

END SPACES

CREMATION AND THE ARCHITECTURAL MEANING
OF DEATH IN JOHANNESBURG

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ACKNOWLEDGEMENTS

This mini-dissertation serves in partial fulfilment of the requirements for the awarding of the degree Masters of Architecture in the professional stream, its compilation as well as the numerous factors that lead to its completion would have been impossible without the guidance and input of the following individuals:

- John Moore for the use of his printing presses and studio
- Tiaan van Niekerk for the use of his drone
- Johan Swart for his objectivity and his cool headed guidance as my supervisor
- My parents for their unwavering support throughout not only my academic career but my entire life, I would not be the person I am today without you both.

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— PLAGIARISM DECLARATION



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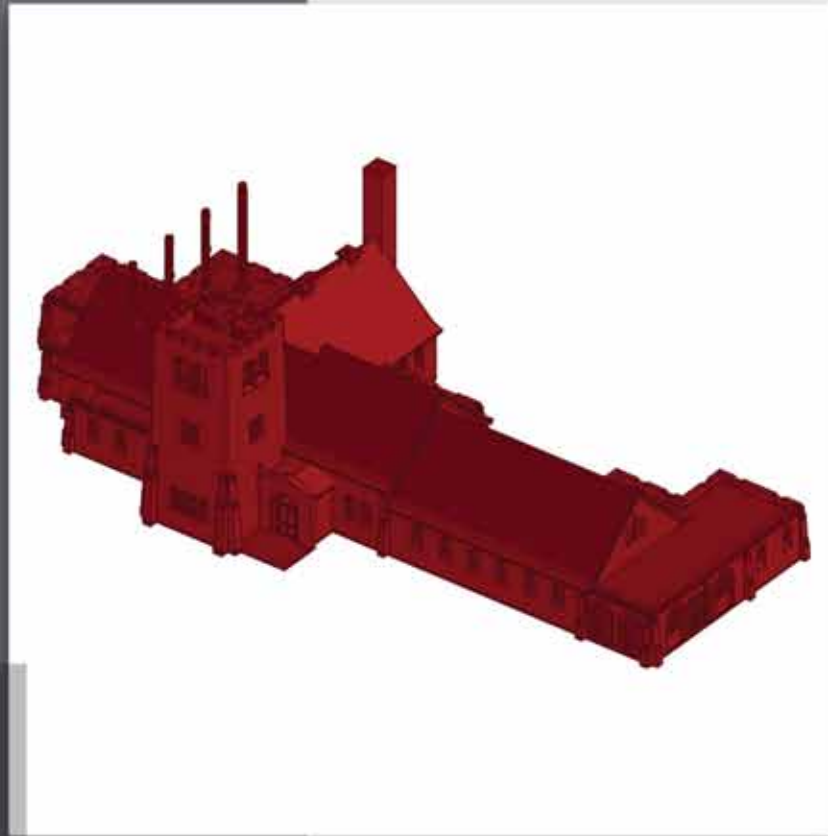
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POSITION AND SITUATION

The architecture of death and commemoration, that which comprises the parameters of cemeteries and crematoria, is all too often relegated to the realm of the inconsequential within the milieu of the contemporary architectural zeitgeist, resulting in surprisingly little theoretical discourse on the topic within the last 20 or so years despite a number of well-known actualised projects. One can only speculate as to why this might be the case. Perhaps a fixation on lived experience relegates the contemporary theory of structures used in death rituals to the backwaters of architectural discourse. Perhaps it is the fact that within contemporary and historic practice these spaces tend to be situated outside of the realm of deliberate design intention (many within South Africa were simply allocated and laid out by functionaries within the parks departments of the various metro's) and therefore are not thought of in strictly architectural terms. Lindsay Jones offers an observation that, "death [in modern times] is no longer an event to be celebrated by major ceremonial, the grave no longer a place to be marked by substantial architectural or sculptural monuments" (2000:176). This he proposes is due to an overarching sense of the pragmatic in contemporary death rituals where no need for excessive pandering to the dead is necessary - their memorialization is ultimately tailored to the needs and means of living relatives. Regardless, there remain a few architects and theorists who have sought to delve deeper into an understanding of what potential these equitable spaces of memorialisation and commemoration may have as meaningful monumental occasions within human experience.


 — NORMATIVE POSITION

Buildings are far too important a part of our daily lives to relegate their analysis and production to the realm of the “merely functional” - as Peter Blundell Jones so concisely put it (Blundell Jones, 2016: 2). Instead, buildings are key facilitators of personal and social ritual and, as a result, play a significant role in how we as humans give meaning to our lives. This meaning is not created through coded decoration or deliberate aesthetic message - though these undoubtedly have a role to play - but rather through the manner in which they are used, the objects of ritual that are housed within them and the deeply subjective connotative and denotative meanings that people generate through interactions, within their walls. Though arguments of how meaning is generated within architecture are numerous, this dissertation seeks to add to the discourse that the contemporary move of architecture toward spatial generation through computational Parametricism and the acknowledged need to focus our efforts on environmental sustainability, are not sufficient in producing spaces that are meaningful in and of themselves outside of any pragmatic consideration of function. Whilst those who espouse Parametricism as the most all-encompassing means of imbuing buildings with the societal complexity that exists in contemporary civilisation today (Schumacher (ed), 2016: 9), something remains within the nature of architecture that is far less easy to computationally iterate upon. Rodger Scruton perhaps puts this best in his summation that many buildings today tend to be “faceless”, they offer a kind of obsequious anonymity by literally reflecting their surroundings, borrowing from systems that do not exist on any level directly accessible to human understanding and, by decontextualising themselves from culture and society (Scruton, 2013).

For the purposes of this dissertation, I have delimited my exploration of the above to the unique world of architecture produced for the purposes of cremation within the urban context of Johannesburg. A core programme that itself has many ritual and object associations and connotations. It was through the process of a scoping literature review that I selected a specific theoretical paradigm, that of applied hermeneutics, to inform the spatial

nature of ritual meaning creation in architecture of this kind with the key question being: How can the ritual architectural spaces of Braamfontein Crematorium be reinstated and elaborated upon in such a way as to broaden the notion of what it means to inter ashes and commemorate the dead through ritual cremation?


 — INTRODUCTION

“Memory and identity are two of the most frequently used terms in contemporary and private discourse, though their status as key words is relatively recent...The parallel lives of these terms alert us to the fact that the notion of identity depends on the idea of memory and vice versa” (Gillis, 1994). In the case of cemeteries and spaces designated for the interment or cremation of human remains, this sense of memory and identity is often heightened to the point of impassioned expression through acts of reflection and the contemplation of life in mourning. The nature of this emotive reaction is associated with a highly parametrized space (all graves are of a specific depth, width and length and are often oriented in specific directions in relation to differing religious doctrine) though unusually one’s emotive interpretation of said space may be said to diminish over time as direct interaction with a cemetery becomes more sporadic as the timescale between the burial and the present lengthens and the number of direct relatives lessens. However, as Wolschke-Bulmahn (2001:3) states in his work, *Places of Commemoration: Search for Identity and Landscape Design*, “death plays a significant role in the process of establishing identity”.

The commemoration of the dead both through ritual ceremony and through designed space is a means by which we the living can express ourselves as part of a continuum of human experience both on a personal and collective level. This perhaps validates their inclusion in contemporary architectural discourse, particularly within the context of a post-covid world where pragmatic reasons for engaging with the architecture and spatial implications of death are plentiful.



URBAN CONTEXTUALISATION

Within the context of South Africa, most crematoria are privately owned and run while the majority of cemeteries are government owned and are often places of severe neglect and mismanagement (Obose, 2022), (Makhaye, 2021), (de Beer, 2022). The Braamfontein Cemetery and Crematorium near the Johannesburg CBD (Figure 1) is not only unique in terms of its urban placement but in that it is both public and comparatively well maintained though no longer used for burials due to spatial constraints. If any singular site could be said to be a palimpsest of the history of Johannesburg it is the Braamfontein cemetery. Constructed in August 1887, by a decree of the council of the City of Johannesburg, it was referred to in council minutes as the first “proper cemetery” in the city’s history (Latilla, 2015) and indeed, great effort and expense was put into provisioning the site. Over the subsequent years it became enveloped by the ever-expanding urban surrounds - an inward-looking green space within the inner city. The site itself is home to a vast quantity of memorials, tracing many of the most

significant calamities in the history of the city, from the 1922 Rand Revolt and Braamfontein station explosion, to mining disasters, the Anglo Boer war, both world wars and the holocaust, the deaths of political dissidents as well as religious leaders and, most recently discovered, the burial place of Enoch Sontonga. By nature of being a cemetery, some level of trauma may be expected from the site however given the tumultuous history of Johannesburg, Braamfontein Cemetery may be said to have more than its fair share of violent events commemorated within its memorial walls. The Rand Revolt’s greatest battle, resulting in innumerable deaths, took place along what is today the southwestern boundary of the property. Many of the victims of this tragedy are buried in an unmarked mass grave on the very same boundary. Similarly, that along with the remains of Enoch Sontonga, a vast swath of unmarked graves was discovered on the north-western boundary. These have been linked to a campaign by the government of the time (1890’s) to erase any evidence of black and coloured graves from the site in favour of parkland (Latilla, 2015). (Figure 1-6)



Figure 1: The old crematorium gate from Grave Street, 2022



Figure 2: Braamfontein Crematorium South Yard, 2022



Figure 3: Low brick columbaria structures along southern cemetery boundary, 2022



Figure 4: Braamfontein Crematorium with Steel Chimney Stacks, 2022



Figure 5: Main Cemetery Axis, East to West, 2022



Figure 6: Founders Plot Avenue and Axis, 2022



A key part of the history of the site is the establishment of the Braamfontein Crematorium in 1930, amongst the first of its kind in South Africa. The crematorium was conceived by City Engineer F. H. Waugh. The building was designed to resemble a neo-Romanesque church, but its bell tower concealed the stack extraction systems for the original coal fired cremation furnace (Figure 7). In 1934 the first addition was proposed to the building in order to accommodate a new coke burning furnace, as demand in cremations within the Transvaal had increased (Figure 8). In 1935 another two furnaces, both gas burning, were purchased and the bell tower was retrofitted to accommodate the new extraction systems. By 1955 the columbarium within the crypt beneath the chapel as well as the memorial wall surrounding the chapel yard were both completely full necessitating the construction of ground level columbaria and memorial walls. In 1963 an additional two cremators were purchased placing the total at six units. This necessitated further additions to the structure (Figure 9). In 2011 the furnaces had reached end-of-life and were summarily replaced resulting in four new chimney stacks being installed into the roof of the eastern wing on the original chapel structure (Figure 10). (Johannesburg Heritage Foundation Archives, 2022)

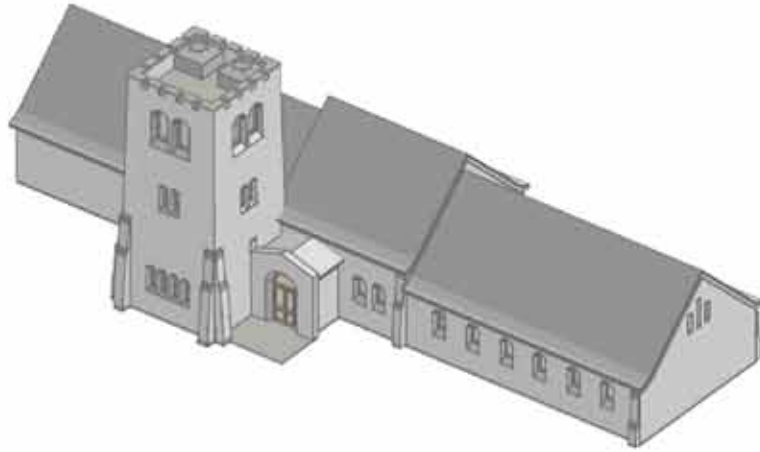


Figure 7: Original Crematorium 1930,
Alexey Rodokanakis (2022)

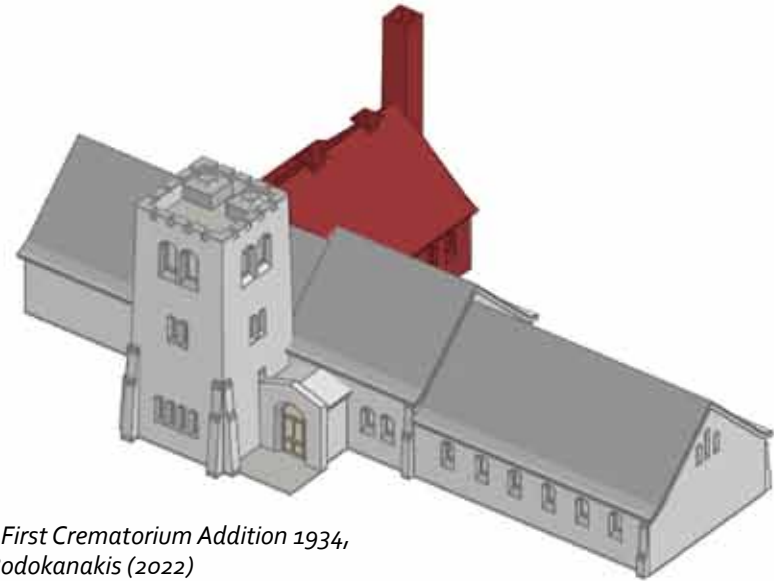


Figure 8: First Crematorium Addition 1934,
Alexey Rodokanakis (2022)

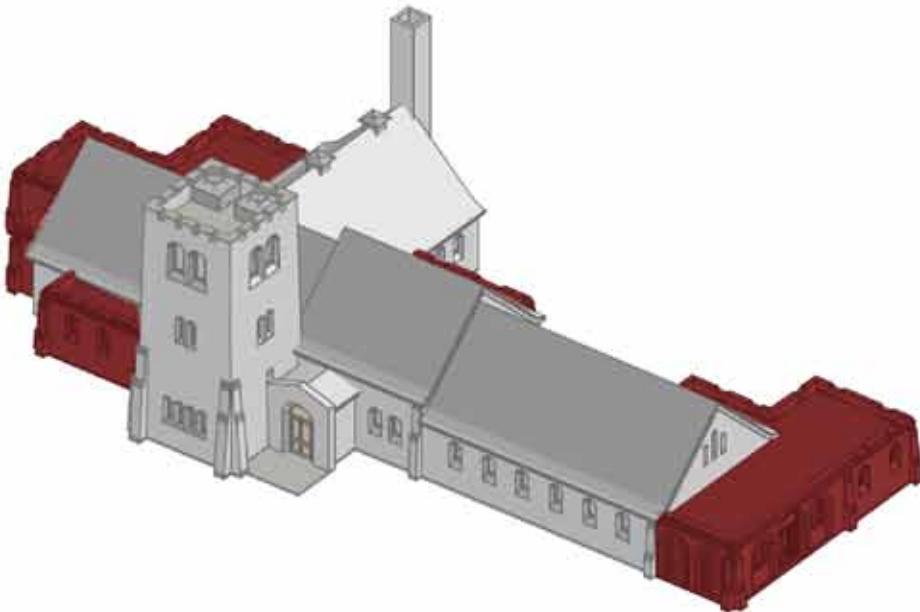


Figure 9: Second Major Crematorium Additions 1963,
Alexey Rodokanakis (2022)

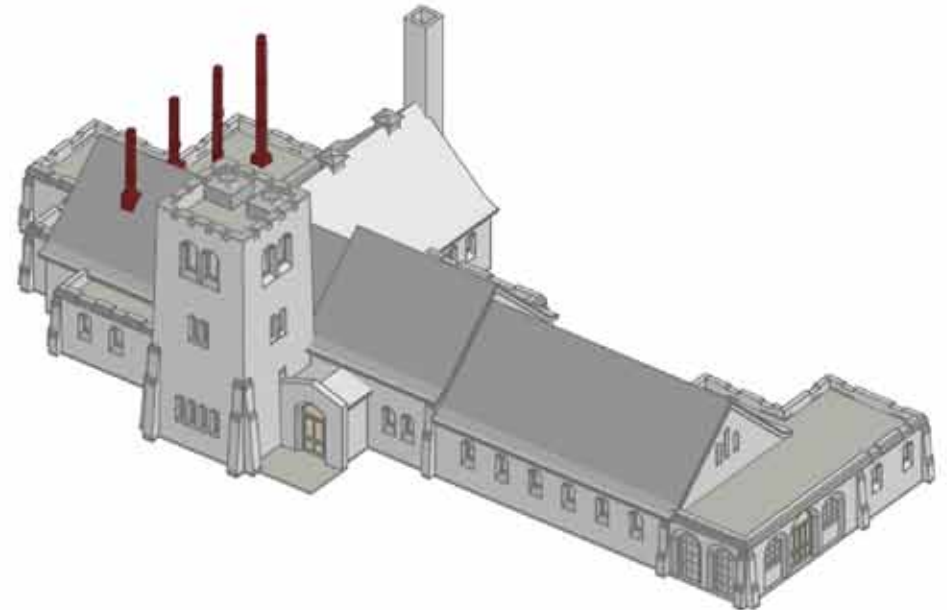


Figure 10: Final Crematorium Alteration showing the addition
of the four chimney stacks in 2011, Alexey Rodokanakis (2022)



SITE AND PRECINCT MAP



Figure 11: Site and precinct map of Braamfontein Cemetery, Alexey Rodokanakis, 2022



SITE ANALYSIS

In dealing with a site with the level of complexity of Braamfontein Cemetery two core approaches were selected. The first of these was the interpretation of the site through an historical lens, the second of these was the analysis of the site through theoretical paradigms of value and meaning in terms of the ritual of cremation (this discourse occurs mainly within the second essay, though a framework is suggested).

Historically speaking, the property can be said to be a palimpsest of the actions, interactions and events that have come to reflect contemporary Johannesburg. The layer diagram (Figure 12) explores this by categorising and spatialising the memorials and plots associated with key moments in the history of the city. The five categories which were distilled from an exploration of compiled heritage writings sourced from the archives of the Johannesburg

Heritage Foundation, are as follows:

1, The Topography: The site sits exactly on the crest of the Braamfontein ridge and therefore it slopes both north and south connecting it with both Enoch Sontonga Road as well as Smit street. This could also be said to connect the site with the old city immediately to its south and the urban sprawl that developed over subsequent decades northwards. The site also has a very formal layout comprises distinctly demarcated plot groupings and avenues flanked by mature London plane trees and pin oaks. much of the later landscape additions to the site such as monuments and columbaria seem to be placed randomly within clearings rather than in keeping with any distinct axes or plot designations.

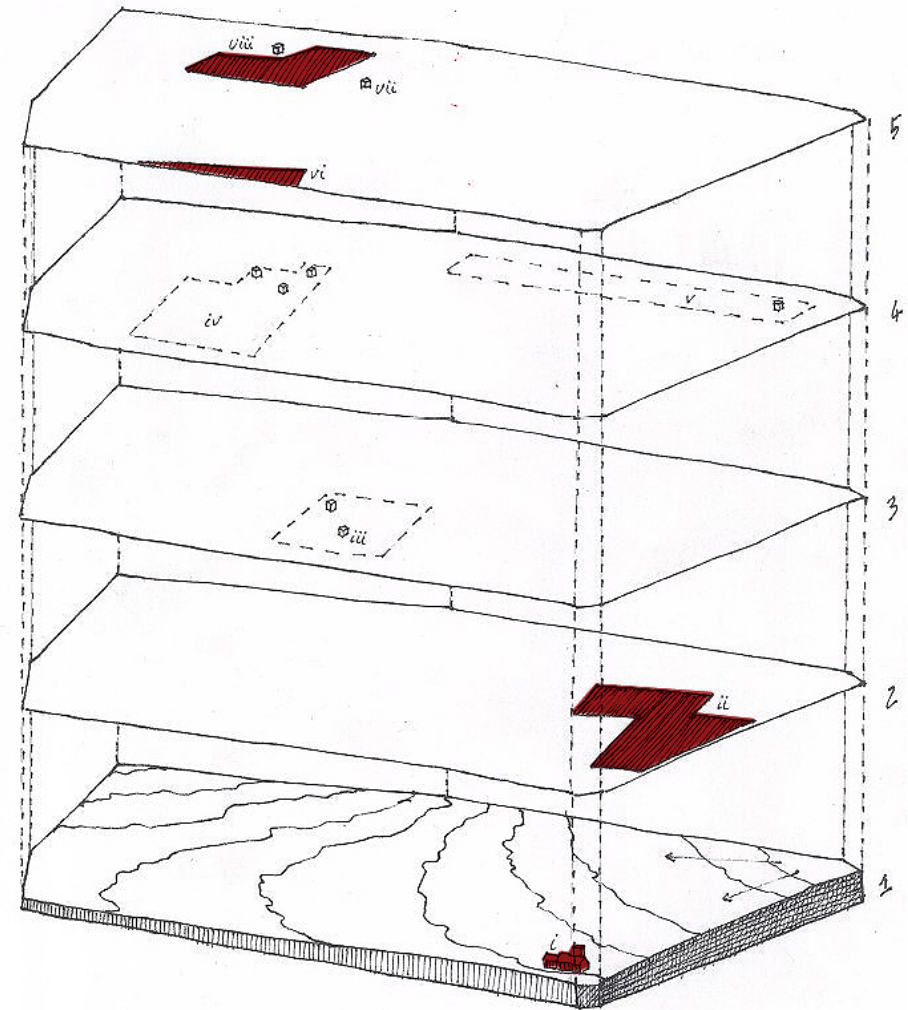


Figure 12: Layer Diagram of the Braamfontein Cemetery, Alexey Rodokanakis (2022)

2, Pioneers: The cemetery houses the remains of the first settlers of Johannesburg, those early miners and industrialist that paved the way for what the city was to become. They are interred near the eastern most boundary of the site.

3, Disasters: There are several disasters commemorated on the site, these include the Braamfontein Station dynamite disaster as well as various mining related disasters. The victims of these disasters are buried surrounding the monuments themselves.

4, Wars: There are monuments commemorating the Anglo Boer war, both world wars as well as the holocaust on the property. Many of those who died in these wars are interred in the plots surrounding the monuments. There are additional regiment and battalion specific memorials as well as many foreign nationals mainly associated with the British side during the Anglo Boer war buried in designated plots.

5, Politics: The cemetery contains two deeply traumatic spaces, the first of which is the aforementioned mass unmarked grave of those who died during the Rand Revolt, located on the southwestern edge of the property along smit street. The second event was the removal and digging under of the black and coloured designated burial plots to make way for park land. This is marked by the Enoch Sontonga memorial which is placed in the centre of what would have been the black citizens burial plot and is

now Sontonga Park. The rather unique apportionment of the cemetery is once again contextualised by a viewing of the earliest map of the site designating racial and religious groups and their associated allocations (Figure 13). The historical understanding of both the greater cemetery site as well as the crematorium provide a depth that would otherwise be lost in the exploration of site potential. This is paired with a broad analysis of crematorium typology over time in the second essay. Providing an insight into the associations and functions of South African Crematoria from their earliest forms to the present day.

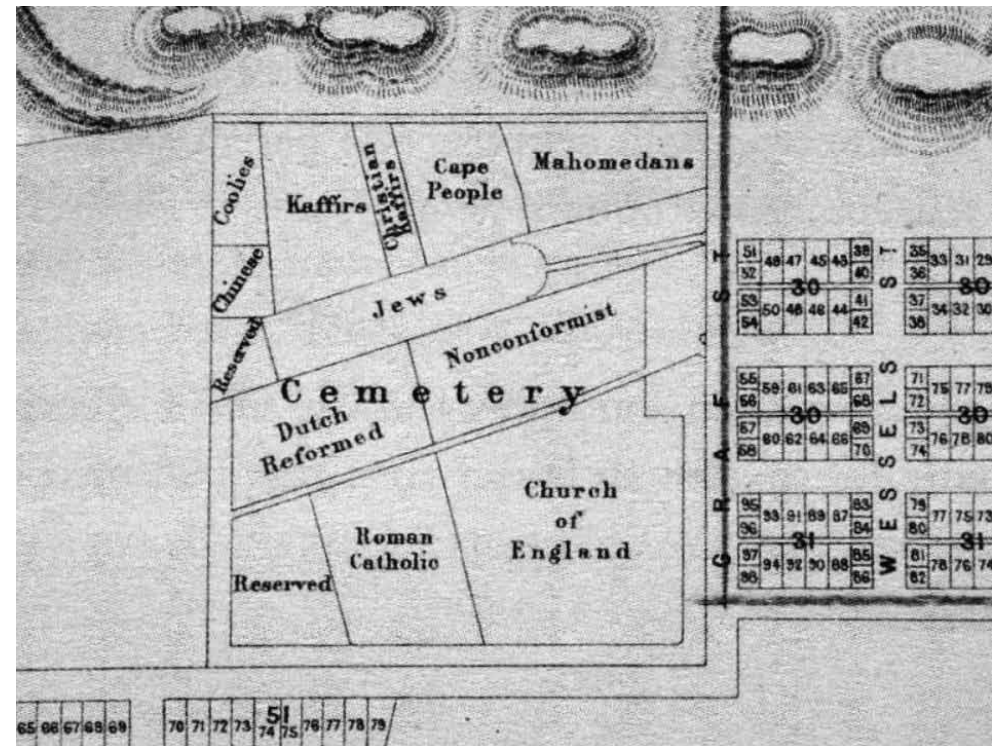


Figure 13: Original Braamfontein Cemetery Apportionment Map, 1887, Johannesburg Heritage Foundation Archives (2022).

