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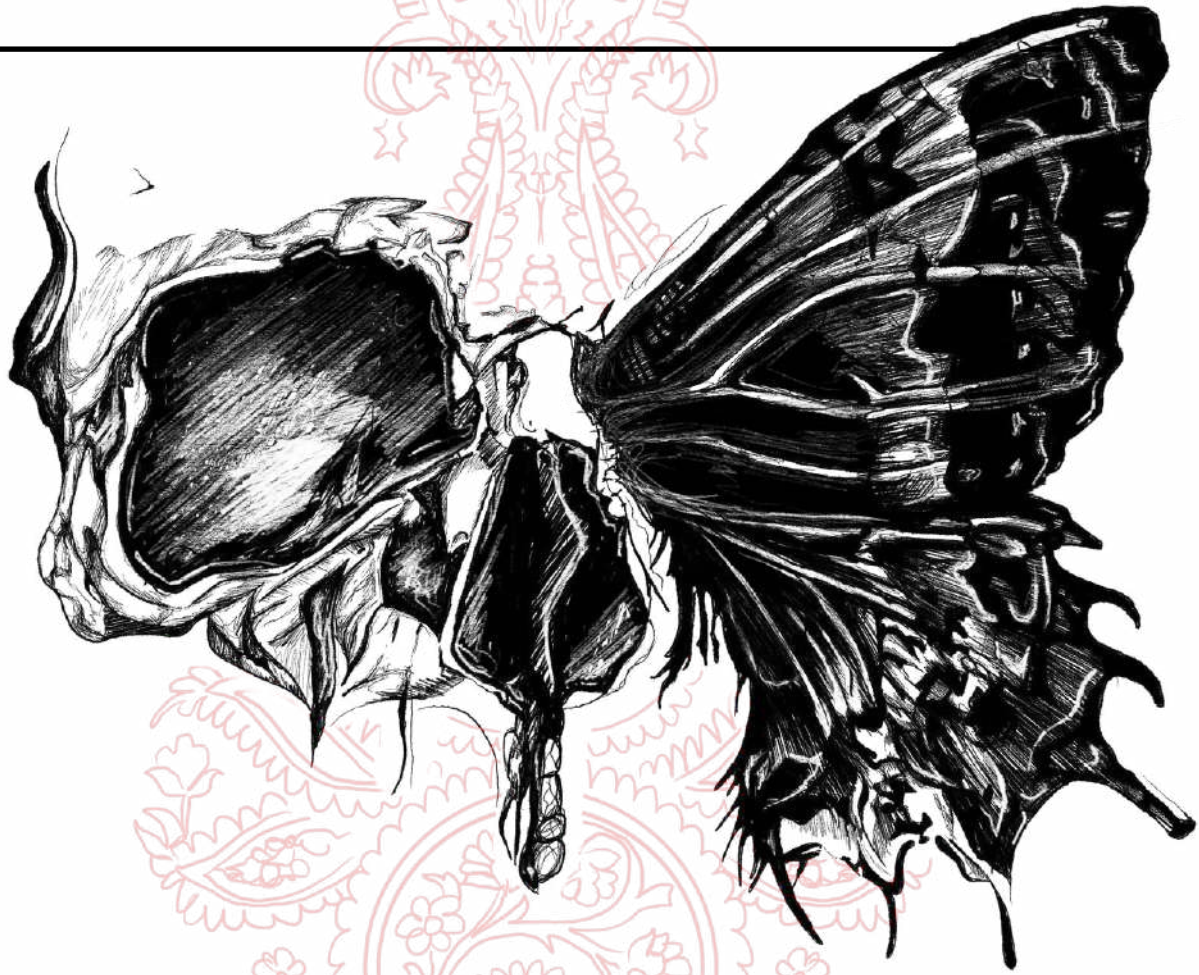
Redesigning Death in the Public Space

Using the rituals of death in Hinduism as a tool to shape a space for mourning and remembrance



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16/03/2020

Declaration



Figure 1: **Identity (Authors Own, 2020)**

I, Maseeha Buckus, am a student registered for the M(Arch)Prof. Course in the year 2020 I am aware that plagiarism (i.e. the use of someone else's work without permission and/ or without acknowledging the original sources are wrong. I confirm that the work submitted for assessment for the above course is my own unaided work except where I have stated explicitly otherwise.

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Maseeha Buckus, 2020

Acknowledgments

For my Mother and Brother, who made me who I am and always believed in me. Thank you for always being there for me, ready to catch me no matter what. I would not be where I am today without either of you.

I'd like to thank Lindani Walaza for being such an incredible source of support and wisdom in all my times of need.

Thank you to Brendan Hart, my supervisor for inspiring me and supporting my vision.

To all my family and friends, you know who you are, I am eternally grateful for your love and support.

A special thanks to the OG midnight crew for pushing me to be my best when I really needed it.

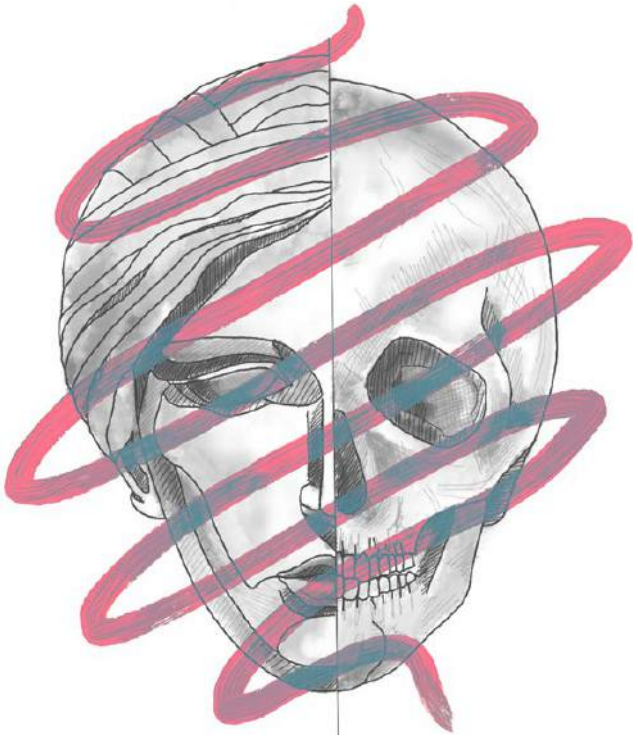

Figure 2: **Tree of life (Authors Own, 2020)**

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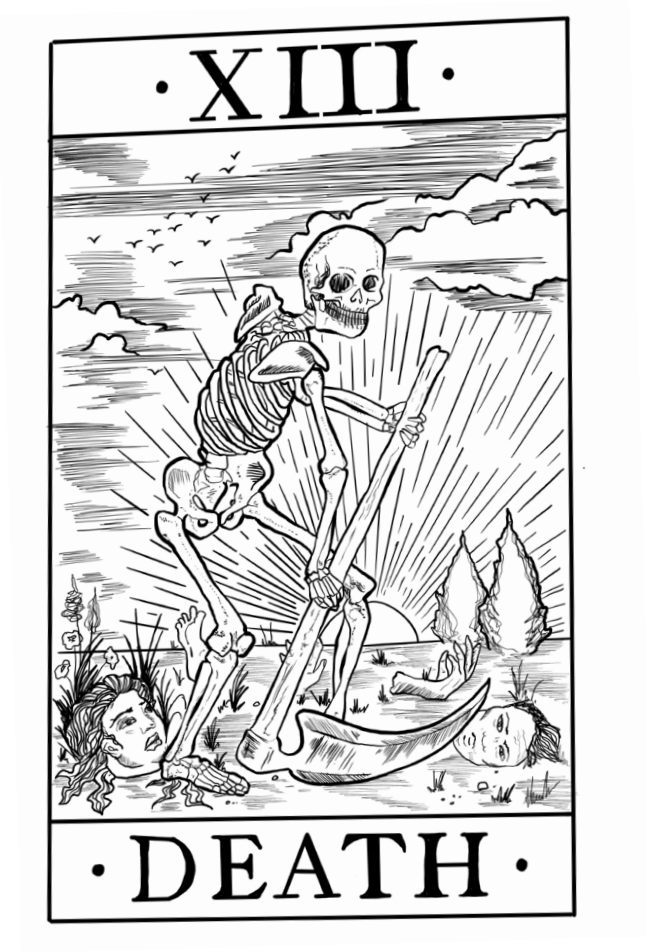


Figure 4: **Death tarot (Authors Own, 2020)**

Glossary of terms

Antyesti - a series of rituals performed at the time of one's death.

Agni Sanskar - Cremation

Dharma - Eternal laws

Sanskar - Rites of passage

Puruṣārtha - An "object of human pursuit"

Dharma - righteousness, moral values

Artha - prosperity, economic values

Kama - pleasure, love, psychological values

Moksha - liberation, spiritual values

Preta - ghost, a chaotic state of being. Neither dead nor alive, stuck in a state of limbo and a possible hazard to the people closest to you in life.

Ghat - stairway down to the edge of a holy body of water

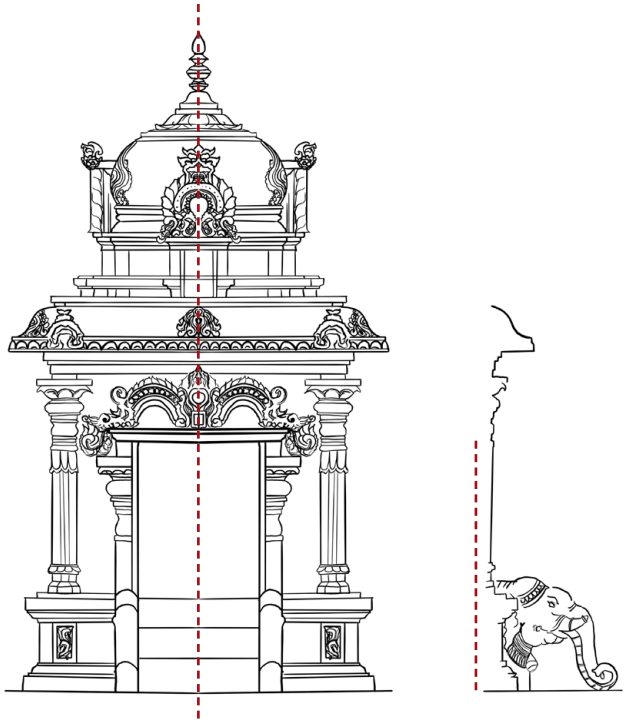


Figure 6: **Decorative details (Authors Own, 2020)**

Ghee - clarified butter made from the milk of a buffalo or cow

Samsana - Cremation ground

Tali - a necklace was worn by women to signify the marital status

Pitr-lok - the land of the ancestors

Brahma - The creator god, conceived chiefly as a member of the triad including also Vishnu and Shiva.

Atman - Soul

Reincarnation - the rebirth of a soul in another body.

Nirvana - represents the ultimate release, the liberation of the soul from repeated rebirth in saṃsāra.

Trimurti - the triple deity of supreme divinity in Hinduism. The cosmic functions being creation, maintenance, and destruction are represented as Gods.

Brahma - is the God of creation in Hinduism.

Vishnu - one of the principal deities of Hinduism. The "preserver" in the Hindu triad (Trimurti), Vishnu is valued as the divine being in Vaishnavism as identical to the metaphysical concept of Brahman.

Shiva - He is the God who is responsible for the creation, upkeep, and destruction of the world.

Kali - Kali's earliest appearance is that of a destroyer of evil forces. She is the most powerful form of Shakti. She destroys the evil to protect the innocent. Over time, she has been worshiped as the Divine Mother or the Mother of the Universe.

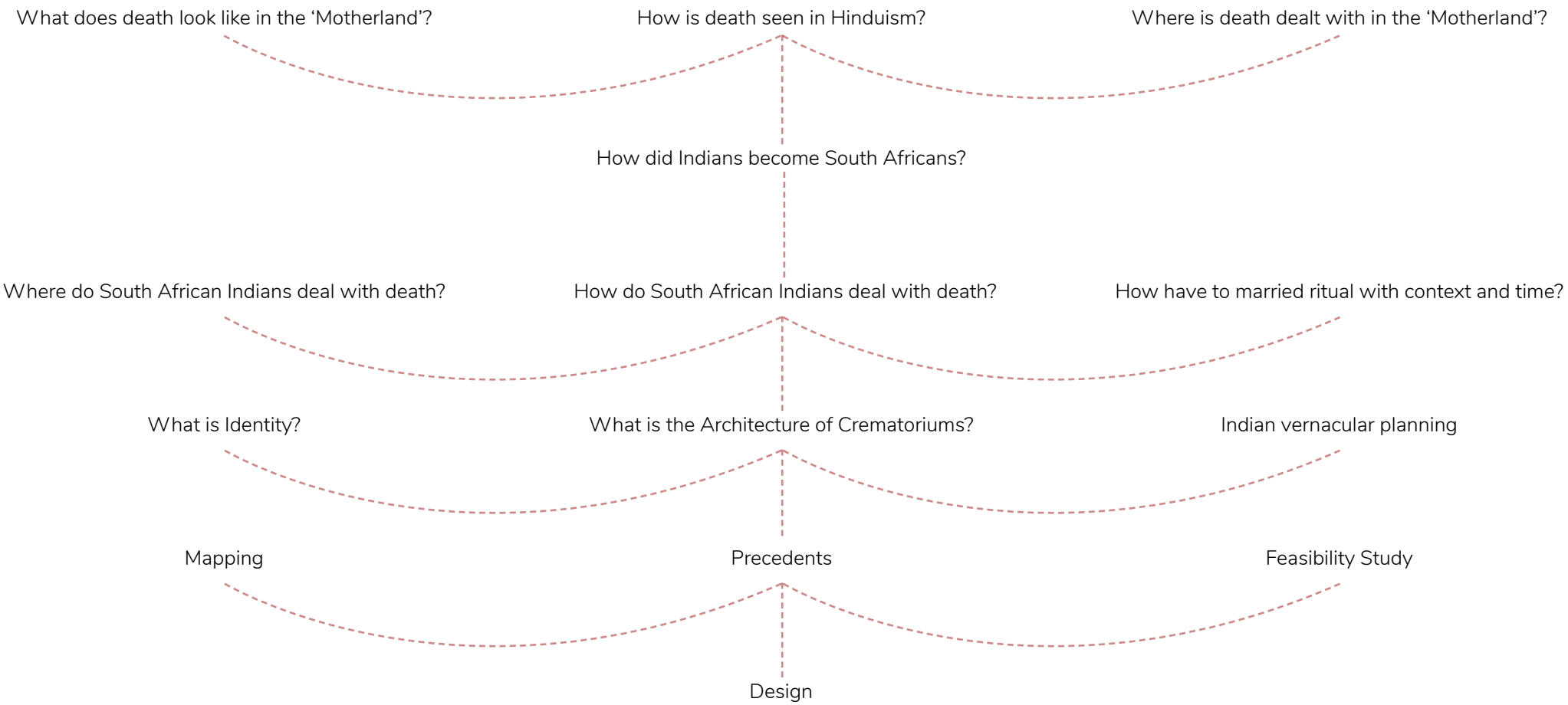
Yama - the lord of death and justice, being responsible for the dispensation of law and punishment of sinners in his abode.

Yamlok - Abode of Yama, God of death

Abstract

South Africa is a country that is home to the highest population of Indians outside of India. This being said, the way that South African Indians deal with death is not a consideration in the places in which they say their final goodbyes. Rituals of death are copied and pasted into architectural typologies that were not meant to house them. Even the rituals themselves are diluted to fit the limited spaces that are provided. They have been stripped of meaning and as such have resulted in new disjointed rituals that don't provide the same sense of closure. This study aims to understand what the roots of those rituals are, compared to my own experience of death as a South African Indian. Through desktop research, I will look into the mythology of death in Hinduism. Literature reviews will investigate identity and how using architectural tools can assist in creating better spaces for mourning and remembrance. Interviews will help to establish how South African Indians go about death and cremation. Using these methodologies and architectural insight I wish to design a new typology for crematoriums in South Africa. This new typology would better cater to the South African Indian population. In addition to bringing an unconventional program into a more public setting to help those dealing with death confront it as part of life and assist with the process of mourning and remembrance.

Research Path



(All figures not referenced are authors own)

Prelude

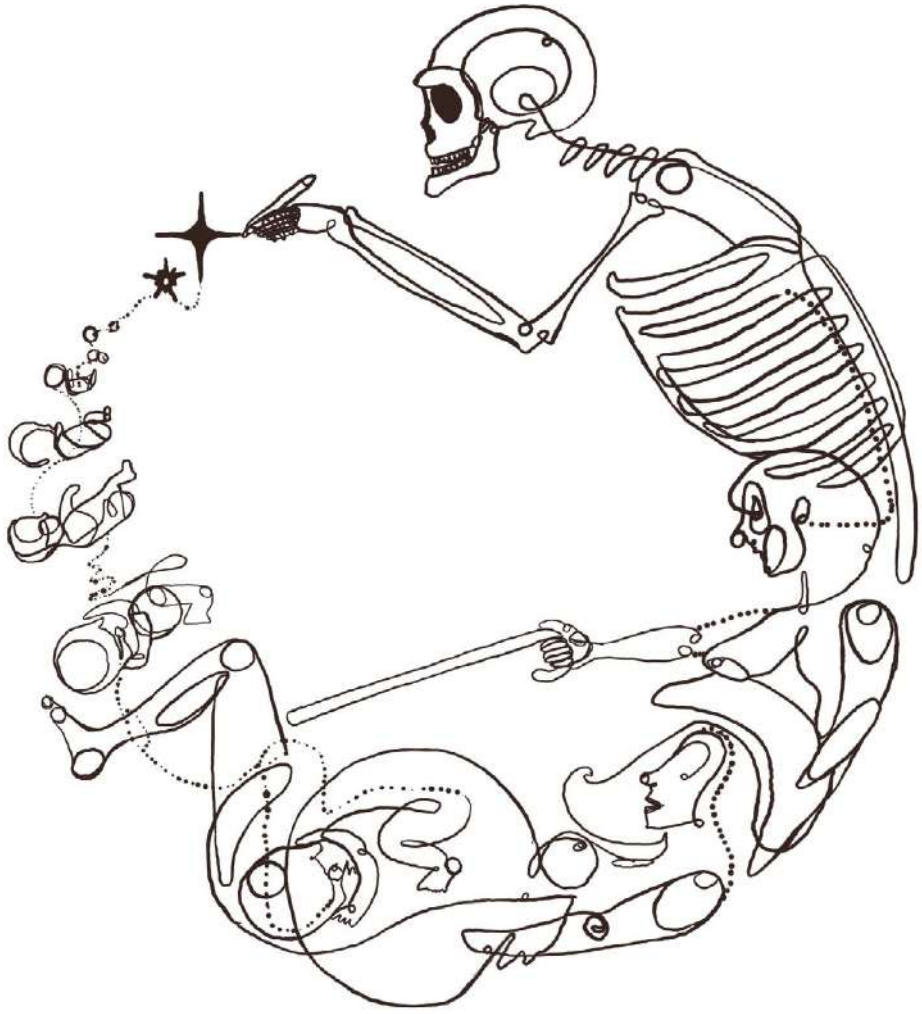


Figure 8: **Life cycle (Authors Own, 2020)**

In Hinduism, it is believed that there is no 'other'. There is what one could call 'absolute unity'. "At the metaphysical level is absolute unity; everyone is nothing but Brahman"(Ashok Vohra, 2014). It is meant to be an all accepted religion which houses no hostility even from those who leave the fold. The principles of Hinduism are derived from the sacred texts called the Vedas. The Vedas are any of the four collections forming the earliest body of Indian scripture, consisting of the Yajur Veda, Sama Veda, Atharva Veda, and Rig Veda which laid out the principals of Hinduism. Explaining how one should live their lives (Puruṣārtha). These scriptures present it's follower with a scheme of life. They merge the real with the metaphysical. This means Hinduism doesn't distinguish between philosophy, theology, and religion. By doing this it can offer an entire way of life and death. The religion intends to make it so nothing matters accept the Atman (Soul). Your caste, color, religion, creed, and sex all don't matter it's all about reaching the 'roof' (final form). It's all about the climb. The concept of a singular person is interesting as in Hinduism man is considered to be essentially divine. A person exists in both an external and internal world. The body is external and the internal is seen as pure potential.

Santana Dharma is the native word for a person who is Hindu. The Persians came up with the label Hindu and the British followed suit. It was used to describe the people of the 'Indus' river.

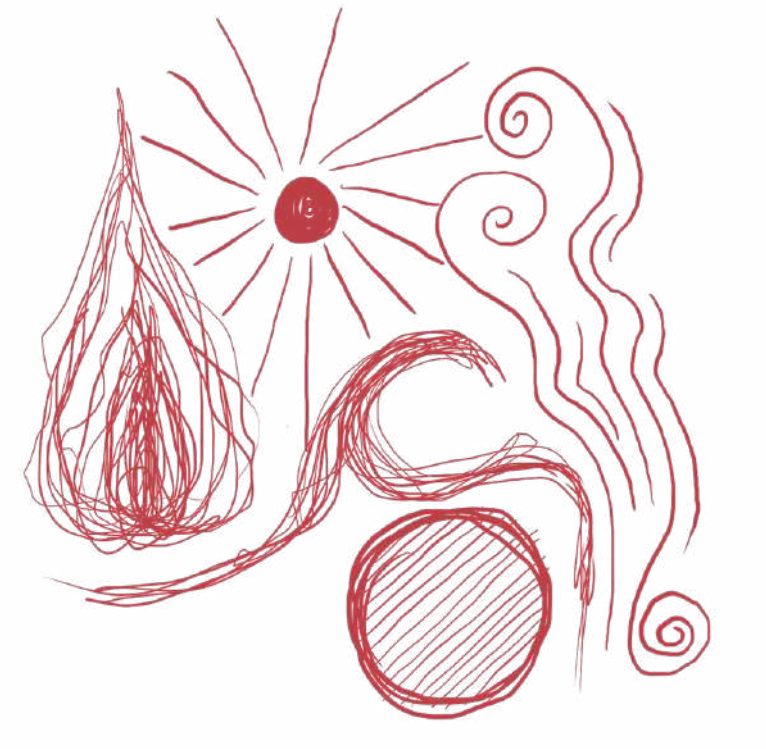


Figure 9: **Elements (Authors Own, 2020)**

Everyone is touched death be it directly or indirectly. This makes the spaces where we deal with death relevant as sacred spaces. These spaces can be used to find commonality among all people bound by the reality of death. In Eastern religions, death is not considered so opposite to life as those in the West. Considering a cremation ground in an urban context forces us to look back at the traditions spaces in which people are cremated without such heavy boundaries such as the Ghats in India. A Ghat is a flight of steps leading down to a body of water. Cremation is a 4 000-year-old ritual practiced in the Hindu faith. The ritual forms the backbone of the religion but varies based on age, location, caste, educational status, family tradition, and socio-economic status.

Based on where you go in the world the rituals of Hinduism tend to look a little different. This leads us to believe that there is no singular Hindu identity. We use the base of rituals passed down from our motherland and adapt it to fit our communities. In the essay, we will look at the base of the rituals and how they vary from the rituals currently performed in the South African Hindu community. As well as how to use these rituals to design a new approach to cremation in the urban context of Johannesburg.

''Death is the only certainty in life, for to the best of our knowledge all things that live must one day die. Thus death is and has arguably always been a crucial part of mankind's existence - whether we choose to dwell on it or not.'' - Lindsay Anne Hall (Death, Power and the Body (Arora, 2013).

Chapter 1

Understanding Death in Hinduism



Figure 10: **Reincarnation (Bali Now, Dec 01,**

1.1

The Mythology

"Hindu rituals are based on the unquestionable belief that Eternal Laws - the universe's unceasing and impartial cycles, rhythms, and balance – govern the universe., including humankind. The role of humankind is to live in synchronicity with these Eternal Laws. Within this cosmological framework, rituals serve the purpose of acknowledging the inherent cosmic order and sustaining the rhythm of the cosmic concert "
(Anantha Murthy 6, 150, Eiseman 11-14).

Similarly, to how the universe has its rhymes and seasons, Hindus believe the same for the human soul. This is why we consider death a rite of passage rather than an endpoint. Death follows a life in a sense. It is not opposed to life as it is considered to be in the Western world. It is all part of a cycle of energy that makes death a steppingstone into the next cycle of being. Being alive is considered a temporary state in the larger design of the cosmic cycle. Death is an important marker similar to coming of age in the Hindu ideology. This is why we refer to it as a rite of passage. It makes the rituals we perform at death vital to how we transition into the next life. It is believed that if not completed one's soul could be stuck in a kind of 'limbo' and you could be stuck between lives as a Preta (ghost).



Figure 11: **Brahma (Authors Own, 2020)**



Figure 12: **Shiva (Authors Own, 2020)**

By this logic of the 'cycle of being,' it can explain why Hinduism calls for cremation. Understanding that the body is temporary and putting a higher value on the soul we can see why the preservation of a temporary shell is not vital. It also explains why from the start in India the architecture of death was fundamentally different from that of the West. Areas like the Ghat in India for example are boundary-less, communal, and dynamic. The spaces were only meant to mark a final goodbye whereas in the West the traditions called for large monuments and spaces to come back to observe what is left behind. This means that the place of cremation is not so important as the rituals and steps one goes through in that space. That is why is it is vital to examine these rituals and myths. Pull them apart and analyze why we do them and what they mean to us. These are then the elements that inform how a crematorium is to be designed.

In Hinduism you have the 'Atma', this is the soul. It is believed that this is both birthless and deathless (Arora, 2013). Death is a way for the Atma to leave the temporary state of being alive and move into the next phase. Brahma is the creator God in Hinduism. Once you die your soul makes the journey to Brahma in hopes to merge and attain nirvana. If it is successful, the soul is freed from its cycle of birth and rebirth. This is considered salvation (also referred to as 'Moksha'). If the soul is not successful it gets reborn and starts its new cycle. This will continue endlessly until Moksha is achieved. Thus the cycle of reincarnation.



Figure 13: **Yama (Authors Own, 2020)**

When one goes to a cremation ground one would also observe the God called Shiva. He is known as the destroyer. He is often depicted dancing with the five elements (especially fire) and in the myths and rituals of cremation and as we know that it is vital for all elements to be used in the process of releasing the soul.

Yama is the God of death. According to the scriptures, he is the first man to have ever died. The dead are usually placed faced the south as it is said that is the region of death to which he is the guardian. He is often depicted weighing the good and bad deeds of humans and determining their retribution. Once you die you go to his kingdoms. This is where looks at the record of your deeds and decide the circumstances of your next life based on your karmic balance. Karma is the sum of your actions in the past and present. He keeps the cycles of life and death flowing in the correct rhythm and for this Hindus are meant to make a daily offering of water to him.



Figure 14: **Vishnu (Authors Own, 2020)**

The rituals around death are therefore meant to ease the transition of the soul's departure for both the one who is moving on but also serves to bring closure to the ones who are left behind. The rituals are made up of 3 stages.

First, the rite of separation which identifies and segregates the individual.

Second, the rite of transition which is where the individual goes through the transition from one state into the next state of being.

Third, the rite of incorporation which brings the individual back into the fold.

As all the rituals are being completed there are thirteen days in which cremation and post-cremation rituals may be performed. This period is for the mourning of the family so they can come to terms with the individuals passing. These rituals should be performed by the family of the deceased and need to be completed so that the soul can move for one phase into the next depending on the person's karmic balance.

1.2

The Final Rites

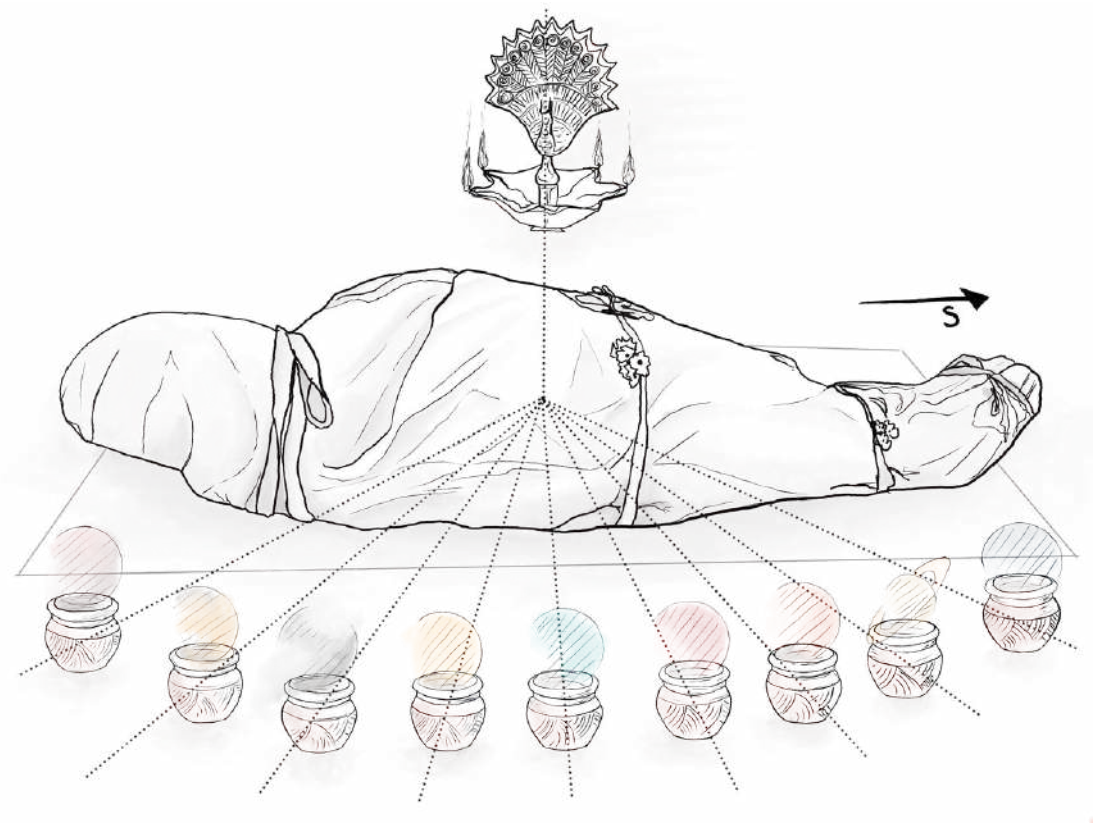


Figure 15: **Wrapping (Authors Own, 2020)**

In Aditi G. Samarth's paper entitled The survival of Hindu cremation myths and rituals in 21st-century practice: three contemporary case studies (2018), we learn about the process of the final rite from their origins. The rituals performed to mark an individual's death is referred to as the Antyesti. This is the process where the deceased is washed and prepared for cremation. The purpose of the Antyesti is the intent to give the body of the deceased to the elements that formed it. The elements being water, fire, air, earth, and ether. This is so that the person may return to the universe after completing its cycle with the intent to enter into a new one to keep the cosmic rhyme going.

In India, it was common that people would pass away in their homes or come home to die so many of the rituals were done at the home of the deceased. Once someone has passed on the family members are struck by a symbolic impurity but strangely the body itself is considered sacred. The body is placed in or close to the entry to the home. The feet of the person are placed so they face south. This is because the south is the direction associated with Yama. The body is to be placed either on the ground on a mat or a low



Figure 16: **Final rites (Authors Own, 2020)**

bed. This symbolizes the return to the earth. During the ceremonies, incense is burned in the space where the body is kept, this is because the smoke that is released is meant to purify the polluted air. A few drops of water from the Ganges (alternatively milk which is considered a pure substance) are placed on the lips of the dead to nourish the soul as the body does not require further nourishment. When coffins where not common practice, people would tie the thumbs of the deceased together to ensure the body stays facing up and in the right place covered in white material and commonly with garlands of flowers around the deceased neck. The representations of god (pictures or statues) around the house are sometimes turned around to face away from the dead to signify the 'impurity' in the house. This has changed as time has gone on and now most people still refrain from other religious activities or prayers during the time of mourning. In the past, all these rituals would be done in the home but now people usually go to the hospital or morgue and in some places are never brought home. So many of these rituals are now done at the Samsana (cremation ground).

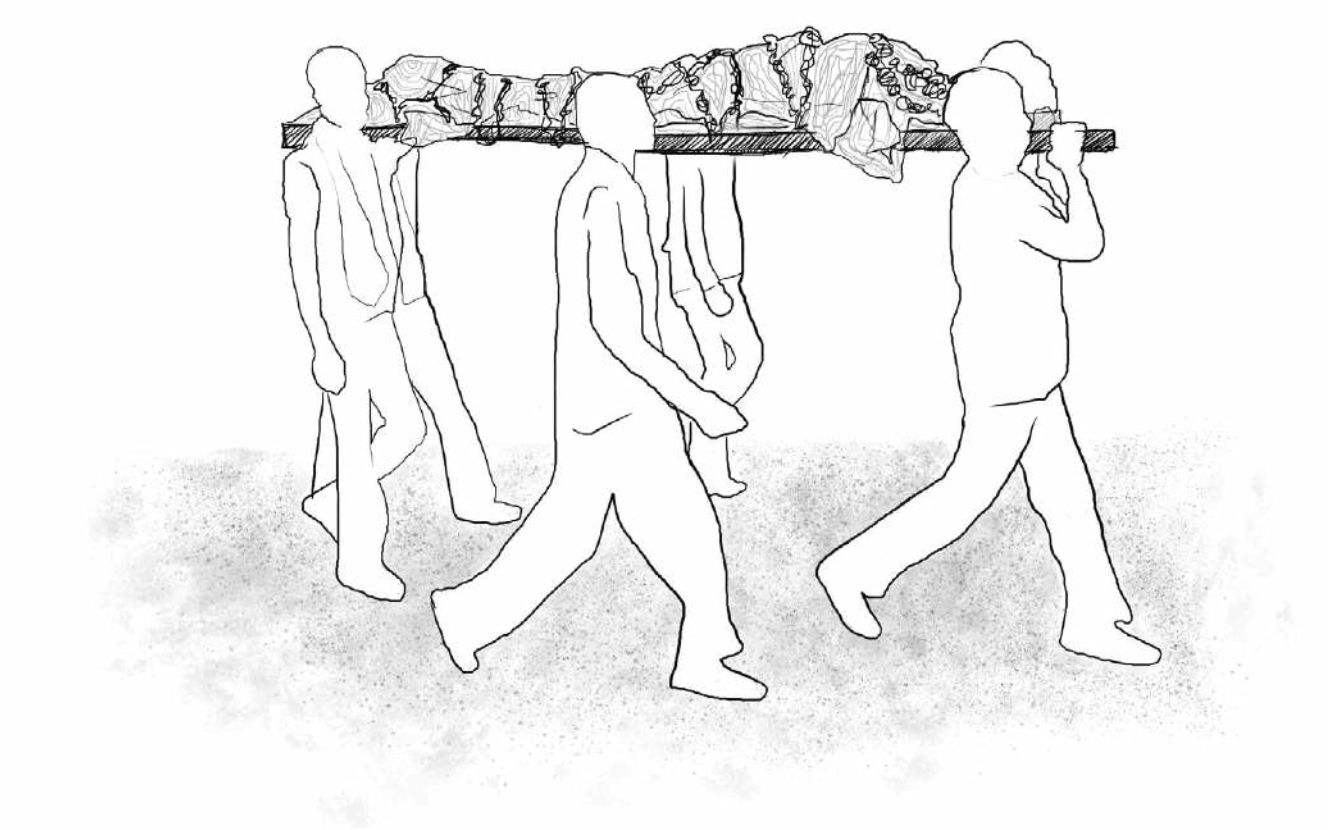


Figure 17: **Carried for the last time (Authors Own, 2020)**

The fire is said to take on a sacred dimension as it creates smoke which blends with the atmosphere. This brings in the elements of air and ether into the home. A fire is lit in the home (this is now a candle or a series of oil-burning lamps) and is not extinguished until the mourning period ends. Nine pots are laid near the fire symbolizing the nine planets with blessed water in each pot. These pots are also meant to be used to transport the fire from the home to the Samsana. The nine pots of water are also set near the body where it symbolizes the universe which the body will now be released back to. The chief mourner always leads the rites, this is the eldest son if a father has passed and the youngest son if a mother is passed. If there are no sons, the responsibility is passed to the next ranking male in the family. It is common practice that males in the family perform all last rites and females observe and grieve (Samarth, 2018).

Before the rites are preformed the body must be prepared. This is the final bathing process commonly carried out by females close to the deceased. An oil lamp is passed over the body of the deceased and flowers are offered to it. The body is carried somewhere private and a sponge is used to bathe the corpse with water from the nine pots. Each person put sesame oil on the head of the person who has died. The body is then carried out and young family members encircle it, singing religious hymns as people come to pay respects to the dead. It is common for mantras to be sung into the right ear of the person. This is done to symbolically remind the person of the life they have lived. The idea behind the message is that the body is not an isolated object in space. It is connected to the greater cosmos and continues to be connected even after the body has died. Mourners (community members and people who knew the deceased) come to place flower petals around the body and touching the feet of the individual which is considered the highest display of respect. They also take this time to pass on condolences to the family of the deceased. If the deceased was a married man his wife places her Tali around his neck symbolizing an everlasting tie to him.

Final rites vary greatly and have also changed being handed down over time. The cremation however has always been the constant method of disposal. Priests are to be consulted and move the rituals forward through the thirteen days at which time the individual reaches Yamlok (Abode of Yama). During the final rite's gifts are offered bas symbolic items being offered into a sacrificial fire thus transforms the offering into smoke and symbolically going upwards with the smoke of the individual. In the original rituals, the offerings consisted of things such as cotton balls, salt, cereal, legume seeds, fragments of gold, and in some cases even whole cows or goats. These gifts were to be handed to the priest who would be the one to make the offering to the fire to Yama (the God of death). Over time certain offerings have changed based on location and availability. For example, we now priests though Ghee into the fire, being a by-product of a cow, it is a symbolic sacrifice (Samarth, 2018).



Figure 18: **Burning pyre (Shalaka Shinde, Jul 02, 2020)**

1.3

Cremation

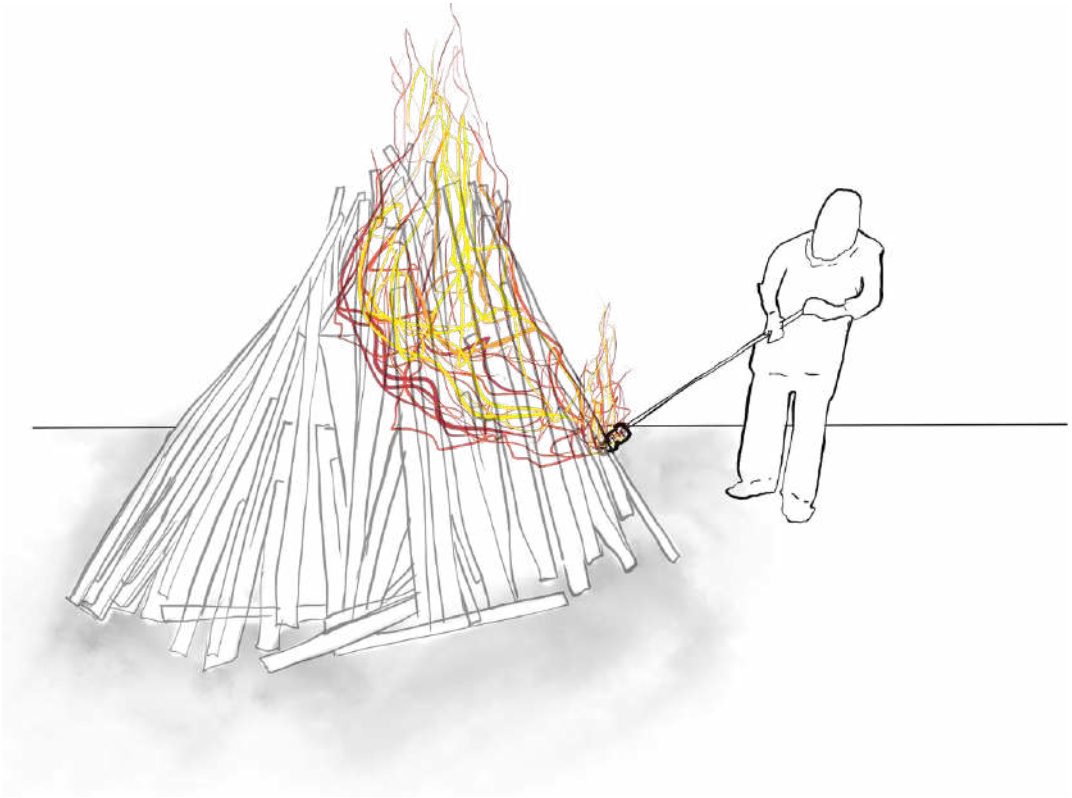


Figure 19: **Lighting the pyre (Authors Own, 2020)**

Generally, the funeral procession is made up of men wearing white clothing, led by the chief mourner, chanting as they walk to the cremation grounds. It is then that you are meant to pray and make offerings to Shiva to release the soul from its physical bindings. Water is sprinkled around the area where a funeral pyre is to be built in some cremations to demarcate the sacred space from the space where everyday life goes on. This is a practice one can even see in India at the Ghat (a series of steps leading down to a body of water) where bodies are taken to be cremated. Before cremation, they are dipped into the river Ganges which is considered sacred. This is done to wash away the sins which the person has committed during their lives. The site of cremation is also sanctified by people singing mantras and water being scattered around the space itself (Arora, 2013).

Once they reach the cremation grounds the chief mourner walks around the pyre counterclockwise as it said everything is reversed at the moment of death. Usually one walks around a temple clockwise as it is considered auspicious however here we reverse the norm. The chief mourner carries a clay pot on his left shoulder filled with water. Every time he completes a circle a family member knocks a hole into the pot symbolizing the life leaving a vessel. Sandalwood was sometimes added to the pyre as people said it would make the body burn more brightly. After the third-round mourners drop the pot and breaks it. He is not permitted to turn and face the body after he lights the pyre (Arora, 2013).



Figure 20: **Spreading of ashes (Authors Own, 2020)**

After the body is completely burnt the chief mourner must complete a ritual called kapalakriya which is when he must crack open the skull with a bamboo stick. This is done as a final act to release the soul from its entrapment in the body. Once everything is complete mourners must return home to take a bath before returning to everyday life. This is another purifying. They are also meant to step on a stone when entering the home reciting a prayer for strength.

In the case of gas-fueled cremation, the tradition is altered. The chief mourner places a sacred wood covered in ghee with the body and then he is the one who is meant to turn on the switch to start the cremation process. And as the skull is broken apart in the machine it no longer falls to the chief mourner to fulfill kapalakriya (Arora, 2013).

Cremation is a process done to release a soul so it may achieve nirvana. In India, there are cases when water burials are preferred over cremation. When Children and holy men die they are considered so close to enlightenment that cremation is not needed. Instead, they are covered in white cloth, stones are tied to them to weigh them done and they are released into the water.

1.4

Process after the cremation



Figure 21: **A family saying goodbye as they release ashes (World of Devotion, n.d)**

The cremation itself disposes of the body however in Hinduism what happens after this is just as important. The soul has now been released from its ties and now needs to reach its end destination (this is pitr-lok or the land of the ancestors).

It is a tradition for the men of the family to go back to the crematorium to collect the ashes of their loved ones. It is common for the person who lit the pyre to go back to collect the ashes when they have been made ready (Arora, 2013). The ashes are then meant to be carried to an auspicious river or ocean nearby (in India this is always the Ganges). The ashes are then submerged in the water with garlands of flowers while a priest recites sacred mantras. The water is Hinduism is a metaphor for the continuity of the universal laws and is uncompromised. Finally, the soul is free from its bodily ties and can carry on in its cosmic journey.

If the ashes are brought home, they are placed far from the entrance of the home as they are considered polluted and should not be able to be in contact with the occupants of the home. The family may not take part in any religious rites during the mourning period as they are considered impure until the last ritual which lefts the impurity. This is generally when the last prayer is done on the thirteenth day after the cremation of the deceased. They may then rejoin everyday life.



Figure 22: **Kali (Authors Own, 2020)**

Chapter 2

Varanasi cremation Ghat



Figure 23: **Varanasi from afar (Aishwarya Jaiswal, n.d)**

2.1
Death as theatre



Figure 24: **Varanasi, India (Atlas obscura, n.d)**

There are Hindu myths that say that the Ganga descended from the top of Shiva's head. Other tales claim that Lord Vishnu was asked to measure the universe, so he started by taking three steps, intending to use his feet as a measuring tool. As he does this his big toe punctures a tear in the universe. This tear then becomes the Ganges which is channeled through the hair of Lord Shiva into our plain which we can interact with on a physical level. The home of Shiva is on top of the mountain Kailash, therefore, that is the scared origin of the river. Along the banks of this holy river are scared cities anchor by the holy waters. (Amit Nanoo, 2016)

Varanasi is believed to be the oldest and holiest of cities. Along the banks of this city are Ghats. A Ghat is the Hindi word meaning a stepped promenade down to the edge of a river. There is a stretch of the river which is said to have been dug by Lord Shiva himself as Mahashamshan, the great cremation ground. Shiva is known to be the God who whispers into the ears of the dead and is the reigning God of the cremation ground. It is the is on the banks of the river that people come to surrender their dead to become one with Shiva once more. The bodies are laid on bamboo poles and carried down on the shoulders of their loved ones. After they have been dipped into the Ganges river and a final purifying of sins the pyre is created.



Figure 25: **Ritual on the bank (Massimiliano Sticca, n.d)**



Figure 26: **Grounds from above (Michal Huniewicz, Sept 28, 2015)**

There are many visuals layers to the ghat. The backdrop is a stone-clad temple built in the 18th century. There are shrines to the reigning gods of the cremation grounds, people selling wood and flowers for the cremations about to happen, people clearing away ashes making the space ready for the next cremation, priests chanting, flat-roofed pavilions, and platforms built on the embankment. The cremation themselves before a kind of unintended theatre for onlookers which may be on passing boats or even looking down from neighboring terraces. There now even tourist tours who hire boats in order view this morbid theatre piece. This boundary-less, communal space filled with people, on-lookers, animals, and fishermen is the site of the most important act in the cycle of a being.

"The backdrop for a ritual is architecture and architecture must support the ritual it envelops. Spatially this begins with the careful study of the character of spaces supporting a ritual, singularly or a sequence of spaces which assist an emotional response " (Gregory Scott Hirschmann, 2006)

Chapter 3

Journey of India's largest diaspora



Figure 27: **Indians being brought from India (Zulu land news, n.d)**

3.1 Indian South African Timeline



Figure 28: Map from India to Africa (Arcgic Map, n.d)

Today South Africa has the biggest population of Indians outside of India. Indian makes up 2.6% of the South African population (1 503 007 people) contributing not only to the diversity but also to the economy. Many of them are second or third generation and consider themselves South African (most having never even been to India) being fully immersed in the culture and landscape of South Africa. (Brij V. Lal, Peter Reeves, Rajesh Rai, 2006)

1654
People from India and South East Asia are brought to the Cape and introduced as slaves.

1820
Indians from Bencoolen are brought to Cape Town.

1843
Natal is declared a British Colony and is ruled from the coastal city of Cape Town.

1849
Indians are taken to Natal.

1856
Natal receives representative self-government. It is made so that to vote you require property qualifications.

1859
The Natal Coolie Law, Law No. 14 of 1859. The colony introduces Indians as indentured labor. They would work for 5 years and then have the option to get free passage home or they could work a further 5 years and receive a gift from the crown in the form of land and citizenship. This was later taken away, to discourage the settlement of Indians in Natal.

1860
16 November, the Trutto ship carries 342 indentured Indian workers to Durban, this is the first batch.
26 November, the Belvedere carries the second batch of 310 labourers to Durban from Calcutta.

1861
Bauboo Naidoo (an interpreter) opens the first Indian owned shop (Field Street, Durban). He sells condiments and supplies which are provided to the laborers from the government.

