[Extract]ing [Meaning]

Toward a restored collective memory

Chamonix Roets | rtscha002 | September 2022

Supervisor: Simone le Grange
Design Dissertation Report presented in part fulfillment of the degree of Master of Architecture (Professional) in the School of Architecture Planning and Geomatics, University of Cape Town (APG5079W)

UNIVERSITY OF CAPE TOWN
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STU-EBE-2022-PSQ000038

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You may proceed with your research project titled:

Higgovale Cultural Center: Holding the tension between renewal and remembering

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Regards,

Faculty Research Ethics Committee

TITLE PAGE

DISSERTATION TITLE: Extracting Meaning: Toward a restored collective memory
STUDENT NAME: Chamonix Roets (RTSCHA002)
SUPERVISOR NAME: Simone le Grange

This dissertation is presented as part fulfilment of the degree of Master of Architecture (Professional) in the School of Architecture, Planning and Geomatics, University of Cape Town

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CONTENTS

ABSTRACT

Spaces hold memories, both good and bad. Preserved in the landscapes of the City of Cape Town are many unspoken memories of past events. Higgovale Quarry is one of these. This void was laboured to supply the stone that built the Rhodes memorial, among many other buildings that created this colonial city of the 1800s.

The problem is twofold. Firstly, the people most affected by Rhodes's actions, the marginalised people of Cape town do not have access to Table Mountain, the symbol of the city. Secondly, there is a need to rethink the way memorials are made and memories are captured. The days of employing traditional memorials to capture collective memories are numbered. There is an opportunity to challenge the linearity and one-sidedness of traditional static memorials and discover means to dynamic ways of memorialising that aim to engage the everyday experience interactively.

The aim is to mobilise the Higgovale quarry as a site of active consciousness that can contribute to the restoration of collective memory and access to the mountain. Therefore, I am designing a cultural centre focusing on performance and music in the Higgovale Quarry. I am doing this by creating an intervention that can display dynamically the memories of the space through the design, as well as be a stage for the memories to be displayed through performance by people from diverse cultures. I aim to do that by designing a space that memorialises by creating rituals that harness the surrounding natural elements and framing memories dynamically through the abstract, interactive building as a memorial.

PREFACE

Growing up around the cascading mines in the Northwest province of South Africa always sparked my wildest imagination as a child. In my mind, I imagined humble little utopian-like cities comfortably nestled on the slopes of some of these mines. Eleven-year-old me had a solution for every question that could be thrown my way. It was all figured out, the circulation, the drainage, the safety questions and in some cases even wheelchair access. My plan was ingenious of course. The only question I didn't have an answer to, was why those silly grown-ups couldn't see what I was seeing, why did these cities not exist?

Even though my ingenuous childlike fantasy around these imagined cities had to shake hands with reality at some point, my fascination with abandoned mine spaces - particularly rock quarries - remained with me throughout my architectural career. An array of these spaces in and around the City of Cape Town continues to command my interest. Why do we as humans find such fascination in these scarred pieces of land, these spaces of ruin in nature?

INTRODUCTION

My exploration begins in the realm of fascination, I begin by asking why we are fascinated by these derelict spaces from a phenomenological perspective. At that point, the scene is set in five parts.

Firstly, *Part 1* will set the stage by giving the basic descriptive historic attributes of quarries in Cape Town. It settles on a focus around the Higgovale quarry as the choice of site and elaborates on its history in more depth. These historic findings begin to shape many questions. Thereafter, *Part 2* introduces the theoretical ideas of memory, memorialisation, and their relationship to architecture in the context of Cape Town, South Africa.

Part 3 takes an in-depth analysis of both the wider context surrounding the Higgovale quarry as well as the immediate surrounding context of the space. Framing how these informants were key to extracting a program fitting for the site. Then, *Part 4* looks at the technical informants toward an intervention in this void, analysing precedent and understanding the nature of modern quarrying and the use of stone in buildings today.

Lastly, *Part 5* maps out the design process up to date and critically reflects on what has been done thus far in the design process and what is still necessary to be considered for the success of this space.

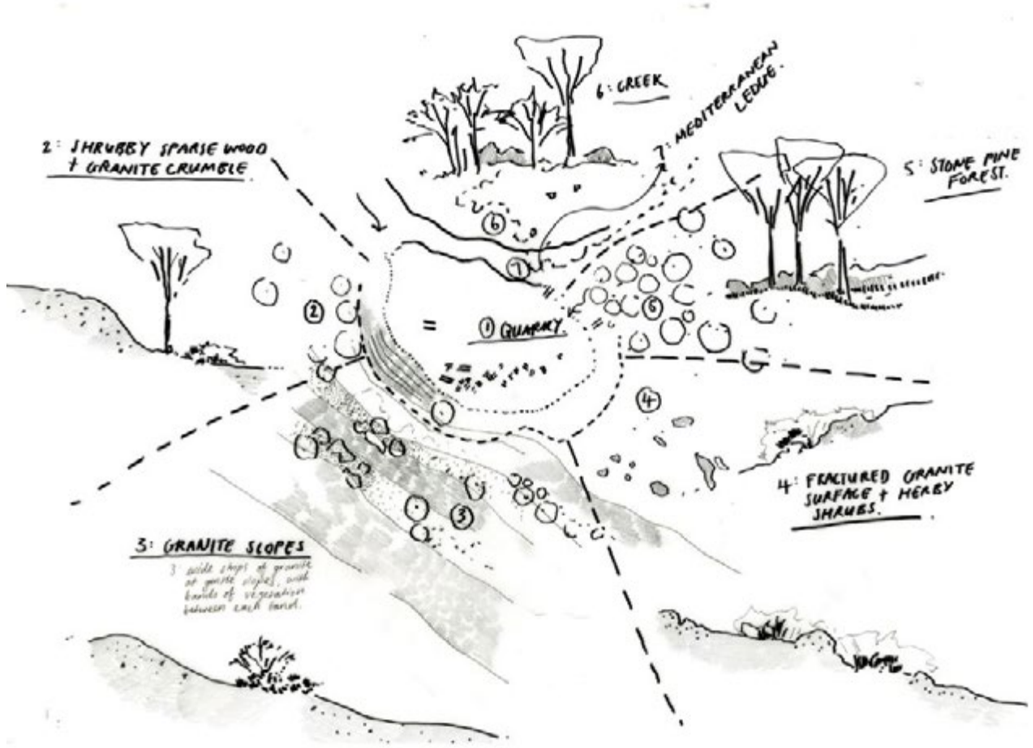


Figure 1 *Site analysis diagram of Higgovale quarry exploring different features*

Figure 2 The author documenting the site

WHY THE FASCINATION?

a starting point

The Ruin

Whether I am far away observing from a distance or up close in the colossal, abandoned space, my stomach feels hollow when interacting with a quarry space. There is a sense of awe combined with an eeriness that is difficult to put into words when you are standing in a space of ruin. These spaces often hold nuanced layers of stories, some told and some untold. The untold stories are held in the structure of the mountain itself; it has a deeply rich socio-political story in it that can be unravelled. The scar that we see was not without fruit, whether it is good or bad fruit is debatable. These stories spark curiosity beyond the physical magnitude of the spaces. Rose Macaulay in her study titled 'Pleasure of Ruins' coined the term 'Ruinenlust' as being a sort of pleasure that is experienced from spending time amidst ruins (Macaulay, Beny, and Babington Smith, 1977). This ruin might be manmade or natural and "has its own time, place, space, and life" according to Hetzler (Thomas, 2017, p8). Whichever, the mystery experienced due to time gone past, draws one in. A phenomenon that cannot be fabricated but demands a significant lapse of time to create authenticity in the ruin (Thomas, 2017, p13).

Human greed vs Nature's power

While being a space where there is unmistakable evidence of invasive human activity in these spaces, nature has its way of re-engulfing all man's attempts to exercise power over it. Humans keep taking from nature in an immensely unsustainable way. Taking animals, taking from the ocean, taking water, etc. However, taking such a vast amount of rock-solid earth to leave behind such a voluminous hole in space, almost takes beyond comprehension the destructive power in human hands when we decide we need something for our benefit.

Despite human greed, new life manages to grow from the deep scars made in the rockface in the toughest conditions as the hole in the ground is once again reclaimed by nature. There is a tension between man's continued endeavour to create, expand, and innovate - to the detriment of nature - and nature perpetually proving that it will always prevail. The ruin continues to affirm the narrative that *"Everything comes to nothing, everything perishes, everything passes, only the world remains, only time endures."* (Thomas, 2017, p12) We are unable to fully fathom the monumentality of what we are beholding in the natural scene. It is beyond the comprehension of that which can be understood in reference to human proportions.

Human innovation

Despite our ability to take from nature, there is still something to be said for the revolution that humans are capable of. To think that they had the power to create a hole in the solid groundmass of such a significant size. It is something to be marvelled at when it comes to the human ability to work at scales much larger than themselves. There is a mysterious power in the human mind to create technology that can achieve such unfathomable things.

Instinct for Shelter

The human instinct when it comes to being in a safe space in nature cannot be forgotten when thinking about why such a space evokes fascination in us. Shelter brings a sense of comfort and safety to the human mind. Since the beginning of time man found shelter in caves, in walled enclaves where they could be protected from the dangers that untamed nature can throw at them. The space has walls that hold the human body, giving a sense of safety that is rooted in not being vulnerable in vastly open spaces.

The Straddle

Having mentioned all of the different provocations for fascination, the one that holds them all together for me is the fact that the feeling experienced is not one of positive awe alone. There is also a measure of feeling unsafe and uncertain in a desolate space of extreme scale. Rather than a singular experience, it is an awkward straddle between amazement and fear that demands ultimate respect for the place.

PART 1

looking back

Nuanced layers captured in
landscapes.
Collected over centuries.
Histories and mysteries held amid
strata.
Responsibility lies in the hands of
the one,
who chooses to peel back rather
than run.

CAPE TOWN QUARRIES

exploring spaces

The Soil

Before Jan van Riebeek first established the colonial settlement of the Dutch East India Company (also referred to as VOC) in Cape Town in 1652, the land was the home of the KhoiKhoi people. As the VOC settlement expanded the land that was seized from the KhoiKhoi, and later the San people. As the settlers continued expanding their farming activities, the indigenous people of the space got displaced further and further away from what is known as the city bowl today. Having had their land and livelihoods taken away from them the Khoi and the San had to merge, becoming the Khoisan, and were forced to work as labourers on the farms of the white settlers (South African History Online, 2021).

In 1806, the British took over the Cape Colony from the Dutch and continued the expansion into further parts of South Africa. As the expansion grew, they continued to exploit more African tribes through suspicious "treaties" that were alleged to have been signed by the chiefs of the tribes. (South African History Online, 2021) In numerous attempts, some of the African tribes fought to reclaim the land they were dispossessed from, but unrivalled ammunition and cooperation with the colonists by other tribes handicapped any attempts (South African History Online, 2021).

The Quarrying in Cape Town

Up until 1870, the majority of the city's need for dimension stone was met by quarries around the city. (Fig 4) Dimension stone is the term used for granite in the building industry because it can be quarried in large slabs and cut down to specific sizes (JA Clift Contractors, 2022a). The famous strand street quarry is the oldest and started in 1660 and closed in 1946 (Cole, 2002). There were multiple quarries excavated around the city bowl of Cape Town, mostly seeking the cape igneous granite rock as a source of material for a large part of the infrastructure built in the city from the 1800s until the early 1900s. From the beginning of slavery in 1658, all the way to the abolishment of slavery in South Africa in 1834, the rocks that built the colonial city were quarried by enslaved people (Dehkordi, 2020).

These quarries were all at some point sitting well beyond the edge of the Cape Town city borders. They have since then, however, either been incorporated into the urban expansion that took place over the decades or is doing an awkward dance between the urban edge conditions and the vast natural landscapes of the Cape Town mountains.

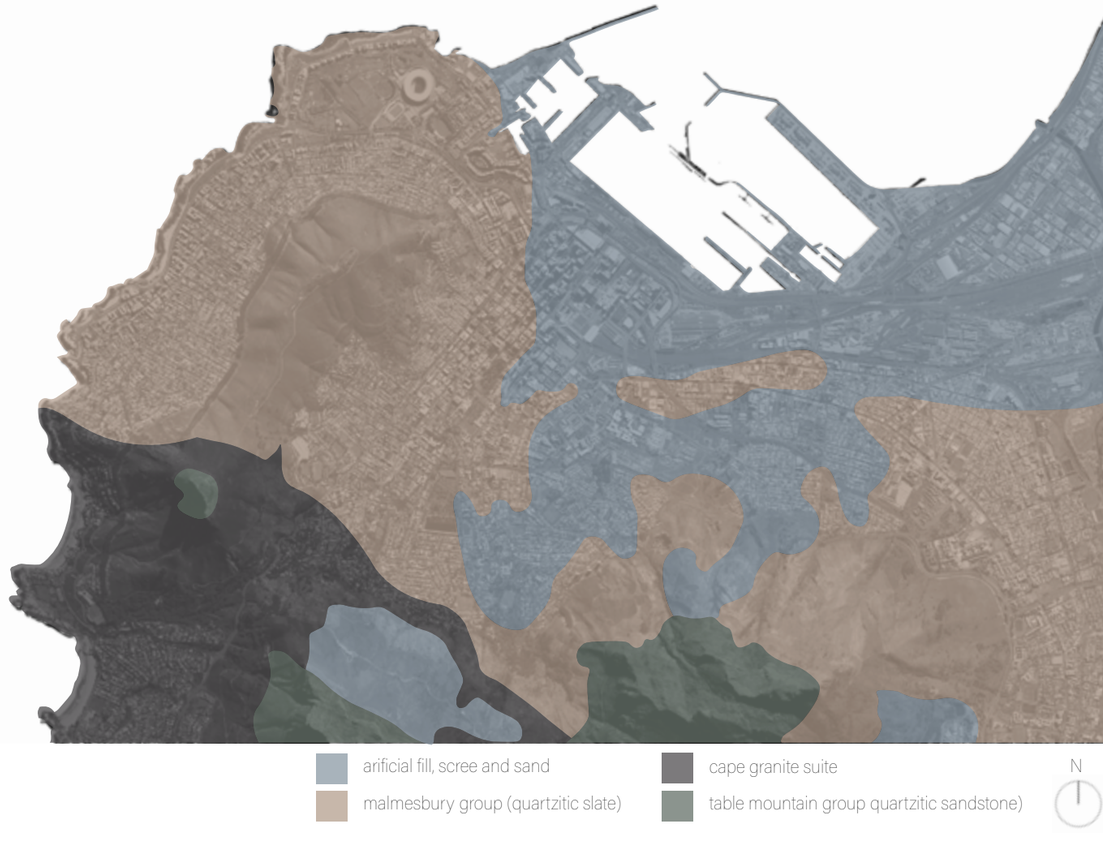


Figure 3 *Geographic landscape of Cape Town*

Stone types around the city bowl

The City of Cape Town is made up of several layers of strata. (Fig 3) On the lower slopes of Table Mountain, the earth is mostly made up of igneous granite rock. The majority of the mountain is made up of nutrient-poor sedimentary sandstone. These do not supply any strength and weather quite easily due to the poor-nutrient state (Hedley, 2012).

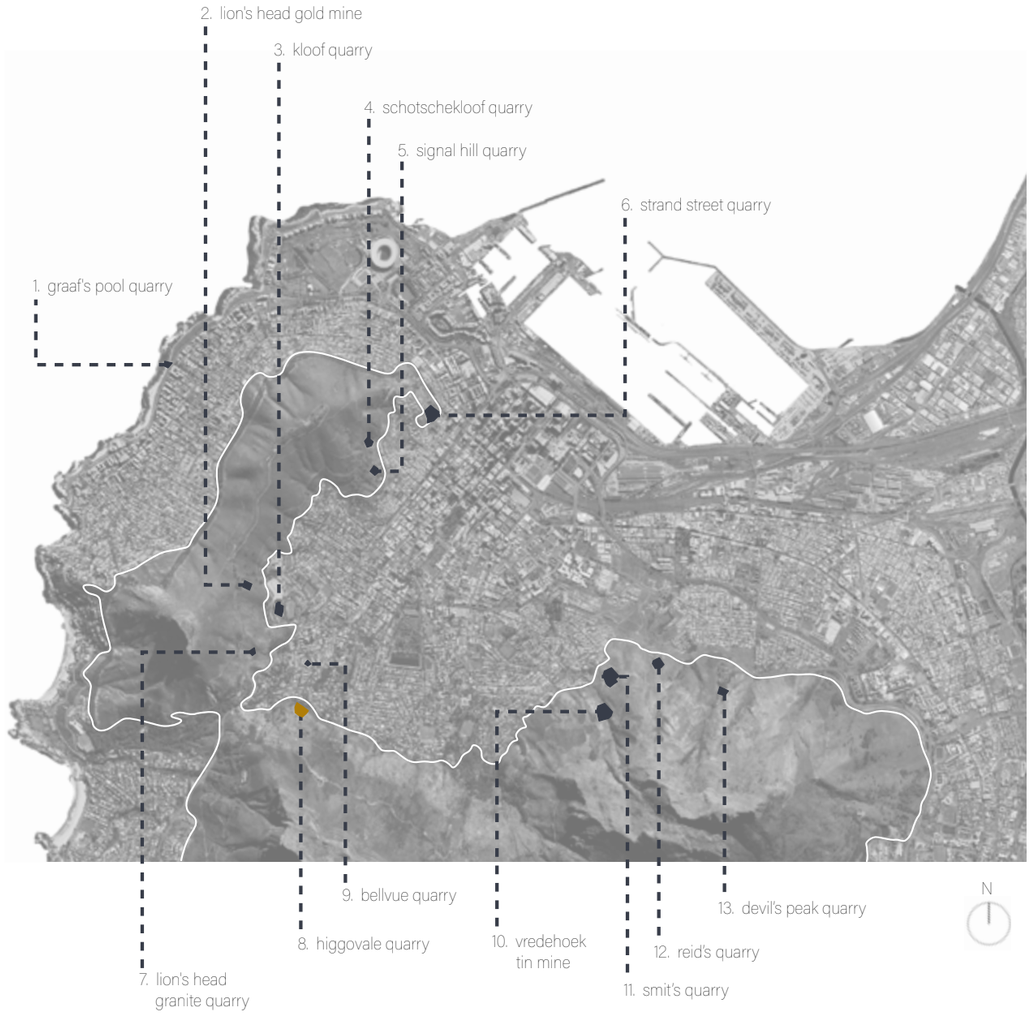


Figure 4 *Map of different quarries around the city bowl*

Quarry	Commodity	Year Abandoned
1. Graaf's Pool Quarry	Stone Aggregate for railway balast	1880 - 1882
2. Lion's Head Gold Mine	Gold	unknown - 1951
3. Kloof Quarry	Building Stone; Stone Aggregate; Road Material	1890 - 1950s
4. Schotschekloof Quarry	Stone Aggregate	1900 - 1941 (estimate)
5. Signal Hill Quarry	Stone Aggregate	1900 - 1941 (estimate)
6. Strand Street Quarry	Stone Aggregate; Building Stone	1660 - 1905
7. Lion's Head Granite Quarry	Stone Aggregate; Building Stone	late 1800s - early 1900s
8. Higgovale Quarry	Building Stone; Stone Aggregate; Road Material	1850s - 1930
9. Ballvue Quarry	Building Stone	1850s - 1930
10. Vredehoek Tin Mine	Tin	1911 - 1912
11. Smit's Quarry	Stone Aggregate	1903 - 1935
12. Reid's quarry	Stone Aggregate	early 1900s - unknown
13. Devil's Peak Quarry	Stone Aggregate	early 1900s - unknown

Table 1 *List of quarries in city bowl of Cape Town*

Figure 5 *Strand Street Quarry*

Figure 6 *Rheid's Quarry*

Figure 7 *Higgovale Quarry*

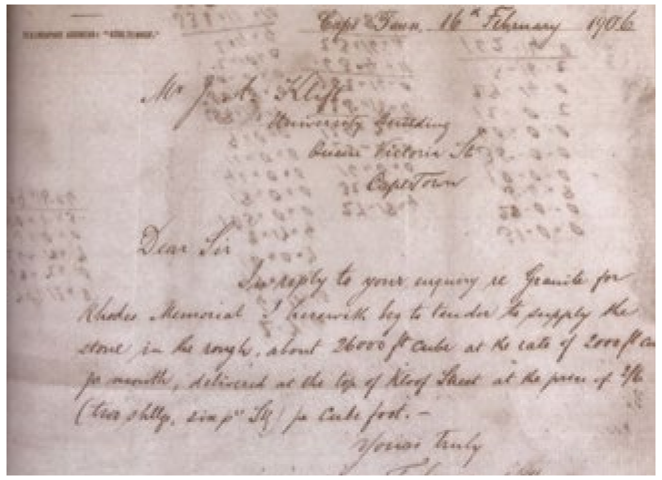
Figure 8 *Smith's Quarry*

HIGGOVALE QUARRY

excavating site

Why Higgovale quarry?

I explored this range of eerie, yet awe-filled spaces. Some were epic in scale and others you could hardly recognize as places of excavation. Ultimately, I decided to focus my attention on a site that I had heard a lot about in passing but never knew the exact location of, never mind its history. Higgovale quarry, upon my first visit, left a lasting phenomenological impression on me.


Cape Town 16th February 1906

Mr [illegible] Klift
University Building
[illegible] Victoria St
Cape Town

Dear Sir

In reply to your enquiry re Granite for Rhodes Memorial I herewith beg to tender the supply the stone in the rough, about 26000 ft cube at the rate of [illegible] per month, delivered at the top of Kloof Street at the price of [illegible] ([illegible]) per cubic foot. –

Yours Truly

Figure 9 *Commission slip for supply of dimension stone for Rhodes memorial*

As will be expanded on further, the Higgovale quarry holds many memories of marginalised people and atrocities of colonial interventions that took place in our country. Extracting granite to display dominance and power exploiting thousands along the way. This void in Table Mountain represents a scar in the memory of our country and not only a physical scar in the landscape. As I excavated more and more

Figure 10 *Stone transported via ox and wagon to various building sites*

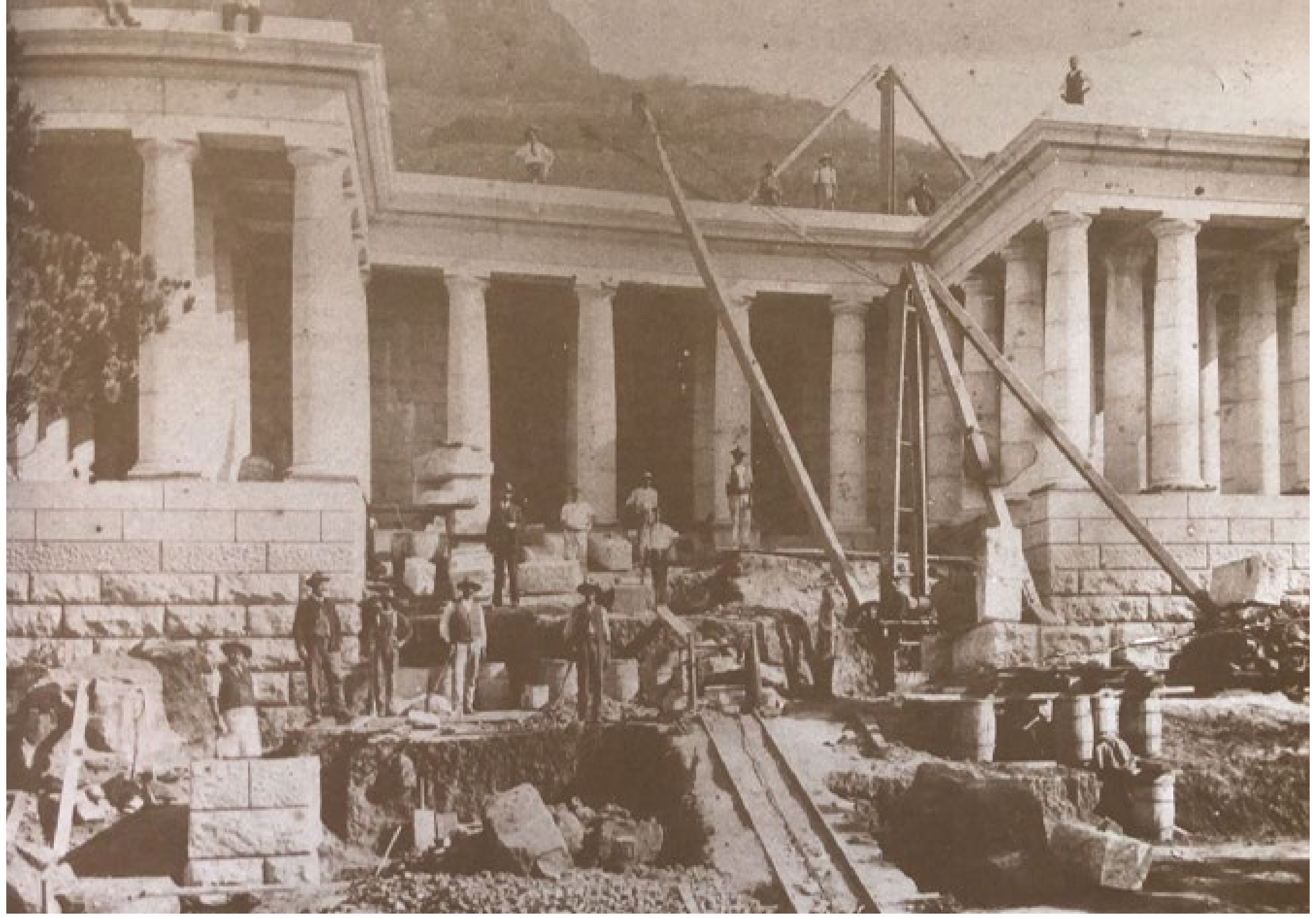


Figure 11 *Construction of Rhodes memorial, stone masonry on site (1910)*

of this memory, I realised the potential for restoration that this site holds, and for that reason, I chose to work in this quarry.