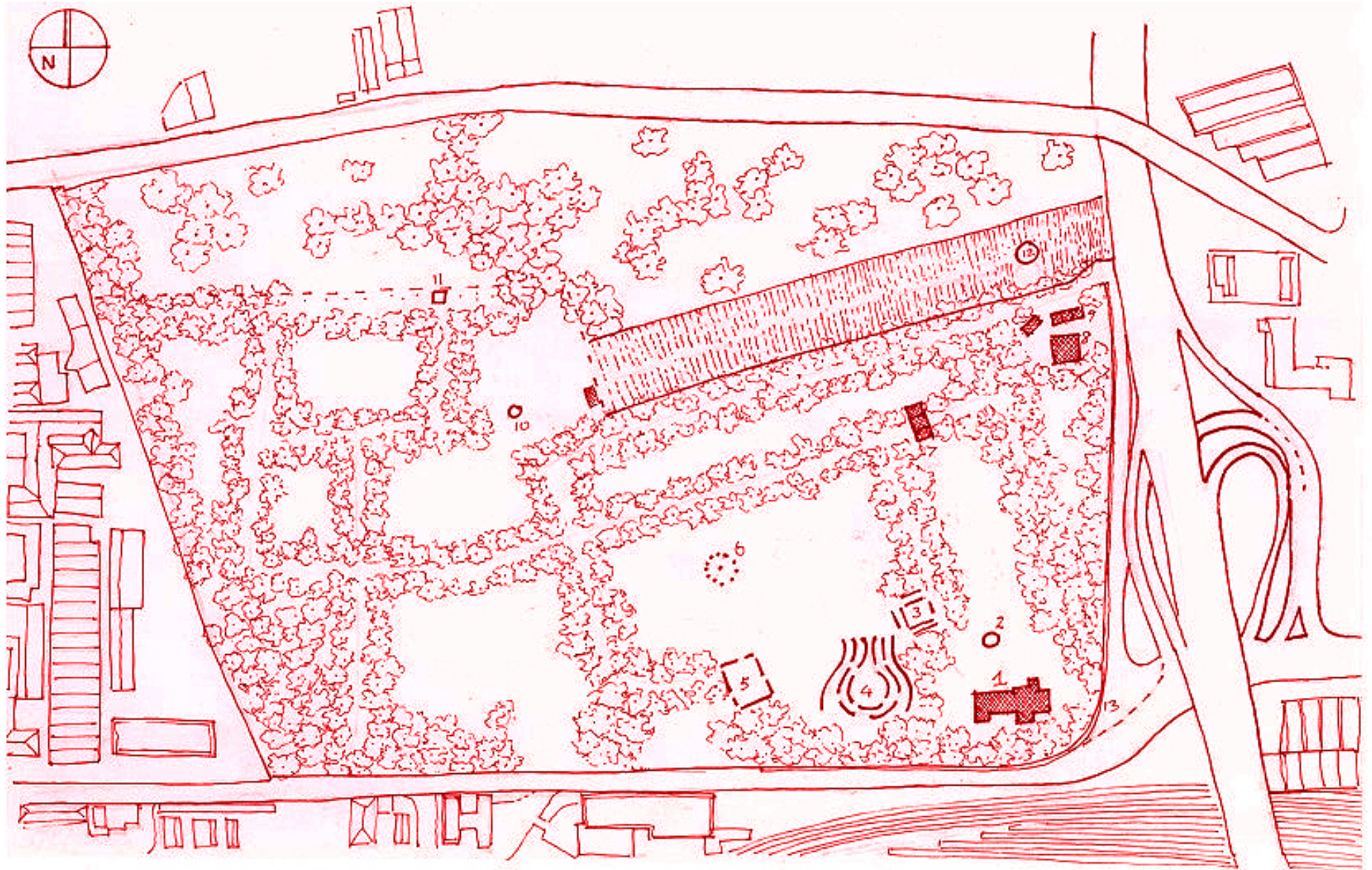


Figure 14: Image of hand drawn sketch site plan.
Alexey Rodokanakis, 2022

THEORETICAL FRAMEWORK

Applied Hermeneutics provides an architecturally underutilised theoretical lens through which to explore the notion of meaning in ritual, as well as gain an understanding of ritual spatial connotations and conceptualise a way forward for both the programme of crematory services as well as commemoration, mourning and contemplation. “Hermeneutic, literally means translation, that is unfolding or disclosing meaning in such a way that the meaning of the parts... are continually related to the nature of the whole” (Jordaan and Jordaan, 2003: 38). In the context of hermeneutics in architecture both typology and history are blended through an analysis of ritual practices and objects within specific built environments.

Lindsay Jones, in his treatise on a hermeneutical approach to sacred architecture provides useful insight into the means of both deciphering meaning within said spaces as well as creating the parameters for the catalysing of new meaning. He states, “... once erected, for better or for worse, architects and builders almost immediately lose control of the significance and meanings of their projects... consequently as [people] use, reflect upon and play with the built structures in their environment, they endlessly disrupt old meanings and awaken new ones.” (Jones 2000: 22) Through a re-interpretation of the work of Hans-Georg Gadamer, Jones uses the term playing as a key concept in his exploration of architectural meaning through hermeneutics. This is distinctly contrasted with the idea of seeing buildings, whereby one privileges the apprehension of spaces via sight and therefore need not enter a mutually interactive exchange with a building, leaving its meaning quite literally to a purely surface level personal

interpretation of façade or edifice. Playing, in contrast, is associated not with a child like frivolity but rather “a committed participation in the ritual-architectural game” required to produce meaning out of space (Jones, 2000:54). He goes on to define three categories which construct meaning through, as he calls it, “The Play of Architecture” (2000:50).

The first of these is The Inter(activity) and Performance of Architecture, in which, “the meanings of every sort of art, architecture included, are dependant and inseparable from the performative occasions in which the art plays an active part” (2000:51), in other words a buildings’ meaning only emerges within the confines of the performative event in which the building takes part, and its users play a role.

The second category is The Seriousness of Architecture. Here Jones makes a distinction between the light-hearted connotations of play and the seriousness of the processes which take place in ritual or sacred spaces. He explains through a citing of the work of Paul Ricœur (Jones, 2000:53), that for a participant to reap any rewards or derive satisfaction from an interaction with a space, stakes need to be involved. Something of the participant must be given up in order for a reciprocal exchange of action through space to occur.

“Participants must surrender a measure of their independence and commit themselves to a serious consideration of the alternatives that are presented in the closed world of the architectural event” (Jones, 2000:53). Harold Osborne (1970:35), in a similar vein, states that successful experiences of

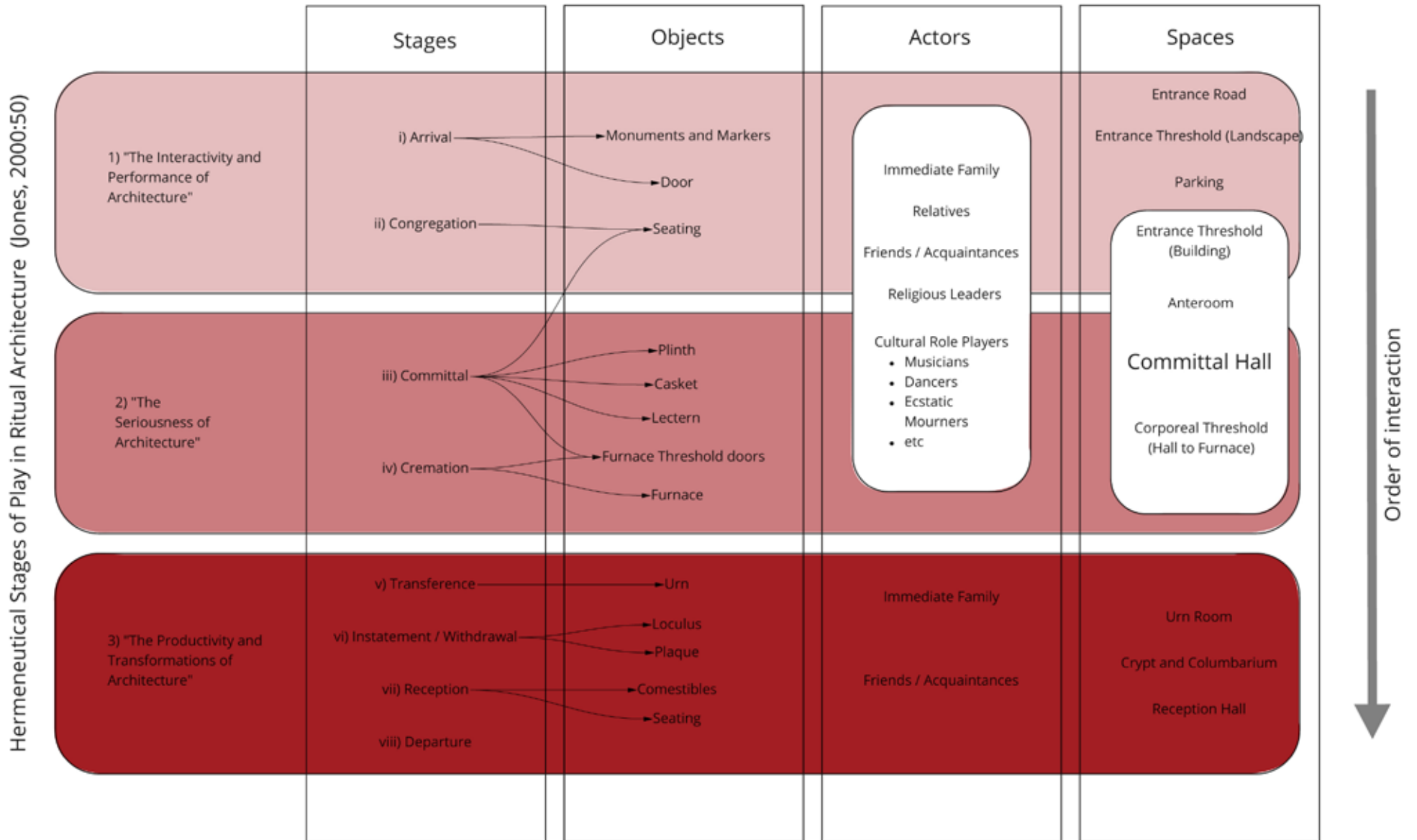


Figure 15: Hermeneutics and the Ritual Object/Actor Progression in the Act of Cremation, Alexey Rodokanakis (2022)



architecture require a participant to abandon the notion of self in order to attain a state of absorption in which they are no longer conscious of themselves as persons within a space, but rather in a state of co-identification with the aesthetic object which they behold.

Within the third and final category of Jones' exploration of sacred/ritual space, he proposes a climactic transformation that takes effect after successfully engaging with a deeply meaningful space. In *The Productivity and Transformations of Architecture*, he explains that within, "the game like exchange between buildings and persons, both experience productive transformations: the significance of monuments grows and changes as unprecedented combinations of... meanings emerge, and the human spectator is... awakened as... preconceptions are replaced... in the face of new, previously unimagined alternatives" (2000: 54). Gadamer concisely states that, "all play is a being played" (Gadamer et al, 1978:95), this play-on-words in essence highlights the notion that to interact with or understand a space, the space itself in turn exerts a transformative pressure on the participant. In doing so, producing a new individual for whom the experience of the space is forever altered. It is personalised, interpretive and highly reflective.

Cemeteries today are places which are both highly ritualistic whilst at the same time remaining, paradoxically, singularly engaged with by living participants within the space. Cemeteries do not generally have a direct daily role to play in our lives, though the suggestion that they as spaces are performing their duties indefinitely, aids in engendering a sense of assurance and security for the bereaved. Perhaps as Jones states this is as a result of the strategically choreographed nature of the experiences we have at sites such as cemeteries, where the architecture is deliberately created in order for it to present information and in doing so, retrieve forgotten meaning as well as facilitate the user's participation in otherwise inaccessible realms (Jones, 2000:85).

The three-part construct mentioned above provides a useful framework for the interpretation of constituent objects and components as meaning makers within the specific context of cemeteries and crematoria. Figure 15 suggests an overlap of the ritual and object flow associated with the act of cremation, as observed first hand, and Jones's three stage hermeneutical engagement. It is through the unpacking of these comprising factors that I intend to generate a new architecture for Braamfontein cemetery that augments the functionality of the existing crematorium to enhance the meaningfulness of the act of cremation itself as well as its unique situation within the context of a palimpsestic site in the urban centre of Johannesburg.

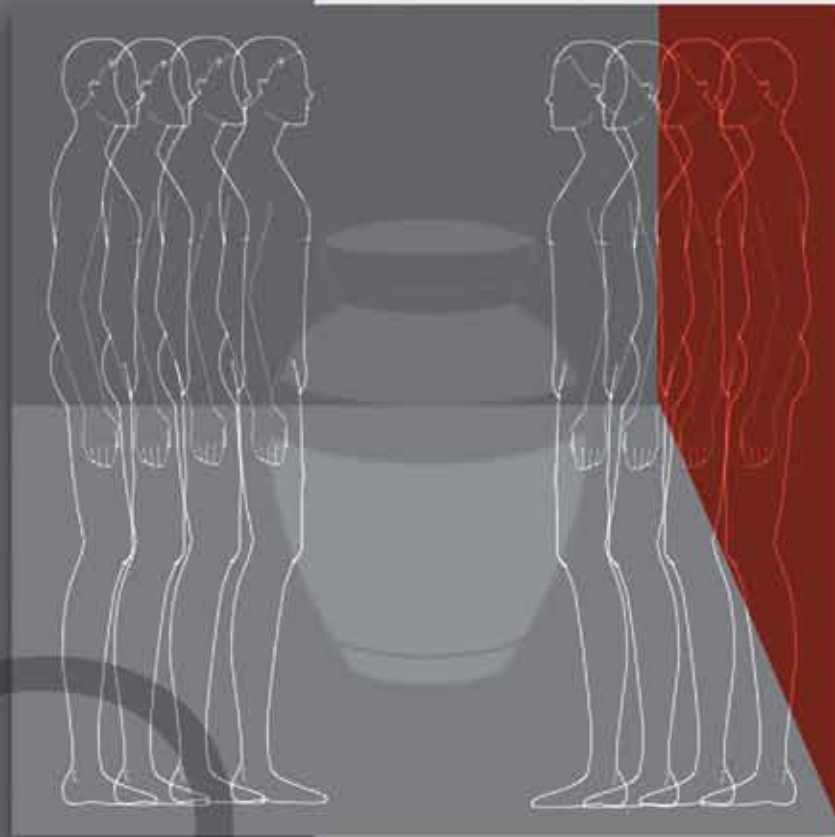


CONCLUSION

The transformation of the body from one spatial form into another lies at the core of the act of cremation (a concept that I expound upon at length in the second essay of this dissertation). The process itself strips from the individual any semblance of the corporeal and instead replaces it with an object of associative and reflective meaning, thus expediting a process which for most is never directly perceived – the decay of the deceased in a casket within the earth. Whilst the same can be said of several more modern approaches whose transformative mechanisms achieve the same end, altering the manner in which people choose to treat their deceased remains is not the focus of this dissertation. Instead through an application of the framework provided by applied hermeneutics and an understanding of the rich history of both the existing crematorium building and the site I aim to distil a new more meaningful commemorative and ritual architecture for Braamfontein Crematorium. An architecture that enhances the function of the existing heritage structure and augments the function of the greater cemetery to take advantage of its palimpsestic nature and reaffirm it as a significant heritage site within the City of Johannesburg.



THE OBJECT AND THE ENCLOSURE: UNDERSTANDING THE SPATIAL PARAMETERS OF CREMATION



DESIGN RESEARCH

The problem of identity is one that cuts across both people and things, because whatever else people are, they are also material bodies that trace a path in space and time... people and things are fundamentally similar. (Bermúdez, et al, 1995:48) The nature and likeness of a human body to an object is evident when perceiving its spatial nature as above, however this objective perception of it is perhaps heightened at death when the facets of being that we associate with life are no longer present and the body is reduced to a vestige. Furthermore, of the rituals associated with death, cremation, reinforces this object nature of the body to the nth degree, reducing recognizable aspects of ones corporeal remains to an atomized form - to be literally encapsulated or dispersed. Regardless of its nature as an object the meaning that may be imbedded in the cremated body as ash is highly personal and subjectively generated. However, the spaces designed to house cremated remains function not as supplanters to the subjective meaning of the core object but rather as facilitators to a heightened sense of meaningful perception.



THE RITUAL PROGRESSION AS SPATIAL INFORMANT

Lindsay Jones's applied hermeneutical framework (Diagram 15 and summarized in 20) provides the first step in understanding the interrelation between the ritual of cremation and its associated meaningful objects. For the purposes of this theoretical exploration the stages of crematory ritual interaction were conceived from the first-hand observation of such a ritual on the Braamfontein Crematorium and Cemetery site.

The Arrival (i) and the Congregation (ii), the introductory stages in which the participants in the forthcoming ritual acknowledge and willingly enter the first phase of "the play of architecture" (Jones, 2000:50).

Here they recognise the performative event that is about to take place, and within the context of their relational proximity to the deceased come to an understanding of their forthcoming role and therefore the tools through which they will perform said role, the objects with which they will be interacting and their physical place within the designated ritual spaces. During this first phase, the distinction between the ritual spaces and objects is less clear. Instead, one perceives markers and signifiers that contextualise one's place within the greater site and subtly direct movement from the entrance of the cemetery to the crematorium grounds (Figure 16,17,18,19).

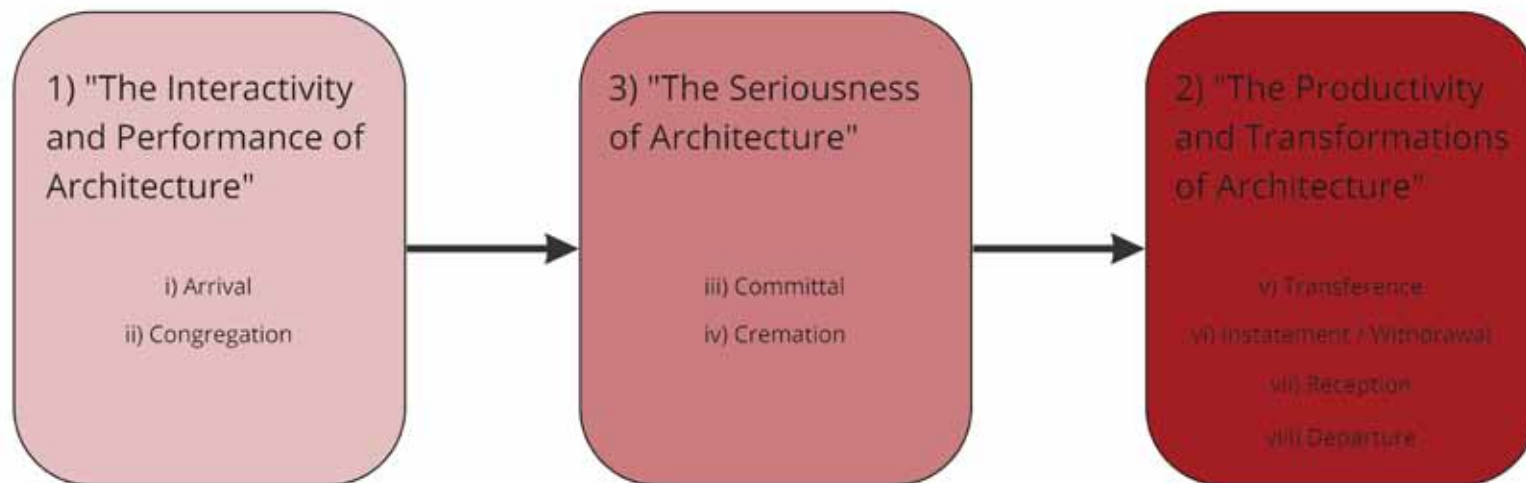


Figure 20: Summarized Hermeneutical Stages of Architectural Play and Stages of Crematory Ritual

Here the Braamfontein Crematorium itself, in all its early 20th century Neo-Romanesque detail, stands as the first true object. Indeed, one could say that in so much as it is an object it is also an urban artifact within the context of its role in the greater history of Johannesburg as described in part one of this dissertation.

According to Aldo Rossi, the building as artifact is given meaning by an onlooker not only through a perception of its function (In this case that of a crematorium) but of its form, in terms of distinct building components. These can be related directly to a perceived function as well as reflections of changing patterns of interaction and use over time (Rossi, 1985:21). The heritage building as artifact here means that whilst some aspect of the buildings' "...original values and functions remain, others are totally altered; about some aspects of form, we are certain, others are less obvious" (Rossi, 1985:21). This is certainly the case for Braamfontein Crematorium, a building whose form has been greatly altered over its history from that of a small chapel, to that of a blend of recognisable chapel like formalistic elements and the industrial utilities such as galvanised steel smokestacks, necessary for it to perform its contemporary function.



Figure 17: Egypt Company, Anglo Boer War Memorial, Marks the Anglo Boer War Graves Plots, 2022



Figure 18: New Rand Revolt Memorial, Stands at the centre of the crematorium yard, 2022

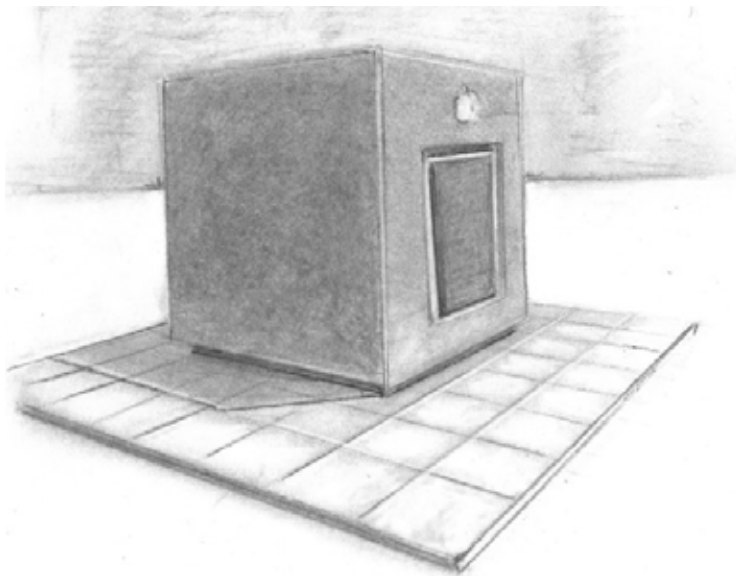


Figure 16: The Enoch Sontonga Memorial Marks the plots that were ploughed under and forgotten during the early 20th century, 2022

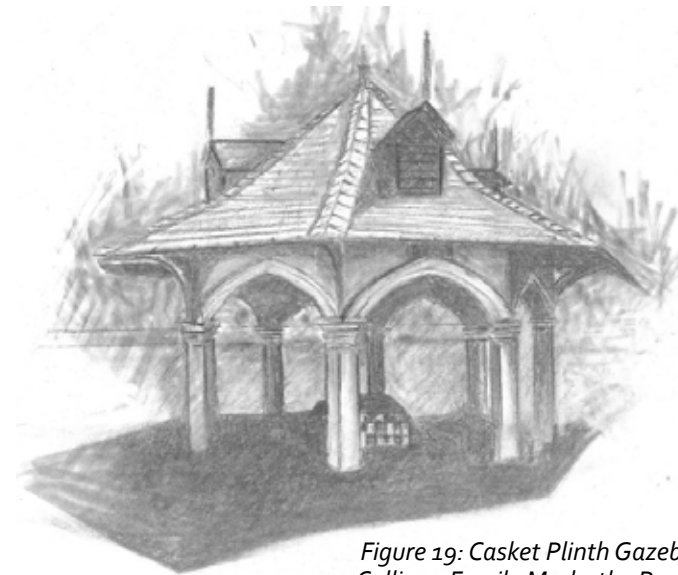


Figure 19: Casket Plinth Gazebo, Donated by the Cullinan Family Marks the Rand Lord Plots, 2022



URBAN CONTEXTUALISATION

F. H. Waugh in his initial conception of the crematorium tried to disguise its function by hiding any recognisable utilitarian elements inside of typologically archetypal forms, namely the furnace chimneys in the bell tower, however his approach in this regard is not unique. In order to better understand how such a building is read by participants, a brief analysis of the public crematorium typologies still existing within South Africa reveals that several projects constructed within the same decade as Braamfontein Crematorium took similar approaches to aesthetics, whilst subsequent projects took vastly different approaches to the programme of cremation. Regardless, all of them fit well within the confines of popular architectural styles throughout the 20th century, and a grouping of all six of the country's currently operational public crematoria (a dismally small number to be sure despite the existence of many hundreds of privately operated facilities) provides insight into a unique subset of architectures in South Africa. The following is a brief overview of extant public crematoria in South Africa in order of the date of their construction: The Hindu Crematorium in Brixton (figure 23), constructed in 1918 was the first purpose built crematorium in Africa (The Heritage Register, 2022); the 1930's saw both the Maitland Crematorium (figure 24) in the Cape and Braamfontein Crematorium constructed, both in the same neo-Romanesque style and the only two to have experienced major performance based additions in their life times; the Stella-Wood Crematorium (figure 25) in Durban was constructed within the last few years of the 1930's and takes on a distinctly neo-classical colonial form, as was the case with many British-built civic structures within Durban at that time; the Rebecca Street Crematorium (figure 26) in Pretoria was constructed two and a half decades later in the mid 1960's using the typical modernist A-frame trope, applied to many NG churches constructed at the time; the final public crematorium to be constructed within South Africa is the Mobeni Heights Crematorium



Figure 21: Braamfontein Crematorium in the Year of Its Completion, North Elevation, (1930), Johannesburg Heritage Association.