1869
The first “passenger Indians” arrive in Durban. These were Indians who paid to come to South Africa for jobs with basic skills.
2 October, Mohandas Karamchand Gandhi is born in India

1872

Aboobaker Haji Ahmed Jhaveri is one of the first passenger travelers who arrived in South Africa this year.
The Coolie Consolidation Amendment Act, Law No. 12 of 1872 stops flogging as a punishment to law breakers and allows for better medical care.
25 November, Colonel Price-Lloyd is appointed as the first Protector of Indian Immigrants. To carry out the law he builds a suitable administration.
Cape Colonial Government looks into importing more labor from India and China as there is a lack for laborers, however, they decided to use African laborers instead.

1875

June - Aboobaker Amod is the first Arab trader on West Street

1876

The Free State Republic allows for Indians to come into the state but clarifies Indians may not apply for permanent residence.

1880

Many passenger Indians begin to arrive on the diamond fields, (Kimberley). They also arrive in Table Bay (Cape Town) to start work there and in the surrounding areas.

1885

7 April, Albert Christopher is born to laborers. He would later work alongside Gandhi to make Indian voices heard.
Law No. 3 of 1885, is passed, It is the first openly prejudiced legislature to be passed. It applies to 'Coolies' referring to all native races of Asia.
By 1885 around 200 laborers escape from their employers living in Port Elizabeth.

1887

700 – 1000 Indian laborers are working on the diamond fields.

1888

The Registration of Servants Act, Law No. 2 of 1888 In Natal, the law classifies Indians as an 'uncivilized' race and makes them carry passbooks.
The South African Republic throws out a British Indian petition which allows Indians to be in categorised as native African residents (laborers)

1893

The British Indian Political Association is established by Indian residents of Kimberley.
Gandhi goes to Durban from India to assist a wealthy Muslim man with a case against his cousin.

1894

22 August, the Natal Indian Congress (NIC) is created with Dada Abdullah Haji Adam (Chairperson) and Gandhi (secretary).

1895

The Indian Immigration Law Amendment Act, Law No. 17 of 1895 allows the colony of Natal to force a tax that must be paid by those who do not want to be re-indentured or return to India (including children who are 13 years of age)

1896

The Franchise Act, Act No 8 of 1896, disenfranchises Indians.

1897

Barracks are built at the railway in Cape Town, 500 Indians referred to as 'coolies' work at the docks.
Act No. 3 of 1897 forbids marriage for whites to people of colour.

1899

'Coolie locations' are set up for Indians in Transvaal. Fordsburg, Braamfontein, and Jeppestown in Johannesburg.

1899

11 October, Beginning of the Anglo Boer War. Black people are evacuated from the Transvaal. Most Indians leave for Cape and Natal Colonies, Mozambique, and India.

("Indian South Africans timeline 1654-1899 | South African History Online," n.d.)



Figure 29: Workers in the sugar cane fields (Zulu land news, n.d)

3.2

Author's Origins

While researching the history of how Indians came to South Africa and why I started becoming curious about my own origins as an Indian South African. I decided to talk to the few living elders who still recalled our families' great voyage. I managed to unearth the following.
My family did not arrive in South Africa as indentured laborers as the vast majority of Indians who hailed from South India. Neither did they arrive as the merchant class who were mostly Gujerati speaking businessmen who settled in Transvaal as it was formerly known.

My ancestors were originally from the mountainous steppes of Afghanistan - having certain phenotypical features light eyes - hazel / sometimes green accompanied by being very strong and stockily built with ruddy complexions.

It seems this advantage of their physical prowess was noticed by the British military battalion who were stationed in New Delhi and brought across my ancestors to South Africa.

They originally settled in the Free State - being the first Indians to have obtained rights to live there under the harsh colonial rule of the time. We were brought to police our people.

Corroborating evidence is by a forefather who is seen pictured in military attire accompanied with a rifle.

My family's surname was Nabi Buksh. It was later being reduced to simply Buksh. I know that this was the origin of my surname as there is evidence of it handwritten by my great grandfather's own handwriting. Hence the surname 'Buckus ' is either the surname being massacred by apartheid officials who were not sensitive and respecting of spelling at the time or an entire confusion with another family whose surname is Buckus. Though I think surnames Bux / Buckus / Buksh all variations of the one. Rightfully it should have been Buksh which has linguistic and cultural authenticity and significance in meaning.

In the last picture is a photo of my father in his police uniform. It is quite interesting that generations later my father's pursuits in life lead him to serve within the justice system, the same justice system which brought his ancestors to South Africa to police our own people in a time of hate and oppression.

It is enlightening finding out where you came from and what your family had to go through to get to where you are currently. In the photo to the right, you see my grandfather (no longer in a uniform) starting to integrate into South African culture and becoming part of the new Indian South African Identity. The knowledge of a past which I was previously oblivious to provide me with a deeper connection for me to my project and what I am setting out to achieve.



Figure 30: **The first descendant, Authors own (2020)**



Figure 31: A rainbow nation, Authors own (2020)

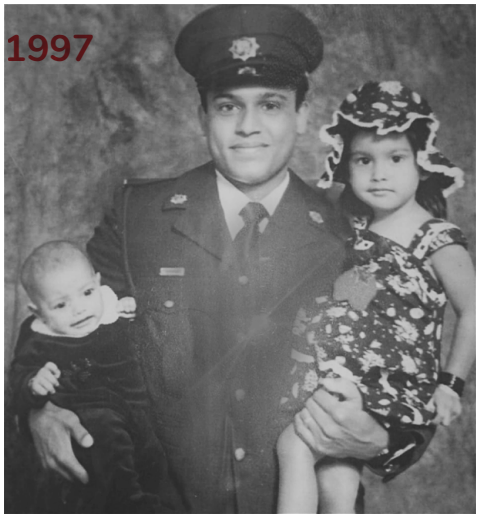


Figure 32: Authors father in uniform, Authors own (2020)

Chapter 4

The South African condition of death

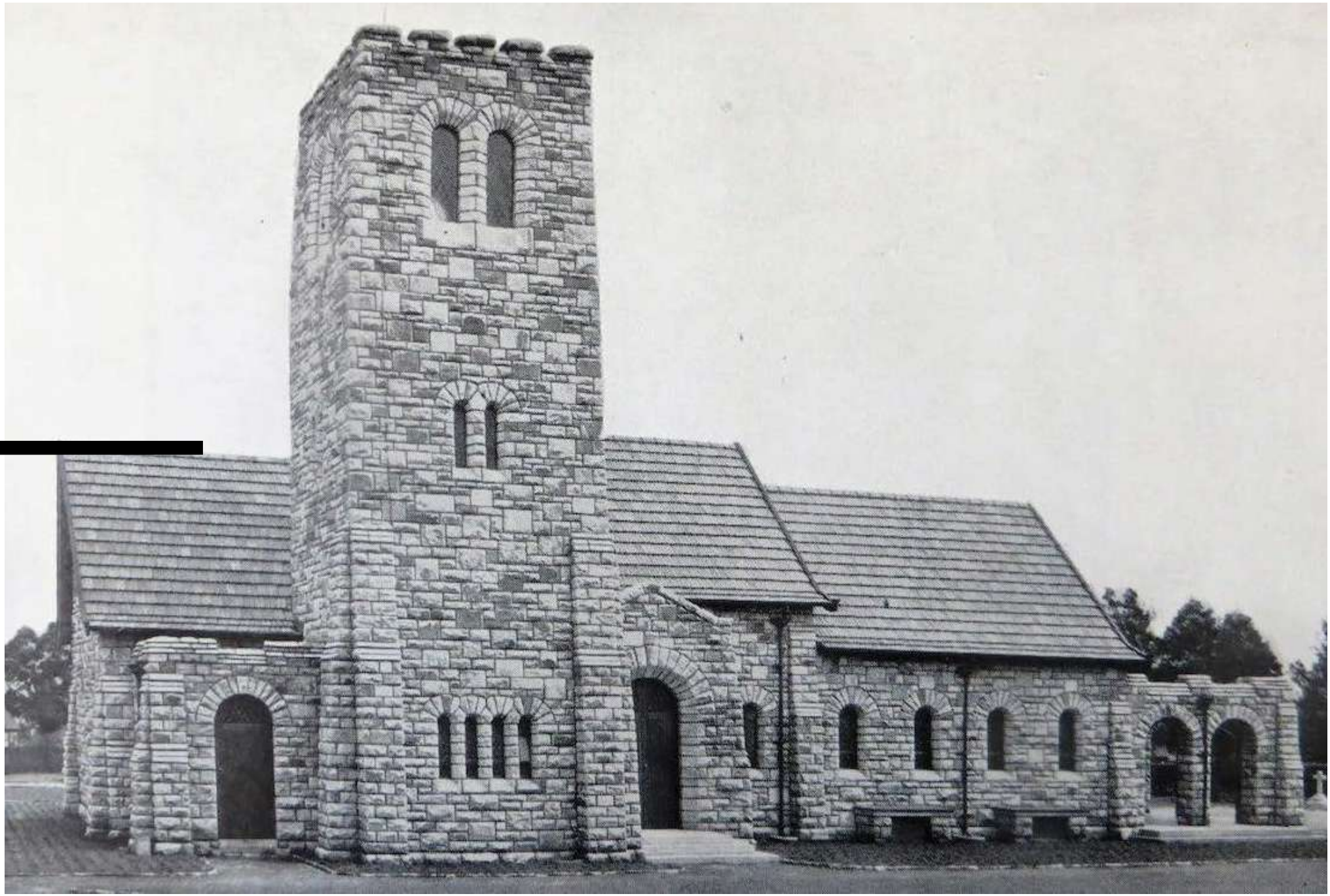


Figure 33: **Brixton crematorium (The heritage portal, July 17, 2018)**

4.1

‘The Norm’

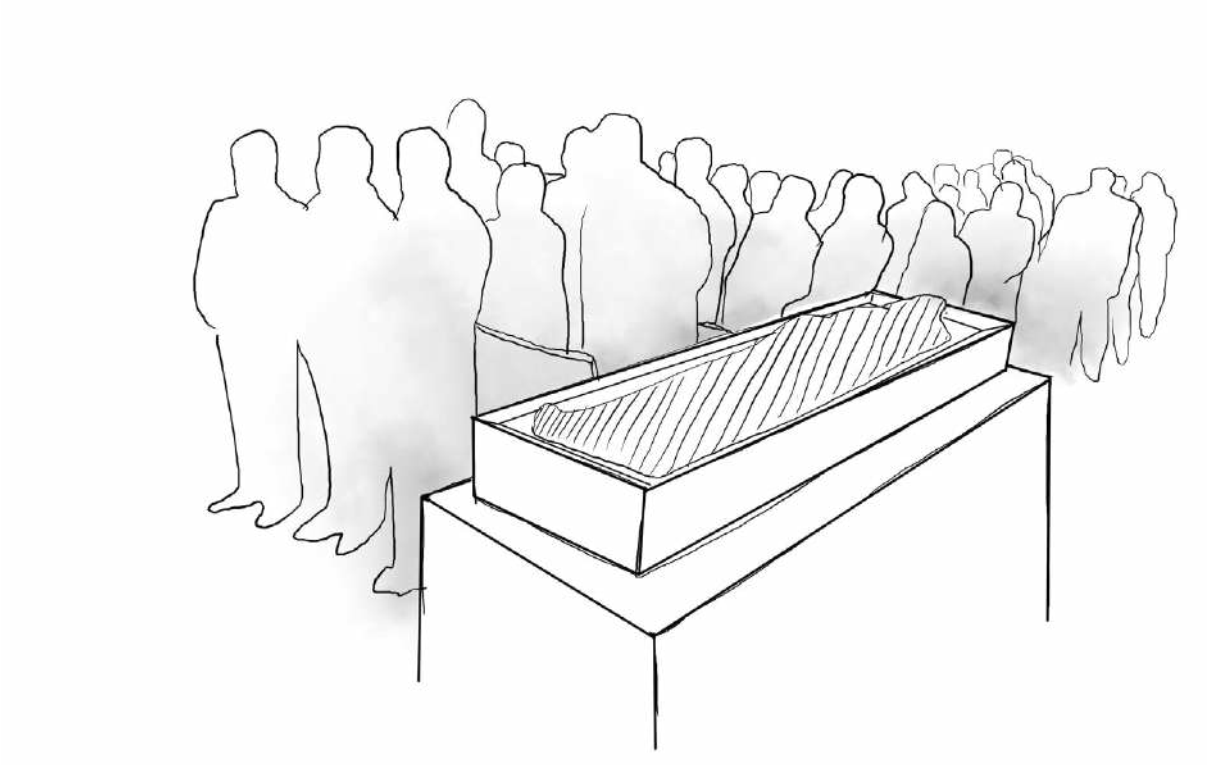


Figure 34: **The first descendant (Authors own, 2020)**

Being a South African I have experienced many traditional Hindu and Tamil funerals. Funerals vary depending on family and area. A lot of it is altered to the level of involvement the family has with their religion. Priests in South Africa have a meeting with the loved ones beforehand to explore how the ceremony is set out. The following is a retelling of my general experience with death and the rituals around it in South Africa.

Hindu death rituals in South Africa have kept for the most part the root of most rituals performed in India. However, as time has gone on the have adapted to fit into the modern lifestyles of the Indian community in South Africa.

Along with this issue, there is also the fact that even if the person does die at home the body is still taken by a morgue after being pronounced dead. This is either so a cause of death can be determined or just so the body may be stored. In a lot of cases, the morgues have a backlog and getting your loved one can take longer than expected. This is not ideal as according to tradition cremations need to happen as soon as possible.

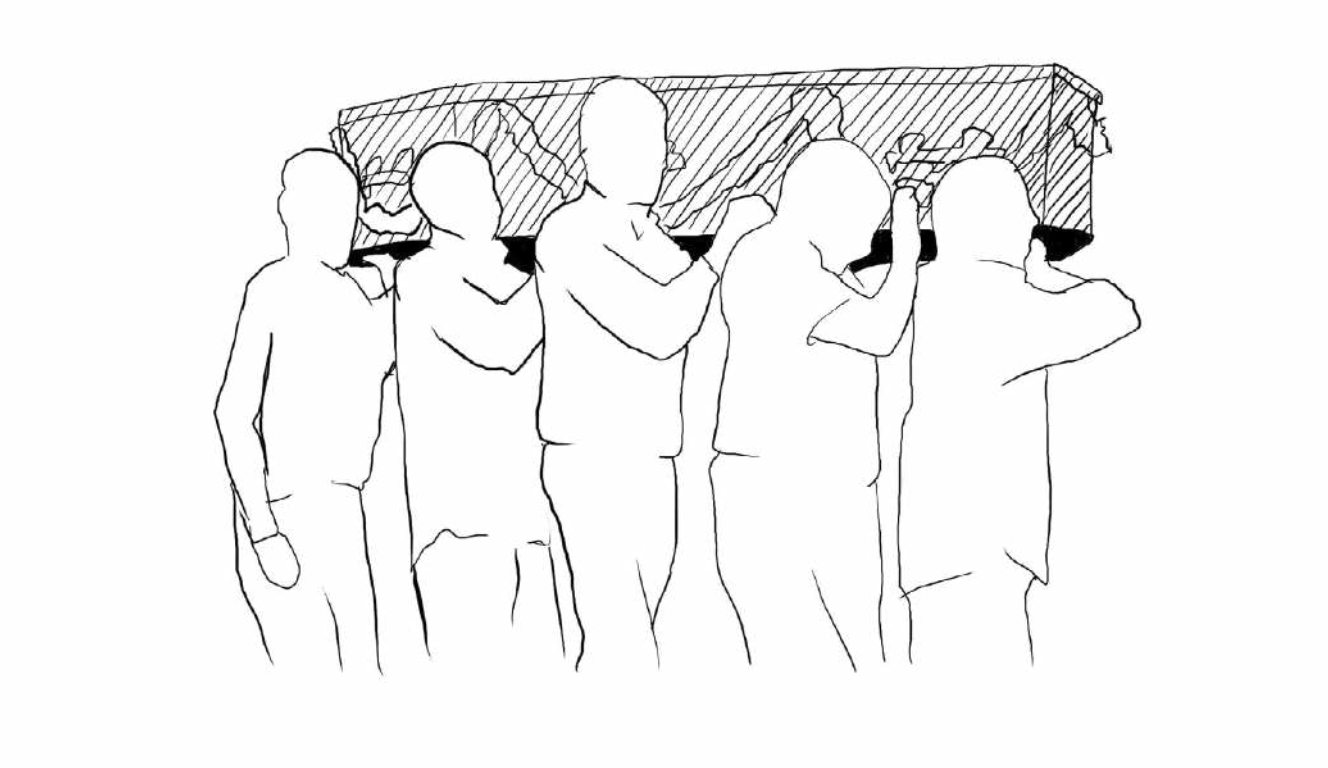


Figure 35: **The first descendant (Authors own, 2020)**

The body of the deceased is released to a funeral service. The family of the deceased then goes to the funeral service the day before the ceremonies to make arrangements for transporting the body and other logistical issues. They go back the day of the ceremonies to do the final bathing ritual. This is done is a cold stark room where the body is placed on a slab naked and the loved ones use a hosepipe to clean the body. It is quite sterile and seems as though it may make an already difficult act even worse.

Most of the original rituals are done the way they are because people died at home or were easily brought to the deceased's home for the final rites soon after the death of the person. In South Africa, many older people still prefer these rituals to remain in the home however younger people are changing this view. In a lot of cases, people have smaller homes or apartments and just cannot allow for the space needed for many mourners to attend and view the body. This is a vital aspect that provided closure for many. So there now is the option of getting alternate spaces with halls to transport the body so that the last rites may be done by the priest and family as well as the viewing of the body for the mourners. Priests have revised rituals to be shorter and offered translations for the many who do not speak Hindi and do not understand the prayers.

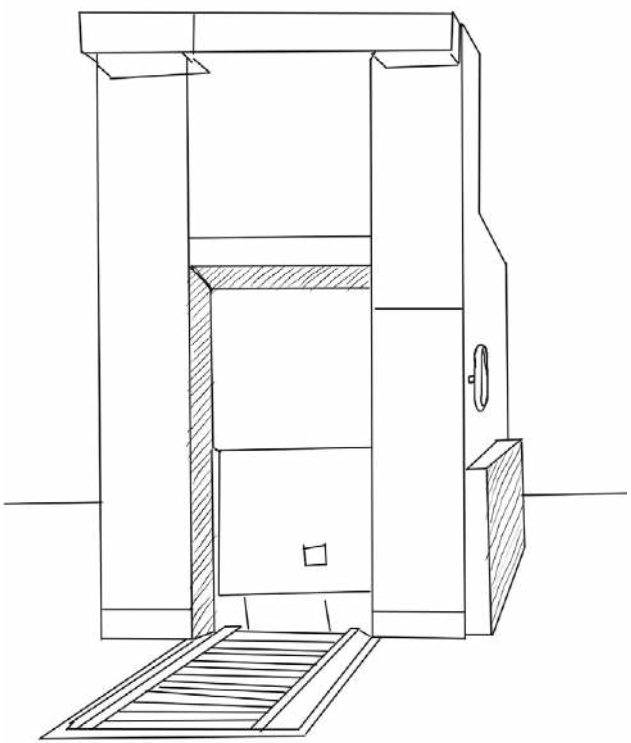


Figure 36: **Cremation furnace (Authors own, 2020)**

Once the last rites are completed the family carried the coffin on their shoulders to the hearse as the mourner in India would carry the body on poles to the riverbank. The body is now taken to one of the crematoriums which can be tricky as there are certain auspicious times during the day which the cremations must happen at. If the crematorium is far away it could mean the rituals to be done before the body goes into the machine cannot be done or they have to be rushed which is not ideal.

In the case of modern cremation, the tradition is altered. The chief mourner places a sacred wood covered in ghee with the body and then he is the one who is meant to turn on the switch to start the cremation process. And as the skull is broken apart in the machine it no longer falls to the chief mourner to fulfill kapalakriya.

Types of cremation

Name	Traditional Wooden Pyre	Electric Based Furnace	Diesel Based Furnace
Description:	Open air cremation. Conventional method for Hindu death rituals.	Body is placed in electric furnace and ash are left behind	Bottom chamber burner is preheated, once the body is placed inside a top hearth begins to heat up.
Fuel:	Wood	Electricity	Diesel
Quantity:	400-600kg	80kW of electric power	30 liters
Preparation Time:	1 hour	10 hour (very long)	30 min
Duration of Cremation:	2-3 hours	1 hours	45 min
Temperature:		800 °C	600°C - 800°C
Dimension (LxBxH):	2m x 1,6m x 1.5m	4.5m x 3m x 2m	3.6m x 1.65m x 2.4m
Environmental Concern:	Contributes to water and air pollution	All pollutants contained and filtered in post combustion chamber, before exiting through the chimney	All pollutants contained and filtered in post combustion Chamber, before exiting through the chimney
Pollution Free:	No	Yes	Yes
Smoke-Free:	No	No	No
Efficiency:	If the pyre is not constructed correctly or enough wood used parts of the body may still remain	Not operational during power cuts. Also requires large amounts of electricity to operate. The heaters need to be kept on nearly constantly to maintain operational temperature	Operated when needed as the start up time is short and does not need to be kept on to maintain the temperature.
Estimated cost:	R200-R1000	R200-R300	R160

Table comparing the cremation methods, India (Nanoo, 2016)

Name	Gas Based Furnace	Solar Based Furnace	Biomass Crematorium
Description:	Bottom hearth furnace principle with multi chamber air control facilities,	Concentration of solar power by a parabolic solar dish to incinerate a specially designed pyre.	Gasifier burns gas produced from wood instead of burning wood directly.
Fuel:	LPG/CNG	LPG/CNG	Biodegradable waste
Quantity:	45 kg	25 kW solar power	100 - 145kg of bio-waste
Preparation Time:	30 min	1 hour	45 min
Duration of Cremation:	1 hour	2 - 3 hours	1 hour
Temperature:	700°C	1000°C	700°C
Dimension (LxBxH):	4m x 2.5m x 5m	8m x 7.2m	4m x 1.4m x 1.2m
Environmental Concern:	Natural gas crematoria proved to be sustainable and has lower emissions compared to diesel and electric	Smoke is trapped in a chamber and filtered, cleaner emissions.	Lower emissions and substantial savings in use
Pollution Free:	Yes	Yes	Yes
Smoke-Free:	No	Yes	Yes
Efficiency:	Operated when needed as the start up time is short and does not need to be kept on to maintain the temperature.	Can only be operated when the sun is shining but the cost of a single dish is expensive	Better conversion from solid bio waste to gas. affords greater control in the cremation process, with regard to temperature control.
Estimated cost:	R120	R0	R50

Table comparing the cremation methods, India (Nanoo, 2016)

Based on context, requirement, and the information the previous table Gas Based Cremation seems to be the best option for the design and its program.



Figure 37: **Gas based cremation furnace system (alphaequipments, n.d)**

The South African Sivananda Ghat typology



Figure 38: **South African Ghat (Sri Swami Sivananda, Dec 11, 2012)**

4.2

Pools in place of rivers



Figure 39: **Ghat pools (Sri Swami Sivananda, Dec 11, 2012)**

The Sivananda Ghat is a post-cremation public facility in Durban along the Umgeni River. It was constructed by the Divine Life Society of South Africa. The purpose of the facility is to assist in the disposal of ashes after the cremation of a loved one. Once the cremation has happened and the ashes are returned to the loved ones. A little water (sometimes milk) is mixed in with the ashes and taken to the Sivananda Ghat. The family is allowed to say their last words or makes any speeches they would like to. Three members of the family who are considered to be closest to the deceased then take a lota (water vessel) filled with water, flown in from the river Ganges in India, go to one of two basins filled flowing consecrated water. They then proceed to wash the ashes into the basin. While this happens the people chant and circle the basin 3 times. A tap is turned and pressurized water pushes the ashes into the Umgeni River half a kilometer away and then into the sea. It is said that this takes only 3 minutes to happen. They do up to 16 ceremonies a day and have been doing this for 15 years.



Figure 40: **Ghat prayer section (Sri Swami Sivananda, Dec 11, 2012)**



Figure 41: **Prayer service (Sri Swami Sivananda, Dec 11, 2012)**

This Ghat services all of South Africa as it is illegal to dump ash in the ocean from a beach. There is a fine of R5 000 if you are caught. Johannesburg has the second largest population of Indians in South Africa. As it is a landlocked city most Indian people from there make a pilgrimage to Durban every time someone dies to scatter their ashes at this Ghat. This is quite the journey to make in times of suffering and loss. And that's where I believe my design can come in to provide a solution closer to home for families in Johannesburg.

Chapter 5

Theoretical framework

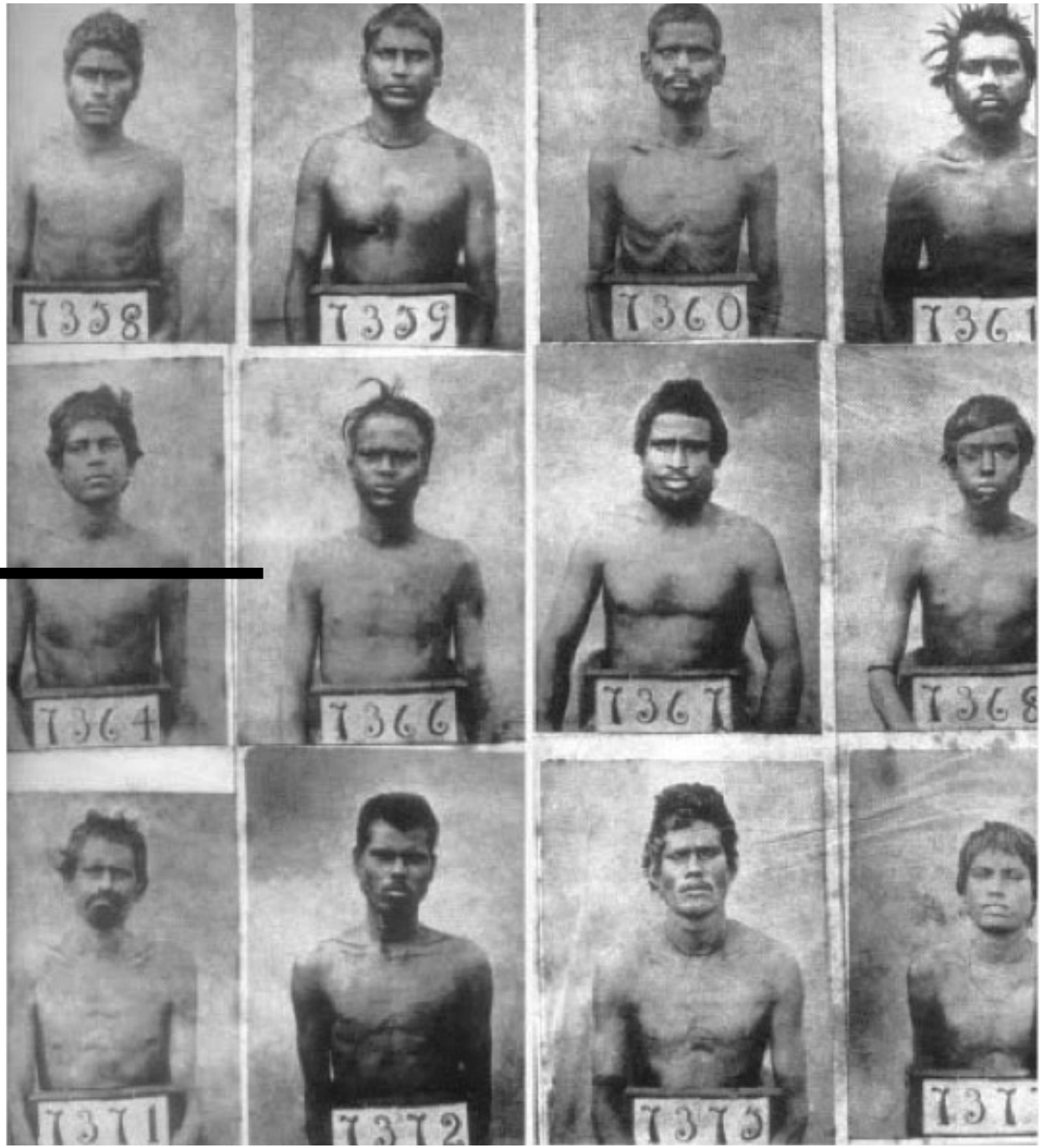


Figure 42: **Manifold (gauteng film, Nov, 2010)**

5.1

Identity

There are many definitions for identity, but the core understanding is that it is how you are seen and the sense of 'otherness' which can be observed. It is the things about you that make you different from others (Tuğba Şeyda Akşehir, 2003).

Over the years the 'Indian' identity in South Africa has been deconstructed, constructed, and re-made many times over. The dynamic has been one that is in constant tension between how the state wishes to define it and exclude impulses from below that wanted to be included in the ruling class based on Indians being "civilized" (pre-1914) (Vahed and Desai, 2010), to Indians being brought in as a racial group and then the inclusion as South Africans. Through all the allocations being assigned to Indians such as 'coolies', to non-whites, and then to 'Indian' South Africans. We see that identity is not a 'fixed essence'. Overtime and context the idea of the identity of Indians on South Africa has morphed into what it currently is.

Cultural theorist Stuart Hall proposes that identity is something that is to be seen as fluid instead of static. One must not look at the individual as a subject rather we look at the differences described by an objective third party. By eliminating the notion of a single identity we can promote the idea of an identity based on the context (Fisher, Roger & Lange, Mary & Nkambule, Nanda, 2017). Globalisation in Africa has led to a multicultural society. Paulin Manwello (2011) calls for a new way of thinking about 'identity' as 'citizenship'. This would start to define identity more as the relationships to 'particularities' and 'common bonds'. Building the capacity for people to unify and act on the more common ground leading to a more cohesive society. Bringing 'Indian South Afircan's' into this term of 'citizenship' would be to no longer separate them from the larger South African context. It would mean integrating our spaces (such as spaces of mourning) to encourage this more cohesive society we are looking to create. Integrating spaces to not only share more of what they have to offer but also gain insight from others that may not have previously been accessible.



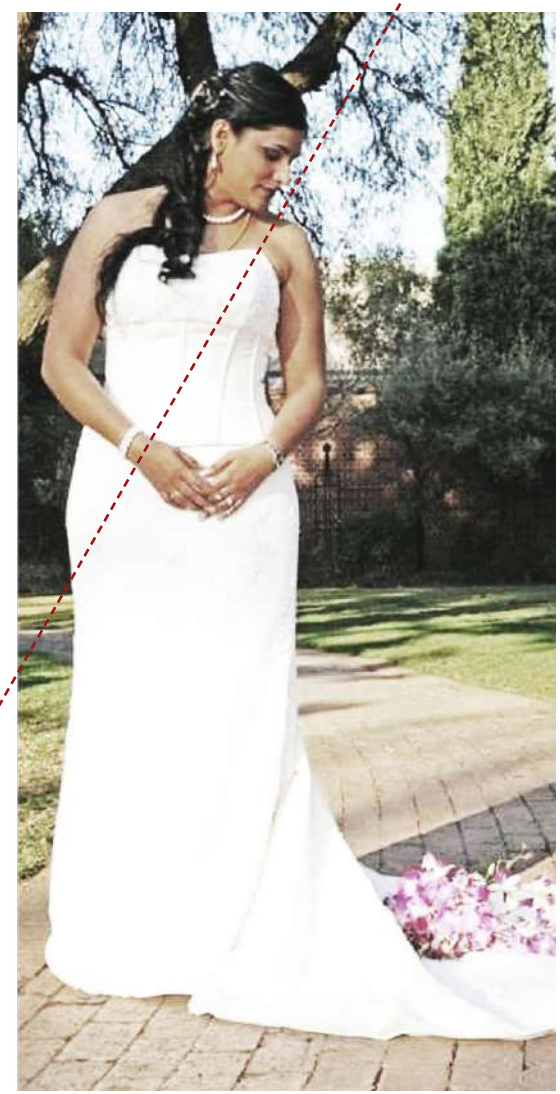


Figure 43: **Authors Mother (Authors own 2020)**

5.2

Post-colonial Hybridity

Hybridity and hybridization is used to characterize phenomena that easily considered as ‘borderline’ or ‘other but are not so easily explained (Philipp Wolfgang Stockhammer, 2011). In the book Conceptualizing Cultural Hybridization: A Trans-disciplinary Approach Philipp Wolfgang Stockhammer’s workshop goes beyond the small realm of each discipline’s focus. They use new methodologies to analyses cultural hybridization with the aim to achieve a multidisciplinary view of hybridity.

Hybridity is noted as a trend when looking at it through the post-colonial lens. This is because it focuses on the resistance of social and cultural minorities amongst the global condition. Hybridity an globalization is always spoken about together. Philipp Wolfgang Stockhammer states that “it is obvious that cultural diversity and cultural borrowing are not exclusive phenomena of ‘modernity’. Equating globalization with modernization and Westernization tens to overlook the influence on non-western cultures on ‘the West’ and at he same time overrates the homogeneity of western culture(s).”

Homi K. Bhadha’s work concerned the problems of representing the ‘Other”. He argues that sense no culture has been left untouched by the global movement of people, signs, culture and information everything is a hybrid of something. This creates a conflict between identity and difference. It is arguing that the unconscious ‘mixing’ of cultures and has had unforeseen productive effects as the unconscious hybrids are full of potential for new world views with new ways of interpreting context.

Philipp Wolfgang Stockhammer explains Burke’s metaphorical fields of hybridity being: borrowing, mixing and translating. Borrowing refers to a subordinate culture adopting traits from a dominant culture attempting a kind of assimilation. This term suggests the borrower’s culture is not sufficiently original. Mixing has been viewed as a kind of disorder. It is an intermingling of cultures. Translating refers to the changing on one culture into another through the lens or language of one of the cultures.

When looking at South African Indian, they have already assimilated into the greater South African context and translated their rituals and culture to the context. However, along the way things have morphed and even gotten lost in translation. When designing spaces for South African Indian it was through a lens of assimilation, so the result is a watered-down culture which pales to that of the motherland. Now we must redefine the identity as modern South African Indians so that the spaces designed for them can be better molding and have a great connection to the origins of the culture. South Africans will always be hybrids themselves, with this is mind the architecture should reflect this more greeter instead of just trying to fit into the South African box.



Figure 44: **Hybrid (Authors own, 2020)**

5.2

The Architecture of Crematoriums

The typical design of crematoriums revolves around an unresolved intermediate chamber which is where the coffin gets transferred to the furnace (Monica Sarker, 2016). The in-between space essentially shields the mourners from actually witnessing the coffin being ignited. Some have suggested replacing this space with one to allow for prayer or meditation. The entire cremation procession hinges upon these in-between spaces which are generally marked by changes in the landscape and the use and relation to water. Crematories are generally placed into the basements of buildings. The noise produced by the actual machinery is canceled out by the music of the mourner's choice. All to book out any connection to the actual process of cremation itself. This practice is a Western one and it is considered an act of dignity (Monica Sarker, 2016).

Crematoriums become the spaces that deal with the cremation processes alone. Then it is left to elements such as a columbarium to deal with the aspects of remembrance and monument. A columbarium is an architectural element that allows for the long-term storage of ashes it is the equivalent of a gravestone.

James Stevens Curl (2002) remarks that many crematoriums do not allow for the correct surroundings to create a pensive atmosphere that is needed in columbarium spaces. Crematorium spaces need to allow not only for the managing of the emotional needs of the mourners but also for the industrial requirements needed for the disposal itself. By adding mechanised elements to carry the body to the cremating machine we have taken a sense of closure out of the once ritual. As a whole, our way of dealing with cremation is directly linked to our attitudes on the human body. Over time we have distanced ourselves from death and illness. The result is a distance in the way we handle the disposal of the dead and our grief. In past practices symbolic gestures of worship carried the most weight, now it is the functional solutions that take preference. Which then gets echoed in how we design these spaces.

Bringing back some of the more personal elements of cremation from older practices would serve to bring back a more connected way of designing our cremation spaces. This would in turn make the process of searching for closure a more approachable concept.



Braamfontein Crematorium

http://www.theheritageportal.co.za/article/johannesburg-way-death-history-johannesburg-crematorium

Figure 45: **Crematorium in Johannesburg (The heritage portal, July 17, 2018)**

5.3

Tranquility and remembrance

Tranquility is the most vital auditory experience made by architecture. Juhani Pallasmaa states “architecture presents the drama of construction silenced into matter, space, and light. Ultimately, architecture is the art of petrified silence.” The silence we experience through architecture is one of remembering. It focuses us on our actual existence in space and time, even making us aware of our solitude. Architecture frees us for the present and allows us to experience the flowing of time more slowly and in a more healing sense. Buildings can act as museums or instruments of time. They let us observe and understand the passing of history and take part in the life cycles proceeding our own. Architecture connects us to those who have passed on. Space can remind us of those who have inhabited it before us. Time and space are linked eternally in the spaces between arches, walls, and columns. Time fuses into a singular experience and a greater sense of being.

The architecture of modernity stuck in an infinite space of utopian thinking, hope and optimism are an example of how out architectural intentions stand even after time has done its work. Experiencing space is a private conversation between the space and the occupant (Juhani Pallasmaa, 1996). The feelings one experiences become a memory and can be examined long after we have left the space, turning it into memory.

When designing a space for mourning and memory we should consider and allow for a tranquil space which will hopefully linger with the occupant long after they have left the space. This remembering should be the goal of the architecture. A building that connects you more deeply to the memories of the ones you have lost. Using auditory senses to design will better impart the intensions of the architecture. For example, a space of contemplation should be more reserved and silent, whereas spaces for collective mourning should allow for sound to wash over an occupant as a comfort.

‘‘The timeless task of architecture is to create embodied and lived existential metaphors that concretise and structure our being in the world. The architecture reflects, materializes, and eternalizes ideas and images of ideal life.’’ (Juhani Pallasmaa, 1996)



Figure 46: **Tranquil in-betweens (Pinterest,n.d)**

5.4

Indian vernacular planning

The Vastu Prursha mandala is part of a branch architectural science called Vastu Shasthra. 'Vastu' comes from the Sanskrit sound 'Vas' which expresses a wide range of words that are used to describe things that surround humans such as clothes and houses etc (Jayadevi venugopal, 2012). 'Vastu' refers to the place in which morals and immortals dwell in the context of Vastu Shastra. The translation of Vastu Shastra is the place in which mortals and immortals live. It is comprised of knowledge developed in the first century (AD) and then developed/modified by the next generation of architectural scholars. Most of it was translated from six ancient Sanskrit books. During British rule, the exploration into the indigenous science slowed but in the last decade, the importance of the indigenous philosophy has gained momentum. However, the study of the Vastu Shastra is still not considered in the mainstream education of architects. This is due to the roots of the principle being in symbolism and mysticism of eastern philosophy. The Vastu Shastra needs to be revived through the lens of current issues that faces the built environment.

The Vedic science behind the Vastu Shastra considers humans part of a whole. It can be applied to temples, architecture, paintings, homes, and even sculpture. It defers depending on location and regional factors. The 'Vastu purusha mandala' is the most important symbolic diagram in the Vastu Shastra (Jayadevi venugopal, 2012). In the mandala to the right, you see the house is represented as a human lying face down with different deities represented in different quadrants of the body which all represent different qualities. The following reviews the mandala through a few themes.



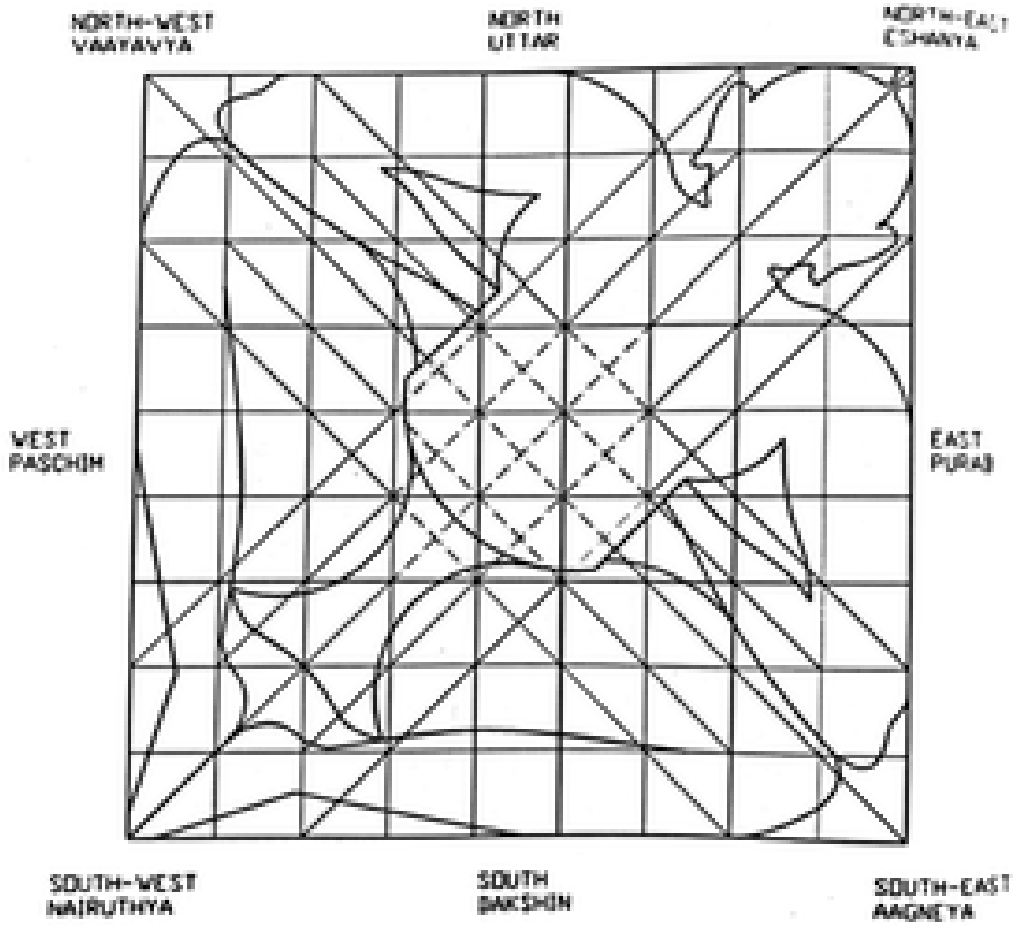


Figure 47: Vasu Grid (n.d)

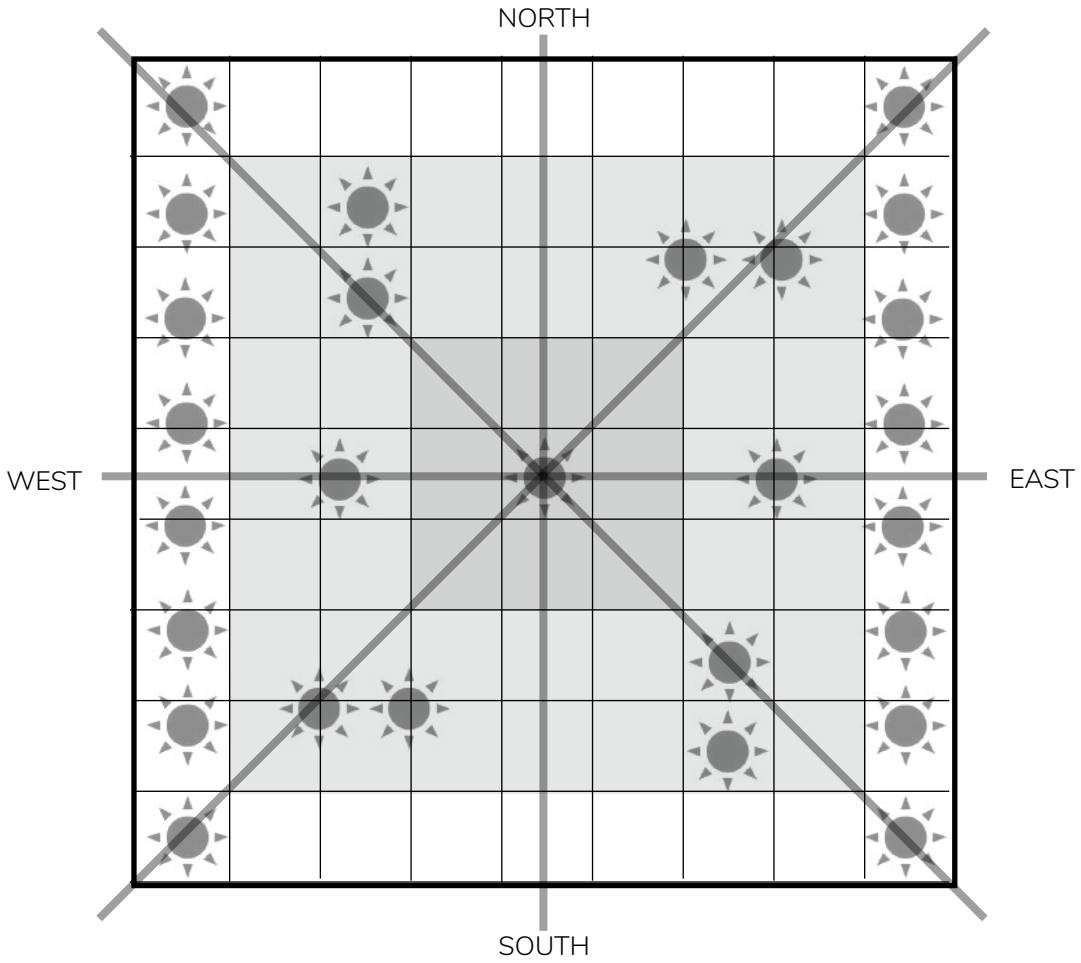


Figure 48: *Vastu purusha mandala as representation of space* **(Authors Own, 2020)**

Social Focus:

Social focus using the mandala comes from the meaning assigning to each of the sectors of the mandala. Meaning that the social structure of the building comes from another set of meanings assigned to the deities. For example, the east side of a building which is where the energy of the sun is abundant gets assigned to open and active activities. These activities tend to 'mix' with nature. The sun's harmful energy is said to be on the west where calm and inactive (storage and resting) spaces are assigned and controlled by a more built-up structure. These activities promote privacy and seclusion. They tend to step back from nature (Jayadevi venugopal, 2012). An important aspect is that of the courtyard which acts as balancing spaces and ties together the different activities in the architectural landscape.

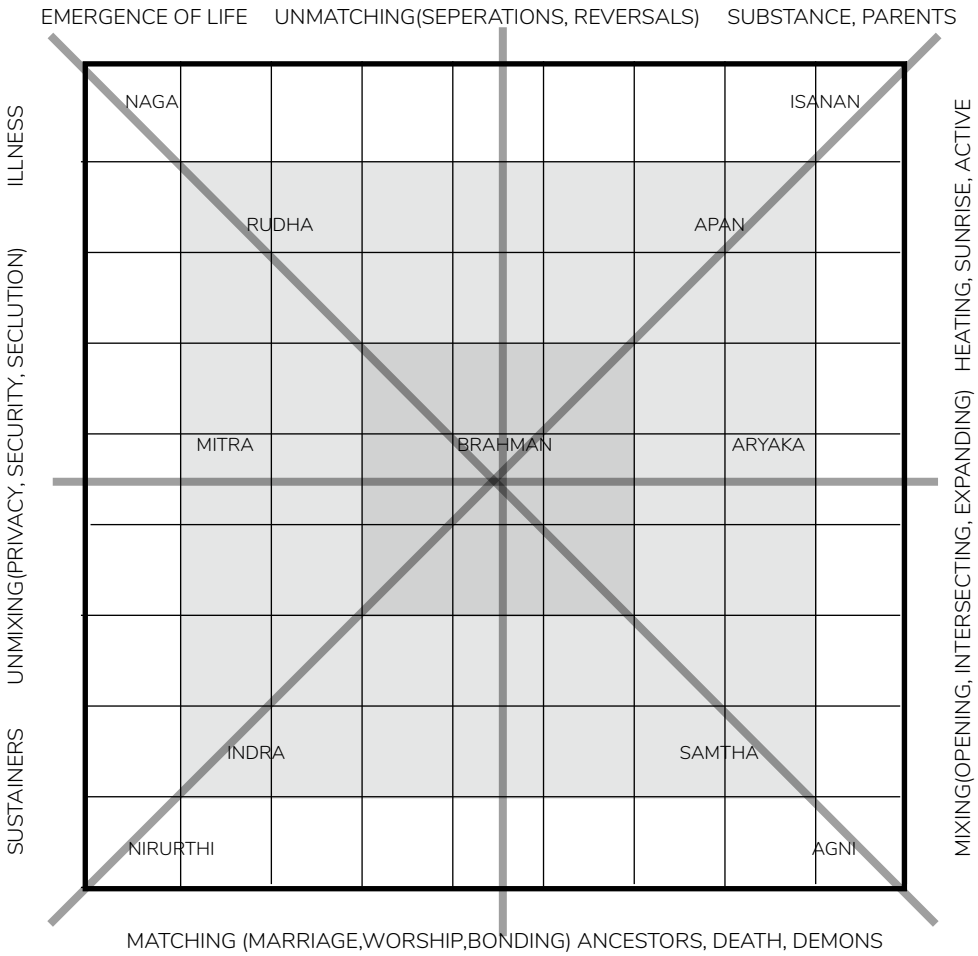


Figure 49: *Vastu purusha mandala as a human ecologic framework* **(Authors Own, 2020)**

Human ecologic framework:

We can now see that the mandala aims to create a greater connection between occupants and the environment. Human Ecology refers to the organization of time, communication, meaning, and space. The mandala explains how space and time are indivisible. The mandala uses direction, sun orientation, and proportion to set out spaces. The divisions, square geometry, and idea of 8 directions to sun path bring the principle of space into the Vastu purusha mandala. Sun path, plotted through characteristics of deities, represents time and different spatial effects.

