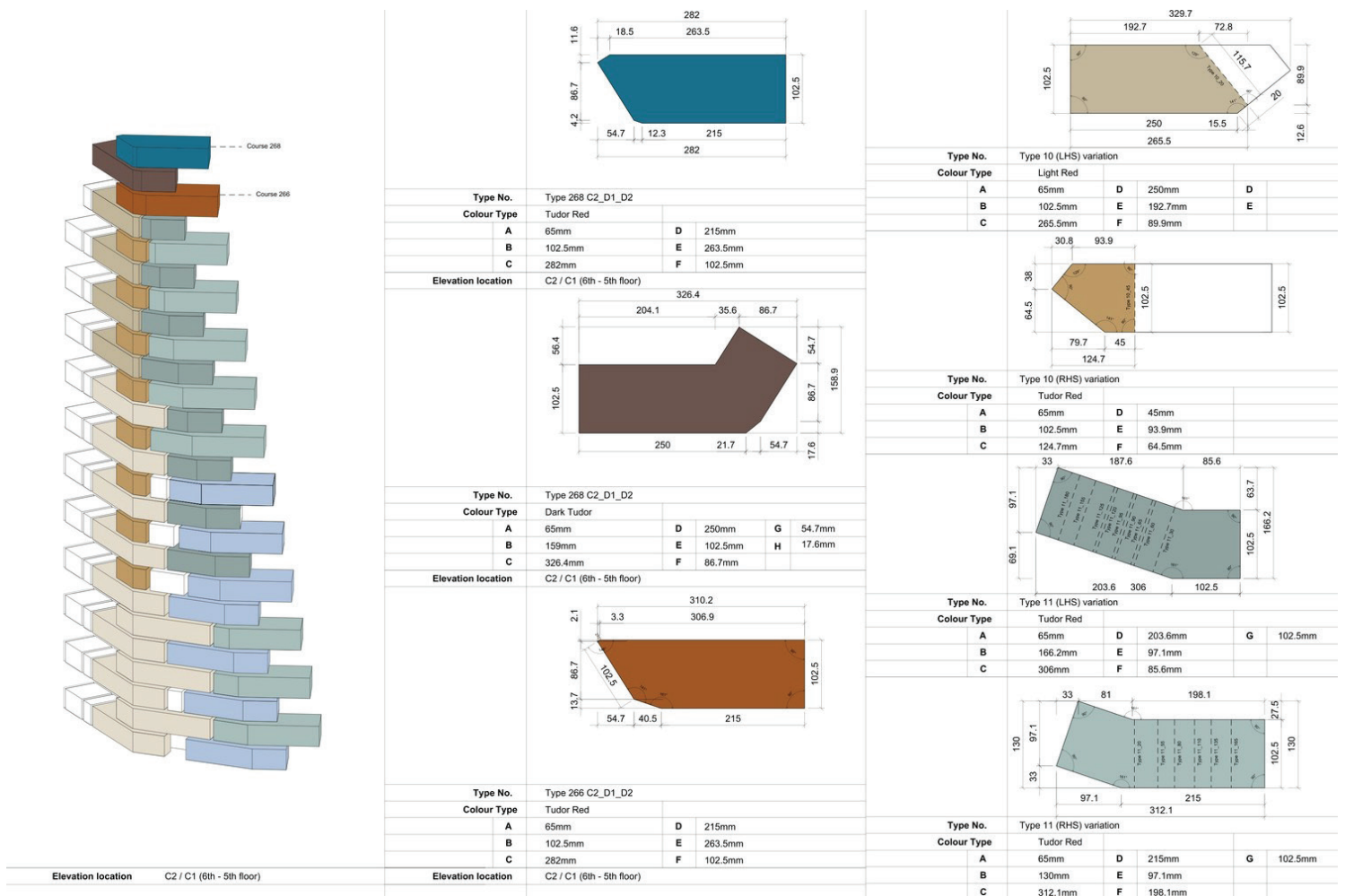


Figure 48: LSE Saw Hock Student Centre brick Detail

The Epic of Clay

Over millennia giant mountains of iron and mineral ore are ground down to dust. The plants revel in their richness. Bloom and decay. Life and death. So too, do they become infused in the grand narrative that is the ground.

From dust, God made man. Or perhaps we emerged from a pool of cosmic goo. What is known, is that we are of the earth and of the ground. With our hands we shape this ground. Channelling dreams, hopes and desires into form - into use and meaning. We shape the earth to our devices and bathe it in fire. Fire so violent that it destroys flesh and destroys life. This fire is what gives life to our intent and makes the earth into art.

This art is that from which we consume the humble produce of the land. This art is the vessel in which we keep our precious jewels. It is this art with which the poor father covers his roof and keeps his family dry. This art is the vessel that holds jolly daisies atop a windowsill, smiling down at our mothers in their last days.

And when the heathens of this world turn our art asunder and level cultures and our hopes and dreams. Art will shatter on the ground. And the winds of time will turn it into the sands of time, so too our dreams of once upon a time returning to the earth. But not all is lost, in fact nothing is lost, for we are in time and in time life will emerge anew. Fresh hopes and dreams will emerge. Art re-emerging from the earth.



Figure 49: Clay soil

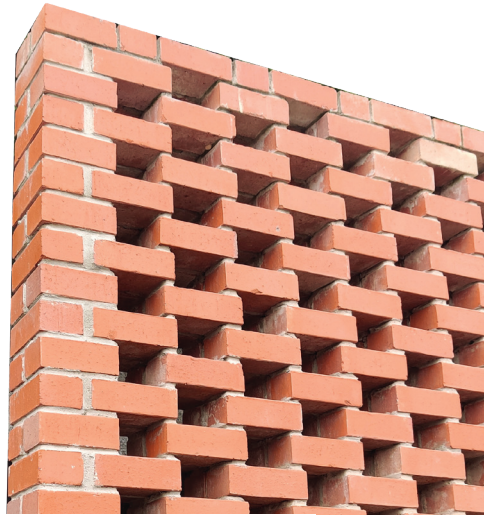


Figure 50: Brick facade



Figure 51: Clay vessel

Confronting the Earth



Figure 52: Abstract quarry section

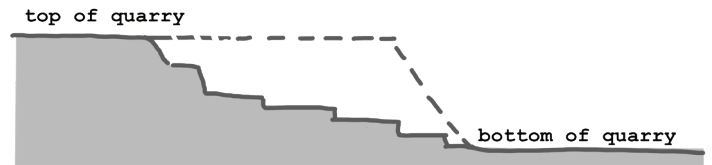


Figure 53: Abstract quarry section terraced

With my design intent being that of a linking device between the top of the quarry and the base, the question becomes how such things are bridged? Here the principle of confronting the earth is key. My intention is to wrestle with the earth and create spatial evocations through the dialogue.



Figure 54: Under Ground, Alexandra Engelfriet

Alexandra Engelfriet in her artwork Under Ground sculpts 60tons of clay. The artworks scale makes it closer to landscape than object. Her body leaves deep impressions. The landscape and the art, thus takes on the form of her body and her body is thus experienced spatially. Here a confrontation with the earth is embodied.



Figure 55: Slabbed clay



Figure 56: Cut clay slabs



Figure 57: General terracing of slabs

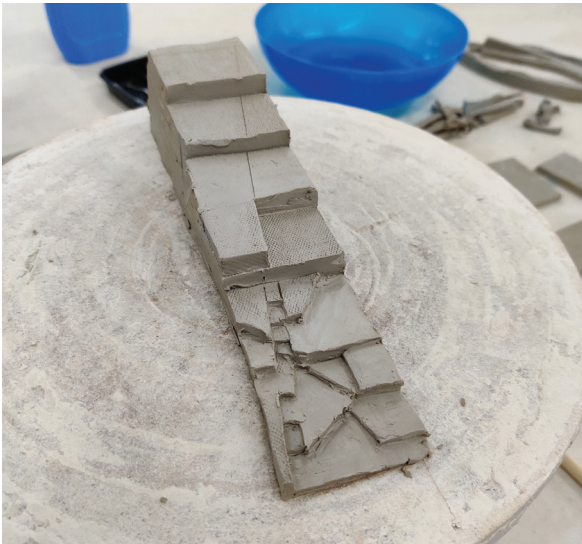


Figure 58: Detail carving



Figure 59: Myself carving

I undertook a series of abstract investigations in which I terrace a linear block of clay. This is an investigation into the linking device. Site as architecture. Site as threshold. Through understanding site as clay, the site is moulded to my body. Spaces that house bodies, are informed by the curved of my fingers and the bias of my wrist. In this way my body in turn is moulded into the imaginary landscape.

Clay



Figure 60: Clay Investigation 1



Figure 61: Clay Investigation 2

Investigations



Figure 62: Clay Investigation 3



Figure 63: Clay Investigation 4

Super-Imposition of Design



Figure 64: 3d model plan view

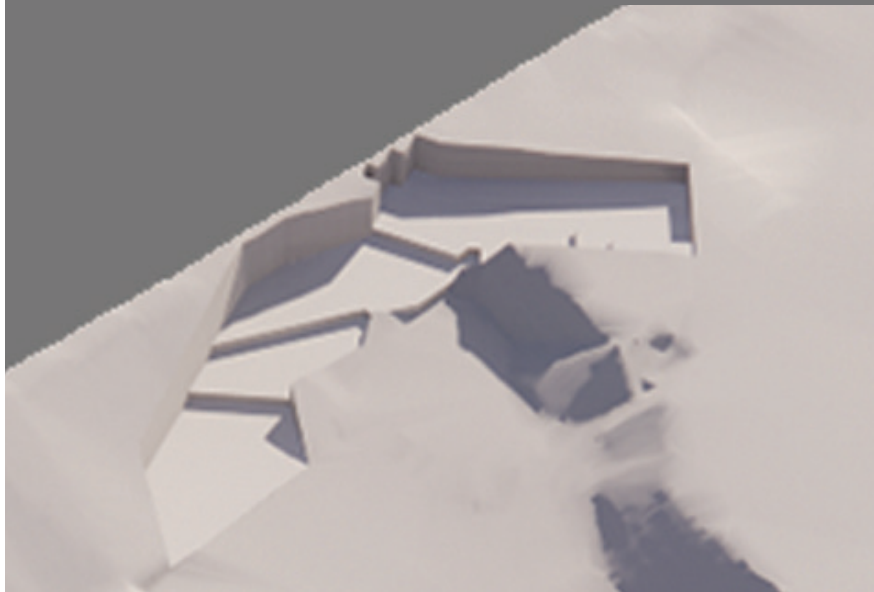


Figure 65: 3d model perspective view

This image shows the 3d superimposition of the findings derived from my linear clay studies onto my intended design intervention zone. The strategies of cutting into clay are applied to the unique topography of the quarry.