Figure 22: Braamfontein Crematorium in its Present Guise, West Elevation Showing Smokestacks, (2022), Alexey Rodokanakis

(figure 27) in KZN, built in the mid 1980's the structure has a distinctly post-modern mix of utilitarian functionalism and abstracted pure geometries. All the above structures apart from the first and last examples were designed to look church like and utilised aesthetic components which would have allowed members of the public to easily situate them within a building category or typology in terms of their urban or peri-urban surrounds – the proverbial pastoral chapel comes to mind. However, in the case of the Braamfontein Crematorium, additions to the structure were managed in a way that distorted the original chapel like guise to something more akin to a factory or industrial facility. It therefore remains a building that indirectly pays homage to the industrial nature of the city in which it is situated, and which can be read as a palimpsest of the approaches to death that the city has taken from its pastoral early days to its late industrial contemporary state.

The typological progression of South African crematorium design throughout the 20th century suggests that, like most other civic structures, their conception was driven by overarching stylistic trends which ran concurrent with changes in the way that society in general wanted their buildings to function - moving from decorative aesthetic objects to highly functional civic machines optimised for their intended purpose. Regardless, all the above contribute to aesthetic and cultural factors that could be read into the building of a crematorium upon approaching it, though its core function to transfigure a human body into ash remains the primary lens through which a living participant would understand it.

Upon congregating outside of Braamfontein Crematorium participants come to a unified understanding of the ritual in which they are about to participate, and through entering into the crematory hall they transition into the second hermeneutical phase where "the seriousness of architecture" (Jones, 2000:53) is clear, and distinct stakes are understood.

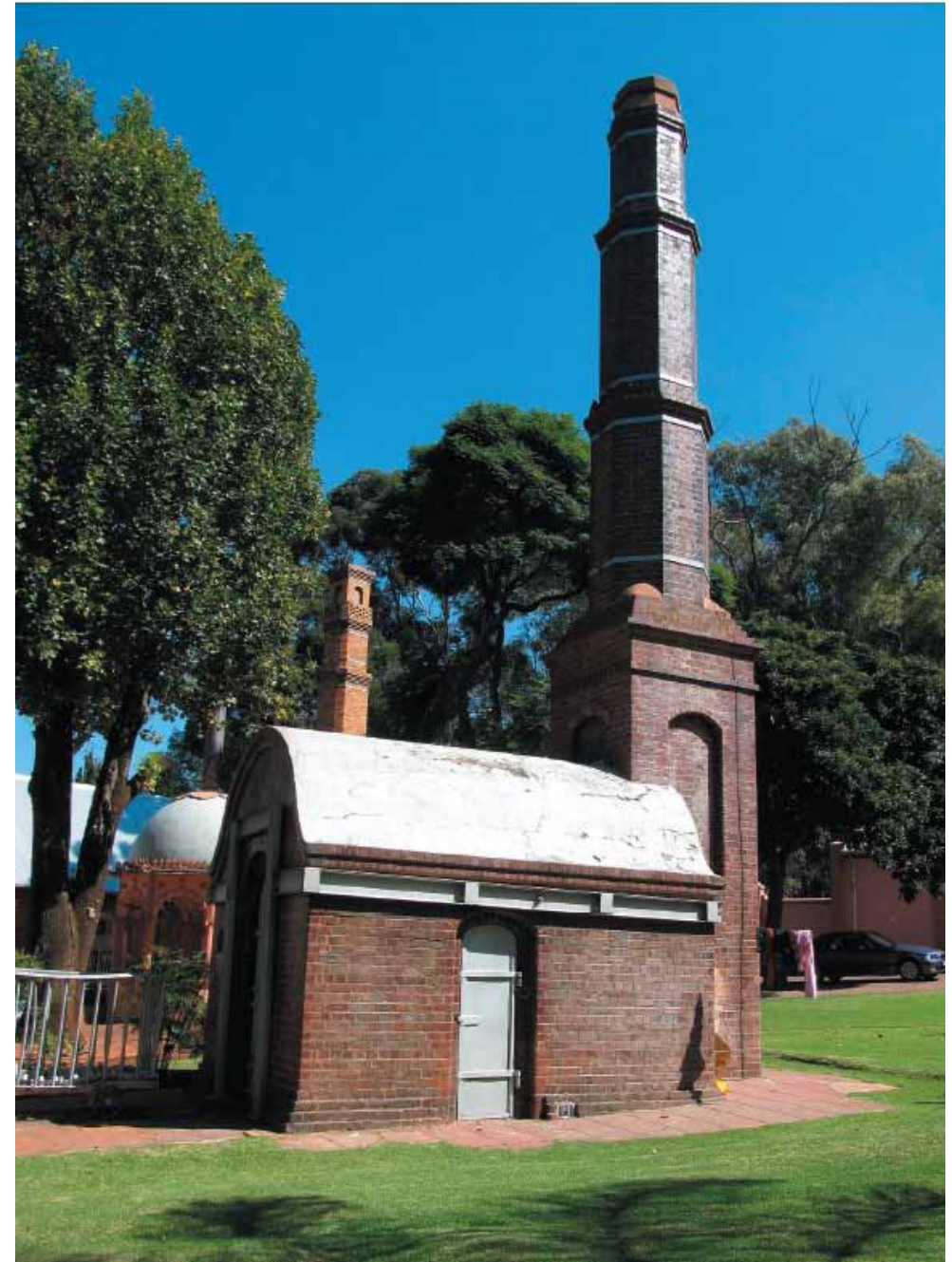


Figure 23: Hindu Crematorium Brixton, Constructed in 1918, Architect: Unknown [online]



Figure 24: Maitland Crematorium, Cape Town, Constructed in 1935, Architects: Walgate, Elsworth and Kendall [online]



Figure 26: The Rebecca Street Crematorium, Pretoria, Constructed in the mid 1960's, [online]



Figure 25: Stella-Wood Crematorium, Durban, Constructed in 1939, Architect: Unknown [online]



Figure 27: Mobeni Heights Crematorium, KZN, constructed in the mid 1980's, [online]

Braamfontein Cemetery

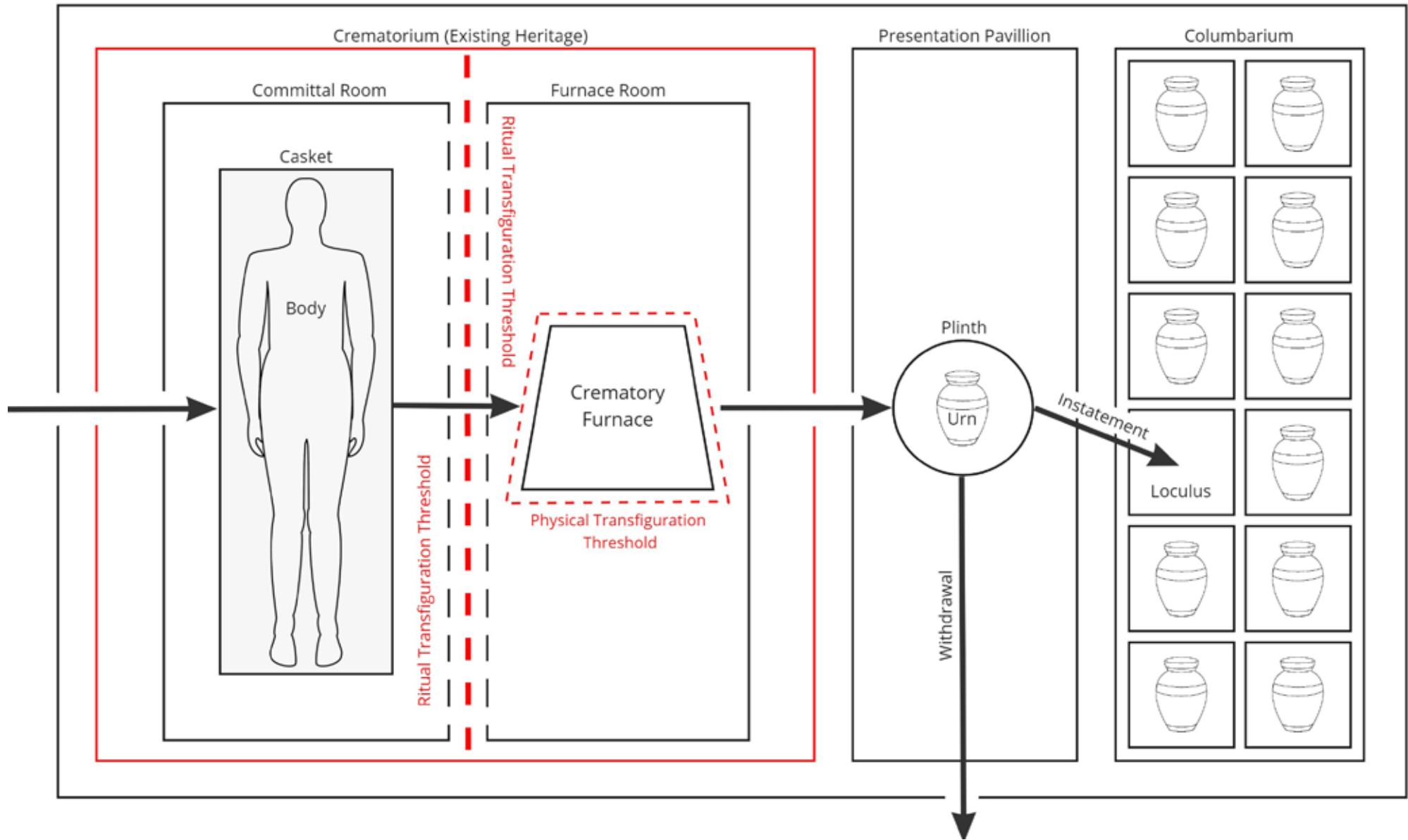


Figure 28: Objects, Enclosures, Thresholds and Transfigurations Diagram, 2022, Alexey Rodokanakis

Committal (iii), the third ritual stage, has commenced. Defined as the act of “intrusting or consigning... to a state of being” (Emery and Brewster (ed), 1956:291), the term committal can be said to contain immense philosophical depth, though the exploration of this is not within the parameters set out by this dissertation. Instead, it would suffice for me to state that the use of the term within the cremation industry to refer to the act of consigning human remains to the process of conversion to ashes is commonplace.

It is during the third ritual stage that the first clearly defined ritual objects appear. However, there is a distinct interplay between these objects which vacillate between identifying as objects in and of themselves and identifying as enclosures.

Upon entrance into the committal hall the crematorium transforms from an object into an enclosure inside which lies, atop a plinth, a further enclosure-object hybrid: the casket. Without exposing its contents, participants are aware of the true nature of the core object, that of their acquaintance or loved ones bodily remains. Following a ceremony of differing religious or secular contents the casket and therefore the body moves through what is perhaps one of the most significant architectural thresholds of any building.

Two ornate bronze doors open and accept the casket via a system of rollers. It is at this point that for ritual purposes the body has been cremated,

therefore this threshold acts as the point of ritual transfiguration. In the original layout of the crematorium these doors lead directly into a coke fired furnace, “...the heat of which could be felt by members of the congregation” (Johannesburg Heritage Foundation Archives, 2022), however after subsequent alteration, the doors now lead onto a shelf inside the furnace hall from which furnace operators move the casket either directly into a cremator or to a temporary storage area.

The Diagram on the previous page (Figure 28) graphically illustrates this enclosure/object dualism whilst also describing the direction of transfigurative flow from embalmed body to ashes and then onto instatement or withdrawal. What is also apparent when analysing this sequence of events is that there is a distinct difference between what might be considered the “ritual transfiguration threshold” and what is in reality the “physical transfiguration threshold”. These two divisions have subtly different roles within the ritual of cremation. The former serves as a ritual marker at the culmination of committal and is the point after which the family and mourners perceive the body to have been permanently transfigured into ash. The latter marks the boundary or enclosure of the crematory furnace and is the actual point of physical conversion from cadaver to ash.

Cremation (Stage iv). It is at this stage that two distinct realms become apparent, that of ritual participants and servicing facilitators. Whilst those providing the service of cremation (stage iv) may at some point become briefly integrated with ritual participants the antithesis is undesirable. The true nature of the technicalities of cremation outside of limited examples can be jarring and disturbing to some and therefore it is necessary to maintain the divide between the two realms not only within the act of cremation but within the layout of the building itself – as is the case with the existing structure.

Presentation (Stage v) In the fifth stage ritual participants are ushered into the third and final hermeneutical phase “the productivity and transformations of architecture” (Jones, 2000: 54). Here I propose a clearly separated stage in which the now transfigured human remains are presented to the close family in a specifically designated space. One designed for heightened emotive experience whilst remaining both private and logically accessible. It is in this space that the final object centric product of the entire ritual process of cremation is presented to the mourners. The Urn. There is no real precedent outside of Buddhist, Taoist or Hindu cremation ceremonies that put emphasis on the presentation of the ashes themselves. There is an opportunity to provide a space that softens the emotional blow many experience when receiving the ashes of a loved one, and in doing so also removes any utilitarian vestiges from the process which may contribute to a watering down of meaningful experience.

Instatement/Withdrawal (Stage vi). In this stage the close family members of the deceased will decide whether or not to place the Urn into the columbarium to remain memorialised on site or to withdraw the ashes from the site all together. A Columbarium is a “sepulchral vault or walled structure with recesses or loculi in the walls to receive the ashes of the dead”



Figure 29: The Crypt Beneath Braamfontein Crematorium, Western wall elevation, 2022, Alexey Rodokanakis

(Emery and Brewster (ed), 1956:286), it was a common funerary structure in ancient Rome and Greece for which there is also historical precedent in North Africa and parts of central and eastern Asia. As detailed in Part one of this dissertation there is extant on the Braamfontein cemetery site an extensive though full columbarium (figure 30) as well as several memorial walls and an historic crypt (figure 29), all of which contain ashes. However, despite demand there have been no new columbaria constructed on the site since the late 1970's (Johannesburg Heritage Foundation Archives, 2022). Reception (stage vii). Stage seven marks the culmination of the crematory ritual, whereby the family and friends of the deceased congregate in a purpose built space as a means of both discussing the ritual that they have all been part of as well as commiserating with the family of the deceased. Notably at this culminating stage of ritual engagement the core object is no longer part of any direct activity. It no longer has any direct physical presence within the space occupied by participants. In many ways the object and therefore the deceased will from this point onward be associated with a set space in time within the cemetery and the columbarium, an atemporal memorialisation that transcends death through its permanence and therefore aids in both providing closure and overwhelming any anxieties (Jones, 2000: 162).

The seven stages of cremation as I have laid out above, provide detailed ritual requirements which themselves have unique spatial needs.

Stages i through iv have functional space available in the heritage structures that exist at Braamfontein Cemetery. However, based on the pragmatic requirement of the greater city of Johannesburg the cremation capacity would benefit from augmentation and retrofitting to meet greater demand and future proof the facility. Stages v through vii either, no longer have any

functional spaces left on the cemetery site due to them reaching capacity, or they have no direct precedent in relation to the historic practices of the existing Braamfontein crematorium, therefore it is these stages and their associated spatial requirements that are the focus of this dissertation's design and production.



Figure 30: Existing Columbarium on the Braamfontein Crematorium Grounds, Full, Overgrown and Neglected, 2022, Alexey Rodokanakis

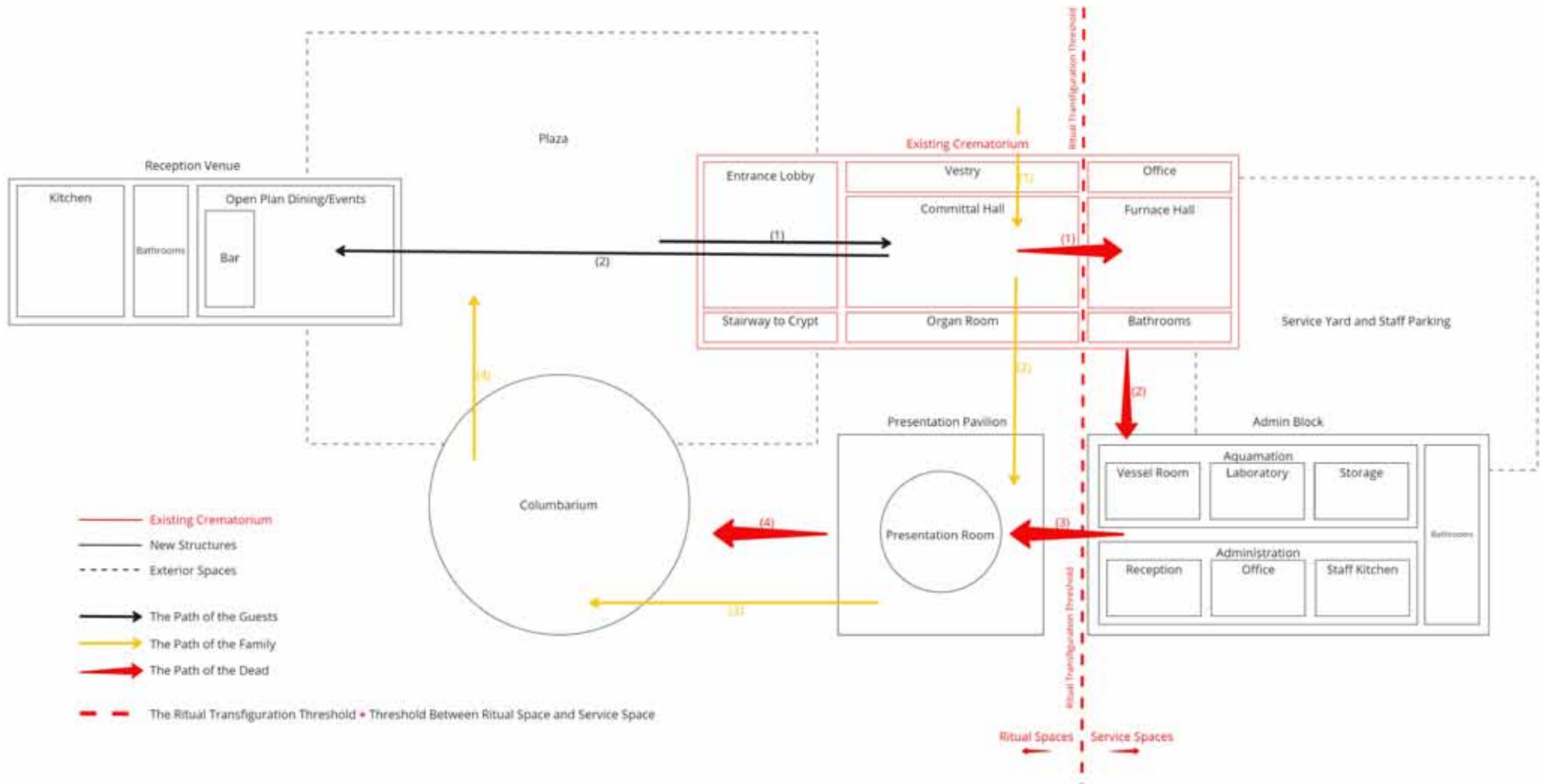


Figure 31: Proposed Programme Augmentation and Ritual Flow Diagram, 2022, Alexey Rodokanakis

Figure 31 on page ? unifies the above points and graphically explains the relationships, programmes, patterns of circulation and served and servant spaces within the proposed scheme, it also provides a framework from which to iterate and develop space in relation to the core ritual progression. The diagram represents three major contextual, programmatic and circulatory requirements. The first of these, the contextual parameters, relates to the unique nature of the existing crematorium structure (represented in red) and its existing programmatic components. Namely that of an entrance room or lobby, a committal hall with adjoining vestry, organ loft and organist's alcove, and the furnace room with attached bathrooms and operators' office. As mentioned in Part One of this dissertation, the current state of the crematorium is no longer fit for purpose given that it is forced to function well above capacity and, despite demand, has had to suspend the use of its memorial service facilities in order to utilise them for additional storage. The existing structure also clearly provides the first of a set of axes, that of the Ritual Transfiguration Threshold (RTT), which despite its ritualistic role also serves to separate utilitarian functions from the activities of the mourning party.

The second requirements that are made explicit are the need for additional facilities to perform both servicing roles and to house ritual stages as laid out prior. On the right-hand side of the RTT, provision is made for a new

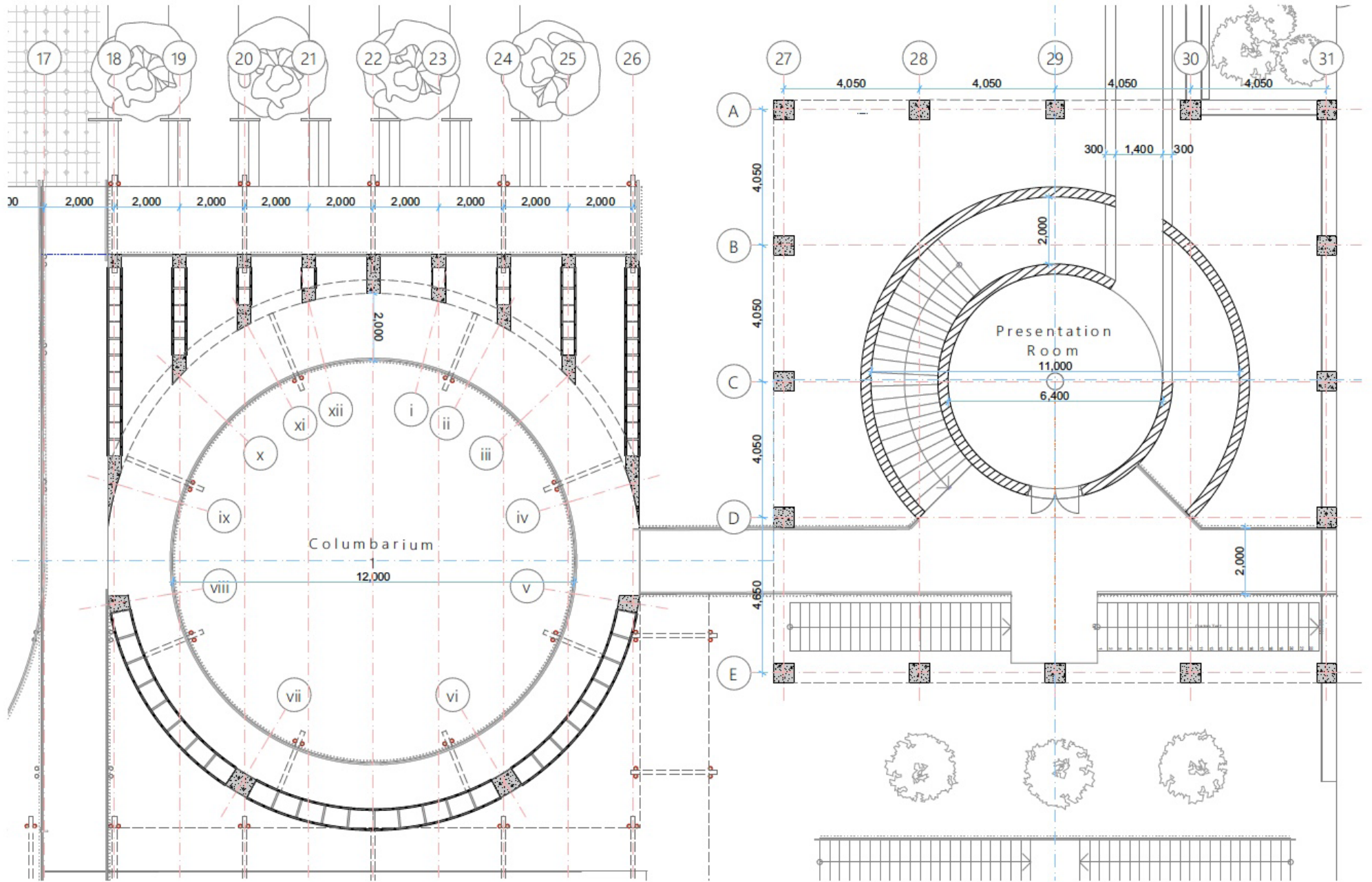
administration block housing: offices, a reception area, a staff kitchen and accessible bathrooms – all needs expressed by current members of the crematorium staff, at the suggestion that they would greatly improve productivity and streamline the crematory workflow. In addition, a choice was made to increase capacity by incorporating additional cremation facilities, however since the crematoriums' construction, better, more cost effective and environmentally friendly options for the production of human ashes have been developed. Upon a review of these methodologies Aquamation presented a unique opportunity the details of which are discussed in essay 3. Suffice it to say that based purely on programmatic need, facilitating Aquamation requires the inclusion of a small laboratory and a vessel hall/room.

As for the addition of ritual spaces to the programme of the site (located on the left hand side of the RTT in figure 20) provisions have been made for: a Presentation Pavilion, a conceptual space of my own distillation, which would see a space dedicated solely to the act of presenting the ashes to the close family after cremation as in Hermeneutical Phase 3, Stage v (figure 20); a new Columbarium designed to heighten and standardise ways of monumentalising the dead and finally a Reception Hall, in which mourners can libate, eat and reminisce over the memory of their late loved one or acquaintance.