The physical forms are then assigned with meanings as symbolic deities. As an example, the Northeast corner represents Isana, the Vedis god of Creation. He has qualities that are positive and go along with the idea of light, receptive atmospheres, and openness. These meanings get morphed into environments that lead to human interaction.

5.5

Conclusion

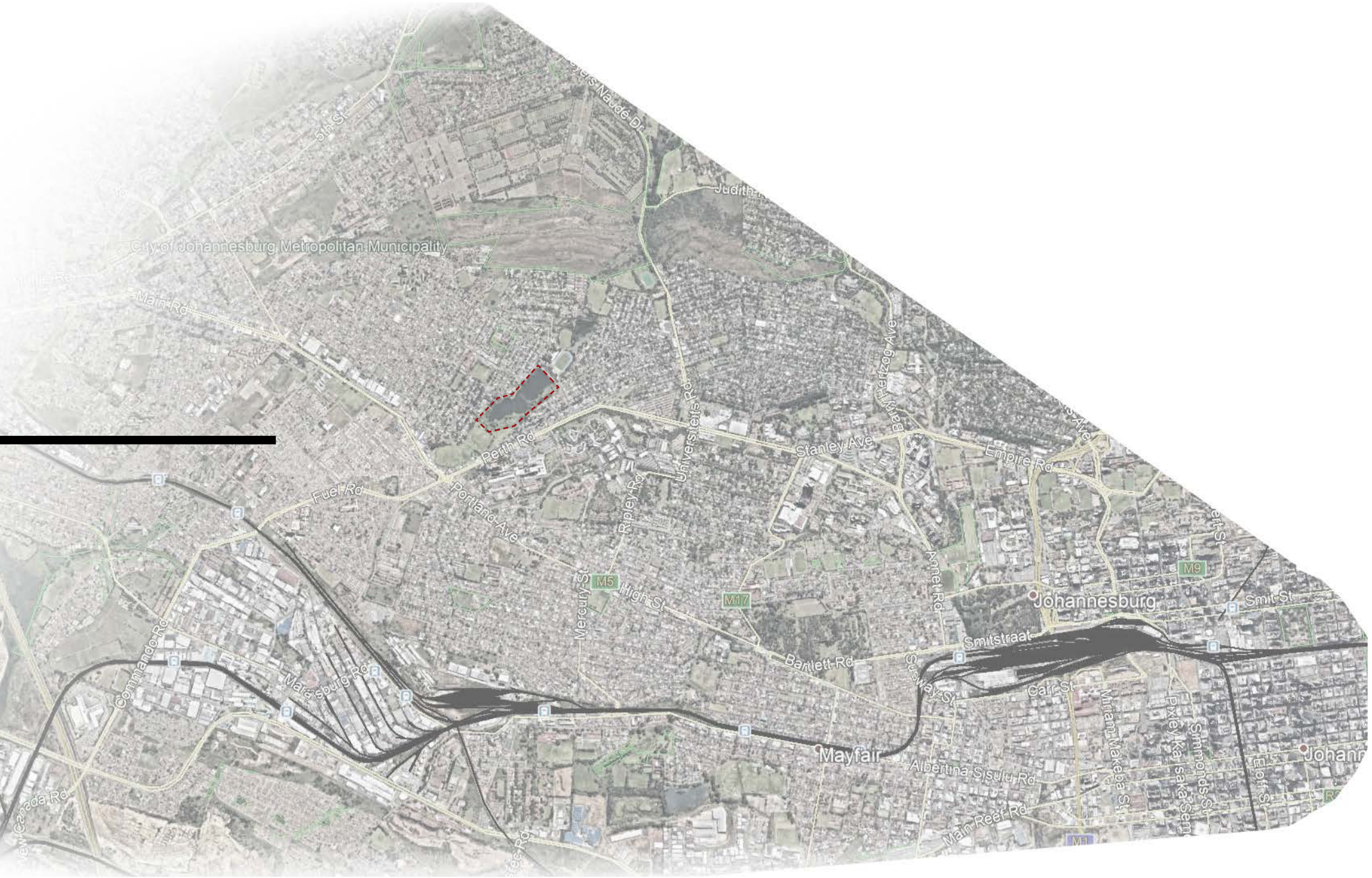
The aim of the research was to the roots of Indian rituals on death and how they have adapted to the South African context. Using my own lens as a South African Indian and research into the mythology of death. We saw how death folds into everyday life and is held in a very personal manner. The motherland treats death as an existential there. Considered both private and public. It was needed to understand what architectural concept could be used in order to create a new crematorium architectural typology for the south African context. In the First two chapters we built our understanding of the rituals and now we can see the difference between South Africa and the motherland. A lot has changed due to time, context and efficiently. We can use this to design interior spaces which better fit the rituals needed for Hindu ritual of death. I the theoretical framework we looked at how Identity is vital to how we place ourselves in our context. Using hybridity we understood the mixing of cultures and spaces and can how find a ground without compromising on identity. Looking at how crematoriums are typically laid out we found a jumping off point to adapt with Identity more primarily in the foreground of the design. We saw how auditory senses as a design element to create spaces of reverberance and tranquility with is vital to a crematorium's programming. And lastly was mapped out the use of the Vasu Mandala as a vernacular planning tool. This provided insight into how the motherland goes about laying out spaces and how this can affect our spaces in a positive way. The design will marry all these outcomes in order to create a cohesive design which reimagines the South African landscape of death.

(Authors own, 2020)

Chapter 6

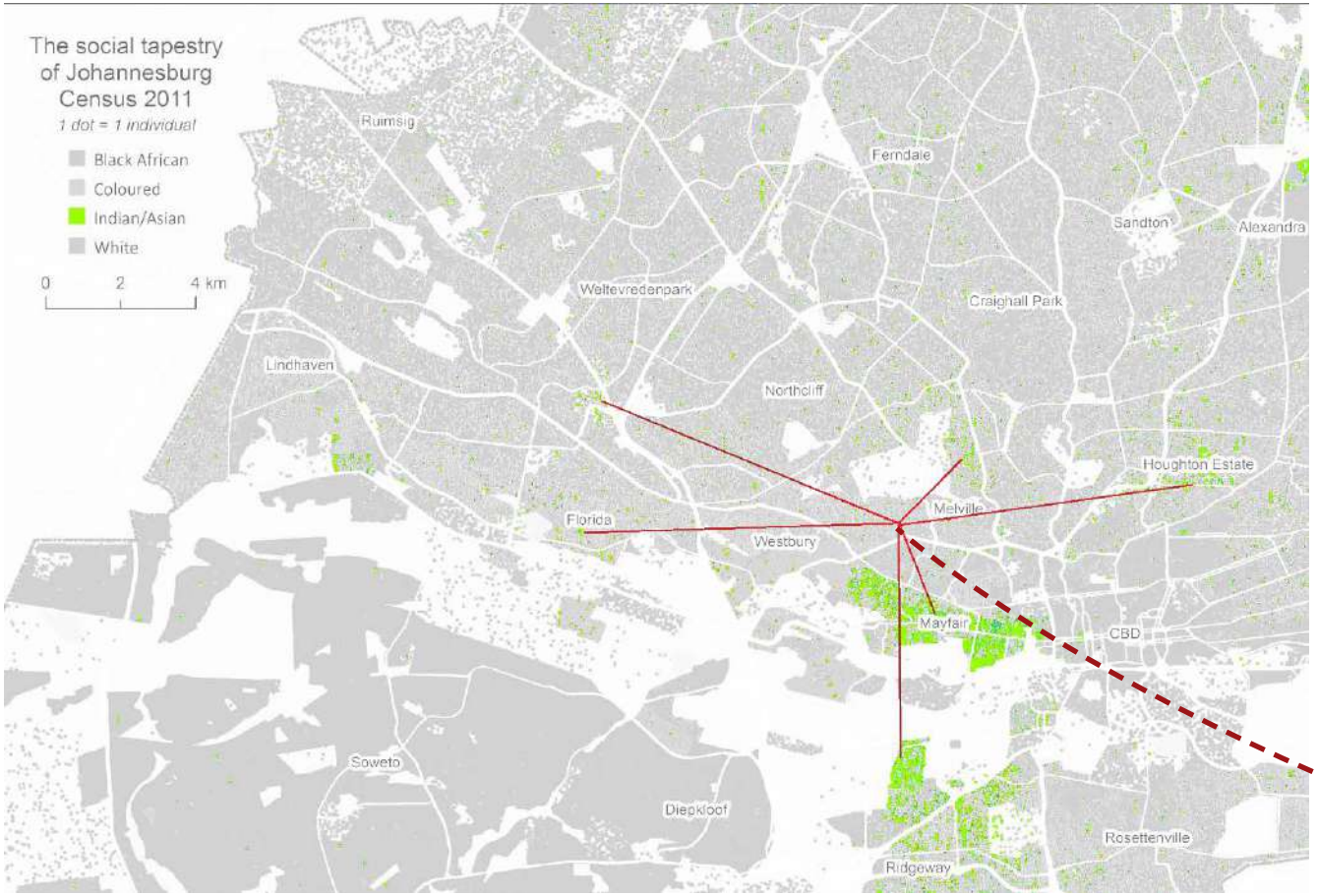
Mapping & Precedents




City of Johannesburg Metropolitan Municipality
Main Rd
5th St
Perth Rd
Fuel Rd
Portland Ave
Ripley Rd
Universitetts Rd
Stanley Ave
Empire Rd
Barry Hertzog Ave
Annet Rd
Mercury St
M5
High St
M17
M9
Johannesburg
Smit St
Smitstraat
Bartlett Rd
Sussway St
Carr St
Mayfair
Albertina Sisulu Rd
Main Reef Rd
Miriam Makeba St
Pixley Ka Isaka Sem
Simmonds St
Eloff St
Commando Rd
Marais Rd
Canada Rd

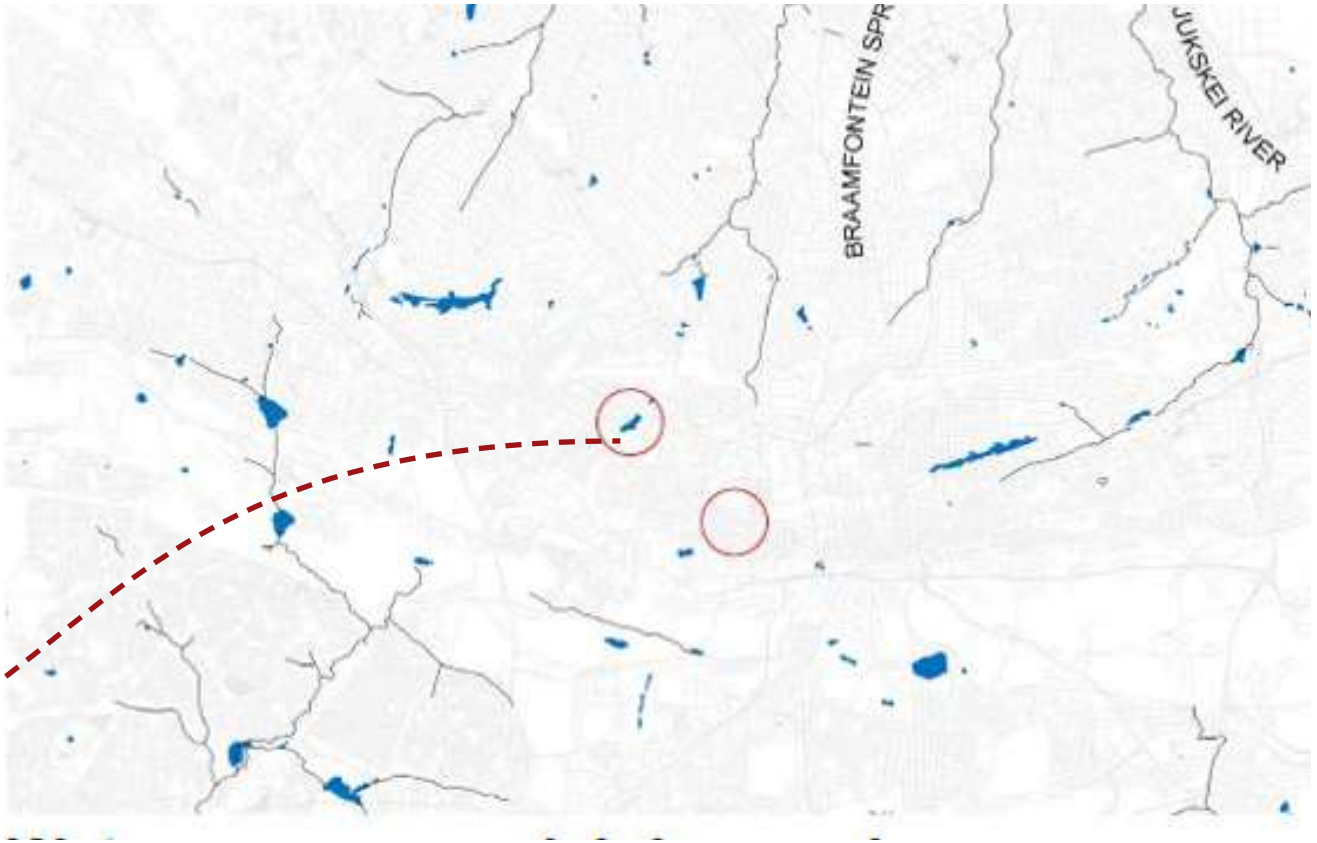
6.1

Macro-Mapping



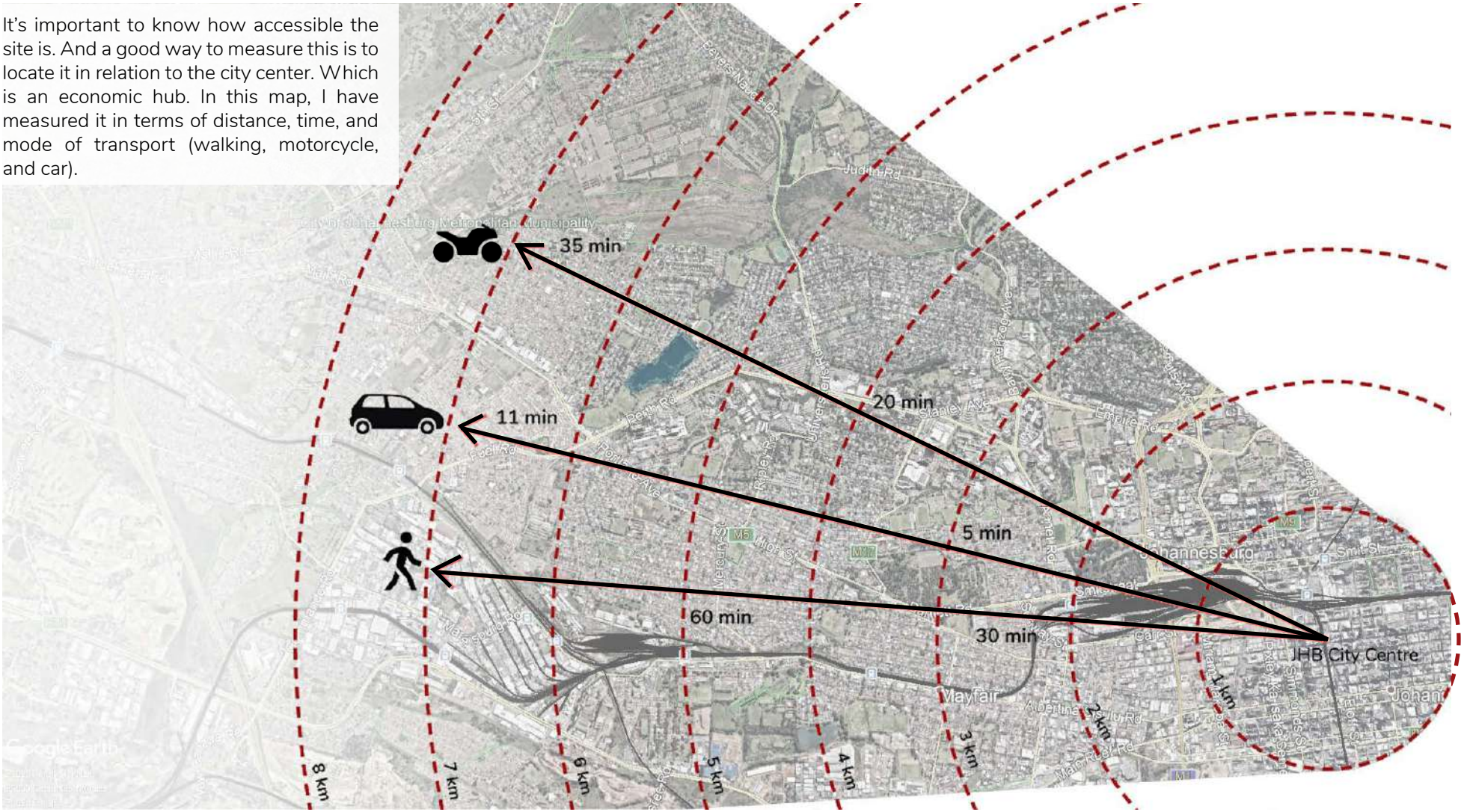
When designed for this specific program I had to find a site. I narrowed down the selection by isolating communities who will most likely make the most use of a crematorium built with Hinduism in mind. I found out that in Johannesburg the highest density of Indians lives in Mayfair and Fordsburg. There are also concentrations around Houghton Estate and some in Melville. It is also bordered by Sophiatown which is steeped in the history of the forced removals during apartheid forcing the Indians in the area to relocate to Lenasia. I used that as a starting point. Through my research, I realised that water plays a large role religiously and emotionally. So I found a map that highlights water in Johannesburg. I overlaid this onto my mapping of communities and the water source which ended up being the most central and had a large enough open green space was Westdene Dam. To the left and right you can see both of the maps which lead to this exploration into Westdene Dam being my chosen site.

(All figures not referenced are authors own)

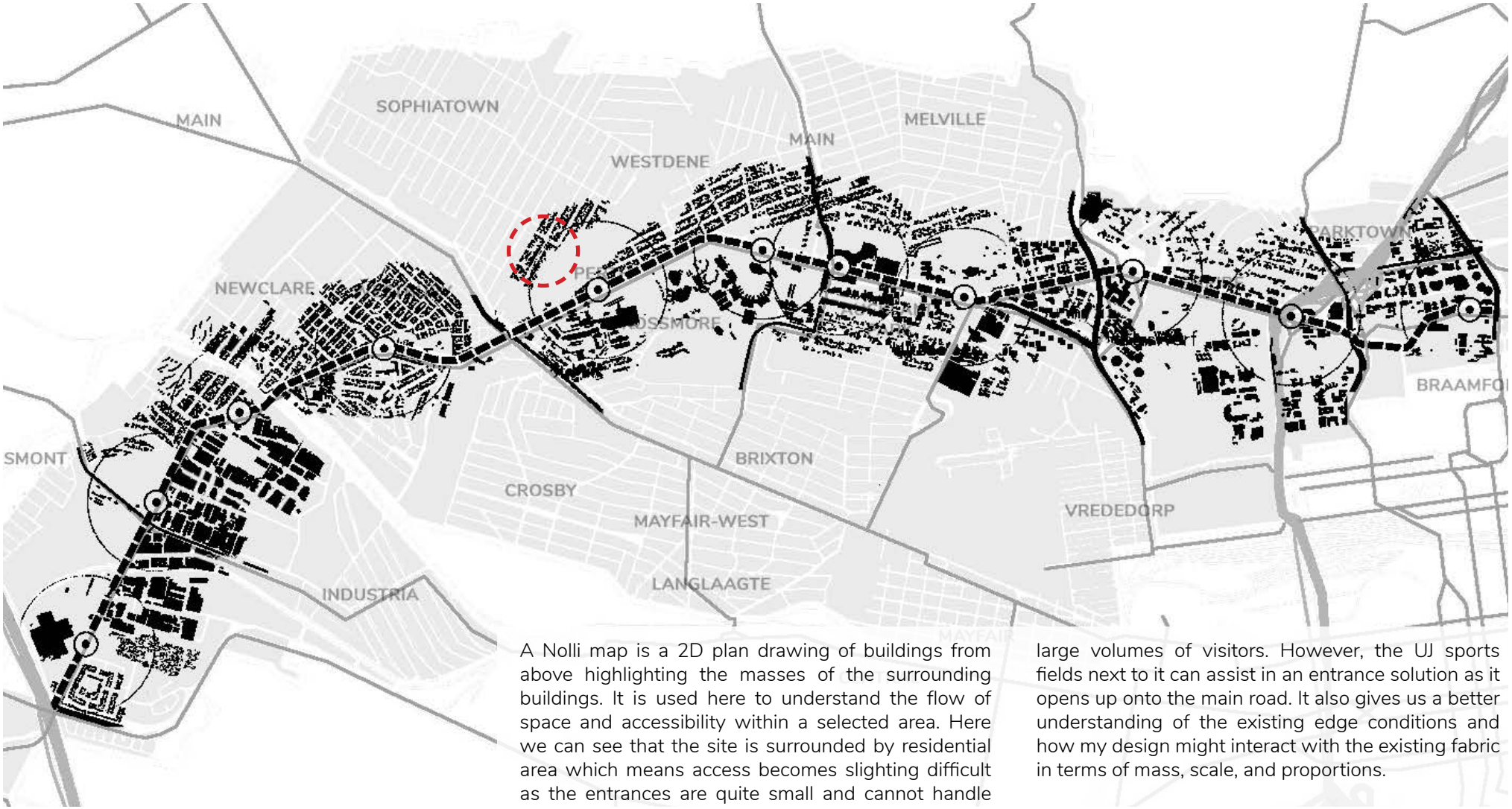


Access from city centre

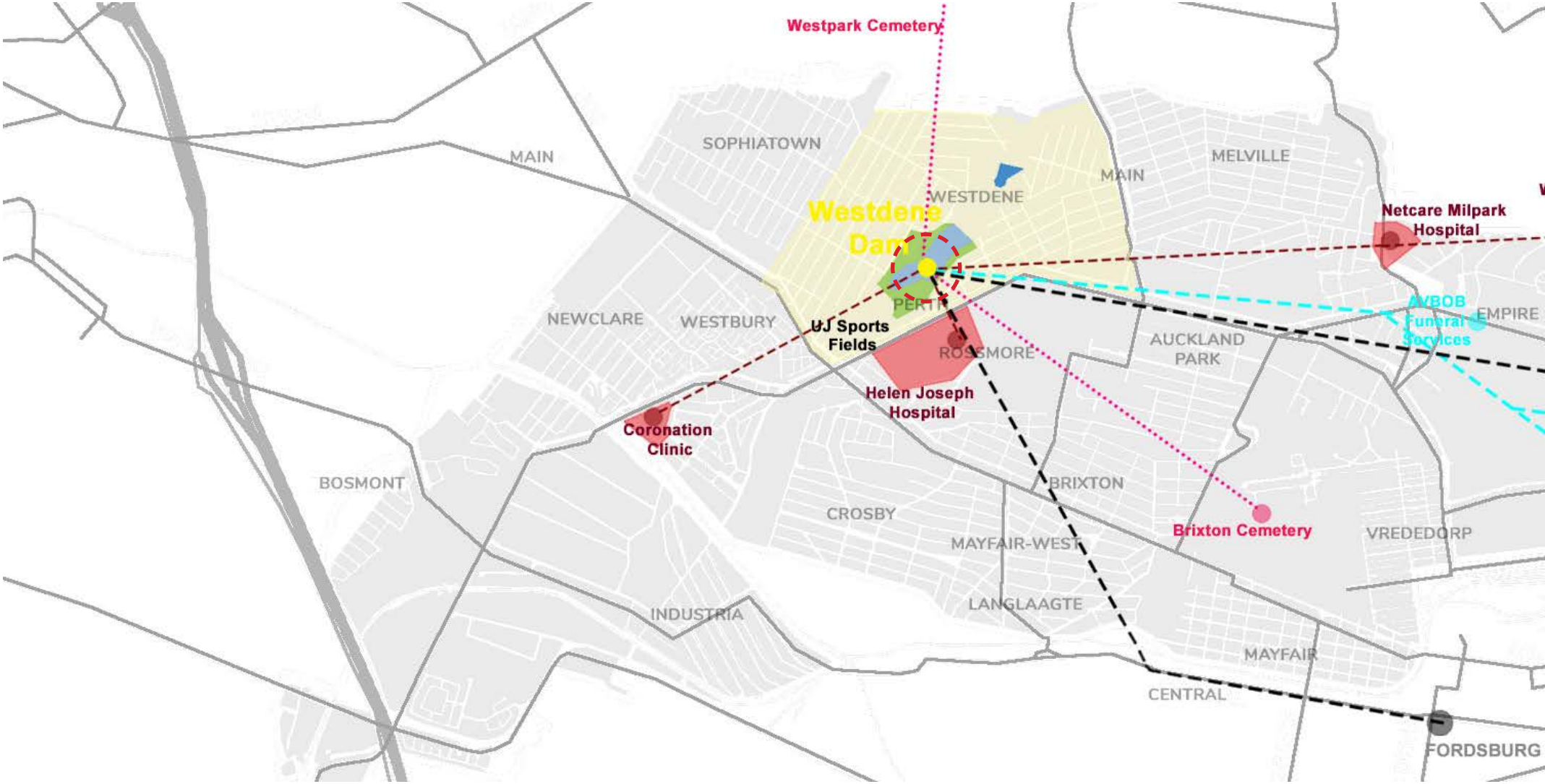
It's important to know how accessible the site is. And a good way to measure this is to locate it in relation to the city center. Which is an economic hub. In this map, I have measured it in terms of distance, time, and mode of transport (walking, motorcycle, and car).

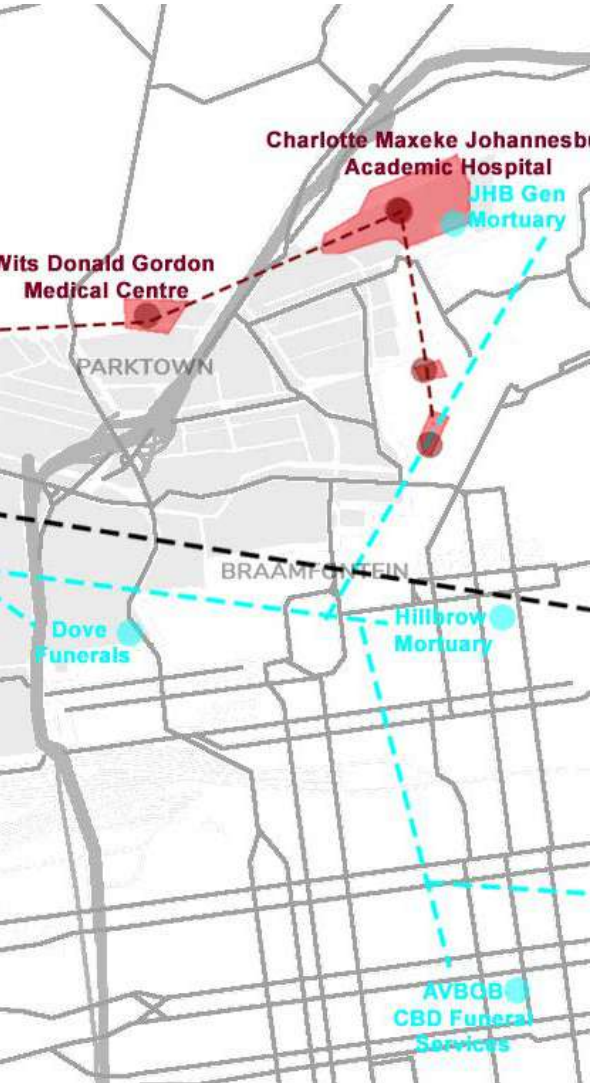


Nolli Mapping



A Nolli map is a 2D plan drawing of buildings from above highlighting the masses of the surrounding buildings. It is used here to understand the flow of space and accessibility within a selected area. Here we can see that the site is surrounded by residential area which means access becomes slighting difficult as the entrances are quite small and cannot handle large volumes of visitors. However, the UJ sports fields next to it can assist in an entrance solution as it opens up onto the main road. It also gives us a better understanding of the existing edge conditions and how my design might interact with the existing fabric in terms of mass, scale, and proportions.


Westpark Cemetery
MAIN
SOPHIATOWN
WESTDENE
MAIN
MELVILLE
Westdene Dam
Netcare Milpark Hospital
PERTH
NEWCLARE
WESTBURY
UJ Sports Fields
ROSSMORE
AUCKLAND PARK
AVBOB Funeral Services
EMPIRE
Helen Joseph Hospital
Coronation Clinic
BOSMONT
BRIXTON
CROSBY
Brixton Cemetery
VREDEDORP
MAYFAIR-WEST
INDUSTRIA
LANGLAAGTE
MAYFAIR
CENTRAL
FORDSBURG



Looking further into the site I looked for services that would align with my program. These services include hospitals, morgues, funeral homes, and other crematoriums. As I mapped them, I discovered that they form a spine that leads straight to my site which idea. It means it can provide services to these institutions and get services from them as well. It becomes a symbiotic relationship to a system that is currently under a lot of strain due to a worldwide pandemic. It will aid if future disaster situations. A large part of the idea behind the design intervention is making the process of cremating a loved one easier and more bearable than it is currently in Johannesburg.

Currently, the services provided in Johannesburg, not at the level they should be. Due to how Hindu rituals are set up these institutions are also very scattered. This means the body of the deceased must be ferried to multiple locations and may not be handled with the desired care. The design makes it possible for all rituals and services to help in one place and provide more peace of mind to the family.

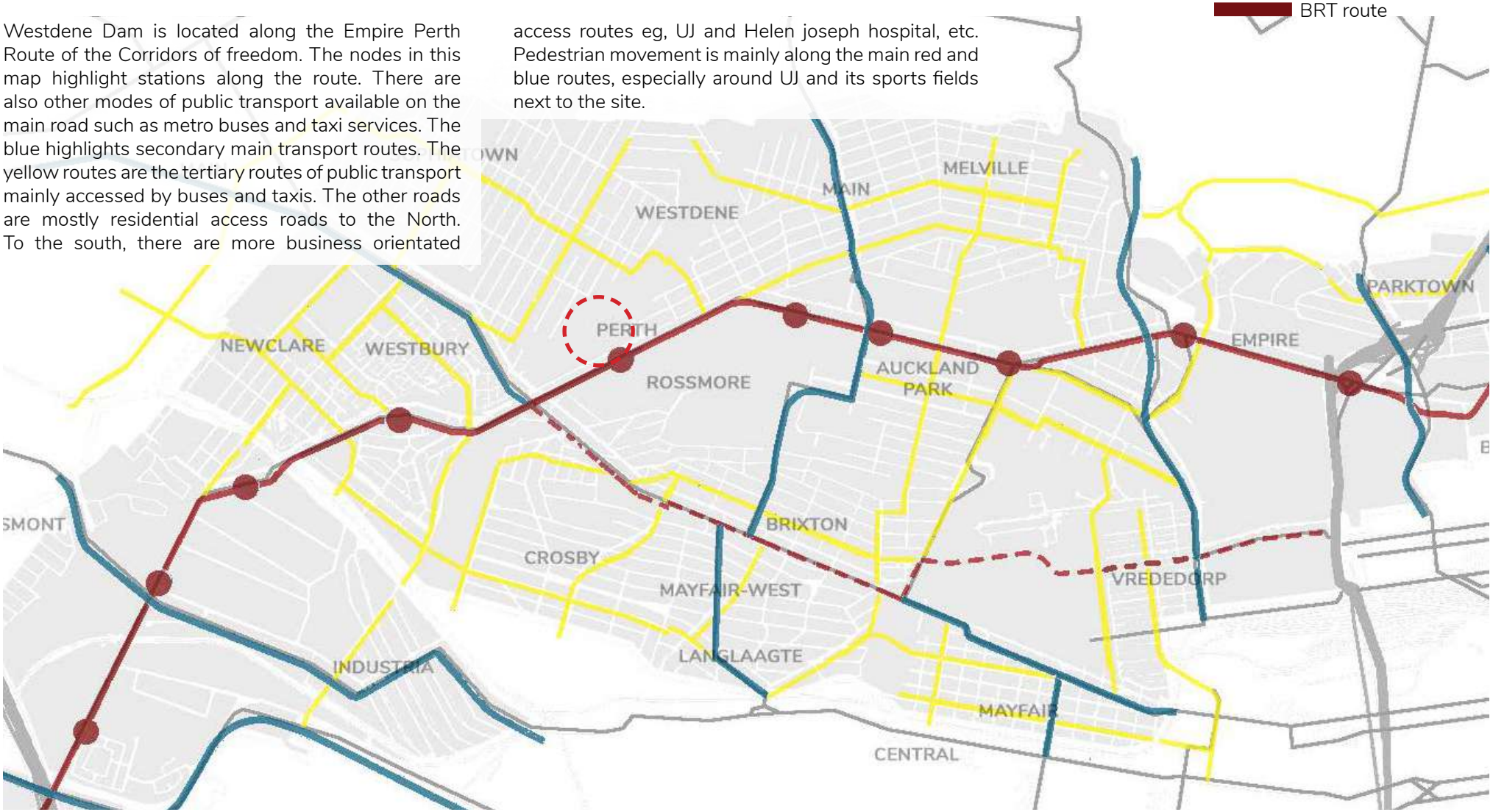
The following mapping examines factors that both connect and affect the site.



Knowing that the site I have chosen is a park it's important to map other surrounding green space to identify any possible relationship with can be harnessed to create either a large system or possibly looking at them to house similar programs. To the south, there are larger green spaces that could be looked at in the future to merge with similar programs as they are along the same spine of services identified above. To the North, as it is more densely populated residential areas it becomes less of a connection.

Access and Movement

Westdene Dam is located along the Empire Perth Route of the Corridors of freedom. The nodes in this map highlight stations along the route. There are also other modes of public transport available on the main road such as metro buses and taxi services. The blue highlights secondary main transport routes. The yellow routes are the tertiary routes of public transport mainly accessed by buses and taxis. The other roads are mostly residential access roads to the North. To the south, there are more business orientated access routes eg, UJ and Helen joseph hospital, etc. Pedestrian movement is mainly along the main red and blue routes, especially around UJ and its sports fields next to the site.



Density

This mapping explores the density per hectare of the area surrounding the site. It helps us to better understanding the context of our building and helps to weave it into the existing urban fabric. The site is surrounded by Medium (100 - 160 Density per hectare) and Low - Medium (<100 Density per hectare) density. The low-medium density is on the left, more residential side of the park. The medium density is more along the main road. With higher densities seen along the main road of Perth and more along the road heading into the city.



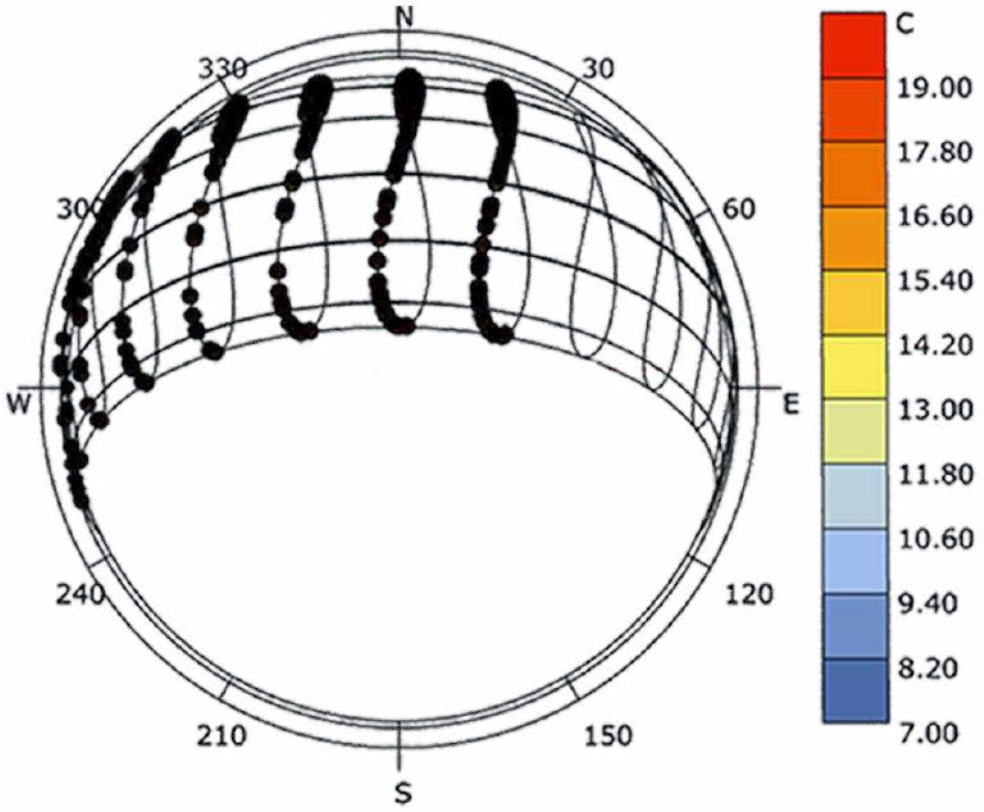
Spatial Economy

Since the park is surrounded by residential areas it makes sense that there are not many business or industrial areas near the site. There are small nodes of commercial economies along the main road which are mostly garages and small stores.

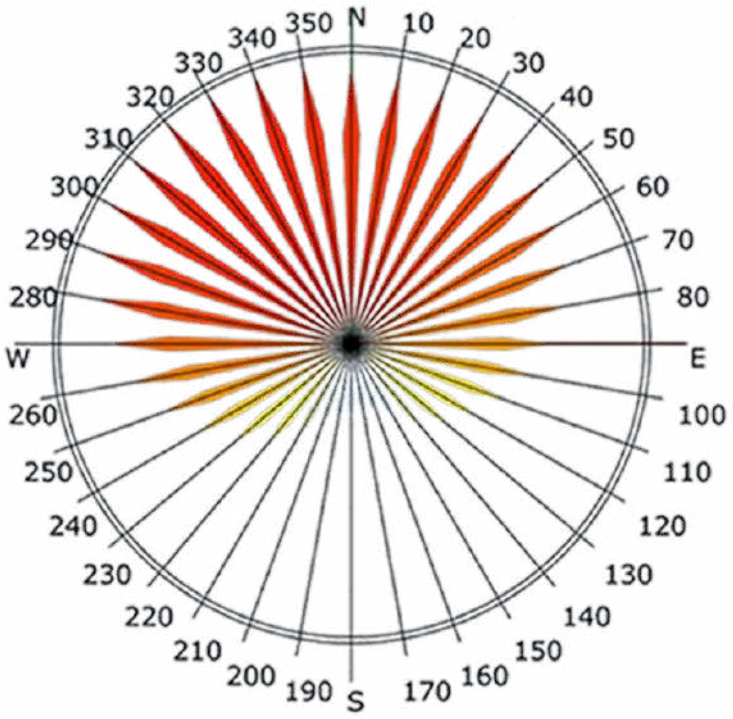


6.2

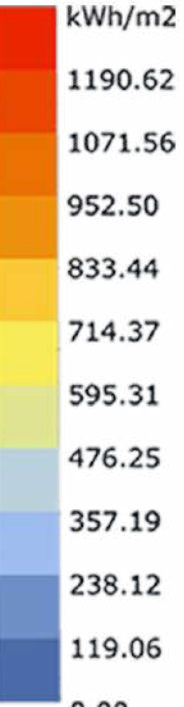
Grasshopper mapping

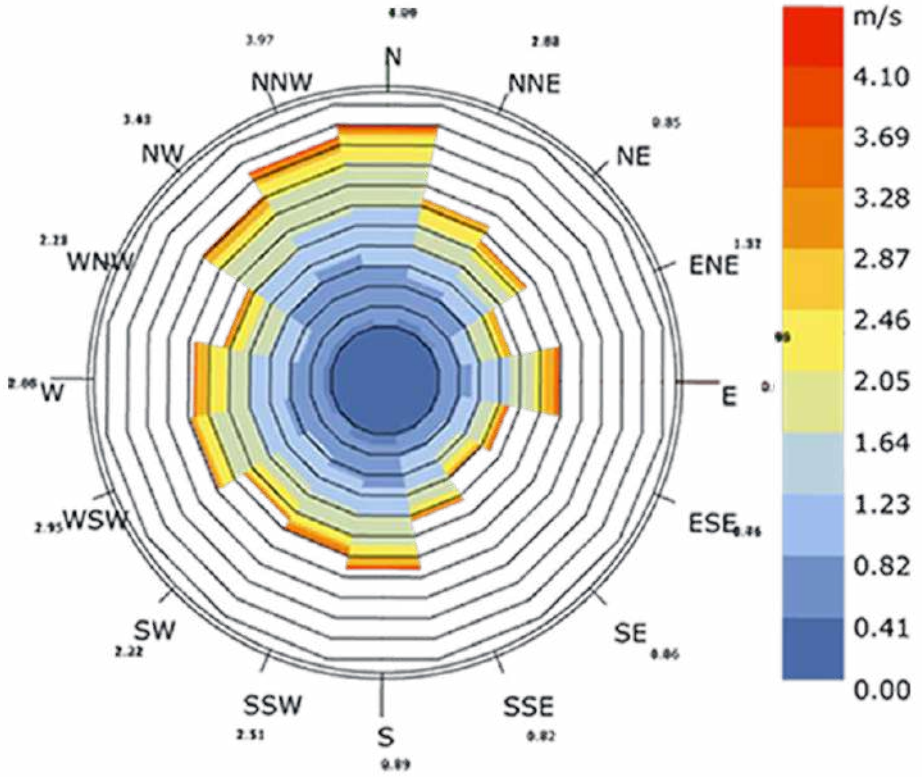


Sun-Path Diagram - Latitude: -26.149999999999999
Johannesburg Botanical Gardens_GT_ZAF
749.0 hours of total 1956.0 sun up hours(38.29%).



Total Radiation(kWh/m2)
Johannesburg_Botanical_Gardens_GT_ZAF_2014
1 JAN 1:00 - 31 DEC 24:00



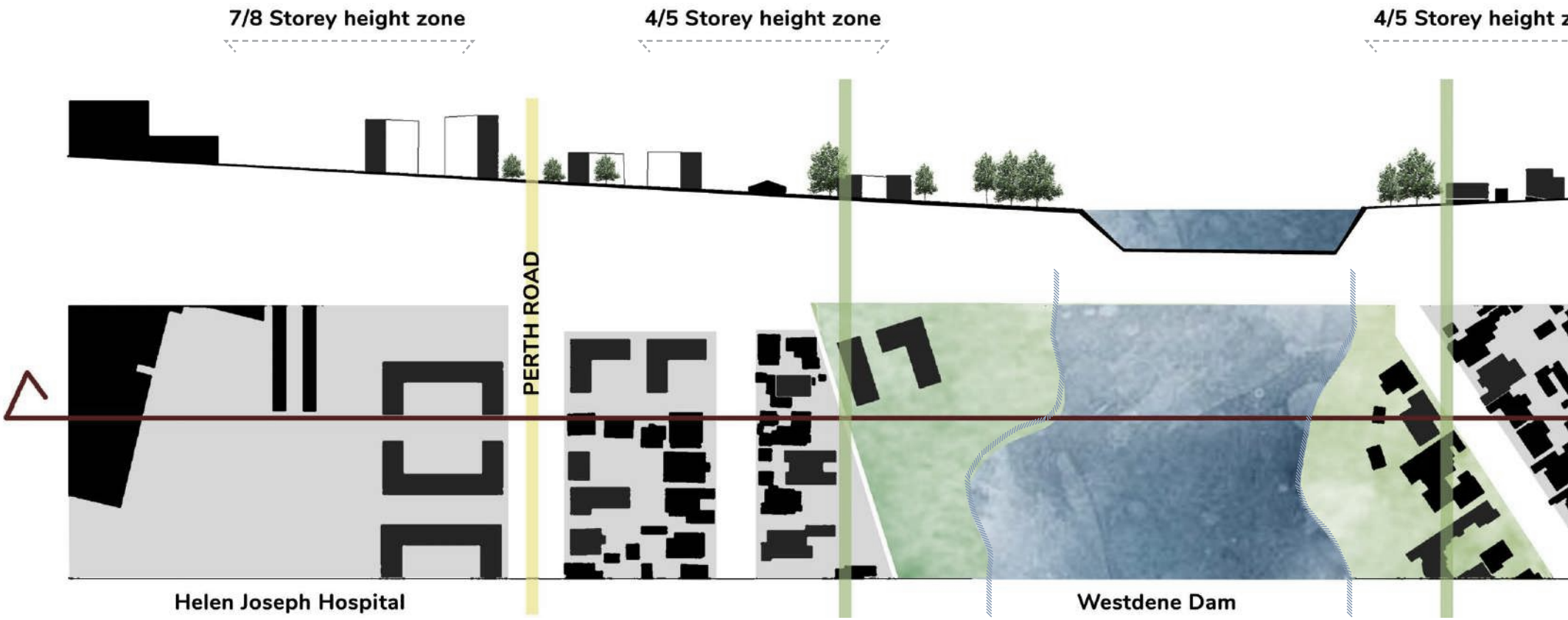


Wind-Rose
Johannesburg Botanical Gardens_GT_ZAF
11 APR 11:00 - 31 DEC 24:00
Hourly Data: Wind Speed (m/s)
Calm for 17.70% of the time = 1124 hours.
Each closed polyline shows frequency of 0.4%. = 26 hours.

When designing it is important to understand the conditions we are designing within. To achieve this in a graphic representation of the elements I used my knowledge of rhino to create the graphs to the left. I used Rhino to locate my building and then inputted the location into Grasshopper. A plug-in called Ladybird then helped me to program these parametric graphs showing the sun path, radiation and wind rose that would affect my site. I can later input my building into Rhino and the program will show me how these elements will react to my building. This will be useful to grasp ratios of fenestration and climatic conditions on the facades of my building. This will be presented in my final book along with these graphs.

6.3

Height zone exploration



In the mapping above we see how things, we have mapping play out on a smaller scale. We see density in the residential spanning across to Helen Joseph Hospital. We see the green spaces in elevation concentrated around the park and sparser moving out. We see existing height consideration into the design within or break to make more of a statement. You can also see the positioning of the roads in relation to the site. We can also see the Dam in relation to the existing urban framework. To the right, we get a sense of the massing around the site. It is quite a flat landscape which again I can decide to either blend into or break.



As the program is a jarring one to place in the context it would be more favorable for my design to bland it and complement the existing condition rather than overpower it and stick out like a sore thumb.