Higgovale quarry and Rhodes memorial

The Higgo brothers, Henry, James, William, and George from Cornwall, England, moved to Cape town during the reign of the British colony in the mid-1850s. The Higgo stonemasons started living in the big open spaces of land just below Kloof Nek, where the Higgovale quarry that excavates into the Cape Granite Suite, was started shortly before 1860.

At the time Cornwall, which used to be a booming city for stone masonry where the Cornish miners developed an unparalleled reputation for mining and working with hard rock. The market for hard stone crashed in Cornwall in 1866, leaving thousands of Cornish men without work (JA Clift Contractors, 2022b). Not long after, the Higgo brothers started recruiting large numbers of Cornish stonemasons to assist them in working the Higgovale quarry. The largest number of Cornish masons relocated to South Africa in the years just before the South African War of 1899-1902. By 1900 there were at least 120 men working in the quarry (Hedley, 2012).

One of the many Cornish workers that started making a living through working as a stonemason at the Higgo brothers, was James Andrew Clift, "Jimmy". In 1906 Clift

signed the tender to be a subcontractor supplying the dimension stone granite for the construction of the Rhodes memorial designed by Sir Herbert Baker. The contract was for 26 000 cubic feet of granite at a rate of 2000 cubic feet per month. A mere two years later, they finished the contract for Rhodes Memorial. Months after this completion in 1908, Clift realised that Cape Town's building-grade quality granite had been exhausted. He subsequently relocated his family to Paarl where they still operate the Clift Granite quarry to this day. Higgovale quarry was finally closed in the 1930s (JA Clift Contractors, 2022b).

Buildings stones originating from the Higgovale quarry

Cole (2002), in his book "The building stones of Cape Town: a geological walking tour", does marvelous work of taking you on a tour through the origins of the stones used in different buildings in Cape Town. In this, one can map where the majority of the stone from the Higgovale quarry was used around the city.

Buildings built with granite from Higgovale Quarry (Fig 12) (Hedley, 2012):

1. Cape Town City Hall (Fig 13)
   - *Lower walling, pilasters, and plinths.*
2. South African Mutual Life Assurance
   - Society *Kerbstones*
3. Standard Bank South Africa (Fig 14)
   - *The ground floor, as well as paving stone on Adderly Street.*
4. South African Reserve Bank (Fig 15)
   - *Kerbstones and gutter stones*
5. Rhodes Building (Fig 16)
   - *Facade, colonnade, gables, and entrance steps.*
6. Temple Chambers
   - *Base work*
7. Protea Assurance Building
   - *Ground floor base work and cladding of the first floor*
8. Keerom Street Chambers
   - *Plinth*
9. Queen Victoria Street
   - *Kerb*
10. Van Riebeeck Statue (Fig 17)
    - *Statue pedestal, podium*
11. Rhodes Memorial (Fig 18)

Figure 12 *Map of buildings to which the stone from Higgovale quarry was distributed*

Figure 13 *Cape Town city hall*

Figure 14 *Standard Bank building*

Figure 15 *Reserve Bank*

Figure 16 *Rhodes Building*

Figure 17 *Van Riebeeck Statue*

Figure 18 *Rhodes Memorial*

Embodying the void

Whilst exploring these various locations of void and subtraction there was the opportunity to play around with the idea of occupying the void in an abstract and conceptual frame of mind. (Fig 19 +20)This was done by creating negative space and then filling it. I built, what would become the negative space, out of polystyrene and cast plaster of Paris to create the positive form. This was done to conceptually consider the idea of positive and negative space, to bring body and form to what once was negative space. To consider the void more actively. Most traditional methods of form-making, especially in architecture, takes place in an additive fashion. The architect chooses the material and form, and it gets added to space. In making this model I had to plan the void, plan the inverse, and consider where I am saying "no" to the access of the plaster of Paris to generate the predetermined outcome.

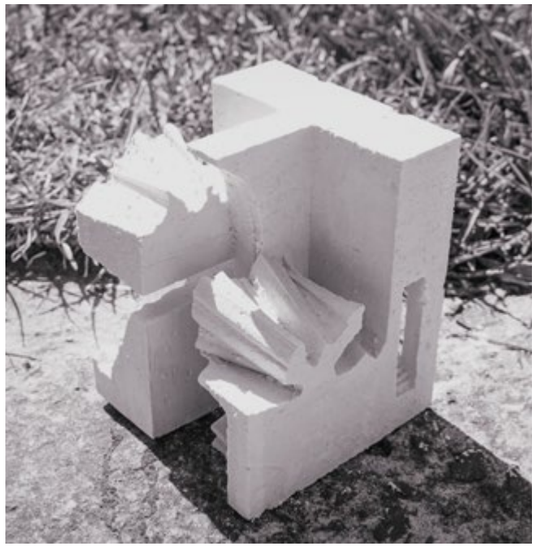


Figure 19 *Abstract model exploring the notion of void and the inverse of that*

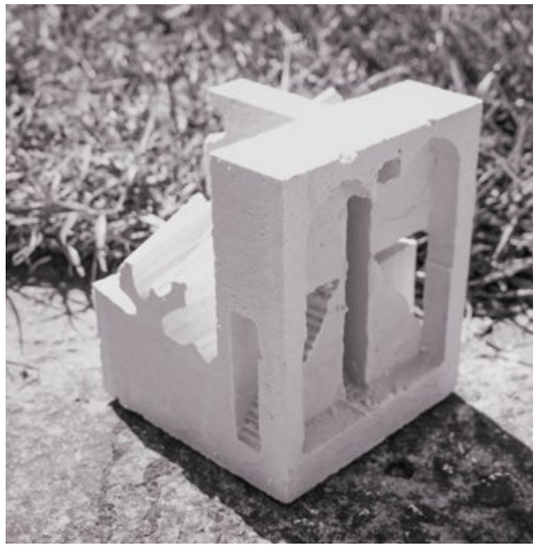
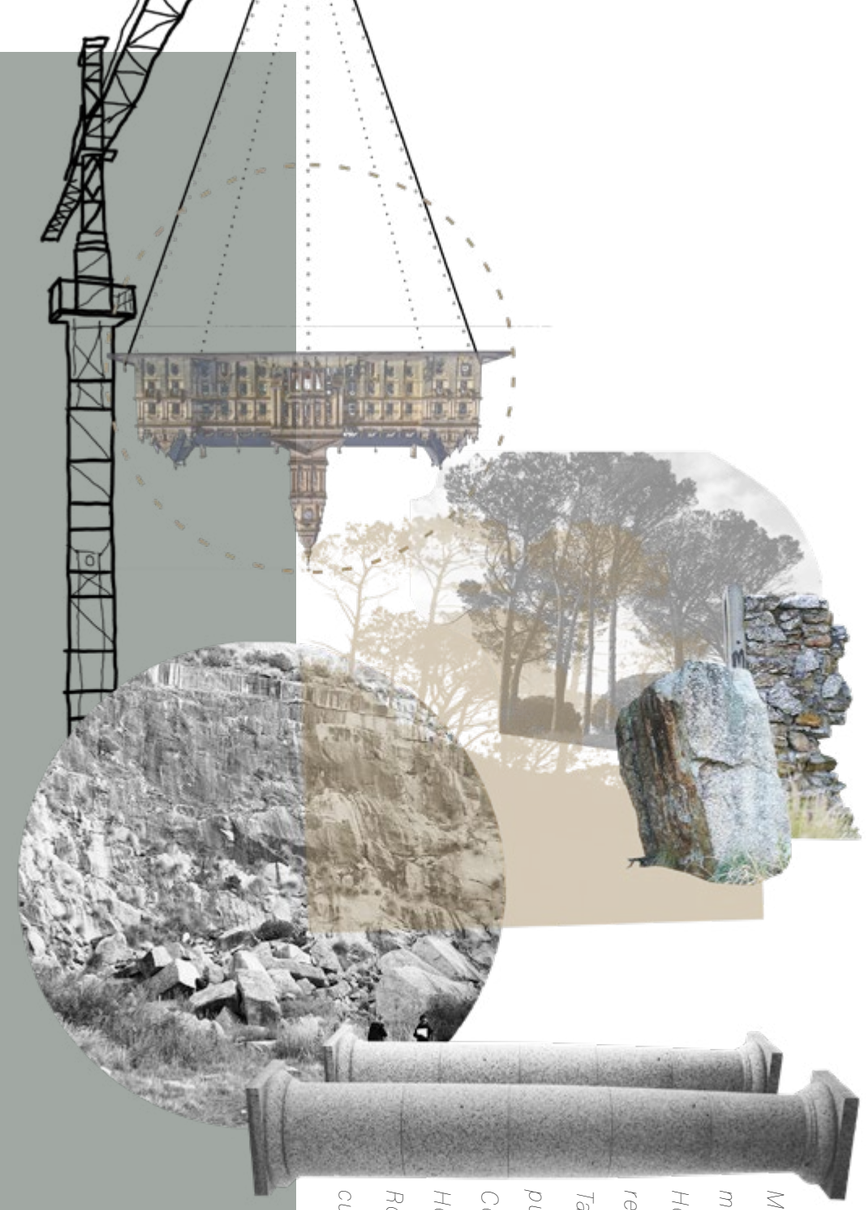


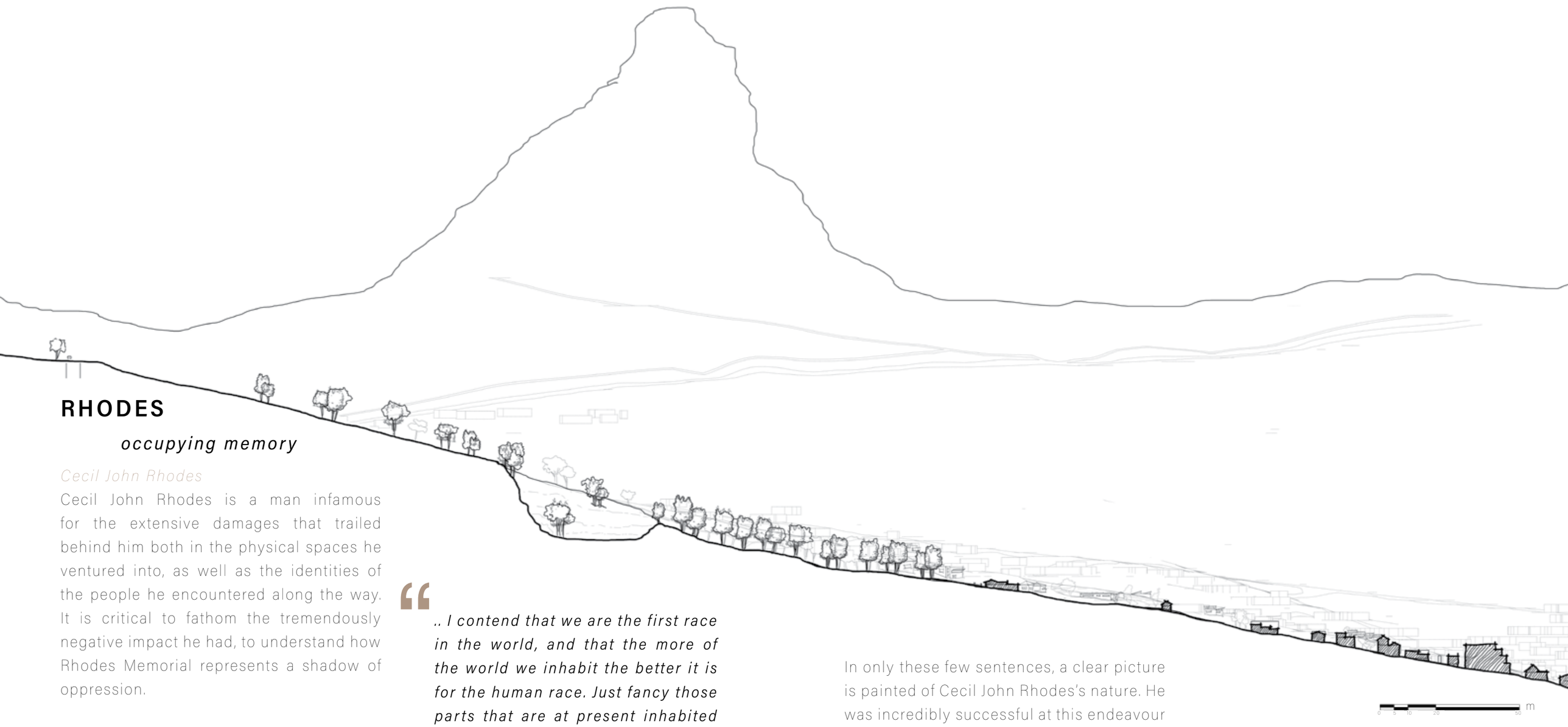
Figure 20 *Abstract model exploring the notion of void and the inverse of that*

PART 2

made memory



Memories made and
memories held.
How do we even begin to
remember?
Taking out,
putting back.
Collecting the stories,
Holding unknowns.
Room for layers, once
curated, once removed.



RHODES

occupying memory

Cecil John Rhodes

Cecil John Rhodes is a man infamous for the extensive damages that trailed behind him both in the physical spaces he ventured into, as well as the identities of the people he encountered along the way. It is critical to fathom the tremendously negative impact he had, to understand how Rhodes Memorial represents a shadow of oppression.

The one task that Rhodes would lay his life down for was the goal of forwarding British imperialism. To Cecil John Rhodes this was his God-given task to execute, and he was willing to do it at any cost. In his view, the Englishman was "the greatest specimen" to exist and that the entire world would be better off under British rule (SA History Online, 2011). In his own words at Oxford 1877, he said:

> *.. I contend that we are the first race in the world, and that the more of the world we inhabit the better it is for the human race. Just fancy those parts that are at present inhabited by the most despicable specimen of human being, what an alteration there would be in them if they were brought under Anglo-Saxon influence...if there be a God, I think that what he would like me to do is paint as much of the map of Africa British Red as possible*
> (SA History Online, 2011).

In only these few sentences, a clear picture is painted of Cecil John Rhodes's nature. He was incredibly successful at this endeavour of his. In his pursuit to "paint the map of Africa red" thousands of people were manipulated, oppressed, exploited, and killed. Not only this but generations later are still carrying the heavy burden of what Rhodes stole from their ancestors. This is the memory left behind for thousands of South Africans. The void that is left after the exploitative extraction.

Rhodes Memorial

Rhodes memorial, designed by Sir Herbert Baker, was completed in 1908. Despite being finished at that time, it was only dedicated on Friday the 5th of July 1912, ten years after Rhodes' death (Cole, 2002).

The memorial consists of a temple in the form of a U-shaped columned peristyle with a Tuscan order. (Fig 23+25) The design of this memorial includes four wide platforms on ascending levels, joined by flights of stairs and flanked on either side by pairs of bronze lions. At the bottom of the steps, placed on a pedestal, there is a statue of a rider on a horse. The granite used for this temple traces back to the Higgovale quarry as it has the same characteristic of light grey stone with large dark grey speckles (Cole, 2002).

The Rhodes memorial sits in all its glory on the foot of Devil's Peak speaking a language of power and dominance. (Fig 22) This observation begins from a distance as it is placed on the side of the mountain demanding attention from various views of the city. When moving right up close, the power is immediately felt in the monumental scale of the structure. You are met with the cascading stairs leading you to the temple-like structure at the top where the statue of Cecil John Rhodes sits triumphantly poised in the most important centre stage position like an emperor looking over his empire. (Fig 21 +24) The memorial is a beautiful work of architecture and craftsmanship, this cannot be denied. But what is to be said for all that it represents? And how does one even begin to address something that embodies so much hurt?

Figure 21 *View over Cape Town from the position where Rhodes's bust is perched in the memorial*

Figure 22 *Rhodes Memorial on the foot of Devil's Peak visible from far distances across the city*

Figure 23 *Tuscan order columns*

Figure 24 *Rhodes bust at the centre of memorial*

Figure 25 *U-Shaped peristyle*

MEMORIZATION

methods to memory

Restoration in Memorialization

The dictionary definition of the word memorial is *"something designed to preserve the memory of a person, or event"*(Webster, 1950, p516). Memorializing is an act that has been taking place since the beginning of man and has served a great purpose to society. People have an inherent desire to remember the ones they loved and those that had meaning to them. Depending on the situation it can either be a celebration of an individual and their heroic acts. In other instances, it can serve as a site of mourning, grieving, public recognition and remembering the atrocities against certain people (Herman, 1992). This function is especially valuable when an actual burial site doesn't exist, then the memorial serves as a surrogate burial site for lives lost (Torre, 2002).

Around the world, there is the question of the relevance of colonial memorials in post-colonial cities. Representativeness is a very important word to help understand the need to address this question. These colonial memorials are symbols that constitute cities around the world, and they portray a very specific one-sided message to the people living in these cities and conquer the imagination of the collective (Delaqua, 2022). Rhodes memorial is no exception to this it sits at the forefront of this debate. Rhodes must fall is a movement that started in 2015. This movement was a cry for active decolonisation in African cities. In many ways, decolonisation starts with symbolism and what is celebrated. Cecil John Rhodes's name can be found

Figure 26 *Statue of Cecil John Rhodes being removed on UCT campus*

all over South Africa, from Rhodes University, the Rhodes Scholarship foundation, the Rhodes memorial, and many statues scattered around Cape Town. The Rhodes Must Fall movement was a vital catalyst for questioning what deconstructing representation could look like. At its core, the Rhodes Must Fall movement challenged not only representation and symbolism but also, Eurocentric, racist, sexist, and patriarchal systems. It challenges his symbol represented in these various places and at the pinnacle of this movement, one of his statues, the one on UCT's campus, was removed on 09 April 2015 (Ndlovu-Gatsheni, 2018). (Fig 26)

Figure 27 *Denilson Baniwa's work when intervening in the Monumento às Bandeiras, in São Paulo, with the work Brasil Terra Indígena. Updating the symbolic meaning of a memorial*

A few different approaches have been applied to this issue of symbolism in memorials in post-colonial cities. One approach is to remove them, such as the removal of the Rhodes memorial statue on the UCT campus. This is often countered by a school of thought that by removing the memory of the oppressor you also erase the memory of the oppressed and the opportunity to learn from the past (Delaqua, 2022). Then there have also been approaches like creating counter memorials (Fig 28); updating the memorial to allow for new symbolic meaning (Fig 27); or moving the monuments to an individual location where their stories can be contextualised. In order to address the way that traditional memorials sanitise, simplify, and convey positive narratives that aim to reinforce ideology, counter memorials aim to recognise darker events or grim times. They tend to warn against the potential evils of ideology (Kerby et al., 2020).

There is a need for the narrative of diverse groups to begin to define the landscape of the collective memory to help us reform the way we interact with moments of displayed memory in public space. This task requires complete new creative imagination from the

Figure 28 *Berlin Holocaust Counter-Memorial, Abstract memorial engaging the user by interaction*

collective as the *"common language of a monument and what it usually represents seems to have its days numbered in the symbolic construction of cities."*(Delaqua, 2022) .

The rising move toward abstract memorials is putting into question the relevance of the traditional memorials as we know them. With traditional static memorials, the viewer is addressed in a more passive manner observing from a distance. Visual representations and textual descriptions depict and represent feelings and attitudes toward individuals and victims. Offering clear, descriptions of the past; *"sculpture and architecture are used rhetorically to reinforce existing social beliefs and enhance social unity."* (Stevens, 2009, p158). In the instance of abstract memorials, they intentionally reject such clarity and depiction and become an expanded field. Drawing on the user's interaction to evoke feeling and emotion. Neglecting the descriptive nature heightens the user's awareness of composition and their social position. Engaging the user's inquisitiveness, delight, and unease, without curating the experience too carefully (Stevens, 2009).

RESTORATION

healing memory

Higgovale Quarry and memory moving forward

Histories of spaces are imperative in exploring the potential uses and relationships to other places (Dehkordi, 2020). Some processes and activities took place in the space that is captured in the memory of its walls. These memories need to be held gently, yet there needs to be an acknowledgement of the wrongdoings and harm that has been caused.

Institutionalised memories in a context like South Africa, is an arduous task. Many of the collective memories that are being captured are captured as that of the past. There is a linearity that comes with the common way of capturing memory that can be challenged. Where institutions and authority manage perceptions of transitions and emotions; of the "past" and the "new"; a language of completion. Human creativity and resilience to the white supremacist systems are captured in a moment and commemorated as events of the past when many in lived time still experience that reality. It raises the question of how one can memorialise the past without dismissing the reality of the current experiences and hopes of creative individuals fighting for a better future (Grunebaum, 2006). A dynamic continuity in memory is not being accounted for.

There is a sense in which the everyday is lived in a vacuum and punctuated by moments of "significance", which become lost when the everyday lived experience is so bereft of the influences of the "momentous" happenings. Grunebaum states that there is a lack of memorising in daily life, in a manor is not removed from the lived experience. To not only have moments of memory as special static occasions but to also encounter them in the dynamic realities of everyday experiences (Grunebaum, 2006).

Herein lies the potential for the collective of post-colonial cities to harness more than just statues or architecture in their static qualities but to apply the creative imagination to challenge and push for new, dynamic ways of holding memory. Holding the tension between immortalizing/eternalizing and remembering. Where the first is a monument at every point in time that we cannot escape. And the other is more sensitive, keeping in mind that remembering is a choice. A sensitive intervention where no one is forcing you to remember, unlike a monument forcing you whether you want to or not. The sensitivity that the other option has is creating rituals that help you remember on site.

Looking at the Higgovale quarry there is an opportunity to use this space and rethink the idea of memory, memorialisation, and functional architecture spaces, and how the City of Cape Town is symbolically constructed.

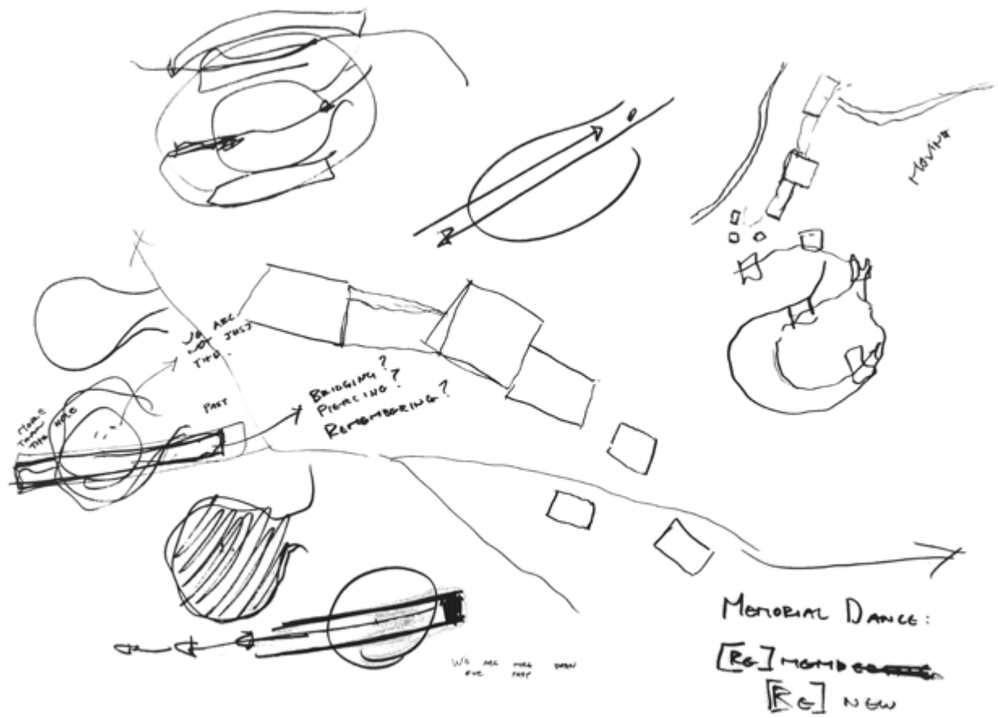


Figure 29 *Exploring the notion of dynamic memory conceptually in relation to site as a void in the landscape*

PART 3

thinking context

Inaccessible mass.
Inhabited void.
A tale of two cities, held in one in one volume.
Nature displayed, dynamic, resilient.
A note to be taken for human transilience.

HIGGOVALE TODAY

modern-day meanderings

Currently, the Higgovale quarry, which is up to 30m deep and 6000m2 in areal extent, is a derelict space (Cole, 2002). It is closed off to public use, yet the public has managed to manoeuvre their way into the ever-fascinating space. It is being frequented for the recreational use of the outdoor climbing community of Cape Town. An interesting note to make at this point is that in the climbing community, there is a tradition of naming different climbing routes of which there are over 25 in this quarry. What is fascinating is that many of the routes in the Higgovale quarry have political-related names. Such as "FW who?", "Mandela Magic" or "Cast your vote". These were named by different individuals in the climbing community and can be found on websites where different climbing routes are mapped. This is an indication of how, subconsciously, the socio-political landscape of the space could be recognized by the everyday user of the space.

