

## **FORMED BY FIRE**

A Mountaineering Basecamp at the Pine plantation in the dystopia of  
Cecilia Forest

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## INTRO

I am a mountaineer. I hike, I climb, I camp (mostly without a tent, unless it snows of course). It has been a serious hobby since I was a Boy Scout at the age of fourteen. At the beginning of the year, I saw an opportunity to add a personal touch through experience and interest in order to better design my project-to-be.

Something that I have noticed about myself throughout my years of studying is that I am a very image or visual orientated person and so for my participation in the studio design exercises, I sought images that could have provided me with some direction towards an architectural concept.

The siting of my project came about while I was riding my motorbike on Rhodes Drive on my way to Camps Bay for sundowners. As I rode past the parking entrance, I did not realize that I passed Cecilia Forest, a place that I was familiar with and yet, as it turns out, not any more. After establishing my site, I explored its history and present condition, which turned out to be quite extensive, hence my initial interest. At this point I very much wanted to arrive at a decision concerning a programme that would be suitable with regards to everything I had researched as well as my own personal drive intents. There were earlier attempts to design a public bathhouse and educational facilities, but the final decision came about after a completed a rather long and grueling trek across the Drakensberg for nearly two weeks, hiking. Hiking has always been a major interest of mine that originated from my youth as a Scout. I consider myself relatively experienced in all aspects of the activity and physical conditions, as far as South Africa is concerned, but this led me to question as to why I had not fully explored the Cape Peninsula from a hiking perspective. This further led to me linking Cecilia Forest to a macro / urban scheme as well as initiating a relative programmatic response through my building.

Timber has fascinated me as a structural element because I have yet to work with it at that level. The use of timber was an obvious choice to better integrate the actual site through the physical and symbolic as well as a sustainable approach.

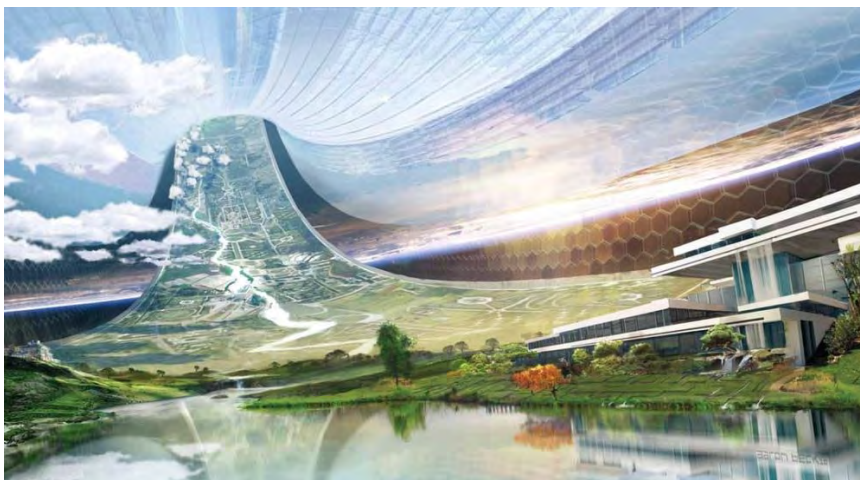
The end result is a building suited for mountaineers and the general public to inhabit the forest at various hours and through various uses. The size and bulk will be controlled by what was built there previously as well as what is needed to accommodate a reasonable capacity of people.

## TRUTH IN FICTION...?

Quite contrary to previous attempts and processes to architectural design, I began my search for inspiration through personal interests and unrelated diversions. In my pursuit to ground a foundation for my earlier explorations in artificial outer space environments, I came across various images and paintings of conceptual environments perceived by artists and (possibly) architects as to what the future could hold for architecture.

These images originated from various sources and mediums such as movies, games, books and art that belong to particular genres of Sci-fi and fantasy. It became apparent that most of these 'Sci-fi' storylines contained several underlying themes that are consistent throughout most of the genre and, particularly, the depicted utopian and dystopian ideals. These can include worlds or settings that are the result of some sort of apocalyptic catastrophe, man-made or not. More common are the artist's or creator's opinion on the temporary condition as an exaggerated idea. These ideas tend to generally play with overtly utopian and dystopian themes such as overpopulation, war, technology, pollution, artificial intelligence, totalitarian governments, social divide, resource acquisition and xenophobia.

I found it interesting as to how non-architects perceived future built environments or ideas of utopia and how they responded in the most extreme ways to the conceived conditions or predicted dystopias to bring across a message or awareness.



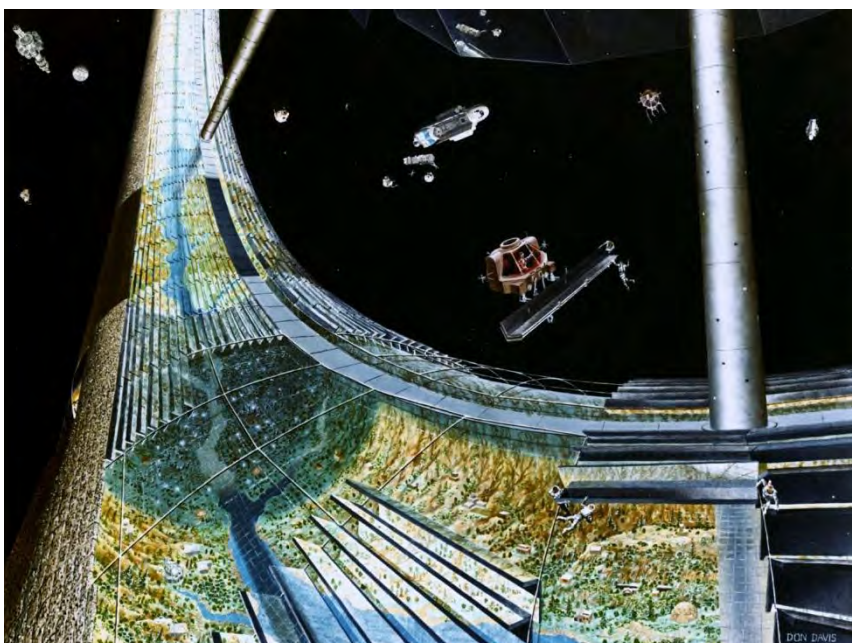
**Figure 1: Concept art for Elysium**

An artificial paradise for the affluent and socially significant. This idea is a development of a ring torus geometry.



**Figure 2: NASA Space Colony by Donald Davis**

This idea follows an interesting concept in creating a large scale environment for outer space habitation. The habitat rotates creating centrifugal force to control gravity. This is manifested through a cylinder that reminds me of how a washing machine works. Although the engineering required is probably beyond our time.



**Figure 3: Concept art for Elysium based on Donald Davis Art**

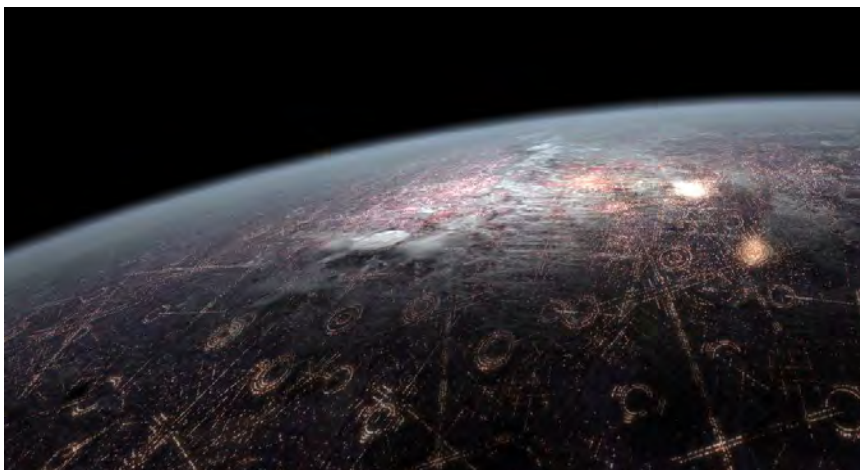
A similar concept to figure 2 designed for humans to colonize space. If one compares this idea to the current space station designs, it is obvious that large scale habitation would fail in the latter. Maybe it comes down to the creation of natural systems rather than artificial space making?

As I delved deeper into the stories and attempted to link and cross reference ideas, I asked myself if we could design for these seemingly possible future conditions. With this in mind, I also toyed with the question of what timeless architecture meant to me and one could achieve it. Can we only really design for the present? How will our present be defined as precedent in the future? Can we practically design for the future? Or better stated as 'projecting a better world into the future renders present day problems more clearly' (M. Gordin, H. Tilley, G. Prakash, 2003, pg1)



**Figure 4: City of Zion (*The Matrix*)**

Zion is a city deep beneath ground near the planet core where it is still warm. Here there is no social hierarchy, everyone lives in the same size cells and are of equal social status. The dystopian issue is the war against artificial intelligence created by humanity. This concept depicts society being brought together when facing extinction.



**Figure 5: Coruscant (*Star Wars*)**

An entire planet as a city. I find this concept fascinating for this a dead world with no natural environments and yet teeming with the sentient life that overpopulates it.

## IDENTIFYING DYSTOPIA

I began to ask myself what dystopia really meant to me. Initially I thought it a world of chaos, which would be a reasonable opposite to the utopian terminology, an environment or society that is disorganized or maybe planned to be intentionally terrible. I found that the very definition of dystopia was quite different.

Could it be that dystopia is rather a utopia that has gone wrong? Where not all the parties are satisfied? What if this utopia did not cater for all society and only functioned for a specific segment of society? (Gordin *et al* 2003, 1).

Could it still be called a utopia? The movie *Elysium* personifies this argument well enough, where the rich cease to live on a war-torn and degenerating earth and instead choose to leave and live on an artificial habitat, where they live longer, in luxury and free of illness. This is a dystopia as it blatantly ignores the majority of civilization and only benefits the select few who can either afford it or were born into that particular class. This dystopia shows us a depressing and unfair reality that could happen if we do not deal with it now (Fritz Lang's *Metropolis* 1927). Even *Elysium's* director could not have agreed more with his statement of 'people have asked me if I think that is what will happen in 140 years, but this is not science fiction, this is today, this is now!' (Blomkamp 2013)<sup>1</sup>

Dystopias are as artificial and premeditated as utopias. Dystopias actually portray social vulnerabilities and problems better than utopias by identifying the breaking points (Gordon *et al*, 2003, 6). Fredric Jameson borrows the term 'critical dystopia' from Tom Moylan (Moylan 2000, 198-9) and likewise argues that there is some utopian intent and meaning which functions as a warning (Jameson 2005, 198). The utopian intent being the seemingly perfect paradise outside earth with its paradoxical condition of being a greatly overt, gated community for the privileged minority.