6.4 Meso-Mapping

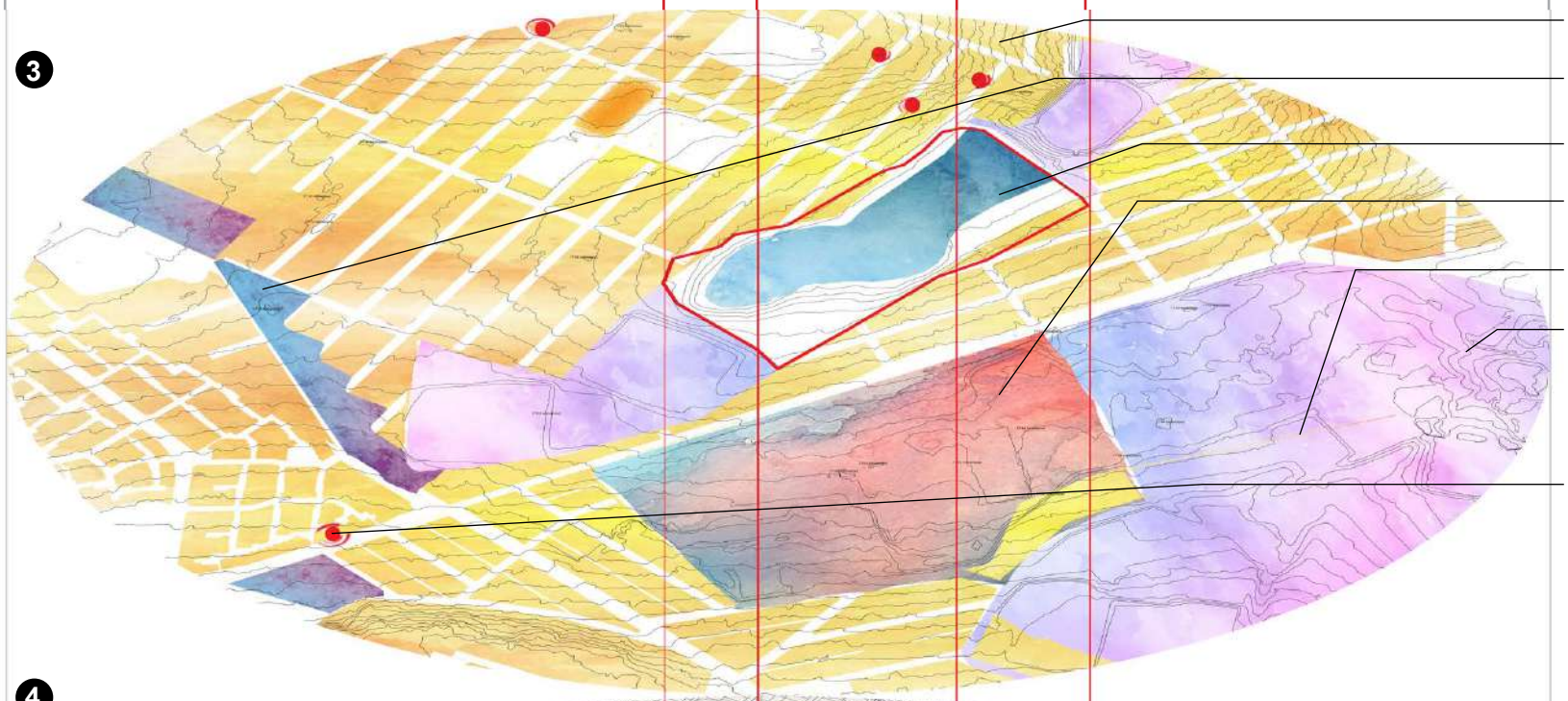


Movement Mapping ❶

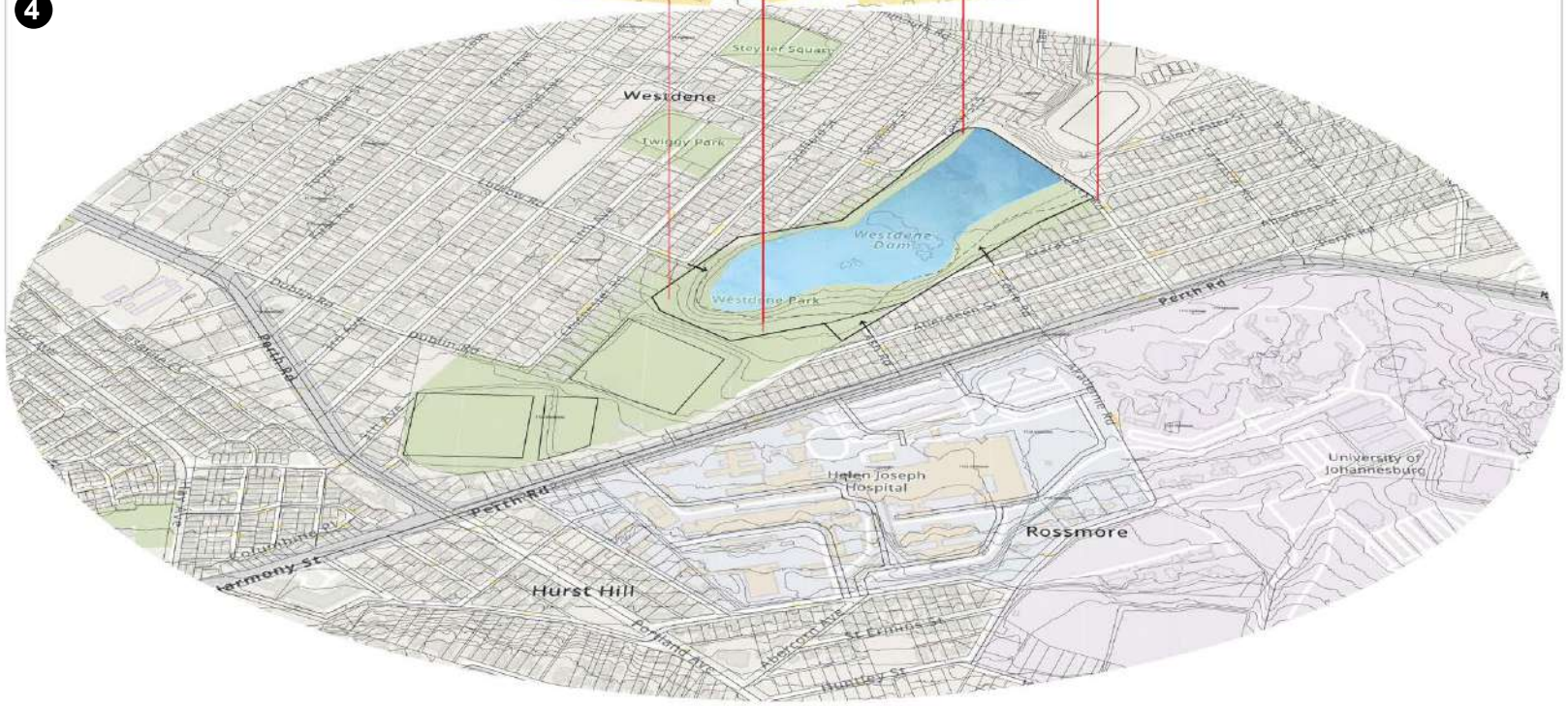


Vegetation Mapping ❷

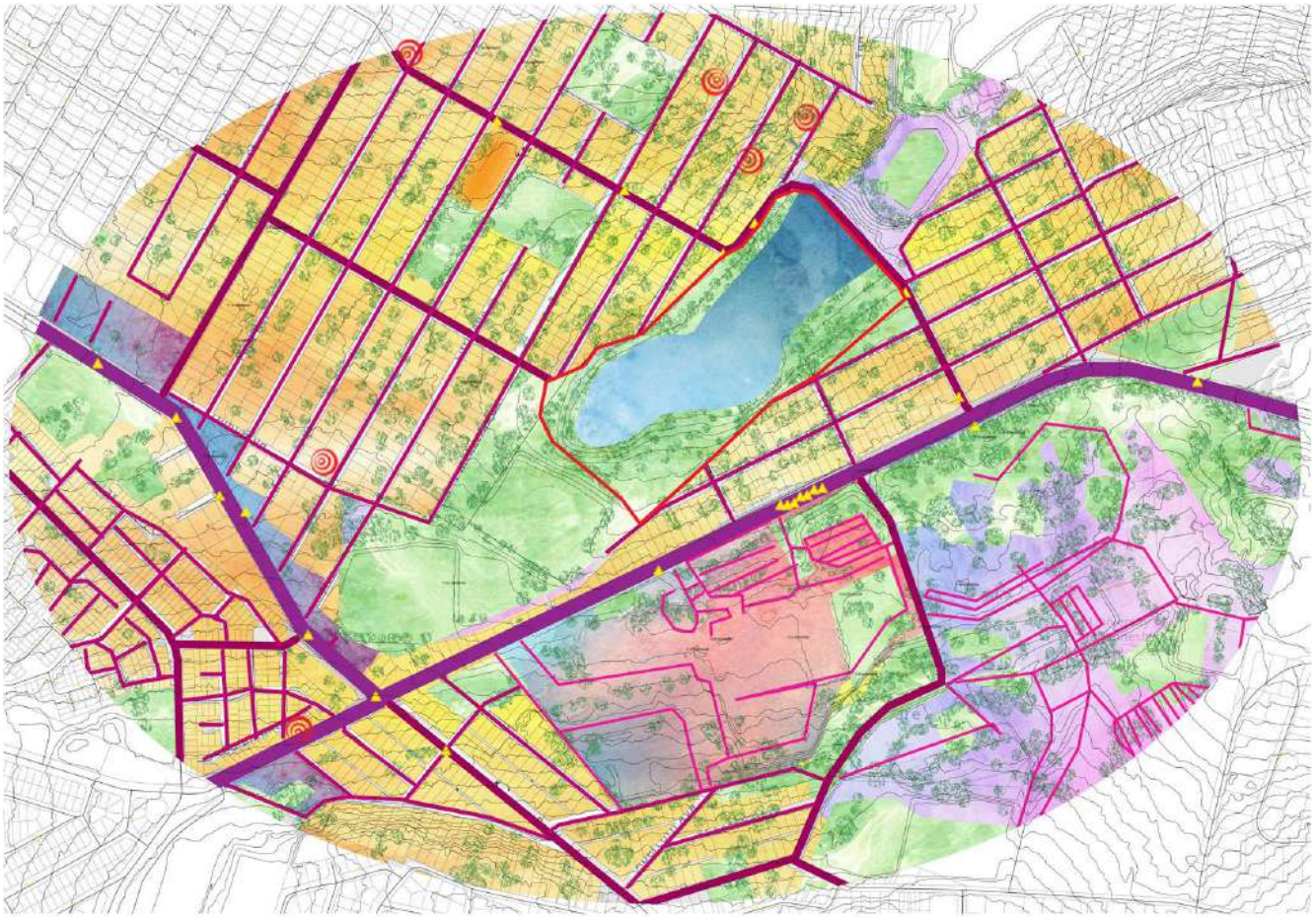
Typology Mapping 3



Base Map 4



Layering meso-mapping



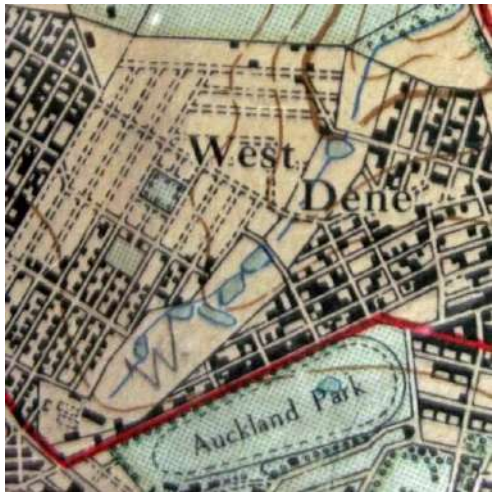
In the above Meso-mapping, we take the same factors being mapped in the Micro-mapping and apply them on a smaller scale. This gives us a better sense of the direct surrounding of the site and its most immediate surroundings. We see much like in the mapping before that the context is a residential one, the major transport route is Perth Road, the Vegetation is densest in the park and lighter as you move out to the residential areas and in the third map we highlight UJ and Helen Joseph hospital as the most immediate commercial areas, we also see where some religious centers are located. This is all built upon a base map with contours that are 2m in reality. The site itself is on a soft slope towards the Dam. To the right, all the exploded maps have been layered on top of each other in order to present a full view of all the information.

Historical mapping

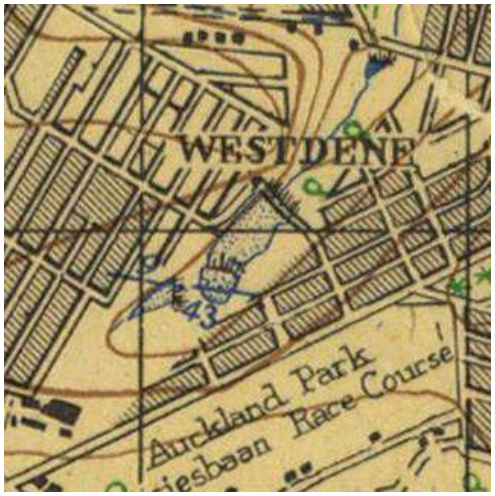
Figure 50: **Historic maps of Westdene (Polke Birkholtz, 2015)**



Detail view of the Heidelberg Sheet of the Major Jackson map series. This is the third revised edition of the particular sheet and dates to June 1902 (National Archives, Maps, 3/1896)
(Polke Birkholtz, 2015).



Detail view of a section of the Witwatersrand Central Map that was compiled in 1934
(Polke Birkholtz, 2015).



Detail view of the First Edition of the 2627BB Topographical Sheet that was surveyed in 1943. (National Archives, SGJ, 84, 4/3/4)
(Polke Birkholtz, 2015).



Detail view of the 1952 aerial photograph which depicts the study area and surrounding landscape at the time
(Polke Birkholtz, 2015).

6.5

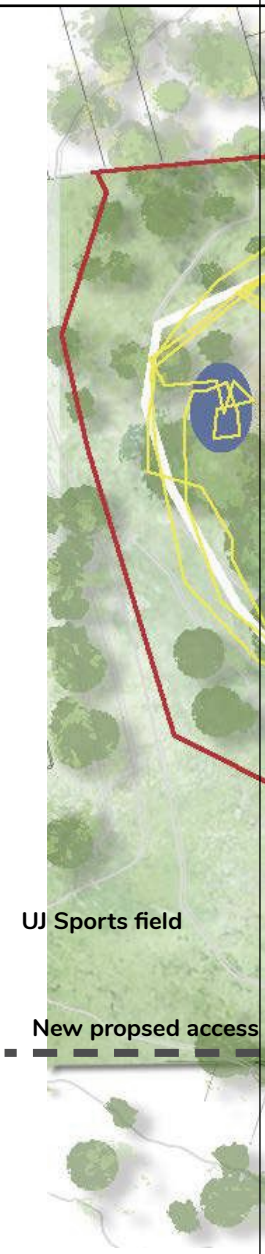
Micro-mapping

Next, we zoom into the micro-mapping of the site. The site has four entrances, two to the North and two to the South. They are small gates that connect in from residential roads into the park. There is one formal parking lot which is on the left south edge of the park. This one is the one that helped me decide on where to place my design within the park. To the left of the parking lot is a small basketball court and the UJ sports field. In terms of the entrance, it would be ideal to build a road going from Perth road through the side of the sports field onto the site. The parking lot would need to be made slightly larger and I would have a basement parking to handle deliveries of bodies and staff parking.

The movement in the park (indicated in yellow) is mostly along the paved pathways around the dam (indicated in white). There is some movement down near the banks by people relaxing and the occasional fisher. Recently outdoor gym equipment and a playground has been added to the park to promote further usage but it is not the safest park, so it isn't affecting that it was meant to.

There is a large landmass in the middle of the dam which was left from them combined what was two Dams to create what is currently one large dam on site. The tree canopy is dense and beautiful. After I decided to place my design along the bottom left portion of the Dam I mapped the trees in order to design around them to prevent major nature changes on site. They became a tool to shape my spaces and highlight nature within my design. The site boundary is highlighted in red.

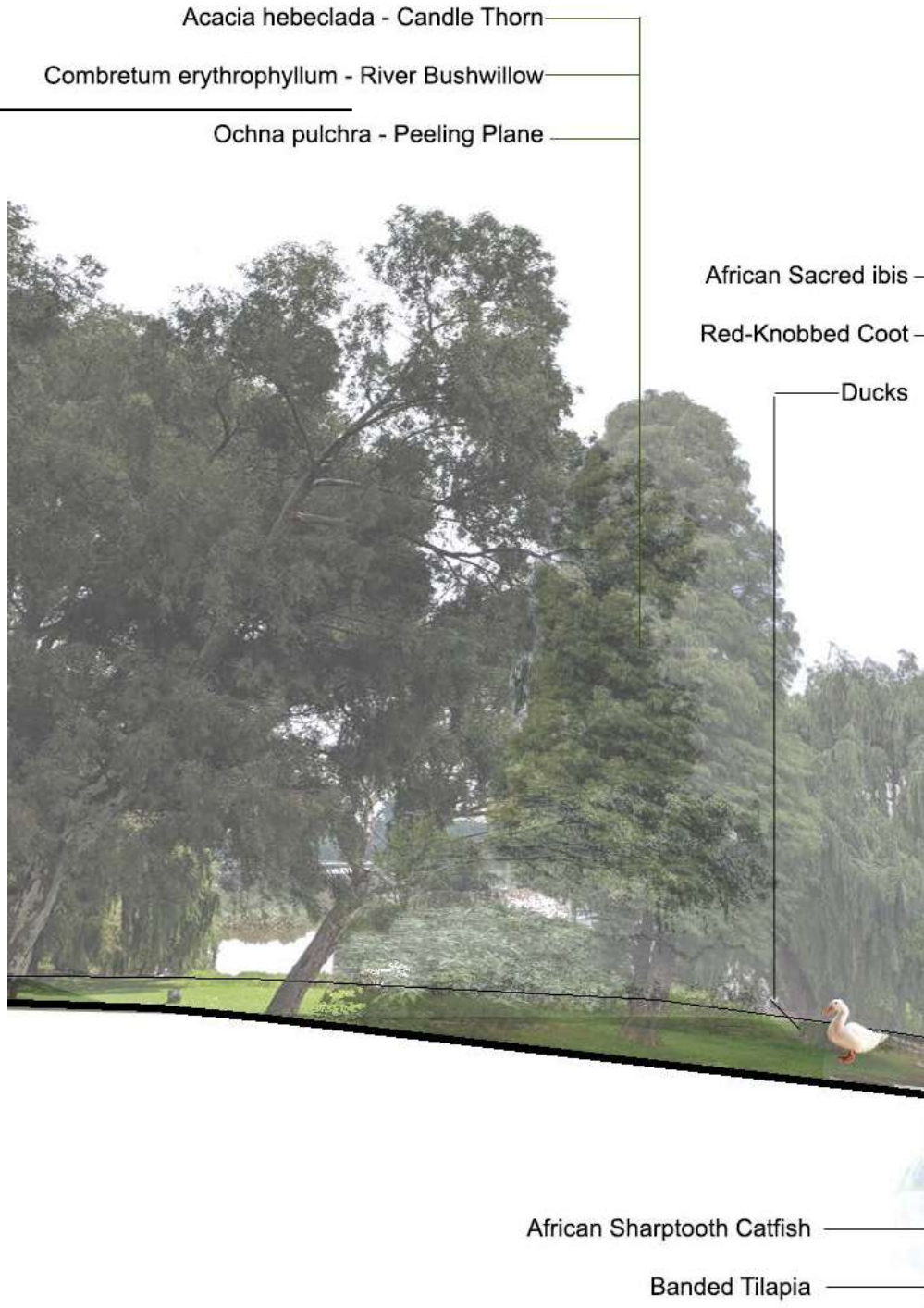
The Site is on one consolidated ERF so we will need to subdivide the stand to accommodate a smaller area where our design will be built. This smaller area will be re-zoned as Business 4. The land is owned by the local authority and city parks. The site will need to be bought by the client. As the land is classified as any open public space it does not contain any heritage buildings.

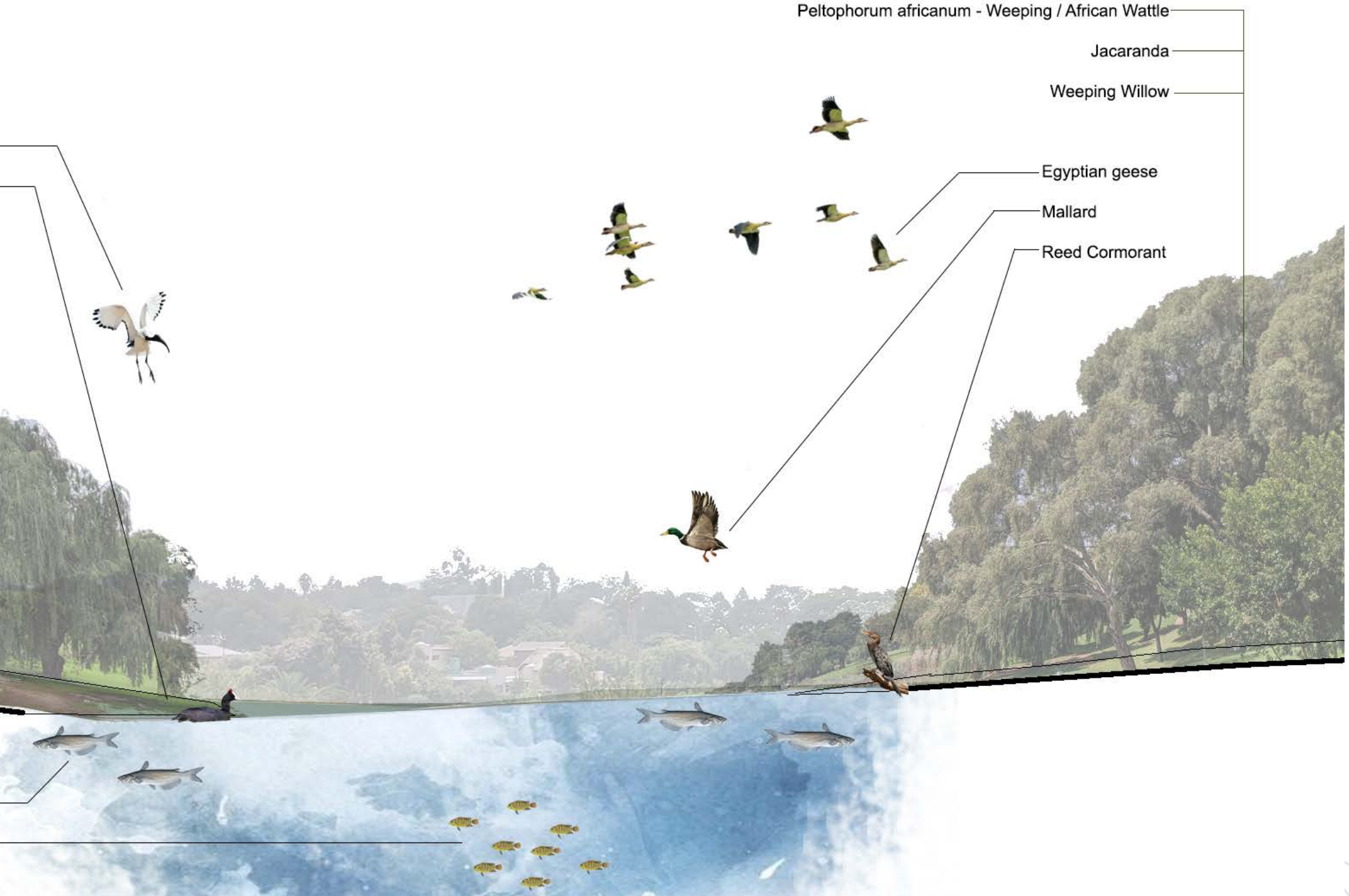



Access to the site
Tree Canopy
Memorial
Paved pathways
Vegetation in the Dam
Land mass in the middle of the Dam
Indicator of activity and movement
Fishing activity along banks
Courts
Playground
Public outdoor gym machines
Parking lot
Tree Canopy
Site boundary
Access to the site
Access to the site

Ecological section study

Seeing as the site is a public park we need to look at the ecosystem which currently inhabits it. To the left is a section that gives an idea of the atmosphere of the park. I have also placed representations of animals and plants which are present on site. It is important to not let the design destroy an already rich public environment. The ecosystem is thriving with many species of birds and fish which make this place what it is and can add to the effect of the design if considered carefully. Bird watching stations can become part of the design for example to incorporate design and nature. Viewing stations can be implemented to observe the still water and become spaces of calm reflection which is vital to the program. The tree life is ancient and vast as mentioned before I would want to damage as little as possible and add as much as I can to make the park which at the moment is not used to its full potential. Currently, there are seating places sparsely throughout the park to attempt to create spaces to stop and observe but they are run down and old. My design would create more of these stopping places in a better way so that it invites casual passers-by to stop and use the new more thought out, designed spaces.




Peltophorum africanum - Weeping / African Wattle
Jacaranda
Weeping Willow
Egyptian geese
Mallard
Reed Cormorant

6.6

Site photos



Rules of the park



View from entrance



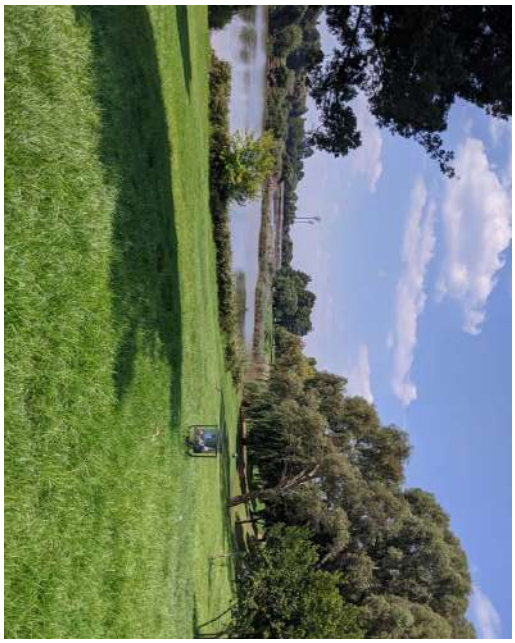
Edges around the dam



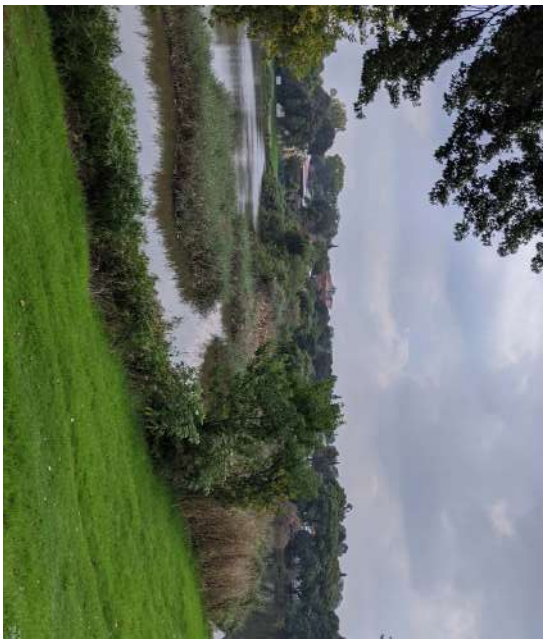
Existing seating around site

The series of photos seen here depict the current condition of Westdene Dam. It was quite large and beautiful albeit underused and unkempt. The City owns the park and does as much as they can but adding another program could promote outside interest and see to it that the Park is better kept. During the days it has a few visitors, mostly workers taking breaks. As schools let out it becomes a thoroughfare to some although not many as it can be unsafe. During the weekends some runners run along the paths around the dam, they may stop to make use of the outdoor gym equipment. Even though fishing is prohibited you will find people fishing along the banks. There are also the occupational families who go through to make use of the walk to the playground. The new basketball court is used by kids from the surrounding area and students passing through. For the most part, the park has great potential that is not being harnessed as much as it could.

Typical vegetation around site



Vegetation in the dam



Outdoor public playground



Outdoor public gym



6.7

Design Charrette



Triplex

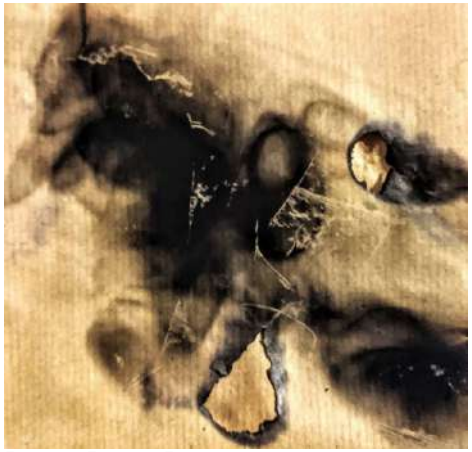
During the Design Charrette, I did three waves of exploration the first was looking at the element being harnessed in my program, fire. I gathered multiple materials and either burnt into them or held fire very close to them. The picture in this section shows the results. I liked the textural experience the fire left behind. One could call it a shadow. I then started to research how I could incorporate then textural experience into my design. I came across burnt wood cladding. A



Tracing Paper



Triplex



Brown Paper Bag

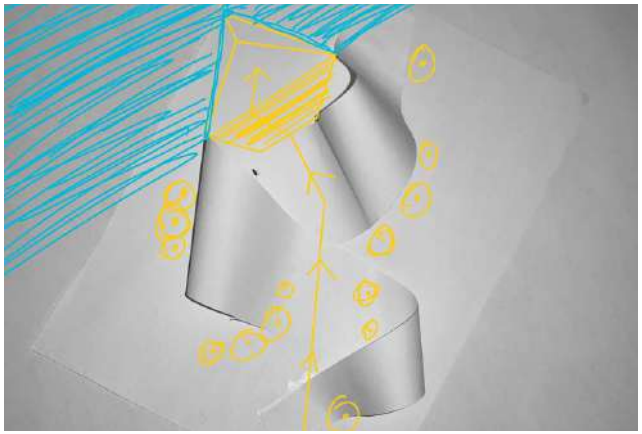


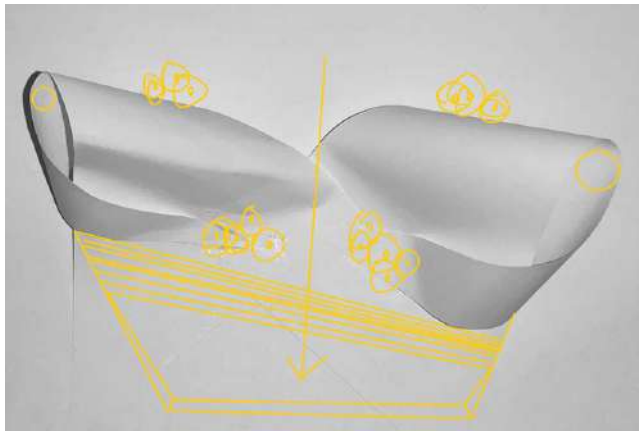
Japanese wood treatment called Yakisugi. It is timber which is burnt by a high-temperature flame for a short time. It is treated with oil before use. The deep black color sits very well against natural landscapes. It is said to erode as time goes on. At which time it could be replaced or kept as it could express the wearing of time on the building as time wears on the body in order to need the program. The material expresses both the key element and time. Perfect for a crematorium typology.

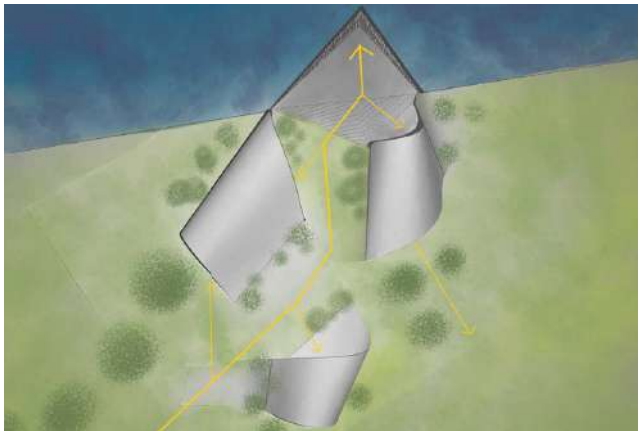
6.8

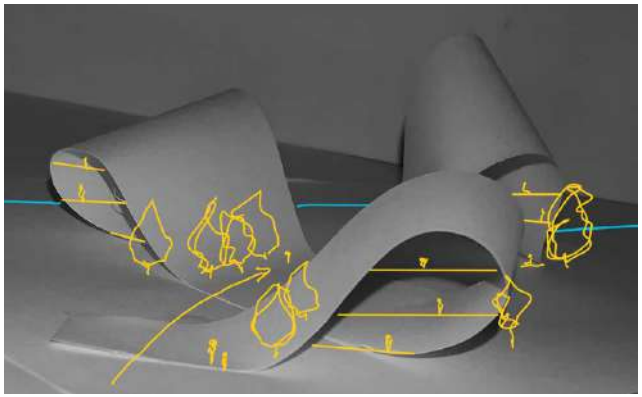
Model making

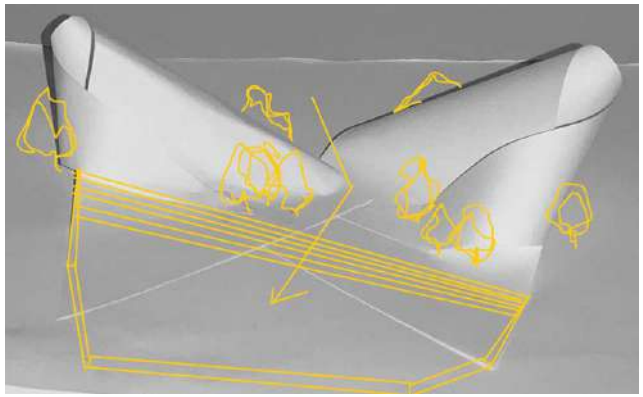
During the second wave of the design charrette, I started modeling possible building forms. I did this using the same material (paper). Once I had made multiple iterations, I noticed that the paper mimicked the idea that the building and the site would merge and become one in the same. The design dips into the land and becomes an extension of the park itself. I also explored areas where the design could break the edges of the water in the dam. This expresses the joining of all elements to fulfill the rituals to release the soul. It also allows for a contemplative

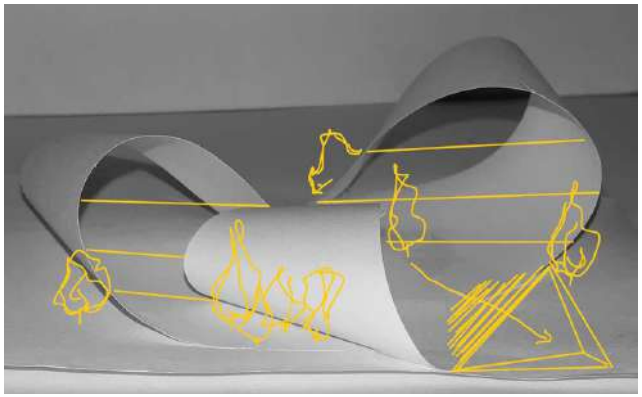




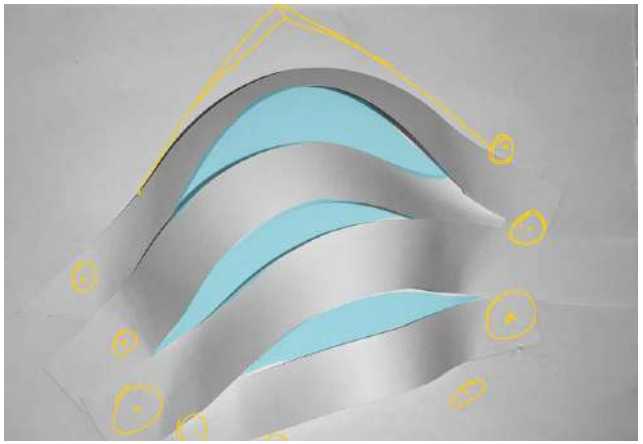


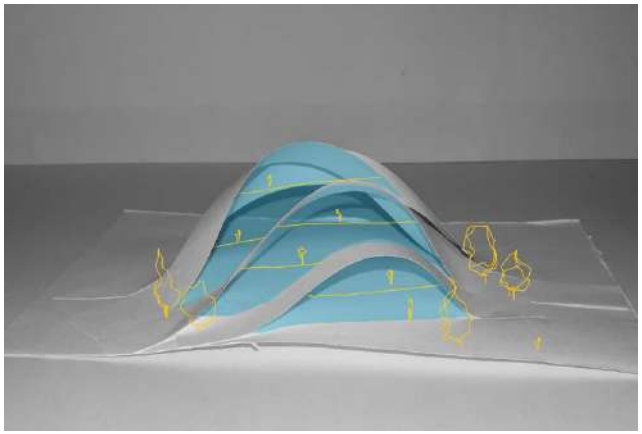


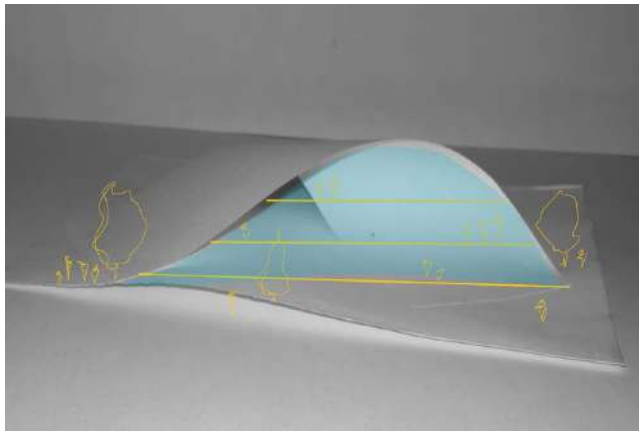


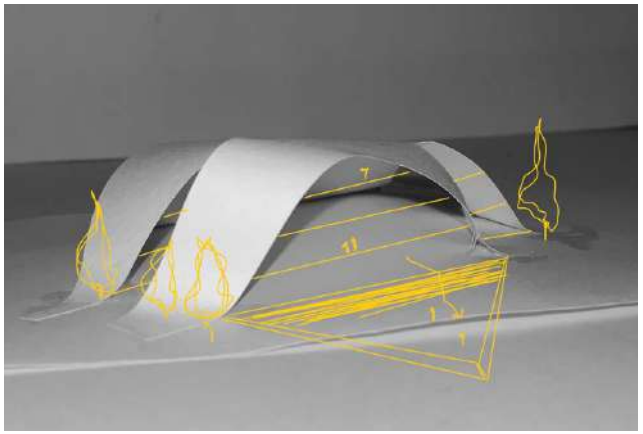


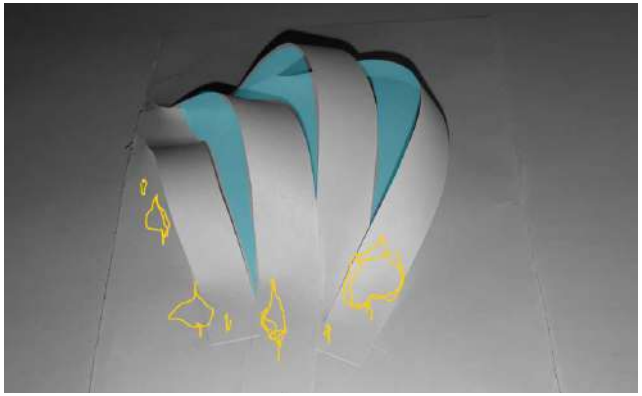
space that is more away from everyday life so one can sit and reflect in peace before rejoining the cycle of everyday life. Each diagram has a sense of direction through the site nodding to the journey one takes through life. You can see the extension from land into the water. And a clear path through the design with functions occurring around the journey which can point to a more poetic narrative.

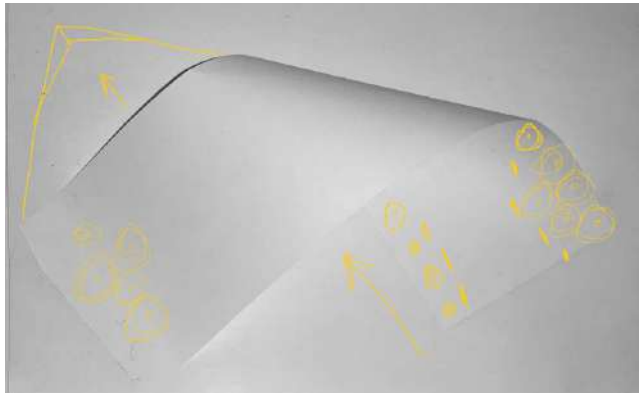


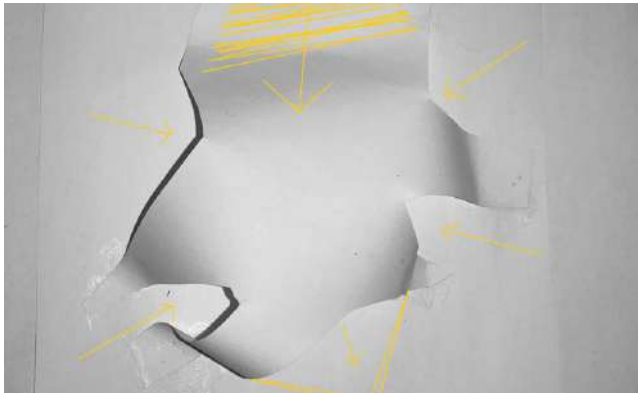












6.9

Shaping design around the landscape









In Hinduism that all five elements need to be used to successfully release one's soul. In the design, we express fire (cremation), air (smoke), and ether (housing rituals to release a soul) already. These are all held within the building. The earth and water are external elements that are used to hold the design. In this series of sketches, we see the third wave of the design charrette. I highlighted the natural elements that I wanted to keep as a part of my design. Taking inspiration from my modeling process I then explored in plan ways to make my building flow with the landscape and touch the water. Thereby incorporating the last two natural elements. This was a trial and error process working with trees, entrances, overhangs, views, and interlocking spaces. This was a vital step to work out how to place it into my site.









6.10

Precedent studies

Brixton Crematorium



Location: Johannesburg, South Africa
Date Built: 1918
Architects: Messrs Damania and Kalidas

In 1908, Gandhi was approached to help find a suitable plot for a crematorium. He negotiated with the town council and the land was allocated in the North-Western corner of the New Cemetery (later renamed Brixton Cemetery). The wood-burning crematorium was built in 1918 and still stands today, although not in regular use. It was the first brick-built crematorium in Africa and was built by Messrs Damania and Kalidas. It was declared a National Monument on 24 September 1995.

This crematorium is one that functions only as a space to cremate. There is a small room in which you leave the body. It then goes through a little hole in the hole and that is it. There is no sense of the final goodbye. It runs in a very business-like manner. This type of typology is one I would like to avoid but it worth showing as it shows the current way of dealing with death in Johannesburg.

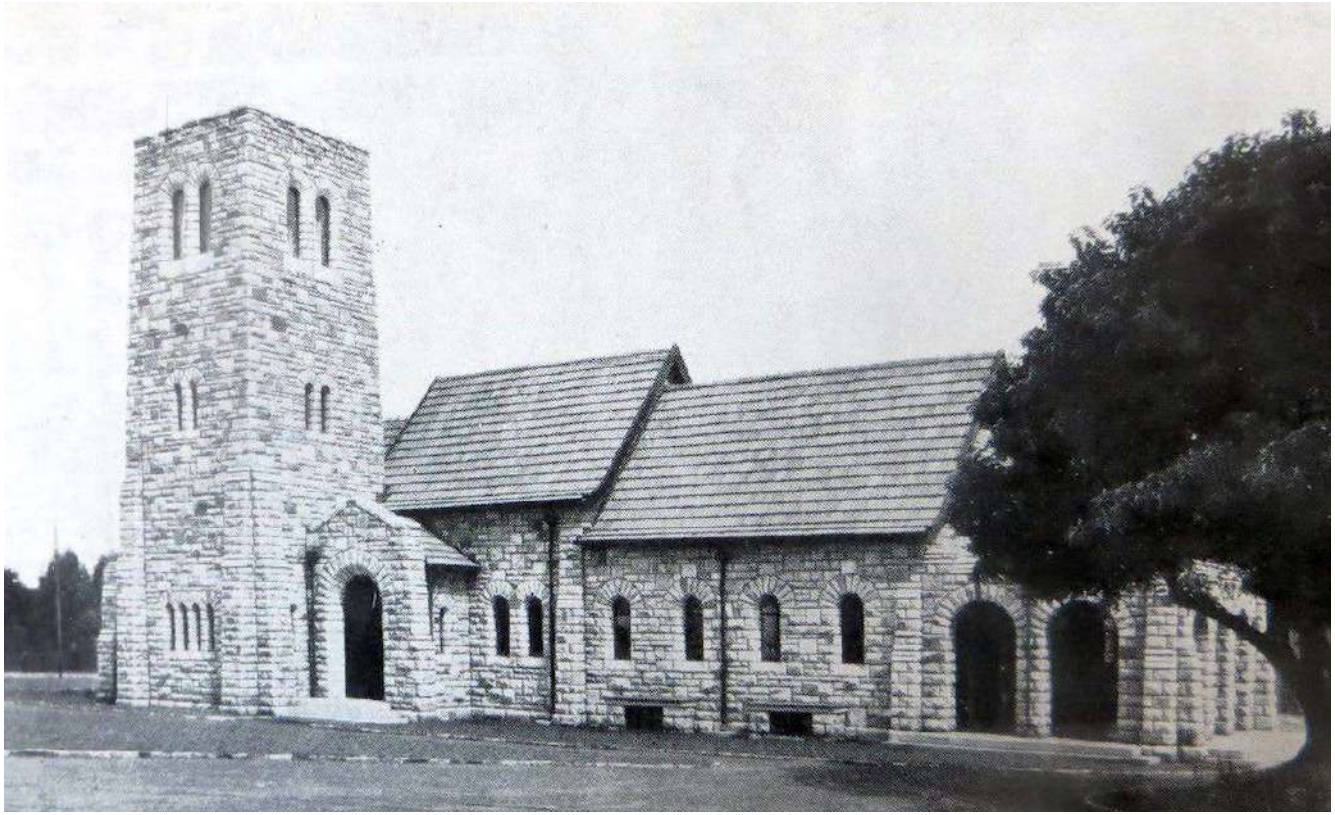






Figure 51: **Brixton crematorium (Musings of a curious individual, Mar 30.2017)**

Braamfontein Crematorium



Location: Johannesburg, South Africa
Date Built: built in 1931-32 and opened in 1932
Architects: E. H. Waugh

The Braamfontein Crematorium is a facility that has served the Johannesburg community, together with the Hindu crematorium, for well over eighty years. It has a surprising location on Graf Street, alongside the motorway, and is accessible through a gate that leads into the oldest extant Johannesburg cemetery, Braamfontein Cemetery. It was built in 1931-32 and opened in 1932. It cost £9,000 and was designed by E H Waugh. The design of the crematorium almost disguises its purpose. It is in the shape of what van der Waal calls a "neo-Romanesque" chapel built of cut Witwatersrand koppie stone. It resembles a church with neat small single, double and triple arches, a hip tiled roof and most imposing of all is a substantial square rather heavy tower (but on closer inspection, it is not a bell tower but rather a chimney for the cremation furnaces ("The Johannesburg Way of Death - The History of the Johannesburg Crematorium | The Heritage Portal,", July 17, 2018).

In the case of this building, hiding the program in a church does not sit well with me. I would use this as an example of what we have and what I want to say away from. With old technology, misplaced identity, and run-down atmosphere.