Remnants of the activity that took place in this scene are still scattered all over. There are visible scars in the rockface from the holes that were bored to insert the gunpowder and blast the stone. Observing how the roots of the trees manoeuvre their way through the scars begotten from the drilling, substantiates the ever-true tale of the timeless triumph of nature. Nature has a way of relentlessly restoring itself after years of abandoned human activity. Virtually trivialising the human touch, as it restores its beauty amid human destruction.

Remnants of man-made granite structures, such as foundations and low walls are also found in the quarry. These structures create an intriguing contrast between the wounded natural rock faces and the man-made artifacts on the ground. In a playful exchange with these solid structures, you also find mindful labyrinths that have been created by modern-day users of the space using small pieces of remaining granite stone. The labyrinth meanders in a circle encouraging further contemplation on the intrigue of the space.

Barely noticeable, bolted into the 12m high North-facing wall, are the hooks used by the climbers that frequent the space. In its small contribution, it stands to be the most recent addition to the story and marks made on the quarry.

Figure 30 *Inventory of what can be found in quarry today*

URBAN CONTEXT

zooming out

Urban Edge

Cape town city bowl has a clear line that runs along the foot of Table Mountain where the urban fabric ends, and the national park begins. The Higgovale quarry is located on the foot of Table Mountain right next to the suburb of Gardens. It sits on an awkward liminal space between urban fabric and nature, positioned right on the edge of a quiet suburban neighbourhood where many frequent it as a quick escape from the city buzz.

It is an informal space that is not fully part of the untouched mountain nature but does not belong to the city either. (Diagram 1)

Diagram 1 *Showing quarry in liminal space*

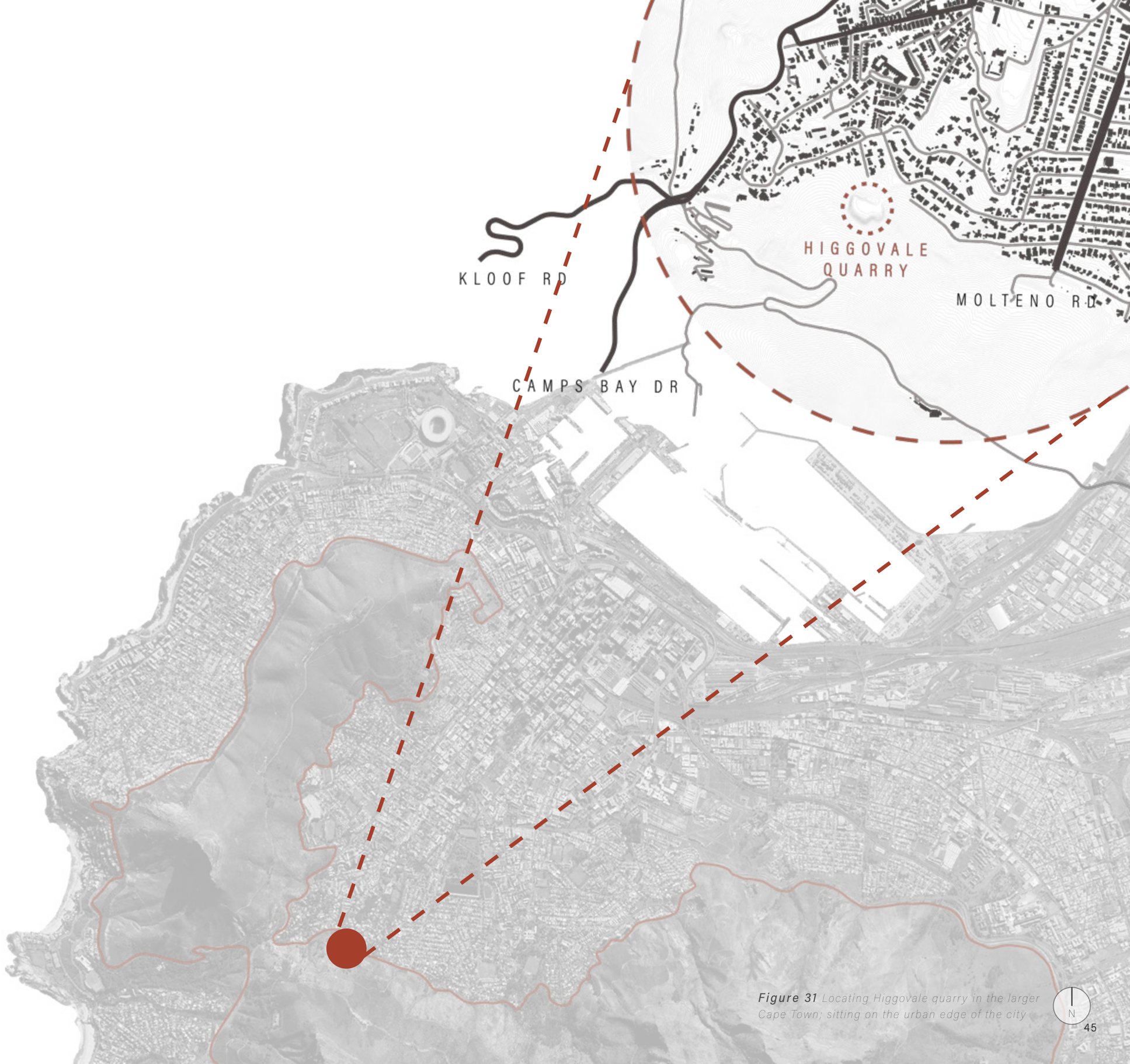


Figure 31 *Locating Higgovale quarry in the larger Cape Town; sitting on the urban edge of the city*

Neighbourhoods & Zoning

Tamboerskloof, Gardens and Oranjezicht are the 3 major neighbourhoods that surround this site. (Fig 32) The upper parts of Gardens consist of mostly large single residential zoned houses on spacious plots. (Fig 33)

These neighbourhoods might have one or two economically active nodal points in them but are for the most part only residential. The nodal points that can be found in these neighbourhoods cater for a very specific upper-class population due to their recreational and economic nature. As you move closer to the city, economic activity picks up and therefore these spaces become busier, more economically diverse, and consequently more diverse in what it has to offer.

Figure 32 *Illustrating the Neighbourhoods next to the quarry*

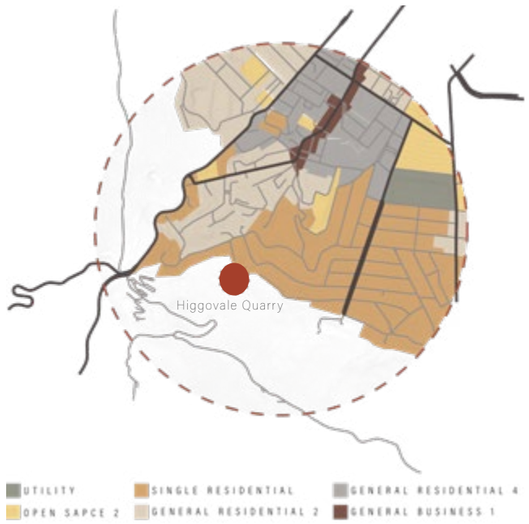


Figure 33 *Showing the City Of Cape Town Zoning scheme for the area*

Access to the Mountain

This noli map illustrates the limited access that the public has to the Gardens neighbourhood. (Fig 34) There are few access points to the neighbourhoods and many of the roads are dead-end roads. This makes it very difficult to navigate these streets. In turn, the streets are desolate with very low pedestrian activity. The result of this is a mountain that is guarded by a fort of highways and wealthy neighbourhoods, making it very inaccessible for informal and leisurely use by people who don't live in these neighbourhoods or have their own vehicles to get to one of the few access points. (Fig 35) Locals in these neighbourhoods can, and do, very easily enter Table Mountain National Park from various little permeable access points. These are easily accessible to them because of local knowledge, access to private transport and not being alienated from the neighbourhoods.

Figure 34 *Noli map illustrating little to no public access around he quarry; Difficult to navigate streets with dead-end roads*

The issue at hand is that guarding is taking place against more than just physical access. Table Mountain is a global symbol for which Cape Town is known. In her book, *Segregation, Inequality and Urban Development,* Dehkordi addresses Architectures of Division based on her walking experiences of the city with a central theme of movement or lack thereof in some cases. One of the spaces she walked was Table Mountain. She poses the question that if only certain people have access to the mountain, who then is affiliated with this image of the city? To whom does the city belong (Dehkordi, 2020)? Beyond a question of physical access, it begins to reach into the realm of identity and belonging. She quotes an excerpt by Grunebaum, a doctor in Philosophy and History, that articulates the essence of the obstacle well.

"In Cape Town, South Africa, the city in which we reside and the country of which we are citizens, Table Mountain is a powerful focalizing metaphor symbolizing our shared histories and identities of oppression. Yet in the daily reality that informs the myriad perspectives on this mountain, we are confronted with the pain of continuing forms of exclusion, denial, and misrecognition. In the context of glaring socio-economic inequity that is overlaid by a public rhetoric of having overcome the pain of our history, imposed boundaries of colour and identity become ossified in the inter-personal encounters of daily life."
(Grunebaum and Henry, 2005, p268)

As Heidi states, the continued *"imposed boundaries of colour and identity"* are reinforced in daily life through the lack of access to the key identifying symbol of our city.

> *"In Cape Town, South Africa, the city in which we reside and the country of which we are citizens, Table Mountain is a powerful focalizing metaphor symbolizing our shared histories and identities of oppression. Yet in the daily reality that informs the myriad perspectives on this mountain, we are confronted with the pain of continuing forms of exclusion, denial, and misrecognition. In the context of glaring socio-economic inequity that is overlaid by a public rhetoric of having overcome the pain of our history, imposed boundaries of colour and identity become ossified in the inter-personal encounters of daily life."*
> (Grunebaum and Henry, 2005, p268)

Figure 35 *Illustrating how the difficult-to-access neigbourhoods create a moat around Table Mountain*

From Above

This map illustrates a slightly more zoomed in context of the site and it's surroundings. Large residential plots are located on the Northern side of the site with entrance from Molteno Road as a potential access point.

Alternatively, Tafelberg Road is situated a mere 200m walking distance above the quarry. With existing gravel roads that can be formalised, (Fig 36+37) there is an opportunity to link to the existing cultural activity on this road to the cable cart, adding to the celebration of the mountain. This can then also utilise the already existing city infrastructure to gain access to the site.

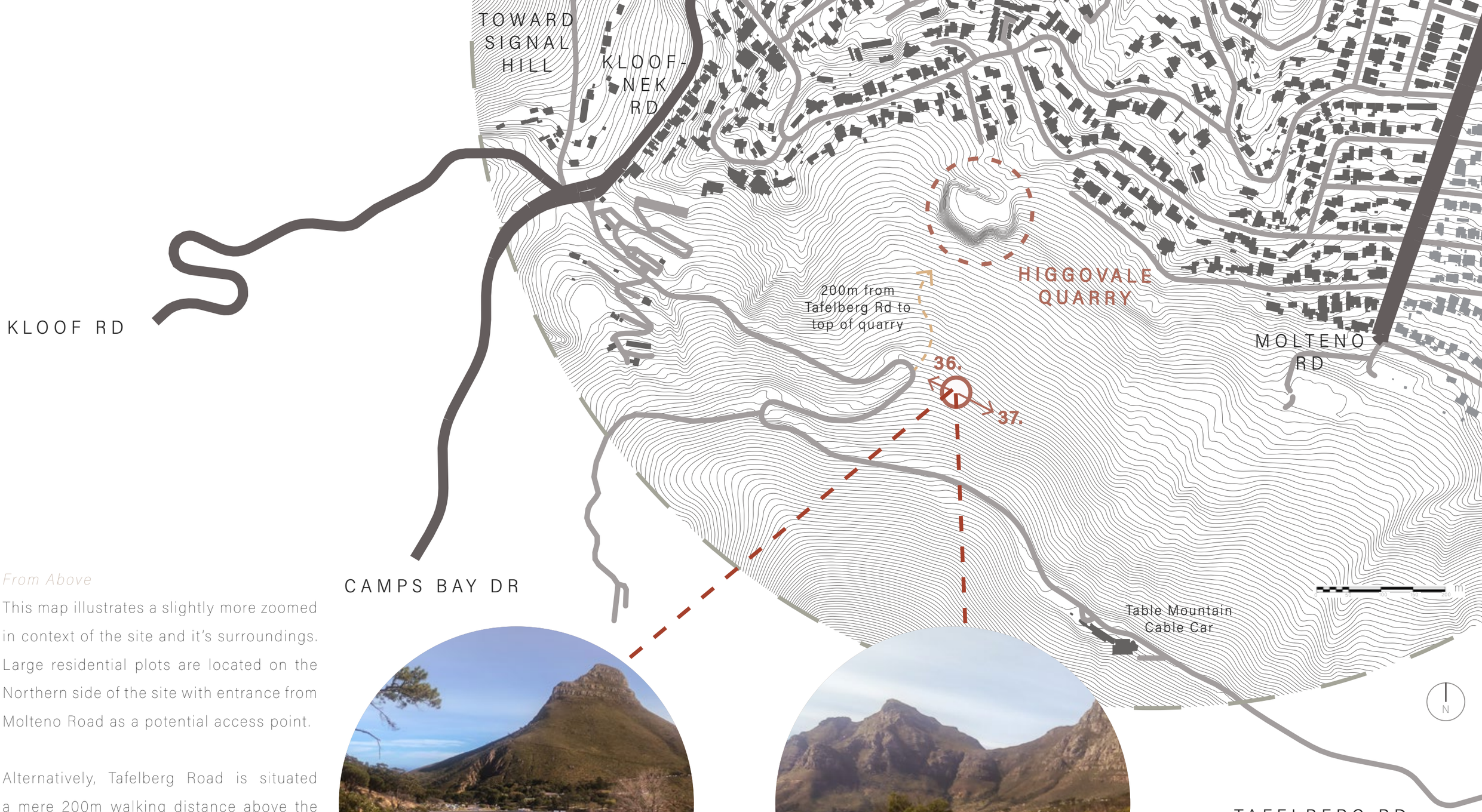


Figure 36 *View facing Lionshead from potential top entrance to quarry*

Figure 37 *View facing Devil's peak from potential top entrance to quarry; existing viewpoints and gravel roads*

Figure 38 Higgovale quarry today, North facing wall left, South facing wall 32m high right

WALK TROUGH SITE

experience of space

Figure 39 Tree canopy visible from point A- facing West

Figure 40 Threshold entrance to quarry visible from point B- Facing SW

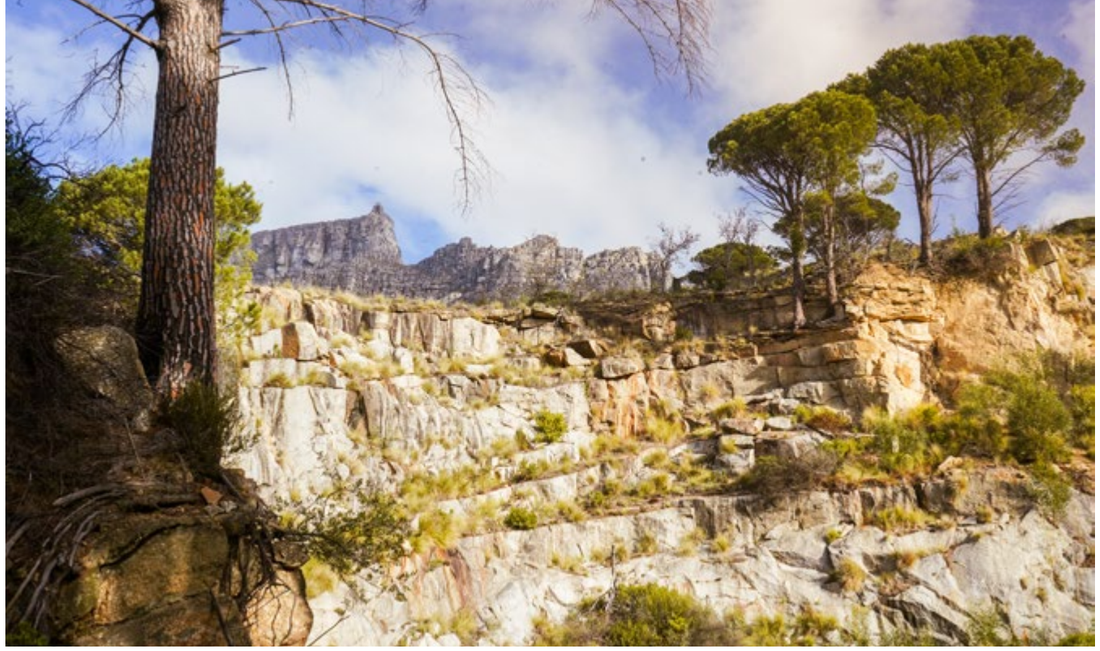


Figure 41 View into quarry visible from point C- facing South

Figure 42 View into quarry visible from point D- facing West

Figure 43 View into quarry visible from point E- facing North

Figure 44 Top down view of quarry, showing historic remnants; foundations, and modern day users' rock art labyrinths

SITE CONTEXT

zooming in

After engaging the broader urban context and understanding Table Mountain and its relationship to the city, the next step is to look in more detail at the physical context and make-up of the Higgovale Quarry itself.

Surrounding spaces

At first glance, the quarry seems to be situated in a place that looks fairly secluded from the residential fabric surrounding it. When one looks at the city's spatial planning for this area, however, one can see that this is not necessarily true. The two dead-end roads on either side of the quarry, Glencoe Road and Glencoe Avenue, are zoned to become one in the future. (Diagram 2) This allows opportunity in terms of vehicular access end movement to the site. The vacant plot in front of the site is also zoned for residential use and not as part of Table Mountain National Park as one would assume when standing on site.

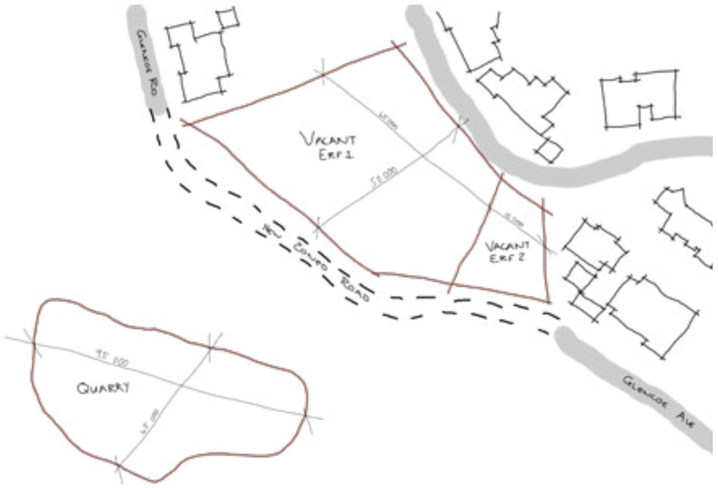


Diagram 2 *Showing quarry in liminal space*

Topographic Base

Higgovale Quarry is unique in its topography as a quarry. Many other quarries are entered from above with a ramp into the large hole. This quarry's entrance, due to it being on a slope, is level with the "ground level" of the hole. It creates an exquisite threshold that one moves through to enter this grand natural room.

For ease of access in the quarrying process, the quarry also has a ledge that is about 1,5 meters wide and circles around the quarry at more or less 17m high. This creates an opportunity to leverage the existing topography of the space to create a variety of experiences both from above and below.

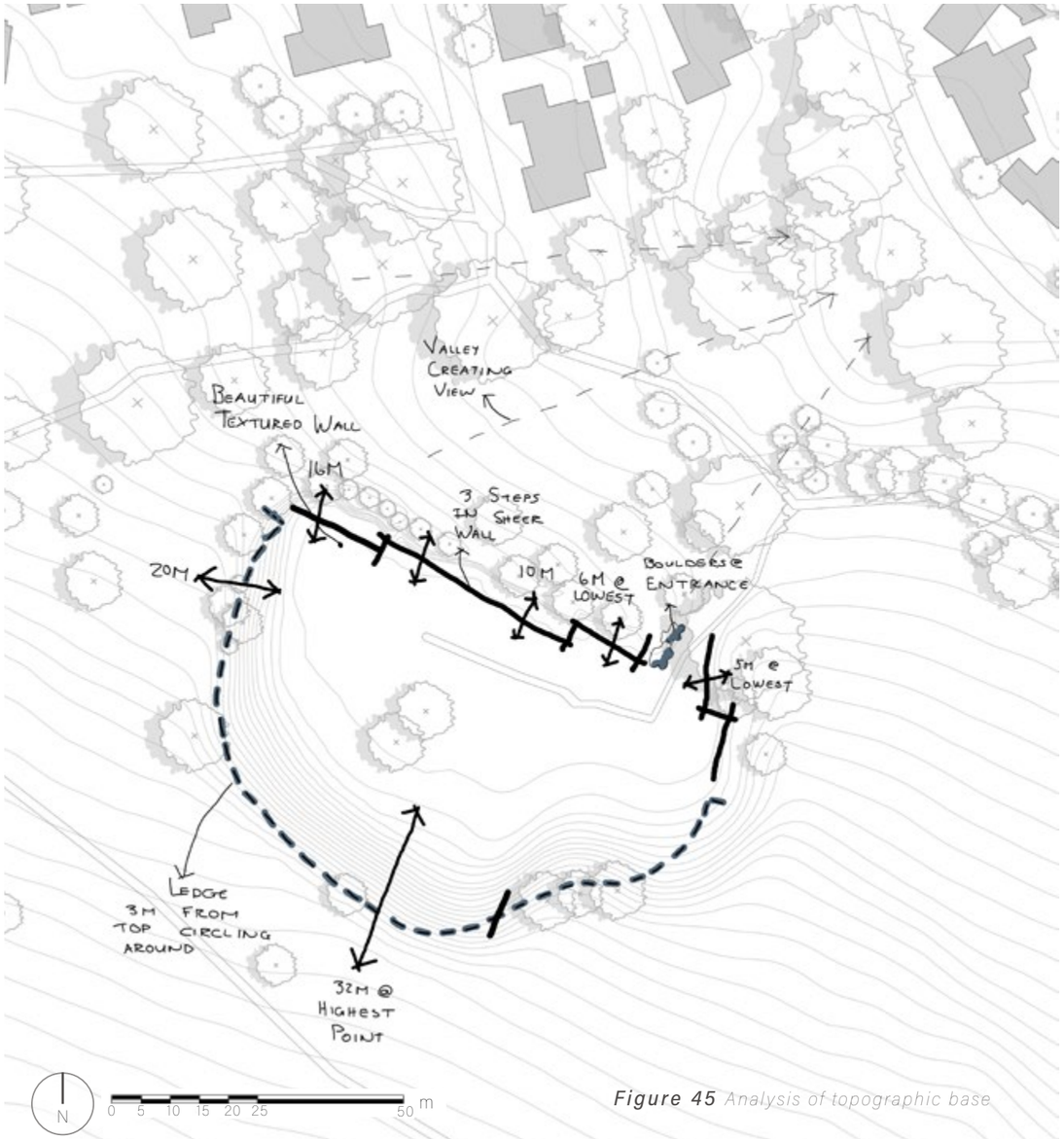


Figure 45 *Analysis of topographic base*

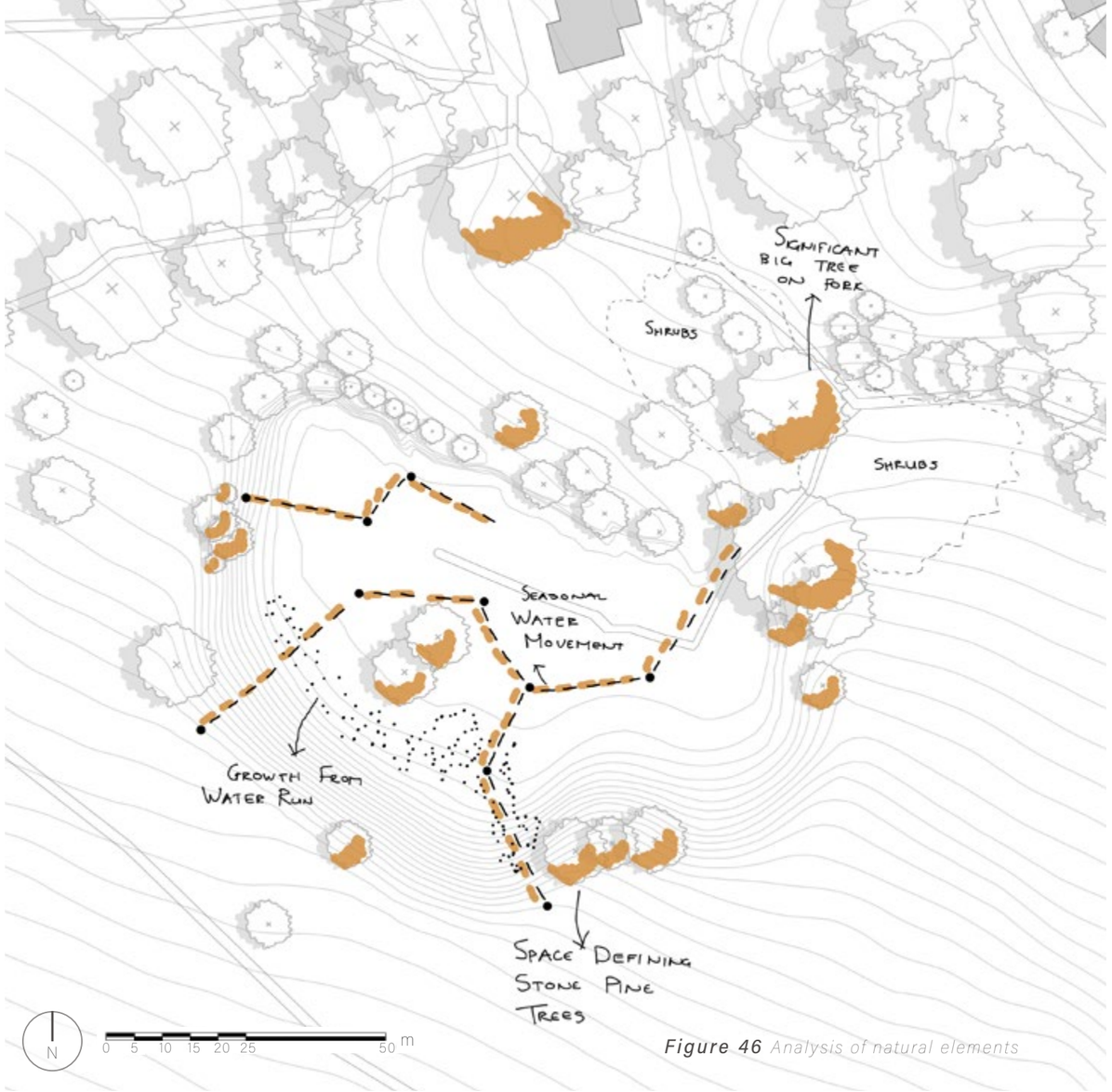


Figure 46 Analysis of natural elements

Natural Elements

The site has majestic tree canopies of Stone Pines that are alien vegetation and range between 15-and 30m in height. These trees have long stems before they branch out into tree canopies, creating delightful pockets of space underneath them. I have identified a few of these trees that play a key role in defining the space in the quarry.