To the right is a solar study of how shadows will move across the site at different times of the day throughout the year. These zones of light and shadow in turn inform potential occupation across the site

Solar Study

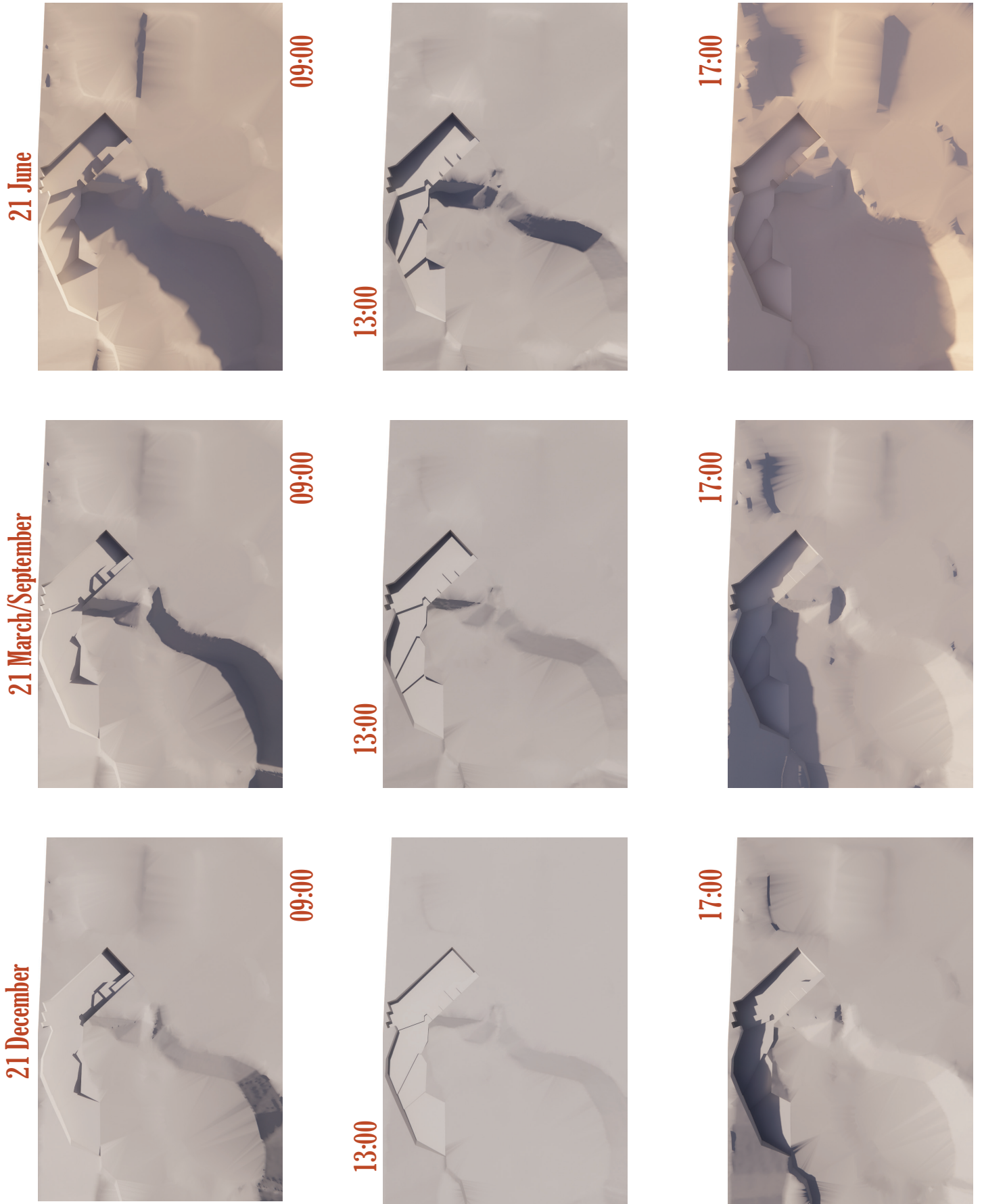


Figure 66: Shadow study

Program | Person | Condition

In eliminating program within the larger scheme, the strict functions that take place within structures is of less importance. Program serves as a means of testing the theoretical underpinning of my design. In this sense I find that understanding site through three individuals is most effective. The individuals serve not as singular entities, but rather conditions that a person takes on in the scheme, the conditions determine a relationship between individual and space. Here is where notions of Earth, Architecture and the individual are tested. These all exist in the context of ceramics.

The craftsman



Figure 67: The craftsman

The scholar



Figure 68: The scholar

The wanderer

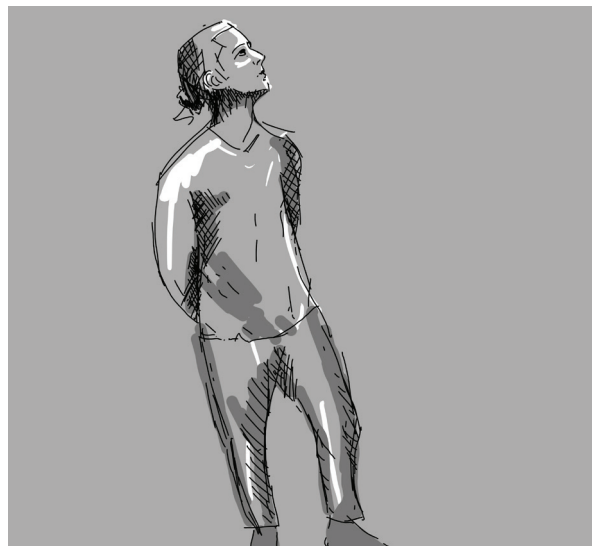


Figure 69: The wanderer

The Craftsman



Figure 67: The craftsman

the production of ceramics will form a central part of the scheme. The craftsman extracts the earth. Moulds it to his desire and makes his intention manifest in flames. The craftsman as a condition is vested in process and the spaces they occupy serve that procession.

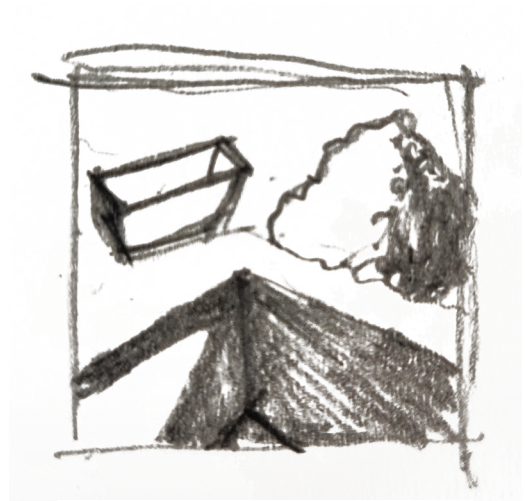


Figure 70: Extract

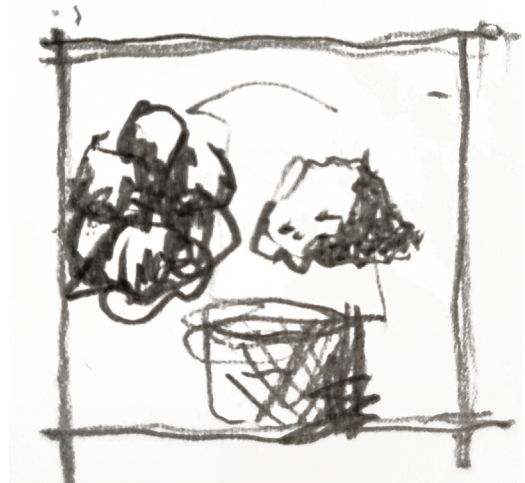


Figure 71: Process



Figure 72: The craftsman

The Scholar



Figure 68: The scholar

The site has a rich history in the production of bricks, similarly pottery has a rich history in Southern Africa. The scholar ponders these things as they exist in time. The traces of the earth being extracted, the bricks that have been made from the earth upon which it stands, housing pottery made from the same earth.

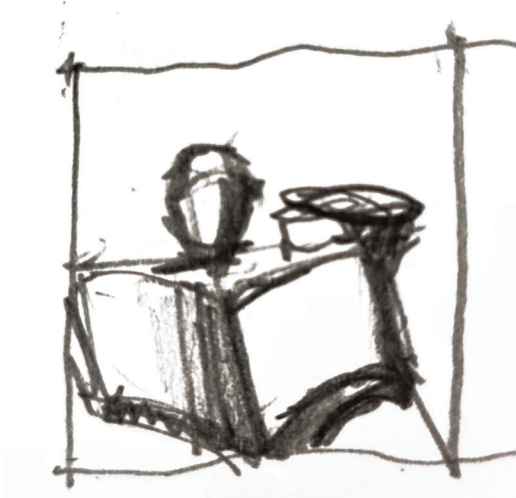


Figure 73: Remember

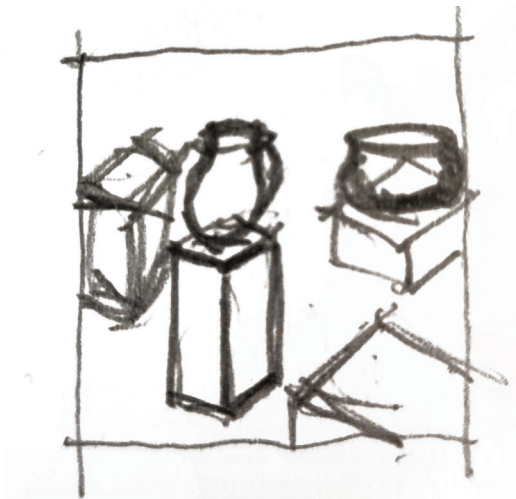


Figure 74: Celebrate



Figure 75: Archive

The Wanderer

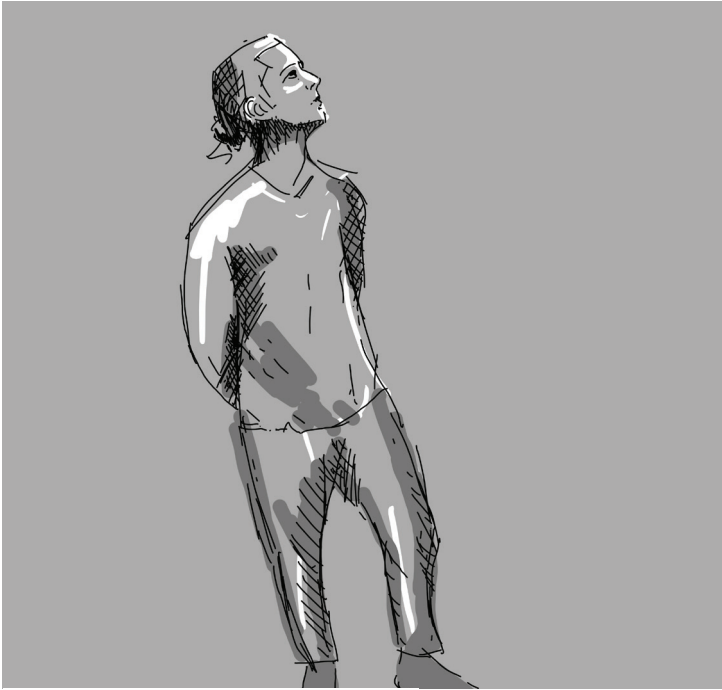


Figure 69: The wanderer

The wanderer is the condition that exists in between things. The wanderer exists in the experiential route on sight. The wanderer exists in the pathway through the linking device. Experience is at the core of the wanderer, experiencing space and time.