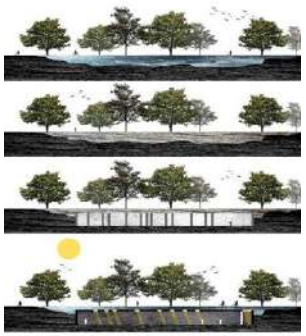




Figure 52: **Braamfontein crematorium (The heritage portal, July 17, 2018)**

ASHES & WATER. A columbarium in a pond





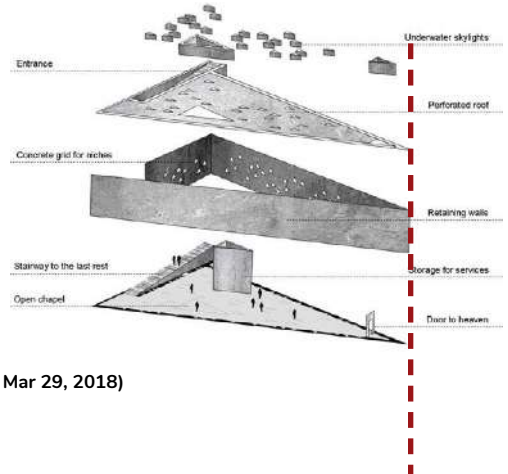




Figure 53: **Ashes and water (Designboom, Mar 29, 2018)**

Location: Mexico
Date Built:
Architects: Israel Balan

The current typology of cemeteries is one of creating cities for the dead with large horizontal footprints. They are far removed from daily life. In the thesis, the author seeks to shorten the distance between the cities for the dead and daily life. He does this by placing it in a space that is viewed as public. Sinking it into a pond creating large columbariums for storage of ashes. He states life and death are two sides of the same coin. And hypnotizes that they should be able to occupy the same space. The pond reflects the park as a metaphor for another world (death).

I have done something similar only taken it a step further. My program not only includes the storage of ashes but also the process of making them and the rituals around this. Note that his thesis does become a jumping-off point for mine. I am also mixing a public space with a program one would not typically think would be contained in such a space. The juxtaposition should benefit both life and death. Bringing them closer together and making them both easier to deal with.

Town Hall Eysturkommuna







Figure 54: Town Hall (Archdaily, May 28, 2014)

Location: Nordragota, Faroe Islands
Date Built: 2018
Architects: Henning Larsen

This town hall is 750m2, green-roofed, and bridges a river in the village of Norðragøta. It links two municipalities into one. It cut into the landscape and appears floating atop the river. It is a tribute to the Nordic landscape and the indigenous style of building, simultaneously merging old with new contemporary architecture. The central theme of the building is the blurring of the line between nature and building, it is a modern take on their native buildings.

This building perfectly embodies the essence of what I want my design to be and even illustrates the use of burnt wood cladding against a rich green landscape. Proving it to be a bold and striking material which also doesn't take away from natural surrounding but rather adds to it. It also plays with the idea sinking into the landscape and placing it above so even though it does take up space it gives it back to the users through a green roof element. This is a marriage of all the architectural languages I would like to explore within my design.

Brion cemetery

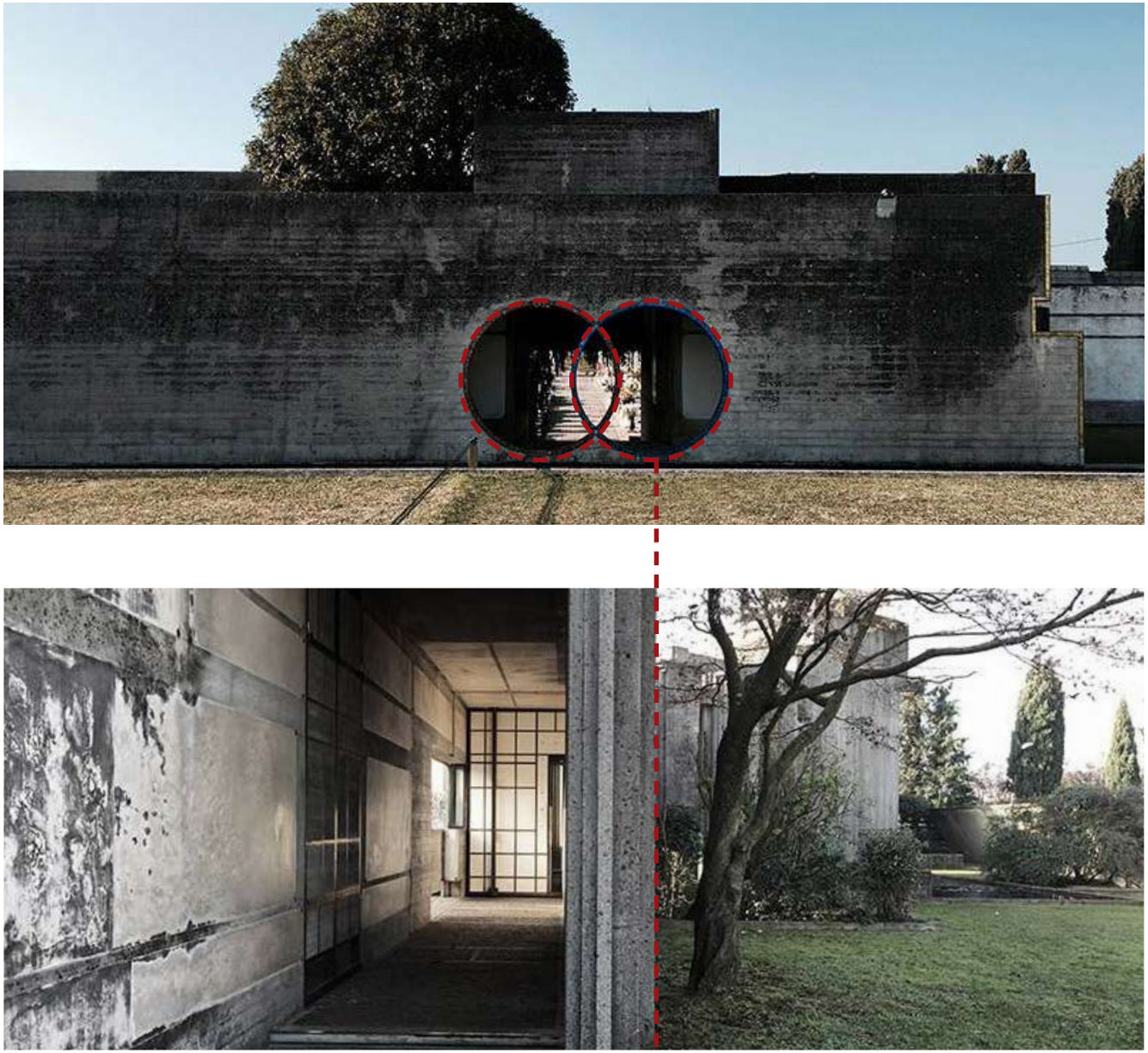


Figure 55: **Brion Cemetery (ARCHIVIBE, n.d)**

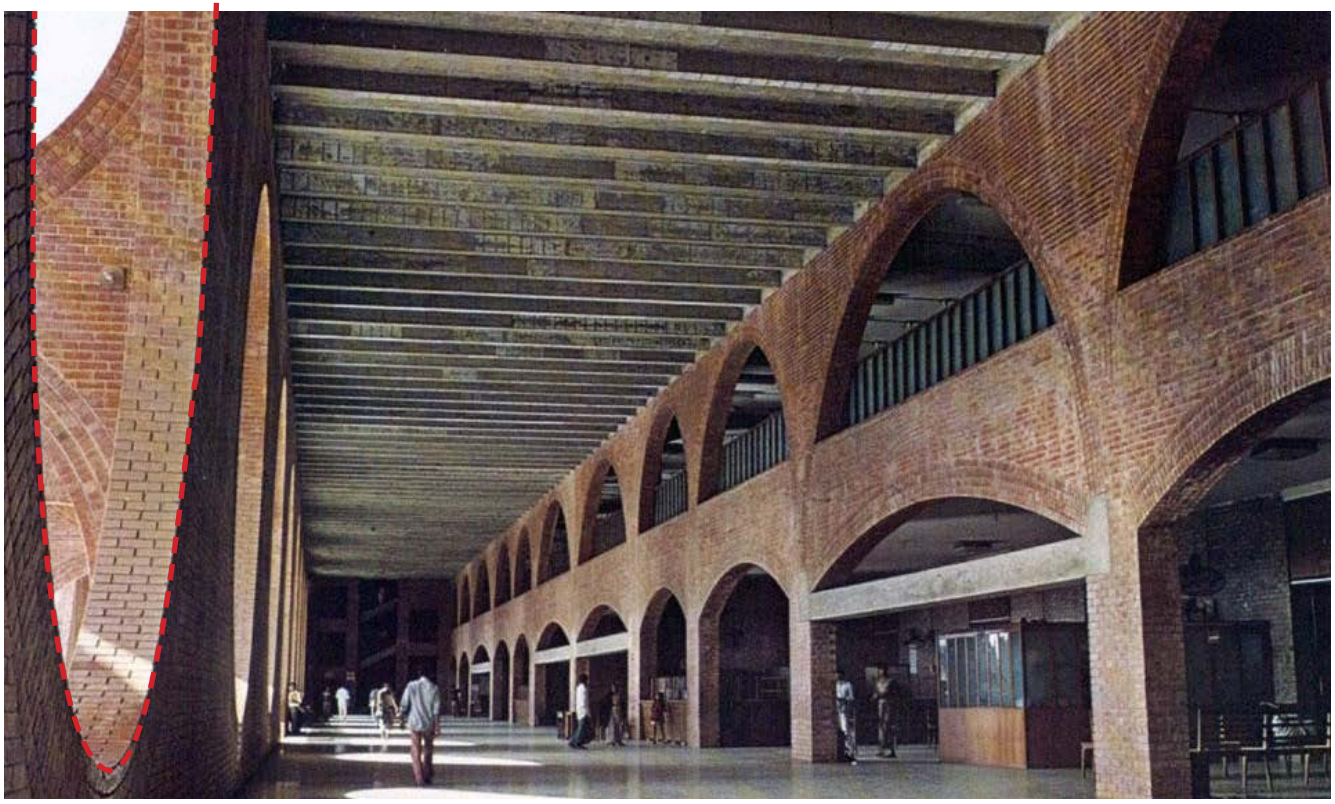
Location: Treviso, in San Vito d'Altivole
Date Built:
Architects: Carlo Scarpa

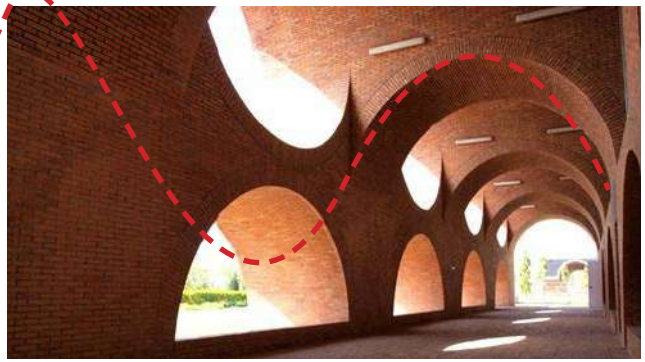
"I would like to explain the Brion Cemetery...I consider this work, if you permit me, to be rather good and which will get better over time. I have tried to put some poetic imagination into it, though not in order to create poetic architecture but to make a certain kind of architecture that could emanate a sense of formal poetry....The place for the dead is a garden....I wanted to show some ways in which you could approach death in a social and civic way; and further what meaning there was in death, in the ephemerality of life—other than these shoe-boxes." (Carlo Scarpa)

Here I would like to imitate the stillness of the architecture within the landscape. The way the building weathers and grows into the landscape is poetic of its program. Using time to wear on a building is something worth exploring for my program. The contrast of the concrete against the natural landscape also works quite well in this building. It also explores large geometric openings in a way I would like to include in my building.



Precedent Study: National Assembly Building of Bangladesh





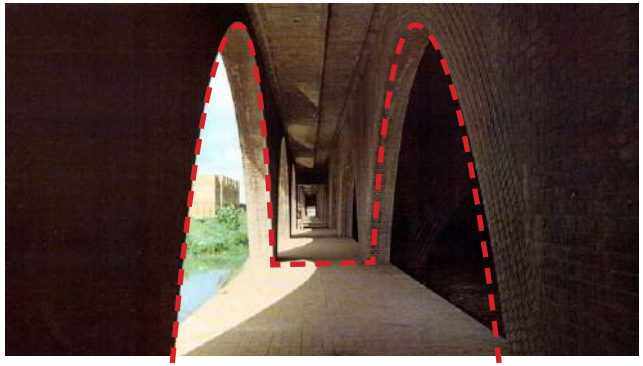


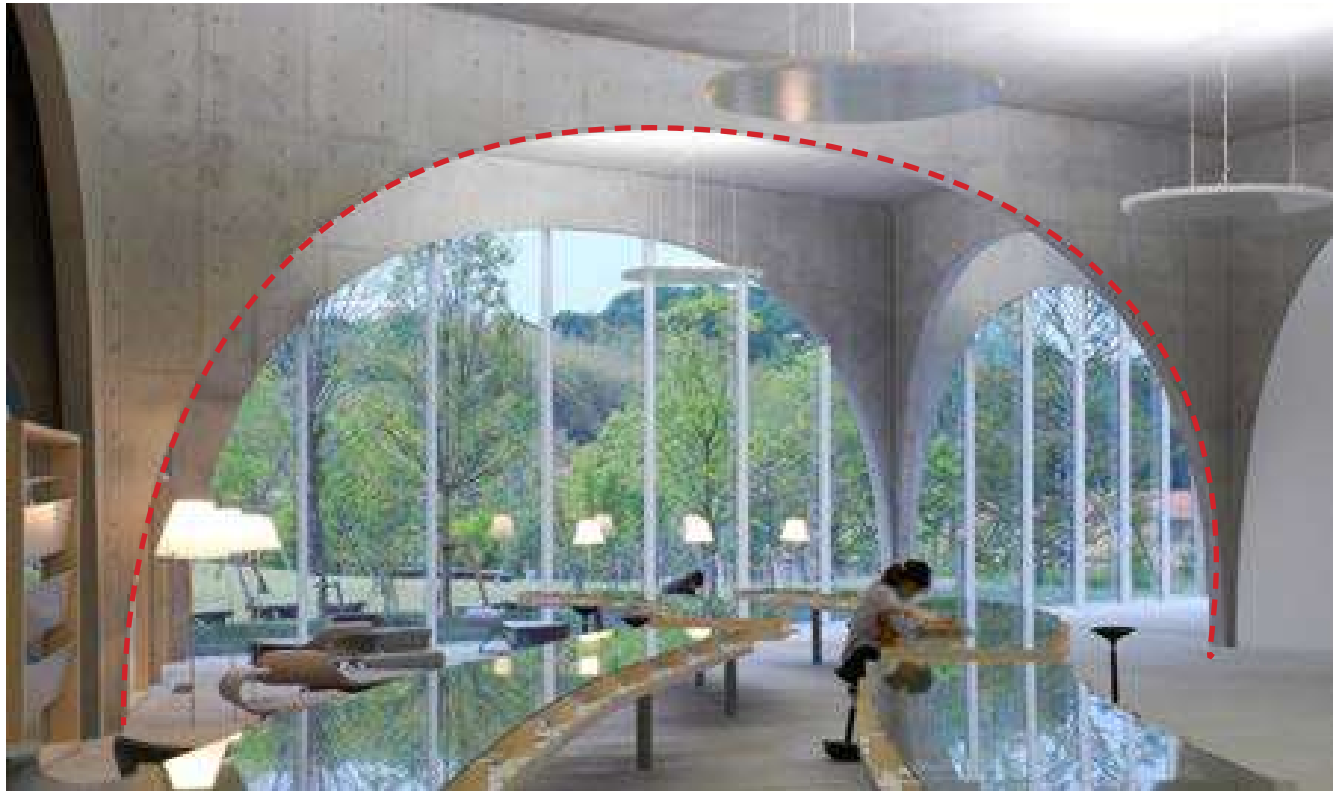
Figure 56: National Assembly, Anwar Hosain (Sept 08,2012)

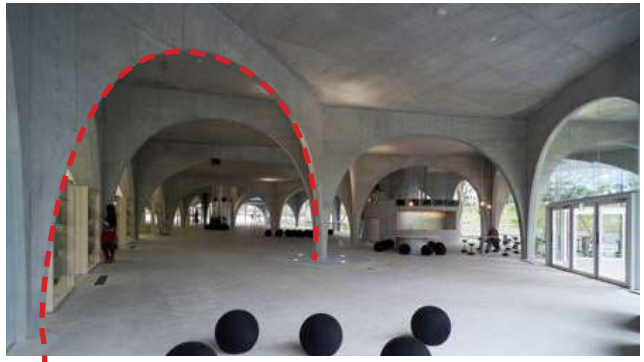
Location: Dhaka
Date Built: 1982
Architect: Louis Khan

Here Louis Khan uses Modernist architectural language (utilitarian and sleek) and transcribes it with Bengali vernacular architecture. It is special because it is so rooted in its context and its citizens. He called for simplistic materials that were readily available. Eight halls align with the grand chamber. The artificial lake surrounding it acts as a natural insulator and cooling system, it also creates intriguing spatial and lighting conditions. The geometric shapes prominent on all facades add to the building's dramatic composition. They are shapes found in Bengali culture, marrying the old with the new cultural identities. It was a way to conceptualize light as a creator of space.

When looking at this building I am inspired by the larger than life geometric openings which allows in an abundance of light, juxtaposed by the large archways. Two languages that I would like to introduce into my design to breathe more life into the interior spaces. Archways being synonymized with Indian vernacular architecture.

Precedent Study: Tama Art University Library





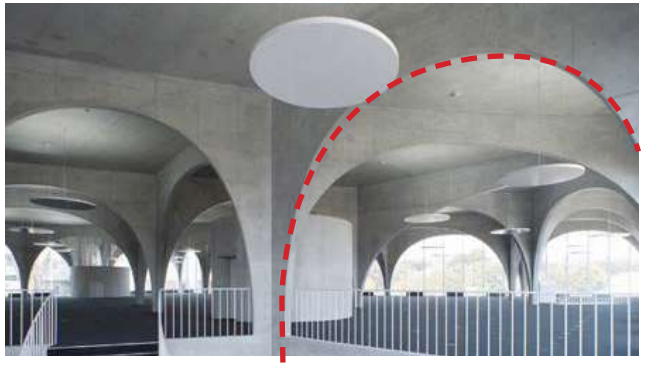


Figure 57: **Tame Art University, Ishiguro Photographic Institute (Sept 11, 2007)**

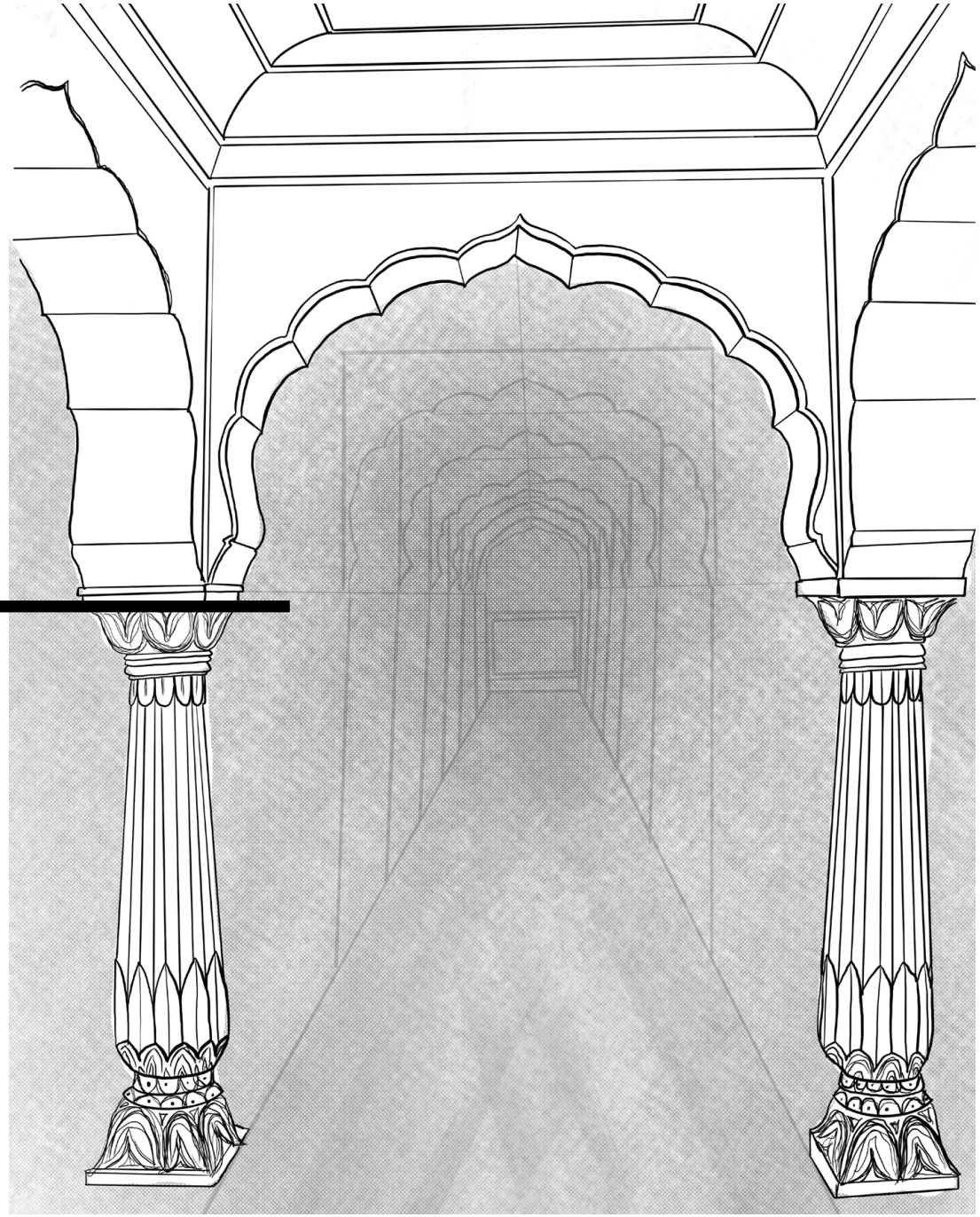
Location: Japan
Date Built: 2007
Architects: Toyo Ito & Associates

This building is located in the suburbs of Tokyo, the site lies in front of a garden with large trees and climbs up a slight slope. To allow for maximum views the architects developed a structure of randomly placed arches that create the illusion of a sloping floor. The arches are made of steel plates covered in concrete. In plan the arches are placed along curved lines at the intersections. This way they were able to keep the arches extremely slender of the base and still able to hold large live loads. The spans vary from 1,8 – 16 meters and still the width of the arches is kept uniform at 200mm.

The clean look of the arches is something I would like to look at replicating along with the aim of keeping the width of the arches slender at the base. It creates a lighter feeling support system while adding drama to the interior. The large opening with the maximum views out is also quite appealing for this site as there are great views over the Dam which I would like to take advantage of.

Chapter 7

Design process and solutions



Design Introduction

THE PROBLEM:

In South Africa, we have two major crematoriums. Neither are to the standard out communities deserve and in a growing chaotic work where pandemics are a reality and the future being uncertain. They have also been overburdened and badly kept. The spaces are not well considered for the rituals which they are required to house so people end up having to book halls and transport the body of their deceased loved one more than necessary.
The SA Cemeteries Association had this to say during the pandemic:
“This will prove to be a serious challenge as SA is poorly equipped for cremations, the recommended method by authorities, locally and internationally, for managing the treatment of corpses infected with the virus.” And many of these facilities are currently overburdened and in frequent need of repair,”

In Johannesburg, mayoral committee member Margaret Arnolds said cemeteries and crematoria were prepared for the possibility of an increase in demand for mass burials relative to the Covid-19 pandemic. She said the city’s three crematoria could manage the cremation of 41 people per day should the need arise.

TARGET MARKET:

The project is a crematorium designed to better fulfill the needs of the Hindu community in South Africa and also be inclusive to other religions to take the strain off the existing crematoriums which are not well maintained and underfunded. Below are the programs which will be considered and designed for the project. Cremations are becoming more and more common and therefore they will always be a need for the services of this project.



Design Objectives

User Interface:

The design uses the needs and experiences of the users in order to enrich the design. The idea is to make the spaces intuitive of the rituals which need to occur within them. this makes for a general ease of use of the space. It is designed keeping in mind the objective of being accessible to all. It will also adapt to the people using it. Cremation is a more accepted practice, so it is important o make the space easy to use for everyone would encounter it.

Visual and Sensory:

The building needs to be balance in order to sit within the context and not disrupt the pre-existing site. There needs to be harmony between building, nature, water and user. Visually the building needs to blind in but still be striking and draw user to use the spaces designed with the public in mind. There needs to be places.

Technology:

The design needs to account for the climate crisis and use technologies with are sustainable and green. Therefore, the method of gas furnace cremation was chosen. As the site is near water there is a certain amount of wear and tear the building needs to withstand. The design calls for the aging of the building to signify the pass of time.

Environments:

The design needs to become a part of the park. Landscape must be considered. The constant visual connection with water needs to be explored and a design driver. The connections to everyday life must be dealt with so as not to seem too jarring. The aesthetic needs to remain a clean marriage between nature and building.



Design development

Program

The program was the first thing looked at in the design process to get a better understanding of scale and proportion. Based on the theory, research, and design intentions key elements were highlighted that needed to feature in the design. Using these key elements, the program was broken down into different spaces.

The key elements being landscape, a connection to water, the crematorium, a morgue, ritual space, and columbariums. In the bubble diagram, the spaces are placed and overlapped based on where they need to go and how they flow into one another. This starts to create an idea of how the spaces are set out in relation to each other. How the bodies move through the design both alive and dead need to be considered. In the table, I start to layout the sizes of the spaces to fully grasp the scale of the design.

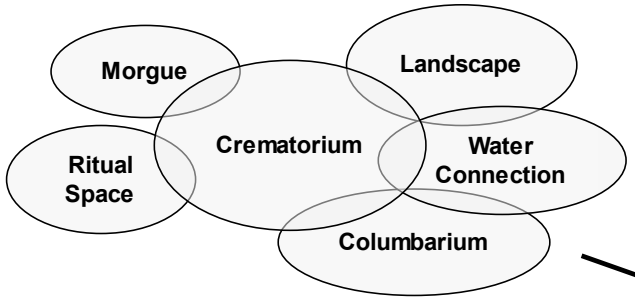
This programming and space planning is then carried through down into other plans.

PROJECT BRIEF:

Crematorium				
	Quantity	*Area/Occupancy*	*Occupancy*	*Net Area (sq.m)*
Cold storage	1	27	10	270
Dry storage	1	27	5	135
Incinerator	1	2	40	80
Body prep (pre)	1	10	10	100
Body prep (post)	1	10	8	80
Loading docks	1	60	1	60
Office	2	5	20	200
Office bathrooms	1	2	10	20
Office storage	1	7	5	35
Maintenance	1	7	2	14
Ghat	1	2	40	80
Contemplation Space	2	2	15	60
	14	161	166	1134

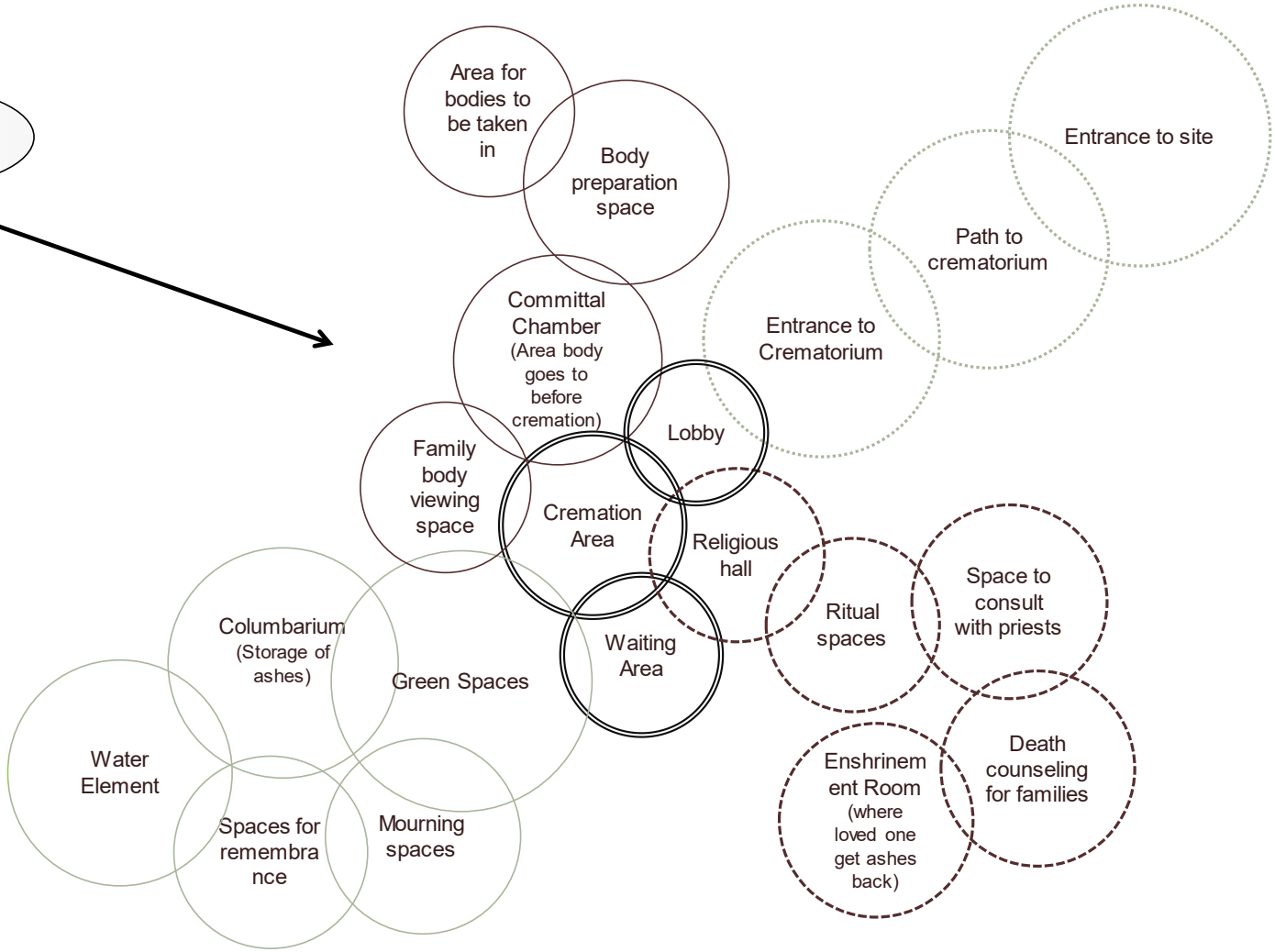
Hall Spaces				
	Quantity	*Area/Occupancy*	*Occupancy*	*Net Area (sq.m)*
Large Hall	1	1.4	250	350
Lobby	1	0.4	250	100
Small Hall	1	1.4	150	210
Lobby	1	0.4	150	60
Meditation Hall	1	1.4	25	35
Bathroom	2	2.9	20	116
Body viewing room	2	1.1	24	52.8
Family waiting room	2	0.7	24	33.6
Priests room	2	9.3	3	55.8
Maintenance	1	7	2	14
	14	26	898	1027.2

Cumulative total:	2161.2



Crematorium				
	Quantity	Net Area (sq.m)	Area/Occupancy	Occupancy
Cold storage	1	55	27	2
Dry storage	1	55	27	2
Incinerator	1	75	2	36
Body prep (pre)	1	20	10	2
Body prep (post)	1	20	10	2
Loading docks	1			
Office	2	20	5	4
Office bathrooms	1	7	2	2
Office storage	1	7	7	1
Maintenance	1	7	7	1

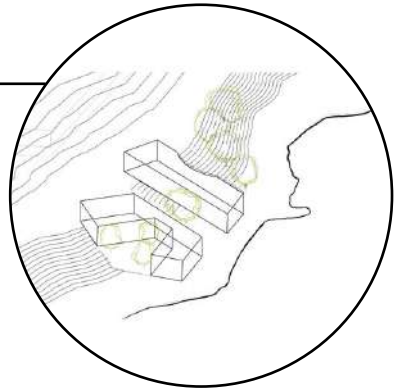
Hall Spaces				
	Quantity	Net Area (sq.m)	Area/Occupancy	Occupancy
Large Hall	1	350	1.4	250
Lobby	1	92	0.4	250
Small Hall	1	210	1.4	150
Lobby	1	55	0.4	150
Meditation Hall	1	35	1.4	25
Bathroom	2	23	2.9	8
Body viewing room	2	15	1.1	24
Family waiting room	2	18	0.7	24
Priests room	2	18	9.3	2
Maintenance	1	7	7	1



Program Planning:

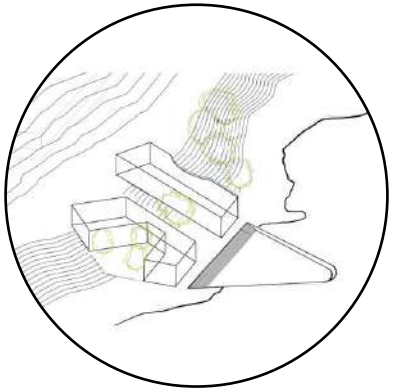
First Iteration

Form:



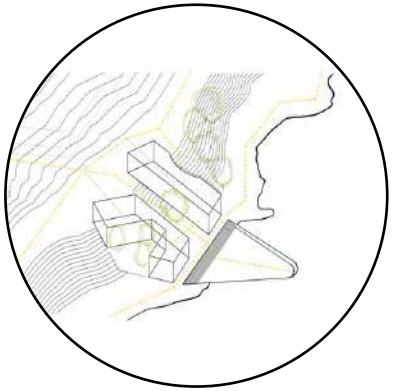
The form considers the negative space among natural features on the site. Namely large older trees. This helps to define how one approaches the building and moves around. It also considers the slope of the site.

Breaking the edge:



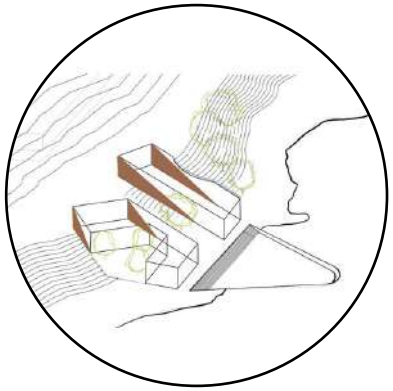
The Ghat element is an important feature of a funeral ground in India. In this design it is used to break the edge of the dam and make usable space usable. The area has a columbarium for long term storage of ashes.

Movement:



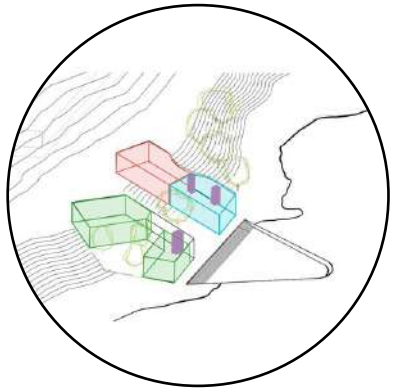
It's important for the building to not interrupt the flow of the parks usual users. Rather it should allow for more movement through a portion of the site.

Slope:



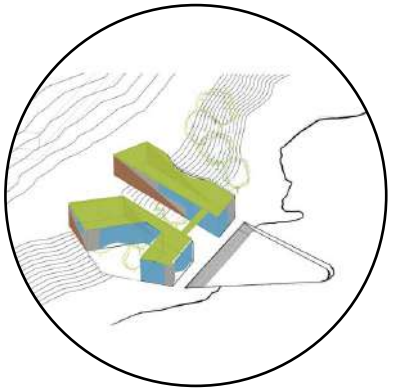
The site slopes down towards the dam so by sinking the building into the site we can allow it to become a part of the landscape and add to the park rather than just taking up space.

Program:



The more private programs are shifted to the back of the building and more public ones are shifted to the front of the building. The building has wings which make the flow of the program operate more smoothly.

Solid v. transparent:



The building is shaded heavily by the larger surrounding trees so we have the chance to have a more transparent building with the possibility of interesting shading elements.





Ground Floor Plan:

This part of the building is partially submerged towards the back. The front section appears from the landscape. With the morgue in the back section as it requires more privacy and less natural light. Towards the front-facing the Dam, there are more public programs like hall spaces and stores. In the middle, you have the natural elements are highlighted with a journey down to the water's edge. When you reach the water's edge you go down a 'Ghat' typology into a submerged area where ashes are stored (columbarium). This is meant to give you a better sense of the water its connection to remembrance. The form of the building is very basic to just not get in the way of the large existing trees.



First Floor Plan:

The first floor mirrors the same quality as the ground floor plan. On this floor, there is also counseling for people dealing with death. In the section that has the best view, there is a restaurant that is a program not usually thought about in most crematorium typologies. On the roof of this plan is a green roof with designed seating and area for yoga classes and the like. It leads from the park straight onto the roof, merging the park landscape onto the building.

Moving Forward:

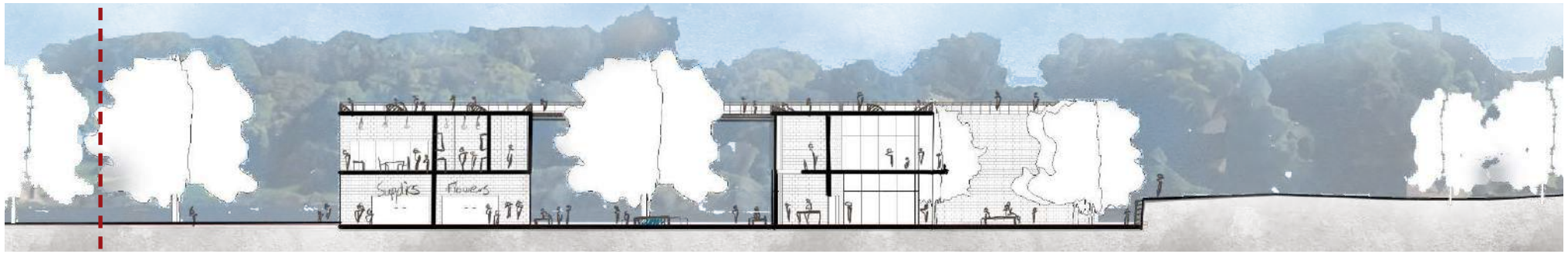
The problem with this iteration is it does not have a strong enough connection to the water and the Ghat element is not as poetic as it needs to be. The form is also not expressing the intent in any way. The trees have a place, but they don't fit into the design in the way they could add to it.

The problem with this iteration is it does not have a strong enough connection to the water and the Ghat element is not as poetic as it needs to be. The form is also not expressing the intent in any way. The trees have a place, but they don't fit into the design in the way they could add to it.

These sections illustrate life within the building and how it works in the vertical. In these drawings, you can more clearly see how the first iteration of the Ghat element works. It illustrates that it's quite a large invention with not a lot of pay off. You can also see the vegetation placement in between the building and to the sides and how the landscape moves from the park onto the roof of the building.

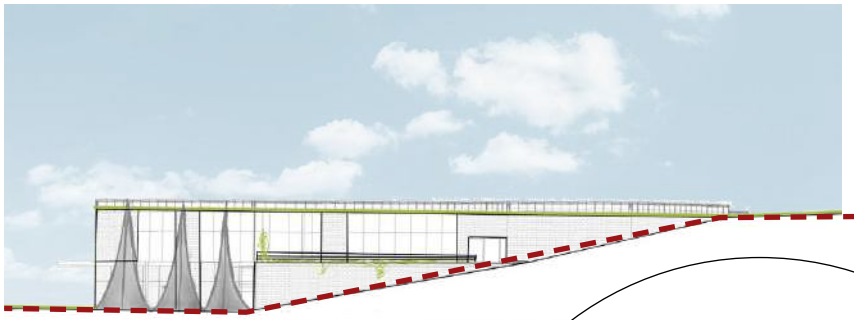
The elevations start to explore façade treatments. At this stage, the façade looked quite imposing and office building like. This did a disservice to the program and made the building less approachable as a whole. The 3D you can see the Ghat element looked clumsy and bleak. It is something that needed to be looked at further going forward as it is a crucial element with needs to be dealt with more clearly. At this stage, the interior structure was basic and did not add to the intended atmosphere of the internal spaces. The in-between spaces do not arrange themselves as courtyards but rather as walkways, this made these spaces less convincing.



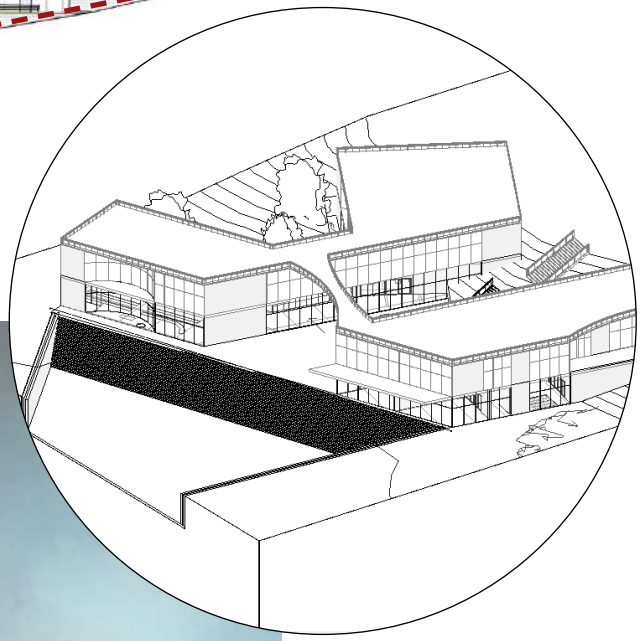


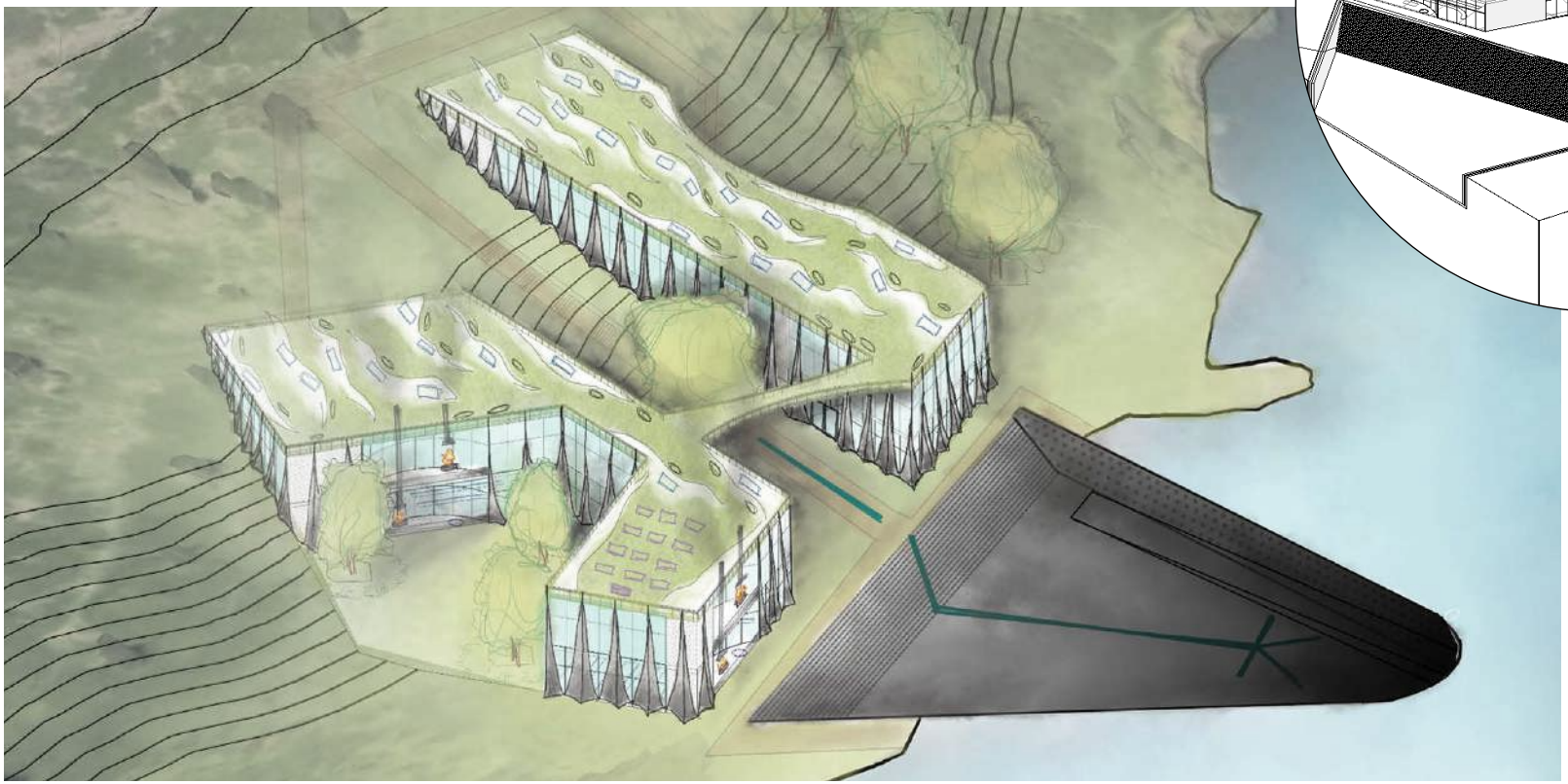


Sketch west elevation

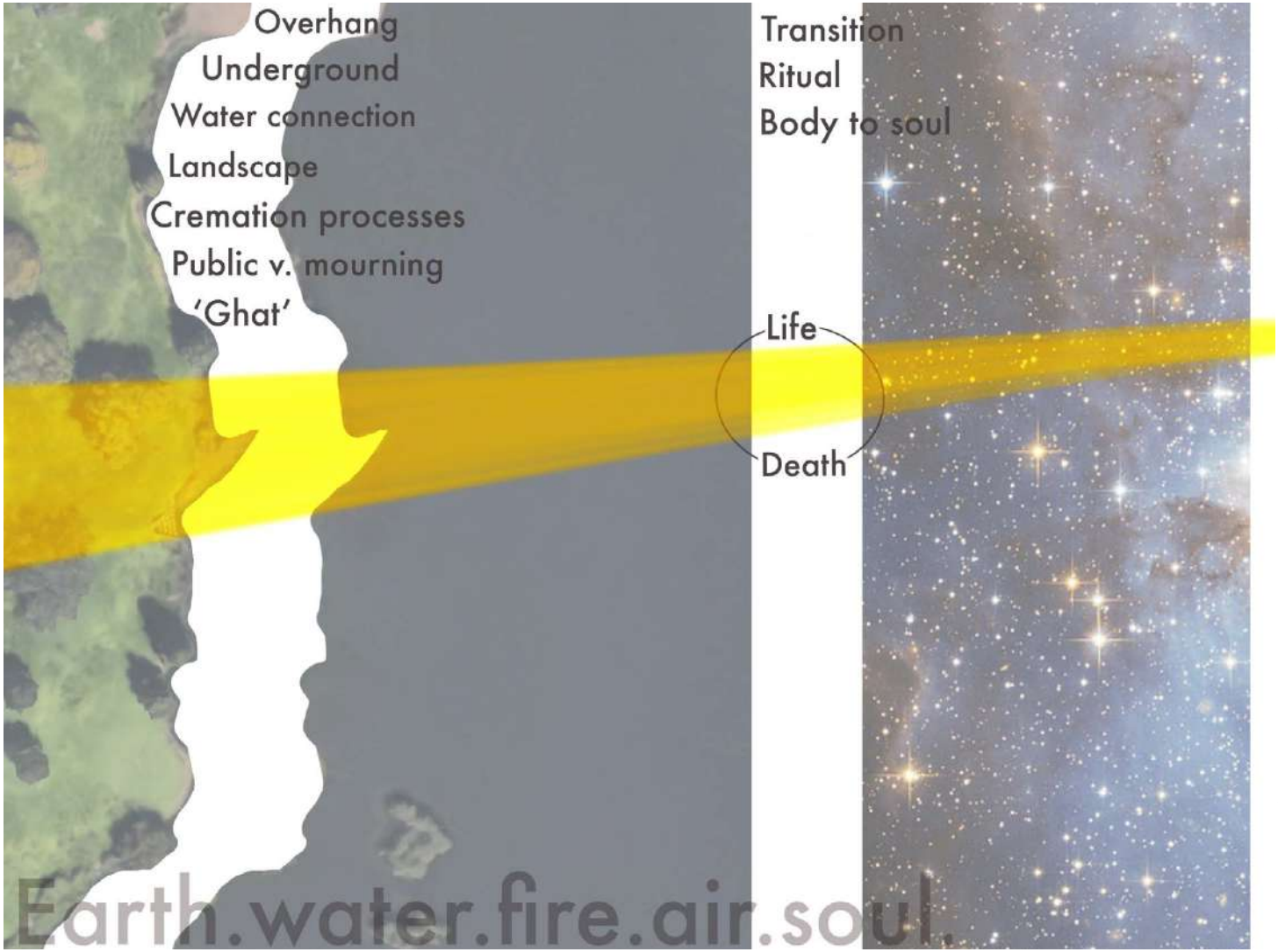


Sketch east elevation





Themes



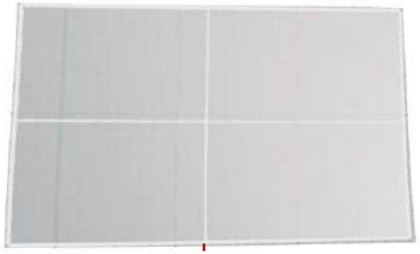
Moving forward:

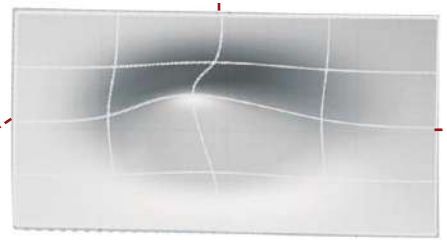
In the next incarnation of the design, elements needed to be placed better on the site, and the form needs to be changed into something more expressive. The structure needed to be thought about more. This would change the atmosphere of the interiors where the program needed to be more dramatic. The façade needed to be reconsidered and make them less institutional and more specific to the design. The Ghat element needed to be redesigned to better sit in its environment, allowing it to carry a message and not become an entirely separate thing. There needed to be more overall harmony between the design and all its elements.