Water runoff from the mountain happens seasonally and in the same recurring streamlines. The quarry itself does a decent job of draining the seasonal water flow and does not create large pools of water on the quarry floor.

Historic Remnants

As mentioned earlier, there are various pieces of historic evidence scattered around the space that tells the story. When admiring the great rockface the remnant drill lines from the quarrying process begin to emerge like scars the longer you observe. Furthermore, there are 3 foundations and a couple of dilapidated brick walls scattered around the quarry taking you back in time.

Lastly, scattered all around the space are granite pieces varying in size from large boulders to the smallest pebbles by the thousands. These granite pieces do not read as detached from the landscape, but over time have been integrated back into the landscape and feel like part of the natural environment.

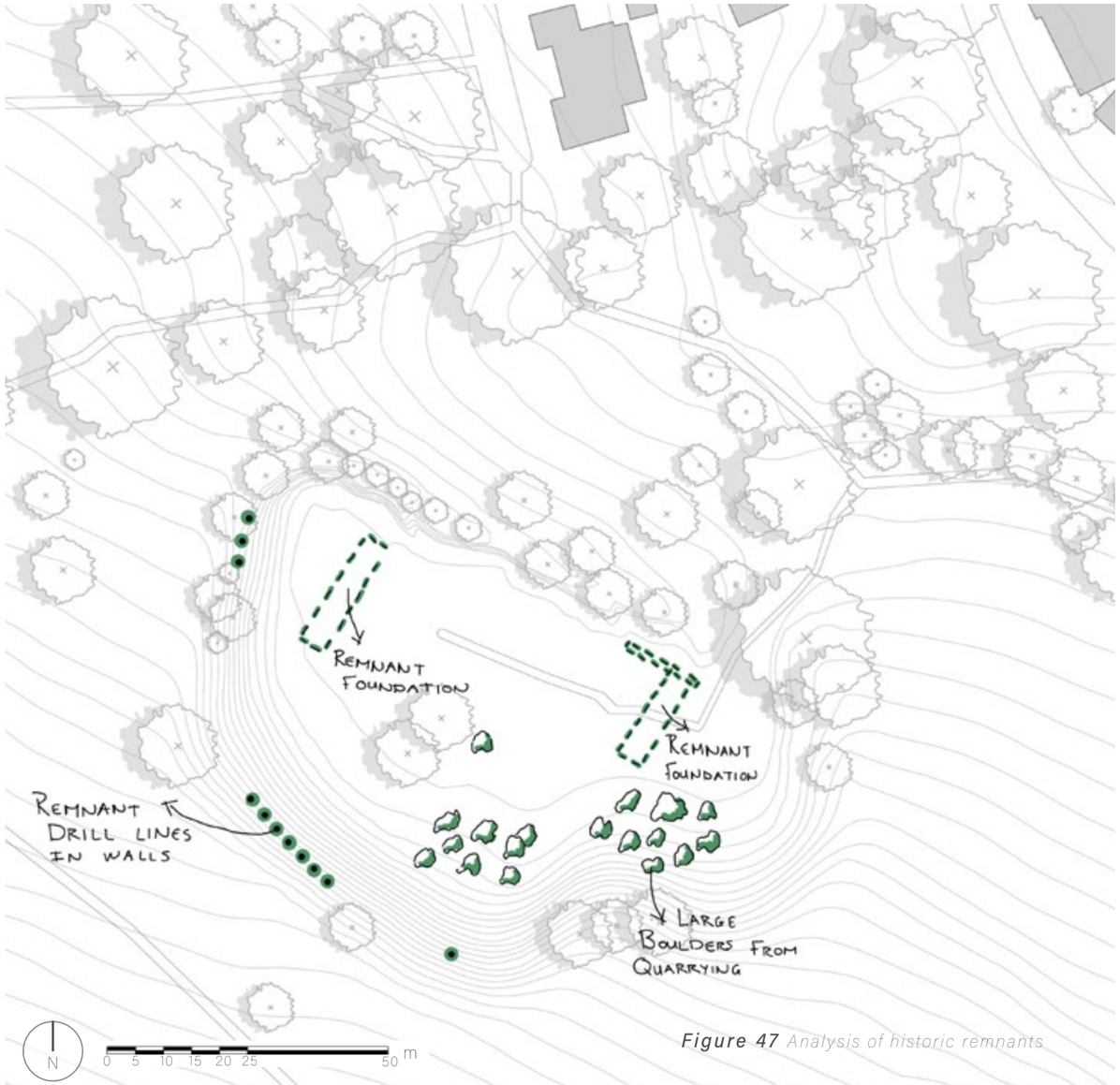


Figure 47 Analysis of historic remnants

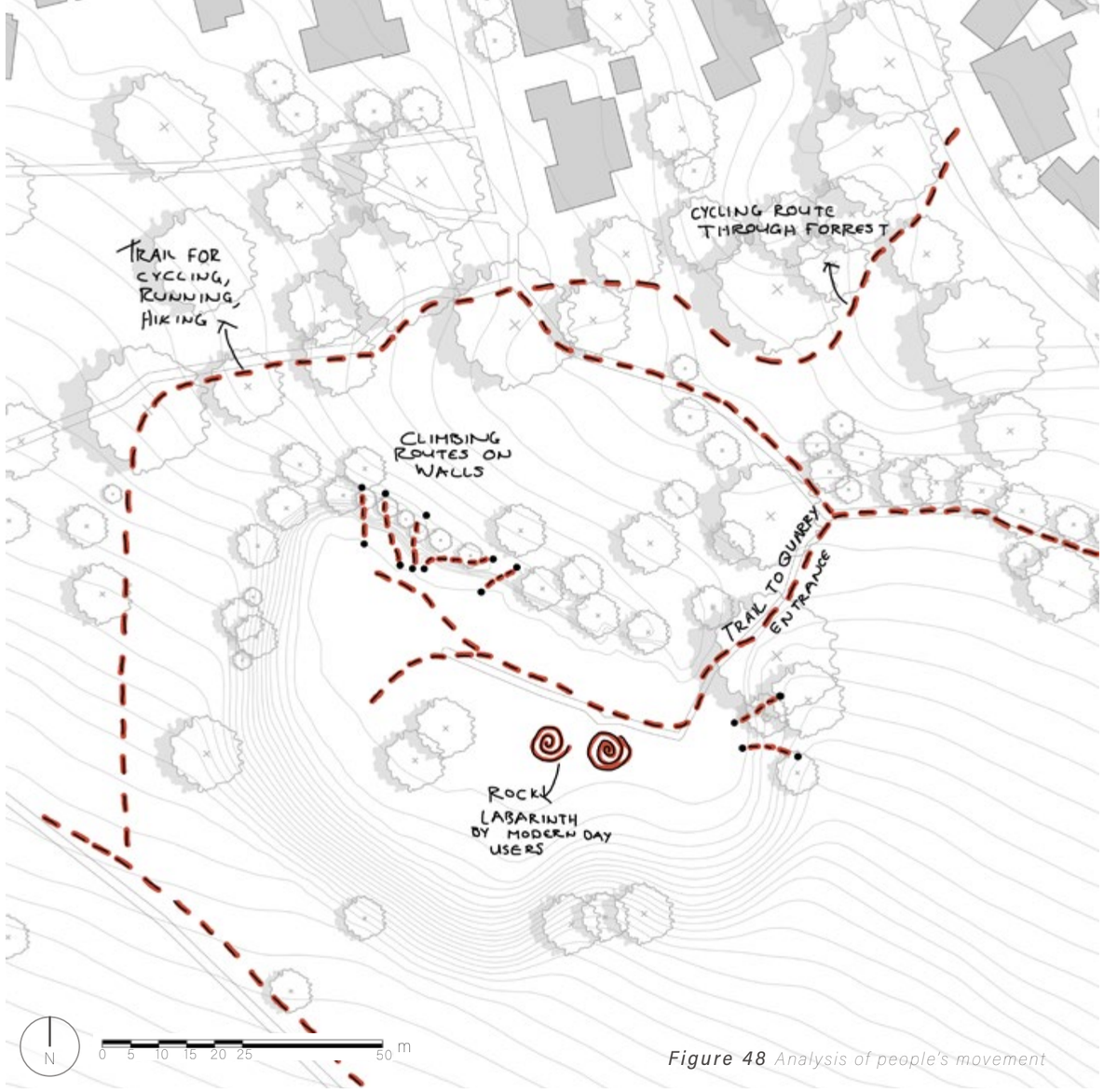


Figure 48 *Analysis of people's movement*

Movement

The profile of users that currently frequent the space is not a very diverse group. The main users include climbers, mountain bikers, hikers, and families or dog walkers. All of these mentioned groups mostly consist of white middle-class individuals.

I spent time observing how each of these groups of people use the space and move around in the quarry.

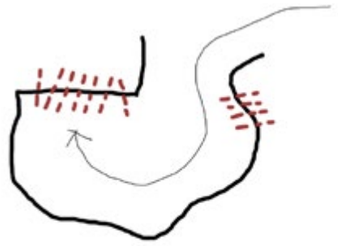


Diagram 3 *Climbers' movement*

- Use interior faces of quarry for rock climbing.
- They need at least 3,5m at the base of the sheer walls to climb and belay.
- 2 people are actively engaging with the wall at a time, while the rest of the group lounges around.

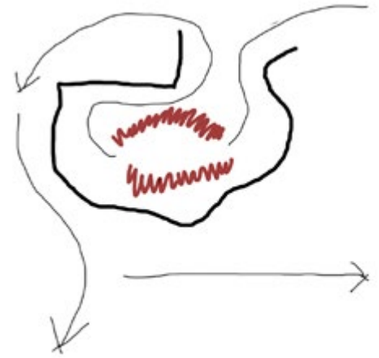


Diagram 4 *Hikers movement*

- Use the site as a transition space.
- Hikers enter the site to come and explore the interesting space.
- They pause in the space en route elsewhere.

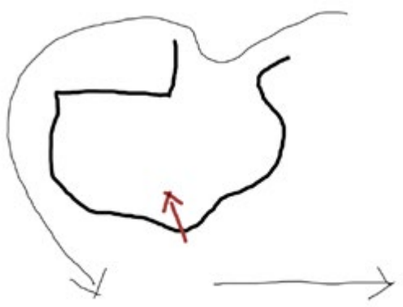


Diagram 5 *Mountain Bikers movement*

- This group does not move through the site but uses the site as a starting point for their activity. The quarry is used as a gathering landmark.
- Often viewed from the top as a viewpoint.

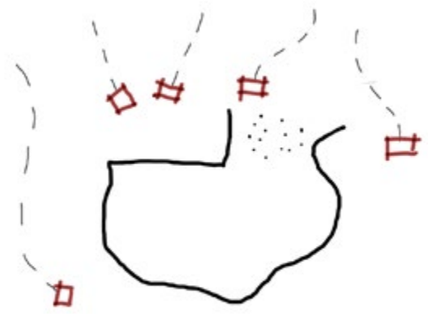


Diagram 6 *Families/ Dog Walkers' movement*

- They come to the entrance out of curiosity.
- Dog walkers would come in and often have a picnic in the space.
- Families with kids choose to observe from outside, not feeling safe in the eerie unknown space.

Findings

All of this information combined yields distinct experiences in different parts of the landscape. When overlaying these layers of information, a new reading of the site surfaces.

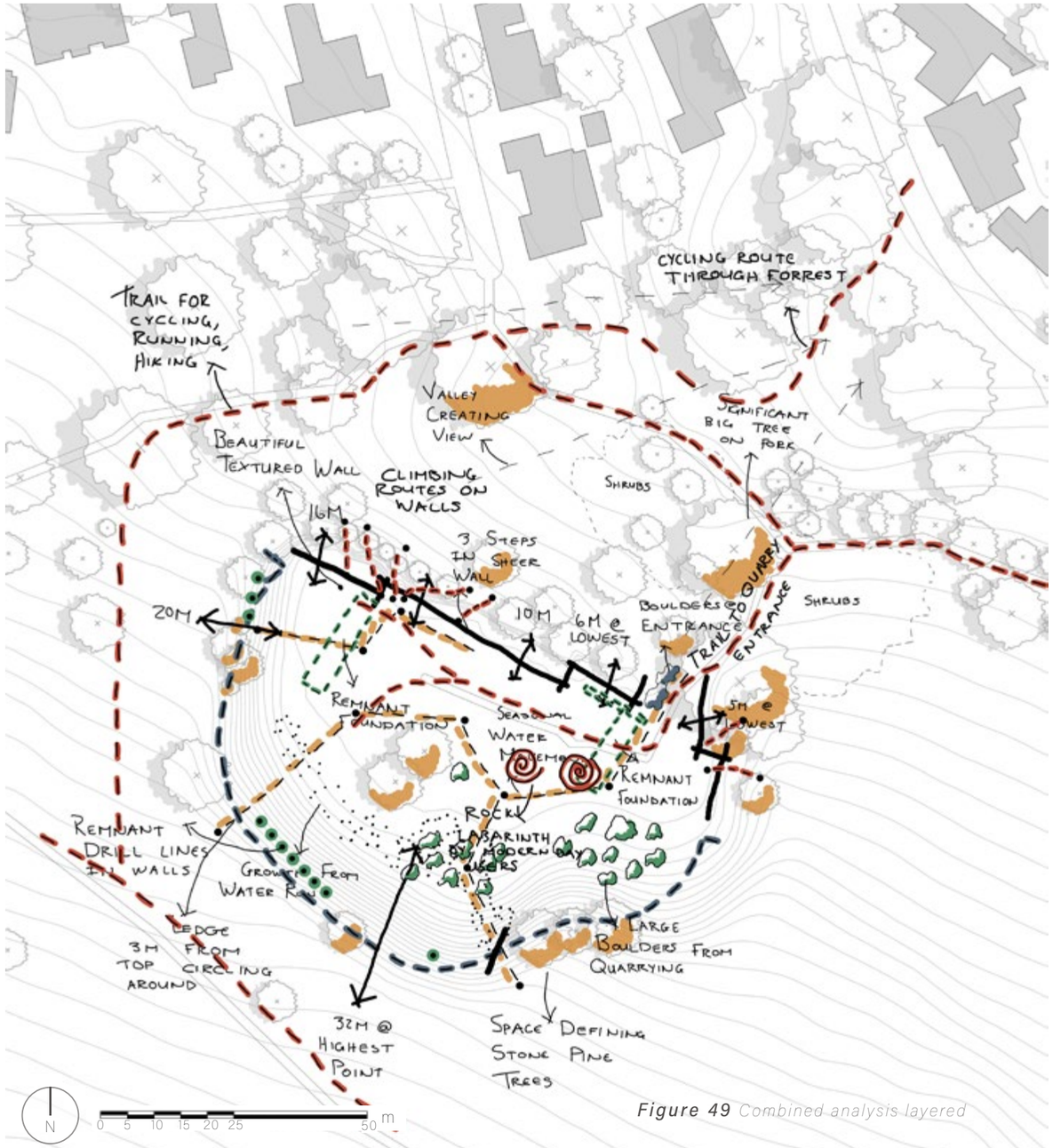


Figure 49 Combined analysis layered

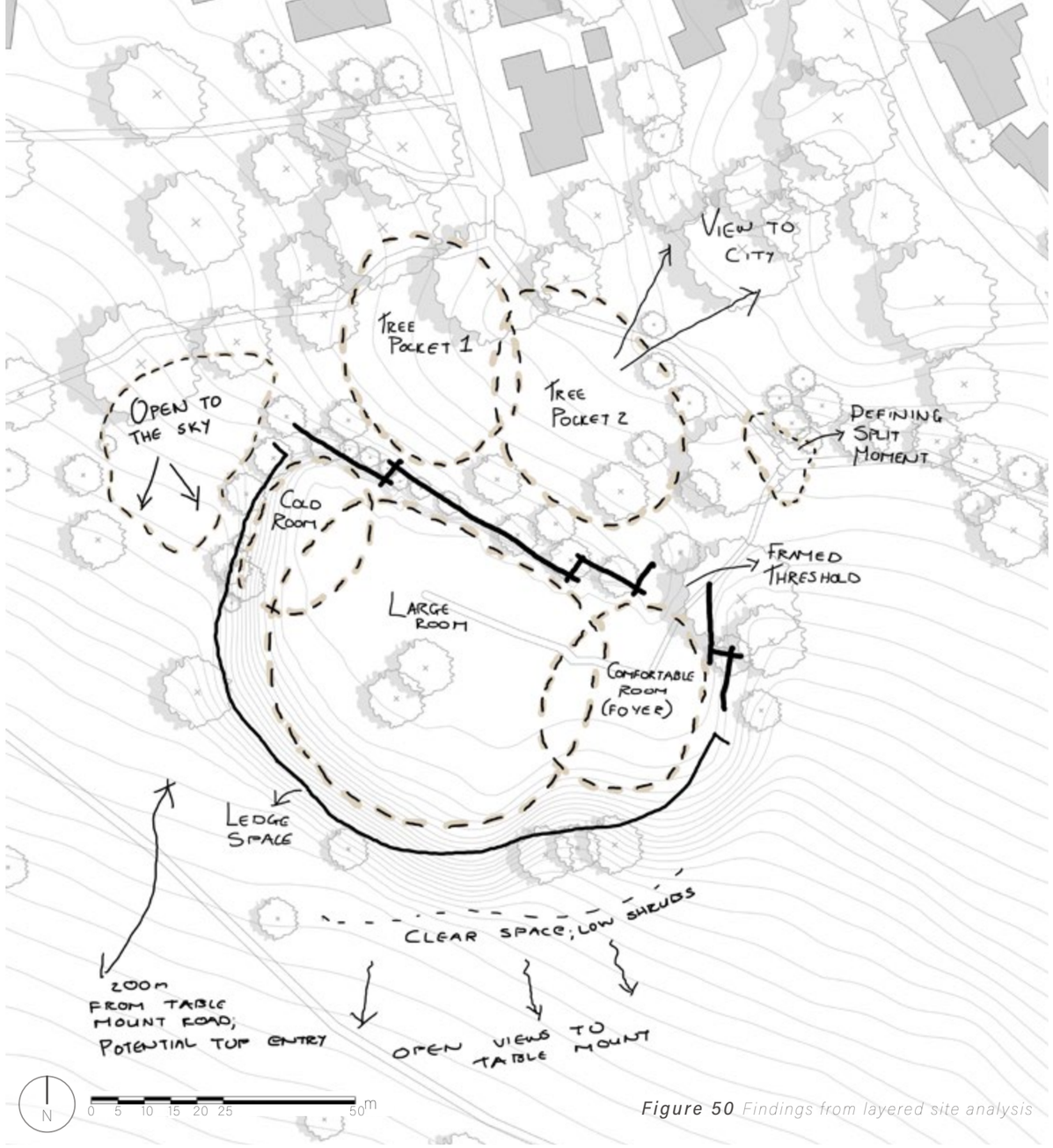


Figure 50 Findings from layered site analysis

Different natural rooms or spaces with their own quality begin to emerge from the layering of information. There are moments that create threshold and curiosity, moments of feeling held, times when the space opens up completely, and even times when the the space feels cold and uninviting due to lack of sun.

These different moment that emerge from the layered information will begin to inform how and where an intervention can best be placed in this landscape. Working in synergy with the existing man-made hole at time and potentially challenging some of the existing at other times.

SITE RESPONSE

site informing program

Clues begin to emerge from the site history and context itself as one starts to layer this range of informants at various scales on top of each other. When one looks back at the analysis of the site, 3 main informants tell you about what the space requires. The three main informing elements are:

1. Nature
    - The physical **space**
2. History
    - The memories held in the **place**
3. People Today
    - Referring to those who currently use- and cannot use the space, and their **identity** in relation to the mountain.

At the intersection of these three informants, lies culture. This space needs to be one where cultural expression can take place and through that, people can find healing from the past and hope for the future. A cultural space that allows for the multiplicity and dynamic cultures that are represented in our country to be expressed, each in their own way.

In reference to the Cultural and Creative Industries research document, I identified 3 spheres of cultural activities that began to emerge when analysing the space (Department of Sport Arts & Culture, 2022).

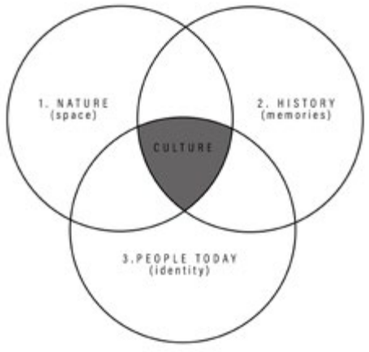


Diagram 7 *Intersection of leading to Cultural emergence*

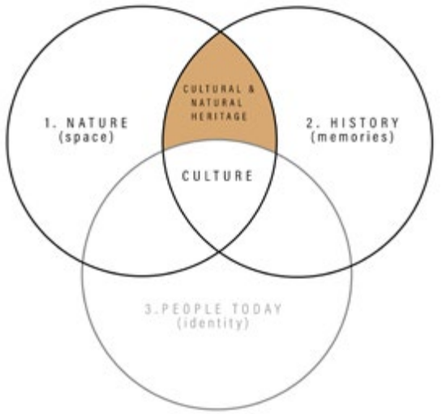


Diagram 8 *Cultural & Natural Heritage*

1. At the intersection of Nature and History, there is potential for program around Cultural and Natural Heritage.

Diagram 9 *Performance & Celebration*

2. At the intersection of History and People Today, there is potential for program around Performance and Celebration.

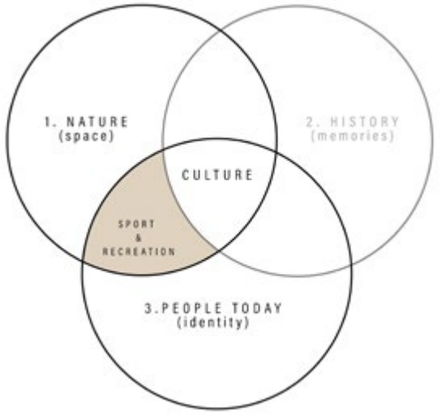


Diagram 10 *Sport & Recreation*

3. Lastly, at the intersection of Nature and People today, there is potential for program around Sport and Recreation.

Hierarchy of Program

If these different programs are not understood in the hierarchies in which they will take place on the site, it can easily be seen as a potential for an overly crowded site. The hierarchy of the program can be placed as follows. (Diagram 11) illustrates the order of importance in which these programs are at play on the site.

Diagram 11 *Illustrating hierarchy of program*

To further understand how these programs can begin to relate to each other, it is illustrated in diagram 12. The performance and celebration space takes centre stage and will carry most of the space's weight and importance illustrated by the yellow rectangle.

The cultural and natural heritage will weave its way through the performance program and be a tactful steady reminder of the memory of the site and the implications thereof. A thread that purposefully yet sensitively inspires the performance and in turn begins to bring healing to the memories, as shown by the orange stippled line.

Lastly, the sport and recreation gently scatter themselves throughout the space. Both in places where it is intentionally designed for such use, such as the remaining rock-climbing wall, but also in unpredicted spaces where hikers and cyclists just find themselves spontaneously interacting with the space, as seen in the grey scattered dots.