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<sup>1</sup> He is passionately clear that the film is an allegory for the present more than a warning about the future.

## MEMORIES OF UTOPIA

I remember the last time I was at Cecilia Forest. It was in the spring, a few years ago. We made a turn off Rhodes Drive and parked in a forest. Peculiar, while getting out the car and breathing the fresh air, I suddenly become aware of how easy it was to arrive to this place. By simply turning off a main road, driving a couple of metres and parking, a person can access a beautiful, wooded environment that is open to all. Even Cecilia's neighbour, the Tokai plantation, requires some access route off the highway before driving through estate dirt roads to reach any obvious entrance to the woods. I find that quite special about Cecilia. The forest is right there, alongside the drive to Constantia Nek to get into Hout Bay. The curving road flanked by the trees make the trip a sensuous one by the daylight being filtered through the foliage, the sound of the wind mildly blowing through the trees as well as the trees themselves lending their own rustling to the natural cacophony. While slowing the drive down to 40km/h, the eye cannot help but notice the colours and textures that the surrounding has to offer. This natural enclosure coupled with deceleration somewhat heightening my awareness of the atmosphere.



Figure 6: Past Forest

The road becomes a boundary between the residential suburbia and the dense plantation (which you do not actually register as a plantation until you are inside). This road, winding up along a contour till it reaches a saddle before winding down into Hout Bay, defines the urban edge that is constantly in use throughout the day, particularly in the mornings and in the late afternoons.

Most natural habitats that I have encountered are not as easily accessible as this place and although I always rejoice in seeing people use the park, I am equally surprised that the car park is never full. Throughout my youth, I have spent many days at Hawequas Scout Ranch in Wellington and like Cecilia, it is a pine forest. The environment would be somewhat similar, but getting there was a different matter entirely. One would have to follow a dirt road out of Wellington, along vineyards, cross a small bridge and wind up a steep hill before you reached the gateway to the grounds. Apart from a sign that pointed out of town, there is no other way anyone would notice the existence of such a wonderful environment that can be seen beneath the mountains.

The atmosphere within a pine forest changes with the season. There are always pine needles on the ground since pines shed them throughout the year, but it increases during the winter months. I find that there is always a comfortable sensation when you step out of your tent in the morning to feel those pine needles between your toes. They are packed so densely that it feels like a carpet of sorts. A stiffer texture than grass, but the same feeling of comfort which is constantly appreciating to find in a natural setting.

Whether you are wearing shoes or not, you do notice the difference when you step off the track and detour through the needles. Your footsteps become softer, quieter. Since it is the only element of the forest that you are constantly touching, it betrays your position in space. You still make noise when on the path, with its mixture of gravel, stone and sand, but it is to be expected and therefore you fail to notice it. Since the needles somewhat muffle your progress, its softer resonance becomes unexpectedly loud within the silence of the forest. Strange, that they would betray your position in space through sound and yet not leave footprints or any proof that you were indeed there a moment ago.

When I start walking up the track, I tend to look either ahead, at the path to follow, or at your feet. Again, you tend to concentrate more on where you are going and how you are getting there, that is due to that sense of enclosure provided by the surrounding trees on either side as well as the canopy from above. The pathway is a route that exists for you to follow. It is clear, undisrupted and cuts into the forest space with a purpose to guide you as easily and directly up the mountain as possible.



**Figure 7: Existing Forest**

It came as quite a shock to me when I was on Rhodes Drive, on my way to Constantia Nek, and I could not locate the entrance to Cecilia Forest or rather I went past it without noticing. In relation to memory, the entire space changed instantly. Suddenly I could see the sky, I could feel the heat of the sun more intensely, there was no shade and everything was a lot brighter. From the starting point of the hike I could see the harvested patches of pine trees along the mountainside as well as the areas that were not culled yet. As I looked at how the route wound up the mountain, there was a disappointment in realizing that the mystery that encompassing woodland provided was non-existent. The exposure had me thinking about the Cederberg where there are no trees and you are under the intense scrutiny of the sun giving the time of day and your location.



**Figure 8: Cederberg mountain range**

I was overcome with disorientation when I arrived at Cecilia Forest due to my previous memory of the place that I witnessed a few years earlier. I hardly noticed then that the forest was actually a pine plantation that would eventually have to be culled. The present truth was that the plantation was to be harvested over a twenty year period in order to ultimately rehabilitate the land with indigenous fynbos. As the harvesting process progressed, it created an altered environment revealed by the absence of large swathes of forest. Was this dystopia? Who benefited from the reaping of such a beautiful atmosphere? Even though the future intent of the park was to integrate and preserve the native flora, there was still a state of planned turmoil that the area would have to go through. Ironic that the utopian vision of a rehabilitated, indigenous forest needed a temporary dystopian process to facilitate the transformation.

I do not originally remember noticing the plantation rows that the pine trees were planted in; it all just looked like an average natural forest. When one consults the aerial photography, you can see the ordered spatial composition of the plantation along with some areas that seemed to have lacked the same order. It seemed obvious that they would be planted as such at first, but I did not notice it when the forest had not been harvested. The plantation's existence preceded its essence when you realized that you were not walking through a wild forest anymore. As I walked up to the forestry station, the planted rows became more apparent. Obvious really, this is a plantation after all, but I could not shake this feeling of an unnatural presence exhibited by these timber regiments. It seemed sacrilege to control such a natural environment through systematic configuration.



**Figure 9: Pine regiment**



**Figure 10: Harvested Pine**

Not only were there huge swathes of forest missing, but due to the harvesting process there was an increase of vehicular access as well as the reformation of banks storm water ditches. This added a further alien element suddenly the pathways are unsuitably scaled to the human body.



**Figure 11: Widened track**

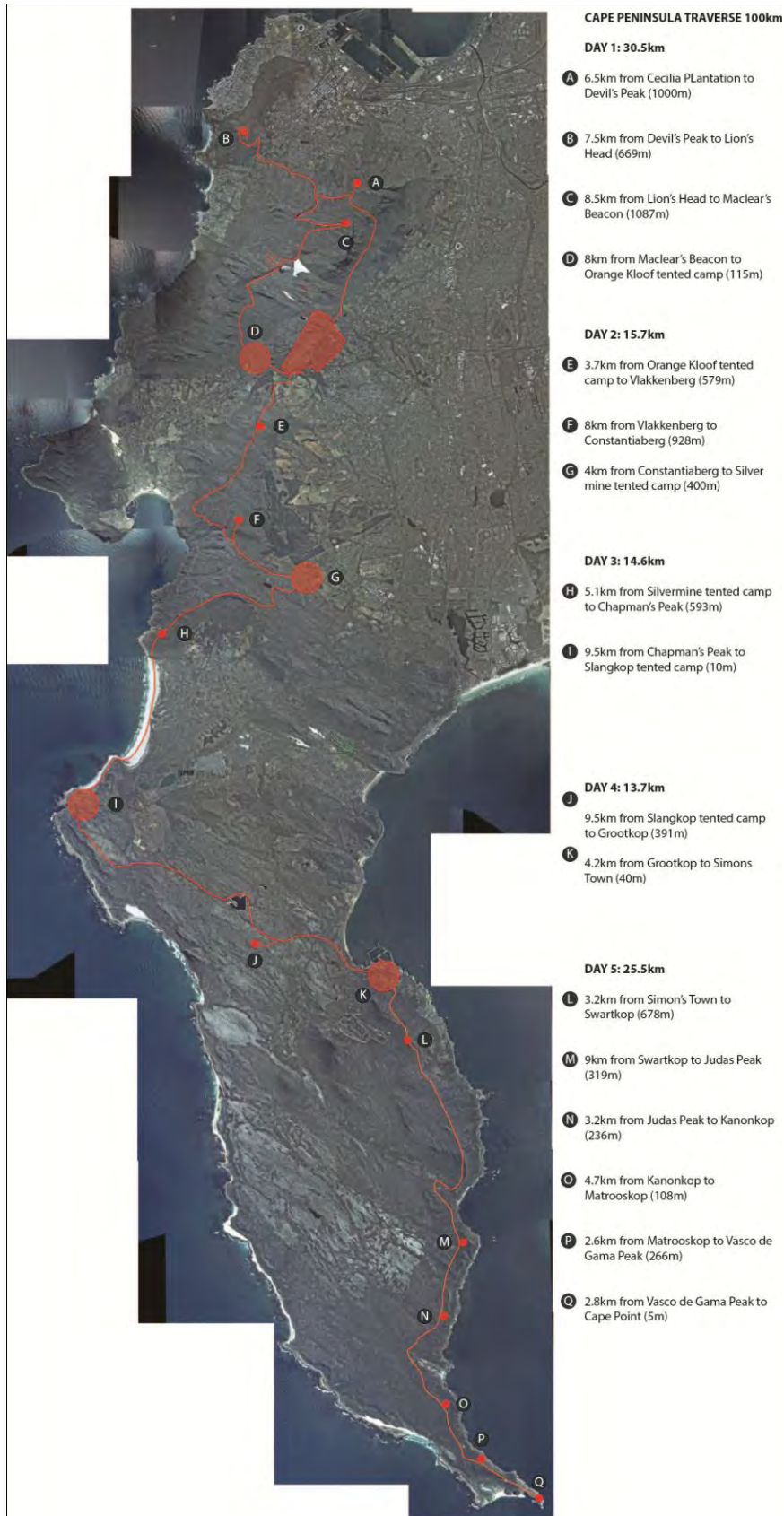
## THE CAPE PENINSULA TRAVERSE

After deciding on Cecilia Forest as my site, I began to look at the greater context to aid my search for an appropriate architectural response. After completing the Drakensberg Grand Traverse in April, I began to explore ways to bring an activity that I am very involved in to my design proposal. The Drakensberg Grand Traverse is a ten day hike across the entire Drakensberg mountain range, from north to south (or vice versa). The journey was about 250km and included both the highest peak in South Africa (Mafidi - 3450m) as well as the highest peak in southern Africa (Thaba Ntlenyana -3482 m).

In relation to Cape Town, I believe that Cecilia Forest as a site could potentially develop into a green gateway from the city into the mountain. If the traverse idea can be realized, it could draw users not just from Cape Town, but also from other cities in the country and maybe even overseas. If several routes could be planned with facilities to accommodate the users, there could be a real interest in mountaineering tourism that has been currently lacking in the city.