To the left is a representation of the overall themes. After the first iteration, there needed to be a refocusing on the core themes in order to visualize a new path forward. By isolating the main themes the could be a new understanding of how to marry them more effectively.

Second Iteration

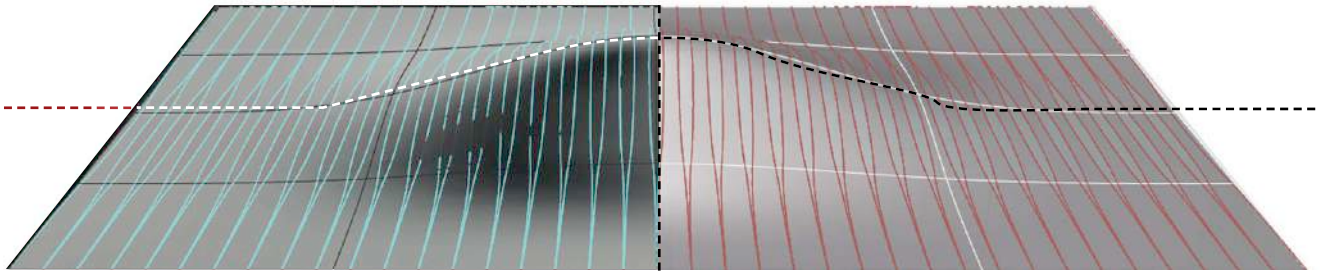
Rhino and Grasshopper form finding

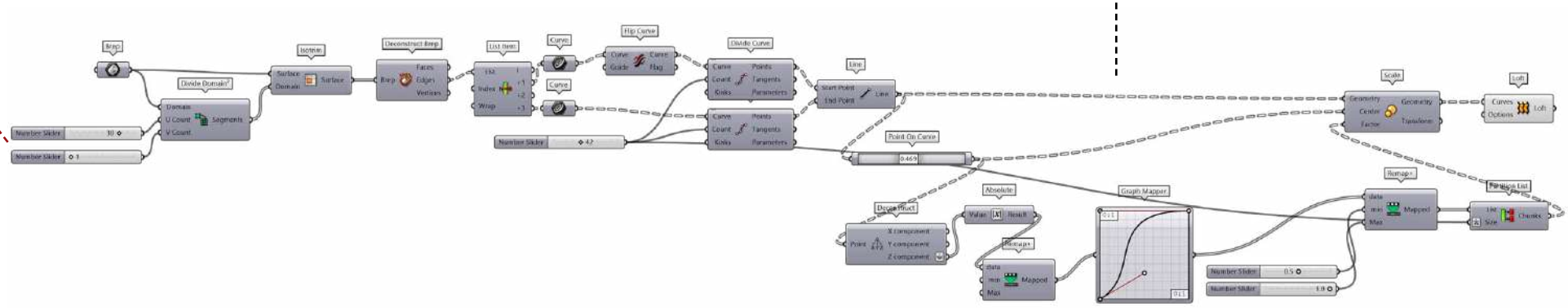




The roof element was inspired by the flow and shape of water and waves. First Rhino was used. taking a flat square, and applying a force to the center. This created a bulge in the center which if cut in section expressed the geometry needed to emulate the inspiration. Then this form was carried into Grasshopper where a setting was programmed to cut the form into slits along the y-axis. The setting also spread the site away from each other along the organic portion on the form. This simulates openings along the organic portion.

Now that the form was created it was cut along the x and y-axis to achieve the final geometry. Two quadrants on the left were used for the roof. Each quadrant becomes a roofing element to be made with structural steel and concrete.



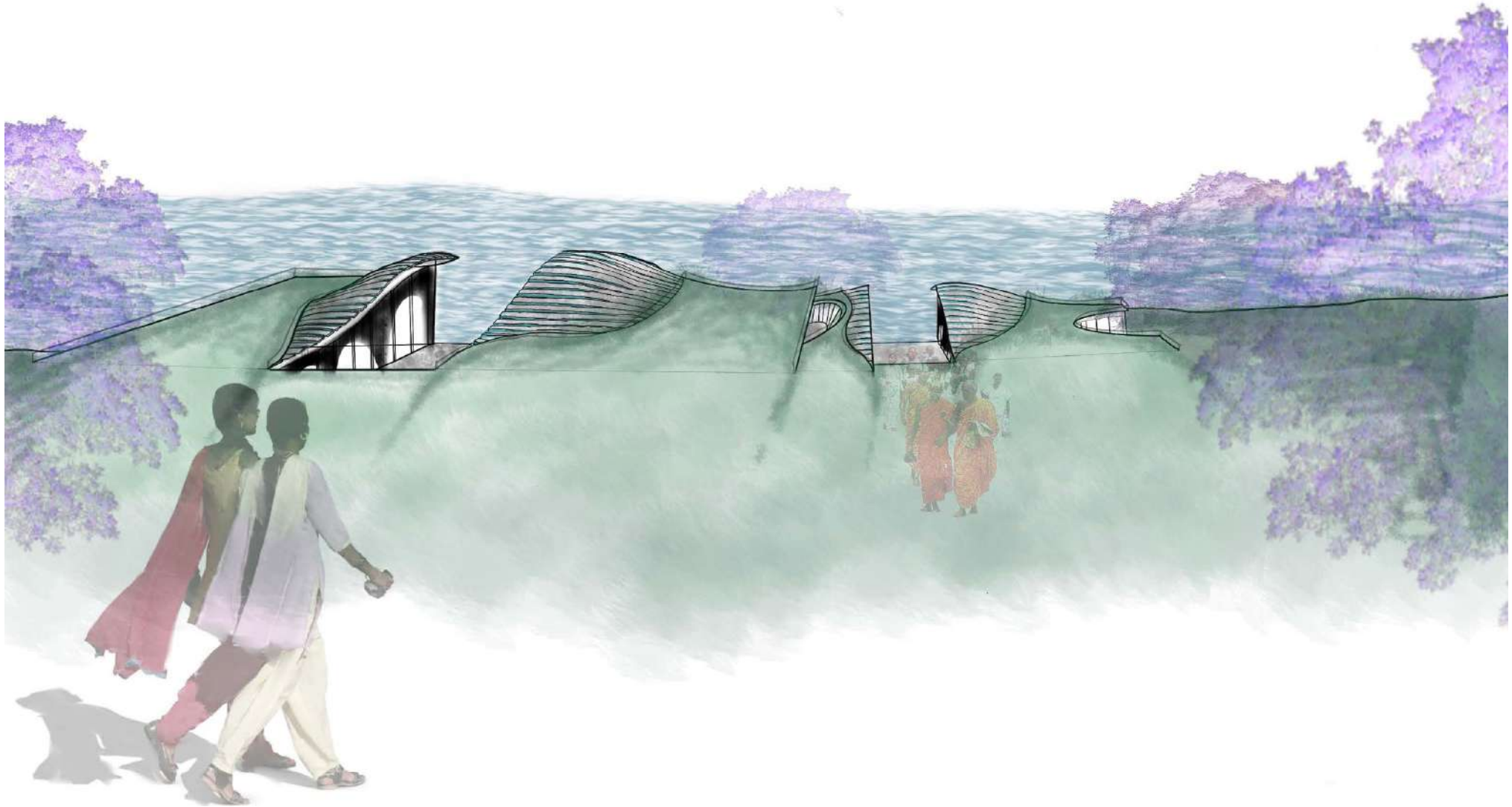


Design progression

The design progressed to the following iteration. It was brought future up the slope in order to allow more area for a Ghat leading down to the banks of the Dam which better fits what this element meant to be. The form created in Rhino is used as the concrete roof shell. They are placed in the landscape to compliment the tree canopy. Where before the in-between spaces read as walkways they now read as internal courtyards reminiscent of Indian vernacular planning. The in-between spaces cut through the slope and make it so that there is always a visual connection to water as an element. By creating large openings in the façade the view of the water is uninterrupted. The 'fins' of concrete popping out of the landscapes give visual cues that the building is there, nestled in the landscape. The rest of the flat surface of the roof is a green roof that allows for seating and other activities.

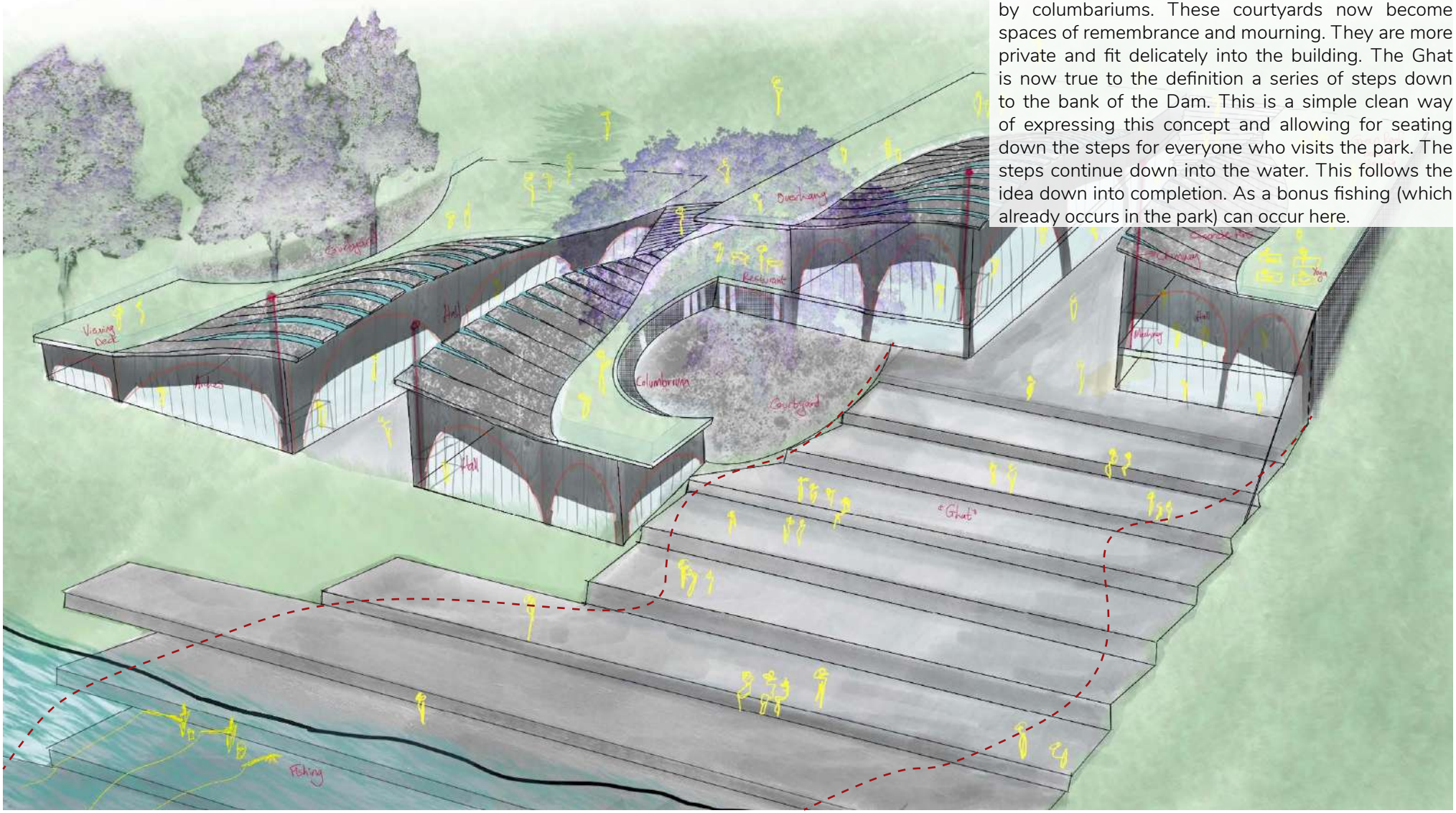
The following visualizations were made in an effort to capture the emotive atmosphere of the design when approached for different angles.

Entrance to site



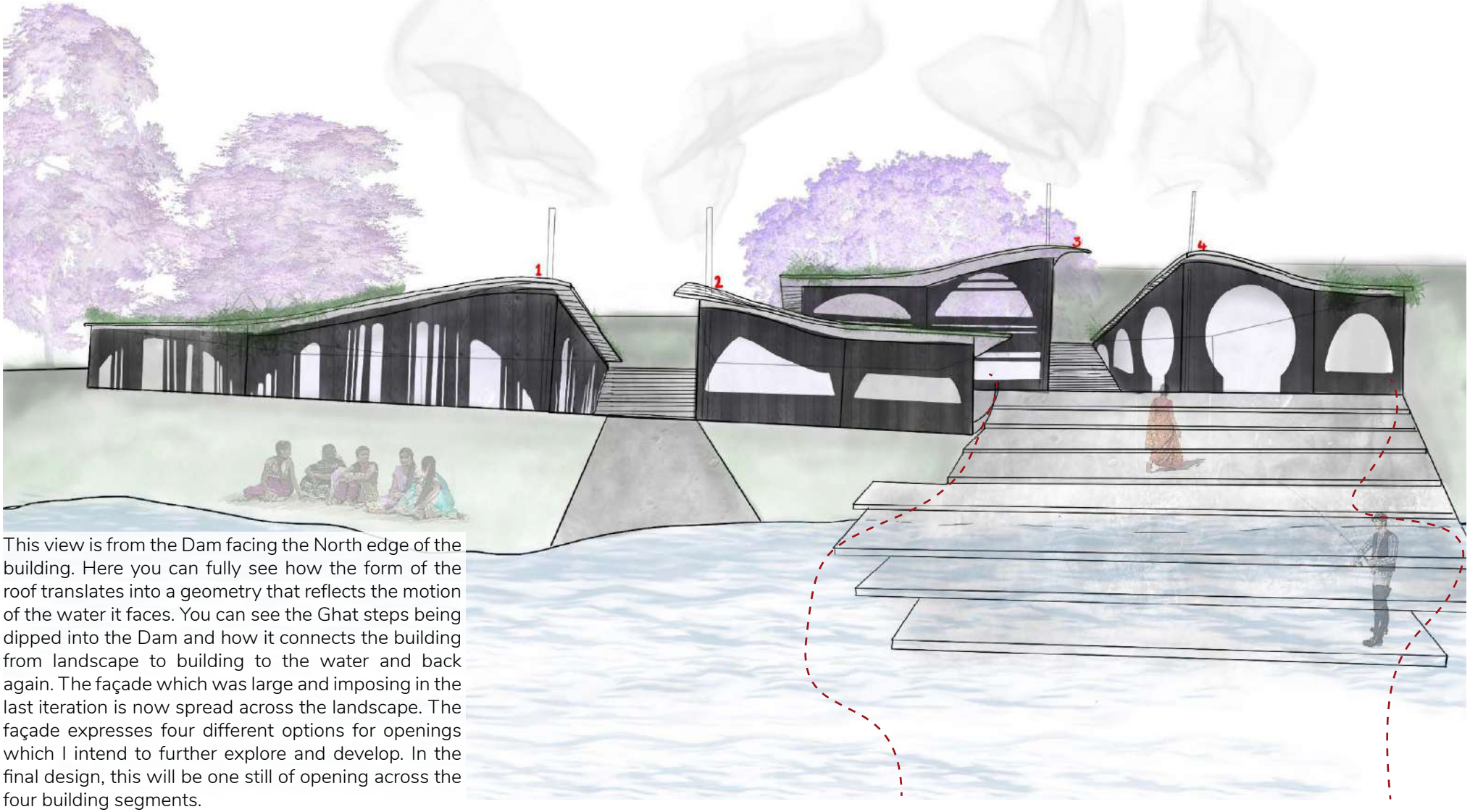
Axo view

This visualization expresses how courtyards and the Ghat element have been re-approached. The courtyards are now more effective and are surrounded by columbariums. These courtyards now become spaces of remembrance and mourning. They are more private and fit delicately into the building. The Ghat is now true to the definition a series of steps down to the bank of the Dam. This is a simple clean way of expressing this concept and allowing for seating down the steps for everyone who visits the park. The steps continue down into the water. This follows the idea down into completion. As a bonus fishing (which already occurs in the park) can occur here.



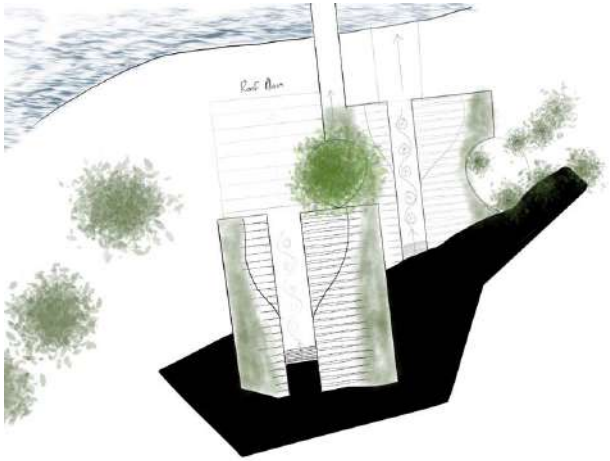
View from the dam

Opening options



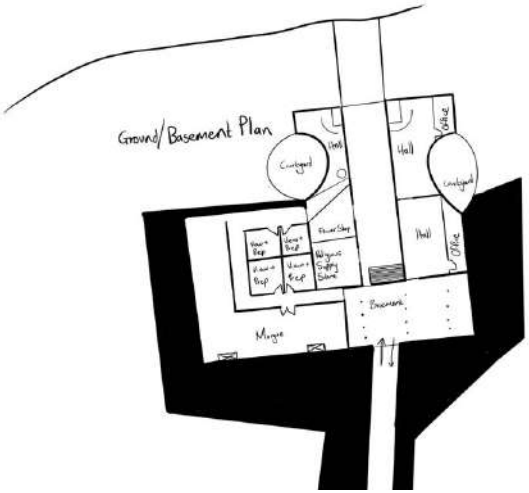
This view is from the Dam facing the North edge of the building. Here you can fully see how the form of the roof translates into a geometry that reflects the motion of the water it faces. You can see the Ghat steps being dipped into the Dam and how it connects the building from landscape to building to the water and back again. The façade which was large and imposing in the last iteration is now spread across the landscape. The façade expresses four different options for openings which I intend to further explore and develop. In the final design, this will be one still of opening across the four building segments.

Sketch Plans



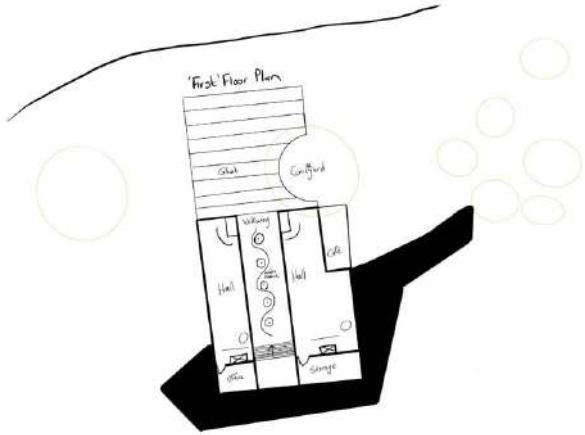
Roof plan:

The design is now the position of the entire building is higher up on the slope. The courtyards are not perpendicular to the Dam so the view from the entrance leads straight down to the Dam. The two halves are on different levels (the two quadrants to the left are higher up on the site), providing more visual interest along the horizontal plane. The park is lifted onto the roof of the building. In-between the 'fins' of concrete are glass sections making for interesting interior light and shadows. The interior courtyard spaces have landscaping, water features, and seating. The courtyards with the large existing trees contain columbarium elements.



Ground/ First Floor Plan:

A large portion of this floor is submerged. It does not include a Basement parking that is used by staff and to move bodies to the morgue more discretely. The viewing and preparation areas are also now on this level for easier movement and privacy. The bodies get taken up by the elevator directly into the hall spaces. The front portion which is not submerged houses more public programs such as a flower store, a religious supply store, and halls. The courtyard spaces are also accessed on this level from the interior programs.



First Floor Plan:

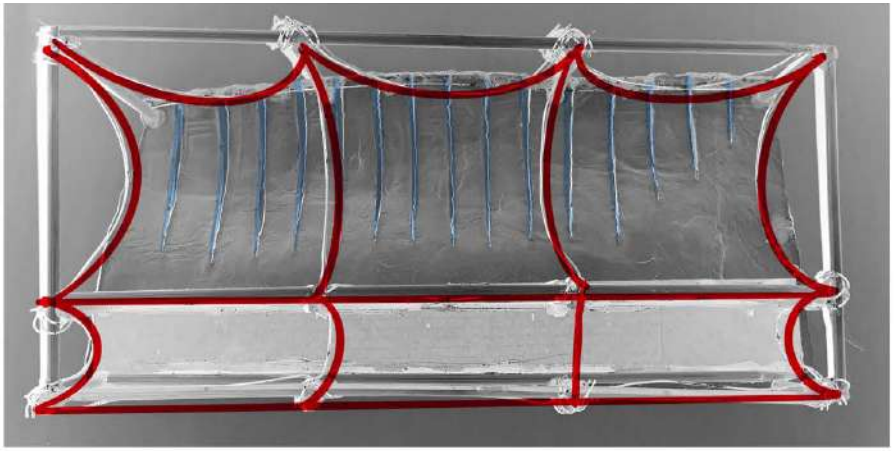
This floor expresses where the bodies would come up from the morgue, ready to go through the funeral ritual process. The actual cremation happens in front of the hall. There will be a screen that allows for privacy but still allows those who want to participate to be a part of it. This in-between courtyard leads the occupants down on the Ghat element to the Dam.

Technical systems

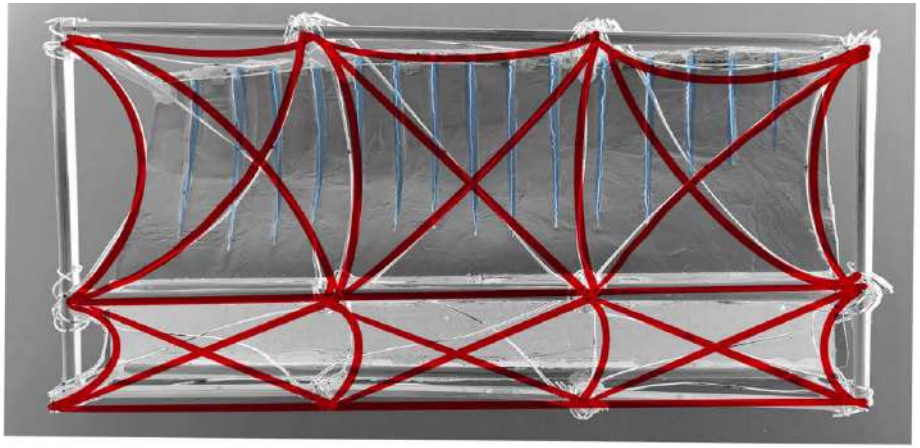
Structural modelling

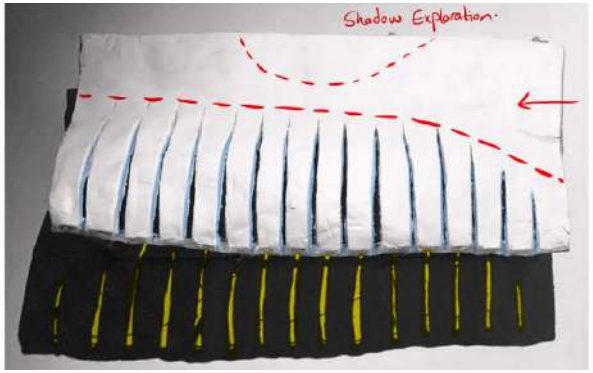
To better understand the physical implications of my Rhino modeled structure a model was made using clay, wire, and wood. Doing this made it easier to identify realistically if this structure will be possible to build. Through the modeling points of potential weakness were identified and a structure to strengthen those areas was constructed. Looking at the library typology and Indian vernacular architecture it became apparent arches were the best way to go. Once this was decided two options for the positioning of the arches were identified (below).

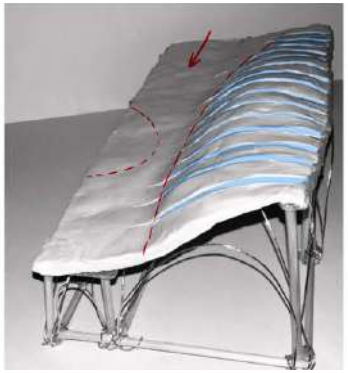
Structural option 1:

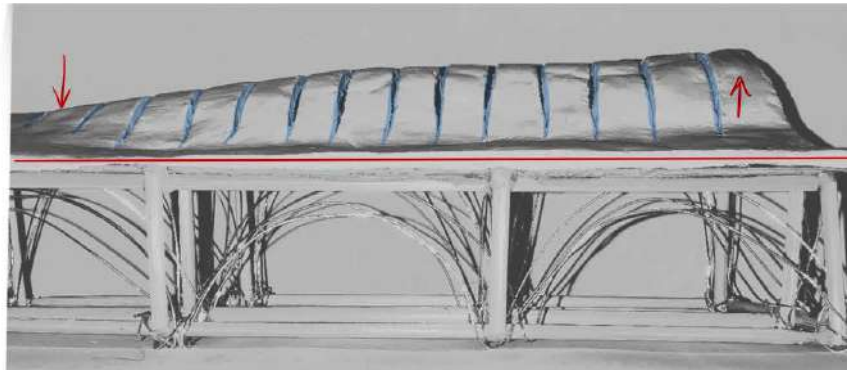


Structural option 2:





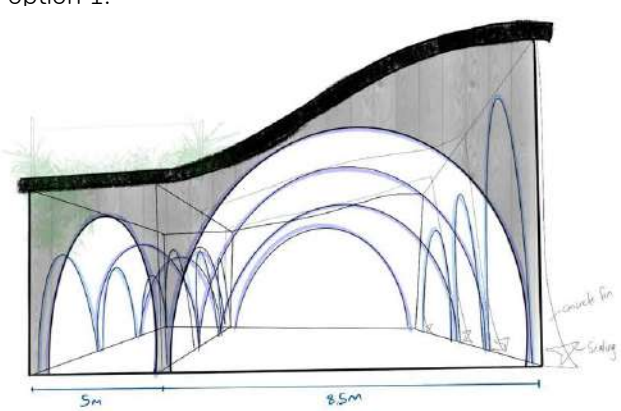


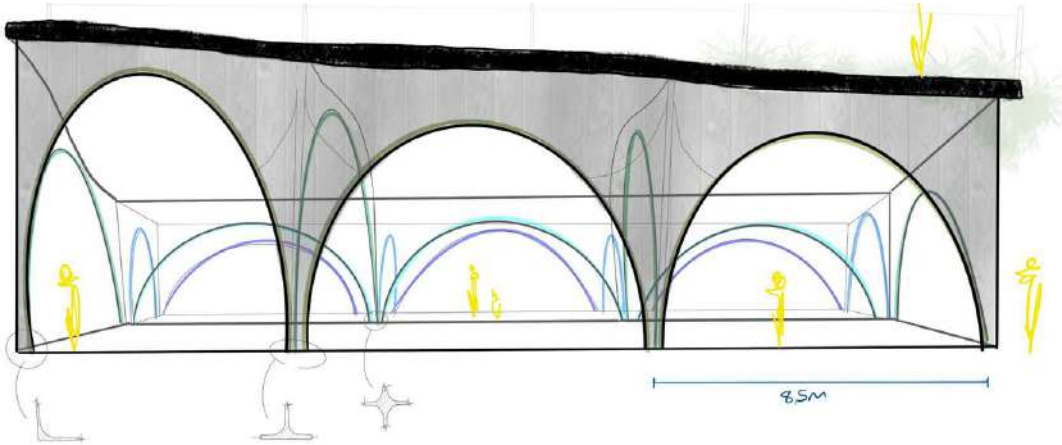


Structural options

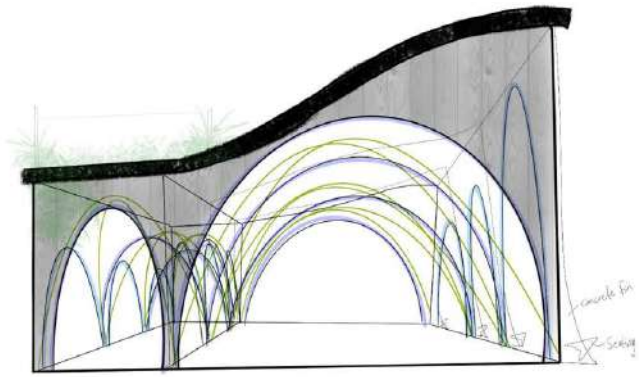
Using the model made previously I drew a 3D sketch of how the structure would work as a structural system. The grid ended up being 8.5m by 8.5m in the hall spaces and 5m by 8.5m in the sections for offices, storage, and other public programs. The second option has the disadvantage of messing with the internal shadows which is not ideal making the first option is the more favorable one.

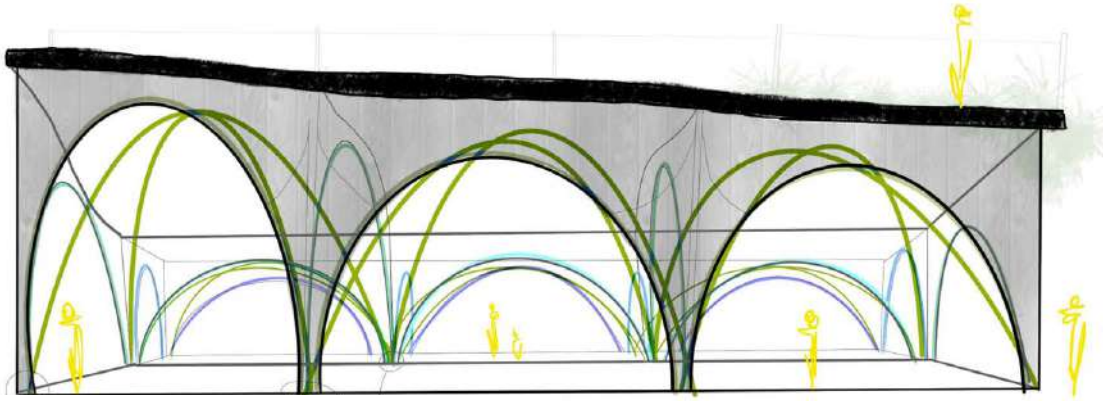
Structural option 1:





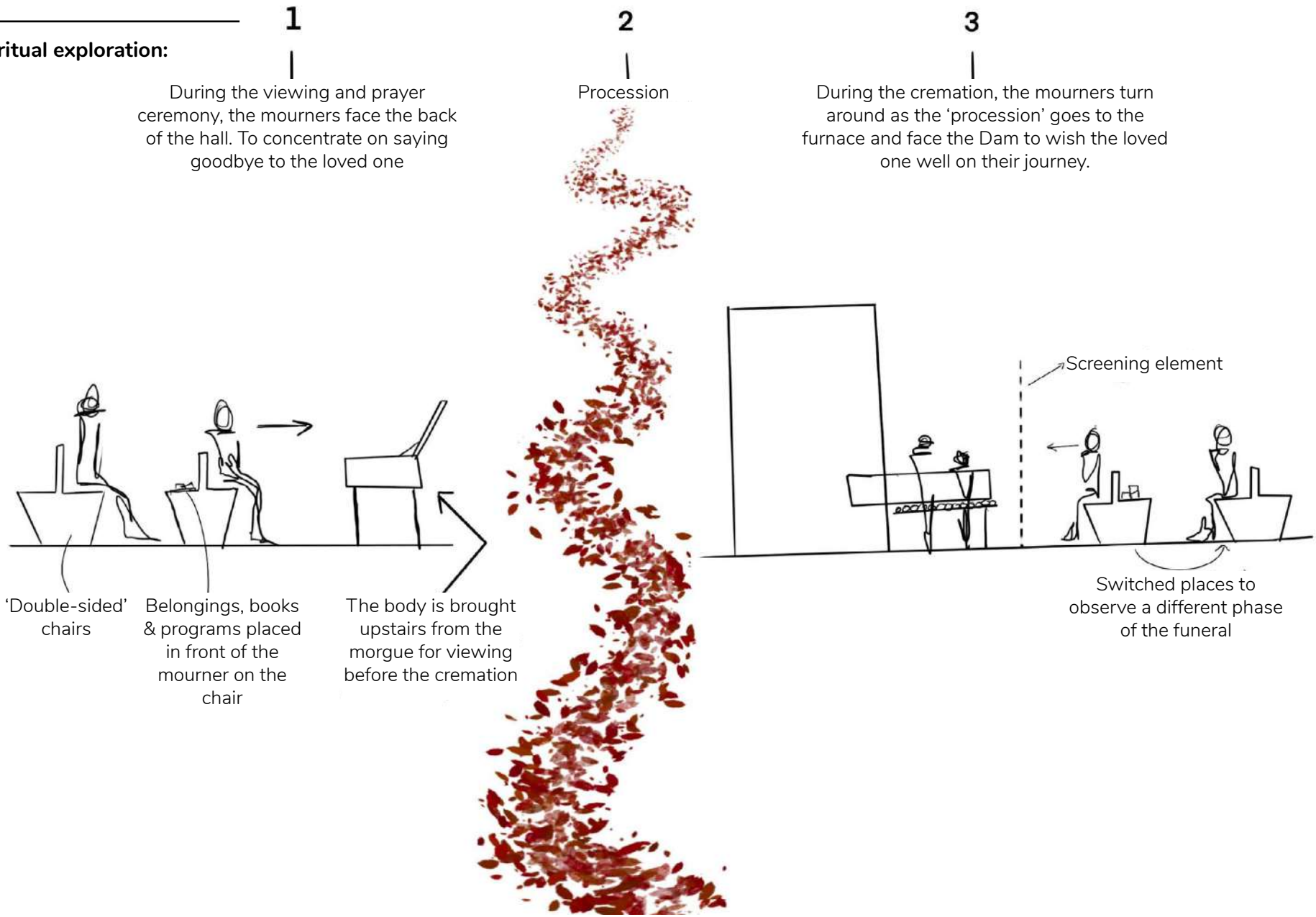
Structural option 2:



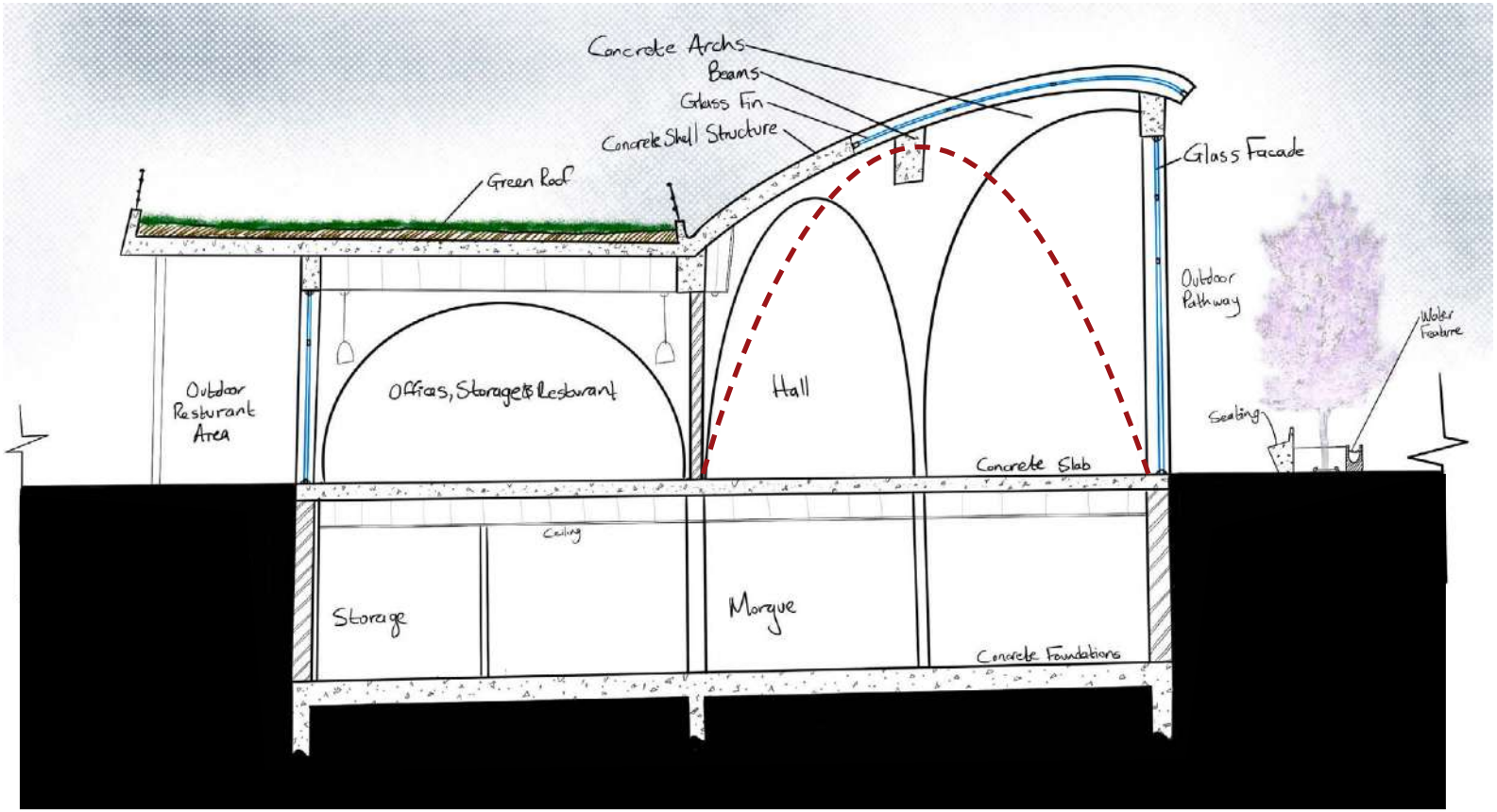


Detail design

Funeral ritual exploration:

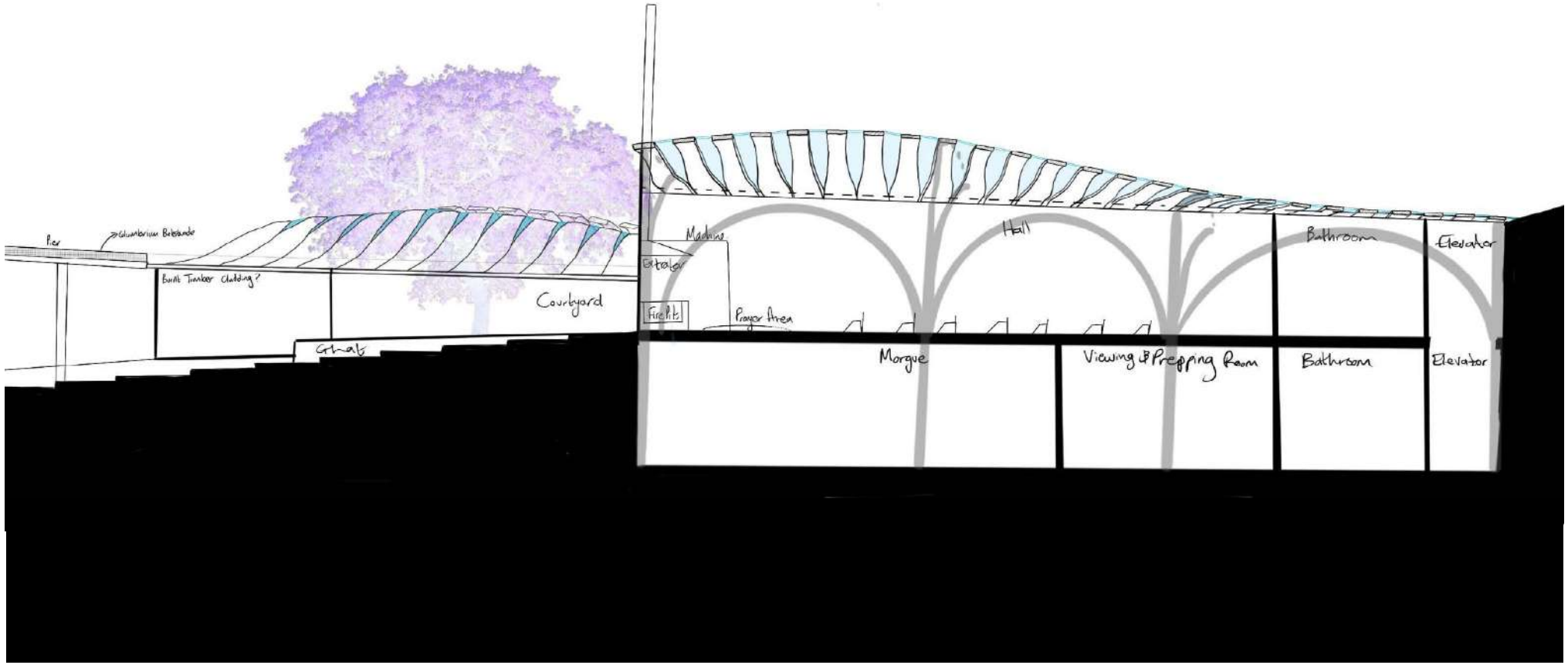


Sketch sections



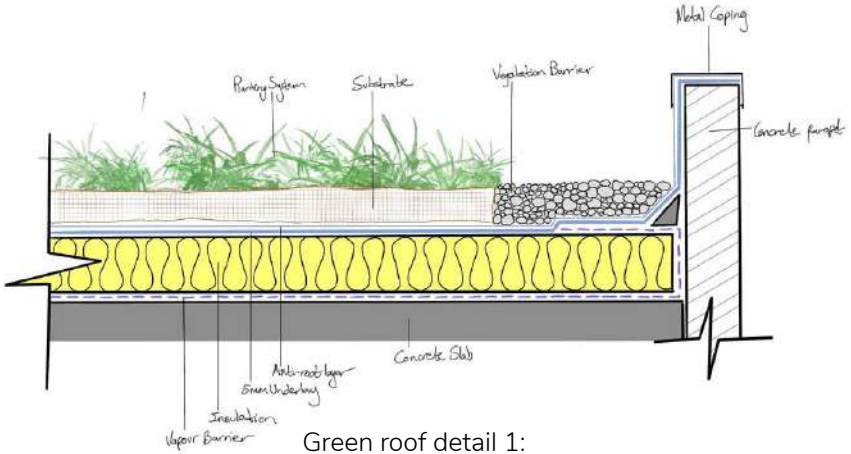
These sketch sketches illustrate the structure and internal volumetric feeling of the spaces. They are going to be worked on in the future and developed to mirror design intentions better, you can also see the submerged morgue in relation to the open public Hall spaces. It also starts to explore the green roof system and the concrete 'fins' organically flowing out of it. The internal courtyards start to explore seating and water feature elements to developed before.

On the right, it gives a better sense of the space along the length of the Hall. It illustrates the internal effect of the slotted concrete roof.

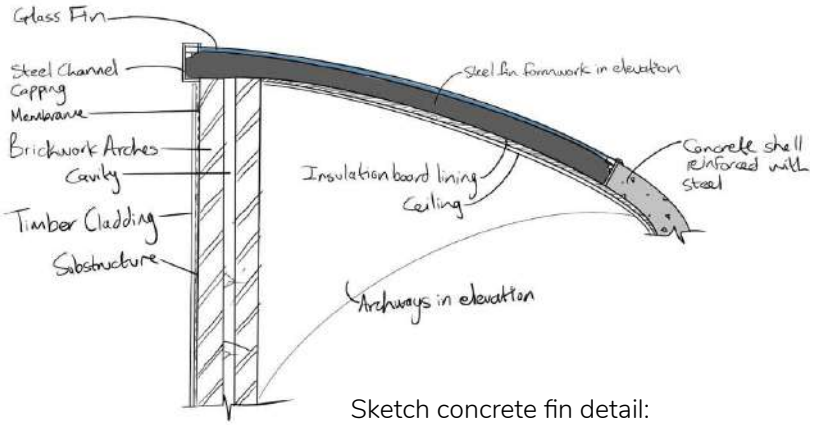

Pier
Columbarium Balestrade
Burnt Timber Cladding?
Courtyard
Ghat
Machine
Extractor
Fire Pits
Prayer Area
Hall
Bathroom
Elevator
Morgue
Viewing & Prepping Room
Bathroom
Elevator

Section detail process

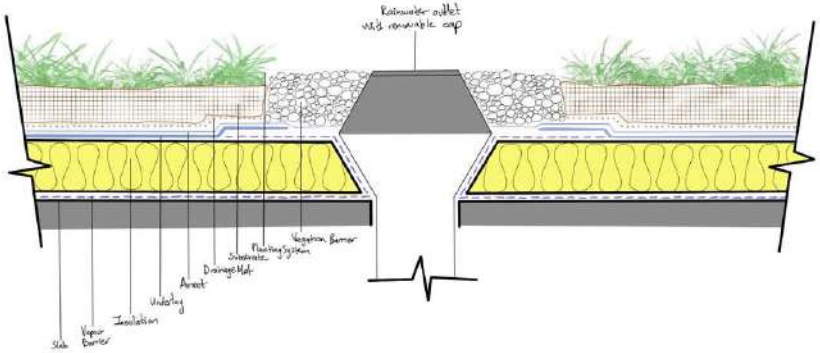
The sections of the left illustrate systems that have been looked at further so far. Namely points of interest like the green roof, tanking, and roof sections. These are just the first systems that have been clarified. Moving forward they will be developed further with other key systems.