Figure 76: Movement

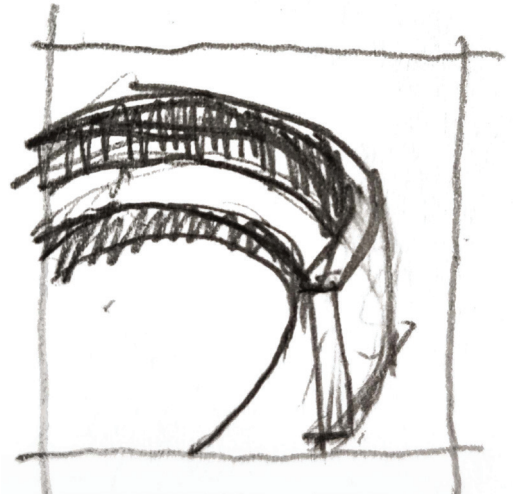


Figure 77: Pause



Figure 78: View

Built Form Layout

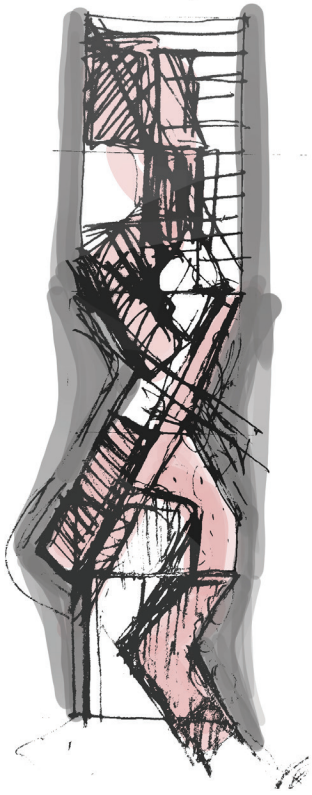


Figure 79: Spatial layout 1

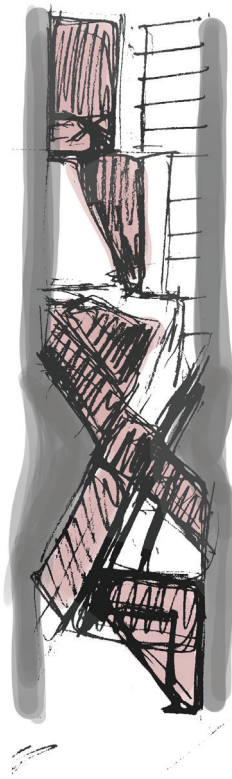


Figure 80: Spatial layout 2



Figure 81: Spatial layout 3

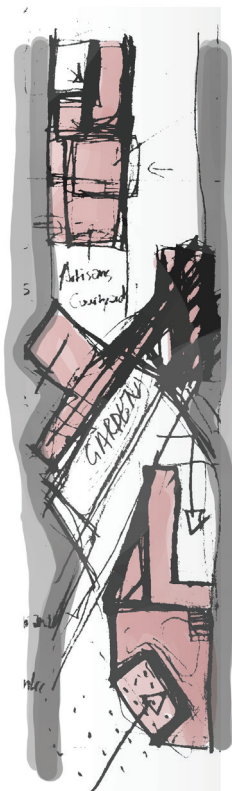


Figure 82: Spatial layout 4

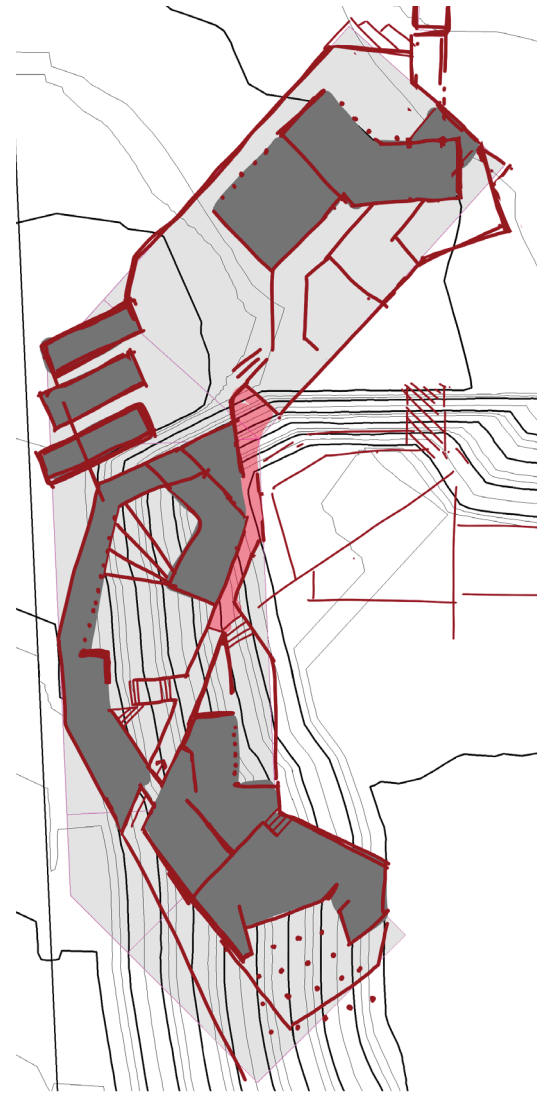


Figure 83: Superimposition of spatial layout onto site incision

Programmatic Spatial Layout

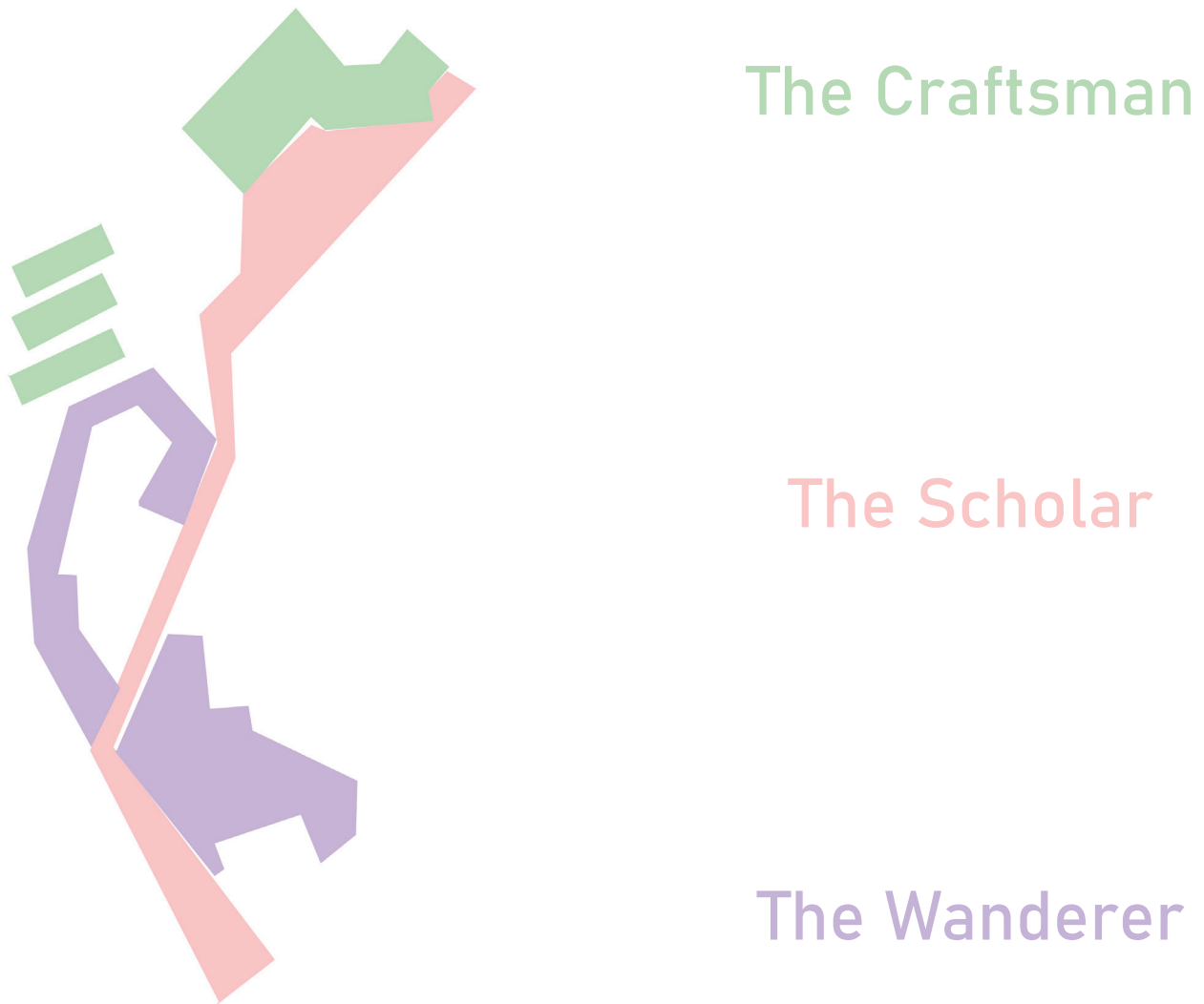


Figure 84: Programmatic conditions in relationship

The programmatic zoning of the craftsman and the scholar are separated to two zones of the site. This is as the production of ceramics versus the documentation and appreciation of such goods, exist in diametrically opposite outlooks towards the earth. These two conditions are threaded together through the wanderer, as this is the intermediary state.

Through the wanderer program itself becomes threshold.