While looking at a map of the Peninsula, I realised that although I had extensively hiked certain areas, I had not yet hiked the entire range in one go. After my Drakensberg experience, I decided to find out if one could actually do it. There is a route that one can take that mostly follows the Hoerikwaggo trail, but it is a very easy route that passes past many peaks as well as forcing you to take transport after Simon's Town to reach Cape Point. This route, in conjunction with SANParks, is a 5 day, 87.9km hike that is planned out as follows:

- Day 1, Cape Town to Orange Kloof Forest (18.4km)
- Day 2, Orange Kloof Forest to Silvermine (17.5km)
- Day 3, Silvermine to Kommetlie (18km)
- Day 4, Kommetlie to Simon's Town (17km)
- Day 5, Simon's Town to Cape Point (17km)



**Figure 12: Cape Peninsula Traverse Map**

This idea assisted in driving the programme of the design proposal thereby tying Cecilia Forest and the site with a greater scheme. What I sought to achieve with this new route was a hiking experience that encompassed:

All the major peaks in the peninsula

All the night stops are in tented campsites (except Simon's Town)

No transport needed. Access to private land and reserves needed.

Multiple difficulty routes (chilled, average and hardcore)

## THE VISION OF CECILIA FOREST

After the initial shock of the existing conditions in Cecilia Forest, I explored the plantation to better understand the entire situation. This had a catalytic effect which drove me to enquire more about how and why there had been such a drastic change of context. After the initial investigation, I could foresee that the site was destined to change, thereby adding an aspect of time with the tectonic flux of landscape as a fourth dimension to the study.



**Figure 13: Cape Town  
Aerial Photograph with  
Cecilia Forest indicated**

Since the South African National Parks was assigned the management of Cecilia Forest in 2005, the Table Mountain National Park has been responsible for the plantation management as well as the 'exit lease' whereby Mountain to Ocean Forestry has been granted the right to harvest about 600 hectares of plantation over a twenty year period i.e. 2025 (Tokai and Cecilia Management Framework 2009, pg. v) (APPENDIX A). The vision for Cecilia Forest consists of four themes that have been mapped with informants and objectives identified:

- The biodiversity theme that deals with the restoration of the ecological corridors, wetland systems, Afromontane forests, Peninsula Granite Fynbos, Cape Flats Sand Fynbos and Silver Trees.
- The heritage theme consisting of interpretation of the plantation colonial and pre-colonial history.

- The recreation theme is to facilitate the current activities during the transition as well as manage the ‘shaded landscapes’ or ‘transition areas’.
- The eco-tourism theme is to provide for a higher volume of visitors as well as introduce new ecotourism products and job creation through the plantation rehabilitation.

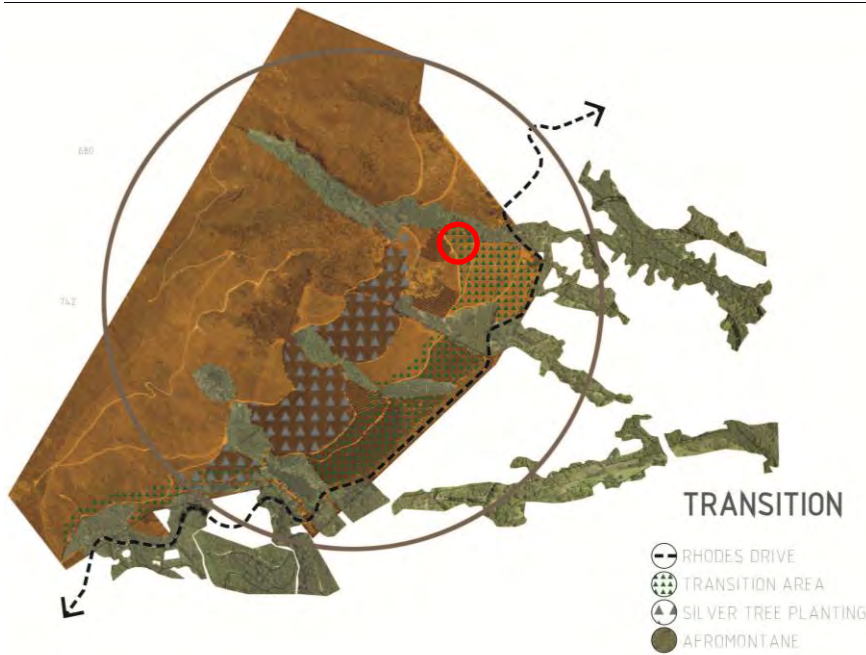
A particular aspect of the rehabilitation process that I found interesting was the implementation of ‘Transition areas’. This concept was developed in the management framework process to facilitate the need to safeguard heritage and biodiversity resources while maintaining recreational activities throughout the park. These areas are to be replanted with non-invasive exotic trees in limited locations along the periphery as well as to consolidate existing planted areas. In these ‘transition areas’, the initial pine harvesting will be followed by a controlled burn after which an eight year period of fynbos growth for seed to be dispersed into the soil.



**Figure 14: Transition Area (Tokia and Cecilia Management Framework 2005-2025, 2009)**

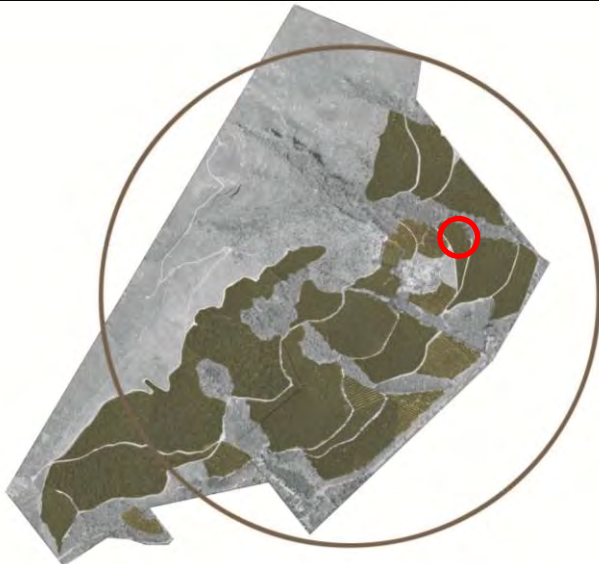
Thereafter appropriate pine trees can be re-planted to offer shaded recreational areas as well as urban interface landscape. After about twenty years, these pine trees are again harvested for fynbos to return to the area (*Tokia and Cecilia Management Framework 2005-2025, 2009*). The tree as a symbol is one of rejuvenation, transformation and of life. In a way these transition areas are regenerative as they are process and environments that succumb to eradication, only to return as symbiotic flora that links with the already growing fynbos. A successful rebirth of the natural setting. (APPENDIX B)

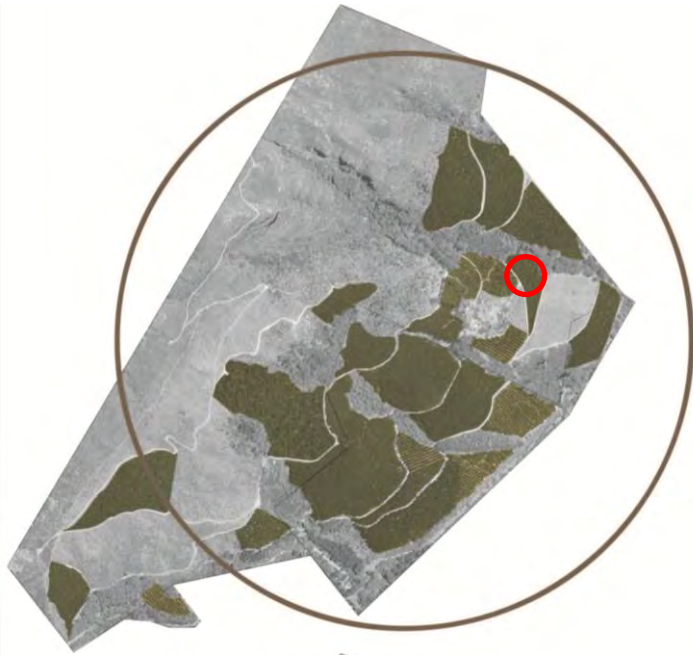
**Figure 15: Harvest Schedule for 2005**



The following maps were created to understand how the harvest process to change the plantation landscape. The process was planned to take about twenty years (2005 - 2025) and they starting out felling from the top down so that the restoration would hopefully blend in from the mountainside first. By 2025, the entire plantation should be harvested along with portions of the upper slopes being on their way to being populated with Granite and Sandstone Fynbos.

**Figure 16: Transition Map**





**Figure 17: Harvest Schedule for 2010**



**Figure 18: Harvest Schedule for 2015**



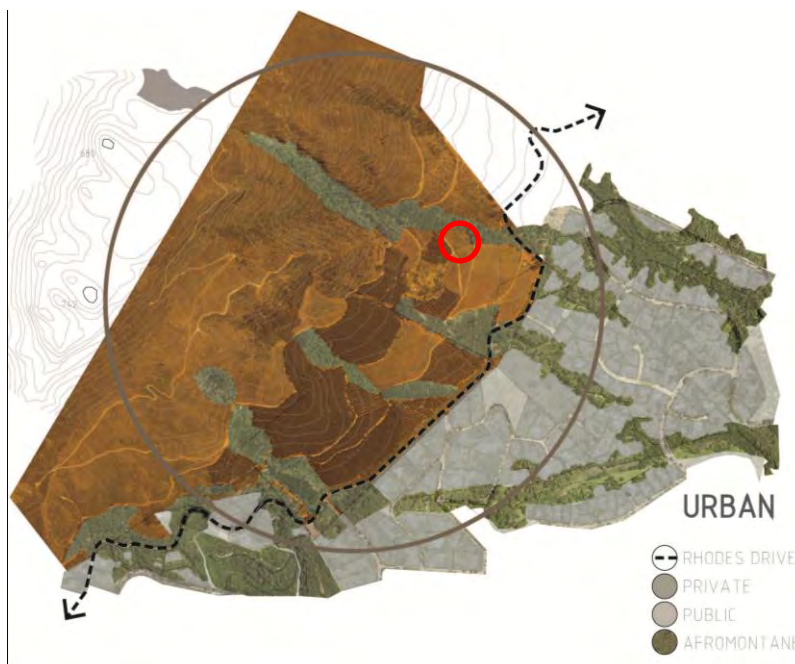
**Figure 19: Harvest Schedule for 2020**

## MAPPING

After various hikes in Cecilia Forest in search for a suitable site, I began to map out certain aspects that I found interesting. I found that there was no connection between the forest and the urban fabric apart from Rhodes Drive that cuts both areas so distinctly. The only way for the public to access the forest is through the entrance into the parking lot off Rhodes Drive. During my research I discovered the statistics regarding the number of visitors of Cecilia Forest (Visitor Survey, Base Info Report, 2006).