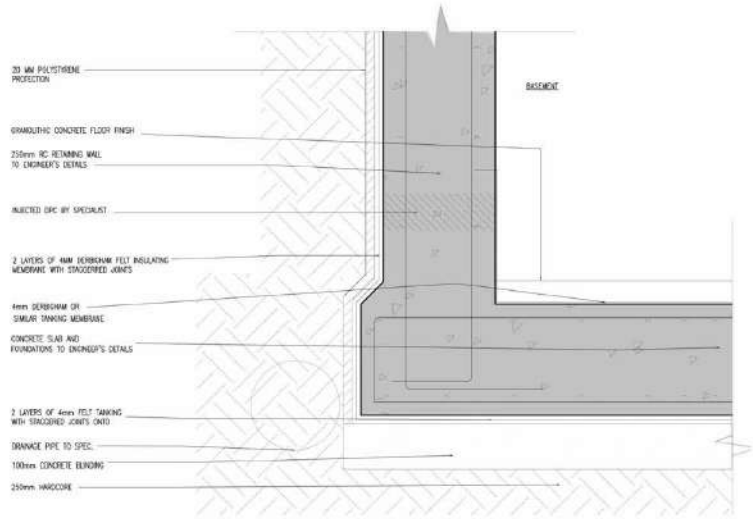
Green roof detail 1:



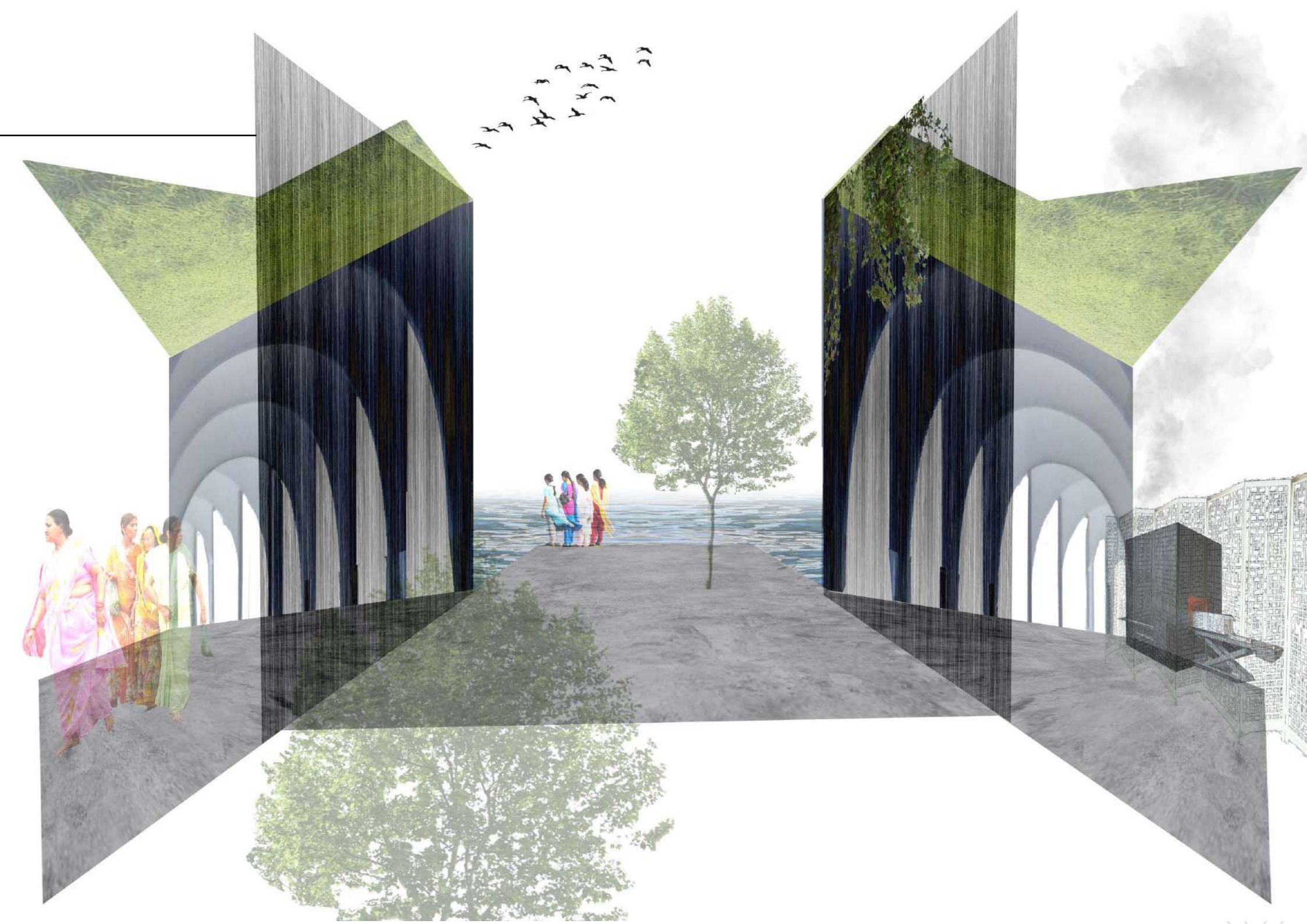
Sketch concrete fin detail:



Green roof detail 2:

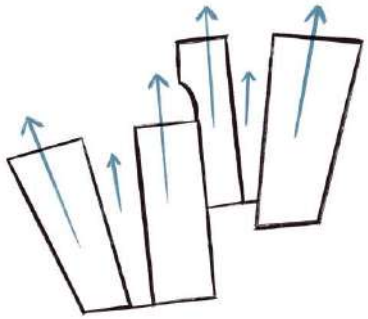


Tanking detail:



Final Design

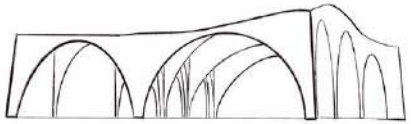
Key Elements



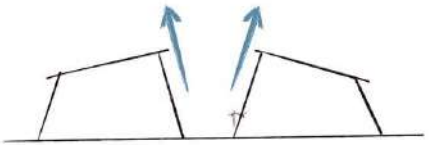
Form Angled to Views



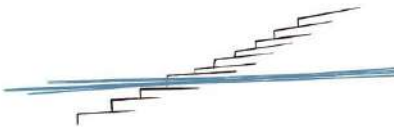
Subterranean Section



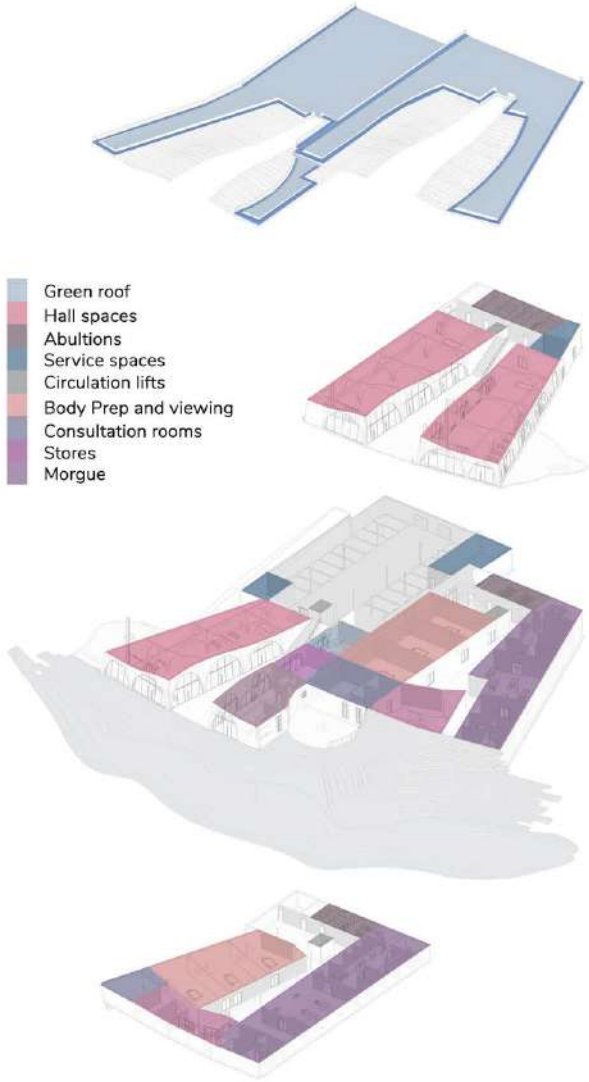
Arched Structure



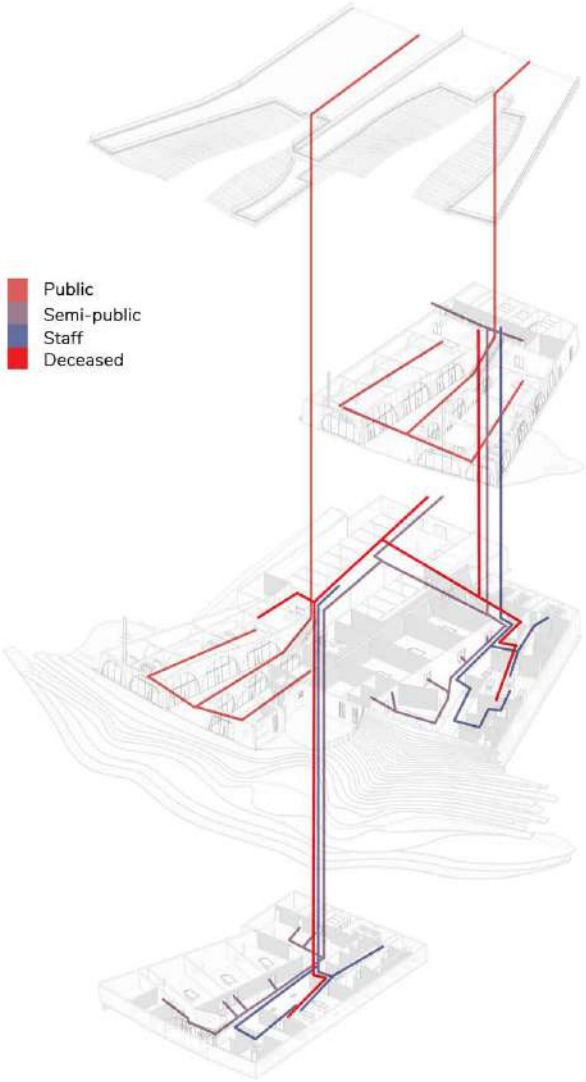
Angled Walls to open up space



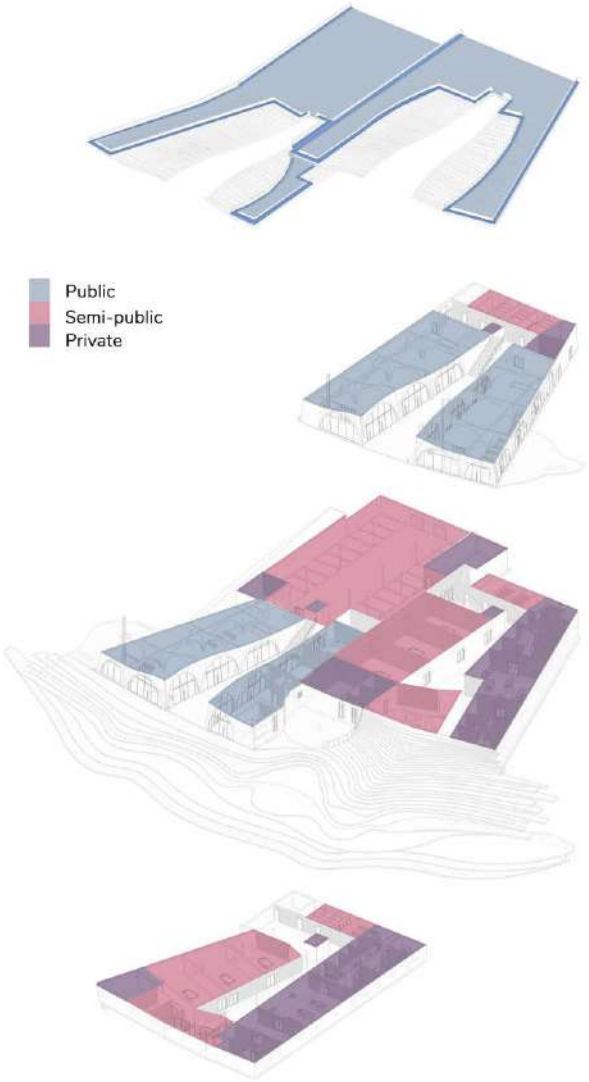
Ghat Typology



Program

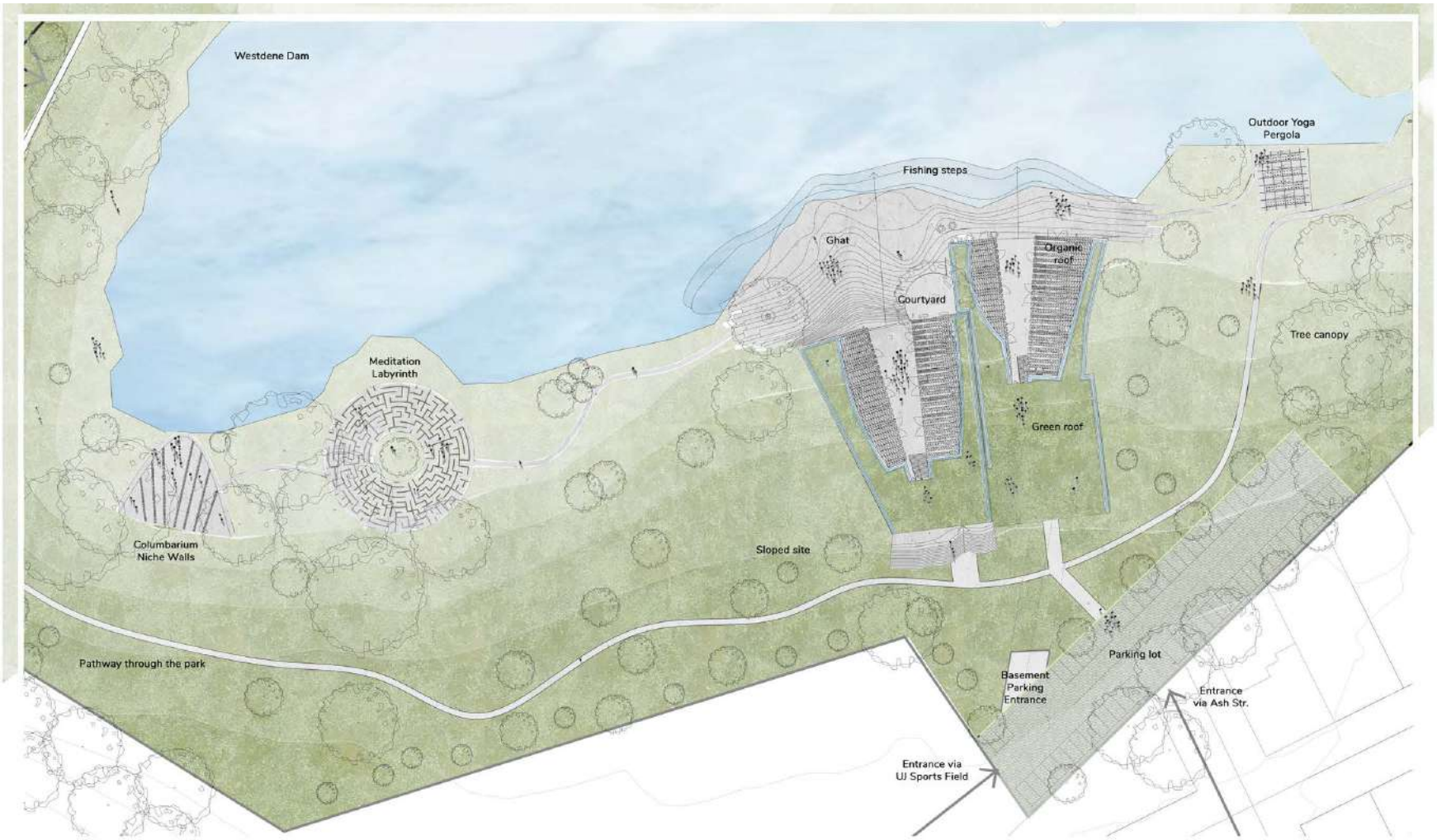


Circulation



Private vs. Public

Site Programs



Site and Roof Plan



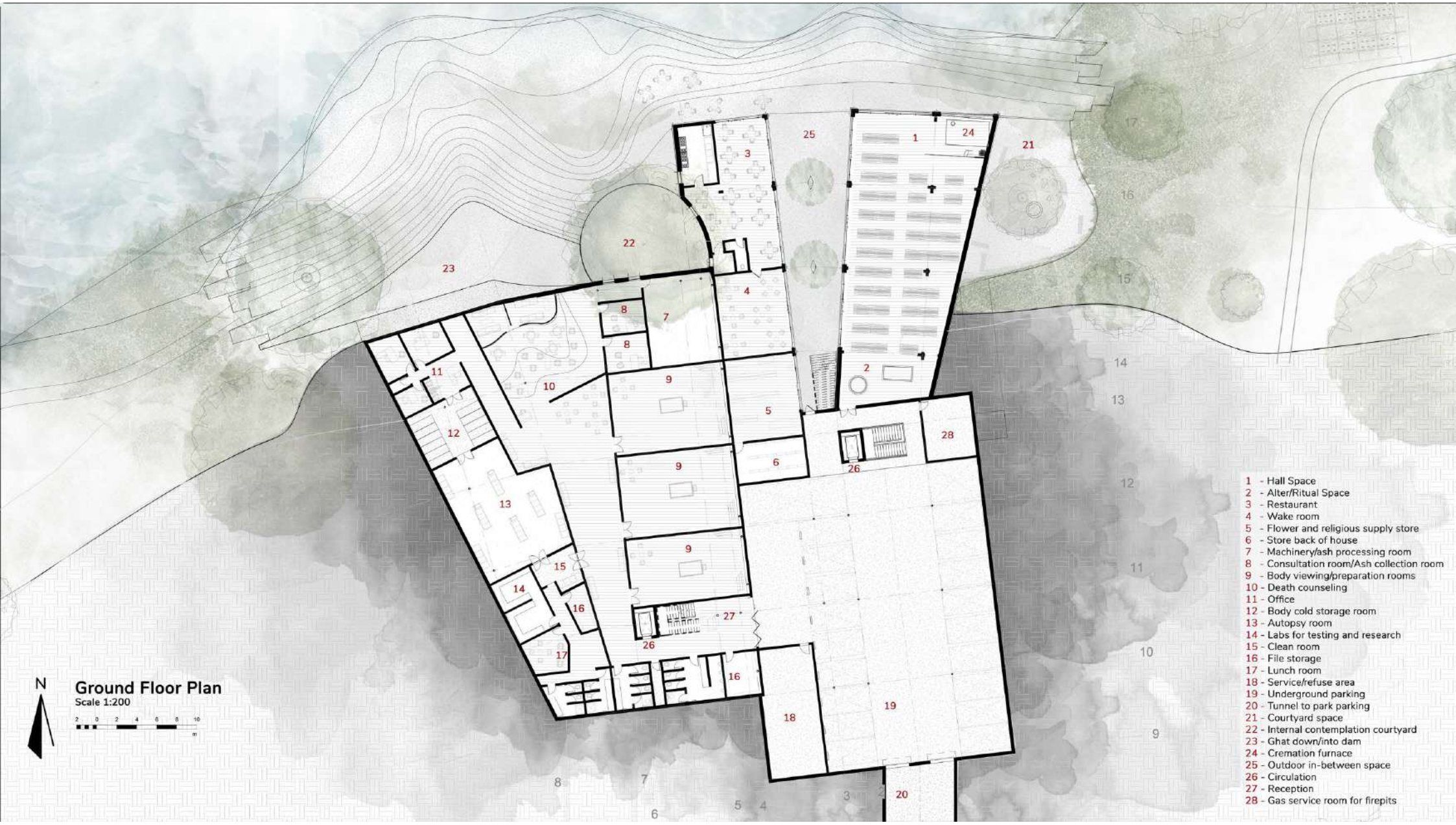
Meditation Labyrinth

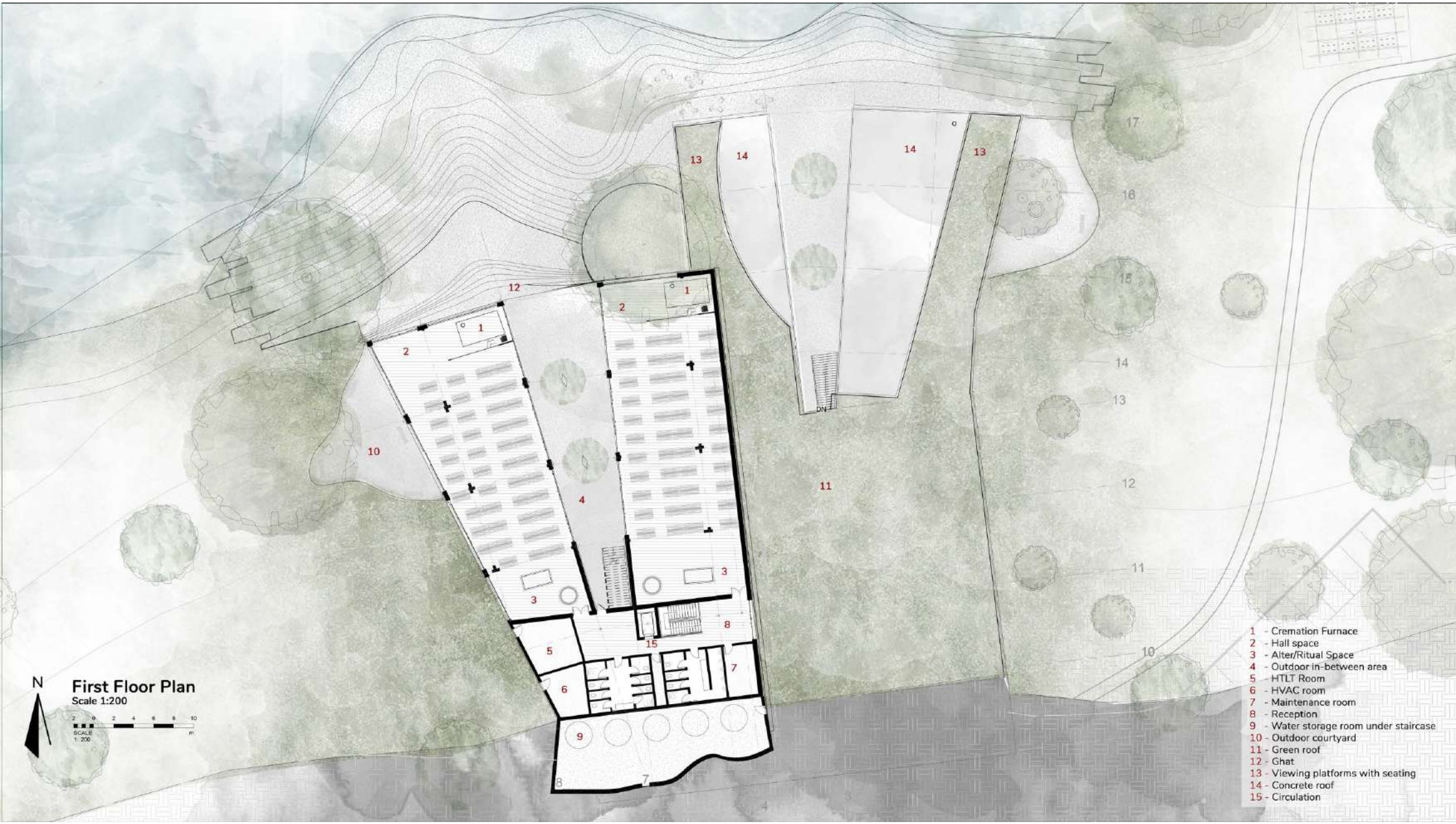


Columbarium



Yoga Pergola


N
Ground Floor Plan
Scale 1:200
1 - Hall Space
2 - Alter/Ritual Space
3 - Restaurant
4 - Wake room
5 - Flower and religious supply store
6 - Store back of house
7 - Machinery/ash processing room
8 - Consultation room/Ash collection room
9 - Body viewing/preparation rooms
10 - Death counseling
11 - Office
12 - Body cold storage room
13 - Autopsy room
14 - Labs for testing and research
15 - Clean room
16 - File storage
17 - Lunch room
18 - Service/refuse area
19 - Underground parking
20 - Tunnel to park parking
21 - Courtyard space
22 - Internal contemplation courtyard
23 - Ghat down/into dam
24 - Cremation furnace
25 - Outdoor in-between space
26 - Circulation
27 - Reception
28 - Gas service room for firepits


N
First Floor Plan
Scale 1:200
SCALE
1: 200
m
1 - Cremation Furnace
2 - Hall space
3 - Alter/Ritual Space
4 - Outdoor in-between area
5 - HTLT Room
6 - HVAC room
7 - Maintenance room
8 - Reception
9 - Water storage room under staircase
10 - Outdoor courtyard
11 - Green roof
12 - Ghat
13 - Viewing platforms with seating
14 - Concrete roof
15 - Circulation



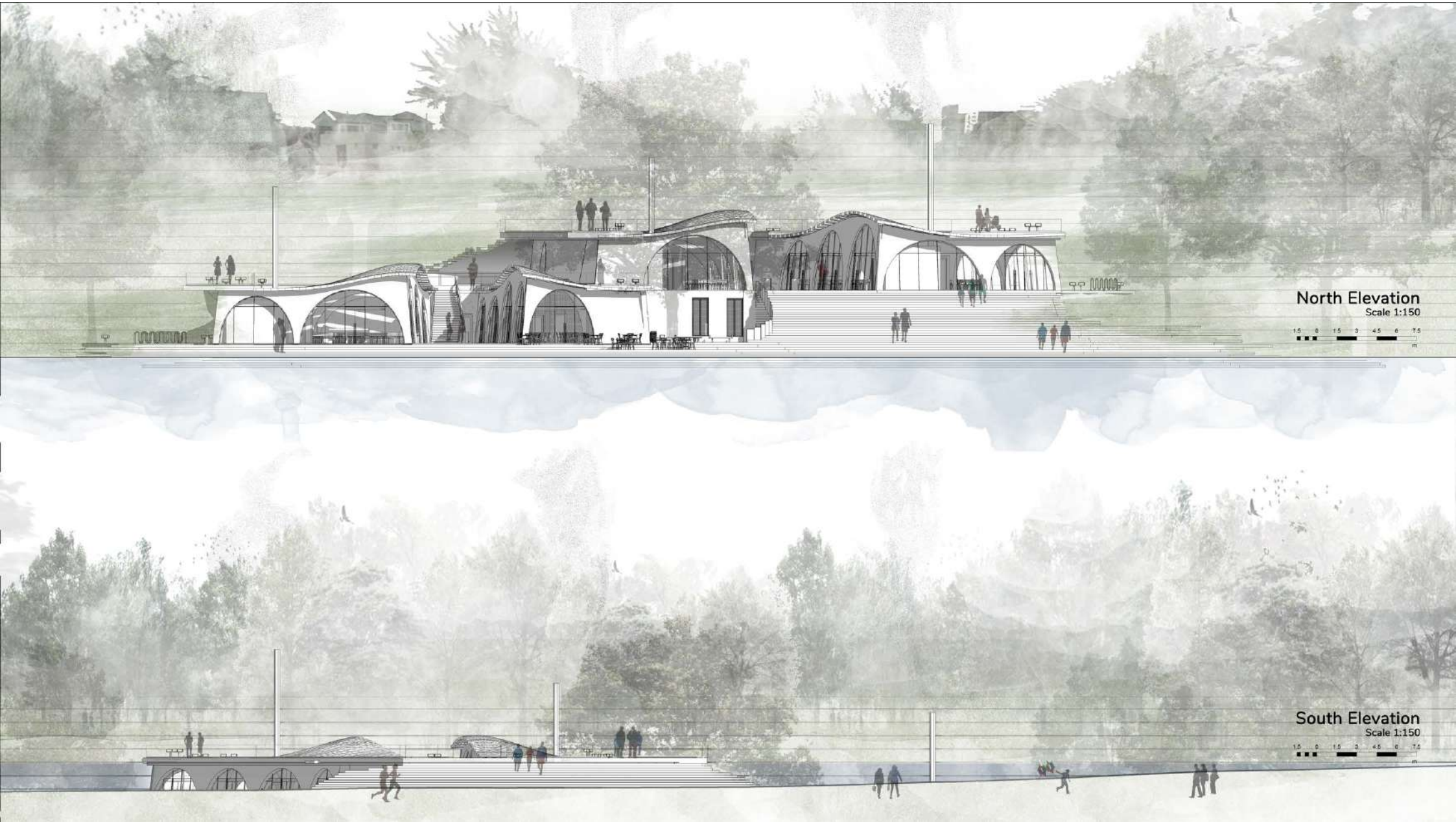
N

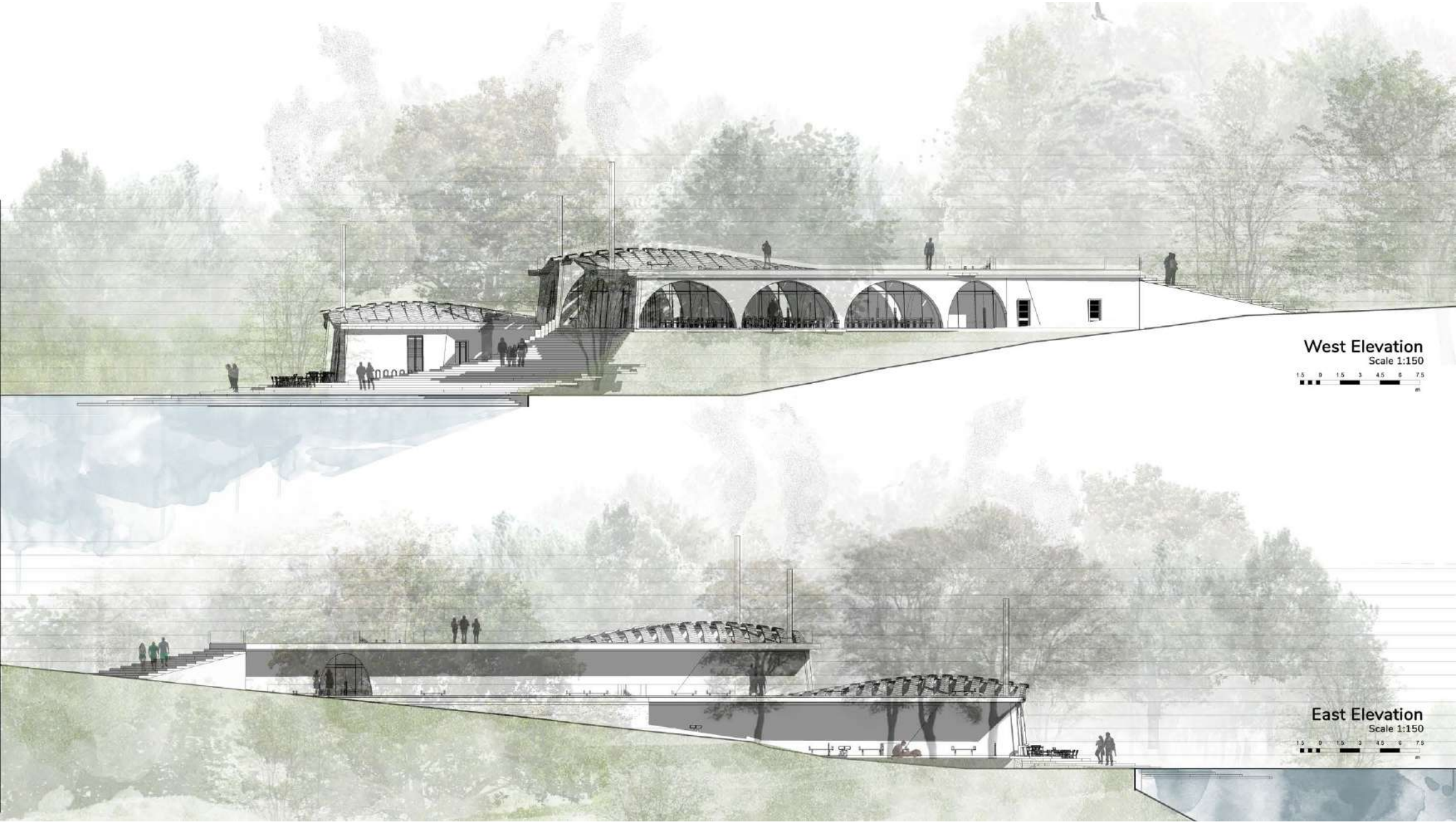
Basement Floor Plan

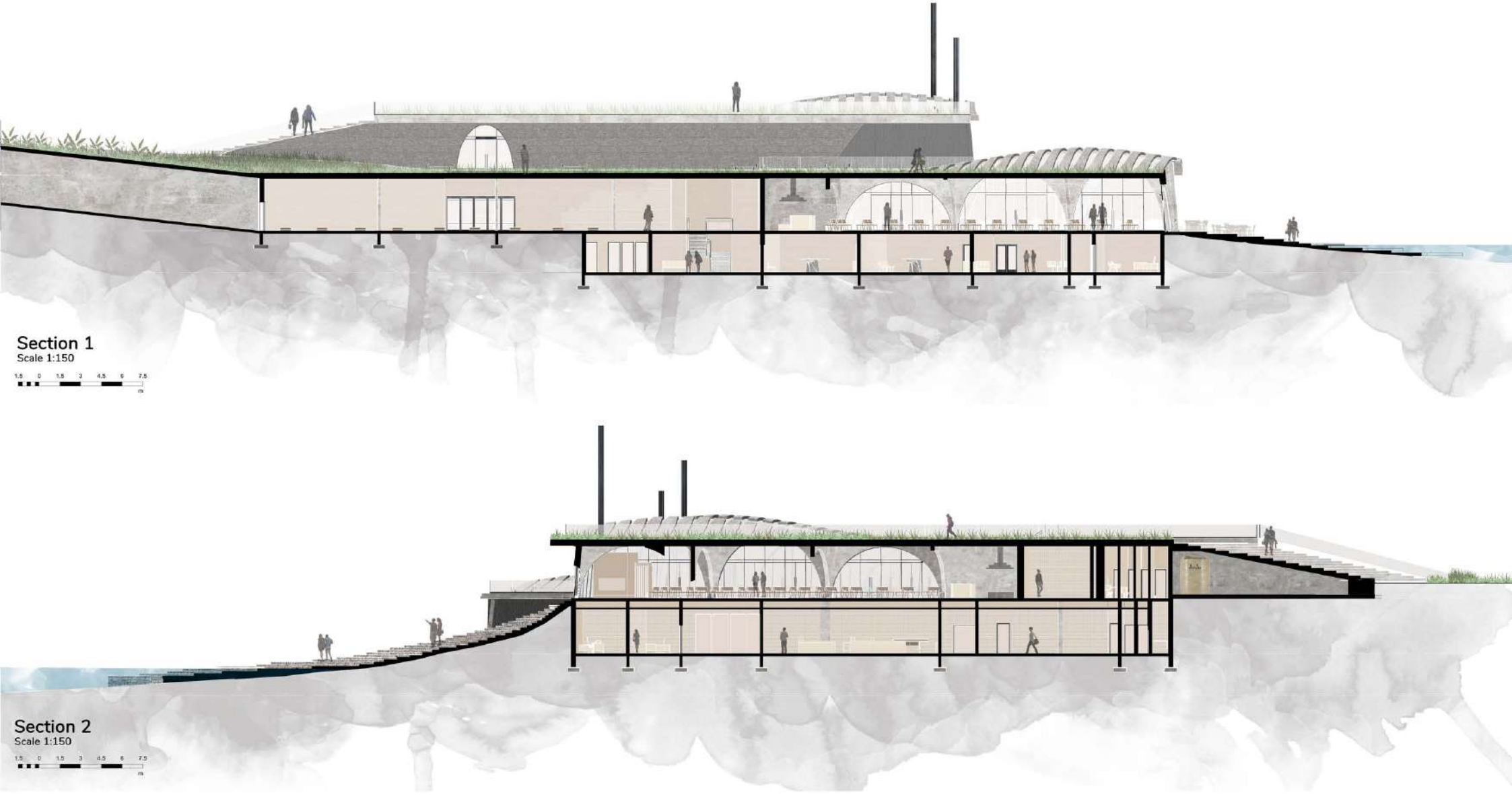
Scale 1:200

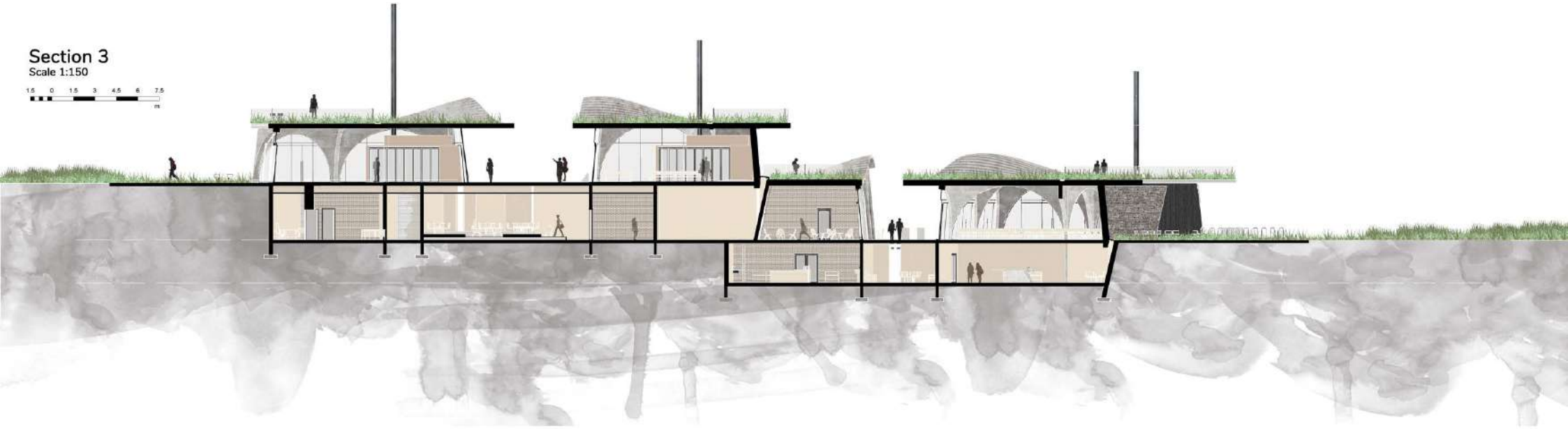
SCALE
1: 200

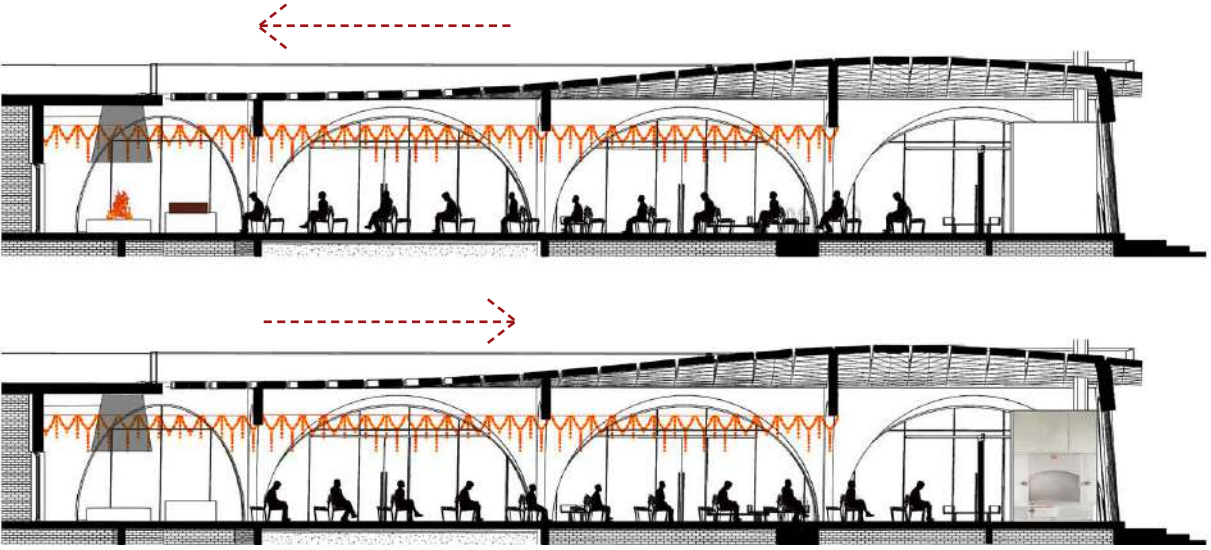
1 - Machinery/ash processing room
2 - Consultation room/Ash collection room
3 - Body viewing/preparation rooms
4 - Death counseling
5 - Office
6 - Body cold storage room
7 - Autopsy room
8 - Clean room
9 - Labs for testing and research
10 - File storage
11 - Lunch room
12 - Maintenance room
13 - Reception
14 - Break away space
15 - Circulation


North Elevation
Scale 1:150
South Elevation
Scale 1:150


West Elevation
Scale 1:150
East Elevation
Scale 1:150


Section 1
Scale 1:150
1.5 0 1.5 3 4.5 6 7.5
m
Section 2
Scale 1:150
1.5 0 1.5 3 4.5 6 7.5
m





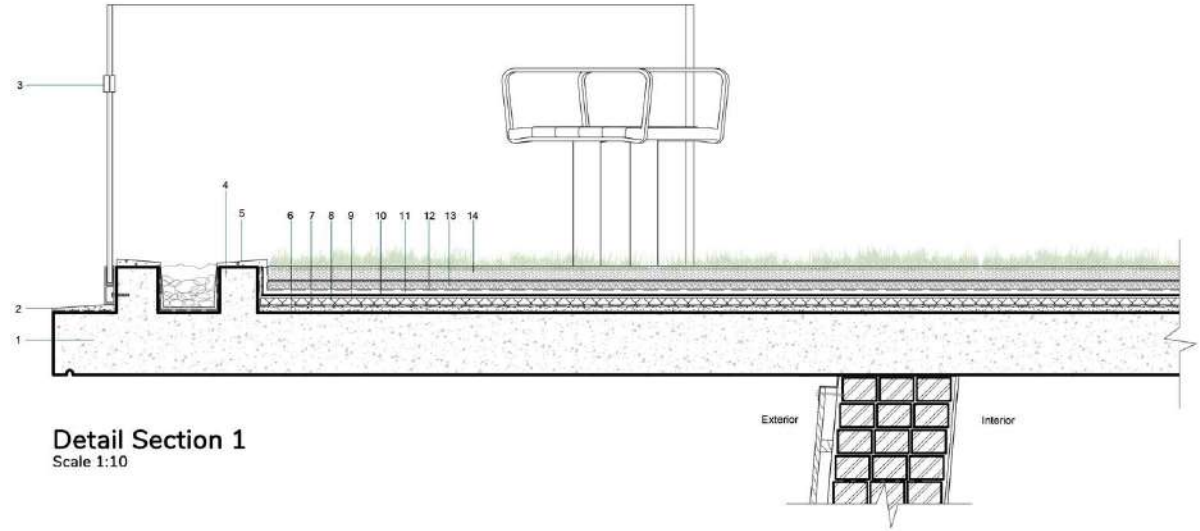
Diagrams illustrating funeral the ritual:

The seating and arrangement of the hall consider ritual by using a 'back to back' seating arrangement. When the funeral begins the attendants sit facing the south where the ritual with the body and priest takes place. During this time the view is only of the ritual and promotes the action of saying goodbye. After the ritual, the body is carried to the north end. As the procession happens the attendants stand and sit on the sit in front of them. Now they may view as the body goes into the furnace if they chose. There is a screen which can be opened or closed. Now the view is open and light, facing the water, and provides a sense of releasing the soul as it were. These spaces can be transformed for any religion as the fire pit can be converted to a table. If a larger funeral needs to take place the doors are opened and the two halls become one as the seating faces the in-between space.



Diagram illustrating the body preperation and viewing space:

This space was design considering the ritual needed to prepare a body in a calming efficient space. The size considers the people require to pray around the body. The lightwell provides soft light which washes into space that is serene and calming. There are sufficient seating and place for supplies to be help and a custom slab that allows the occupants to comfortably wash and prepare the body.



Detail Section 1
Scale 1:10

1 - 200mm RC Concrete slab to engineers detail

2 - Screed laid to fall.

3 - GHI balustrade comprising stand-off bolts (Code: GSB003SSS) fitted to 12mm laminated safety glass (elsewhere specified) including all necessary 304 Polished Stainless Steel fittings and installed in accordance with the manufacturer's recommendations. Quantities of hardware dependent on dimensions and design of balustrade.
• Balustrade style: side mounted.

4 - 120mm RC Concrete upstand to engineers detail enclosing water chanel. waterproofing lined within and screeded to finish.

5 -Revelstone Jura water chanel coping colour Stone, size 300 x 150/50 x 45mm thick bedded on 30-40mm thick 1:5 semi dry screed, with cement slurry poured under each coping and coping gently tapped using rubber mallet with 10-15mm wide joints jointed and pointed with 1:3 semi dry mortar.

6 - 30mm protective screed fall to eng. spec.

7 - 1mm waterproofing membrane

8 - 50mm Thermal insulation.

9 - 20mm Screed bedding

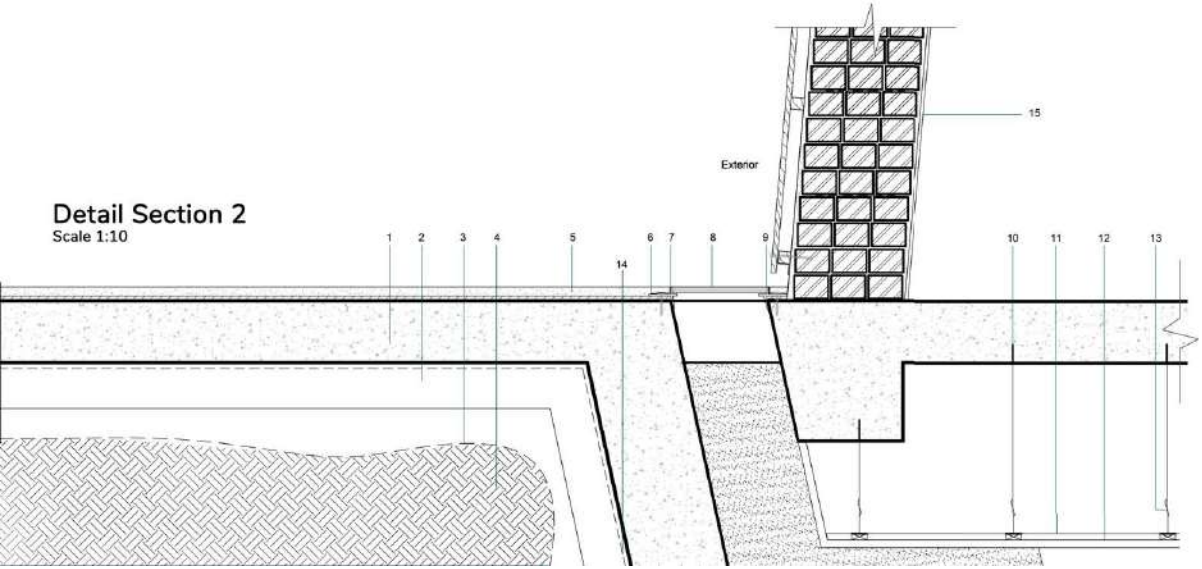
10 - 20mm concrete tile

11 - 0.5mm root barrier

12 - 0.5mm Geotextile filter

13 - 40mm Water storage panel

14 - 50mm Soil layer



Detail Section 2
Scale 1:10

1 - 200mm RC Concrete slab to engineers detail

2 - 150mm blinding layer

3 -Bidem cloth 'Febretex Geotextile Africa'

4 - Compacted soil to fall

5 - Screed to fall at eng. spec.

6 - Waterproofing membrane to manufacturer's specification, to tuck between brick courses min 85mm above geofabric membrane

7 -Custom steel frame member for custom glass floor section to manufacturers spec.

8 - Custom glass floor laminated glass to manufacturers spec.

9 - GHI Clear Olivé C-22 silicone sealant (Code: C-22), applied in accordance with manufacturer's recommendations.