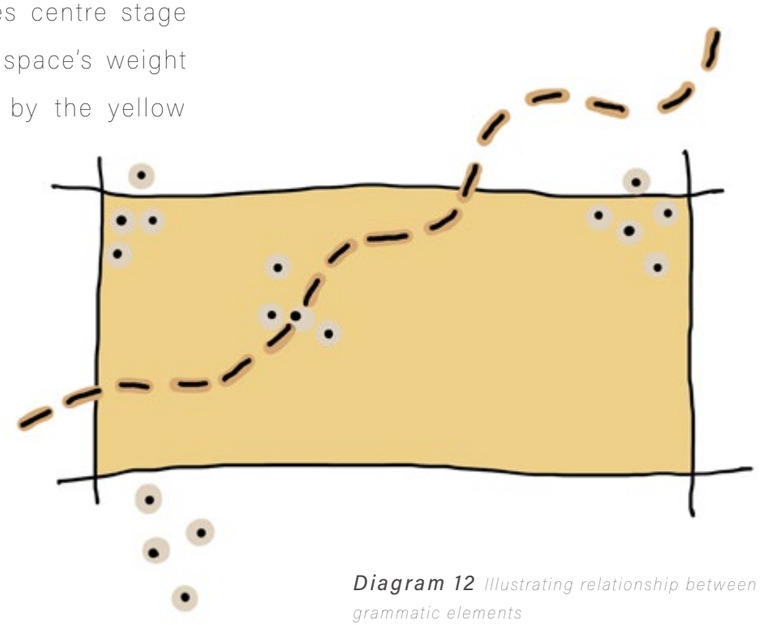


Diagram 12 *Illustrating relationship between programmatic elements*

Proposed Accommodation Schedule

Below is a suggested accommodation schedule. I holds the potential to encapsulate all of these different aspects of program and allow them each to carry the their weight in relation to the whole. This is subject to change as the project continues to grow.

Category	Room	Quantity	m2	Total
PERFORMANCE & CELEBRATION				
Theater	Stage	1	150	150
	Storage	2	18	36
	Bathrooms	2	35	70
	Change rooms	4	9	36
Creative Rooms	Small	3	12	35
	Medium	1	42	42
	Large	1	60	60
Reception	Office	1	20	20
	Foyer	1	300	300
				749
CULTURAL AND NATURAL HERITAGE				
Memory Room	Display	1	110	110
Memory Walk		-	-	-
				110
SPORT & RECREATION				
Cafe	Kitchen	1	9	9
	Seating	1	55	55
	Storage	1	1.5	1.5
Activities	Existing Climbing Wall	-	-	-
	Hiking Paths	-	-	-
	Picnic Space	-	-	-
				65.5

Table 2 *Proposed accommodation schedule for site*

FRAMING MEMORY

dynamic ritual

There is an opportunity to harness some of the natural elements of the space, wind, water, and light, in the design of the intervention to set the stage and highlight the void that is left in the landscape and the memory of the marginalised people in Cape Town. The strategic aim of placing a cultural intervention on the site is twofold.

Firstly, to address the question of access to Table Mountain as the image of the city. Giving space on the mountain where diverse cultural performances and practices can take place. This can begin to pierce the gap of static memory moments that are not relatable to the everyday. When part of the everyday lived experience of some of the marginalised people of the city can begin to be a narrative of restored access to the mountain.

Secondly, this relationship aims to allow the cultural memory of the collective to be part of the memorialisation, not statically freezing it in one timeframe, but letting the resilience and creativity of the people in our country at present, who keep shaping and fighting for the future, be part of the memorial. A dynamic living memorial where performance and music are interwoven with the space itself, also framing memory.

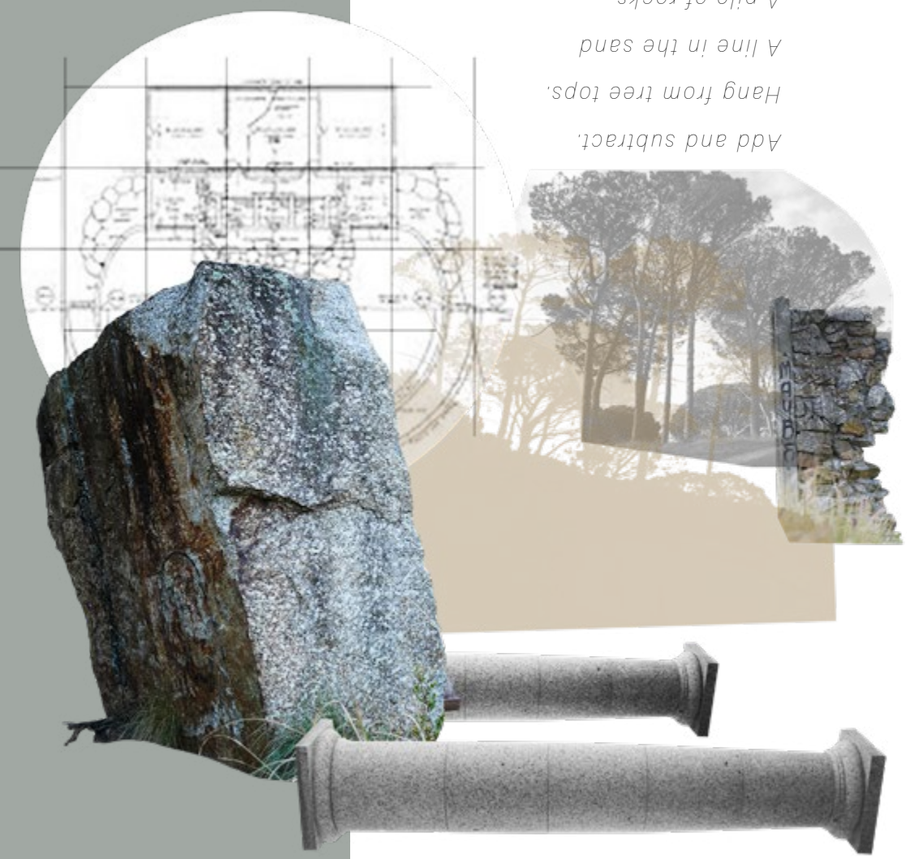
Figure 51 *Collage playing with memory, intervention, and nature*

PART 4

technical exploration

Carve room for the dance,
stone transplants.
A stage for the melody to
weave back the memory.

A pile of rocks.
A line in the sand
Hang from tree tops.
Add and subtract.



TOPOGRAPHY

how building meets ground

Topography and Building

In a space like a quarry, the topography of the landscape is a crucial factor to consider. The line where the building meets the ground is no longer merely a straight flat line but varies between cascading steps and steep sheer walls; where horizontal meets vertical. Herein lies the opportunity for the architect to portray their attitude toward the space and its history merely in the way that they treat the dialogue between the building and the landscape. Allowing the ground to function as a "window onto a natural condition and a frame for the historical layers of a specific place" (Berlanda, 2014).

I identified various adaptive reuse interventions in abandoned quarries around the world. Analysing them specifically through the lens of the dialogue between building and topography. This exploration is summarised in the table below. I started with two overarching categories of interventions; ones that a) altered topography and b) preserved topography. The first is further broken down into filling, modification, and insertion categories. The second is broken down into small interventions and attachments. After identifying these approaches, I briefly state in my critical analysis what attitude to topography is communicated through each approach to the site specifically.

Figure 52 *Watercolor painting of site*

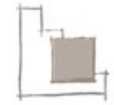
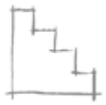
Altered Topography			
Method	**Execution**	**Information**	**Attitude to Topography**
Filling 	1. Water 	· Location: Lusatia Region, Germany · Date: 2015	Derelict open cast mines dating from communist Germany, filled with water to create Europe's largest artificial lake. Developers aim for it to become a big tourist attraction. Communicates an attitude of creating new completely covering/ erasing the old, rewriting the story. (Smee, 2010)
	2. Ground 	· Project: Royal Botanical Gardens Victoria · Location: Cranbourne, Victoria · Date: 2005	Closing up the quarry completely, reinstating the ground to what used to be and planting a botanical garden there that prioritizes endemic plant life allows the space to completely heal almost without a scar. Any scar is rendered invisible and left underground. Communicating indifference to human activity that took place and prioritising the full restoration of the natural environment. (Lethlean, 2022)
	3. Building 	· Project: Denia Mountain · Location: Alicante, Spain · Date: 2002 · Architects: Guallart Architects	With the aim of densification in mind, the city rendered no space useless. Filling this derelict quarry space with a building communicates a strategic methodology of wanting to contain the human impact and sprawl by using landscapes that have already been altered by the human hand. (Guallart Architects, 2002)
Modification 	4. New Form 	· Project: Negev Phosphate Works · Location: Negev Desert, Israel · Date: 1990 · Architects: Shlomo Aronson Architects	By remodelling the desolate mining landscape to mimic the surrounding geological formations, the architects aim to create a "giant environmental sculpture". A completely new form created from the desolate quarry landscape communicates empathy for what has been done to the landscape through mining. (Shlomo Aronson Architects, 1990)
	5. Emphasising 	· Project: Crazannes Quarries · Location: Crazannes, France · Date: 1993 · Architect: Bernard Lassus	Creating a national highway tough this abandoned fern-overgrown limestone quarry and using it as a rest stop. The landscape architect cut the highway straight past this surface-level quarry with the intention to add a layer to the cultural history as well as slice through it to view it and appreciate the history. An extreme interjection of an "everyday infrastructure" into the site forces people to interact with the quarry landscape as opposed to avoiding it. A give and take between modification and sensory discovery. (Conan and Taylor, 2006)
	6. Camouflage 	· Project: Jardin de Cactus · Location: Lanzarote, Spain · Artist: Cesar Manrique · Date: 1990	This abandoned quarry was transformed into a cascading cactus garden with a mill in the middle. It sits somewhere in between with a desire to restore the natural but not by restoring the original natural topography. It merely camouflages the fact that it was once a quarry by turning it into a breath taking cactus landscape. Communicating an equilibrium between nature and culture. (Cactlanzerote, 2011)
Insertion 	7. New Construction 	· Project: Braga Stadium · Location: Braga, Portugal · Date: 2003 · Architect Eduardo Souto de Moura	Carved into the rockface of the abandoned limestone quarry, this stadium's relationship to the topography seeks to integrate it into everyday life. Not to put it on a pedestal elsewhere or only for special occasions. History becomes visibly part of the every day as it nestles itself in the rockface. (ArchDaily, 2011)
Preserved Topography			
Method	**Execution**	**Information**	**Attitude to Topography**
Small Interventions 	8. Inserting 	· Project: Dalhalla Theater · Location: Dalarna, Sweden · Architect: Erik Ahnborg · Date: 1995	The small insertion barely touching the walls of the abandoned limestone quarry seeks to celebrate the steep rockface, with only a gentle touch. The quarry topography created by human hands is completely preserved. Celebrating the beauty of the manmade natural ruin rather than attempting to restore previous nature. (Frankelius, 2017)
Attached 	9. Horizontally 	· Project: Pierre et Vacances Costa Plana · Location: Cap-d'Ail, France · Architect: Jean Nouvel · Date: 1990	Allowing the natural waterfall that flowed into this abandoned quarry to continue through the new building attached to the site, allows the natural aspect to be celebrated. Not only this, but the building uses the cascading terraced topography of the quarry to attach itself. Embracing the topography to create a dynamic building. (Novel, 1992)
	10. Vertically 	· Project: Shimao Wonderland Intercontinental Hotel · Location: Shanghai, China · Architects: JADE+QA Architects · Date: 2018	Completely attaching itself vertically to the sheer rockface, once again using the manmade topography to its advantage. Opening itself up to the inside of the quarry acknowledging the damage done to nature, by making the entire quarry space of use again. (Archilovers, 2018)
	11. Suspended 	· Project: Lujiazhi Cultural Creativity – Hotel in a Quarry · Location: Zhoushan, China · Architects: SAMYN and Partners · Date: 2010 (in design phase)	This intervention touches gently on the topography of the manmade terraced landscapes. It seeks to not use the topography or embed itself in it but tread gently and seek the topography below and between the buildings as part of the experience. It adds an extra layer of honoring the manmade natural ruin, by not only embracing the topography but lightly floating above it. There is however an element of overshadowing the landscape by hiding it from the distant human eye, from afar one cannot see the quarry anymore, but now only see a building in a mountain. Hence there is a tug between a physical honoring of the topography, but visually dominating it.(SAMYN and Partners, 2010)

Table 3 *Relationship to topography in various reused abandoned quarries around the word. Information adapted from (Talento, Amado and Kullberg, 2020)*

Figure 55 Lusatia Region

Figure 58 *Royal Botanical Gardens Victoria*

Figure 59 *Denia Mountain*

Figure 60 Negev Phosphate Works

Figure 56 Crazannes Quarries

Figure 61 Jardin de Cactus

Figure 62 *Braga Stadium*

Figure 63 *Dalhalla Theater*

Figure 57 *Pierre et Vacances Costa Plana*

Figure 53 Shimao Hotel

Figure 54 Lujiazhi Cultural Creativity – Hotel in a Quarry

Through this exercise, I could pick up on several ways in which the attitude to the topography communicated different things in each example. One thing that was highlighted is that physical sensitivity to topography does not necessarily translate to visual sensitivity and vice versa. What I mean by this is that despite a building being suspended above the ground, it might completely obscure the view of the topography and in that sense does not celebrate it at all. And similarly, a building that completely sits in the topography, might be very intrusive in approach, but visually prioritises the topography over the building by hiding away. Therefore, sensitivity to the topography does not only lie in a physical relationship but also a visual relationship.

Each of these examples was a unique situation calling for a unique response to topography. Not one of these approaches could be used as a cookie-cutter template in Higgovale Quarry guaranteeing a similar result, as these sites hold remarkably different memories in them. I rather see it as an exercise in understanding a range of possible approaches that I now have in my arsenal to explore on the Higgovale Quarry site to find the best fit that will in end create that "frame for the historical layers" that Berlanda refers to.

PRECEDENT STUDY

what's been done

Similar Site Precedent

To further understand the detailed thinking that needs to go into the reuse design of a derelict quarry space, I did a further analysis of one of the buildings mentioned in the previous table. I focussed this precedent analysis on the Dalhalla Theater in Dalarna, Sweden.

This open-air theatre is located in what used to be a limestone quarry that is 60m deep, 400m long and 175m wide surrounded by thick forest. The quarry stopped operation in 1990 and the theatre was opened on 21 June 1995 and seats 2000 (Dalhalla, 2016). Erik Ahnborg was the lead architect on the project (Frankelius, 2017).

What strikes most about this building is that in most of the writing on it, the surrounding quarry was described in more depth than the actual building. The building sits in the background, and the quarry took centre stage with its cliffs that have "*different pastel colours because of different kinds of rock minerals in vertical lines –black, pink, bluish, white, and brown*" and its "*emerald-coloured lake, that is never ceasing due to groundwater*" (Frankelius, 2017, p14).

These sheer rock faces are not only good for numerous authors to write poetically about, but it also serves a very practical

Figure 64 Dalhalla Theatre

Figure 65 Dalhalla Theatre

purpose. This natural condition allows for remarkable acoustics, reverberation, and silence (Frankelius, 2017). The groundwater in the quarry as well as the strategic placement of the stage further enhances the exceptional acoustic qualities of the space.

Sheer raw rock faces exaggerate the performance that takes place on the stage. The notion of 'hyper-nature' that is applied in this case study is one of the most powerful and distinguishable attributes of this theatre. This method of design exaggerates in a design the natural aspect of the space. Hyper-Nature achieved through "*exaggeration, amplification, distillation, condensation, juxtaposition or displacement*." (Hedley, 2012, p24).

An experience is created from the beginning to your end destination. Firstly, one does not expect to find the quarry in the thick forest, then it appears. The theatre is accessed from the highest point of the quarry where one then meanders down to the back of the amphitheatre. Unlike a traditional building, the architect had to consider what the theatre looks like from above, and how the building meets the sky, as that is what the user is introduced to first. This is one of the key factors to consider in using a quarry as a site.

The roof of the stage is made of sailcloth and is placed on a peninsula in the middle of the emerald-green water, seemingly floating. The thin steel columns and sailcloth tension with steel cables is a strategic gentle juxtaposition to the hard solid rockface in its backdrop. With elegance and humble simplicity, the man-made structure once again allows the natural elements to define the space.

Figure 66 Jewish museum Berlin

Memory Precedent

Completed in 2001 the Jewish Museum in Berlin, designed by Daniel Libeskind, is a work of architecture that walks one through a carefully composed journey of collective memory. (Fig 66) The analysis of this precedent takes place through a lens of understanding how it holds memory rather than the lens of a museum typology. It is inspiring, not only for its focus on memory but also because of the unapologetic manner in which the void is woven through the memory and confronts the users at unexpected moments.

Daniels Libeskind's approach to memory is the key place to start. His main drives behind this project were that:

"The meaning of the Holocaust must be integrated into the consciousness and memory of the city of Berlin. And, for its future, the City of Berlin and the country of Germany must acknowledge the erasure of Jewish life in its history." (Studio Libeskind, 2001).

These key points emphasise the importance of collective memory, as well as acknowledging the void and what was stolen.

The museum consists of 2 parts. Firstly, the old building used to be the Jewish Museum, and then the new extension that attaches to the old building. (Fig 67) The new extension stands in stark contrast to the old, both in design and materiality.

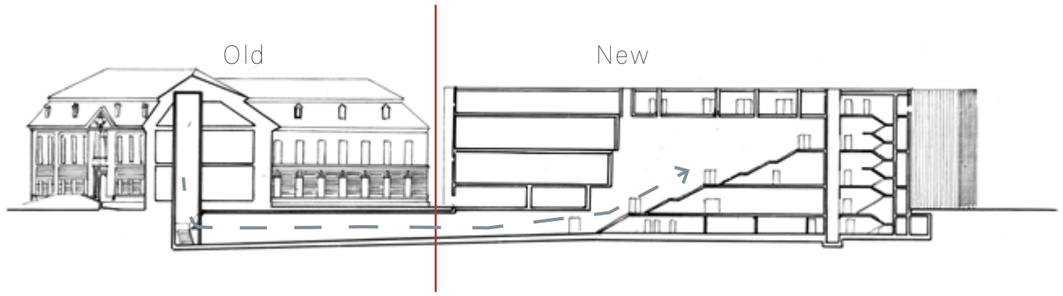


Figure 67 Section through old and new parts of the Jewish museum

The zigzag footprint of the extension museum is derived from the concept of a "broken star of David". This zig zag is then cut through with a straight line. The line becomes a void that confronts the user throughout the journey but can never be entered (Astbury, 2022). (Diagram 13) It is key to pause and reflect on this. From an experiential point of view, Libeskind intentionally chooses to place focus on the void and what was stolen by not being able to access it at certain moments. It tells the story of the absence of Berlin's Jews due to the Holocaust. There is interaction across the void but not always in the void. What looks like merely large empty spaces at first, becomes emotional confrontations with what was taken away, both in space

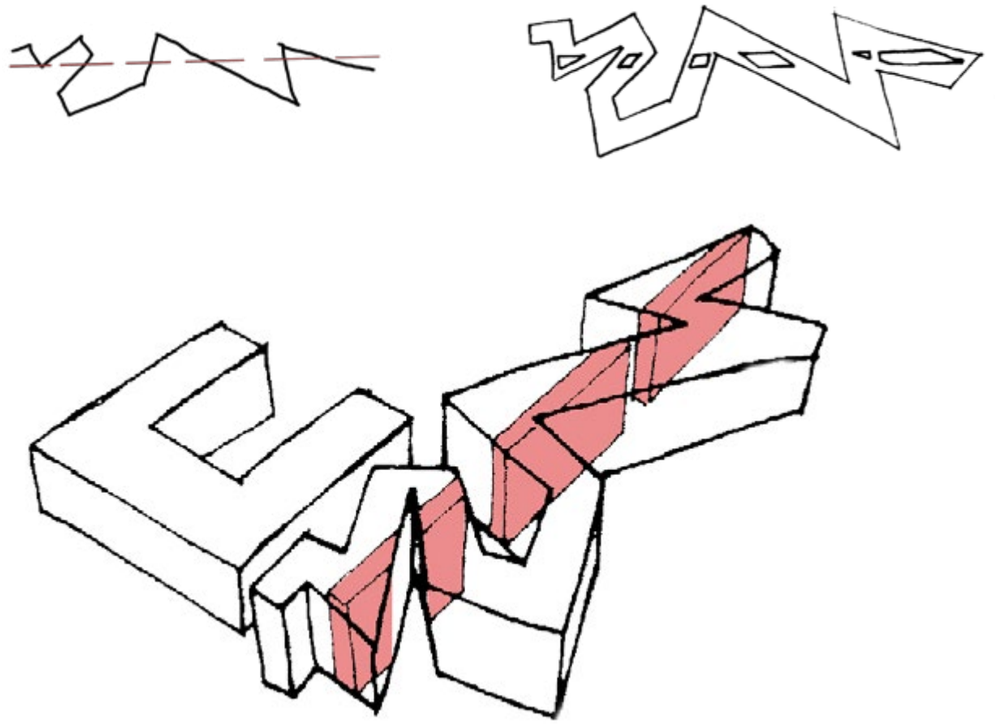


Diagram 13 *Illustrating the line that cuts the star of David; creating void through that*

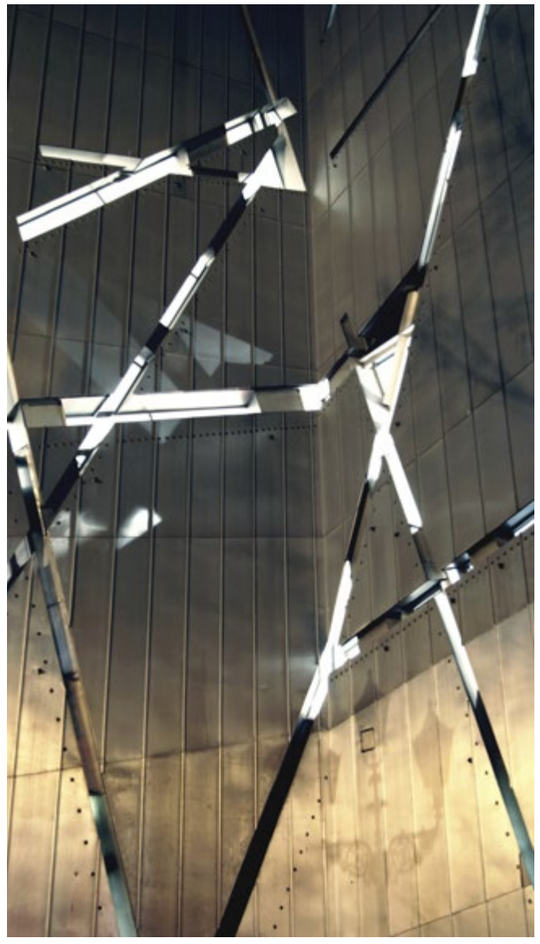


Figure 68 Jewish museum Berlin; windows giving selective vies to the outside

in the museum as well as in the lives of the Jewish people. Libeskind is not aiming to fill that void by informing the collective but recognises that numerous stories will forever be untold and lost.

The approach to the newly added part of the museum was also intentionally thought through. The only way to access the new part of the museum is through underground passageways. (Fig 69) Once again speaking back to the fact that so much of the Jewish history is unknown, buried (Astbury, 2022).

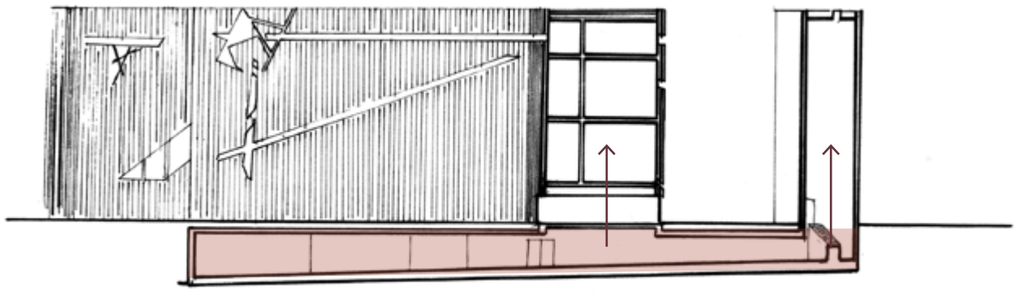


Figure 69 Section through Jewish museum showing approach from below

The design of this building was initially opposed by a few people, saying that it is too big and takes up public space in a green belt, the spaces of everyday activity. Libeskind's reasoning on the other hand was concerned about the inability of the user to fully imagine and experience the void as a whole and therefore wanted to create a sense of *"anti-monumental monumentality"*. He saw this project as a *"counter-memorial"* as it is only a mask of what was lost (Harris, 2010).

Figure 70 Jewish museum, unknown faces and 'stories' held in the void

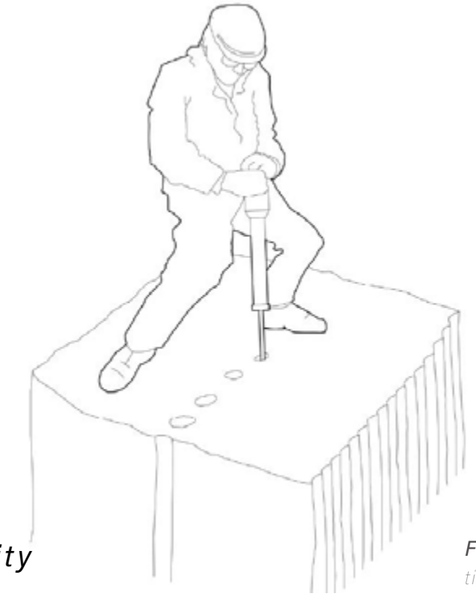


Figure 71 *Diamond tipped drilling*

NEW STONE AGE

exploring materiality

Quarrying technology today

To understand quarrying and stone masonry, particularly for monuments, I went to visit the De Hoop Granite Quarry in Paarl. At this quarry, I could learn more about both the history of quarrying technology as well as how it is approached today.

The Paarl granite quarry has been active for over 115 years and the hole in the ground to show for it is still reasonably small. Dimension stone removal, contrary to the historic method of blasting is a far more efficient and controlled method of removing large pieces of stone from the landscape. The stone is quarried to meet specific orders. Because of this, the quarrymen know exactly what size to take for the rockface, leaving very little wastage. Where humans are involved, we will always need to take from the earth to some extent to create shelter for ourselves.