- 44% of visitors are members of an organization (i.e. hiking clubs, nature groups, scouts)
- People use their own vehicles to travel to Cecilia Forest
- Visitors are mostly Capetonians
- Visits are due to cape town attractions more than visits associated with organizations
- People usually spend about 2.2 hours walking

I noticed that the afromontane trees or riparian corridors indicated some sort of connection between both areas. After another site visit it became obvious that these corridors were sources of natural streams that fed into storm water systems and lower rivers such as the Liesbeck.



**Figure 20: Afromontane Connection**

While these afromontane corridors crept up the mountainside, the lower halves that were in suburbia tended to link up to open, public spaces within the suburbs of Groot Constantia.

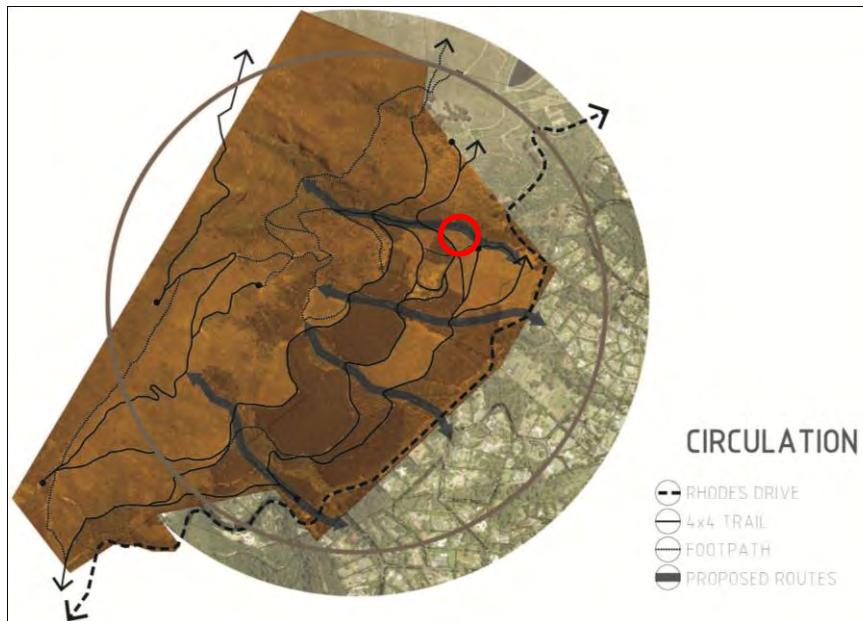


Figure 21: New Circulation

Since the riparian corridor of afromontane trees are the only indigenous trees in the area and that no one really experiences them due to the hiking and 4x4 trails running along the contours with any ascent being along a slight gradient. There was an opportunity to integrate the afromontane trees to the existing circulation by creating a path beginning in suburbia, thereby linking the urban realm to the natural realm, and ending at the routes on the upper slopes. This connection bridges the divide through pedestrian access that can allow the residents of Groot Constantia to walk from their houses, across a bridge, into the forest and have a choice between a relaxing saunter or a direct ascent to the Hoerikwaggo Trail that leads up Table Mountain.

Activity at the old forestry station is now limited to SANParks staff housing that are not fully used throughout the year. As the commercial plantations are phased out, the forestry station and infrastructure that services it will be evaluated for management suitability. They will probably be phased out as well to reduce the visual impact from the landscape (Tokia and Cecilia MF, 2009, 17).

Apart from the three dwellings that are rarely inhabited, the rest of the structures are either closed and not used or slowly starting to degrade. I initially wanted to incorporate the existing building facilities into my proposal, but after investigation I found that there were plans to eventually phase them out after the rehabilitation process. The few buildings that are located in the area make up the old forestry station. They consist of:

- three dwellings 953m<sup>2</sup>
- garage 164m<sup>2</sup>
- three stores 334m<sup>2</sup>
- shed 102m<sup>2</sup>
- Office 164m<sup>2</sup>

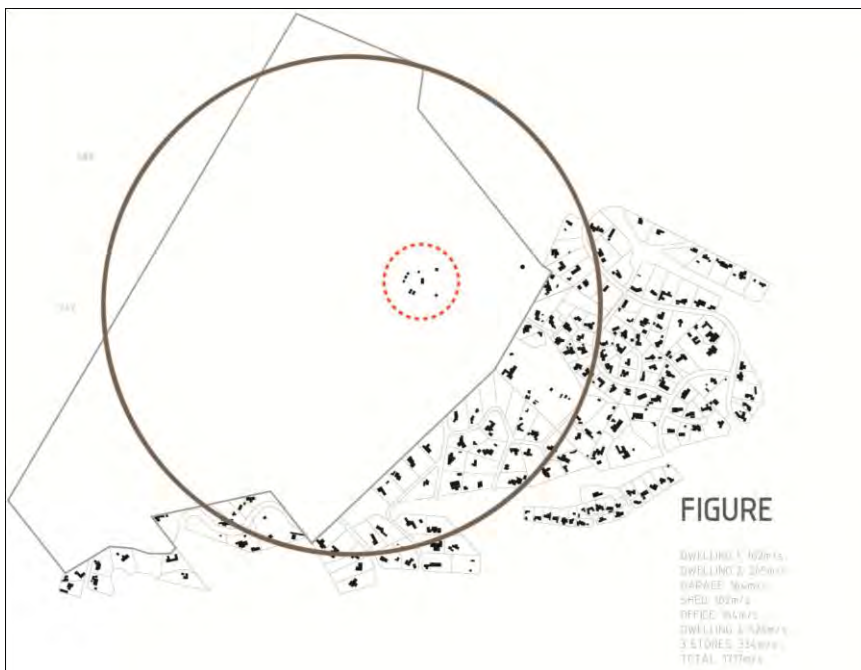
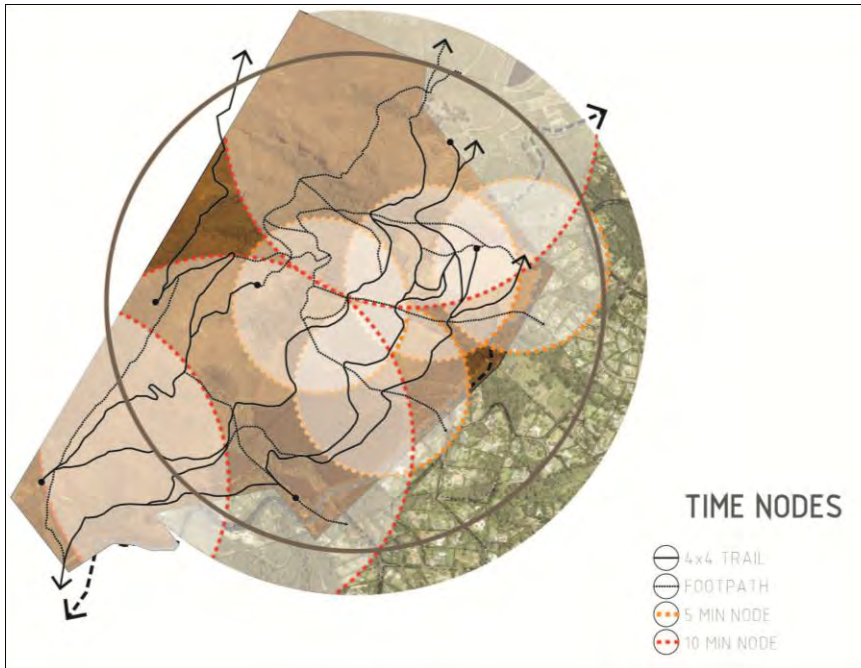


Figure 22: Figure Ground

To ground any intervention to such a sensitive site, the idea of consolidating the existing built mass to the proposed location seemed a legitimate one. The total area of the forestry station consists of 1717m<sup>2</sup>, which helped to set a constraint to within this seemingly untamed context. Even though there could be resistance to construction in the forest, it could be argued it is simply a reallocation of infrastructure and recreational facilities to accommodate the vision for Cecilia Forest as well as the greater scheme.

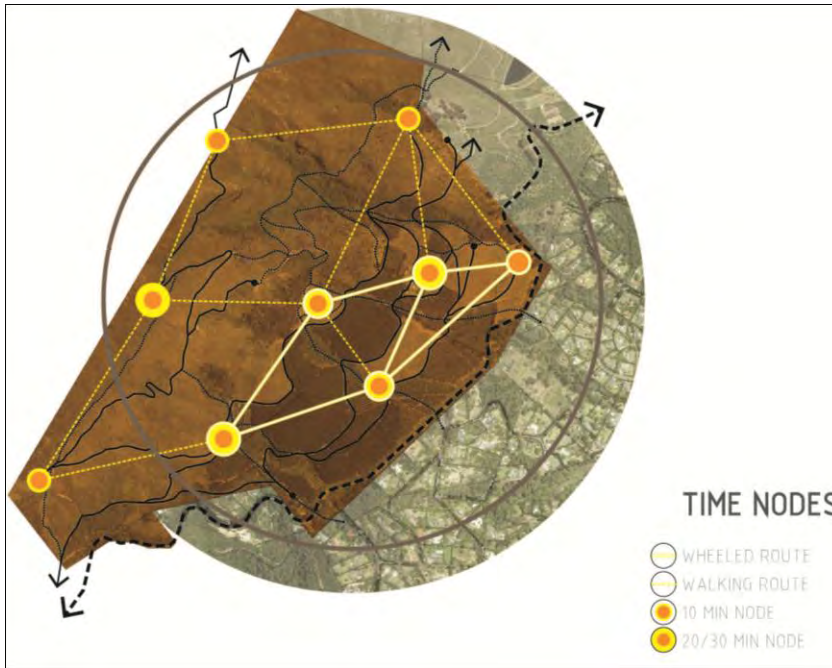
Figure 23: Time Nodes



In order to better understand the current circulation, I measured my walking within the site and compared the distance to the time it took to walk. I figured out that people, on average, walk about 5km/h. Hiking, on the other hand, takes about 4km/h with some sort of pack. If it takes that long for a person to hike, then it should take them 1 minute to hike 60-70m. This could mean that it takes 5 minutes to cover roughly 350m or 10 minutes for about 700m. The Time Node map (above) shows the distance that can be covered in 5 and 10 minute intervals that begin to show areas or junctions where there could be a pedestrian facility such as a water point, bench or rest stop. These junctions are planned according to an average hiking enthusiast's comfort.

Walking in Cecilia forest is not really a hike. It is more of a departure point in order to access the peaks and plateau of the TMNP. Apart from the occasional hiker, most visitors are nearby residents that come to walk their dogs or stroll with their baby prams on a nice sunny day. Since there is a predominant 4x4 trail that circulates throughout the site and that is the route that is primarily taken by these people, I thought about accessibility for wheelchairs and facilities that could focus on that type of user.