Massing Maquette



Figure 85: Massing Maquette plan view

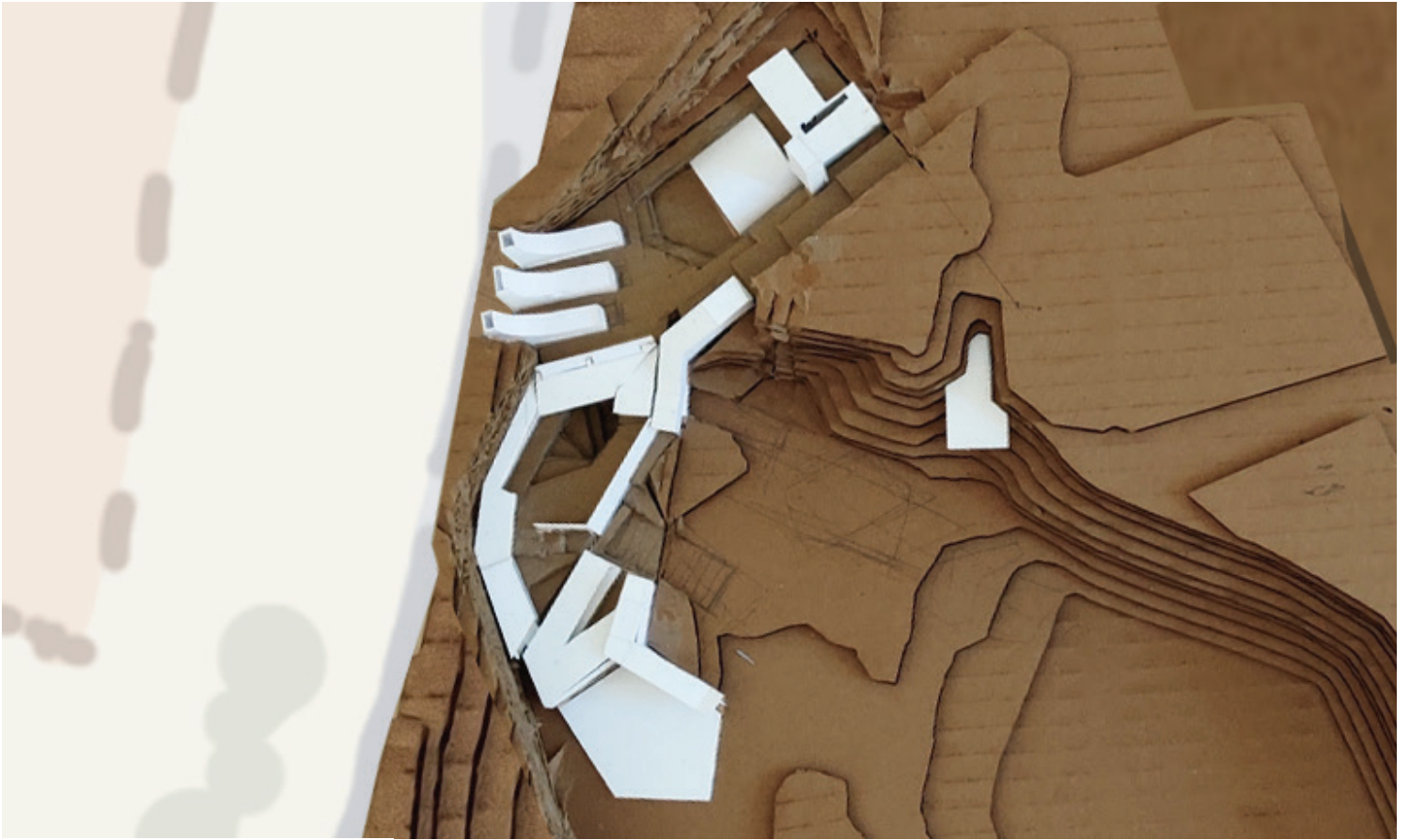


Figure 85: Massing Maquette plan view

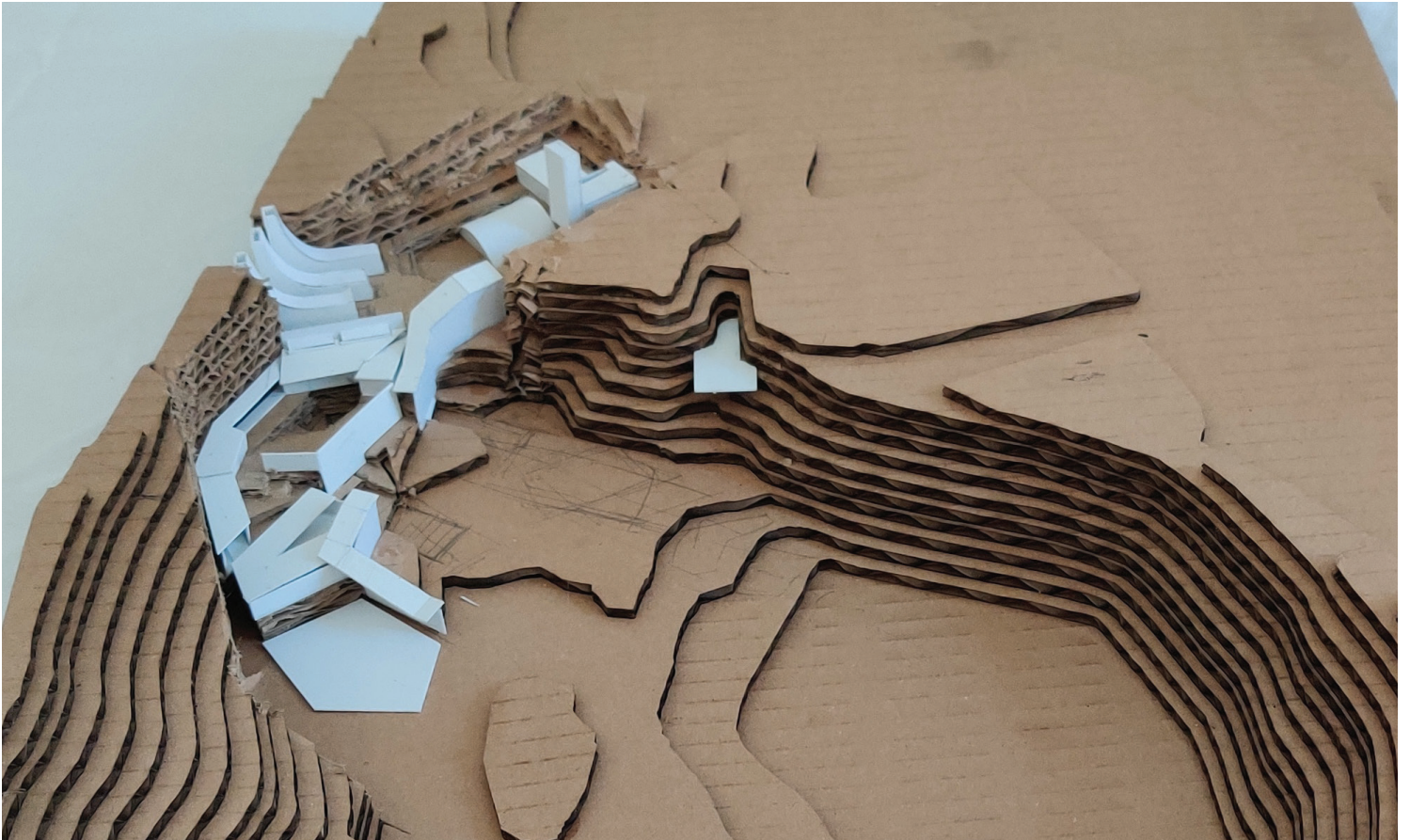


Figure 86: Massing Maquette perspectival view 1

Spatial Quality

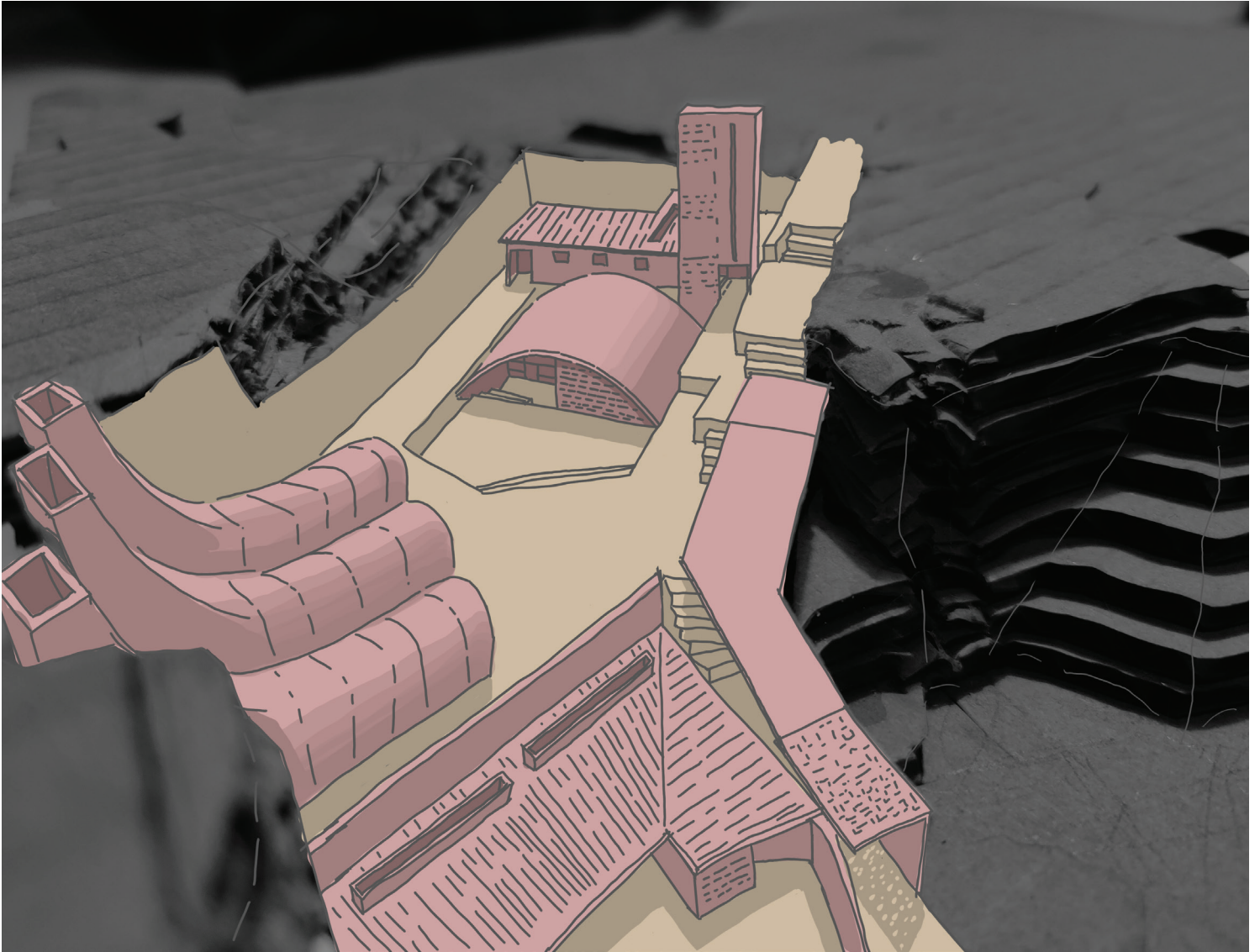


Figure 87: Drawing of potential spatial quality of built form



Figure 88: Massing Maquette perspectival view 2



Figure 89: Massing Maquette perspectival view 3



Figure 90: Massing Maquette perspectival view 4

Sketch Investigations

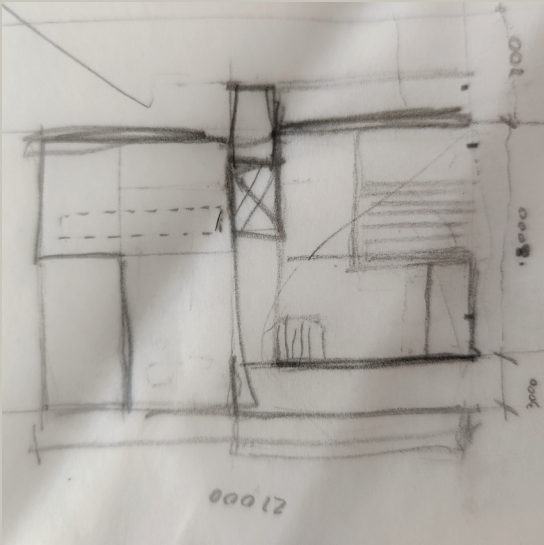


Figure 91: Plan view sketch of craftsman space

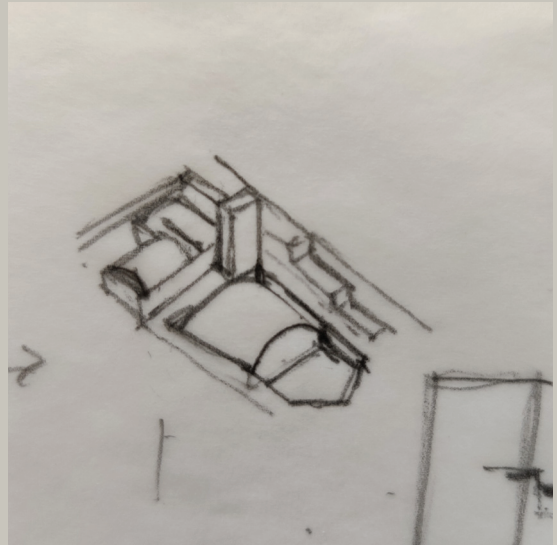