The responsible rock harvesting process looks as follows in the Clift Granite quarries. (Rolando, 2015).

1. Dimension stone quarrying method uses pneumatic diamond-tipped drills to drill down into the rock to form a 50mm diameter hole that is as deep as the stone you wish to retrieve. (Fig 71)
2. A row of these holes is drilled after which they are plugged, and a feather wedge is inserted into the plug. (Fig 71)
3. The rock, which is very strong in compression but weak in tension, starts to break away from the earth wall.
4. A crane comes to pick up the large piece of stone that can range from a half to six cubic meters in size. (Fig 72)
5. They are then processed by a diamond band saw to remove any rough edges. (Fig 72)
6. Then they are passed through a series of saws, grinders, and polishers to finish the final product. (Fig 74 +75)

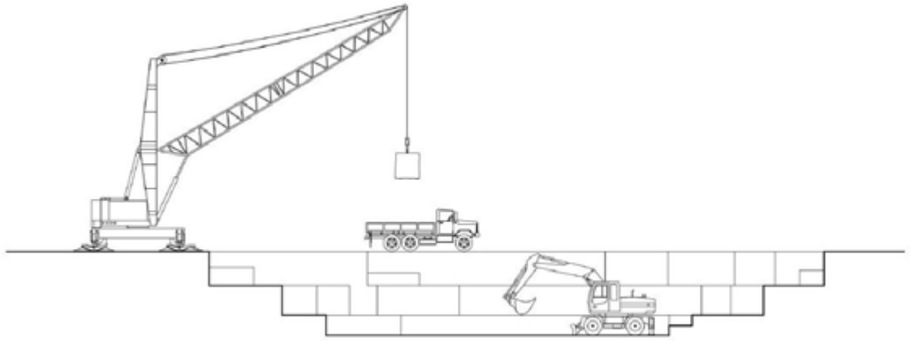


Figure 72 *Stone removed from quarry with crane and transported to workshop*

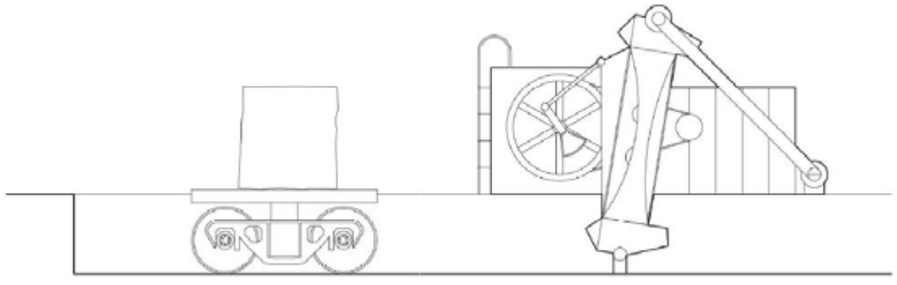


Figure 73 *Stones are processed with specialised mechanical diamond saw*

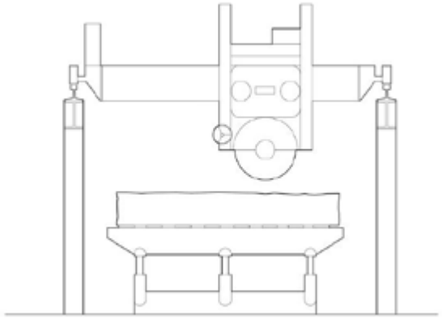


Figure 74 *Stones are roughly shaped with hydraulic gantry disk saw*

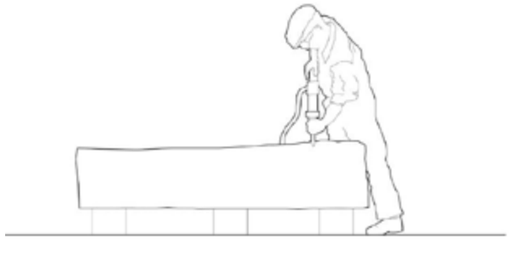


Figure 75 *Finishing work performed by hand by stonemason*

Stone in Building

In recent years there has been a passionate movement in the UK researching the benefits of moving back to the use of stone as the structural material in buildings. This research led by Webb Yates engineers and Amin Taha architects has been aptly dubbed "The New Stone Age". The use of stone carries many environmental benefits to it. Web Yates engineers note a thorough list of these benefits, some of them being:

- Quarrying has a high yield of usable material as it takes from the surface of the earth, whereas mining for various other materials that are found deep underground removes an excess amount of the overlaying earth creating more damage (Schrenk, 2016).
- The full process from quarrying to building site has a substantially reduced carbon footprint compared to that of concrete or steel for example. The stone is extracted, shaped, and transported to the site for building cutting out many in-between carbon emitting steps that occur in the processing of steel or limestone from raw material to building material. Stone has half the carbon footprint compared to concrete and is twice as strong (Webb, 2020).
- The ability to reuse stone from a derelict building is another major benefit (Webb, 2022).

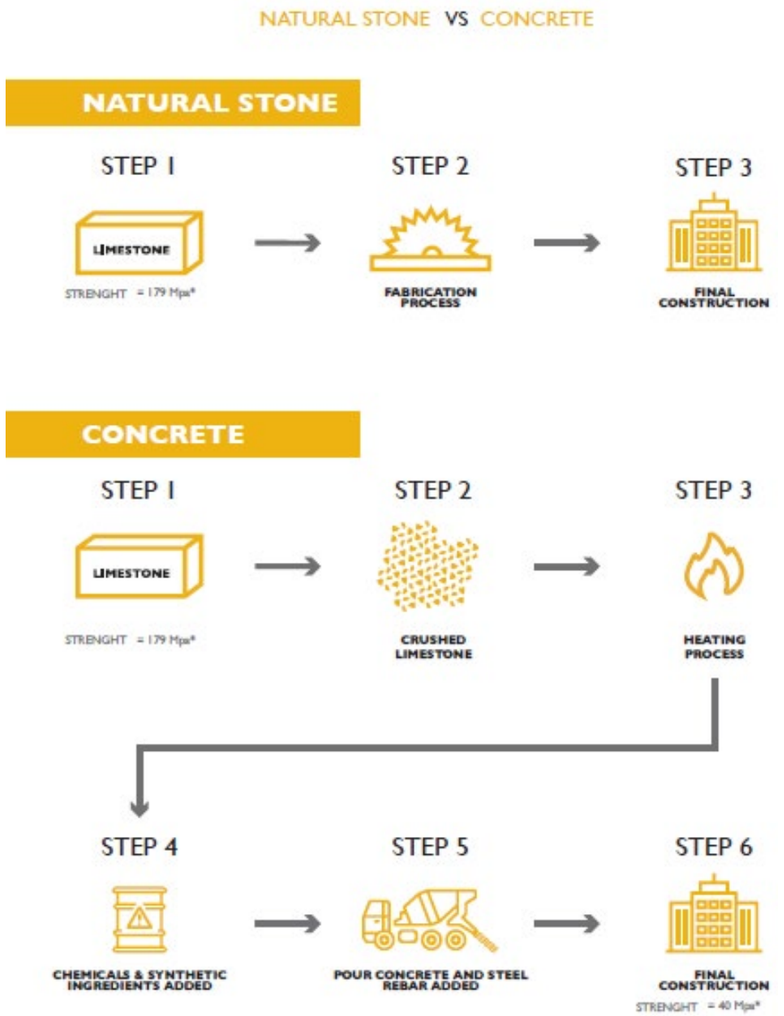


Figure 76 *Comparison of carbon emission between concrete and stone*

In most cases, stone is currently being used as a high-end decorative building material, but the stone is much more versatile and can be used for many more purposes (Webb, 2022). There are a few examples of this movement back to structural stone emerging around the world. Some of these are hybridised using a combination of timber and stone, with stone being strong in compression and timber better in tension. Studiolada's health care building in the east of France is a good example of the hybridised use of stone

Figure 77 *Facade of Studiolada healthcare centre*

and timber. In this instance, the architects explored the idea of *"thinner stone blocks that are still self-supporting"*. The outside stone wall is 15cm thick and connected to an internal timber framework to allow the stone to withstand wind loads. (Fig 78) Therefore, the stone supports its own dead load in compression and the timber frame supports the live wind load on the building. (Studiolada, 2021).

With improved technology and the ability to drill through stone with diamond-tipped drills, stone can also be post-tensioned and be as strong as steel beams, using a fraction of the steel that would have been used in a full steel beam (Webb, 2020). There are many possibilities to explore in the use of stone, modern technology allows us to rethink the way that stone can be utilised in buildings.

Figure 78 *Studiolada healthcare centre assembly of limestone blocks for facade*

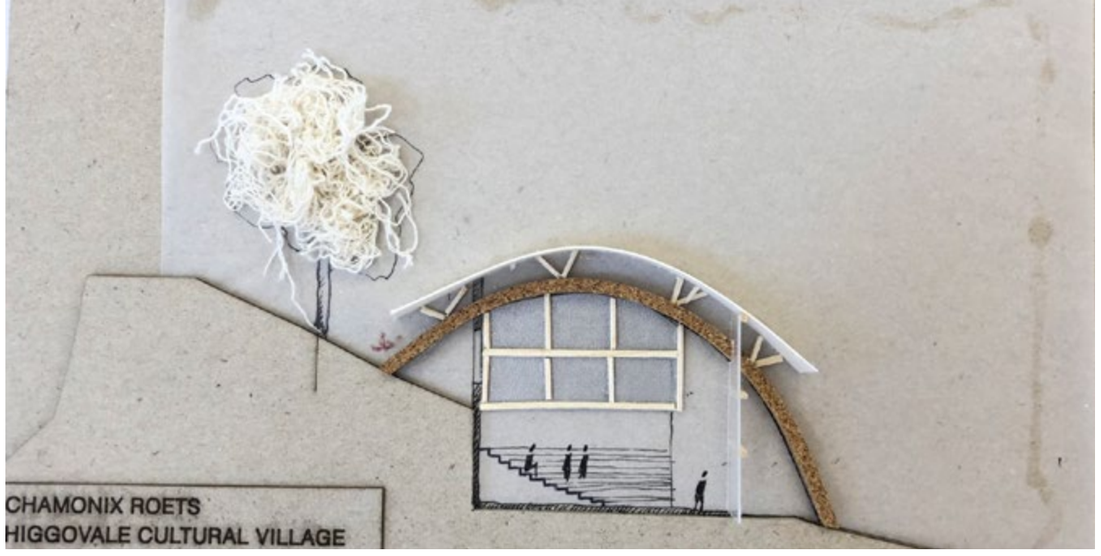


Figure 79 *Sectional model exploring potential of curved post-tensioned stone arches*

Exciting potential lies in the conceptual strength of using stone in the design of the intervention on Higgovale Quarry. There is an opportunity to use stone from the site that holds the memories of the space. The building can grow from the earth and uproot the memories held in the quarry.

During the initial design process, I have begun to explore these potentials in using stone. I built a few sectional models to play with the feel of the spaces that this approach to technology could create. The exploration started with a zoomed-out 1:200 model trying the idea of post-tensioned stone arches to emphasise the special spaces created in the intervention. (Fig 79)

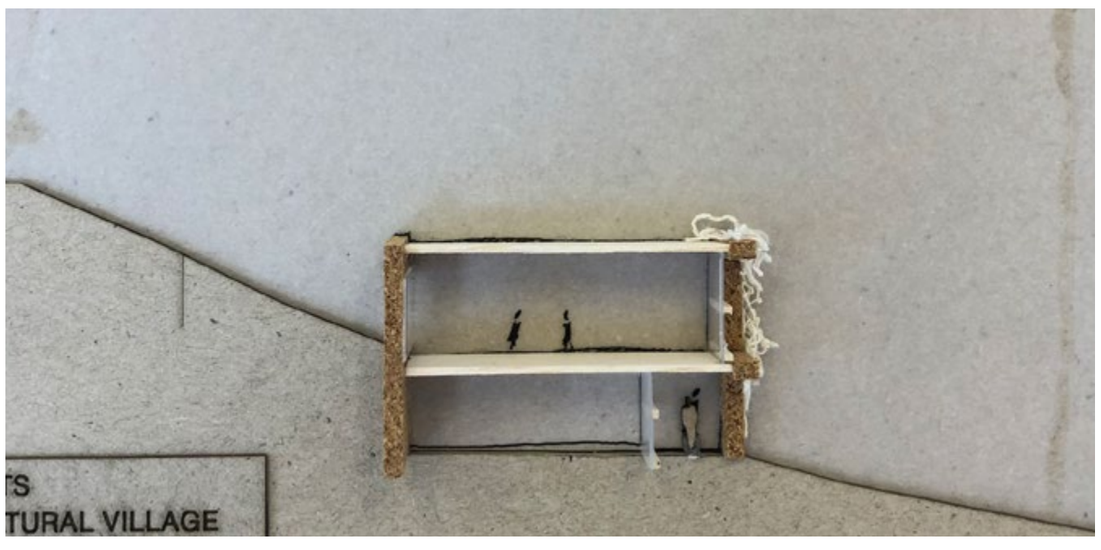


Figure 80 *Sectional model exploring mundane functional spaces of building*

Following this was research into the structural make-up for the mundane parts of the intervention. Firstly, through a 1:200 model (Fig 80) and then taking that into a 1:50 model looking at the idea of a stone exoskeleton. (Fig 82) This was a good exercise as a starting point into stone as a material, however, it fell short in conceptual clarity and full understanding of the structural language that is being conveyed. This technical exploration will be a process that continues alongside the design as the intervention progresses.

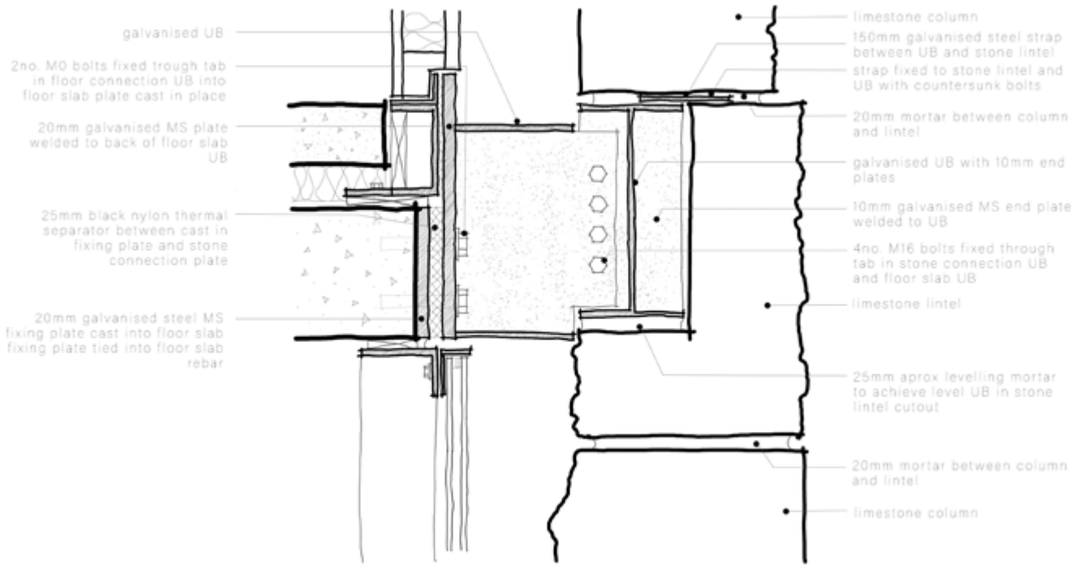


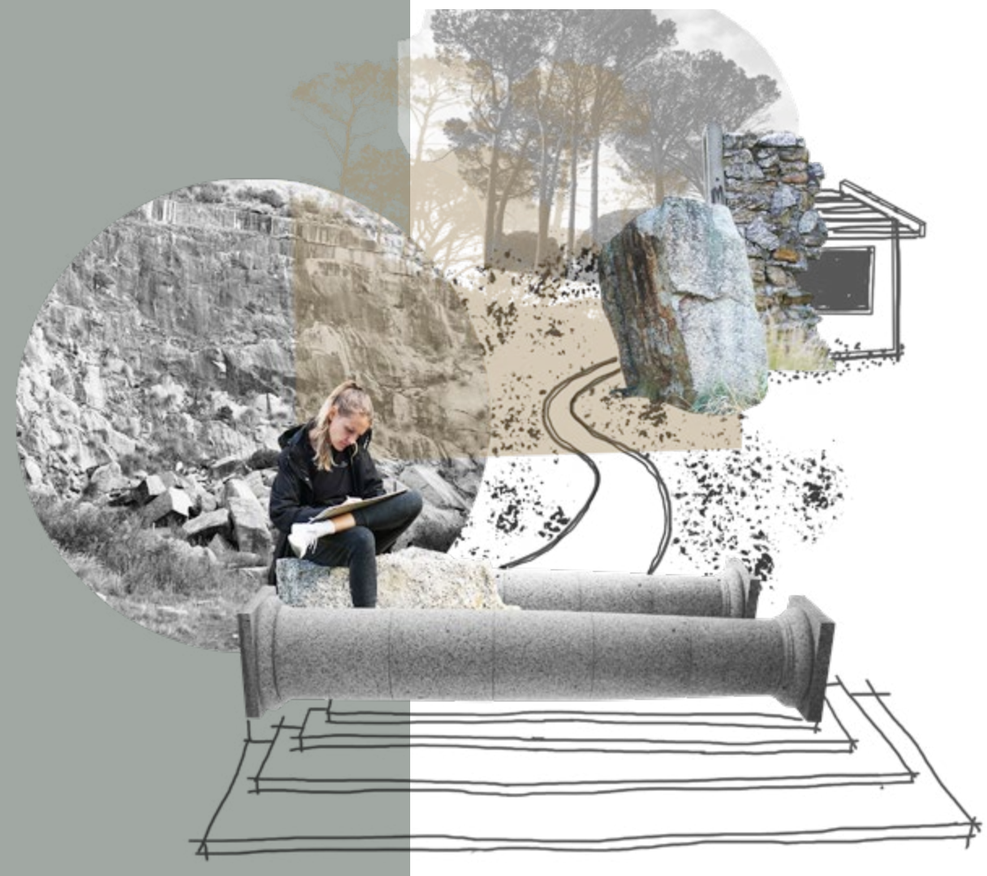
Figure 81 *Sectional detail exploring idea of stone exoskeleton*

Figure 82 *Sectional model exploring idea of stone exoskeleton*

PART 5

design thinking

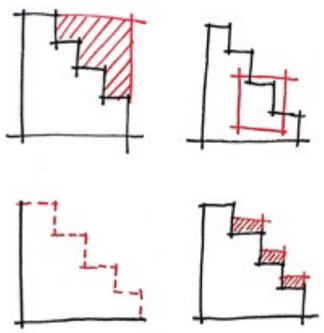
Subjectivity and self,
dealt with in stealth.
Compiling stripped layers,
insert back key players.
Water and wind.
Synergy and sun.
Choreography of rhythms,
calling one.



DESIGN PRINCIPLES

guiding thinking ahead

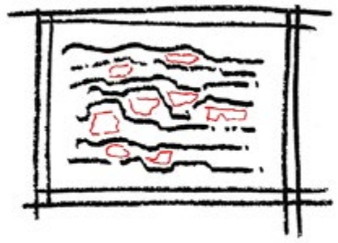
After the initial four months of research, I gathered a large amount of information. To utilise the information more strategically and translate it into an architectural design, I extracted 9 design principles. These principles serve to guide the design and harness the information that was gathered.



Leverage Topography

How building meets ground

Communicate attitude toward the topography in the way that the building meets the ground. This is to show a sensitivity to the history and commemorate the story of the quarry.



Frame the Memories

Choreographed Approach

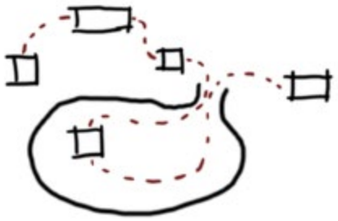
Upon arrival on a site, the urge to bulldoze, flatten, and iron out the irregularities, in the search for a free plane, a clean slate, is rife. But to engage with it, in a way that embeds, roots, and builds with the irregularities, is to allow the ground to function as a *"window onto a natural condition and a frame for the historical layers of a specific place"*. -Toma Berlanda

Let the way in which the site is physically approached by the user begin to tell the history of the site, engaging the irregular topography directly.

Hypernature

Emphasising natural conditions

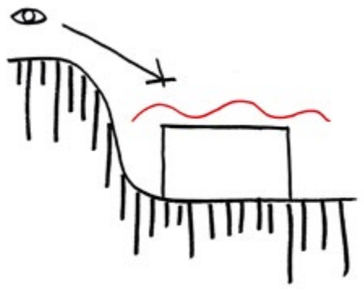
Exaggerates the natural aspect of the space in design. Hyper-Nature is achieved through "exaggeration, amplification, distillation, condensation, juxtaposition or displacement." (Hedley, 2012)



Choreograph Movements

Sequencing the moments

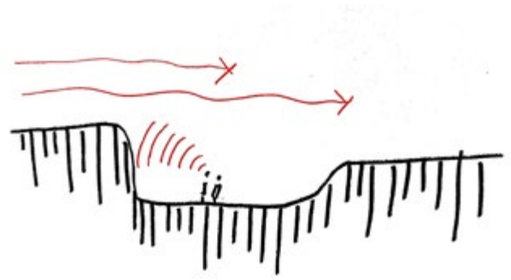
Thinking through circulation as more than just navigating your way through a building, but as the sequence in which the user takes in the story of the quarry itself. Circulation then becomes a method of storytelling.



More than just a roof

Building to be viewed from above

As the site is essentially a giant man-made hole in the middle of a national park that many people frequent, the building will be seen from above and in some cases approached from above. The way this building meets the sky is therefore essential to its ability to communicate its function and invite the public in.



Utilize natural room

Embrace natural spaces

How the quarry was made lends itself to have many potentially beneficial qualities that are artificial in the fact that the space is man-made but perceived as natural because of the derelict state. It is vital to harness these qualities because they are what render this site unique from any other landscape. Some of these qualities include wind shelter, good acoustic qualities, and water retention.

INTERVENTION THINKING

process of design

Initial design thoughts

The following represents the initial stab at a design response to the site. The idea was to place a load of program into the quarry space with some spilling over the edge. In the preliminary stages of the project, the entire site was purely going to be a music school, there was no intention to focus on memory, culture, and the role these two plays in framing collective memory. Explorations happened with a variation of options probing where different buildings could sit on the site and what each of these responses communicate around the attitude toward the unique topography. (Fig 83 -85)

What was unclear and needed development at this stage was how the unearthing of the history of the site was influencing the choice of program and site engagement. It needed a great deal of refinement. A change in vocabulary also took place at this point where the idea of building morphed into a more sensitive idea of buildings as interventions.