The third parameter represented in figure 31 is that of imbedded and highly controlled paths of circulation that function to maintain and mediate the ritual progression. In the diagram three colours are used to represent different ritual actors. Black representing general mourners and acquaintances, yellow representing close family and friends and red representing the dead (the object participant for whom the entire ritual is played out for the primary purposes of fostering closure for the other two groups of actors). In observing the black arrows, a connection is made along the crematory axis of the heritage structure whereby participants after congregating would enter the committal hall (1) take part in the committal ritual and then exit the heritage structure along the same axis (2) to recongregate in the reception hall and wait for the other core participants to join them. In observing the yellow arrows, a semi-cyclical path is traced whereby close family members would enter through the vestry entrance of the chapel and quickly end up directly in front of the casket of their loved one, and at the head of the congregation (1), once committal has concluded and after a brief time lag the family would continue onto the presentation pavilion across a highly curated pathway and end up in an inwardly focussed space in which the ashes of their loved one would be presented atop a plinth at its centre and circulation around this object enclosure (the urn) would be spatially inferred (2). Once due time has been taken in coming to terms with the transfigured remains of their family member, they would continue onto the

columbarium in which they are given the opportunity to instate the ashes in a permanent loculus vault (3). Once the vault is sealed by either a ritual participant or a crematorium employee the family will circulate back into the connecting landscaped space in front of the existing crematorium and regroup with the other members of the congregation in the reception hall (4). The path of the body is the only truly terminating sequence, unique as the last locomotive act a body will partake in. Represented in red the casket is either already atop the plinth in the committal hall or alternately carried in by pall bearers as part of the committal ritual. Once completed the body and casket traverse the RTT (1) and are then situated within the furnace hall in which cremation commences (2). Once complete, crematorium staff place the cremated remains in a preselected urn and situate it within the Presentation pavilion for transference to the family (3). After the presentation has concluded the family carry the remains with them along a final dual path to a loculus within the columbarium (4).

It is a given that additional offramps to the ritual progression are to be imbedded into the scheme, to allow participants to exit the circulatory acts at any stage as well as to withdraw the ashes if they so wish instead of interring them on site. Regardless, these exceptions to the ritual progression do not influence the overall arrangement of the scheme and programmes.



0. Columbarium and Presentation Room Ground Floor 1:50



INTRODUCTION

THE TUNNEL AND THE TOWER:

THE USE OF SYMBOLIC FORMS AND SEQUENTIAL ARRANGEMENTS IN COMMEMORATING THE DEAD.

In a spatial analysis of the existing structure of the crematorium a unique set of geometries and axes became apparent. The existing chapel is organised in a linear fashion, tracing along a distinct line the path of a casket to cremation (figure 32). This has however been subsequently altered by the changes made to the cremation furnace positions in relation to the committal space over the years, as a result of the reconfiguring of the furnace hall to accommodate greater cremation capacity over the course of the 20th century. The above is clearly visible in plan, where the central entrance on the western elevation aligns with the isle of the chapel pews, the casket plinth and the furnace doors. In section a far more interesting geometry becomes visible. A perfect 7m diameter circle is traced by the

ornate timber roof trusses and informs the ratio of wall height and roof pitch to room width. It also results in a cylindrical tunnel being inferred at intervals by the trusses aligning centrally with the entrance to the west and the furnace doors to the east (figure 33 and 34) The cylinder in section and the axis in plan forcefully focus any occupant's attention on the core mandate of the space. The exact place in which committal will take place. This unique manner of producing space that focusses a user's attention on an object as part of a ritual process became a major informant in the way I approached designing new ritual spaces for the site, as well as the means by which I introduced new geometric configurations.

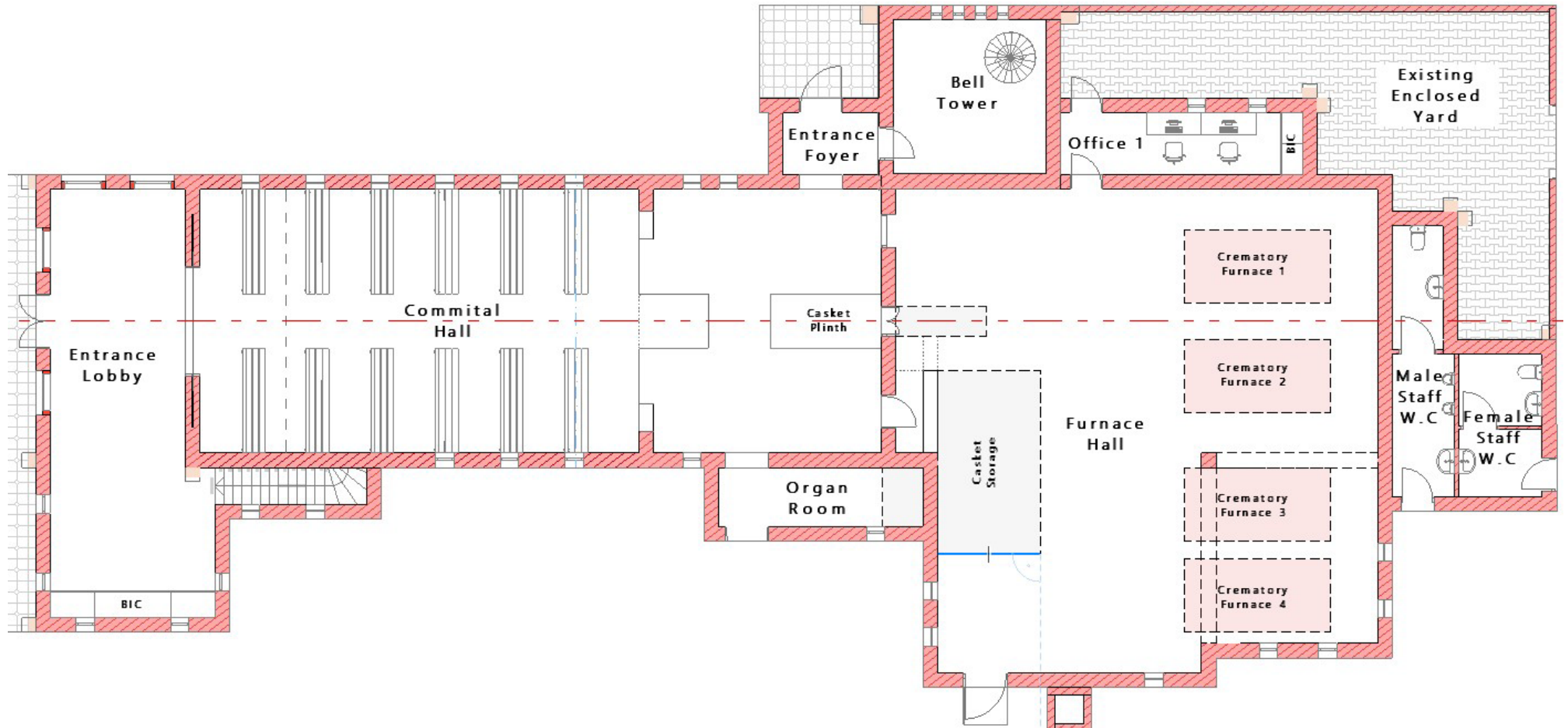


Figure 32: Plan of Existing Crematorium with Axis of Cremation in Red Long Dash Traced From West to East, 2022, Alexey Rodokanakis

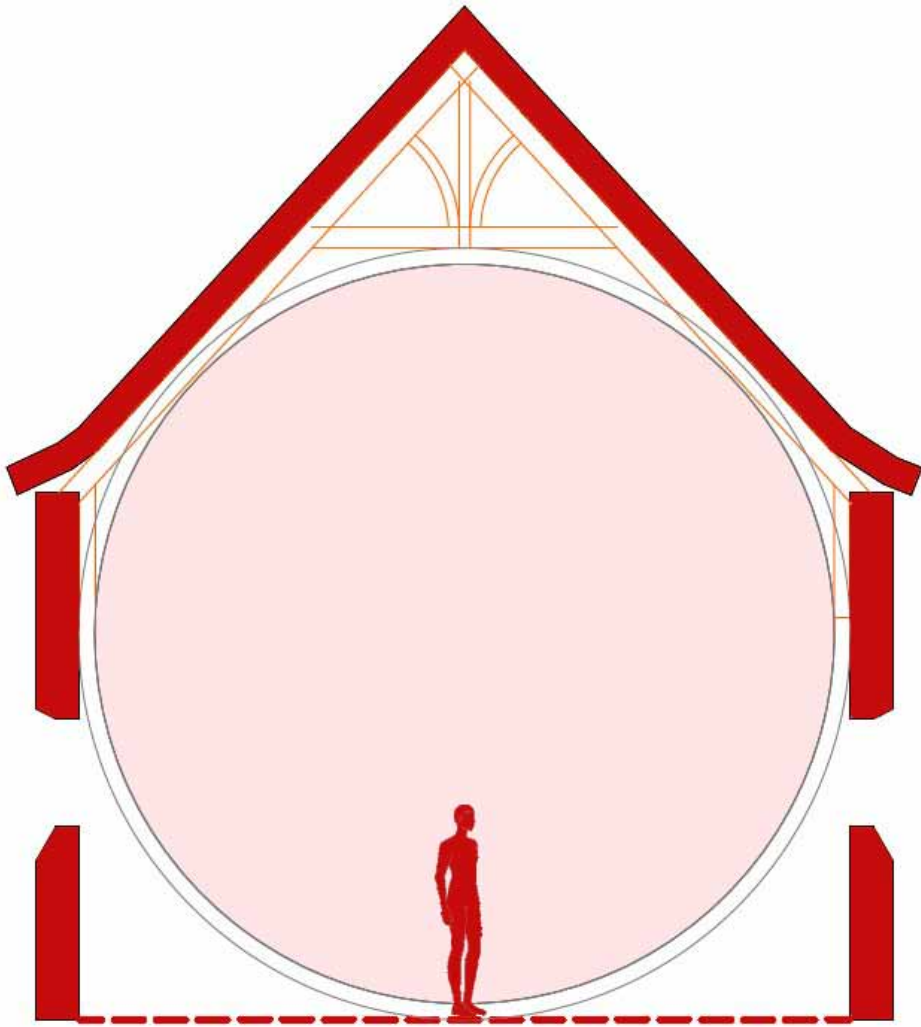


Figure 33: Diagrammatic Cross Section Through Committal Hall Showing Perfect Circle, 2022, Alexey Rodokanakis

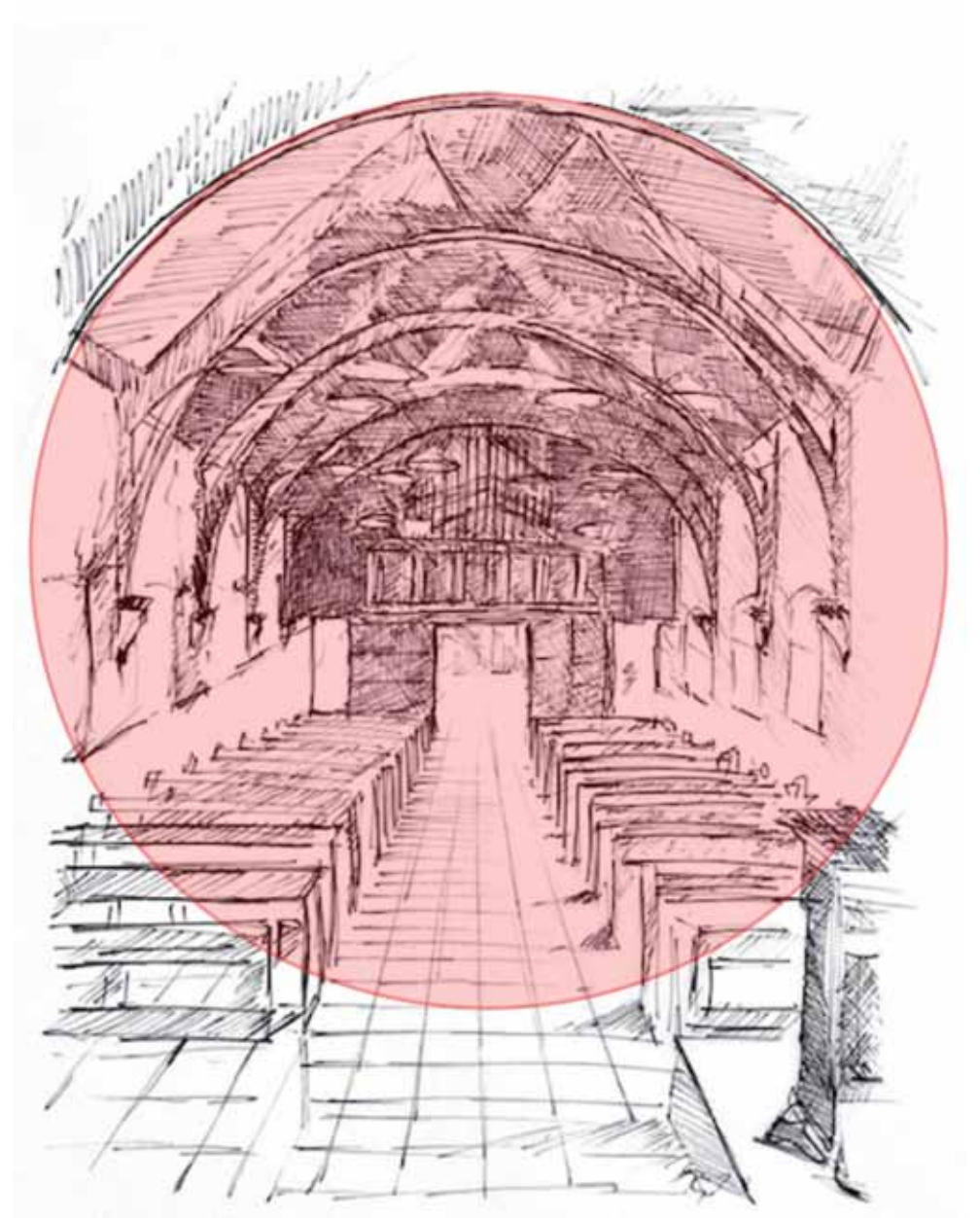


Figure 34: Sketch of the Interior of the Committal Hall Showing Sequential Semi-circular Roof Trusses, 2022, Alexey Rodokanakis



PURE GEOMETRIES AND PATTERNS OF MOVEMENT

Symbolically the circle and by interrelation the square as well as the act itself of squaring the circle are commonly associated, in numerous cultures, with ancient representations of life and death. Jung states that spatially "... the circle or sphere is a symbol of the self. It expresses the totality of the psyche in all its aspects, including the relationship between man and the whole of nature... and points toward the single most vital aspect of life – its ultimate wholeness." (Jung, 1964: 240). Imposing a circle, or as Jung refers to it, the symbolic manifestation of a "mandala", in the floor plan of a structure imparts both a conscious and subconscious notion of wholeness and unity. Across innumerable cultures, "every building, sacred or secular that has a mandala ground plan is the projection of an archetypal image from within the human unconscious onto the outer world" (Jung, 1964: 243). Forms that highlight the cyclical nature of living/active systems also have inherent significance in ritual space. "The cycle of death and rebirth was associated in the religion of ancient Egypt with the journey of the sun god across the sky during the day and through the twelve perilous regions of the [underworld] during the night" (Grof, 1980:65) - the vault of the sky as a representation of the heavens in this case traces yet another significant sphere/circle that exists across many cultural and religious interpretations of life and death. Henge like structures are prime historic examples of these symbolic spatial practices (Figure 35).

Volumetrically there a number of notable spatial expressions of transcendence in the form of buildings which attempt to create a link with the heavens and thus literally aim toward the sky and by representation, the afterlife. Gothic sacred architecture attempted to physically encapsulate the heavens within its verticality and light in much the same way that

ancient Babylonian ziggurats represented the celestial hill upon which all gods resided, and all souls would ascend after death (Jones, 2000:101). This sense of the vertical is present at Braamfontein crematorium though it is unknown whether the use of the belltower as a vertical element is a reference to any conscious or subconscious link with the sacred, as above, or simply a formalistic interpretation of neo-Romanesque design norms. Either way the use of vertical space open to views of the sky as well as spatially orientated to allow for the passage of the sun to be traced in shadow as a metaphor for the progress of time, were key to my design approach.



Figure 35: Ceremonial Axes Through an Ancient Henge, 2022, [online]

FORM INCEPTION: THE PARADIGM OF RATIONALISM AS A MEANS OF IMBUING SPACE WITH SYMBOLIC MEANING AND GENERATING FORM.

"Our past and present are not incompatible. We do not wish to ignore our traditional heritage. It is the traditional which transforms itself and assumes new aspects recognisable only to a few" (Gruppo 7, 1926)

These sentiments expressed by the notorious founders of Italian rationalism, and by default the rationalist movement of the early 20th century, Gruppo 7, are somewhat cryptic, though in essence, the Rationalist of the 1920's sought to espouse a new and more rational synthesis of the values of European classicism and the structural logic of the machine age. And in doing so maintain cultural meaning in architecture which they felt was being diminished by the theoretical direction in which modern architectural practice was moving. After its adoption by the Italian fascist government as the preferred national approach to civic building design during the 1940's, it somewhat fell out of favour at the end of the second world war. Many decades later during the 1980's the so-called 'Tendenza' or neo-rationalists would come to reinterpret the dogma of rationalism and ground it in something far more ubiquitous (Frampton, 2020: 203-207; 295). The human experience of the symbolic, in built form. One of its predominant proponents and thought leaders, Aldo Rossi, succinctly described this "... analogous approach [as being] ... suspended between inventory and memory" (Rossi, 1982: 74-76). Meaning that it was necessary always to produce space that optimised the depths of its cultural readability through the utilisation of a grand symbolic in form. This is in no way a nod to excessive nostalgia or to the use of extreme surface level adornment but instead a clear understanding of the rituals that take place

within spaces and the symbols that lie at the core of these rituals, ripe for abstraction and elaboration.



Figure 36: Brion Family Tomb, Intertwined Circles, 2022, [online]

There is a rich history of modern columbarium and tomb design spanning the course of the 20th century, an overview of some of these projects makes explicit a tendency to imbed symbol in the form of geometric abstraction even before the theoretical distillations of the Neo-rationalists in the 1980's.

Though not specifically a columbarium the Brion Family Tomb designed by Carlo Scarpa exhibits many of these symbolic tropes, most notably in his use of the interlinked circle portal in the exterior wall of the Brion chapel perhaps representing the intertwined lives of the eponymous couple themselves in life and in death, immortalised in steel and concrete (figure 36). Luigi Ciapparella's monumental extension to the Busto Arsizio cemetery columbarium in the 1970's is yet another instance of the prominent use of the circle as a symbolic representation and a heavily featured formalistic geometry (figure 37). Aldo Rossi's grand design for the Cimitero Monumentale di San Cataldo iterates on the nature of the ultimate locus enclosure in which a body or ashes are to be placed, and magnifies at many scales an expression of the cubic form to the nth degree, giving clarity to the notion of a box within a box within a box, and in the process engendering the cemetery with a sense of explicit monumentality and reverence (figure 38). Finally, a more contemporary example of this approach to designing spaces for the dead would be best described by the

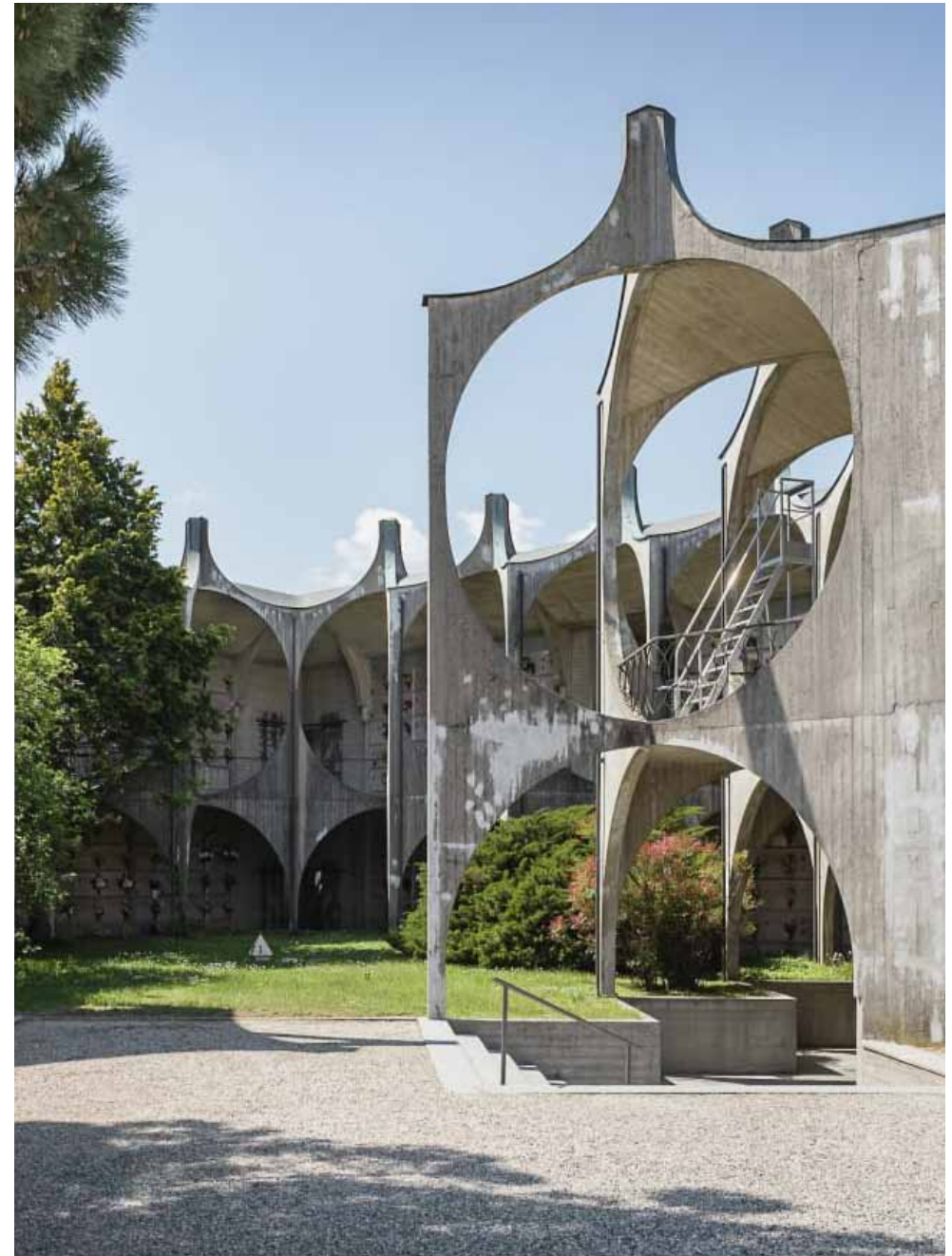


Figure 37: Busto Arsizio cemetery columbarium, showing prominent use of circular arches and causeways, 2020, [online]

work of Andrea Dragoni Architects in their recent extension to the Cimitero di Gubbio, in which strong ritual axes and highly curated natural lighting, subtly imbue the entire experience of the space with the notion of the passage of time (Figure 39).

The broad and scoping theoretical analysis conducted thus far has premised my interpretation of the spaces that exist on the Braamfontein Cemetery and Crematorium site as well as the ritual nature of cremation spaces themselves.

It was through the analysis of precedents, historic typological progression (within South Africa) and the crystallising of the core ritual procession involved in cremation that I have been able to generate new spatial solutions to the programme as outlines in figure 31.