This mapping led to the idea of the existing route being able to be marked according to difficulty with regards to people pushing wheeled apparatus.



**Figure 24: Difficulty Assessment**

After mapping out the key elements that could influence my design proposal, it became apparent that the intervention would cater for two groups of people:

- Hikers that need a place to stay for the night
- Hikers, dog walkers, strollers, cyclists and runners that would use the park for a short period of time

This conclusion prompted me to create the private and public functions that could be facilitated in the design. It also indicated the size of building that was required to my understanding in conjunction to figure 22. What was most important was to question who was going to use this facility and what they were going to use it for. Personally, I would fall into the hiker category and after consulting several like-minded friends, we agreed that there are only two functions that we would require of such a facility, that being a hot shower and a soft bed. As a daytime stroller, there would be a need for shaded seating, food and drink with an after hour possibility of a seminar space or exhibition area that can be used by people other than outdoor enthusiasts.

## **MOUNTAINEERING BASECAMP**

The procedures that related to the deforestation process were fundamental to locating an appropriate site. The site was chosen due to its access from the car park, as well as its proximity to an established junction or crossing of routes, both vehicular and pedestrian. The slope faces east which presents a broadside that follows the contours to make use of the morning and afternoon sun. Since the site is only used till late afternoon, there might not be a need for afterhours use, which poses a question in deciding if that has to be the case? Can the project facilitate flexibility in function especially at different times of day? Can people be able to use the park afterhours other than accommodation?

The idea of a mountaineering basecamp came about from my experiences in hiking and I began to question the programme of such a facility within the site. The idea eventually led to manifestation of the macro scheme which, in turn, assisted in addressing the functions of the proposal. I have settled on a small facility that not only caters for hikers, but people who just need a room for the night, a place to relax or who can use the building without being associated with hiking and accommodation:

- Hiking gear and repair shop
- Café
- Seminar room
- Accommodation
- Communal space
- Ablutions

The accommodation would be the main function as the building would act as a pit-stop or departure point into and from the TMNP. The housing is divided into three categories:

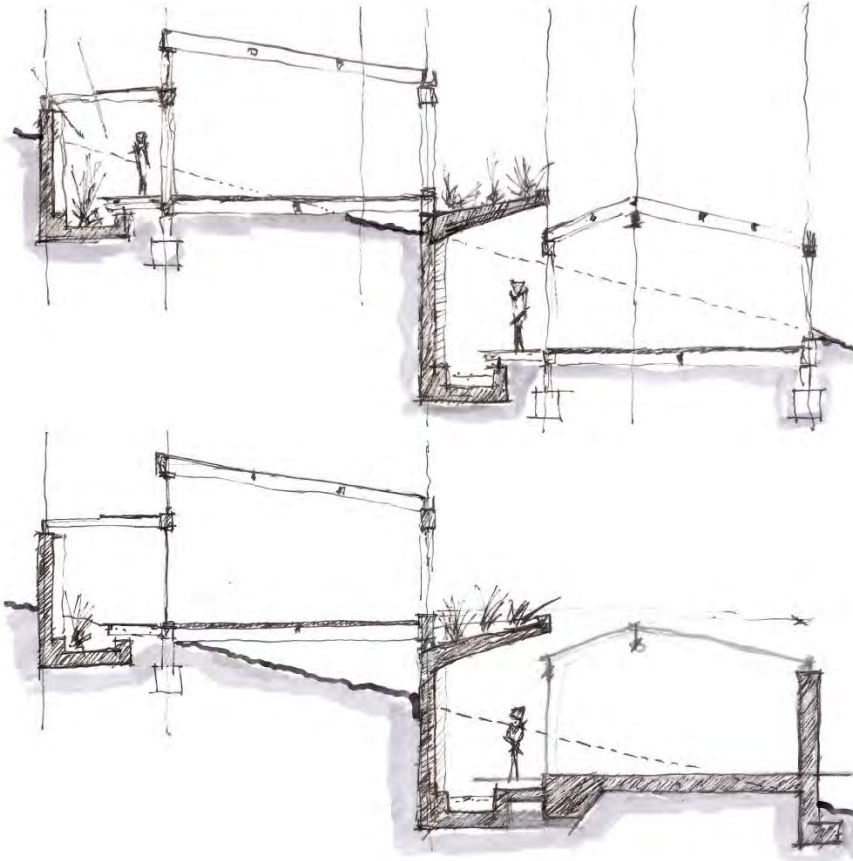
- 2 single beds / bunk bed
- 4 single beds / 2 bunk beds
- Family of 4 / queen bed and a bunk bed

This function was initially designed to perform as a component by itself, but eventually progressed to work as several components within the accommodation directive. The family rooms would be separate from the bunks / backpackers vibe with their en-suite bathrooms and large communal area. While the backpacker lodgings would form into two components that have their own ablution block and communal dining and social space.

The public side of the intervention consists of the café to cater for healthy snacks, coffee and lunch as well as the hiking shop that would stock items that you would probably forget at home but need for a hike i.e. maps, medical supplies, bootlaces, sun protection. If the shop could get sponsored by a hiking gear company such as K-Way or First Ascent, then the shop could be another outlet for proper gear like boots, clothing and bags. If the proposal could be sold as a gateway into the TMNP, then such sponsorship could be possible.

The seminar facility can be used by hikers returning from a trek to share or upload photos or even watch their GoPro videos together before departing home. Multimedia facilities will be available for talks and presentations that can expand the public use of the building beyond the late afternoon run and into the night for people or organizations that require a venue. The space could also facilitate an educational role regarding various topics such as mountaineering, the flora and fauna of the site as well as the future vision of Cecilia Forest.

When I considered the site and how a structure could work with it, I initially designed a lightweight structure that would touch the earth lightly and float over the landscape. I decided that at the a 1:5 gradient, the excavation needed for piling and pad footings would do as much damage as building with a closer connection at ground level. The idea of terracing a stretch of land came about by retaining the earth via a heavy mass construction and attaching a secondary structure to better blend in with the main façade that would be facing east and down the mountain.



**Figure 25: Concept sketches**

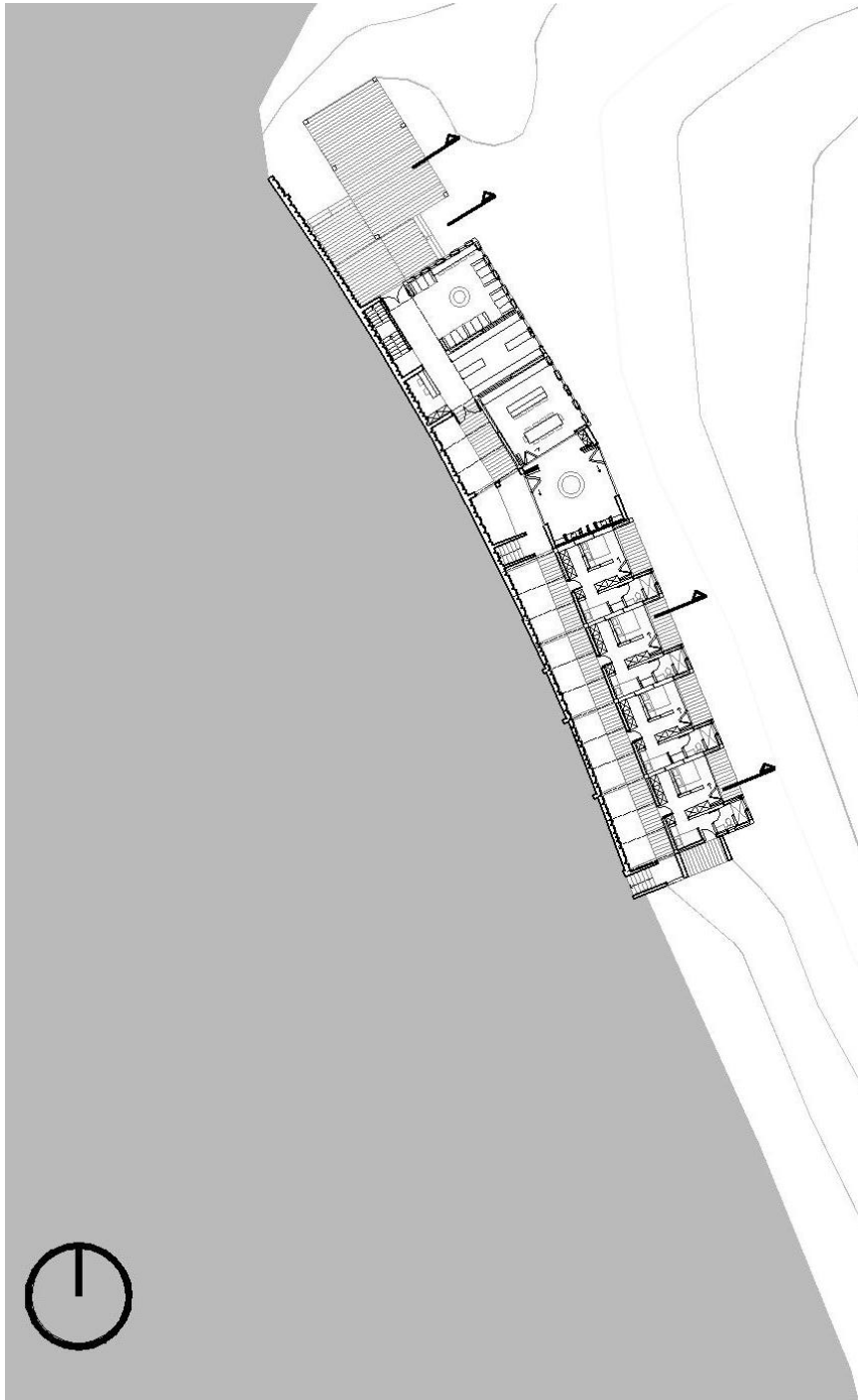
These were an exploration of the concrete retaining wall that is doubly used as structure for the timber frames that form the building.

Levels were assessed in order to lessen excavation as well as determining a relationship with the natural ground level.



**Figure 26: Site Plan**

Positioning of the building was due to the proximity of the existing path as well as the afro-montane forest. The building is seen as an extension of the path or destination point along the route. The closeness to the forest provides a safe evacuation route that is away from areas that are likely to be burned.



**Figure 27: LVL 1 Plan**

Before the entrance is a shaded platform to facilitate a meeting point for people on their way up the mountain.

The entrance is followed by an indoor fireplace and a stairway that leads up to the café area as well as the ablutions.

The control point of the accommodation also serves as the control point for the small shop which has its own store.