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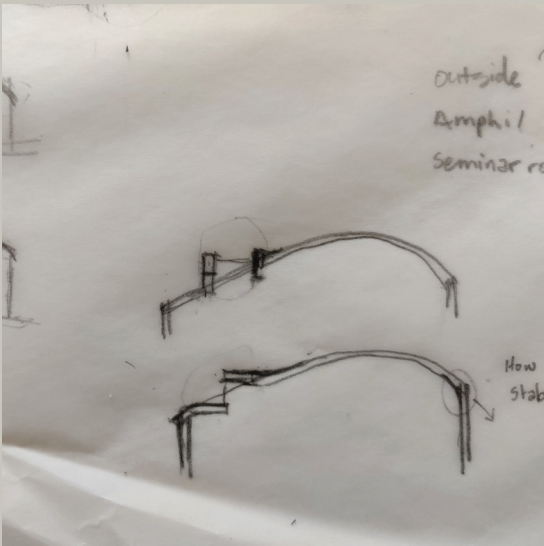


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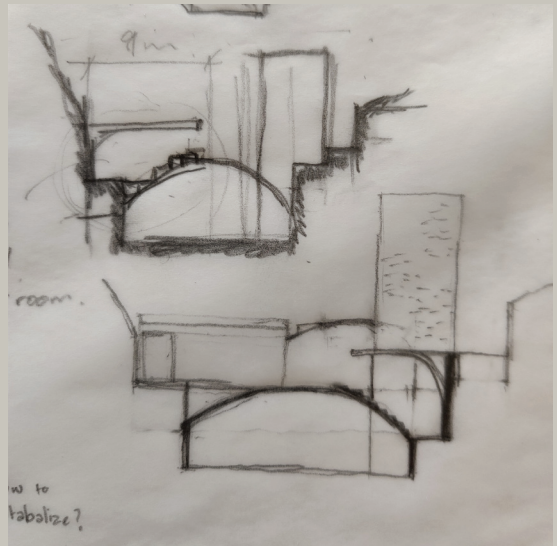


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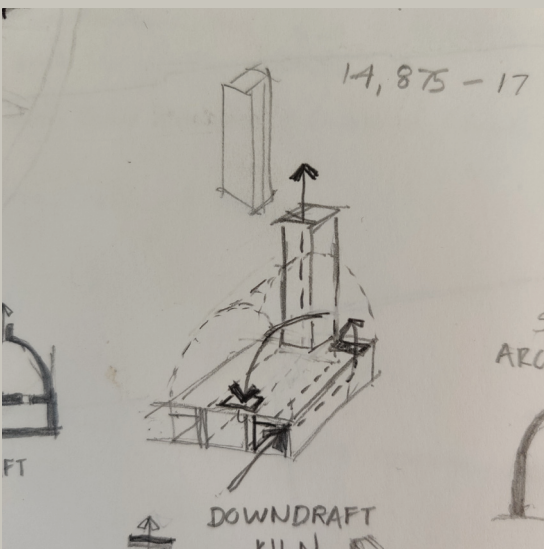


Figure 95: Downdraft kiln design



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Investigations into Tectonics



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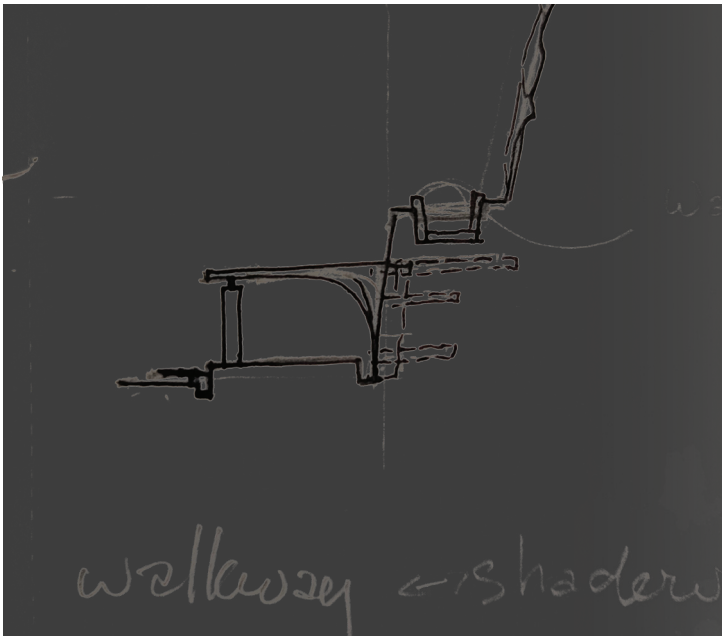


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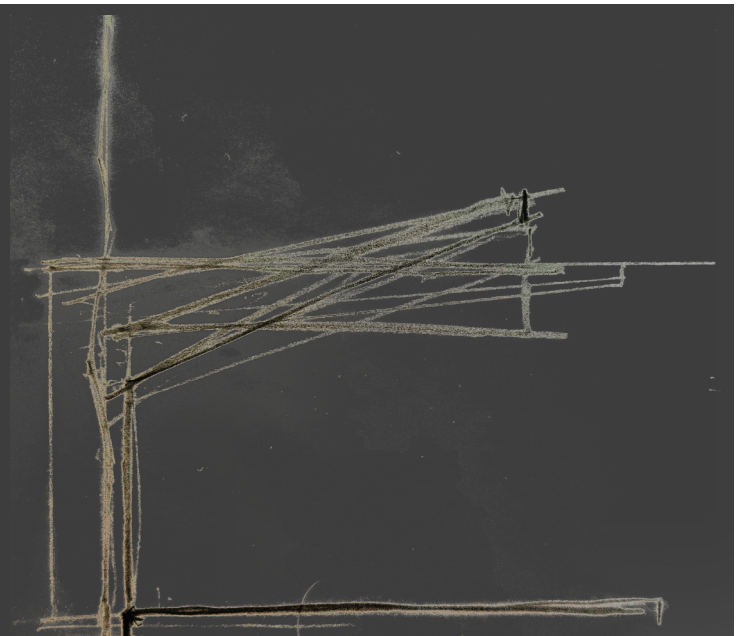


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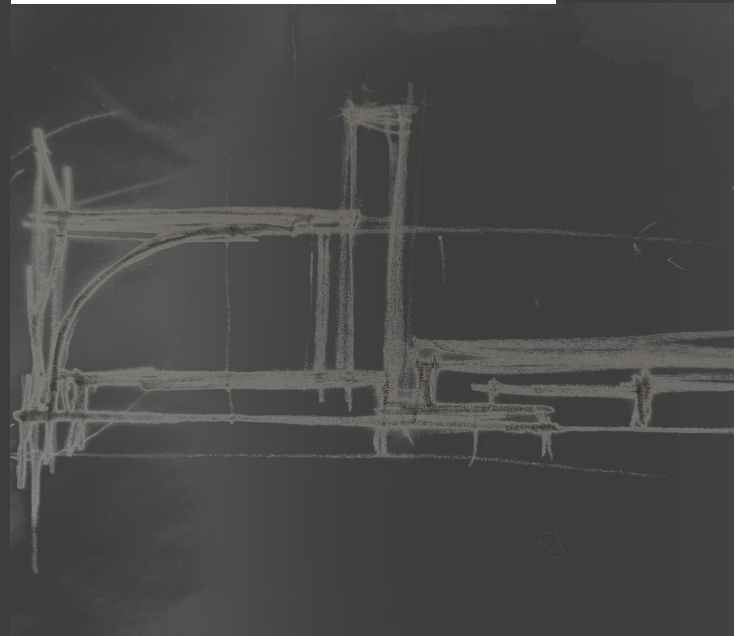