Figure 38: Cimitero Monumentale di San Cataldo, Monumentalised Cubic enclosure analogous to the loculus itself, 2019, [online]

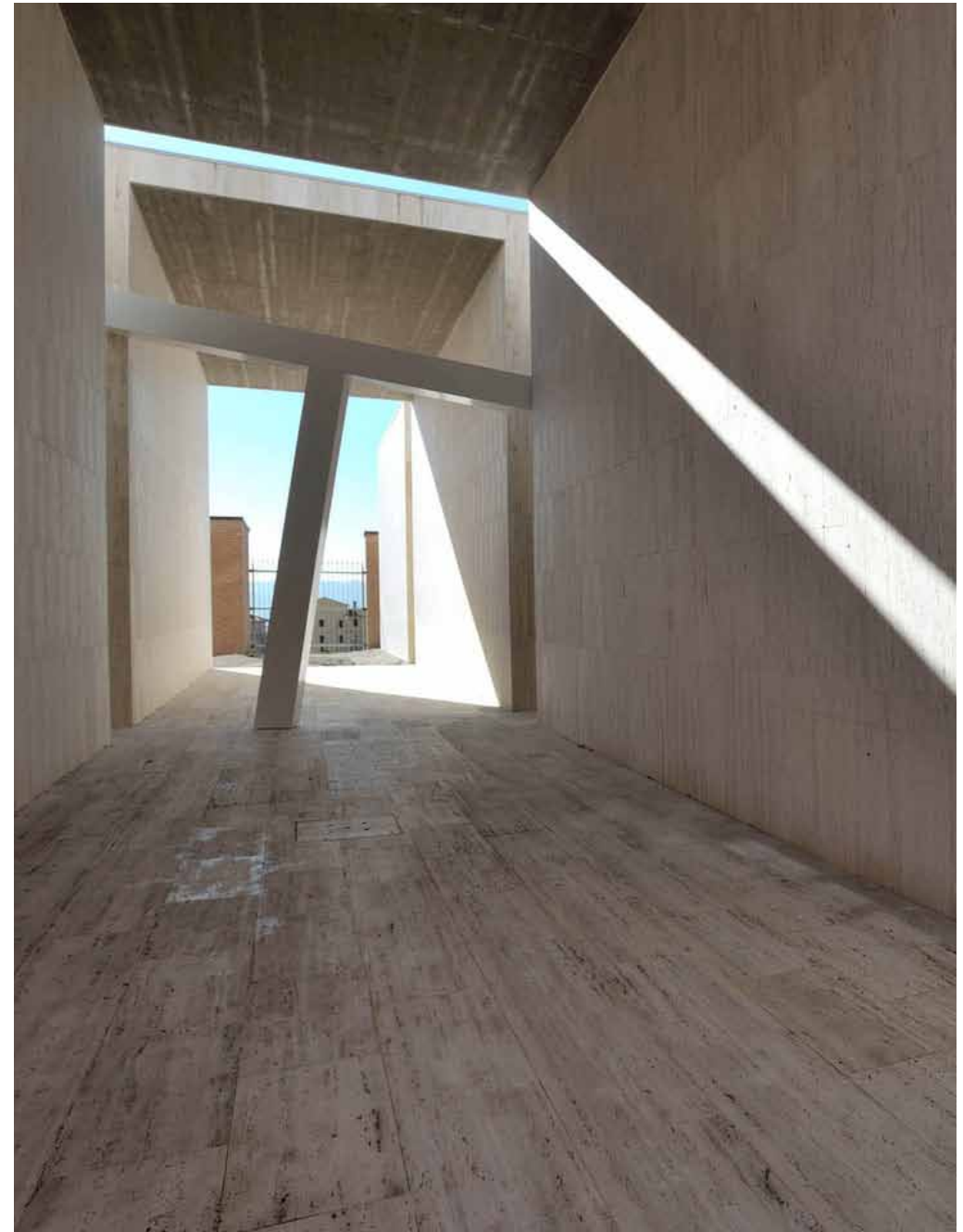


Figure 39: Cimitero di Gubbio, main covered axis showing highly curated natural light, 2020, [online]

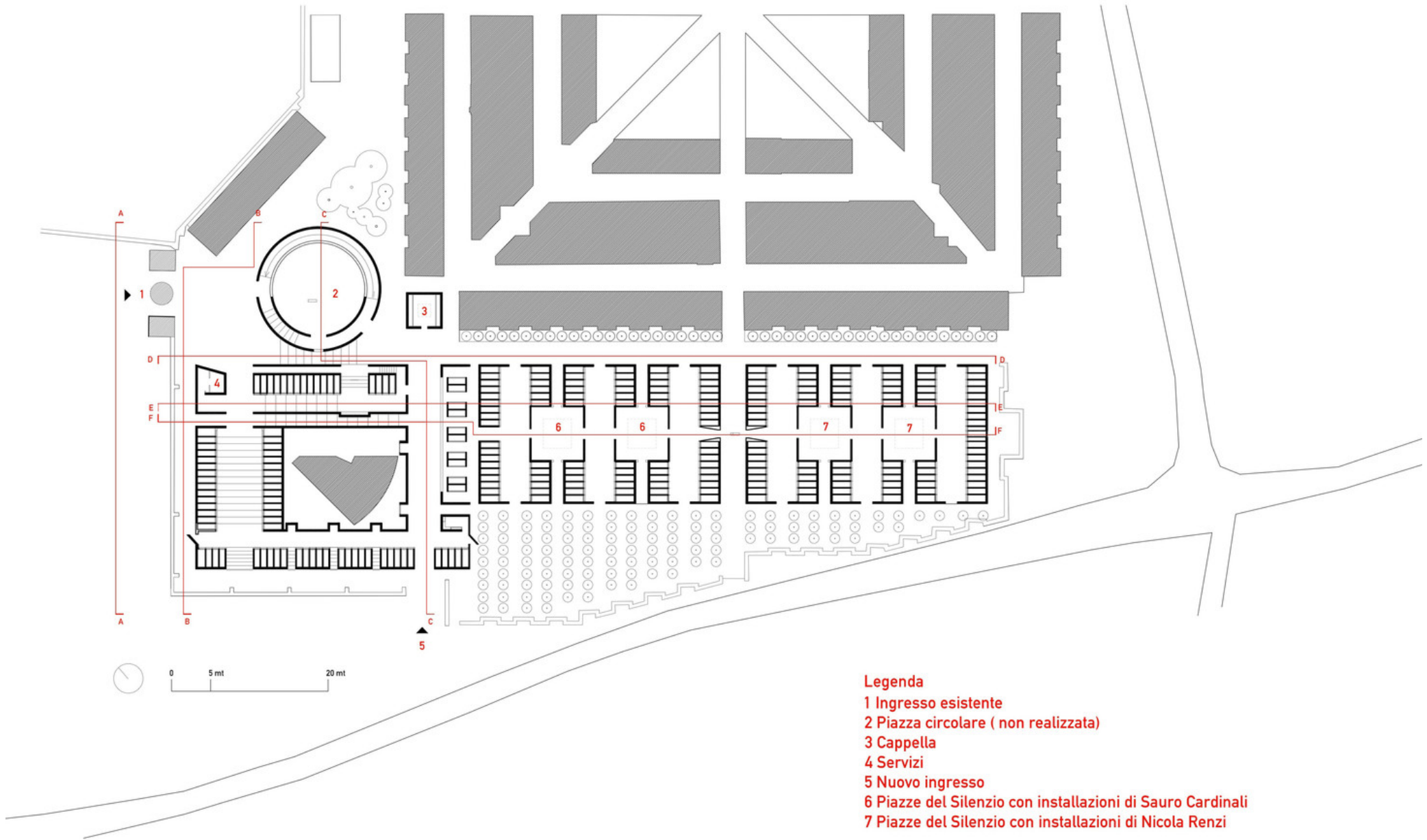


Figure 40: Cimitero di Gubbio, ground floor plan showing strong axial layout, 2020, [online]

FORM DEVELOPMENT AND ITERATION

Detailed site mapping was the first factor in determining both constraints associated with additions to the crematorium as well as in defining the unique heritage assets that exist on the greater Braamfontein Cemetery Site.

Capturing and representing the strange ephemerality of the greater site presented a unique challenge. The process of linocut engraving and embossing solved this to a great extent in that it allowed for marks to be made on paper without the transfer of any pigment, only subtly inferred by either an embossed or debossed ridge. Pigmenting key points with carnelian gouache was a means of identifying unique monuments that in my view presented an opportunity to curate their viewing as a sequence of historic key points and tragedies as discussed in the first part of this dissertation.

At a more scaled up level the portion of the site directly adjacent to the existing crematorium itself has several unique features which bring into question planning law in relation to disturbing the dead. In figure 40 a sketch site plan was produced based on onsite observations resulting in a revelation in terms of the contrasting nature of burial plots as compared to plots designated for the purpose of interring encapsulated ashes. According to Johannesburg by-laws, whilst there are numerous hurdles to the removal of buried remains for the purposes of new construction work, the

legislation regarding ashes is different in that it only requires that the ashes be placed back into a suitable state within the proximity of their original location (Cemeteries and Crematoria By Laws of the City of Johannesburg Metropolitan Municipality, 2004, Notice 824, Number 179). This freed up a significant amount of space taken up by ad-hoc constructions of low-rise columbaria throughout the crematorium yard and defined the boundaries of the site for the purposes of new development.

Initially a highly intuitive series of axonometric and perspectival sketches was produced to explore potential formalistic relationships on new structures with the existing heritage components. Figures 41, 42 and 43 convey this loose iteration and utilise a colour coding in which everything represented in red is new, whilst the crematorium chapel in its distilled form (sans additions) is represented in black.

Conceptual Sketch three provided a springboard for further exploration, and a move to plan allowed for the development of programmatic relationships and circulatory sequencing as in part 2.1 of this dissertation. The following figures convey this exploration.

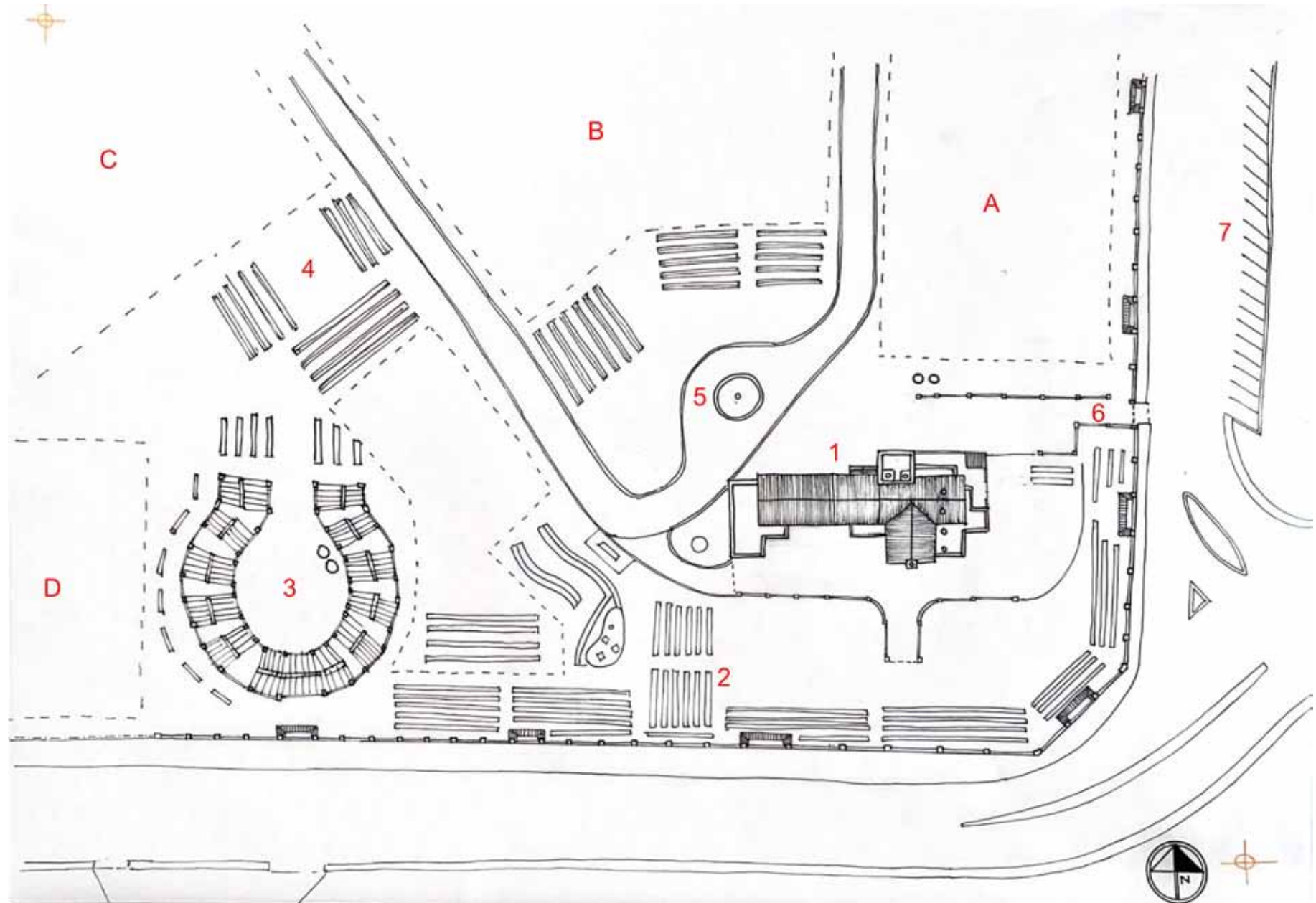


Figure 40: Sketch plan of the Crematorium Surrounds indicating columbarial plots and burial plots. 1- The Existing Crematorium, 2- The latest columbarial plots comprise short face brick cavity walls in the landscape, 3- Existing Pergola Columbarium (In a ruinous state), 4- Northern most columbarial plots, 5- Jewish columbarial plots and tree of remembrance in traffic circle, 6- old arched pedestrian gate to from Grave Street, 7- parking along Grave Street. A- Johannesburg Founders Plot, B- Rand Lords Plot EAST, C- Rand Lords Plot WEST, D- Catholic Diocese of Johannesburg Plot.

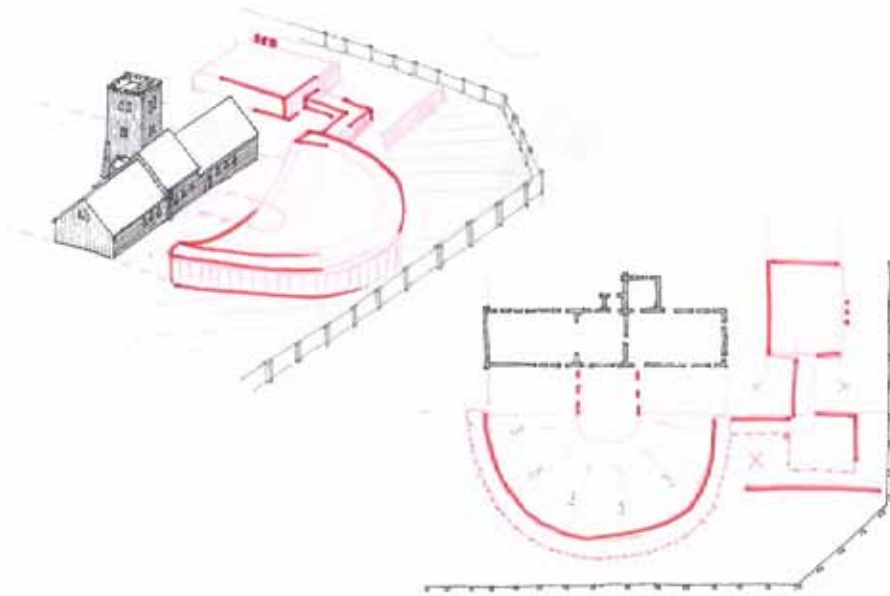


Figure 41: Intuitive concept exploration one, 2022, Alexey Rodokanakis

The plan explorations provided a necessary means of thinking about the spatial implications of ritual circumambulation around focal objects as well as the notion of varied spheres of interaction outside of those directly or indirectly associated with the crematory acts themselves, namely the mourners and the staff. These additional realms were founded upon the idea that the site has underutilised heritage tourism potential. It is worth noting that not every person interested in heritage architecture and the history of Johannesburg would bring themselves to visit a crematorium, but there remains the potential of the inquisitive few. Providing a curated experience of what the site has to offer as well as permitting a journey through the ritual spaces in a respectful and unifying way became a necessary inclusion to the programme of the proposed extensions (Fig 54,55,56).

The individual ritual component spaces were themselves iterated on. Both the Columbarium and presentation room/pavilion emerged from a number of explorations, not least of which was their proximity and connection to the existing heritage in the form of the crematorium.

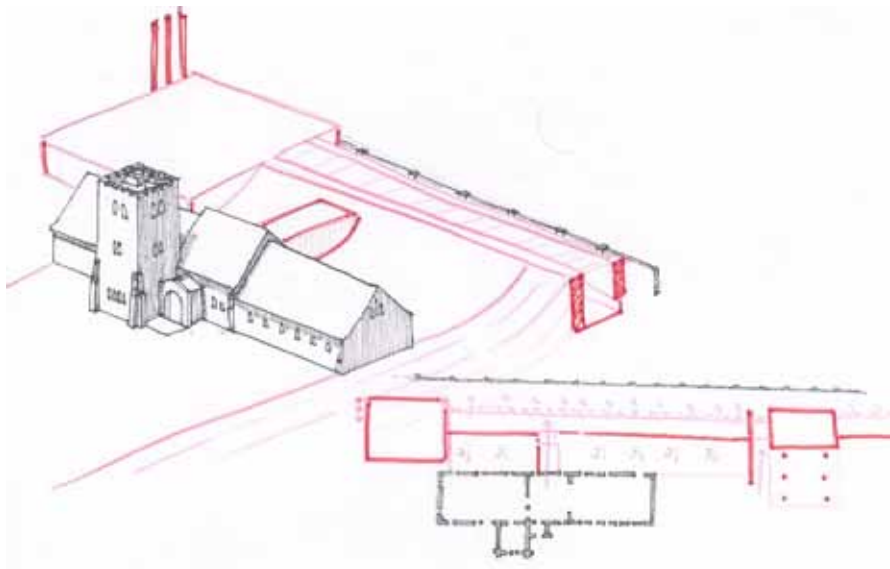


Figure 42: Intuitive concept exploration two, 2022, Alexey Rodokanakis

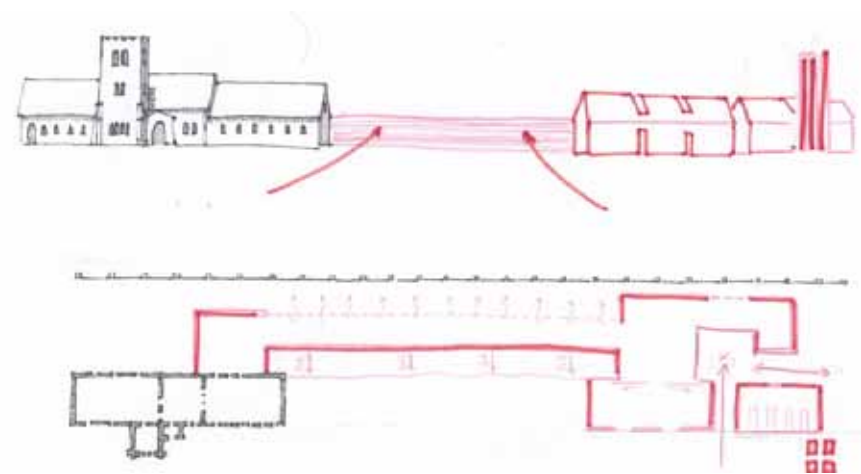


Figure 43: Intuitive concept exploration three, the chosen starting point, 2022, Alexey Rodokanakis



Figure 44: Initial layout exploration concerning existing axes, 2022, Alexey Rodokanakis



Figure 45: Exploration of different loci of ritual engagement, 2022, Alexey Rodokanakis

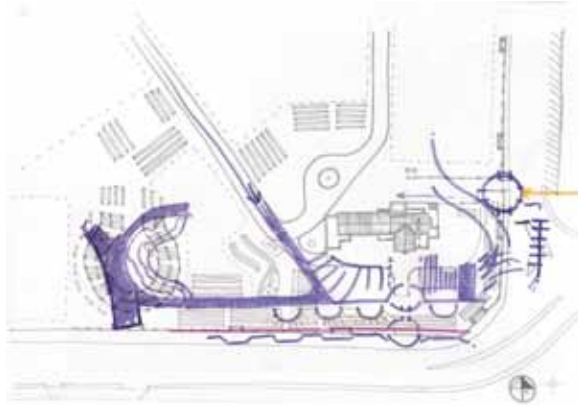


Figure 46: Merging the ritual and the axial, one, 2022, Alexey Rodokanakis

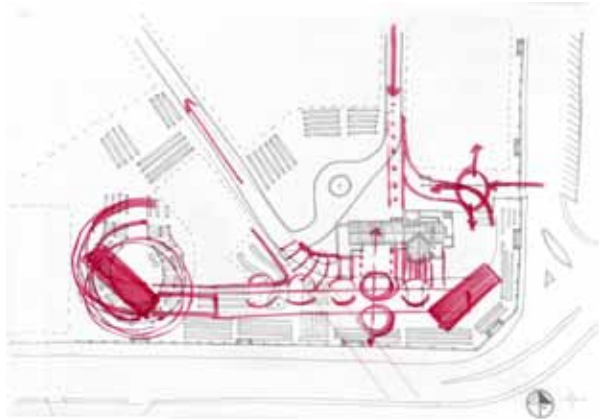


Figure 47: The fourth iteration, involved coming to terms with the east and west terminating programmes of administration (east) and Reception (west), 2022, Alexey Rodokanakis

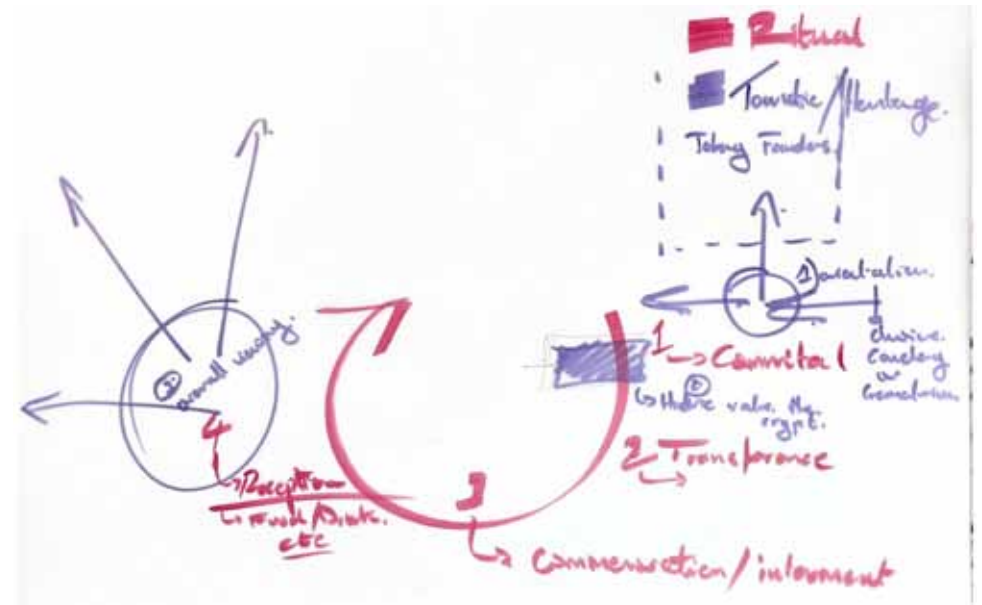


Figure 48: coming to terms with two potential realms of interest in the site, ritual participants (Magenta) and heritage tourists (Purple), each group would experience the sight differently and would have to have their needs met differently - where are the overlaps? 2022, Alexey Rodokanakis

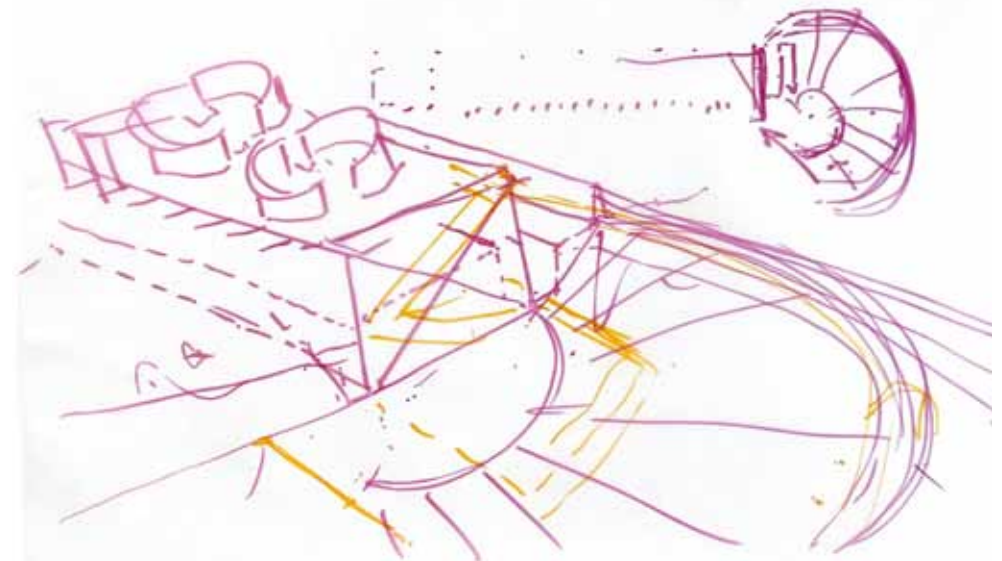


Figure 49: Perspectival explorations of western columbarium terminations. The potentialities of an amphitheatre to ground and link the structure to the rest of the site became apparent. 2022, Alexey Rodokanakis

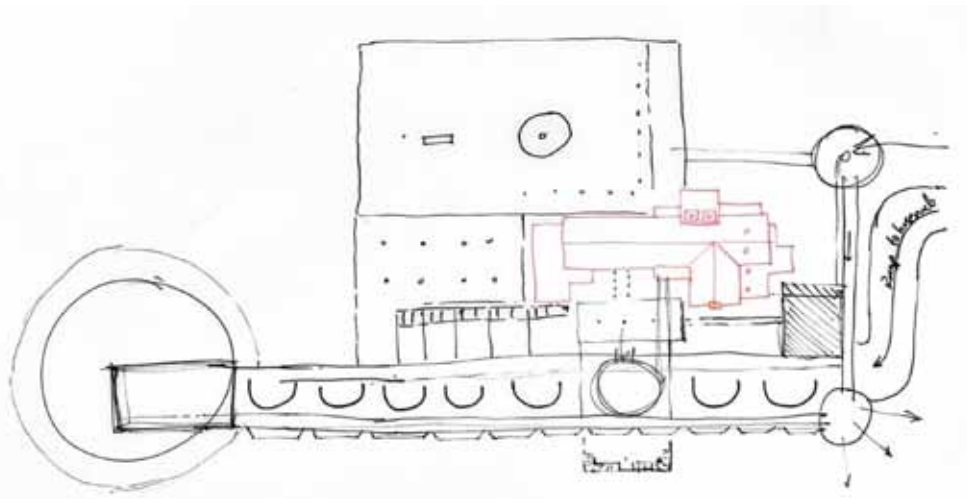


Figure 50: First attempt at amalgamating the various conceptual components in a sequence that reflects the circulatory requirements of the three realms of participants as well as the proximity of the exiting heritage on the site, 2022, Alexey Rodokanakis

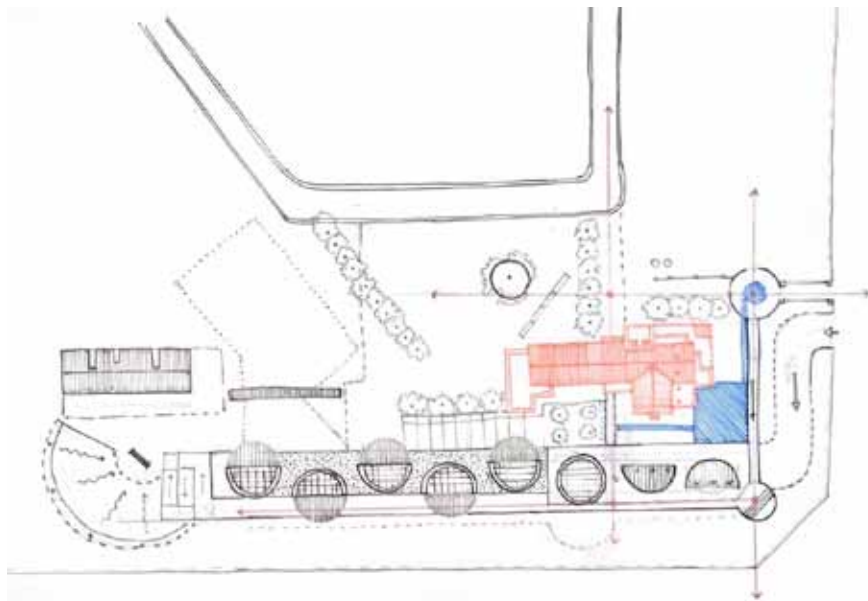


Figure 51: Distilled conceptual site plan showing the grouping of all of the ritual spaces as well as an early interpretation of roof level circulation and roofing structures, 2022, Alexey Rodokanakis

The presentation space is without discernible direct precedent therefore its generation was largely defined by metaphoric abstraction and imbedding notions of seclusion and protection. It became a space defined by selective access whilst retaining its centrality within the scheme as the locus of the core ritual - the presentation of the ashes of the dead to the close family. The space itself sits at ground level and is based on the notion of an urn within a loculus. The abstraction of these forms yielding a space which optimises circumambulation around the presented urn atop a plinth whilst remaining private and enclosed. Every movement in and out of the space is left entirely to the preparedness of the mourners within. (Figures 54, 55 and 56)

The Columbarium on the other hand has many centuries of precedent to work from. It is in its simplest form a wall with cavities made to receive a box or small container, and then be sealed off. There was an opportunity to subvert this notion which historically would also result in it being cellar like and buried. Instead, the question that drove its iteration within the scheme was that of highlighting a columbarium's function as an atemporal form of monumentalising storage for the dead. Varying levels of transparency, access and highly curated exposure to direct northern light as a kinematic expression of the passage of time were all factors needing to be considered.