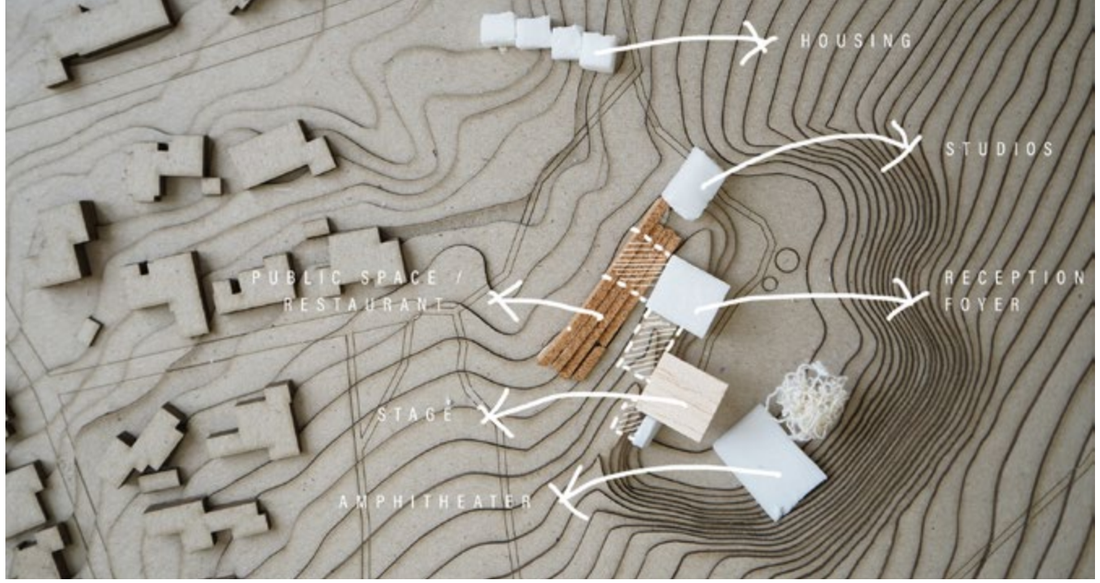


Figure 83 *Initial model exploration 1:1000 - June*

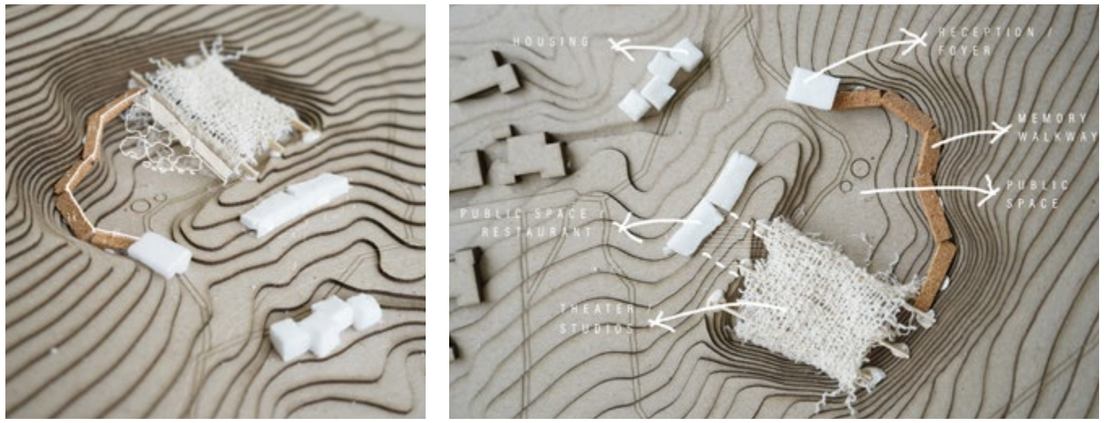


Figure 84 *Initial model exploration 1:1000 - June*

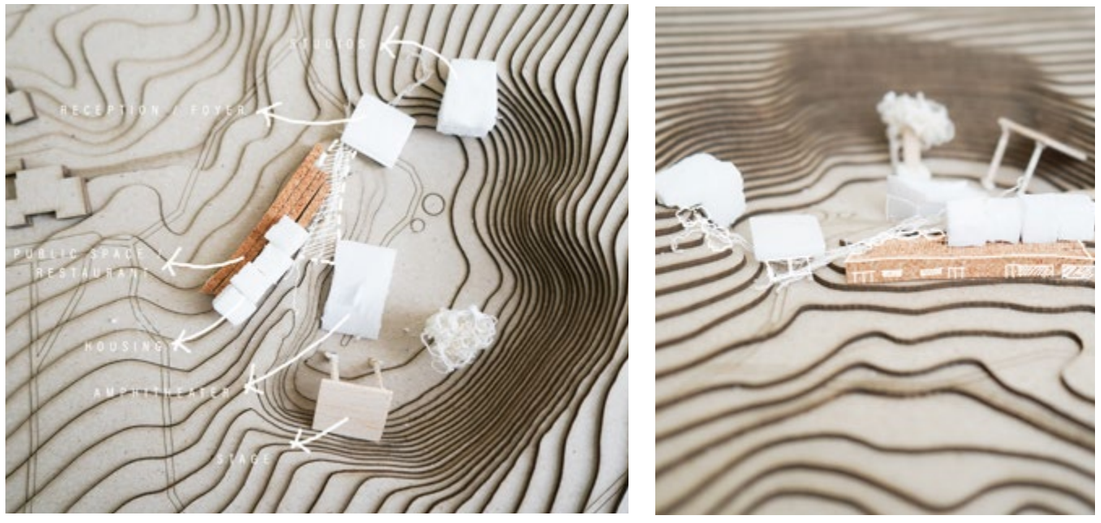


Figure 85 *Initial model exploration 1:1000 - June*

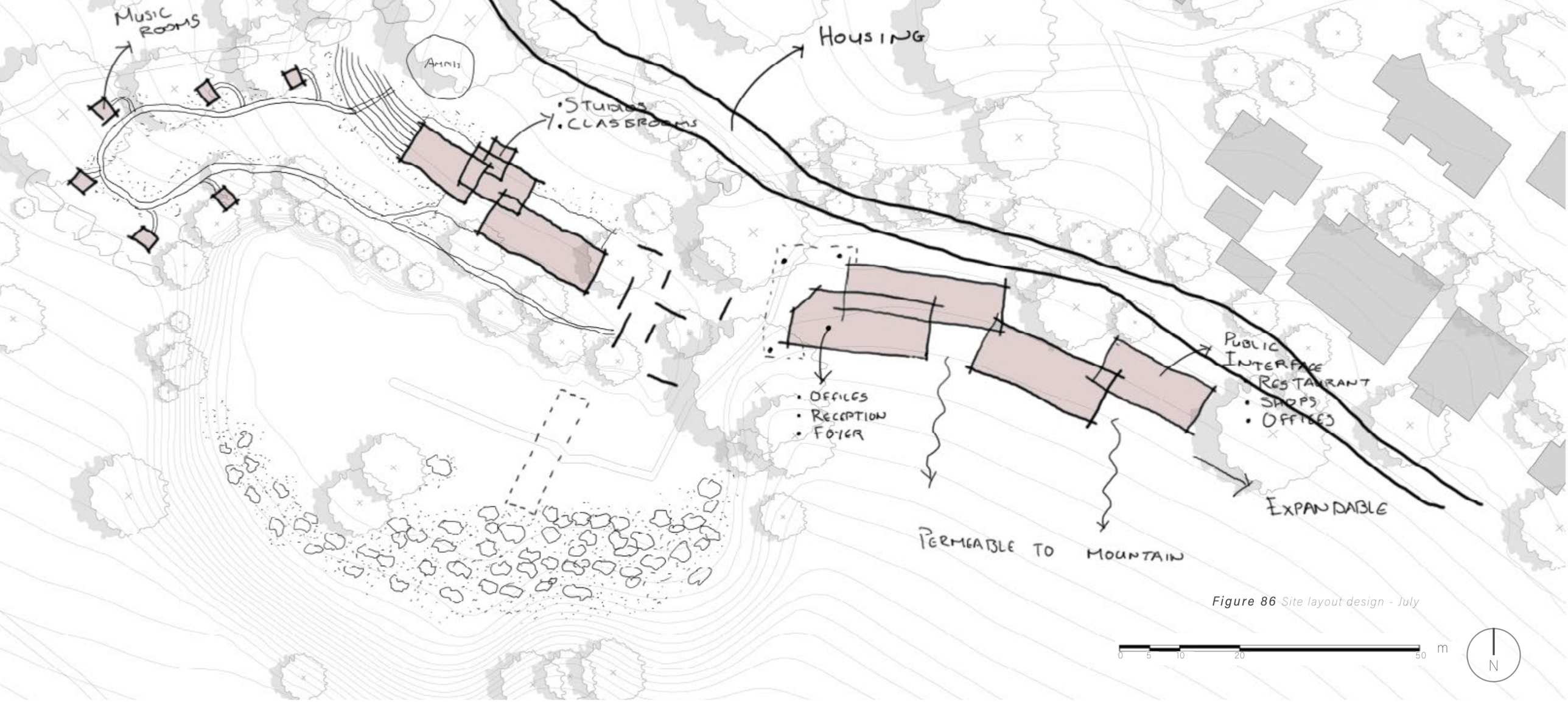


Figure 86 Site layout design - July

Design Development

From the initial response, there was a clear need to dig deeper into the context of the physical site and allow a suitable program to emerge from the clues found on the site. The program evolved into one that would more clearly hold the different engagements currently found on site. From the site informants, the intervention grew into the multifaceted cultural centre that was explained in Part 4. A cultural centre that holds memory and spaces of music and performance at its core. There were many elements to this cultural center, including performance space, studios, office space, restaurants, housing etc. In an attempt to be sensitive to the quarry space and its beauty, the decision was made at this stage not to touch the quarry at all and scatter the program interventions around the edges of the quarry.

After spending a few weeks developing this idea, it was time to critically reflect on the progress. This response still fell short in many ways. Firstly, that the quarry is the space that is being addressed and not spilling into the area of the void itself would be a complete missed opportunity in engaging with both the physical space and the history thereof. The other challenge was that scattering such a large program around the site, it runs the risk of actually taking away from the natural beauty of the Table Mountain area. The footprint and building program needed to be reduced. Touching lightly, in this case, wouldn't necessarily look like the intervention meeting the ground lightly, but rather the intervention creating a minimal footprint, yet still allowing all the necessary functions, but also allowing nature to be part of the flow.

Figure 87 *Site layout exploration - August*

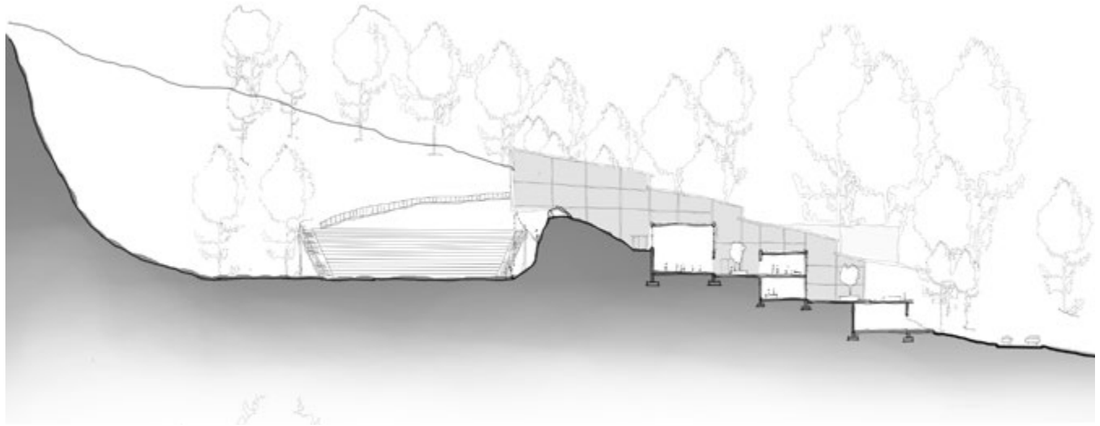


Figure 88 *Site section exploration - August*

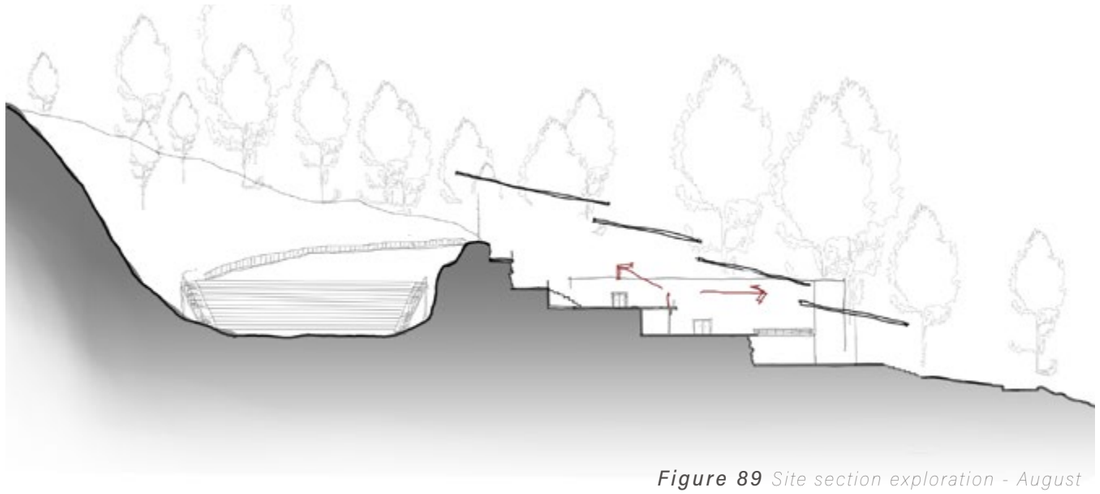


Figure 89 *Site section exploration - August*

From there

The following iterations were reduced in footprint and focused on skinny narrow buildings that are scattered along the contours of the site. These are held together with circulation spaces that consist of a series of terraced platforms that become social spaces which could also be used for performance if needs be.

Thinking about the approach to the site, this iteration was aimed at choreographing the journey up to the edge of the quarry and creating an element of surprise when you reach the top. Furthermore, it also includes a series of small music rooms that become a more private space for practice and individual contemplation.

There is still, however, an opportunity to connect with the environment and choreograph the approach that is lacking in this iteration. As well as a lack of clearly showing engagement with the memory of the space.

MOVING FORWARD

what's next?

As the design journey continues there are a couple of key ideas that have recently inspired the design thinking and will inform the process moving forward. There is the challenge of what is being focussed on, and the opportunity to shift that thinking. The focus is currently on the valley shaped in the landscape and the opportunities in inhabiting that, there is however the opportunity to shift the focus to the missing, the stolen volume of stone, not just the site itself, but the shadow of what doesn't exist anymore. Shaping the architectural intervention based on the missed profile, rather than the valley.

Furthermore, there is the opportunity to engage and collaborate with the surrounding natural elements and environment to shape rituals of memory. What does water entering the site mean, where does it go and how does that add? What does it mean when the shadow of the mountain hits the shadow of the building? How do the wind and the sun interact with the intervention? There is an opportunity to use the non-tangible elements that happen at specific times; once a day; once a month; once a year; to create moments where the site asks the visitor to come to it. Instead of the visitor going there because he wants to, the site is calling, the missing stone is calling, the ghost of the stone is calling them to remember the theft.

Although perhaps clunky, and somewhat missing the mark, the initial responses have contributed largely to the process of design. In many ways, it was too bold in providing many spaces, yet not bold enough in addressing memory held in the quarry. These processes will continue to remind me to be more fearless, to engage the man-made landscape and confront the memories represented. Teaching me to shift my moves, tread lighter where needed, and leap boldly at other cues, all the while pushing to develop the choreography of this design dance.

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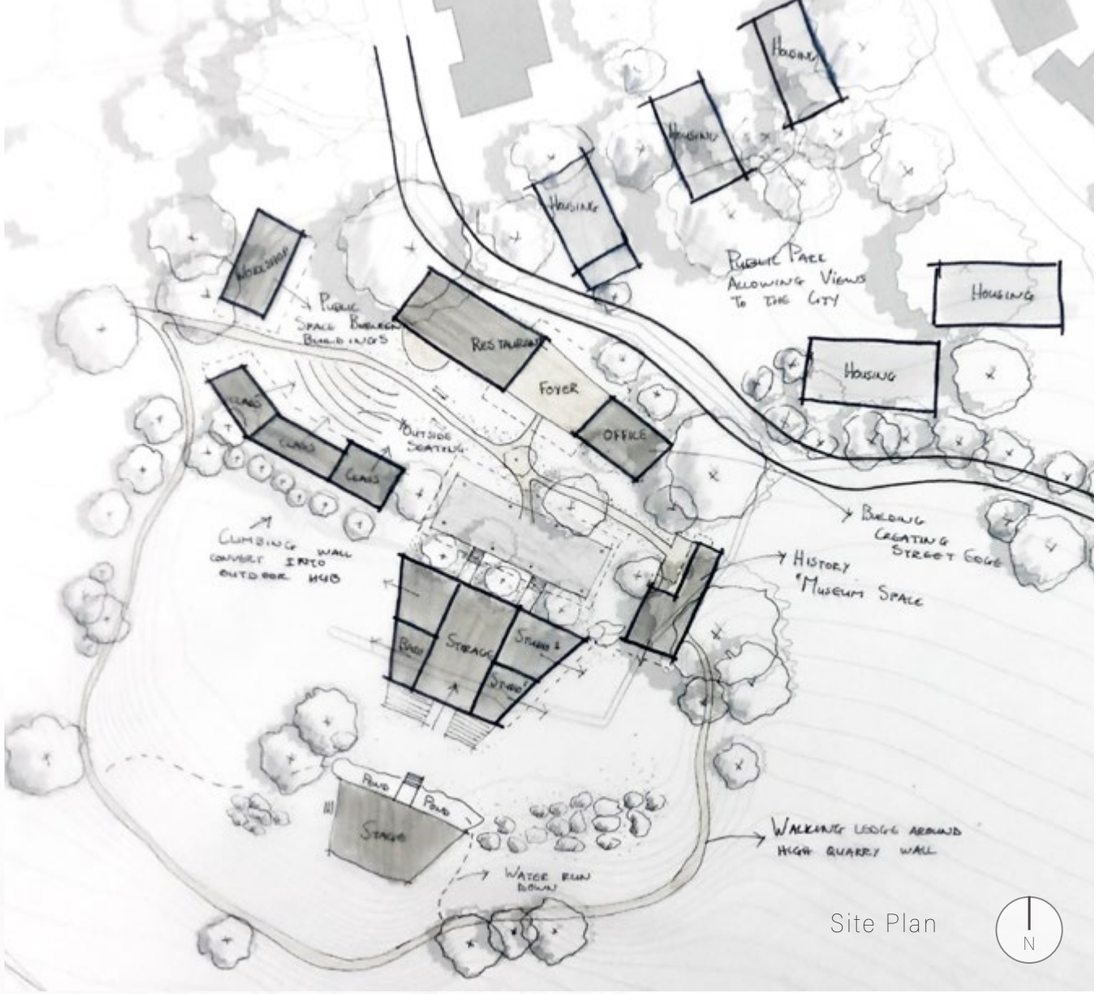
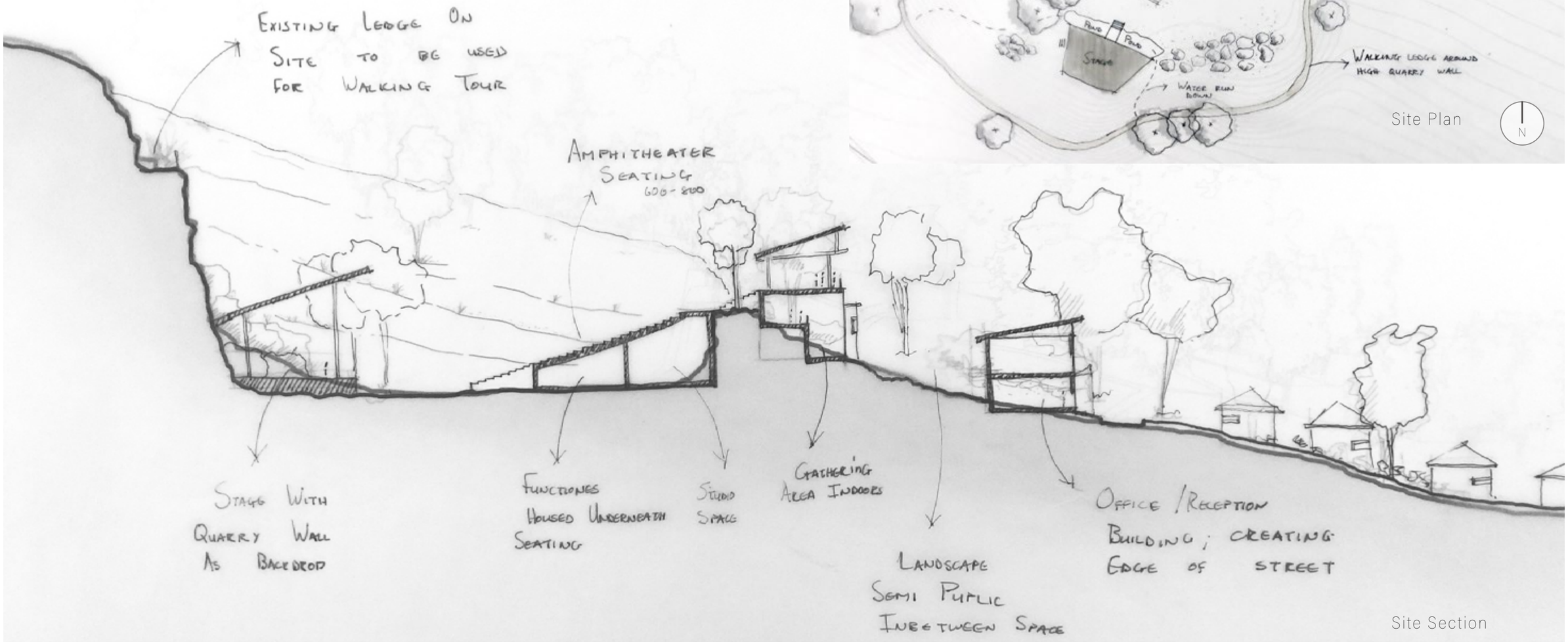
TABLE OF FIGURES