The family communal space separates the public from the private on this level which includes a stairway to the level above.

The accommodation consists of four family suites, each with an ensuite and a covered veranda.



**Figure 28: LVL 2 Plan**

The top end of the building consists of the public seating area that forms part of the café with the kitchen being accessible from a service yard behind the building.

The hiking accommodation begins on the other side of the break between the public and private functions. The accommodation consists of three bunk rooms, three double bunk rooms, a WC block, a shower block and two communal spaces with an integrated outdoor fire / braai pit.

The communal space opens up on both sides exposing the residents to the eastern views of False Bay as well as the western views of the mountain while simultaneously joining the outdoor braai pit to create one open social space that can enjoy the outdoors.

## FIRE RESISTANT TIMBER

After researching the Radiata Pine, it appears that it is a decent timber to use over a range of functions i.e. façade, screens, decking, etc. Despite this, there is an opportunity to incorporate the plantation's own produce as an architectural element, thereby expanding on the concept of regeneration that links the project more with the site. The site is situated within a 'transition area', which already forecasts a changing landscape that can set up parameters and opportunities for design. Maybe the building would to answer somehow to the problem of fire? Will this building be able to withstand such heat?

The idea of Heavy Timber Construction came to mind when trying to address the fire resistant issue regarding the planned burning of the site to germinate the fynbos seeds. HTC fire resistance is attained by placing limitations on minimal sizes and eliminating as many air spaces as possible. This leads to interesting details and member sizes. The HTC concept was an idea for structure, so essentially a framed structure that had to have some sort of infill panel as walls.

I tracked the harvested lumber from the plantation to the Cape Pine distribution mill in Somerset West. When I arrived there I discovered that a lot of timber was redirected to a laminating mill close by.



Figure 29: Laminating Mill



**Figure 30: Laminated 38mm beams**



**Figure 31: Laminated 150mm posts**



**Figure 32: Laminated 75mm beams**

If I could combine both timber construction methods by using the HTC idea, but instead of solid members, using laminated members that are stronger and easier to cut, I can start to design a timber structure that is not only sustainably reusing the site, but also substantially fire proof against the inevitable blaze that will occur. This investigation began with exposing the standard sized members to fire over a period of one hour in order to understand the charring rate at which fire effects solid timber. The results were that wood is definitely a tough material to burn through if you do not have a fire right up close to it.



**Figure 33: Charred members**

After an hour of being right next to a fire, the result is that there is about an even 5-10mm charred layer that was protecting the wood from burning further.

The exterior cladding as initially a thicker sized member, but eventually changed into a charred finished standard member that can naturally withstand fire and as well as being an alternative insect repellent.

This concept developed into a framed structure with an envelope of laminated walls and roof with a charred vertical timber cladding on the outside and horizontal timber cladding with standard framed walls on the interior.

In linking the construction process with fire and timber, I decided to experiment with forming the concrete work with the existing timber pieces on site as an additional recycling integration of the plantation. After obtaining a permit to cut and take pieces of felled timber from the site (APPENDIX C), I used them to form a 1:1 detail of how the retaining wall could look like. The idea was to use the timber as formwork on the visible side of the retaining wall, along the circulation, with the hope that instead of removing the formwork by hand, it could be removed by fire.



**Figure 34: Retaining wall  
concept sketch 1**



**Figure 35: Retaining wall 1**



**Figure 36: Retaining wall 2**



**Figure 37: Retaining wall 3**



**Figure 38: Retaining wall 3**

This took over three hours to burn off, further proving that fire will have a hard time going through 150mm of laminated timber, provided that the fire is burning right next to it for three hours straight.



**Figure 39: Retaining wall 4**

The end result is a textured concrete face with colours ranging from grey, to brown, to black. Not only will there be a visual and physical finish, but a sensory one as well with regards to smell.



**Figure 40: Site model**



**Figure 41: Circulation model**



**Figure 42: 1<sup>st</sup> design**

The building's levels were split up to accommodate function (public, shared, private) to control access.



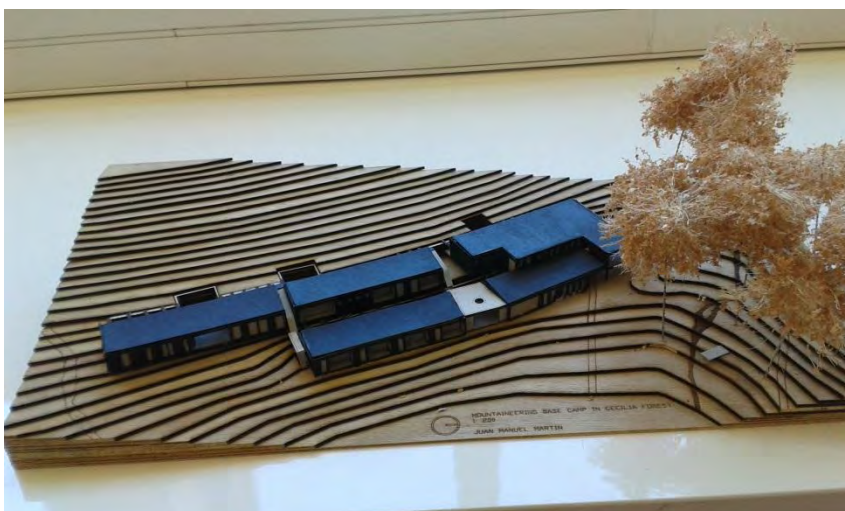
**Figure 43: 2nd design**

The building was simplified and enlarged, with a slight increase in bulk to compensate for the foot print loss.



**Figure 44: 44design**

Here the design is simplified even further formal decisions, but with added



**Figure 45: Final design**

## CONCLUSION

In response to the dystopian condition of the plantation where previously it was a site that only a few people managed to visit and only for short periods of time, with this new scheme to the plantation that is part of a larger idea to expose like-minded mountaineering individuals to experience the Cape Peninsula as an adventurous trek rather than a planned tourist route.

I have also identified another dystopian condition within the site, which related to me personally from previous memory. In this case it was both the existence of the plantation, as an artificial representation of a natural environment (forest) as well as the harvesting process in terms of spatial experience. Later I discovered that even the actual pine tree related to dystopian characteristics, as it absorbs so much water that there is barely any other symbiotic flora within the adjacent ground scape.

The use of the site's own timber is a sustainable pursuit in minimizing the impact of construction in this sensitive context. Utilizing the member concept of heavy timber construction with the modern addition of lamination as a structural solution, there is a sound solution in building with timber. As well as a construction alternative to conventional building methods, it serves as reminder of what was once there thereby retaining a little history of the site and its original purpose.

The architecture is modest to complement the potentially rich landscape but is also capable of standing out due to black finish and seemingly monolithic form that nestles within the earth surrounded by indigenous vegetation.

My building is an evocative response that uses fire, the foreseen destructive element during the site's rehabilitation process, to create a new environment through construction and finish, akin to the germination of fynbos.

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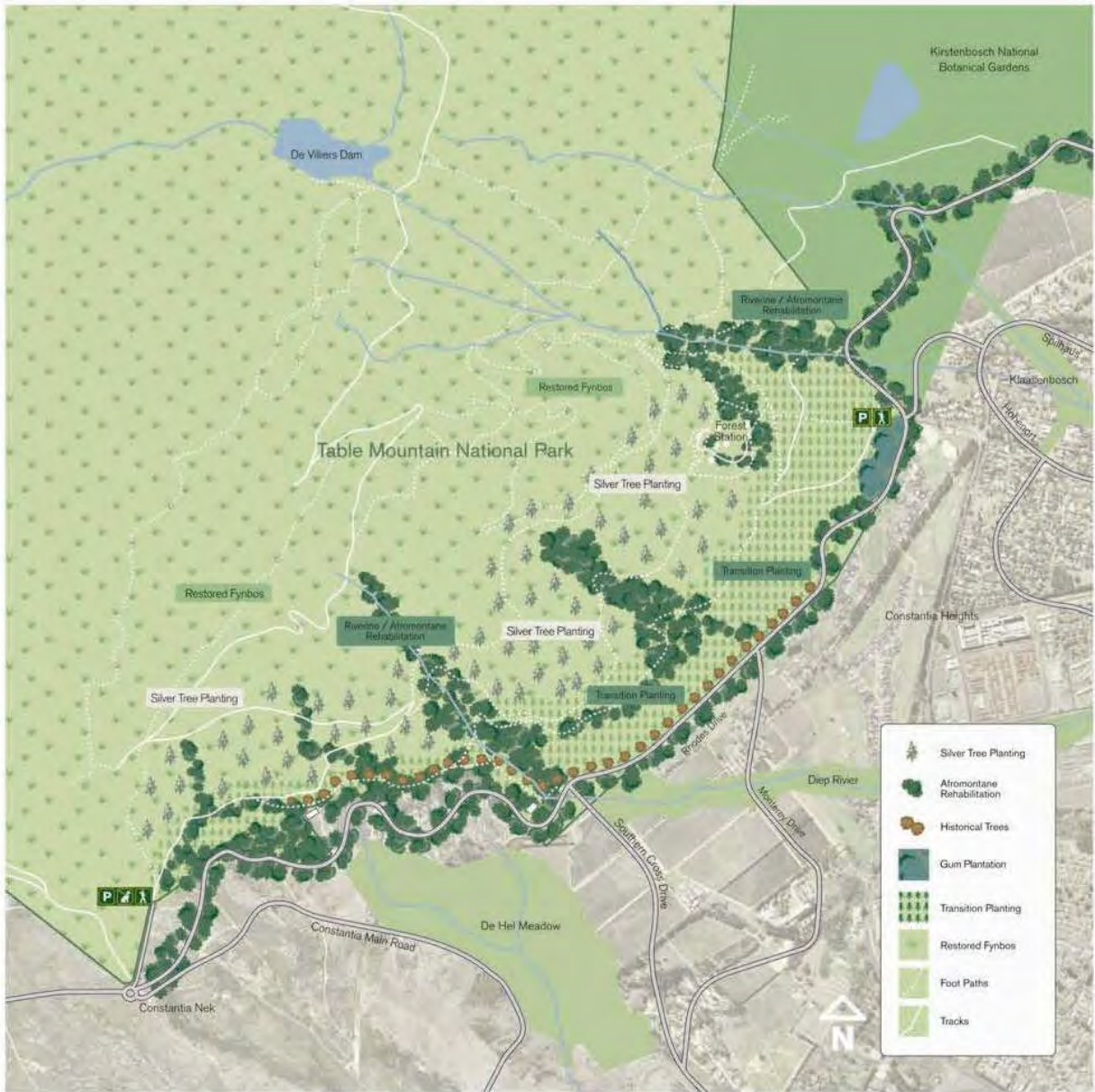
**Martin J, (2014) Diagrams, mapping, photos and sketches unless otherwise stated.**

## APPENDIX A: CURRENT CECILIA PLANTATION



Tokia and Cecilia Management Framework 2005-2025, 2009

## APPENDIX B: CECILIA PARK FUTURE VISION



Tokia and Cecilia Management Framework 2005-2025, 2009

**APPENDIX C: WOOD COLLECTION PERMIT**



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EMAIL : CHAMELLP@SANPARKS.ORG  
WEB SITE: HTTP://WWW.TMNP.CO.ZA

27 Augustus 2014

**PERMISSION FOR COLLECTION OF FIREWOOD**

Permission is hereby granted to Juan Martin for wood collection of Radiata Pine ( 5 pieces of 300 mm x 100mm in diameter ) purpose of studies in Cecilia Forest  
The permit is valid for the 27/08/2014- 30/08/2014

**Operating vehicles : No operating vehicles**  
Contact Details [juandasavage@gmail.com](mailto:juandasavage@gmail.com)

Due to the change or likelihood of a fire occurring as a result of an increase in the FDI (Fire Danger INDEX), the following activities will not be allowed within TMNP when the FDI exceeds 60, i.e. on Orange and Red Days.