10 - Fixed galvanised hangers bolted to underside of floor slab at 600mm c/c as per supplier specification.

11 - Concealed tee ceiling Substructure installed to manufacturers specifications

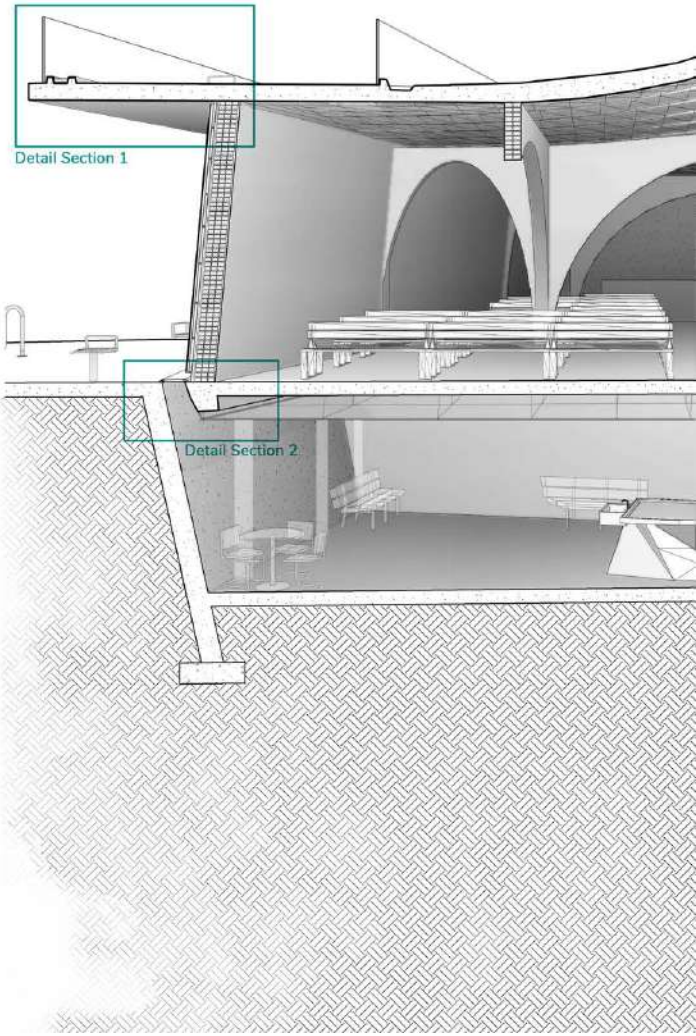
12 -15mm gypsum ceiling board with tapered edge. Flush plastered and painted 2 coats Duralux Velvaglo satin white as per finishing schedule

13 - Fixed galvanised hangers bolted to underside of floor slab at 600mm c/c as per supplier specification

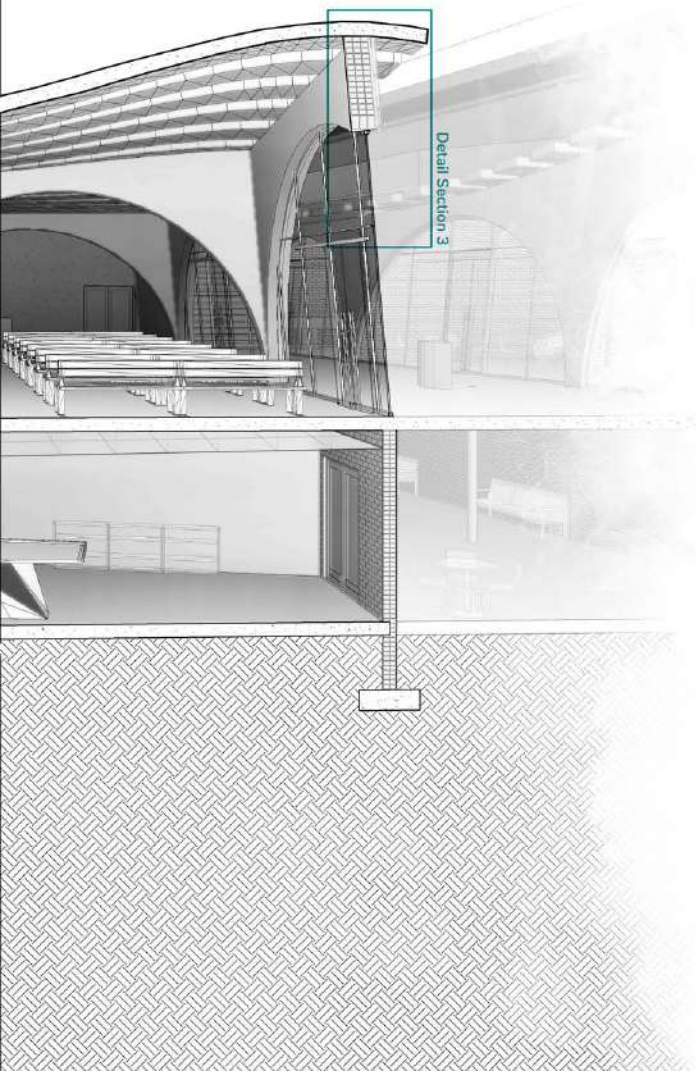
14 - Waterproofing membrane to manufacturer's specification, to tuck between brick courses min 85mm above geofabric membrane

15 - Venetian plaster wall finish to eng. spec.

3D Perimeter Section



3D Perimeter Section



1 - Laminated glass skylight segment to eng. spec

2 - GHI Clear Olivé C-22 silicone sealant (Code: C-22), applied in accordance with manufacturer's recommendations.

3 - 200mm custom cast-in-situ concrete roof, formed with timber formwork to eng. spec.

4 - Custom structural steel member with acts as coping and wraps down to enclose facade cladding system.

5 - Anchor bolt

6 - Gundle® API Brickgrip DPC 250µm damp proof course conforming to SANS 952-1:2011 laid with minimum 150mm overlaps.

7 - Drip detail to eng. spec.

8 - 21mm nominal thicknes & 150mm in width, exterior burnt timber vertical shiplap cladding, profiled with an 8mm rebate. Coating - one coat of BlackASH CUTEK extreme preservative be applied prior to handover.

9 - 350mm Corobrik® East Brick 30-40MPa Fynbos Rooi Imperial FBS clay face brick, size 222 x 106 x 73mm, manufactured in accordance with 227:2007, bedded and jointed in Class I mortar and pointed with recessed vertical and recessed horizontal joints, suitable for exposure zones 1-4.

10 - 40x40mm Timber batten facade substructure first layer of battens to run vertical at 600mm centres with fixings at every 500mm & a second layer of counter battens running horizontally at 450mm centres fixed to every first layer batten.

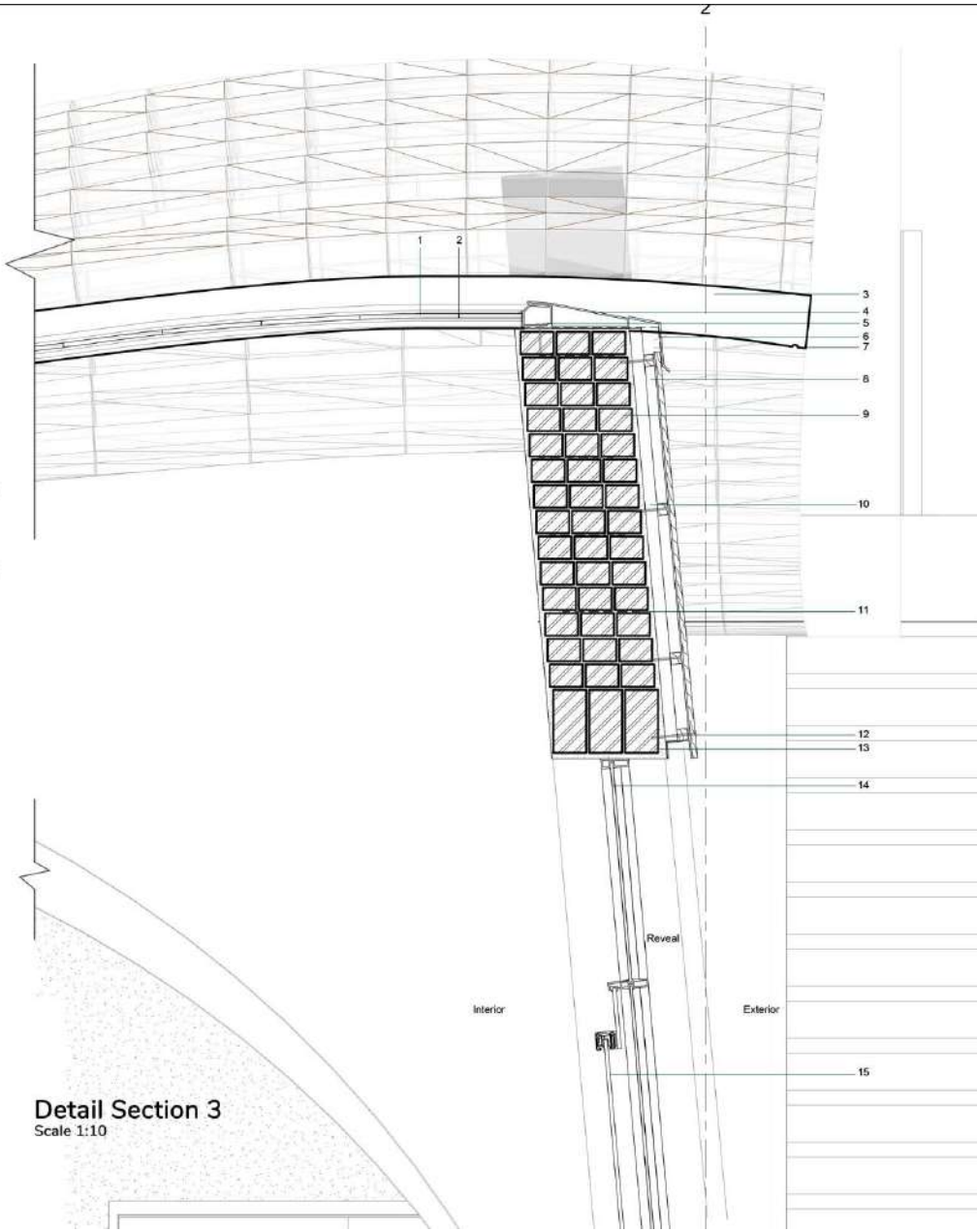
11 - Metal wall ties to be repeated every four brick courses.

12 - Anchor bolt fixing substructure to laminate.

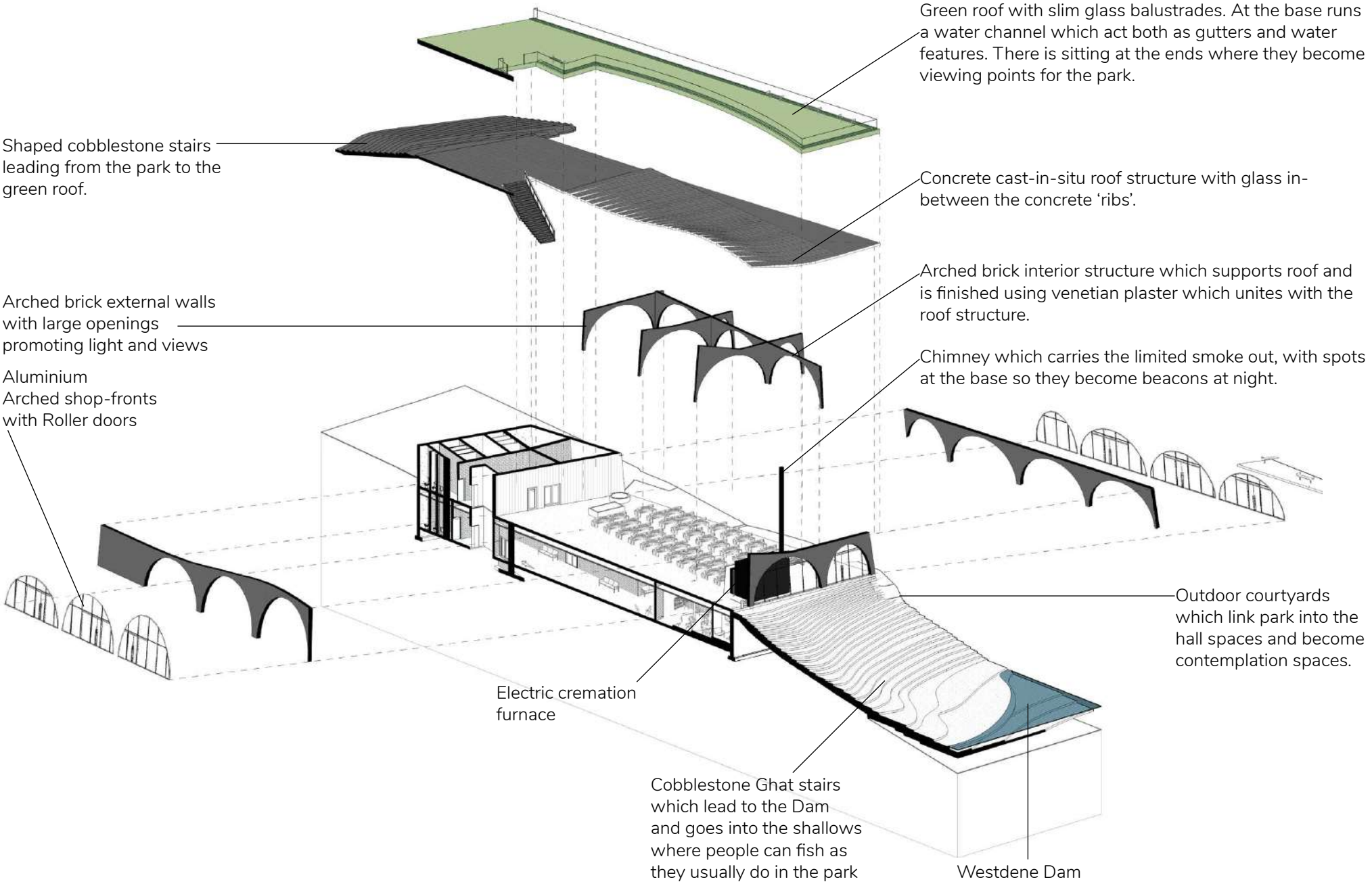
13 - Class II mortar mix for brickwork, composed of 1 part IDM 32,5N cement (Code: CEM II/A 32,5N) and 6 parts sand in thickness as indicated to brickwork. IDM is to be manufactured in accordance with SANS 50197-1.

14 - Custom arched shopfront with a black powder-coated aluminum frame to manufacturers spec.

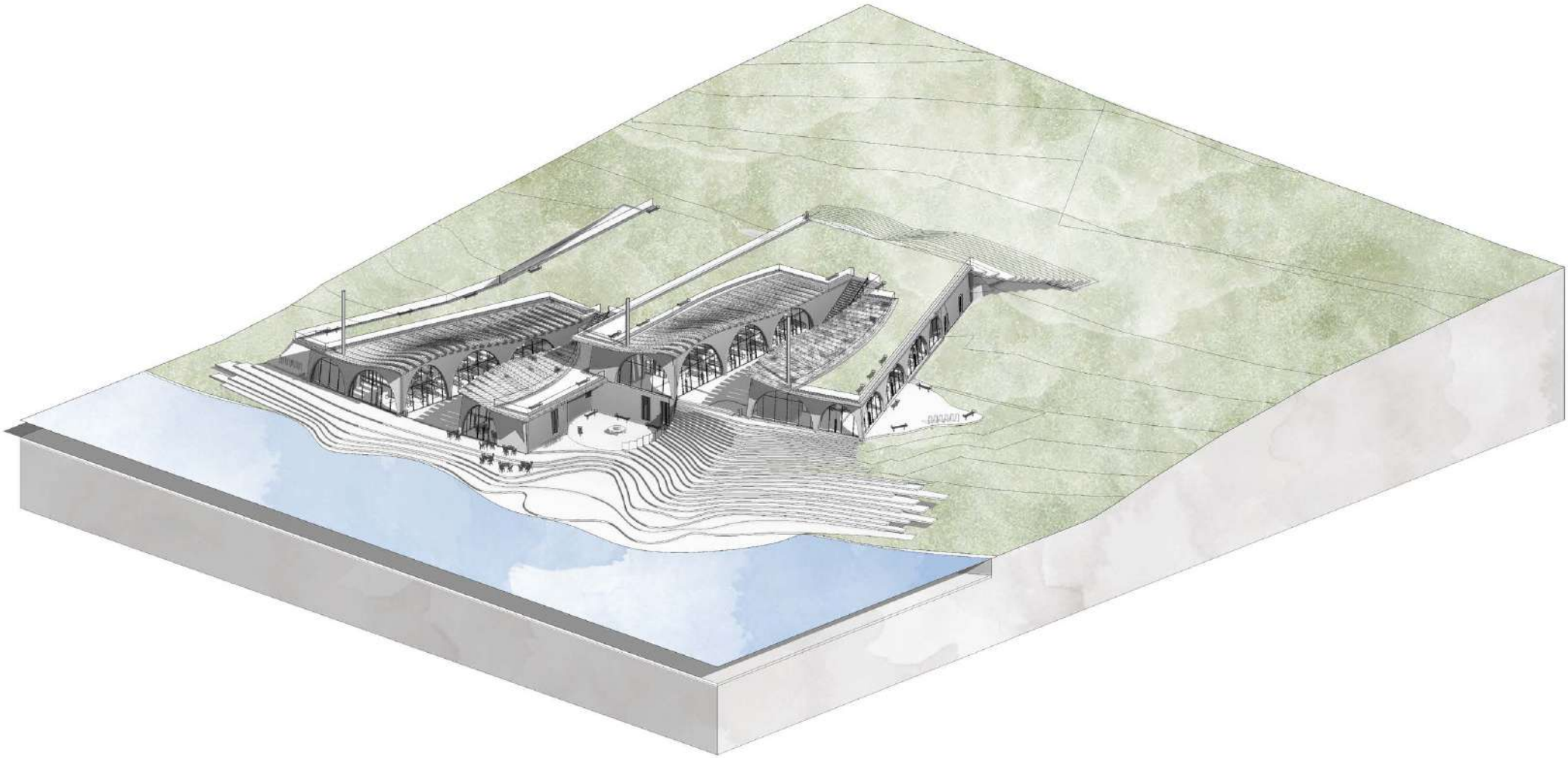
15 - Frameless door sliding system, door size 1000mm x 3000mm, including all necessary fittings, fitted in accordance with manufacturer's recommendations.



Detail Section 3
Scale 1:10



Exploded Axo



3D Modelling

Renders



Internal render of the hall spaces



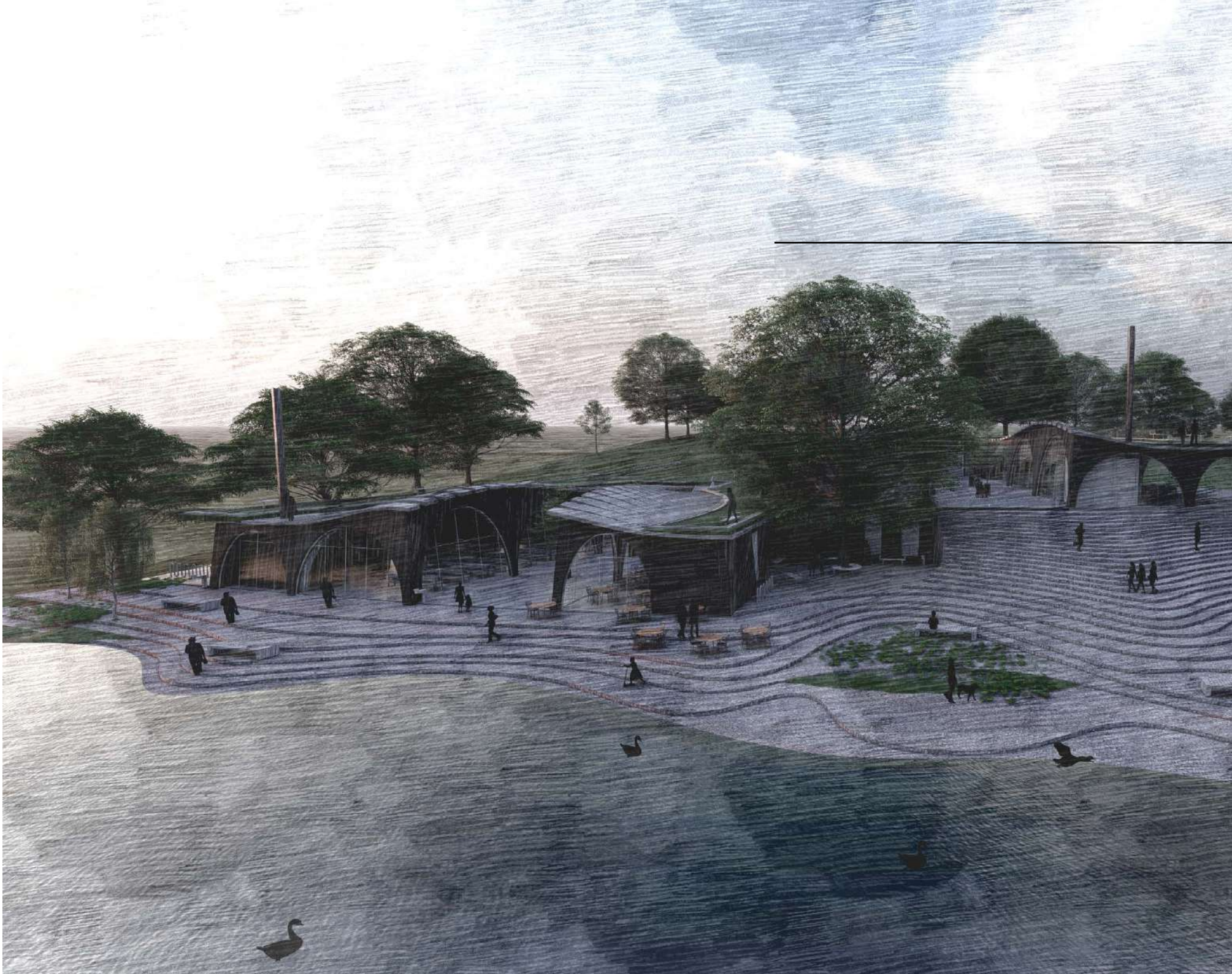
Render coming from the park entrance

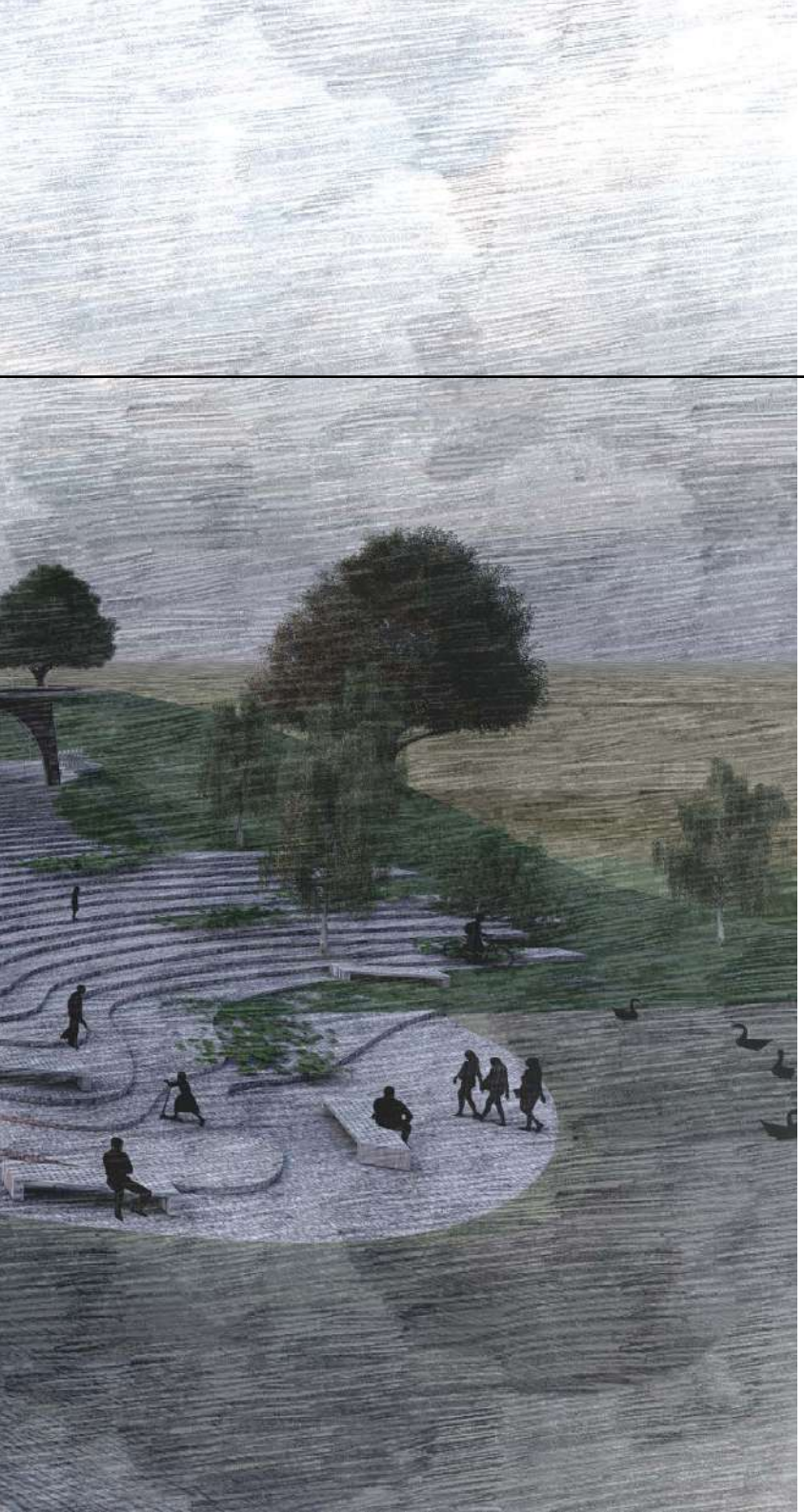


Birdseye view from the Dam



Render of the in-between space





Chapter 8

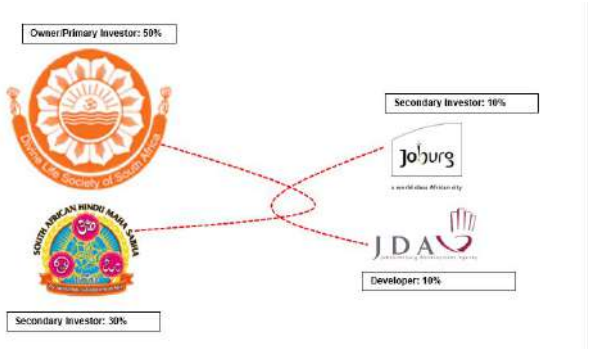
Feasibility study

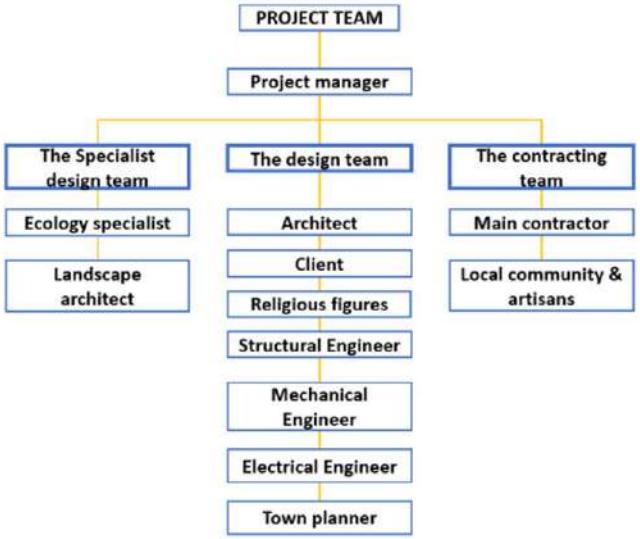
SOCIAL, ECONOMIC & ENVIRONMENTAL IMPACT:

SOCIAL & ECONOMIC:

In the table, you can see the current standard prices for cremation in Johannesburg.
The social impact will be adding to the park in such a way that it supports my program but also makes the park one which can be better utilized than it is currently to add a sense of community and bringing people together. It must add to the landscape making the park more attractive enabling it to draw a better element than it currently has. It can also introduce a new type of community into the area, therefore, making it more diverse and welcoming. Hiring people locally to enrich local communities. By teaching skills to the local worker so that he can go forward being more in demand and more hirable in the future. This project impacts an entire community as it allows for peace of mind which is not currently available for the community. It provides a service more efficiently than older crematoriums can with its cast program and architectural language. The project brings together an entire community. As a social project at heart, it will bring together companies that enjoy participating in the limelight together to help entire communities by providing better resources than there were before. It will also look to the community it serves and pulls from struggling businesses and people to reinforce the workforce required to complete the building.
The economic impact involves the maintenance of the park currently. City Parks does maintain the park but not to the level it could be done. Adding my design to the site could insight buy-in form other communities to aid in the maintenance of the site and get more people involved in how the site can be made better. Currently, it is not the safest park in Johannesburg but with an addition a safer environment could be creating inviting a new audience to the site, thus revitalizing it. Using local vendors and experts during the project would impact the community positively. Hiring construction companies and adding more work to the construction industry, therefore, enriching it economically. The project adds to the public space and may get other investors to assist with the park itself. The park is maintained by city parks but as city parks maintain as many parks some don't get the attention they require. This project could revitalize public space and make other parts of it more usable. Economically the money will flow back into the community and enrich it that way. The building will also require a workforce to run the actual program and we can look at the community once more to full this role with their experience and knowledge of knowledge and rituals it will now enrich the actual building going forward.

ENVIRONMENTAL:
The project is in an open public space. So it is vital to consider the fauna and flora in the park during and after construction. As a positive, the park would receive more visitors and become more likely to be maintained, more than it currently is. The type of cremation I will be using is one of the most environmentally friendly options. As seen in the table above. The ash is disposal will not go into the damn but rather be handling in more environmentally friendly ways such as storage in a columbarium, planting at the base of trees, etc. As material will be selected based on water available there will be little importing of materials.





The professional team

STRUCTURE:

I intend to make the structure of my design sensitive to its context. As it is a public park the structure needs to remain minimal so not as to interfere too much with the flow and usage of the park. The structure will flow into the land to highlight the natural features of the site such as large trees, slope, and water elements. The design blends into a landscape architecture project as its important the design makes the park better rather than just taking up space. As the site that was chosen is a public park noise needs to be considered both during and after construction. The site is surrounded by a residential area so acoustics must be designed for. The natural flora and fauna of the site must also be maintained and not disturbed before and after construction as it is a protected site. Longevity as the building must also be considered due to direct exposure to elements that come along with the dam setting.

MATERIALS:

In terms of materials, I will explore designs using concrete, brickwork, and glass. All these materials are commonly used in the context and therefore are readily available with the specialists needed for any complicated aspects of the design. As these are common materials, no specialist training is required. There may need to be some specialists required to build into a section of the dam. This would require special drawings from engineers to understand what sizes and materials need to be utilized. I am looking into using burnt timber cladding and this may require special training to execute and maintain. This type of cladding has been used in our context before so we can assume they are approved. I will be looking into precedent studies that use this material to better understand how the material is best used.

SKILLS:

The site which has been chosen is Westdene Dam. This site is close to the CBD and therefore there should be no problems in terms of accessing the materials and skills needed to complete the design on the site. The site is connected to a major transport route along Perth Avenue. In terms of the more common materials, the skills required are readily available in the area. Skills may need to be taught to workers to treat the burnt timber cladding. This can be taught to be made locally instead of importing the material ready-made.

THE CLIENT

DEVELOPER:

Johannesburg Development Agency
The JDA is a Developer in Johannesburg. They have been working with the city of Johannesburg in the Corridors of Freedom project. The project falls on the Empire Perth Corridors so we can use JDA as Developers for the project as they are already associated with the development of this site.

OWNER/INVESTOR:

Divine Life Society of South Africa
The Divine Line Society is an NGO based in Durban that started in 1956. It does work all over the country in the name of a Guru from India. The serve Hindu communities and among the many services help to build infrastructure to benefit communities all over South Africa. They have over 570 projects completed to date including schools, housing, clinics, and yoga institutions. They recently bought an 8 million rand stand of land in Johannesburg, Sandton, to build a yoga institution one. They did this through fundraising in the community. They not only support the Hindu community but believe in the general betterment of man. They also own the Ghat in Durban which is the primary facility for Hindus to dispose of ashes from cremation.

SECONDARY INVESTOR:

South African Hindu Maha (SABHA)
"The formation of the South African Hindu Maha Sabha as the national body representing the cultural and religious aspirations of South Africa's Hindu community was the brainchild of an outstanding Sannyasin (monk) who visited South Africa in 1908. It is the mission of the SA Hindu Maha Sabha to work towards the advancement of all members of the Hindu faith among all Hindu linguistic groups in a spirit of respect, unity, and brotherhood."
They have been based in Johannesburg and have over 200 affiliates with Indian owned businesses and more. They too provide the infrastructure needed by the Indian community through fundraising and outreach programs.

SECONDARY INVESTOR:

City of Johannesburg Metropolitan Municipality
The City of Johannesburg would be called to aid as the project is located on the Empire Perth Corridor. In the graphic, you can see that 4% of the funds for the Perth Empire Corridor goes to City Parks and Zoo. This would include Westdene Dam.

2019-20 VAT Inclusive in Rands	
CREMATIONS	
Standard	R1215
Cremation fee over 120kg	R1571
Infant	R500

Name	Biomass Crematorium
Description:	Gasifier burns gas produced from wood instead of burning wood directly
Fuel:	Biodegradable waste
Quantity:	100 - 145kg of bio-waste
Preparation Time:	45 min
Duration of Cremation:	1 hour
Temperature:	700oC
Dimension (LxBxH):	4m x 1.4m x 1.2m
Estimated Cost:	R1 000
Environmental Concern:	Lower emissions and substantial savings in use
Pollution Free:	Yes
Smoke-Free:	Yes
Efficiency:	Better conversion from solid bio-waste to gas, affords greater control in the cremation process, with regard to temperature control.

CREMATORIUM							
	Quantity	Net Area (sq.m)	Gross Floor Area	Leasable Areas	Rate per sqm	SUB-TOTALS	Gross Building
Cold storage	1	270	260	255	11722	R 3,164,940.00	
Dry storage	1	135	125	125	11722	R 1,562,470.00	
Incinerator	1	80	80	80	11722	R 937,760.00	
Body prep (pre)	1	100	95	95	11722	R 1,172,200.00	
Body prep (post)	1	80	75	75	11722	R 937,760.00	
Loading docks	1	60	60	60	11722	R 703,320.00	
Office	2	200	190	190	10300	R 2,060,000.00	
Office bathrooms	1	20	19	19	3575	R 71,500.00	
Office storage	1	35	35	30	3575	R 125,125.00	
Maintenance	1	14	13	13	3575	R 50,050.00	
Ghat	1	80	80	80	3575	R 286,000.00	
Contemplation Space	2	60	60	60	3575	R 214,500.00	
						R 11,305,625.00	

Hall Spaces							
	Quantity	Net Area (sq.m)	Gross Floor Area	Leasable Areas	Rate per sqm	SUB-TOTALS	Gross Building
Large Hall	1	350	345	330	25000	R 8,750,000.00	
Lobby	1	100	100	100	4000	R 400,000.00	
Small Hall	1	210	205	200	25000	R 5,250,000.00	
Lobby	1	60	60	60	4000	R 240,000.00	
Meditation Hall	1	35	35	30	25000	R 875,000.00	
Bathroom	2	116	110	110	3575	R 414,700.00	
Body viewing room	2	52.8	50	50	11722	R 618,921.60	
Family waiting room	2	33.6	30	30	11722	R 393,859.20	
Priests room	2	55.8	50	50	11722	R 654,087.60	
Maintenance	1	14	13	13	3575	R 50,050.00	
						R 17,646,618.40	

GROSS COST	R 28,952,243.40

FUNDING PRECEDENT:

The Hindu Crematorium in Brixton is one of the largest crematoria in Johannesburg. The land was obtained by Gandhi with the intent to serve the Hindu community. The building itself was funded by donations from the Indian community. Many religious programs are known to be funded by their community. We can use this as a precedent of what is possible in the context and the same program. The NGOs mentioned allowing for fundraising within the community to make programs like these projects possible.

The Professional Team

SITE MANAGEMENT:

The proposed site is Westdene dam which is a public park in Johannesburg. In terms of the delivery of materials, this doesn't present any problems. However, the access roads to the site may not be suitable so arrangements for material delivery and storage would need to be considered. This is a public space so we would have to be careful to not completely make the space unusable to the public. Areas of construction should be well considered and security on site must be a priority. As far as possible the flora and fauna on-site also need to be protected and not damaged by the construction process. The site is also enclosed by a residential area so times of construction and noise need to be considered so as not to disrupt the community too greatly.

FUNDING

Contract Type:

My project is a crematorium in Wedstdene. In terms of design, the architect and client would work closely to establish the best design for the site and program. The kind of contract would be a traditional design-led competitive tender. Once a design has been agreed upon, drawings will be drawn up and sent to the building council for approval. Then tenders will be sent out. Companies will be interviewed and proposals will be compared. From there the best fit will be granted the tender.

ARCHITECTURAL PROFESSIONAL FEE CALCULATION

Primary Fee + (Value of Works - Column E) x % (Column D)
= 1 346 249 + (9 x (28,952,243.40 - 130 000 001))
= R 2 781 950.81

THE ARCHITECT:

The Architect will be responsible for the inception of the project, concept, and viability, design development, and documentation, and procurement.

Fee Proportion Work stages 1 - 4
Total Fee R 1 669 170

The Project Architect will act as a Project Manager and is responsible for works during Construction and must complete the close-out of the project

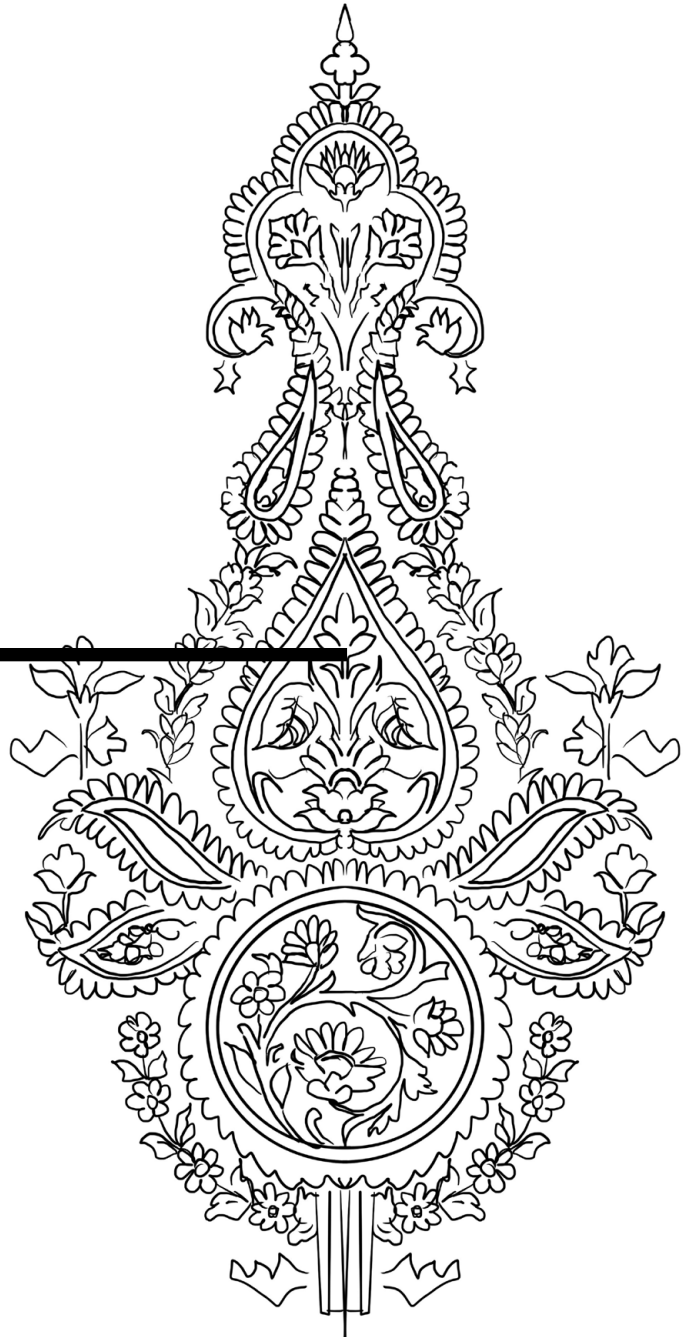
Fee Proportion Work stages 5 - 6
Total Fee R 1 112 780

Work Stages	Percentage of fee	Monetary Portion	Cumulative percentage
1	5%	R 139 097.5	5%
2	15%	R 417 292.6	20%
3	20%	R 556 390.2	40%
4.1	20%	R 556 390.2	60%
4.2	10%	R 278 195.1	70%
5	27%	R 751 126.7	97%
6	3%	R 83 458.52	100%

Chapter 9

Reflection and Referencing

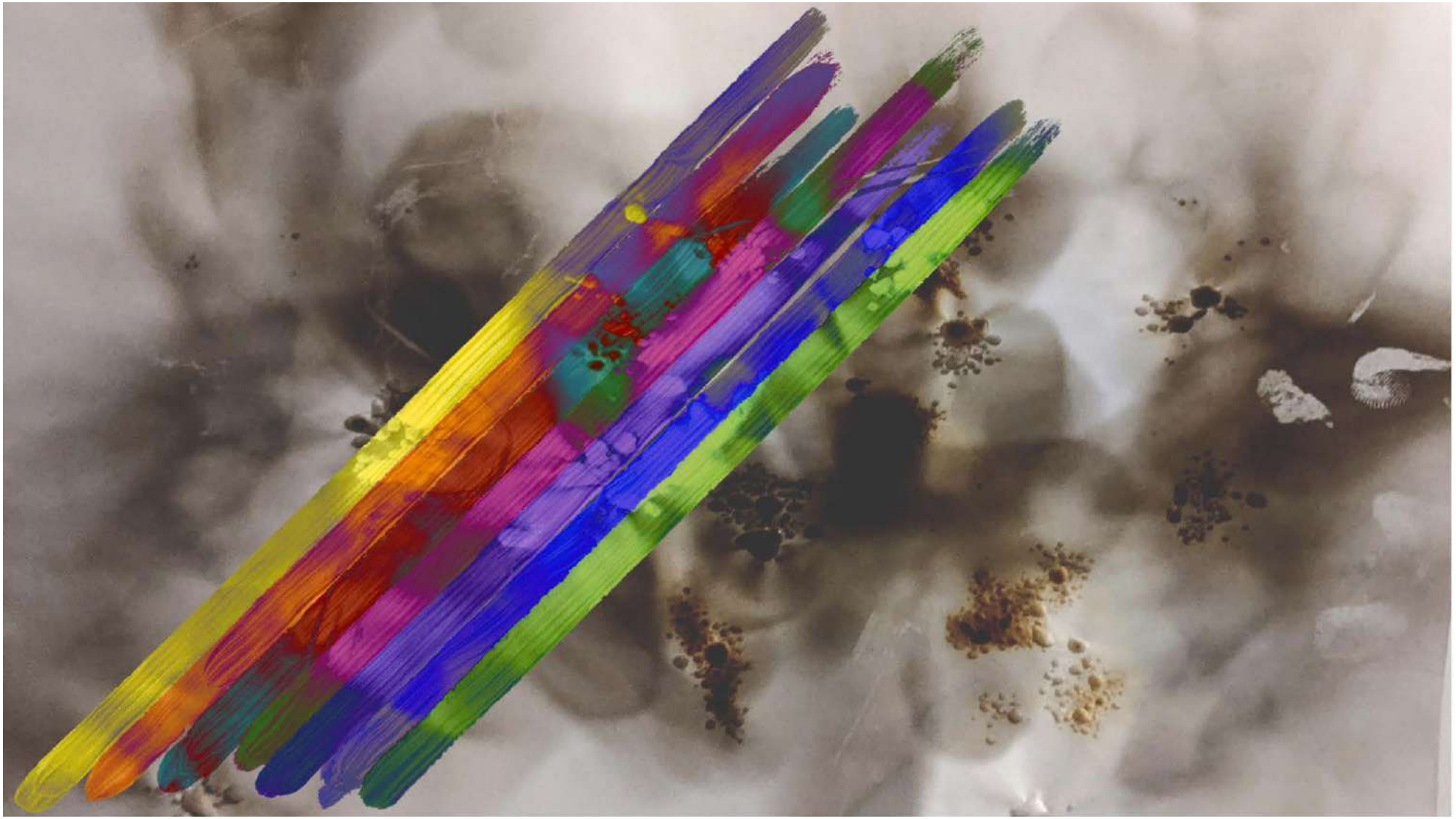




(Authors own, 2020)

9.1

Reflections



(Authors own, 2020)

(All figures not referenced are authors own)

Personal Reflection:

This year has by far been my most challenging, but I have also grown so much as a result. Doing a Master's degree during a global pandemic (COVID-19) was by no means easy. Having to change everything from how I work to how I present has taught me that I can more than I ever thought I could. Architecture has always revolved around a studio, this year the was no such thing as a studio. Just me, my computer, and my room. Adapting to a lockdown situation forced me to become even more disciplined and self-sufficient. Choosing a topic all about death and then being surrounded by so much of it and seeing the real-world implications of not having the infrastructure to deal with it put my project into context and made it all the more important. It started off being a very personal topic, starting with a trip to Sri Lanka for a funeral and ended up being something everyone was living through with thousands dying every day. The world needs more design and consideration in these trying times. So that our spaces are not as bleak as the state of the world. Hopefully, they even inspire and push others to fix than problems we face as a human race. Change which generates and inspires change is the goal. And yes things were harder and we kept reaching for solutions and in most cases we found them. It forced us to become even better at what we are. Creating better ways to move forward. Creating solutions where there were only problems before.

Even though it was not the typical experience I am grateful for this year of study. I am incredibly proud to have made it to the end despite the overwhelming circumstances. I hope to grow from strength to strength and continue to take it in my stride.

Reflection on the design process:

The design process was an enlightening one for me being an Indian South African myself. Trying to understand where my people came from and how we fit into our current context really left me thinking about all the spaces we occupy. The fact that we have moved so far from our roots and that my generation has lost touch with that side of our culture is a sad realization. I would like to continue to look at how to make space for people like me. And reintroduce the connection to our culture that has faded. This would maybe lead a new iteration of the South African Indian Identity. One which places value in both sides equally. I believe architecture can have a great influence on a community and make them feel seen and less like an 'other'. This kind of architecture which teaches and brings people together inspires me to continue and try to make an impact nay way I can. The goal of up lighting communities is always a important one to me. This is not the road of the road.



Final online examination during COVID 19, 2020.



(Authors own, 2020)

9.2

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Ethics Clearance

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SCHOOL OF ARCHITECTURE AND PLANNING
HUMAN RESEARCH ETHICS COMMITTEE

SCHOOL of ARCHITECTURE PLANNING

CLEARANCE CERTIFICATE
PROTOCOL NUMBER: SOAP037/03/2020

PROJECT TITLE:	Redesigning Death in the Public Space: Using the rituals of death in Hinduism as a tool to shape a space for mourning and remembrance.
INVESTIGATOR/S:	Maseeha Buckus (Student No: 728198)
SCHOOL:	Architecture and Planning
DEGREE PROGRAMME:	Master of Architecture Professional (MArch Prof)
DATE CONSIDERED:	19 September 2020
EXPIRY DATE:	19 September 2021
DECISION OF THE COMMITTEE:	Approved

CHAIRPERSON
(Dr Brian Boshoff)

DATE: Signed under lockdown: 21.9.20

cc: Supervisor/s: Brendan Hart

Signature **Date**

DECLARATION OF INVESTIGATORS
I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to endure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

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