APPENDIX A

june mid year review



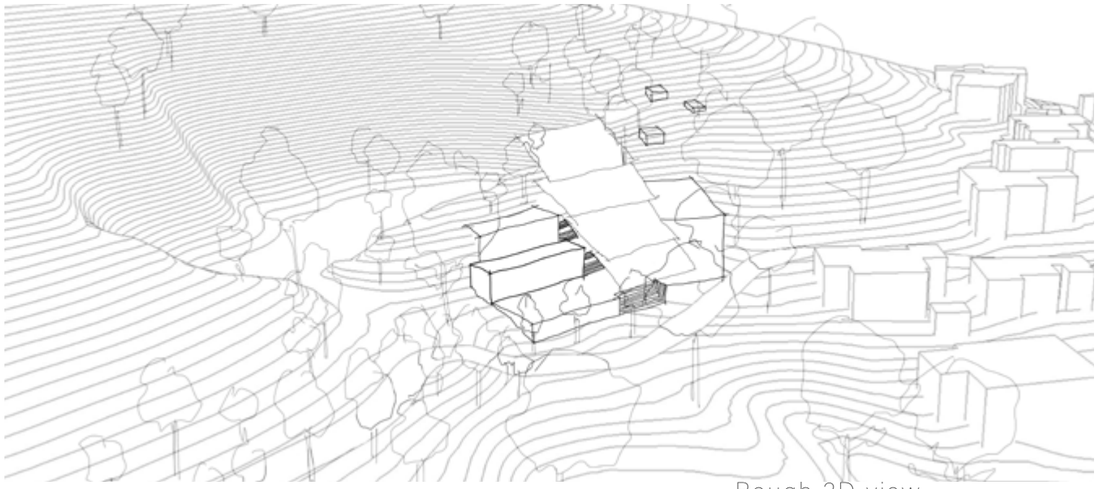
Site Plan



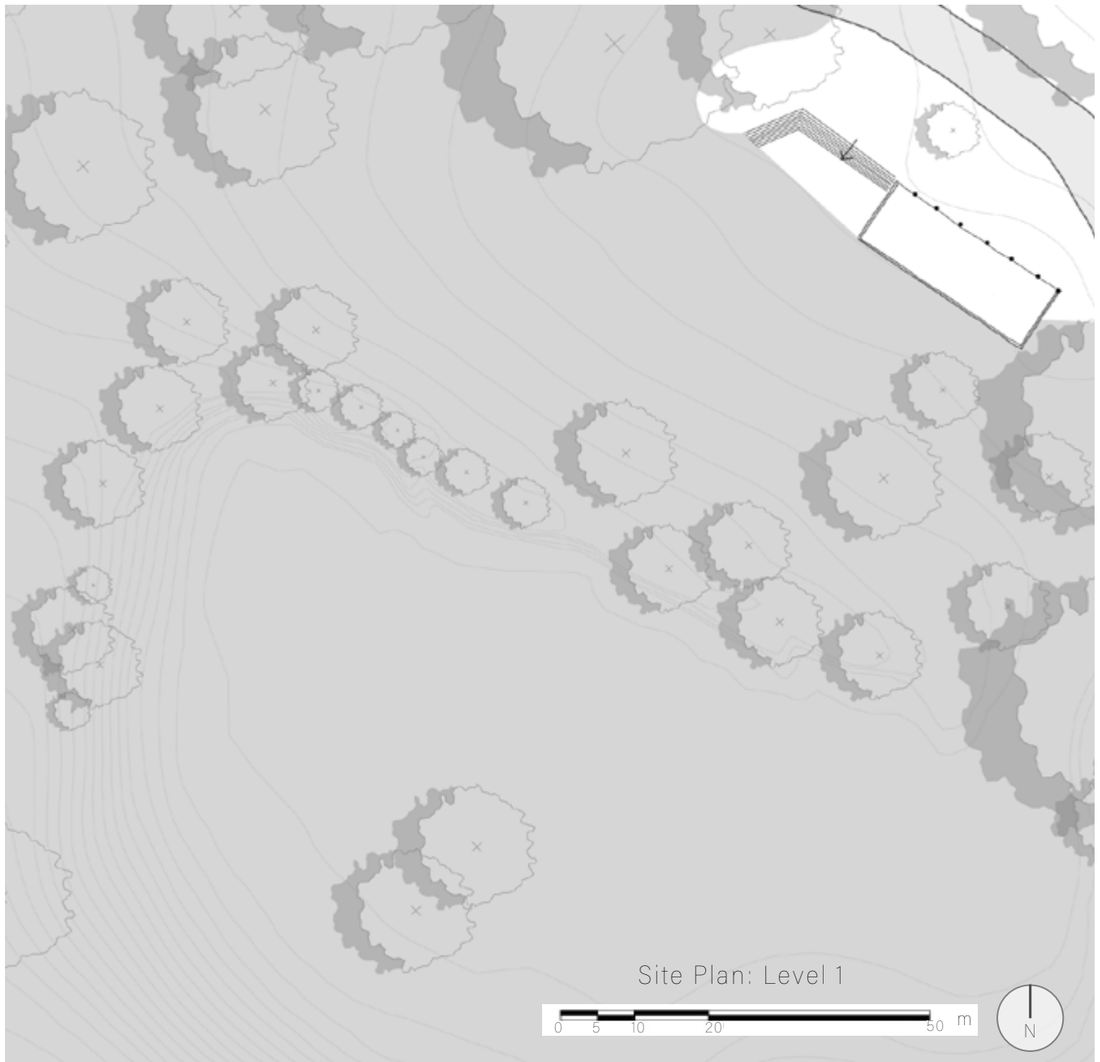
Site Section

APPENDIX B

august design review 2



Rough 3D view



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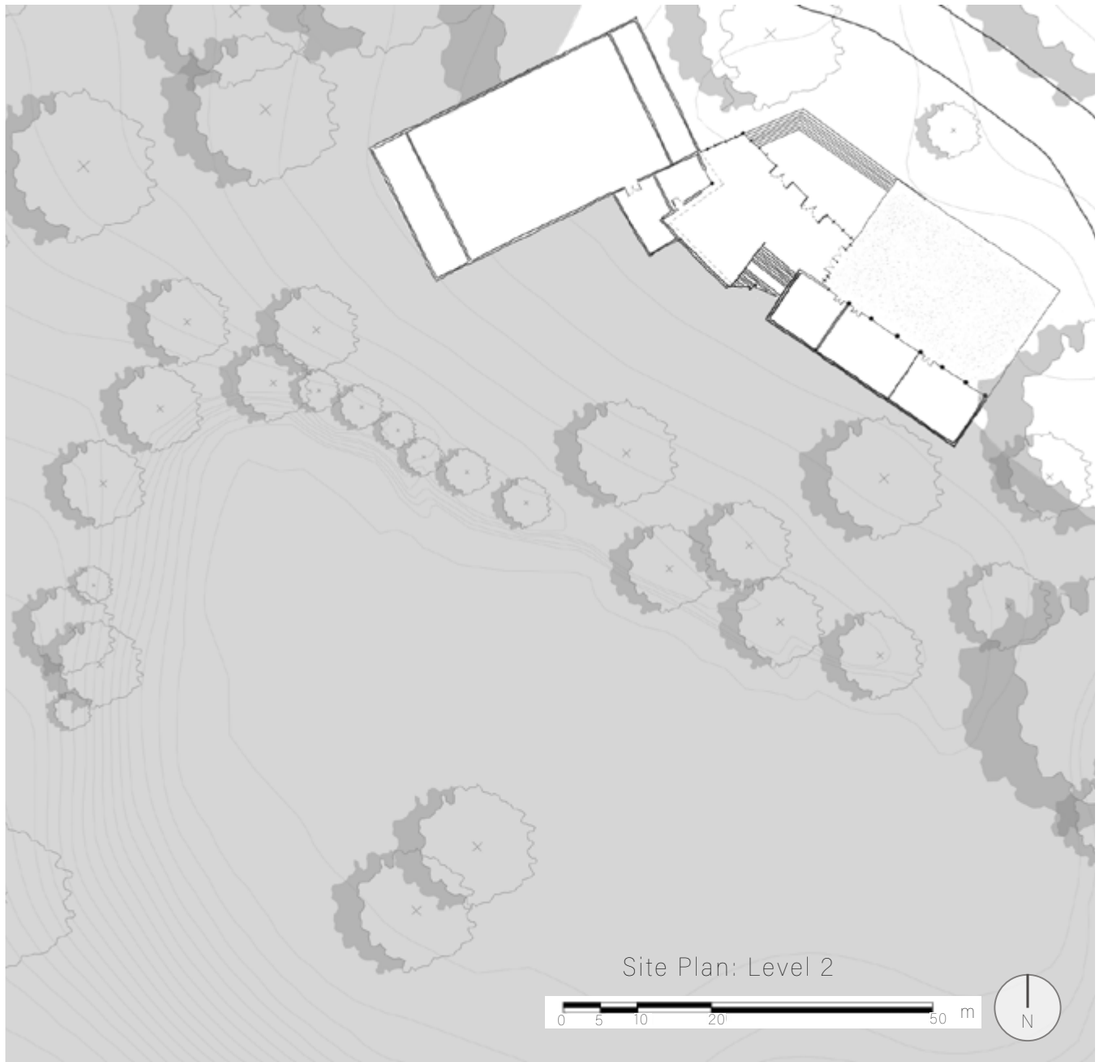
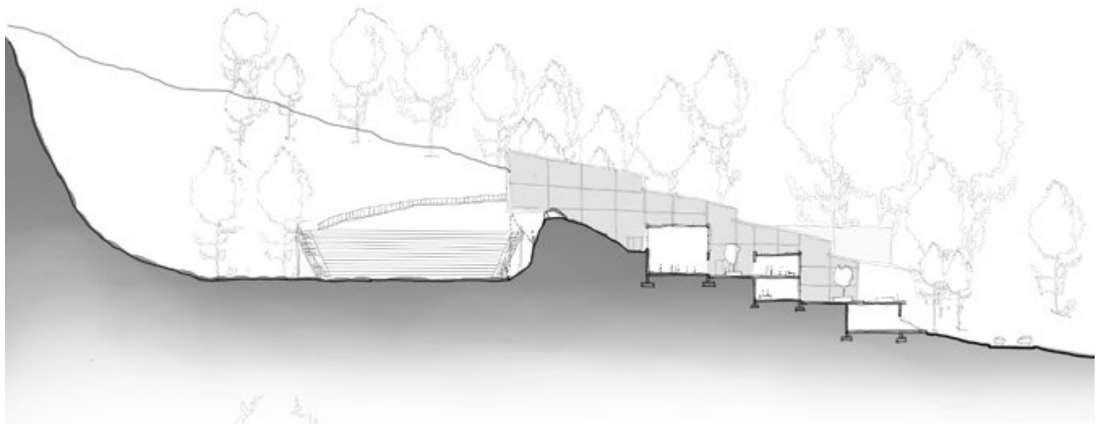


Site Plan: Level 2



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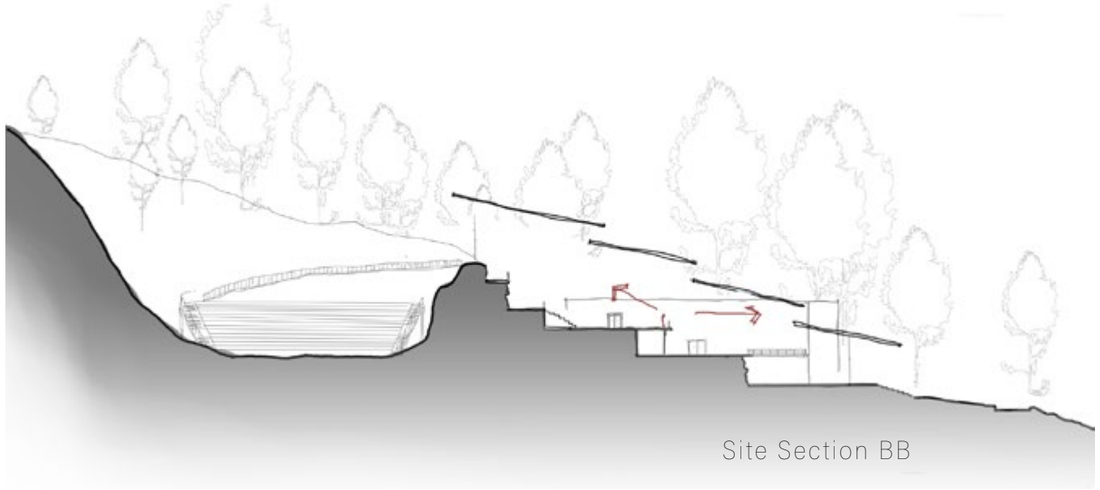


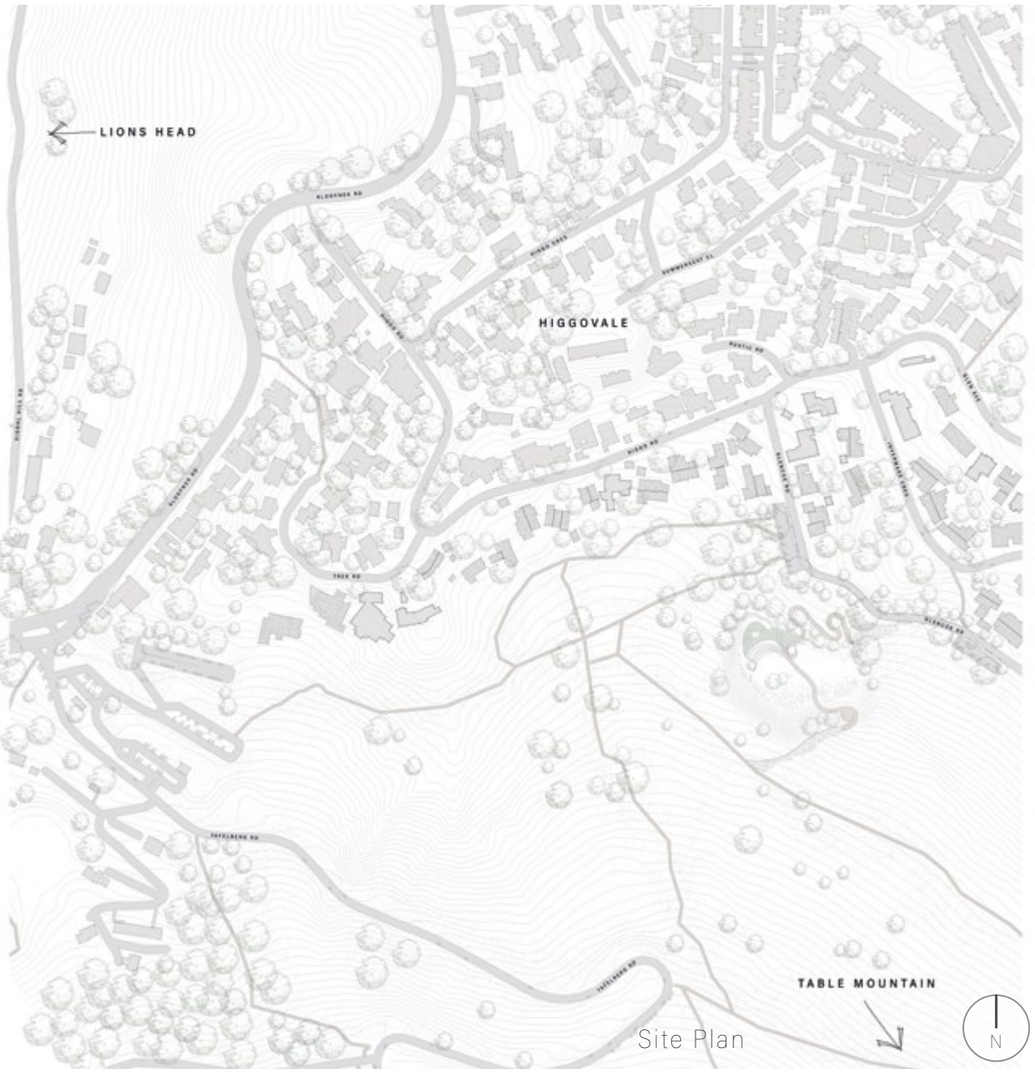
Site Section BB

Site Plan: Level 3

Site Plan: Level 4

APPENDIX C

final design



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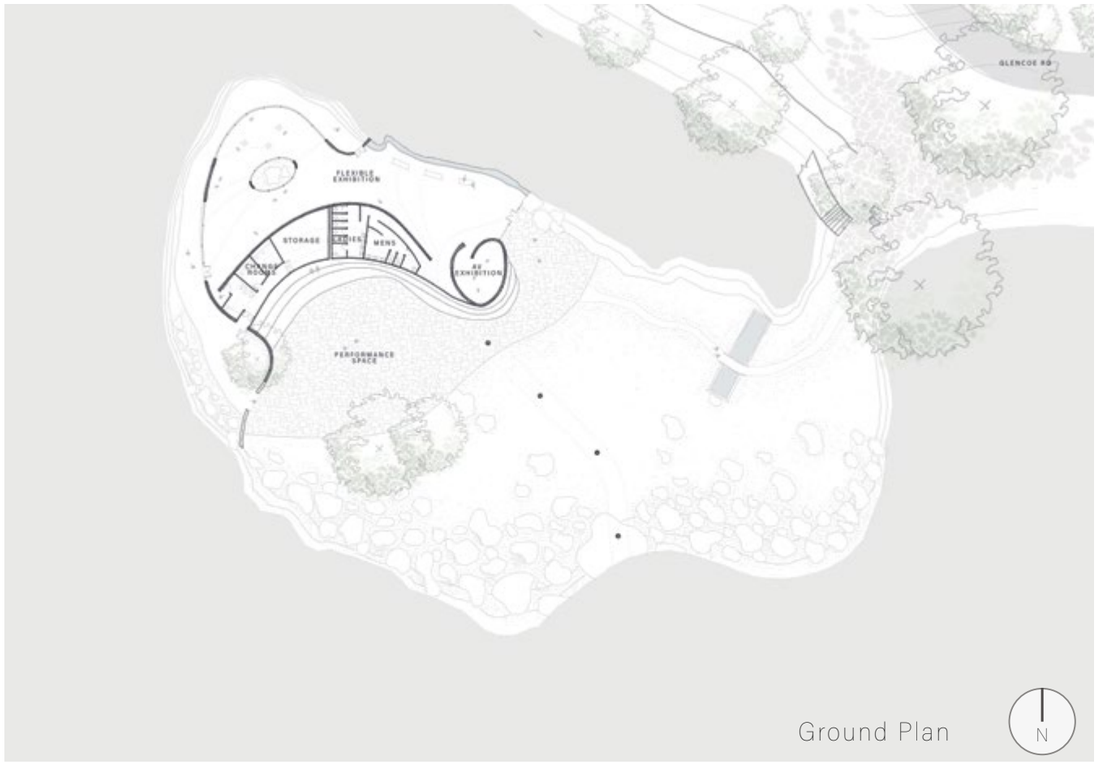
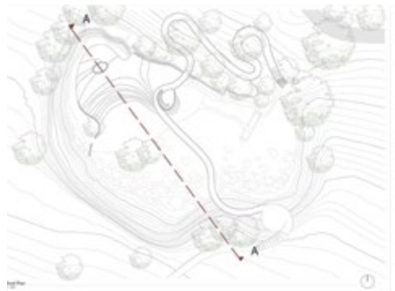
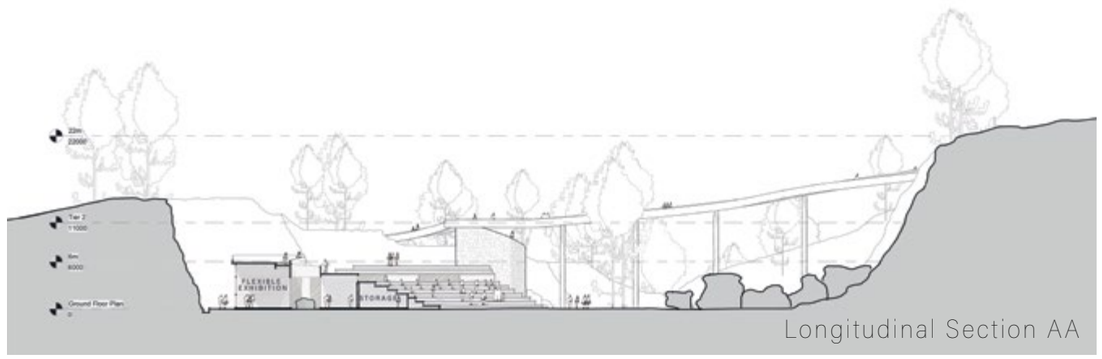


Ground Plan

Roof Plan





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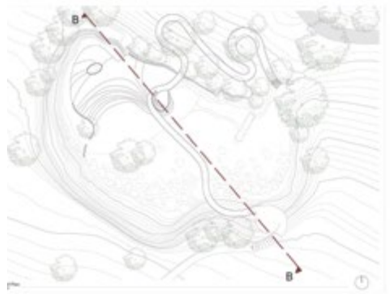

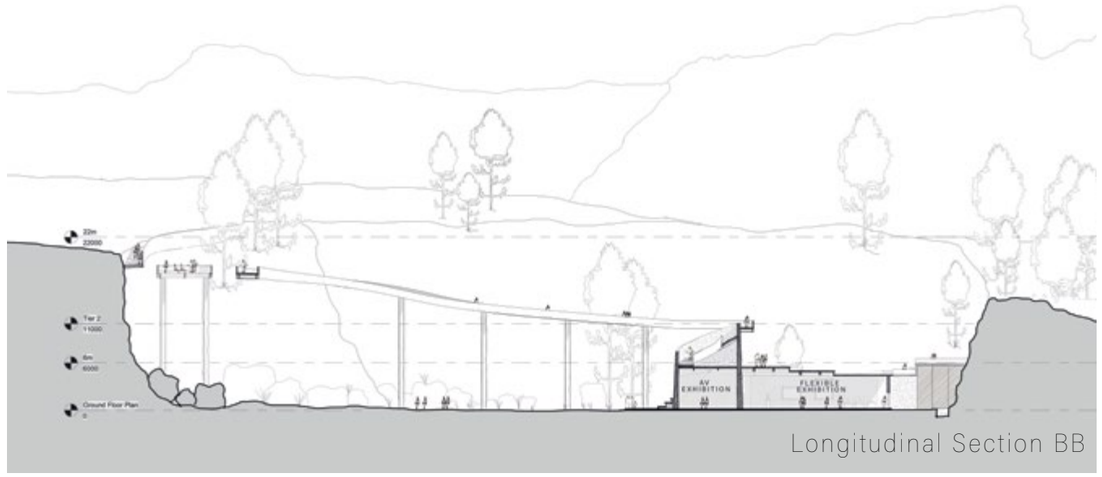

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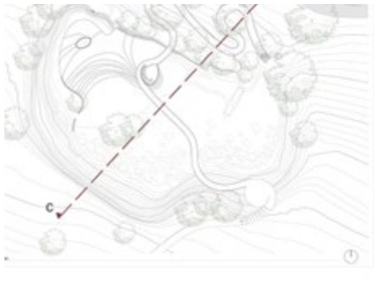

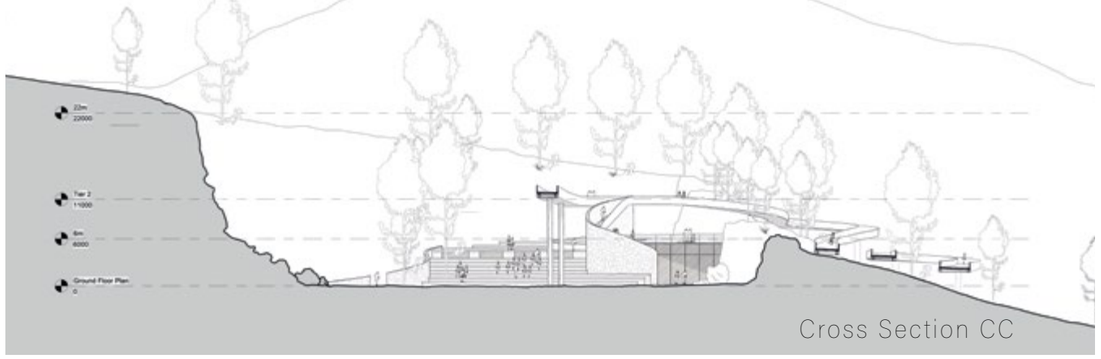

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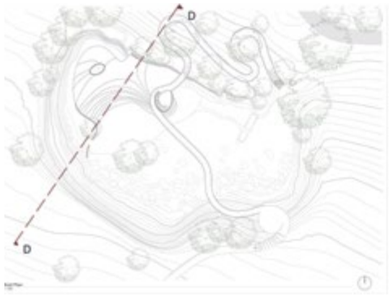

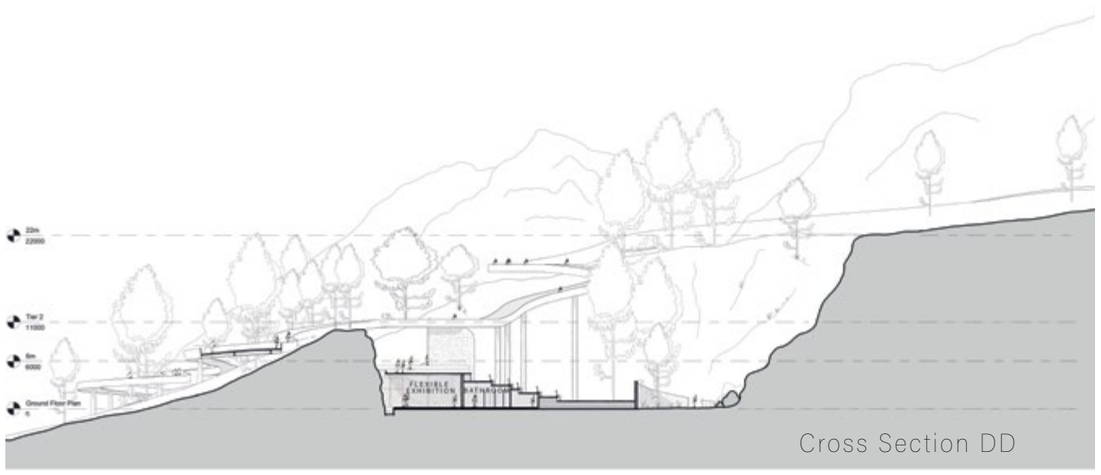

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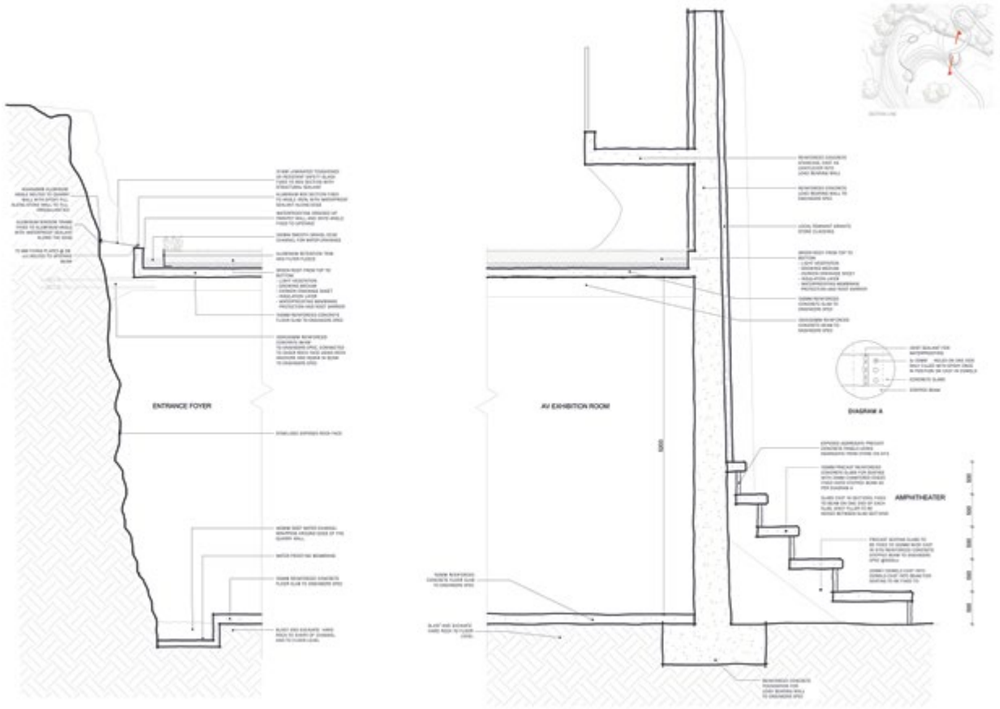

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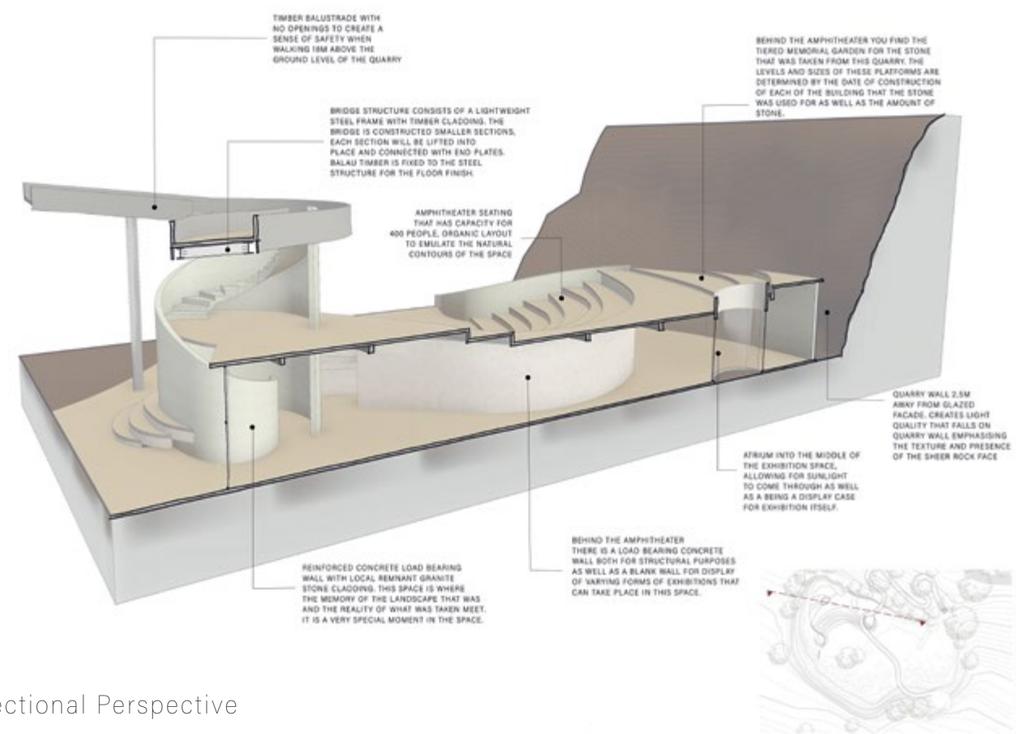

Sectional Perspective