These activities includes (although not limited to) the following:

- The use of brush cutters for bush clearing or maintenance of fire breaks as this can result in sparks igniting the vegetation.
- The use of chainsaw for tree felling as this can result in sparks igniting the vegetation – sparks are usually caused due to poor maintenance of the machine
- The use of angle grinders for cutting causing sparks
- The use of welding equipment that can also cause sparks.
- Any other ancillary equipment which is likely to cause ignition to the vegetation.

**General rules to be observed**

- **No open fires or gas fires for cooking will be allowed**
- **No smoking other than in designated areas determined by the supervisor**
- **No burning of rubbish or any other material even in containers will be allowed.**

We are currently facing the falling of rocks on the Management Track be advised that National Park will not be responsible for any problems that may occur , you access at your own risk. Please ensure that the permit is available at all times during the visit. Please remain on the agreed management track (no off-road driving), and do not block the any access point /Gates. Conditions of National Park apply .Your vehicle must be parked in a safe place Table Mountain National Park will not be responsible for any for any loss or damage. We are experiencing a falling of rocks on the Jeep Track; you will be on that road at your own risk National Park will not be responsible for any problems that may occur. The Table Mountain National Park has the right to cancel the permit at any time. Further enquiries please do not hesitate to contact me Chamell Pluim @ Mt Pleasant @ 021 4222 803 (o/h) In the case of an emergency, please contact the Shared Services Control room @ 0861106417(all hrs).

Regards  
Chamell Pluim  
Section Ranger  
Table Mountain National Park

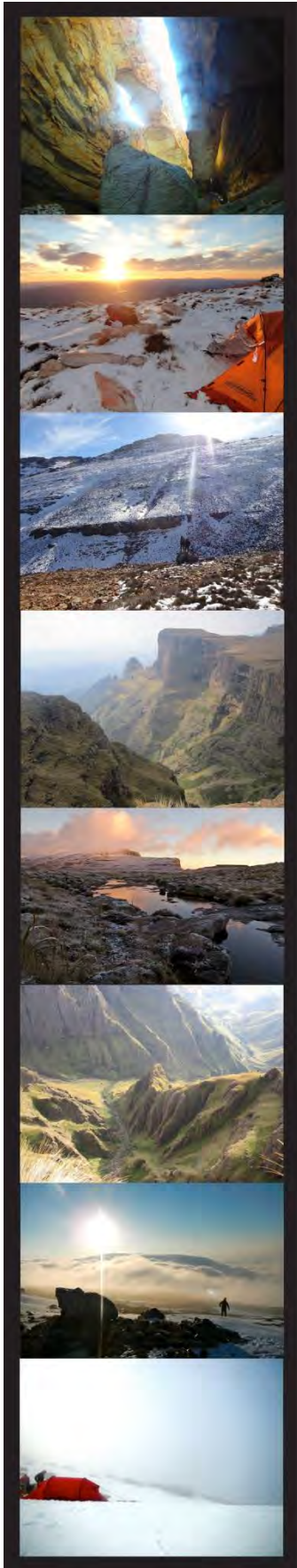
I, JUAN MANUEL MARTIN DO HEREBY AGREE TO ABIDE BY ALL THE CONDITIONS ATTACHED TO THE ISSUE OF THIS PERMIT.

SIGNATURE signature removed

DATE 27/8/2014

## **APPENDIX D: FINAL PRESENTATION**

Please see following pages.



## A MOUNTAINEERING BASECAMP AT THE PINE PLANTATION IN THE DYSTOPIA OF CECILIA

I am a mountaineer. I hike, I climb and I camp (mostly without a tent, unless it snows of course. I consider myself relatively experienced in all aspects of the activity and physical conditions and this led me to question as to why I had not fully explored the Cape Peninsula from a hiking perspective. The siting of my project came about while I was riding my motorbike on Rhodes Drive on my way to Camps Bay for sundowners. As I rode past the parking entrance, I did not realize that I had passed Cecilia Forest, a pine plantation that was currently being harvested in order to rehabilitate fynbos. This led to me linking Cecilia Forest in an urban scheme to expose hikers and the public to the beautiful mountains that lie in the peninsula through an adventurous trek.

**MACRO PLAN**  
1-50 000



## CAPE PENINSULA TRAVERSE - 100km

- TRAVERSE ROUTE
- TOURIST TRAIL
- TRANSPORT
- OVERNIGHT STOP
- PEAKS

### DAY 1: 30.5km

- A** 6.5km from Cecilia Plantation to Devil's Peak (1000m)
- B** 7.5km from Devil's Peak to Lion's Head (669m)
- C** 8.5km from Lion's Head to Maclear's Beacon (1087m)
- D** 8km from Maclear's Beacon to Orange Kloof tented camp (115m)

### DAY 2: 15.7km

- E** 3.7km from Orange Kloof tented camp to Vlakkenberg (579m)
- F** 8km from Vlakkenberg to Constantiaberg (928m)
- G** 4km from Constantiaberg to Silver mine tented camp (400m)

### DAY 3: 14.6km

- H** 5.1km from Silvermine tented camp to Chapman's Peak (593m)
- I** 9.5km from Chapman's Peak to Slangkop tented camp (10m)

### DAY 4: 13.7km

- J** 9.5km from Slangkop tented camp to Grootkop (391m)
- K** 4.2km from Grootkop to Simons Town (46m)

### DAY 5: 25.5km

- L** 3.2km from Simons' Town to Swartkop (678m)
- M** 9km from Swartkop to Judas Peak (319m)
- N** 3.2km from Judas Peak to Kanonkop (236m)
- O** 4.7km from Kanonkop to Matrooskop (108m)
- P** 2.6km from Matrooskop to Vasco de Gama Peak (265m)
- Q** 2.8km from Vasco de Gama Peak to Cape Point (5m)

The ideas for the traverse to include as many peaks within reason in terms of distance and climbs. The major climbs are in the first three days with the long gradual treks on the last days. Considering that you carry your own food and tent, this hike is for people who can handle the physical aspect, but there are opportunities for drop offs at Kloof Nek, Constantia Nek, Slangkop, Simons' Town and the Cape Point reserve entrance.

In relation to Cape Town, I believe that Cecilia Forest as a site could potentially develop into a green gateway from the city into the mountains. If the traverse idea can be realized, it could draw users not just from Cape Town, but also from other cities in the country and maybe even overseas. If several routes could be planned with facilities to accommodate the users, there could be a real interest in mountaineering tourism that has been currently lacking in the city.

There is a route that one can take that mostly follows the Hoerikwagvoeg trail, but it is a very easy route that passes past many peaks as well as forcing you to take transport after Simon's Town to reach Cape Point. This route, in conjunction with SANParks, is a 5 day, 87.9km hike that is planned out as follows:

- Day 1, Cape Town to Orange Kloof Forest (18.4km)
- Day 2, Orange Kloof Forest to Silver mine (13.5km)
- Day 3, Silvermine to Kommetjie (18km)
- Day 4, Kommetjie to Simons' Town (17km)
- Day 5, Simons' Town to Cape Point (17km)

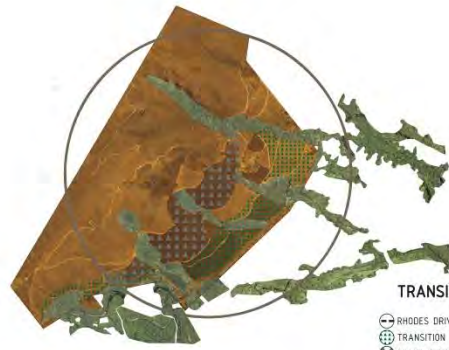




The following maps were created to understand how the harvest process to change the plantation landscape. The process was planned to take about twenty years (2005 - 2025) and they starting out felling from the top down so that the restoration would hopefully blend in from the mountainside first. By 2025, the entire plantation should be harvested along with portions of the upper slopes being on their way to being populated with Granite and Sandstone Fynbos.

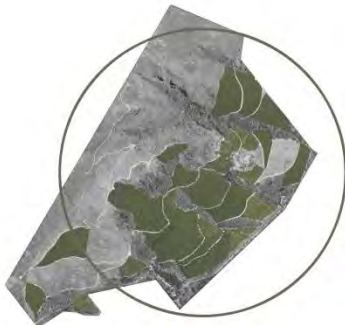
2005

A particular aspect of the rehabilitation process that I found interesting was the implementation of 'Transition areas'. This concept was developed in the management framework process to facilitate the need to safeguard heritage and biodiversity resources while maintaining recreational activities throughout the park. These areas are to be replanted with non-invasive exotic trees in limited locations along the periphery as well as to consolidate existing planted areas. In these 'Transition areas', the initial pine harvesting will be followed by a controlled burn after which an eight year period of fynbos growth for seed to be dispersed into the soil. Thereafter appropriate pine trees can be re-planted to offer shaded recreational areas as well as urban interface landscape. After about twenty years, these pine trees are again harvested for fynbos to return to the area.