The progression of spaces themselves (both existing and new) directly follows the crematory ritual progression whilst allowing for participants to break away from the prescribed linearity at a number of points for the purpose of contemplation and reflection. (Figures 57 to 66) Whilst these breakaway spaces highlight points of transition between ritual acts and form both part

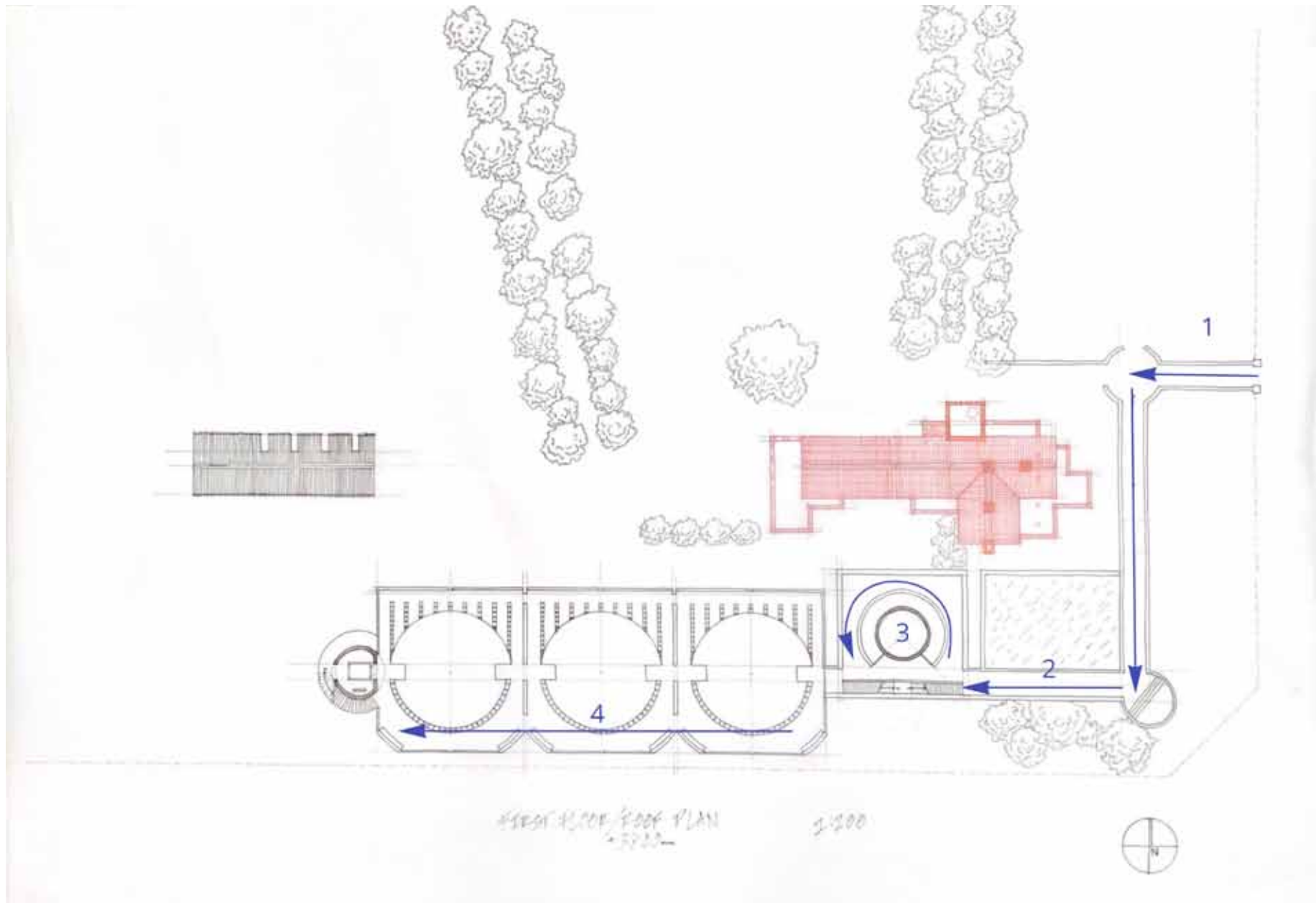


Figure 54: Roof Plan showing the realm of the heritage tourist. Their Journey begins with entrance form the old pedestrian gate on Grave Street (1), they slowly ascend a ramp culminating in a broad view of the Johannesburg Skyline to the South and passing west onto a curated walk viewing the history of the city of Johannesburg (2), they then encircle the turret of the presentation room where diagrams of the process of cremation are present for their edification (3), finally they descend again through the columbaria to explore the rest of the cemetery site (4), 2022

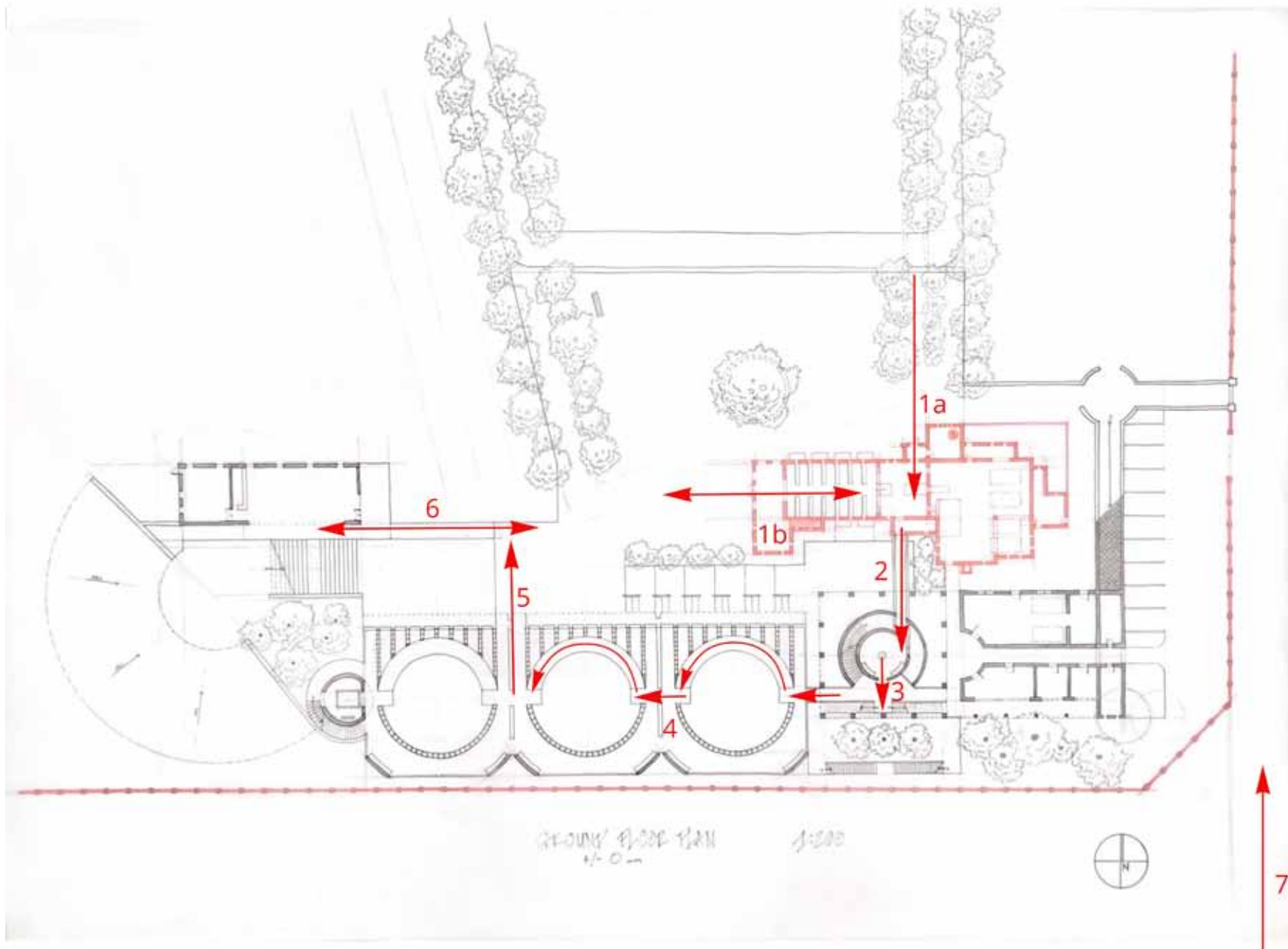


Figure 55: Ground Floor Sketch Plan Showing the Circulatory Realm of the Mourner. 1a - the close family enter through the vestry, 1b- the rest of the congregation enter through the western chapel doors, 2- after committal the close family exit the chapel across a bridge toward the Presentation Pavilion, 3- once the ashes have been presented the family chose to exit the room onto a viewing platform with multiple circulatory routs should they wish to exit the ritual, 4- they process through the Columbarium toward their designated Loculus, 5- they exit the columbarium onto the plaza, 6- the family reunite with friends in the reception hall, 2022

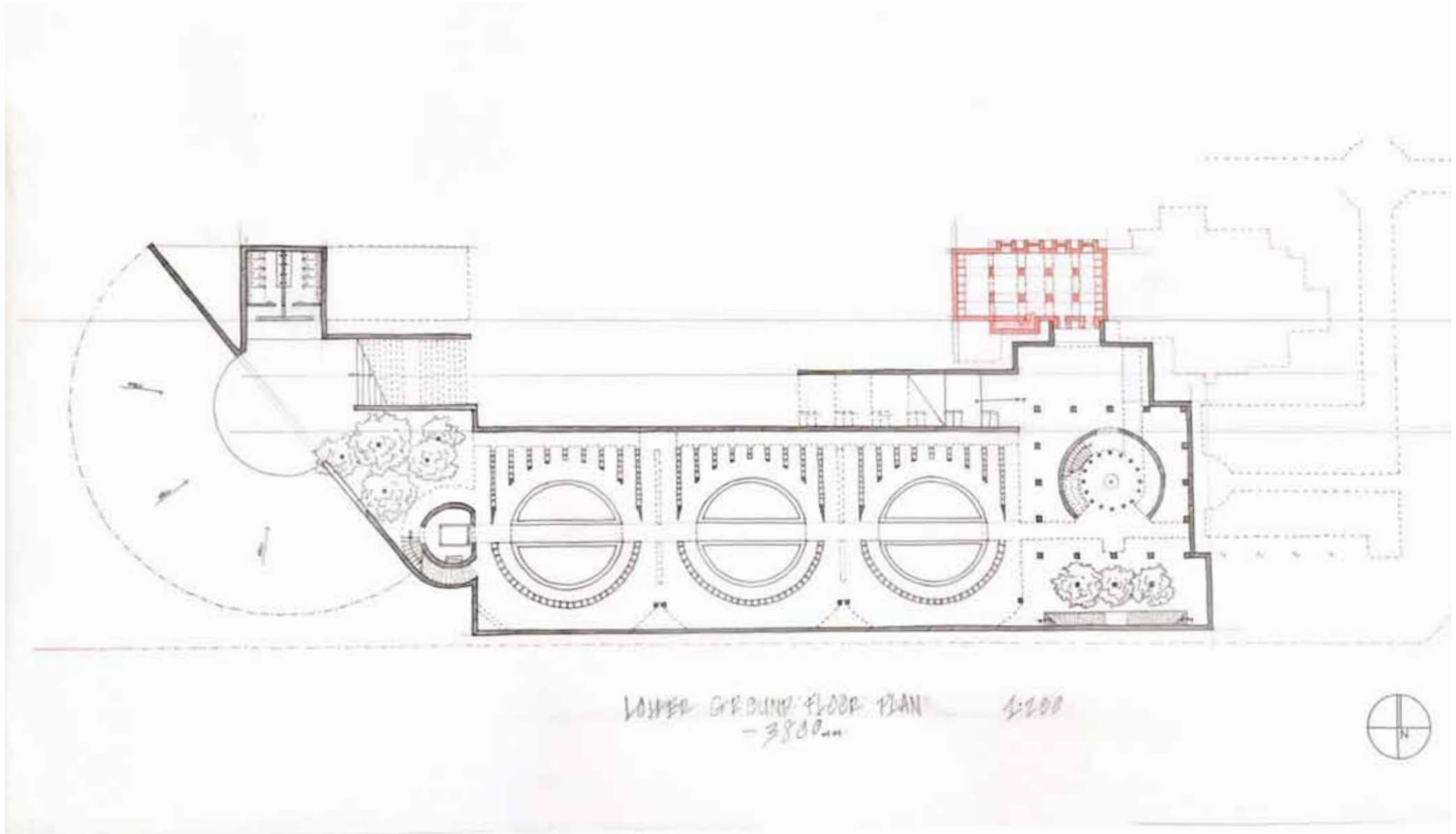


Figure 56: Lower ground level Sketch plan showing additional columbarium space as well as bathrooms, the amphitheatre, the memorial enclosure under the presentation room and the exiting crypt with new entrance (in red), 2022



Figure 57: Committal, interior of the existing crematorium chapel, looking west toward the culmination of the ritual progression, 2022, Alexey Rodokanakis

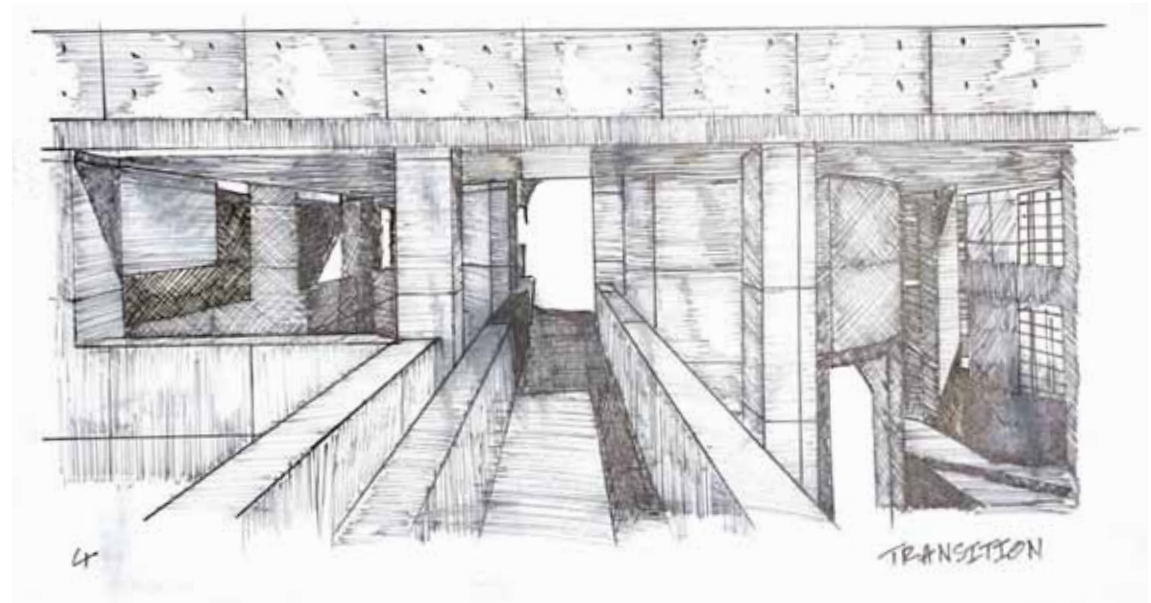


Figure 58: The Transitional Bridge toward the presentation of the ashes, 2022, Alexey Rodokanakis

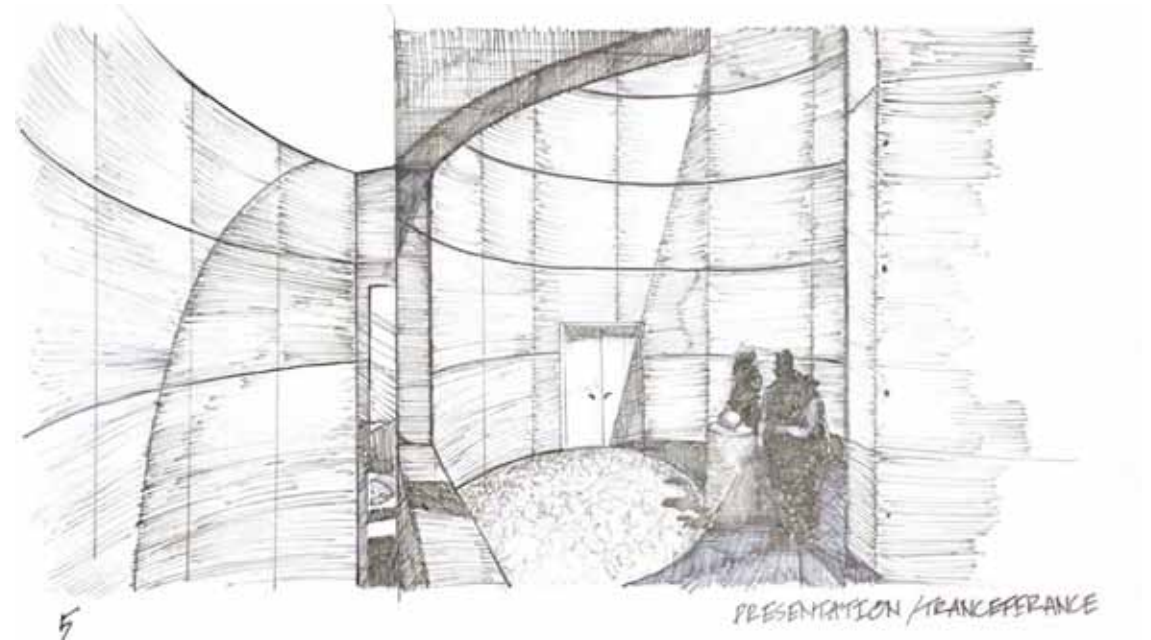


Figure 59: The Presentation, the first instance of physically encountering the transfigured remains of a loved one, 2022, Alexey Rodokanakis

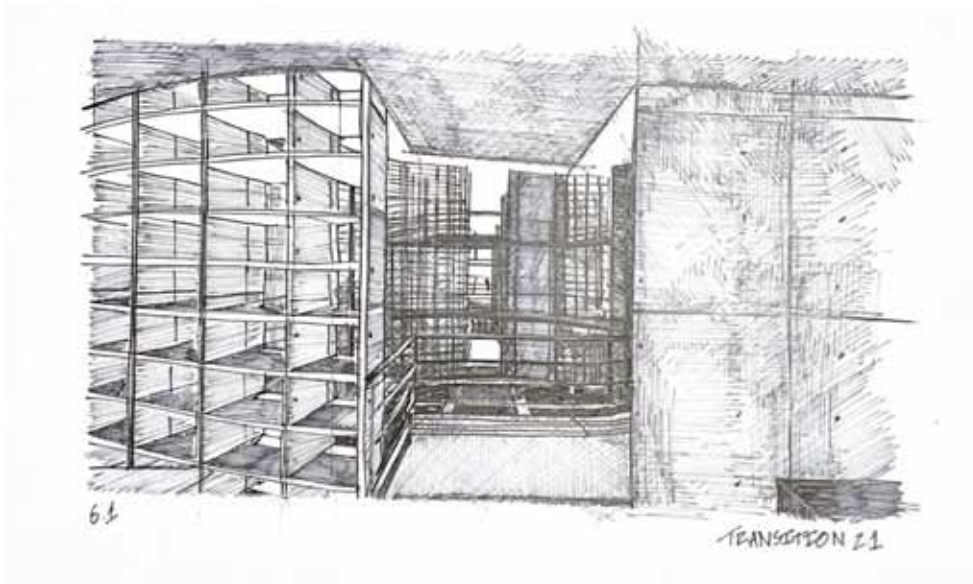


Figure 60: Approaching the Columbarium, the volume is seemingly restricted on approach (Upper Level), 2022, Alexey Rodokanakis

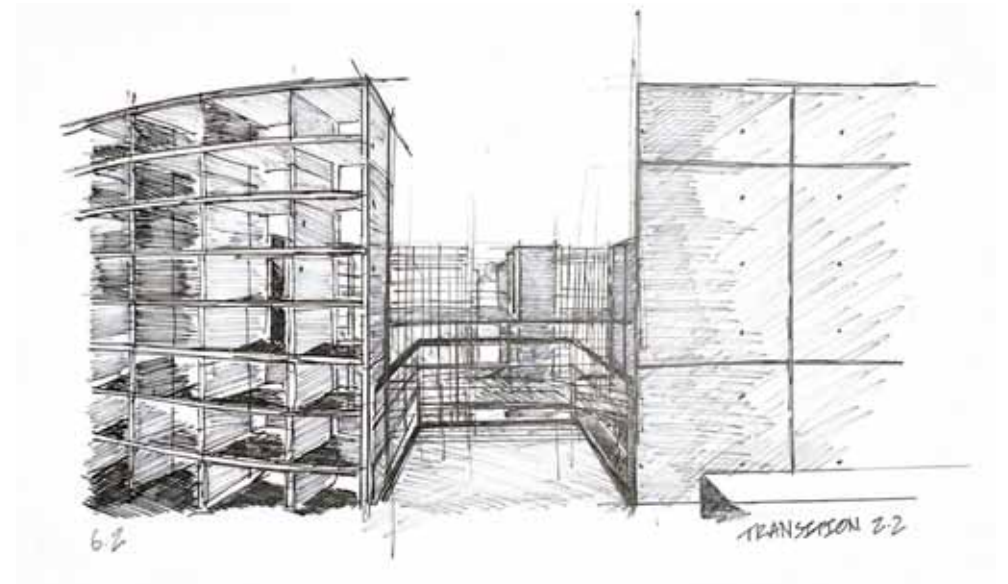


Figure 61: Approaching the Columbarium, the volume is seemingly restricted on approach (Lower Level), 2022, Alexey Rodokanakis



Figure 62: Instatement, once inside the Columbarium the space opens up and the vault of the sky is patently apparent, the ashes are now placed within their Loculus, 2022, Alexey Rodokanakis