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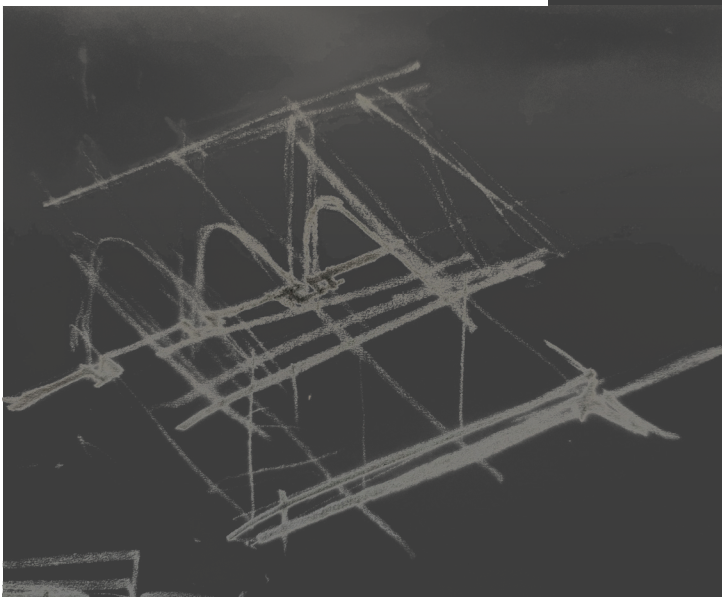
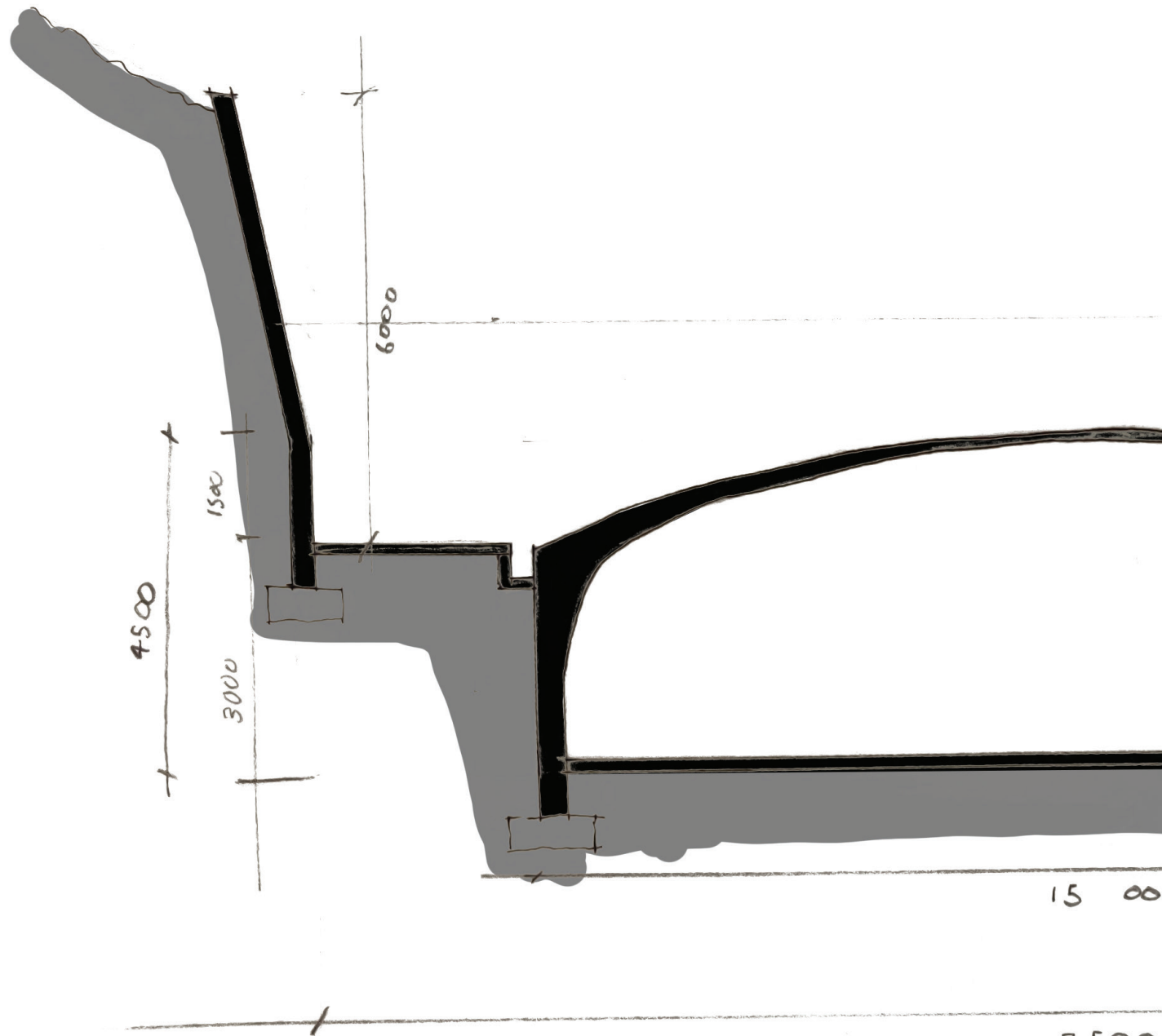


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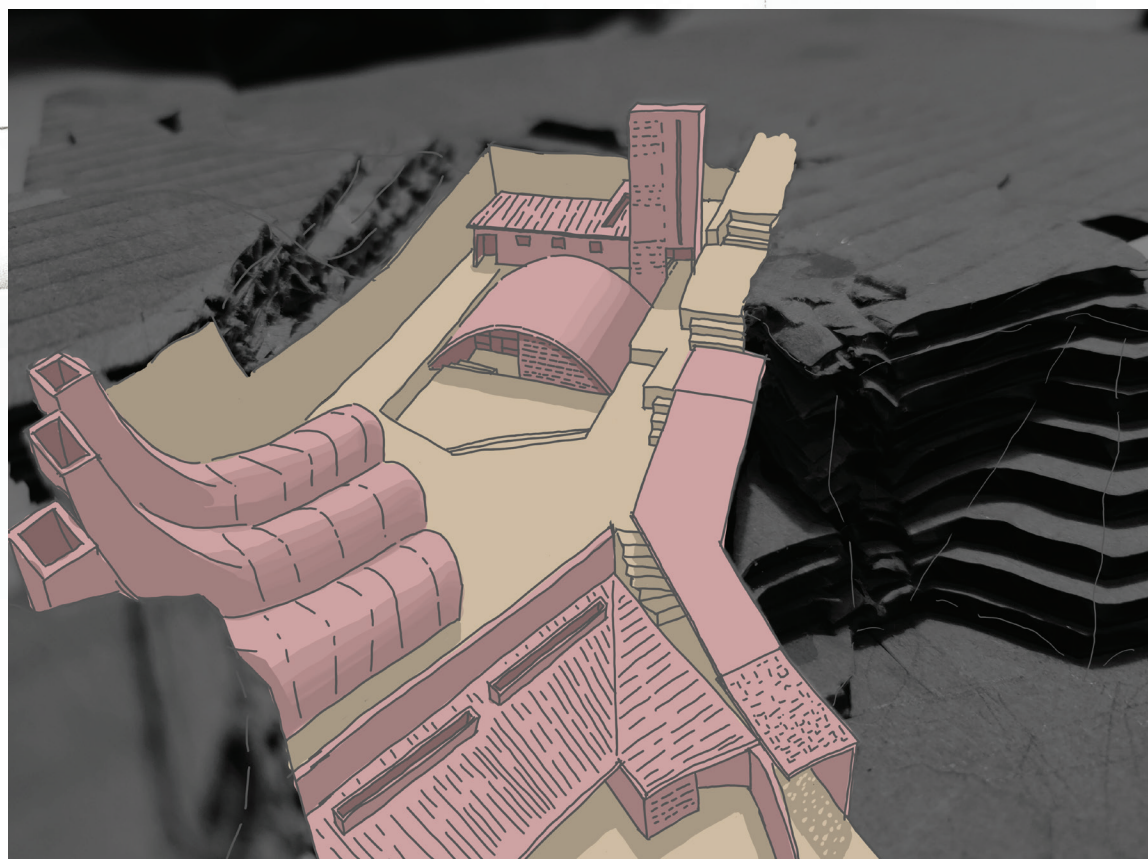
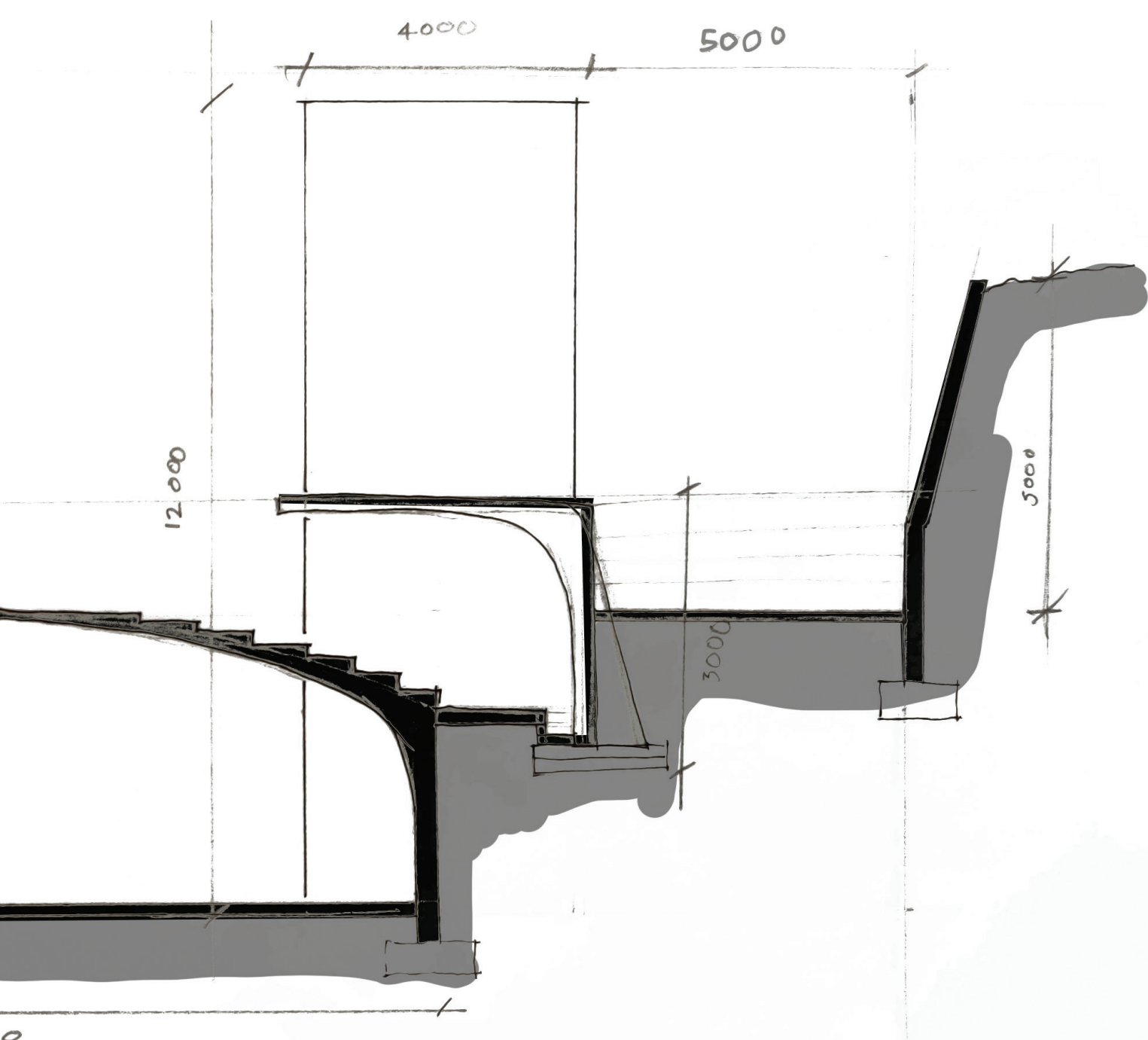
Figure 105: Quarry face connection detail sketch 6



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Concluding Remarks

My investigation started with trying to understand the intersectional boundaries that define the relationship between we as people, the Earth and how exactly architecture threads these concepts together. What has become apparent through this investigation is the multi-layered meanings that are associated with understanding the way that things integrate co-harmoniously. Understanding the way we speak about things, as well as the time we take to notice and elevate experiential forces through architecture.

Furthermore, McMillan Quarry has opened up the potential to partake in an invisible dialogue of the landscape and man. There's a poetry of earth becoming building and that earth in turn being used to make itself. Through my design investigations I have tapped into embodied experience, leading to embodied knowing. Through this a sensitive understanding of landscape and architecture and how they integrate is created.

As my investigation continues, I think the potential to start understanding the site at the scale of the person and the architecture as an aperture through which to understand such phenomena is rich. The threads of individual, architecture and the earth have been uncovered, however weaving these notions into a complex tapestry is still to occur.