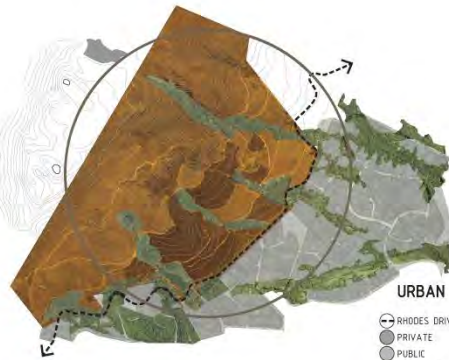
TRANSITION

- ⊖ RHODES DRIVE
- ⊖ TRANSITION AREA
- ⊖ SILVER TREE PLANTING
- ⊖ AFROMONTANE



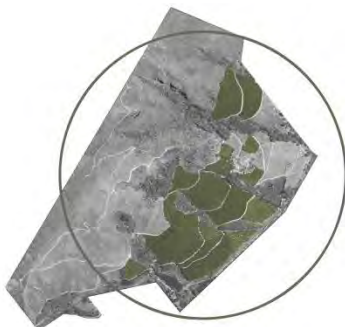
2010

I noticed that the afromontane trees or riparian corridors indicated some sort of connection between both areas, and it became obvious that these corridors were sources of natural streams that fed into storm water systems and lower rivers such as the Liesbeek. While these afromontane corridors crept up the mountainside, the lower halves that were in suburbia tended to link up to open, public spaces within the suburbs of Groot Constantia. Since the riparian corridor of afromontane trees are the only indigenous trees in the area and that no one really experiences them due to the hiking and 4x4 trails running along the contours with any ascent being along a slight gradient. There was an opportunity to integrate the afromontane trees to the existing circulation by creating a path beginning in suburbia, thereby linking the urban realm to the natural realm, and ending at the routes on the upper slopes. This connection bridges the divide through pedestrian access that can allow the residents of Groot Constantia to walk from their houses, across a bridge, into the forest and have a choice between a relaxing saunter on a direct ascent to the Hoerikwaggo Trail that leads up Table Mountain.



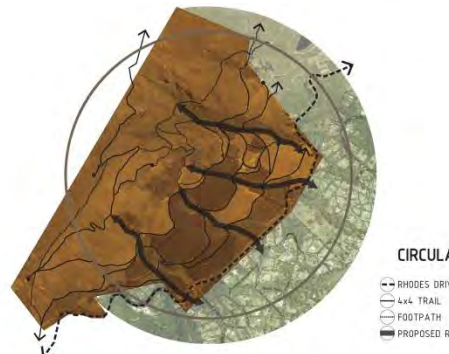
URBAN

- ⊖ RHODES DRIVE
- ⊖ PRIVATE
- ⊖ PUBLIC
- ⊖ AFROMONTANE



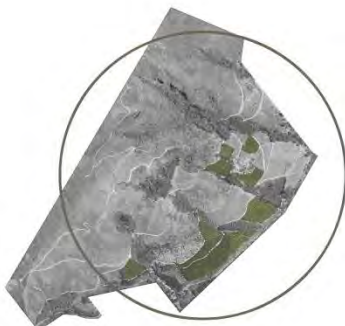
2015

Activity at the old forestry station is now limited to SAN-Parks staff housing that are not fully used throughout the year. After investigation I found that there were plans to eventually phase them out after the rehabilitation process. To ground any intervention to such a sensitive site, the idea of consolidating the existing built mass to the proposed location seemed a legitimate one. The total area of the forestry station consists of 1770m<sup>2</sup>, which helped to set a constraint to within this seemingly untamed context. Even though there could be resistance to construction in the forest, it could be argued it is simply a reallocation of infrastructure and recreational facilities to accommodate the vision for Cecilia Forest as well as the greater scheme.

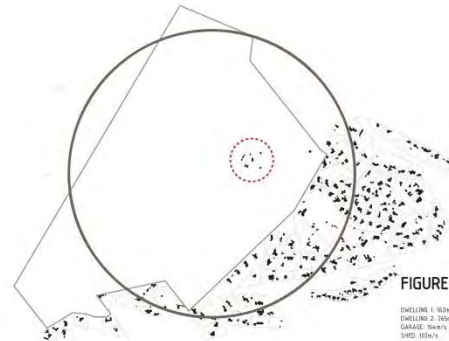


CIRCULATION

- ⊖ RHODES DRIVE
- ⊖ 4x4 TRAIL
- ⊖ FOOTPATH
- ⊖ PROPOSED ROUTES



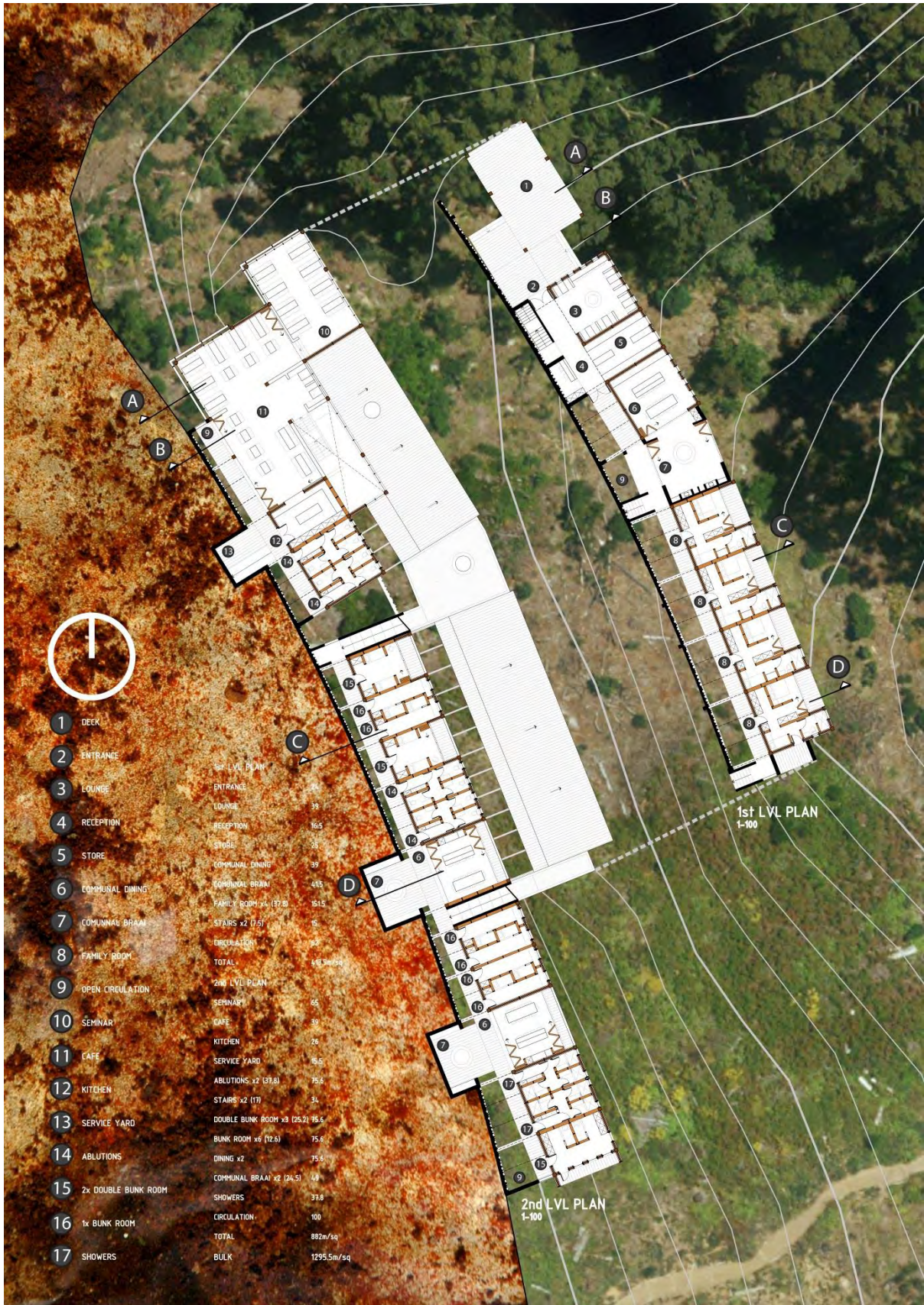
2020



FIGURE

- CHALLENGE 1: 920m<sup>2</sup>
- CHALLENGE 2: 2000m<sup>2</sup>
- GARAGE: 800m<sup>2</sup>
- STORE: 1000m<sup>2</sup>
- OFFICE: 1000m<sup>2</sup>
- CHALLENGE 3: 2000m<sup>2</sup>
- 3 STORES: 2000m<sup>2</sup>
- TOTAL: 1770m<sup>2</sup>









EXTERIOR RENDER

This concept developed into a framed structure with an envelope of laminated walls and roof with a charred vertical timber cladding on the outside and horizontal timber cladding with standard framed walls on the interior.

In linking the construction process with fire and timber, I decided to experiment with forming the concrete work with the existing timber pieces on site as an additional recycling integration of the plantation. After obtaining a permit to cut and take pieces of felled timber from the site, I used them to form a 31 detail of how the retaining wall could look like. The idea was to use the timber as formwork on the visible side of the retaining wall, along the circulation, with the hope that instead of removing the formwork by hand, it could be removed by fire. The end result is a textured concrete face with colours ranging from grey, to brown, to black. Not only will there be a visual and physical finish, but a sensory one as well with regards to smell.

This was an evocative connection to the site being burned in order to purge the existing and transform the object (landscape and timber) into a renewed state. This where the earlier study on creating utopia through dystopia comes in, thereby underpinning the design concept my theoretical interests.

In response to the dystopian condition of the plantation where previously it was a site that only a few people managed to visit and only for short periods of time, with this new scheme to the plantation that is part of a larger idea to expose like-minded mountaineering individuals to experience the Cape Peninsula as an adventurous trek rather than a planned tourist route. I have also identified another dystopian condition within the site, which related to the personally from previous memory. In this case it was both the existence of the plantation, as an artificial representation of a natural environment (forest) as well as the harvesting process in terms of spatial experience. Later I discovered that even the actual pine tree related to dystopian characteristics, as it absorbs so much water that there is barely any other symbiotic flora within the adjacent ground scape.

The use of the site's own timber is a sustainable pursuit in minimizing the impact of construction in this sensitive context. Utilizing the member concept of heavy timber construction with the modern addition of lamination as a structural solution, there is a sound solution in building with timber. As well as a construction alternative to conventional building methods, it serves as a reminder of what was once there thereby retaining a little history of the site and its original purpose. The architecture is modest to complement the potentially rich landscape but is also capable of standing out due to black finish and seemingly monolithic form that nestles within the earth surrounded by indigenous vegetation.

My building is an evocative response that uses fire, the foreseen destructive element during the site's rehabilitation process, to create a new environment through construction and finish, akin to the germination of fynbos.



EXTERIOR RENDER OF 2nd LEVEL CIRCULATION



INTERIOR RENDER OF BUNK ROOM