Figure 63: *The Touristic Realm, Arrival*, a view of the sunken columbaria is only just visible, no structure protrudes above the existing chapel it remains the focus on approach, 2022, Alexey Rodokanakis

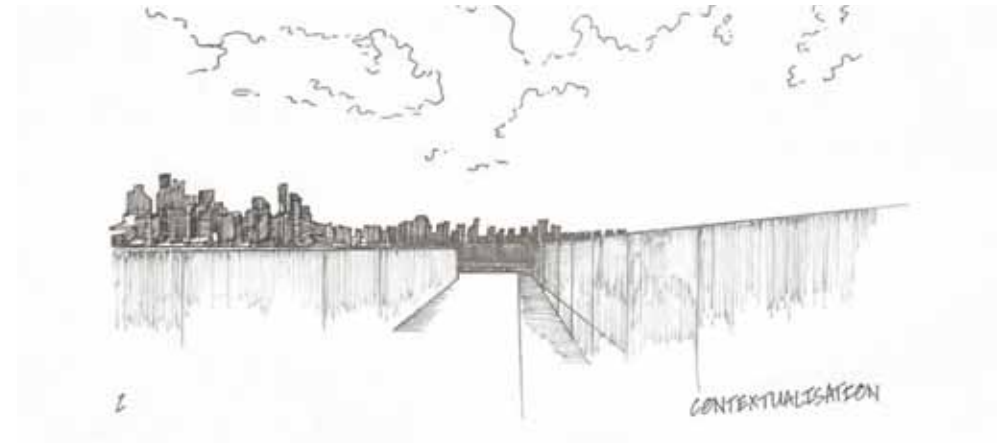


Figure 64: *The Heritage Tourist*, ascends the gradual ramp to contextualise themselves within the greater city scape with a view of the skyline, 2022, Alexey Rodokanakis

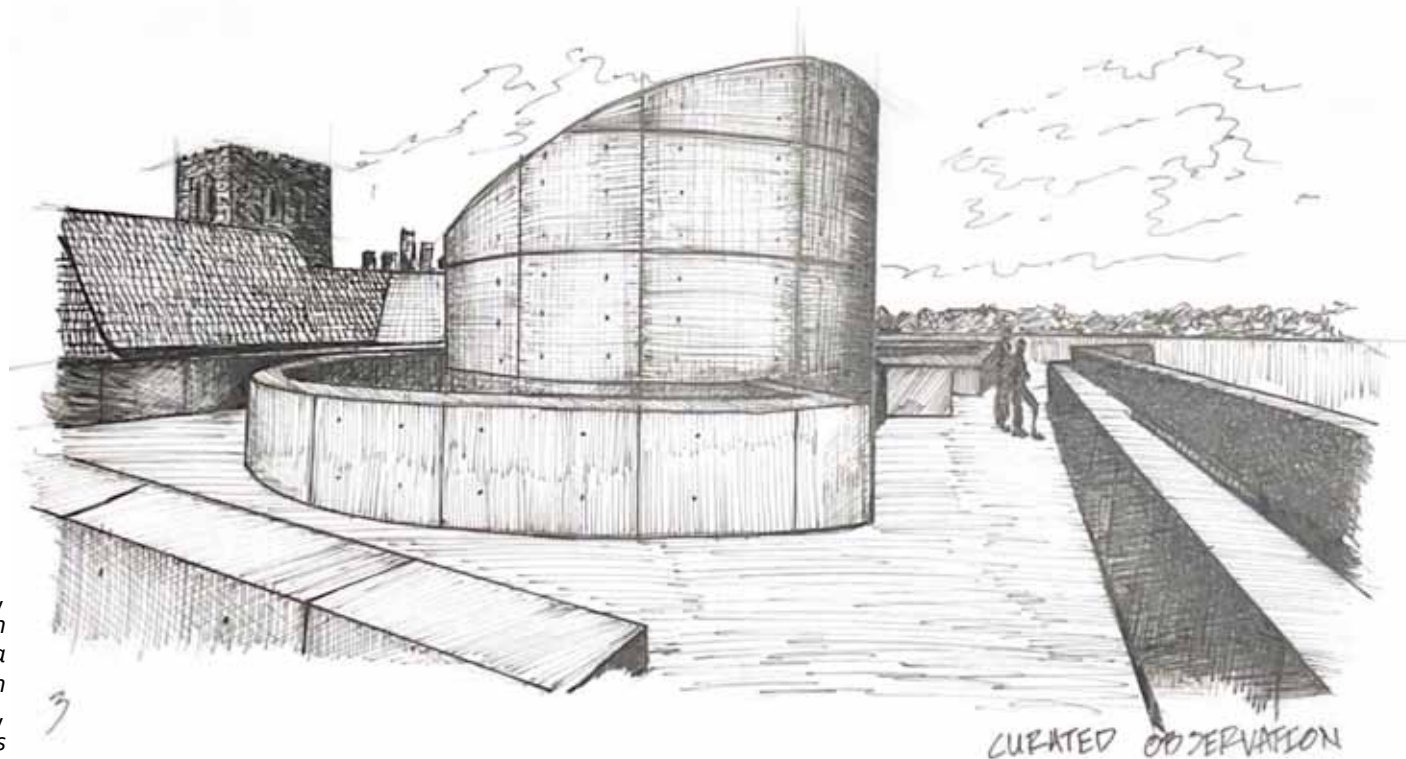


Figure 65: *The Heritage Tourist*, contextualise themselves within the greater city scape with a view of the skyline to the south and the Chapel to the north, 2022, Alexey Rodokanakis



CONCLUSION

A site with the level of complexity of Braamfontein Cemetery and a building with as much heritage value as the Braamfontein Crematorium require a deeply considered approach to both their analysis as well as any attempt to augment them or make additions to them. By blending historic, spatial, typological and observational analysis with a dense yet highly sensitive philosophical paradigm such as applied hermeneutical analysis, a far deeper understanding of significance is reached. An understanding of where spatial ritual lies, and how patterns of interaction with objects, people and space generate meaning for participants. The next essay will synthesise the cumulous and explorative aspects of the design thus far into both a system and form which may come to represent a unique approach to crematorium and memorial architecture.

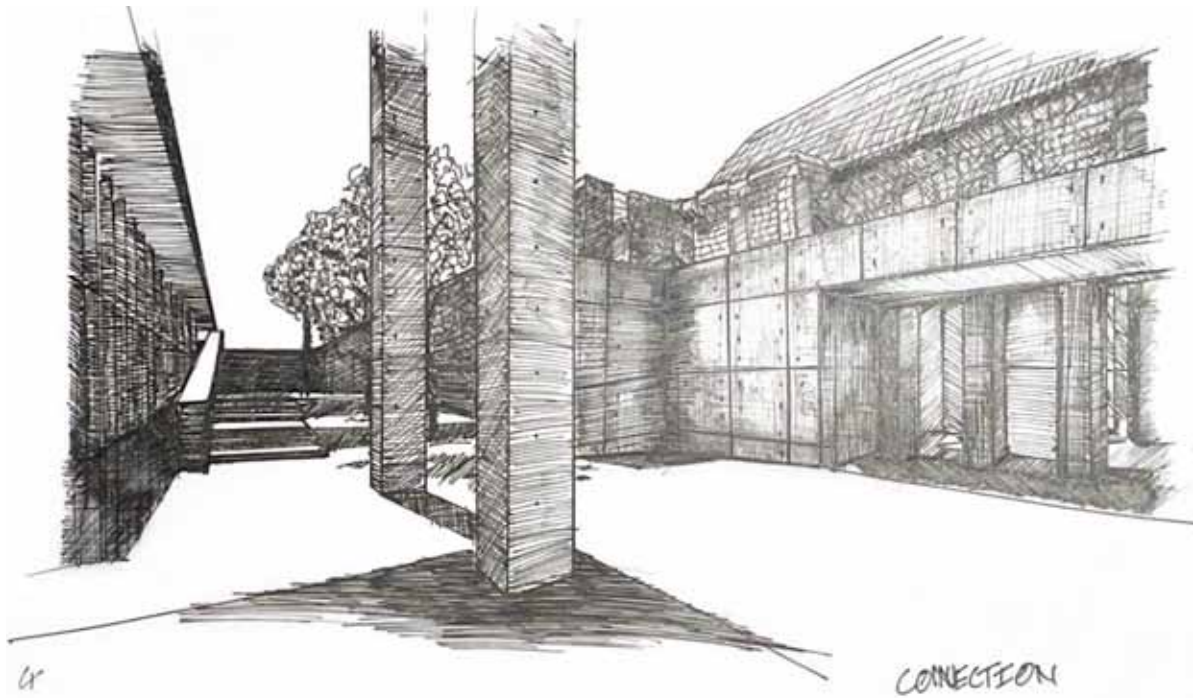


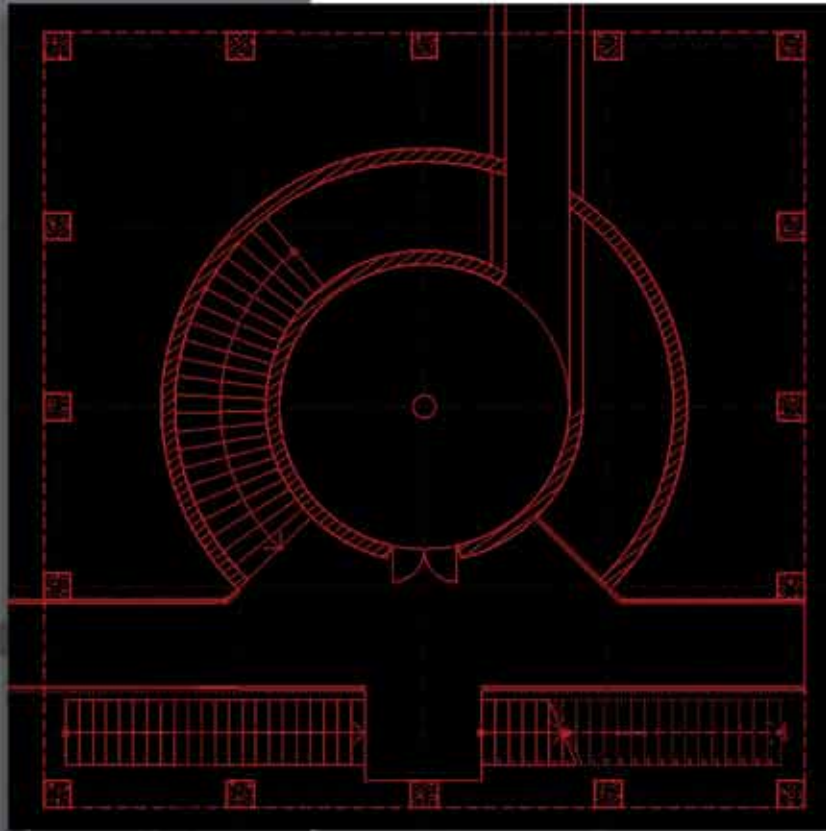
Figure 66: The Lower Ground Floor as seen from underneath the presentation pavilion, a view to the new entrance to the crypt on the right and stairs ascending to the plaza directly ahead, 2022, Alexey Rodokanakis

Figure 67: Etching of an ancient Roman columbarium by Bernini, 2022, [online]





TECHNICAL SYNTHESIS



SYNTHESIS

No physical structure can ever be everlasting or immune to the passage of time” (Franck, 2016:9), though processes which vary materiality can be effective in subtly negotiating the manner in which buildings age, choreographing form and function over time as aspects of structure degrade naturally, and programmes shift from active use to monumentalisation.

“Architects generally do not love that part of life that resembles death: decaying constructions – the dissolving traces that time leaves on buildings – are incompatible with both the ideology of modernity and what might be called conceptual aesthetics” (Tschumi, 1076/2001:74). Regardless of the association made in this statement by Bernard Tschumi with contemporary perceptions of architectural decay, within the scheme of my dissertation an almost literal fixation on death and its denotative and connotative associations within architecture, necessitated the deliberate incorporation of factors that allow a user to directly draw associations with the building and the passage of time. This layering, in addition to the object ritualism as discussed in the previous essay, incorporates a deeper more indirect interaction with the space, in which a broader scope of decay highlights the transitory nature of every factor of existence to an ultimately uncontrolled and chaotic state. Everything must change and every living thing must die. Whilst this highly philosophical assertion may be imbedded into built architecture in a number of ways, I feel that there is a unique potential in using highly contrasting materiality based on varying material longevity and structural permanence to create the desired effect.



Figure 68: Rendered perspective showing view from helix walkway into the eternal flame courtyard.

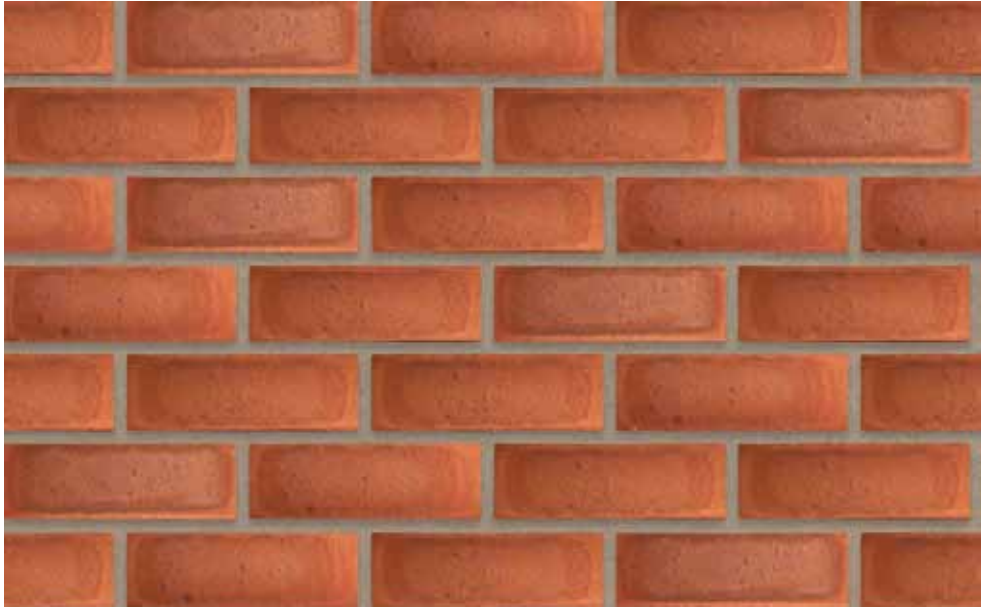
MATERIALITY

Firstly, one must ask where permanence in architecture lies. Here I focus on the literal notion of permanence rather than the notion of timeless design, therefore “central to [this] idea of timelessness... is the actual, or perceived, condition of permanence fulfilled both by the extended duration of an apparently unchanging building and by its appearance of solidity and weightiness” (Franck, 2016:12). Franck’s statement presents the first and most ubiquitous facet of permanence in architecture namely, immovability and the physical weight of its materials.

Stone, as utilized in many of the worlds most revered ancient monuments, logically presents the first option for creating an immutable structure. There does exist precedent on the Braamfontein cemetery site as to the use of stone, most notably in tomb stones but also in the numerous buildings scattered around the cemetery park, though on closer inspection this is purely aesthetic, used as a thick layer of cladding around core structure as is the case with the crematorium chapel and the columbarium wall (Figure 68). These structures are in fact primarily constructed using clay brick. Brick therefore, as a uniform emulation of stone, presents another option and whilst I do use it within my scheme, its nature as a unitary building medium interrupts a sense of the imposing monolithic that lies at the core of my conception of the new forms. I have instead used it to effectively create the structural backing of the columbaria that are situated along the retaining walls of the lower ground floor and as cladding along the same walls, echoing - at a smaller scale - the repetition of the Loculi (Figure 69). Concrete on the other hand is the ultimate facsimile of stone it is as Cohen et al put it: “liquid stone” - the form maker (2006: 1-21). In a scheme where form is so prevalent a factor in establishing ritual association and participation, the dual flexibility and rigidity of reinforced concrete seems most apt. In selecting concrete as a structural and aesthetic medium to imbue a sense of permanence, a systematic analysis of the literal longevity of the material itself is necessary.

Within the context of The City of Johannesburg a number of unique environmental conditions exist that greatly effect the longevity of concrete and therefore should be considered when specifying any concrete structure. The unique combination of rainfall and carboniferous air pollution produces heightened corrosive conditions when it comes to cementitious composite materials. In a widely cited study conducted by researchers at the University of Johannesburg in 2020, the effects of acidic carbonization due to rainfall in Johannesburg was analysed on different grades of concrete. In conclusion it was deemed that a 60/35 Portland Cement ratio mixture was by far the highest performing ratio in ensuring the longevity of a cast in-situ or precast concrete structure within Johannesburg’s Local conditions as it greatly mitigated water ingress and reduced the carbonizing/ corrosive effect on the concrete itself and significantly increased its projected lifespan as a measure of erosive degradation. In addition, statistical projections suggested an estimated period of over 100 years before rainwater ingress began producing even minimal antagonistic effects in such a structure as above (Ekolu, 2020). In addition to the aforementioned, Loughran (2007) suggests that the addition of epoxying or crystalizing admixtures - such as PENETRON™ - to the concrete mixture itself could greatly mitigate any additional hydrological ingress into the cast structure which would otherwise slowly begin to compromise the steel reinforcing within it. All the above suggest that despite the significant challenges related to concrete as material, not least of which is its environmental impact, in terms of the proposed scheme at the centre of this dissertation there are ways and means of ensuring that concrete fulfils its role as being a truly steadfast material potentially spanning many centuries and securing the immutable requirements of housing the monumentalized dead. What becomes less certain is the ability of a structural material to portray ephemerality or the fleeting nature of life itself, for this steel presented a unique opportunity.

Figure 69: Material palette showing satin-red Corobrik facebrick , exposed timbre shuttered concrete and galvanised steel.



Quick assembly allowing for demountability, reuse or recycling make steel uniquely capable of responding to spectrums of permanence within built structures (Meyer Boake, 2012: 230-231). There is a relativistic correlation being made here between the durability of steel and the durability of concrete. There is no doubt that certain surface treatments of steel will prolong its durability in terms of corrosion, most notably through galvanisation, powder coating or CorTen. However, the notion of its physical durability is less important than its removability. A columbarium is by nature a limited structure. As has been observed on the Braamfontein site, once these structures are full, they often become neglected spaces. However, as the new columbarial part of this scheme is not only at ground level the access platforms present a unique opportunity to choreograph accessibility with time. The key notion being that as decades or even centuries pass and the columbarium fills up, platforms can be disassembled and potentially sold as part of revenue generating streams for the maintenance of the other ancillary scheme components. This would leave behind only the concrete columbarium cores, standing like stark henges as monuments to the (eventually) largely forgotten dead. There is always the chance that after a number of centuries there may be heritage or genealogical interest in accessing or finding a specific loculus, but this could easily be achieved through the inclusion of scissor lifts as part of the necessary maintenance equipment for the new scheme.

Articulating this unique connection between the permanent concrete columbarium and the removable steel walkways was a unique challenge, made more complex by the parameters laid out, in the second essay, of ritual circulation routes. Once ritual participants exit the concrete and brick presentation pavilion (the ceramic nature of brick linking the permanence of stone to the crematorial parameter of extreme heat), they have the choice to exit the site or move onto a columbarium. If the choice is made

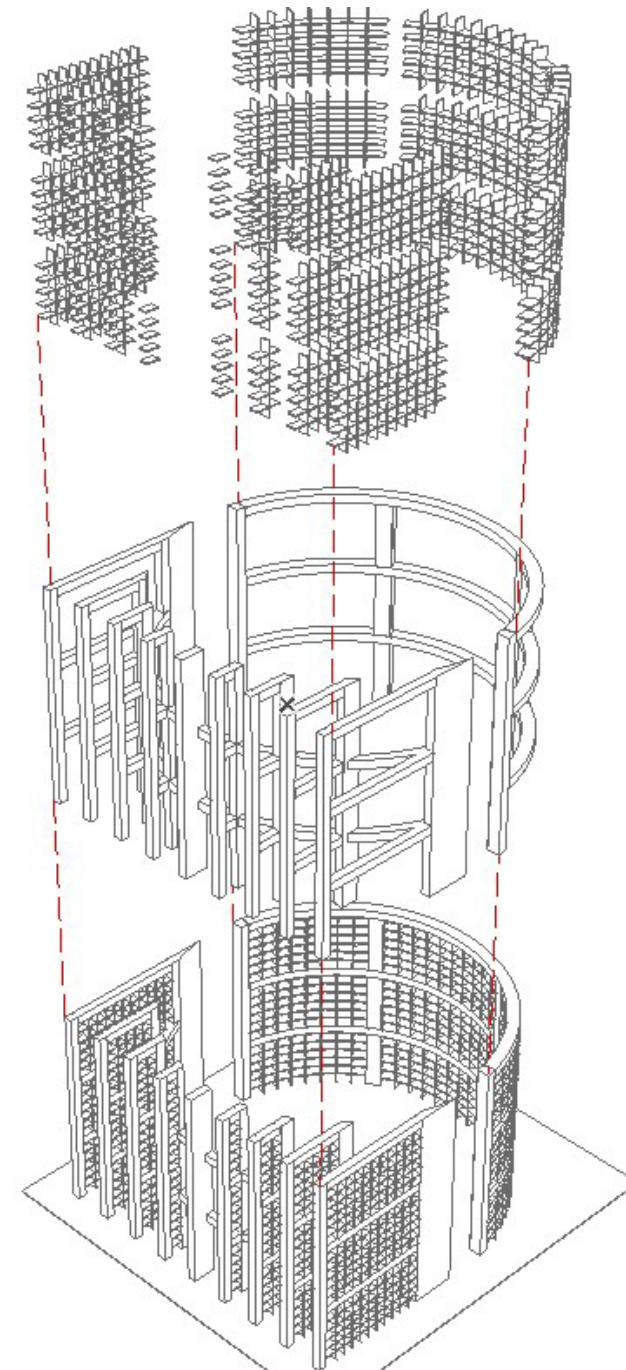


Figure 70: Exploded axonometric view showing columbarial structure without walkways comprising concrete superstructure and aluminium substructure.



Figure 71: Rendered perspective showing differing materiality within columbarium two including the shuttered concrete columbarium walls and the shutter excavated central planter and water feature.

Direct surface interactions were also an important consideration. Softening the coldness of steel with LunaWood timber decking and handrails both acts to reduce the sounds of participants processing from one ritual stage to the next as well as provide a comparatively warm material with which to interact. Its fixing still permits it to be disassembled along with the steel when the time arises. The same is true for the Loculus panels, which enclose the individual cavities and provide a surface on which to place a plaque. After some consideration there were three major factors to play a part in this component. The first being: will participants close off their own loculi? The second being: can the loculus enclosure be subtly customisable as a means of creating a more personal space? And the third: how can a wall comprising loculi produce a feeling of spatial ephemerality whilst retaining its solidity?

A solution to all three of these questions was found in the form of Litracon Pxl concrete panels (Figure 72). Litracon Pxl is a lightweight cement composite panel that can be both cut and manufactured to size. It incorporates glass or acrylic rods into the depth of the panel to create a semi-transparent almost pixelated effect of any object sitting behind it. As the columbarium walls within the new scheme are orientated to take advantage of northern light, the effect that these panels would create in a full columbarium is that of individual, only vaguely discernible, pixelated silhouettes of urns along the length of the structure engendering it with an uncanny lightness.



Figure 72: Litracon pXL a unique cementitious composite panel that provides partial transparency through imbedded glass rods.