SECTION



A photograph of an industrial facility. On the left, a brick wall is illuminated by shadows from a structure above. A tiled walkway leads into the distance. In the foreground, a dark metal railing runs across the frame. To the right, a large piece of industrial machinery with a mesh enclosure is visible. The word "PINUP" is overlaid in white, bold, sans-serif font in the center of the image.

PINUP

OVEN-BAKED ARCHITECTURE & EMBODIED EARTH






Re-purposing a decommissioned quarry in Paarl, with a focus on the interface between people, architecture and the Earth

NEIL TROUW



SITE PLAN 1:5000



- Green School South Africa

- Paarl School of Skills

- Paarl Brickfields

- Informal Settlement

- Industrial Belt




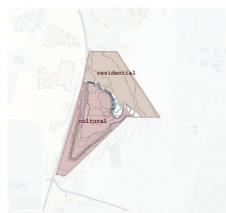
SITE ADJACENT



McMillan Bricks is a third generation brickfield. This site embodies the notion of conflict between man and earth and the connection between earth and architecture. Earth is extracted from the site and is then churned and pulverized, shaped and moulded. The moulded earth is then fired and after that we call the earth "bricks", with these bricks we build architecture with which to hide from the Earth, leaving behind a scar in the landscape, standing empty like a vacant valley, but instead of God, this valley was shaped by people.

Looking at the larger world that surrounds the McMillan quarry the first thing that is apparent is how little there is. For the most part there is mainly agricultural land, predominantly vineyards. However there are certain other elements in this landscape that form part of the tapestry of the low density urban fringe. Something that is not currently apparent, but is a trend in the Southern Paarl peri-urban fringe is the erection of high-income housing developments. The presence of two secondary schools, as well as the industrial belt places this region as the ideal location for the continuation of the housing trend.

The larger nature of the site requires a holistic spatial strategy. The northern reaches of the site that is on grade with the surrounding landscape will be residential on par with the spatial development trend of the southern Paarl region. The excavated region on the southern part of the site is cultural. The purpose for the cultural zone is to celebrate the quarry.



The architectural intentions of the linking device is echoed along the experiential route. In this manner the quarry becomes a large room. In this way the Earth is experienced as room and the architecture is in turn formed from the earth.



The intention of the location of my design within the site is that of linking device between the top of the quarry and the quarry base. This site location becomes a threshold in of itself, connecting the top of the quarry to the basin. It is a cultural and historiographical device, documenting the site in its participation of the site.



Housing is not the central focus of my design focus. Thus the housing section of the site will be approached gradually. Allocation will be made for future development to take place without designing it specifically.



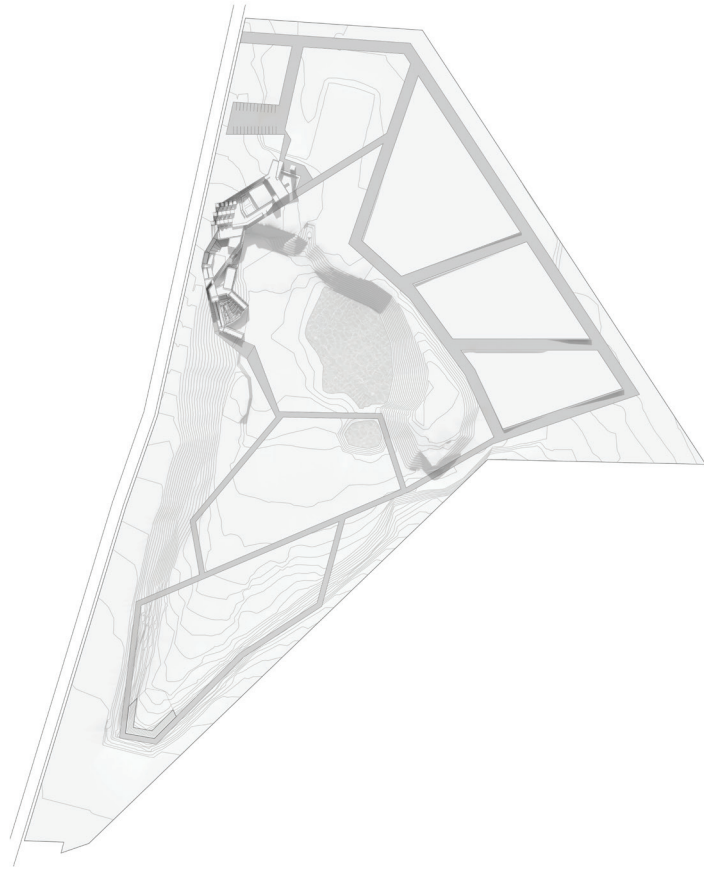
My second intention is that of an experiential route throughout the cultural zone of the site. The experiential route focuses on the spatial experience of the excavated quarry, it also becomes a route with which to experience the passage of time as the quarry is decommissioned.



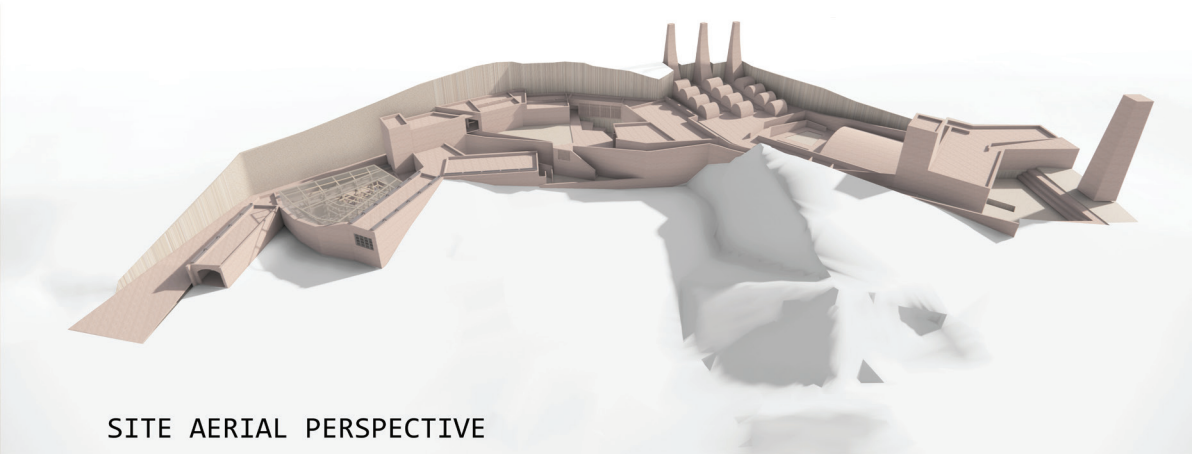
My intention with the state of vegetation in the quarry is indirect. Vegetation and the natural erosion and decay of the quarry are all things that occur naturally over time. In this manner my approach is to spread seed deposits and let natural vegetation return on its own and simply let the site be acted upon by the flow of time. That which remains barren, remains barren, that which flourishes, flourishes.



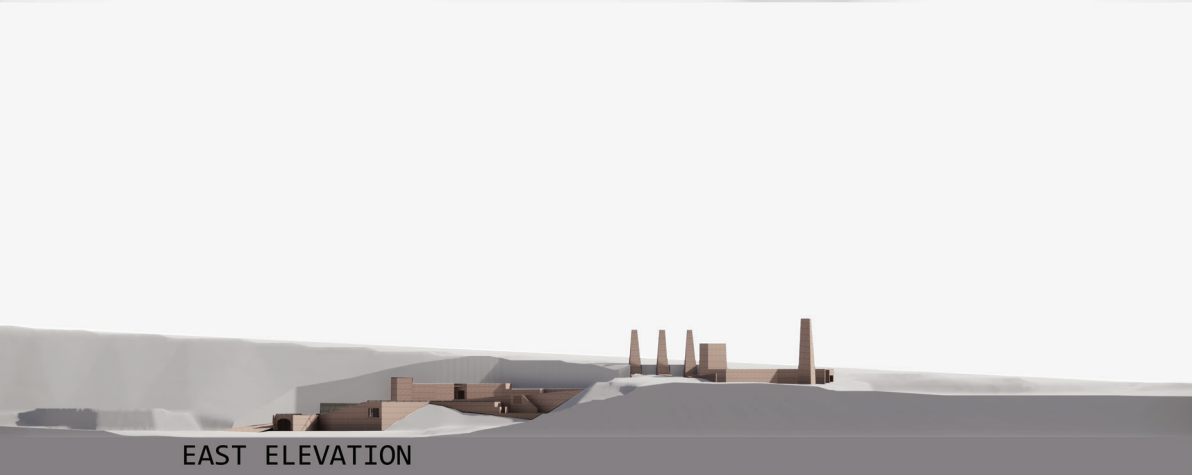
SITE DEVELOPMENT STRATEGY



SITE PLAN 1:1000



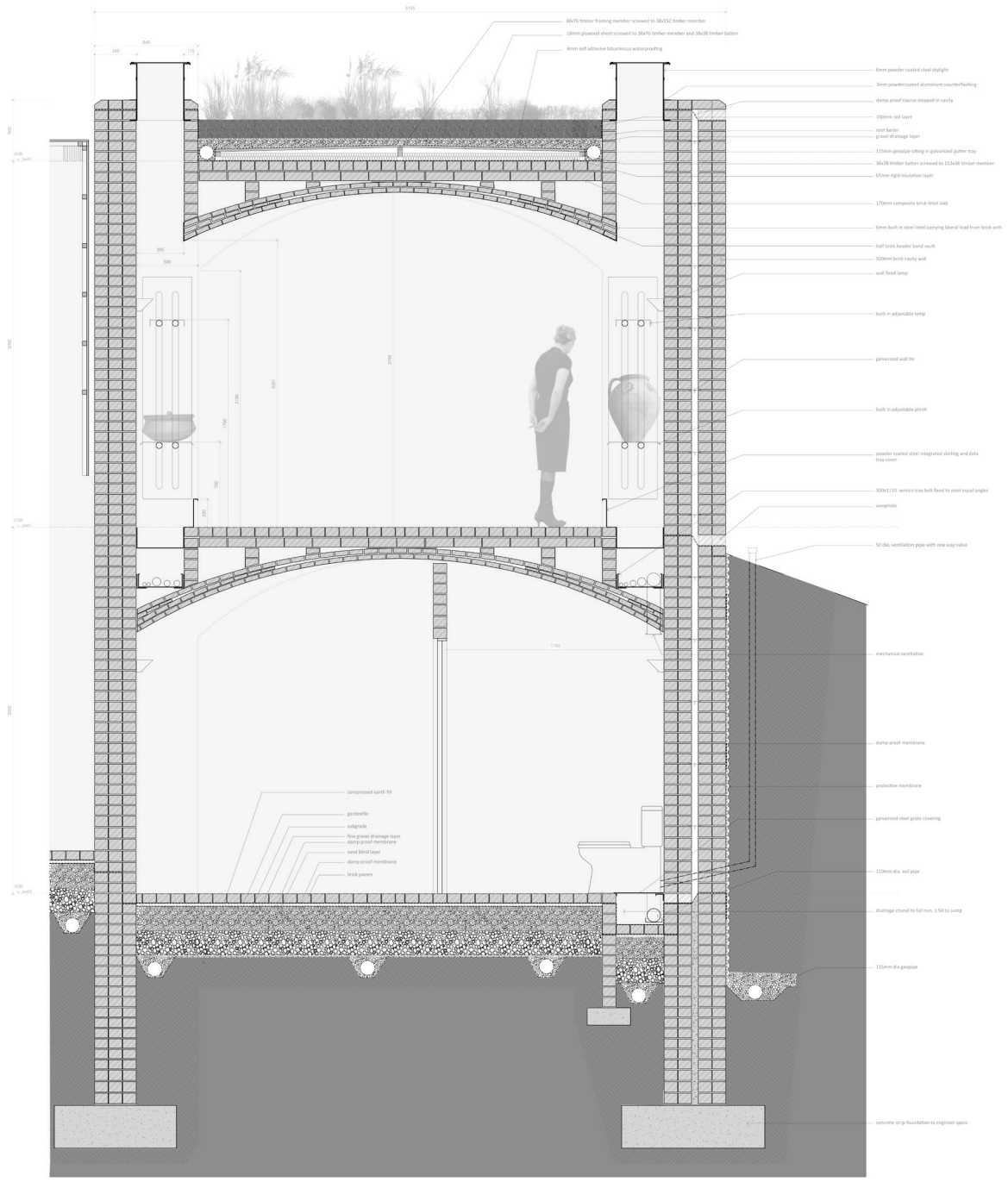
SITE AERIAL PERSPECTIVE



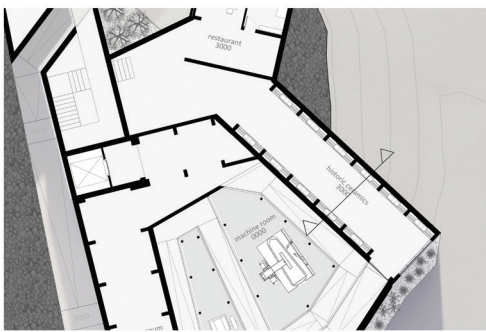
EAST ELEVATION



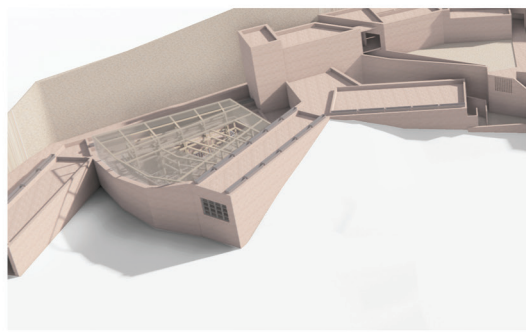
STEPPED GROUND FLOOR
PLAN 1:100

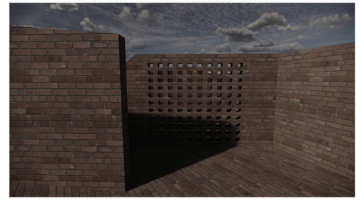
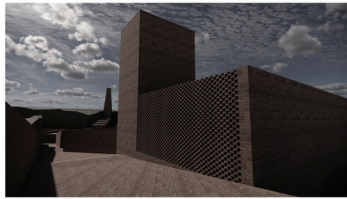
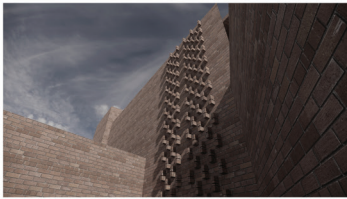
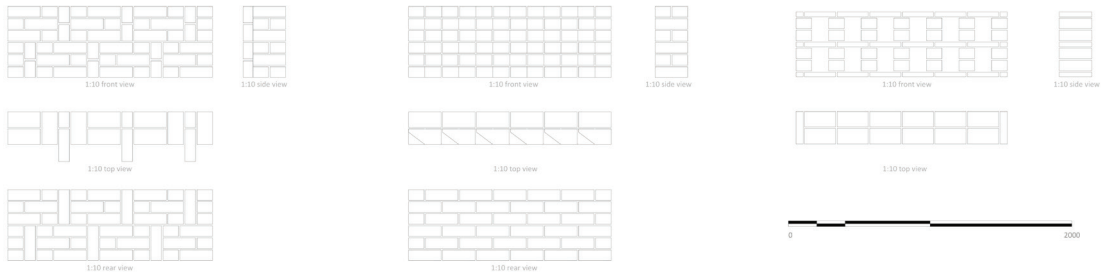
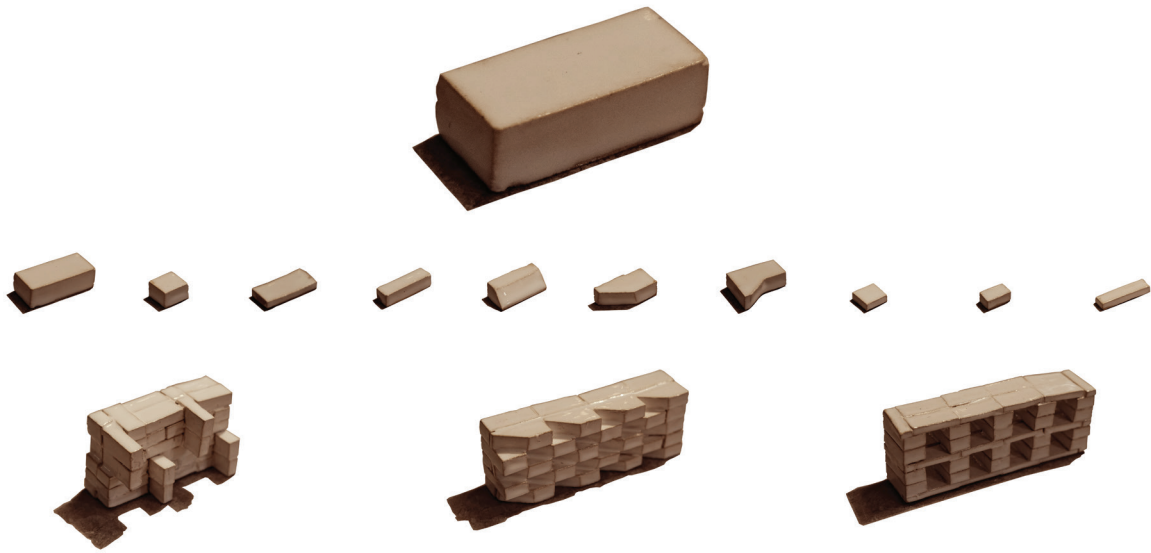


TYPICAL SECTION 1:10

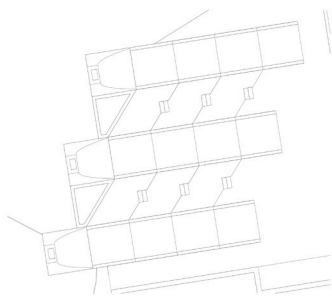


CALLOUT 1:100

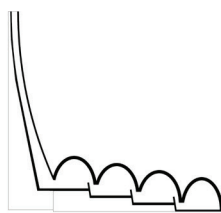




INVESTIGATIONS INTO THE NATURE OF BRICK AND CLAY



1:50 view from above



1:50 section



orthographic section



orthographic section



perspective view of kiln



Climbing kilns or Hill climbing kilns have a long history. They have been seen in both ancient China and ancient Rome. The essential characteristic of the climbing kiln is that it utilizes the elevation of a slope as a method of conducting heat through a wood fired kiln. Using wood fired kilns in Ceramics follows a slightly different timeline to that of modern gas or electric kilns. It takes about a day for the kiln to reach the necessary firing temperature and is achieved through constantly feeding and stacking the fire in the kiln. It requires constant attention and after reaching the critical temperature, the fire needs to be looked in order to remain hot enough. Then after the kiln is allowed to cool naturally. The entire process takes roughly 72 or more hours.

HILL CLIMBING KILN



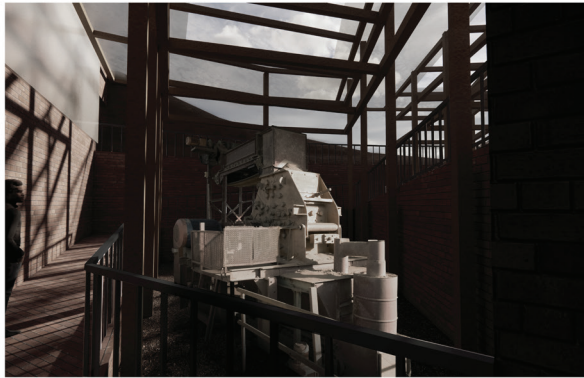
VIEW FROM TOP OF SITE



CERAMICS GALLERY



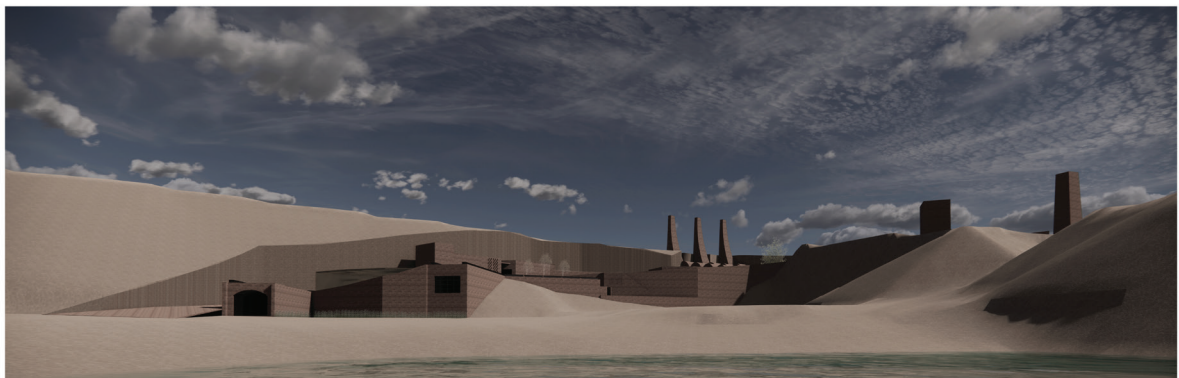
CERAMICS MUSEUM



MACHINE ROOM



RAMP TO WORKSHOP



BOTTOM OF SITE

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PRE-SCREENING QUESTIONNAIRE OUTCOME LETTER

STU-EBE-2022-PSQ000036

2022/07/29

Dear Neil Trouw,

Your Ethics pre-screening questionnaire (PSQ) has been evaluated by your departmental ethics representative. Based on the information supplied in your PSQ, it has been determined that you do not need to make a full ethics application for the research project in question.

You may proceed with your research project titled:

Being Time - Repurposing decommissioned quarry in Paarl, with a focus on the human, nature interface through architecture.

Please note that should aspect(s) of your current project change, you should submit a new PSQ in order to determine whether the changed aspects increase the ethical risks of your project. It may be the case that project changes could require a full ethics application and review process.

Regards,

Faculty Research Ethics Committee