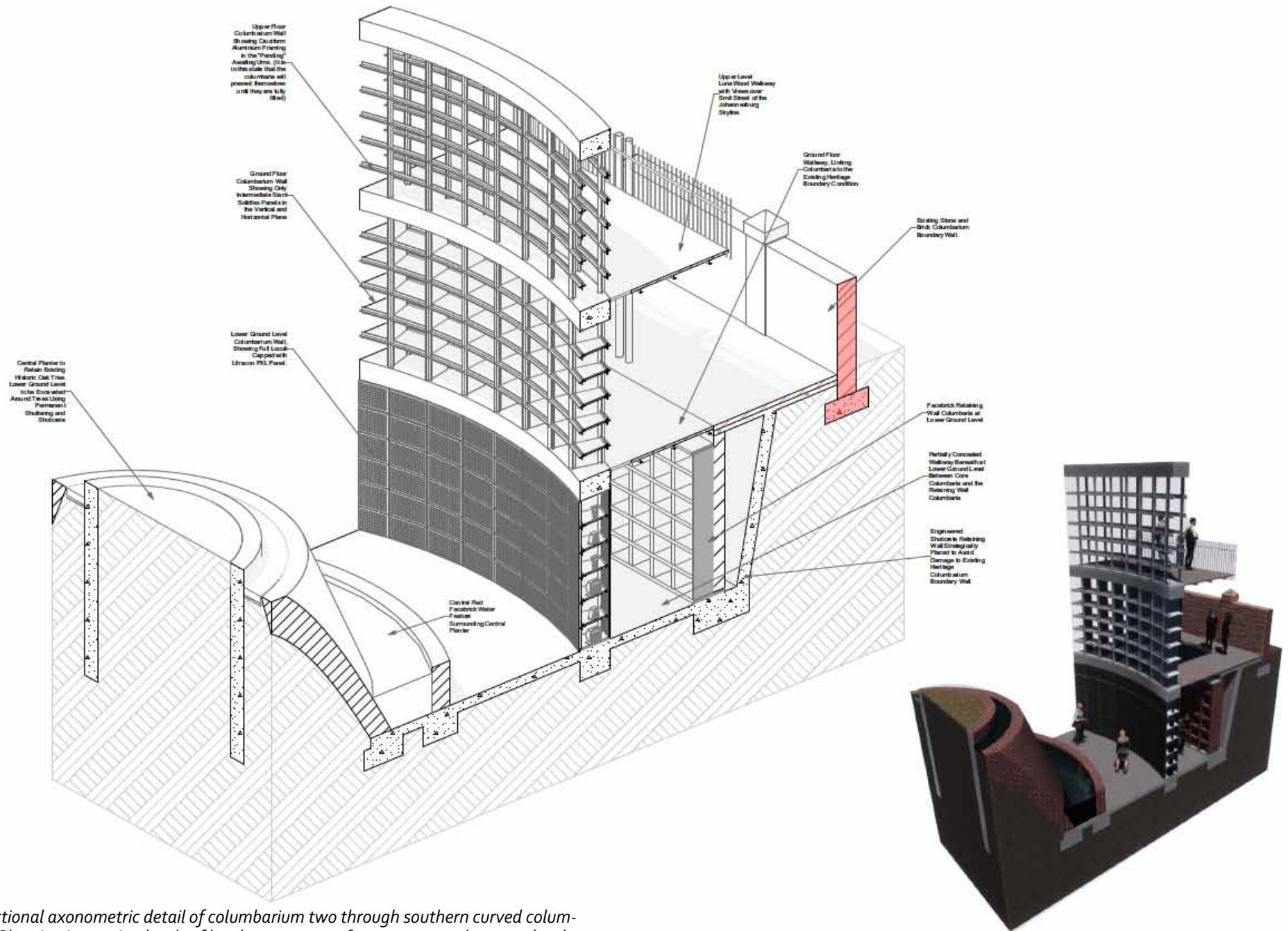
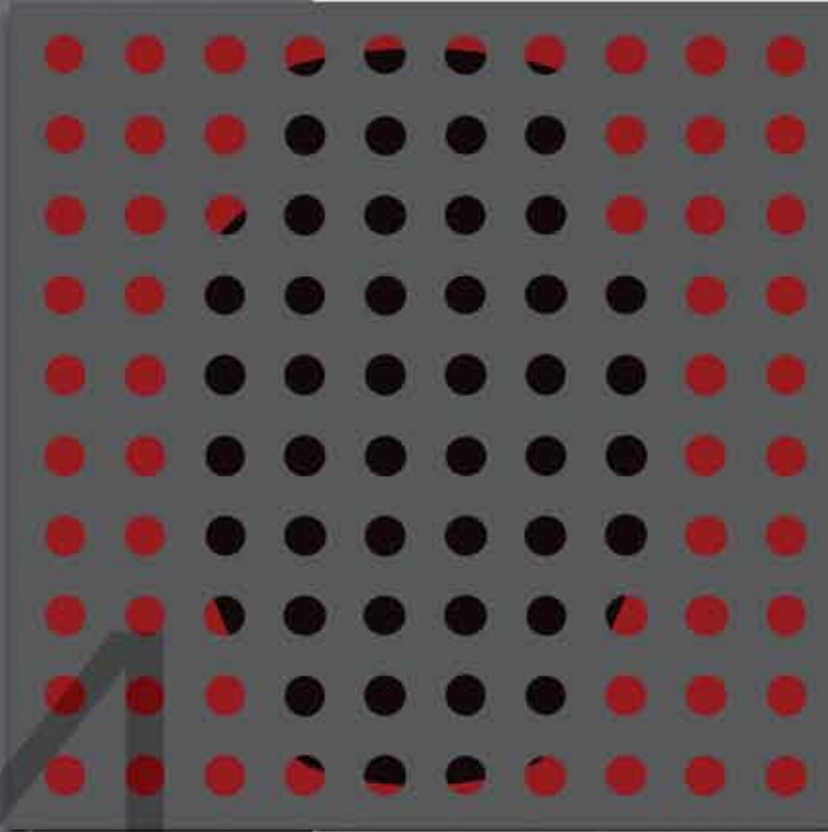


Figure 73: Sectional axonometric detail of columbarium two through southern curved columbarium wall. Showing increasing levels of loculus occupancy from empty on the upper level to full on the lower ground level.



TECHNICAL SYNTHESIS



The Braamfontein Crematorium is a unique site with a unique heritage, any approach taken to additions on the site should be a process of weighing benefit against loss both of cultural and aesthetic heritage and of spatial quality. The introduction to the site of elaborated programmes of ritual, articulated with considered uses of materials that heighten the ritual experience, as well as promote integration with the greater site are paramount. In addition, the augmenting of the existing infrastructure to prolong the functional longevity of the crematorium and its surrounds ensures that, as a heritage space, it remains pragmatically relevant as a civic resource for the greater City of Johannesburg. And with the aid of analysis tools such as IESve and SBAT the functional parameters of the space can be optimised not just in terms of productivity but in terms of environmental sustainability as well.



TRANSFORMATIVES



AQUAMATION

Among the core pragmatic considerations of this project, perhaps the most pressing was that of augmenting and expanding the crematoriums capabilities in order to deal with the excessive need within the greater City of Johannesburg Region. Whilst the upgrading of the coal fired cremators in 2011 to reticulated gas furnaces did much to improve the operating capacity of the crematorium, Covid-19 produced a spike in the number of daily cremations that not even these relatively modern facilities could cope with. Rather than adding additional fossil fuel burning furnaces to the programme, other more environmentally sustainable options were sought. The most promising of these was Aquamation.

Aquamation or Alkaline Hydrolysis, as it is known within scientific circles, is a process whereby "...a combination of hot water, lye, pressure and circulation [are used] to liquefy a corpse in a few hours..." leaving behind only brittle bones and metal implants (Slabbert and Labuschaigne, 2021: 361). The process itself is significantly more environmentally friendly in that it uses less energy in the form of electricity, does not require direct heating with fossil fuels and does not release hazardous by-products such as mercury, as is sometimes the case with cremation (Slabbert and Labuschaigne, 2021: 365). The end state of the body is essentially the same as that of cremation in that the bones are separated out and ground into a fine powder using a piece of equipment called a cremulator. For the purposes of maintaining the core ritual the production of ashes is a necessary factor, therefore in addition to its environmental sustainability it also enables much of the historic programmes of the site to be retained and elaborated upon rather than be entirely altered. The physical spatial requirements of Aquamation tanks are very similar to that of crematory furnaces. Dimensionally they are often marketed as being a convenient retrofitting option because of this similarity. However, they do require additional ancillary spaces, namely a laboratory and chemical storage.

In incorporating two Aquamation tanks to the facility, the operational capacity is improved by a full 50% as the time taken to cremate a body is similar to that of Aquamation. This would allow the facility to cremate up to 24 bodies a day, 16 more than the facility can currently manage.



Figure 74: Alkaline Hydrolysis Tank, 2022, [online]



SBAT RATING

Analysis tools such as SBAT (Sustainable Building Assessment Tool) and IESve (Integrated Environmental Services virtual environment) provide an entirely different insight into the way in which buildings function. Whilst SBAT measures parameters such as the environmental and socioeconomic sustainability of a project based on a number of pre-set values, IESve provides far more specific analysis tools. The following is a discourse on the outcomes of these two analysis tools in relation to the Braamfontein Crematorium Project.

Figures 76 and 77 display the outcomes of the SBAT report on the extensions to the crematorium complex at Braamfontein Cemetery. The total score given for the project was 3.5 out of 5. The reasons for this are numerous however two major factors emerged as prevalent negatively skewing elements. The first of these is the fact that the project has not undergone construction. This leads many of the parameters involving equitable employment schemes, safety and security needs and work to education programmes to be omitted or assigned nil values. The second parameter is the fact that despite the total floor area of the project being well in excess of 5000sqm only just over 10 % of the total floor area is fully enclosed, leading to issues in the calculations of energy use and loss. The most interestingly positive factor to come out of the SBAT was the in-depth value perimeter analysis based in the site's location. As the Braamfontein cemetery is essentially on the cusp of the inner city of Johannesburg it is sufficiently close to a multitude of amenities, not least of which are the major public transport hubs such as metro rail stations, Gautrain stations and international bus and taxi terminals. This could significantly reduce the carbon footprints of those commuting to the site.

1.04

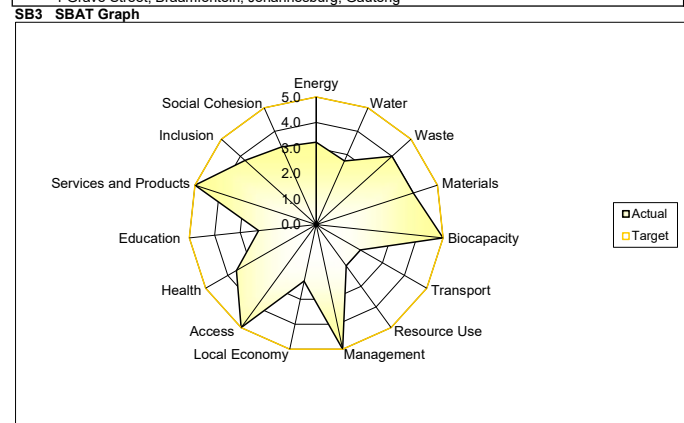
		Target	Achieved
BI	Building Information	5.0	3.5
BI 1	Building Targets	Target	Achieved
EN	Energy	5.0	3.2
WA	Water	5.0	2.7
WE	Waste	5.0	4.0
MA	Materials	5.0	4.0
BI	Biocapacity	5.0	5.0
TR	Transport	5.0	2.0
LE	Local Economy	5.0	2.3
MN	Management	5.0	5.0
RE	Resources	5.0	2.0
SP	Services and Products	5.0	5.0
AC	Access	5.0	3.6
HE	Health	5.0	2.3
ED	Education	5.0	5.0
IN	Inclusion	5.0	3.8
SC	Social Cohesion	5.0	3.3

BI 2 Priority Key (Not Performance Key)			
VH	Very High	5.0	
HI	High	4.0	
ME	Medium	3.0	
LO	Low	2.0	
VL	Very Low	1.0	
NA	None / Not Applicable	0.0	

BI 3	Project Name	
BI 4	Address	
		1 Grave Street, Braamfontein, Johannesburg, Gauteng

SB	SBAT REPORT	Achieved
		3.5

SB1	Project	Braamfontein Crematorium Extension
SB2	Address	1 Grave Street, Braamfontein, Johannesburg, Gauteng



SB4	Environmental, Social and Economic Performance	Score
	Environmental	3.8
	Economic	3.3
	Social	3.6
	SBAT Rating	3.5

SB5	EF and HDI Factors	Score
	EF Factor	3.6
	HDI Factor	3.0

SB6	Targets	Percentage
	Environmental	76
	Economic	65
	Social	72

Figure 75: SBAT parameters and report.



IESVE ANALYSIS

IESve on the other hand requires a different set of inputs. In the case of this project the aim was to attempt to chart the energy production in the form of heat from the existing gas fired cremators in order to facilitate their retrofitting with heat sinks for either heat capture and reticulation or energy generation. Currently the furnaces are what are referred to as direct off-gas combustors meaning that all of the by-products of combustion, including any additional heat are directly vented off through the stack, no attempt is made to capture the heat and very little chemical scrubbing of the vented gasses is performed.

Using data from a 2022 study completed by Jonathan Bunse at the University of Halmstad (Bunse, 2022) I modelled the heating curve of the Braamfontein Crematorium furnaces (Figure 78). The curve itself includes the heating cycle from cold which can take up to two days to complete, after which the furnaces are kept at a constant temperature between 720 °C and 600°C during operation and only cooling to cool to standby temperature of around 550°C over weekend periods when cremations are not occurring. This is generally the case throughout the year, however during the height of Covid-19 deaths the crematorium was operational for extended hours 7 days a week. Retrofitting the furnaces with heatsinks with the aim of generating energy could significantly offset the facilities electricity usage during peak hours as well as aid in heating the Aquamation tanks, thereby yielding dual benefits.

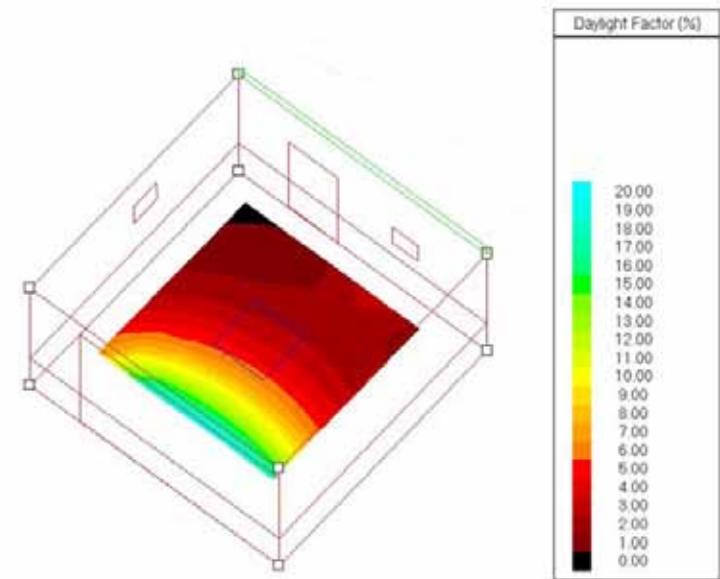


Figure 76: Daylight factor analysis of the open plan office in the administration building showing that the majority southern facing glazing provides soft lighting conditions, ideal for

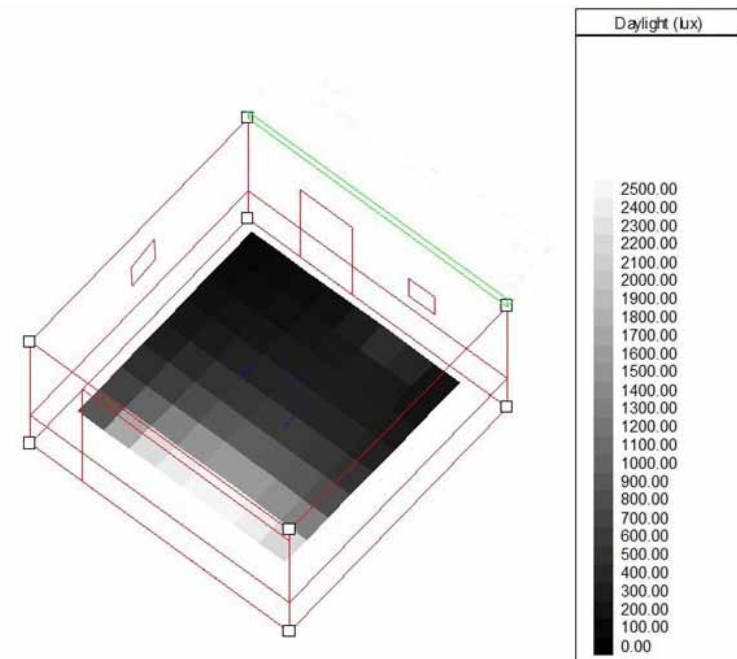


Figure 77: Luminosity diagram (LUX level) showing that the office space only receives soft lighting rather than that which would be received from northern glazing.

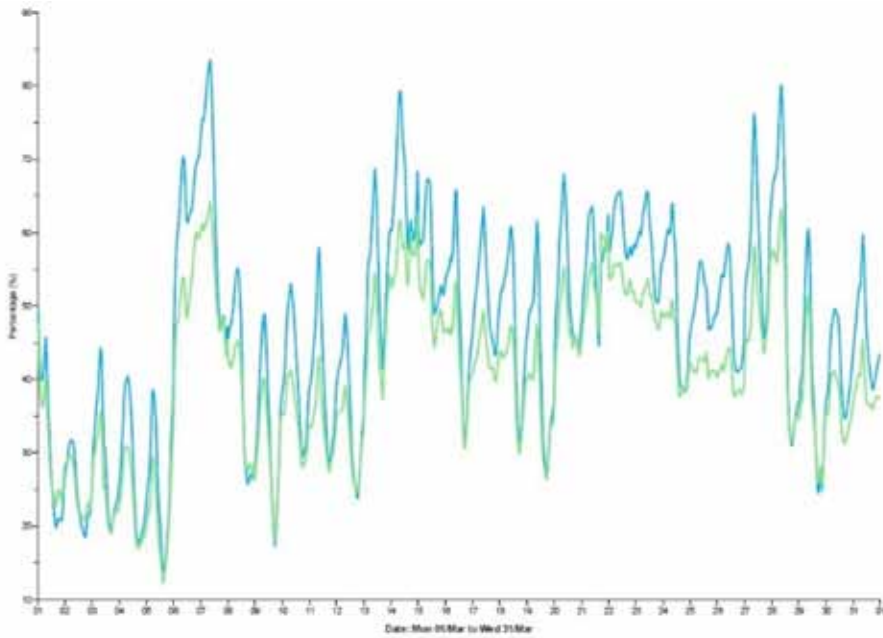


Figure 78: Relative humidity comparison; dark blue line showing initial condition, light blue line showing iterated condition after the integration of increased natural ventilation into the space.

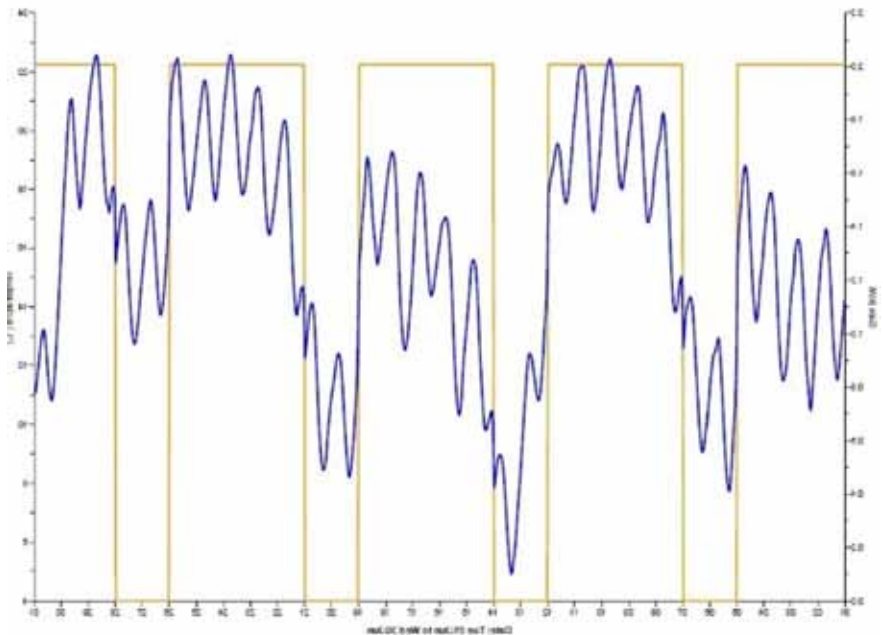


Figure 79: Equipment thermal gains (orange) and their effect on internal air temperature (blue).

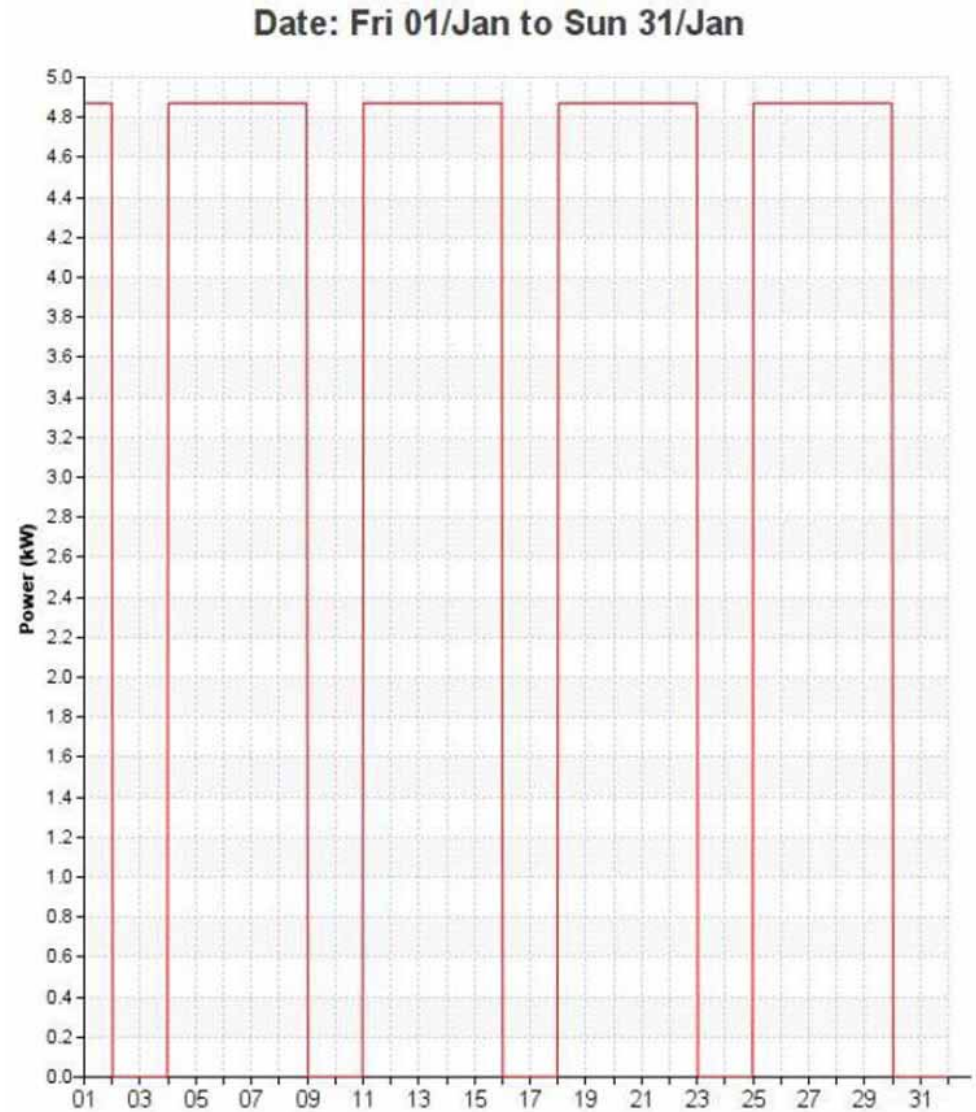


Figure 80: Total energy consumption as a product of work-week occupancy only. This results from office equipment and artificial lighting within the pen plan office space.



PROPOSED SYSTEMS



Figure 81: Section through furnace hall & bell tower suggesting new placement, within bell tower, of heat capture/energy generation systems for augmentation.

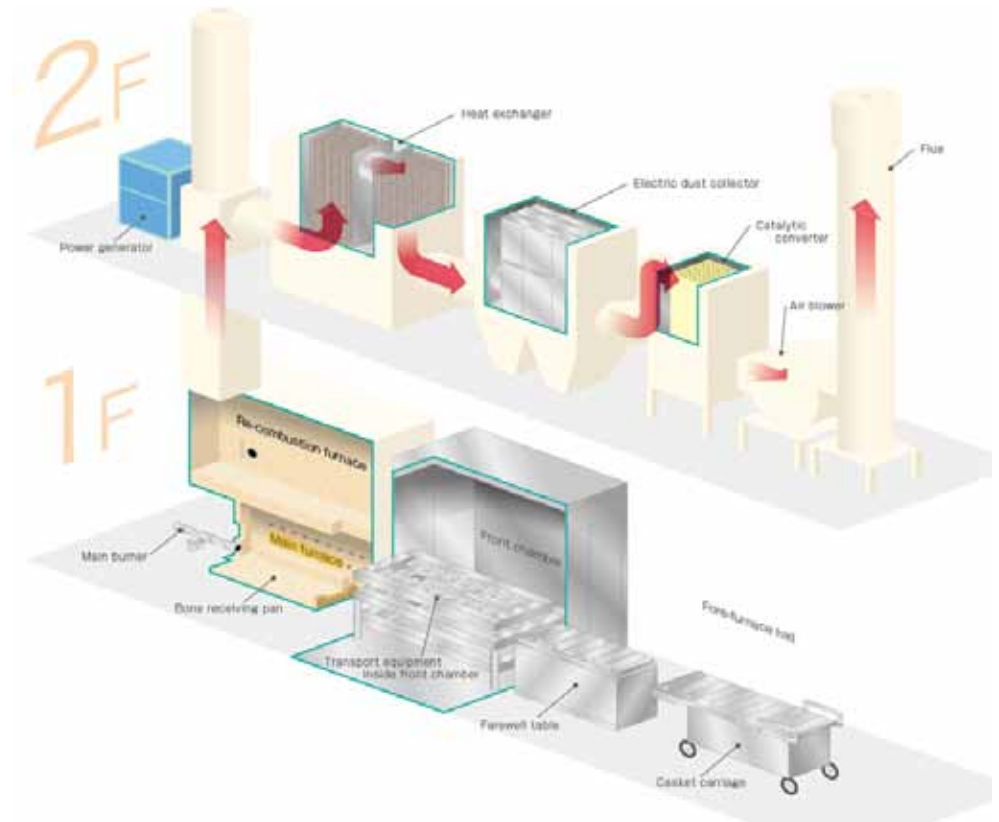


Figure 83: Suggested heat capture and energy generation systems augmentation for the crematorium's existing direct off-gas fossil fuel furnaces. [Online]

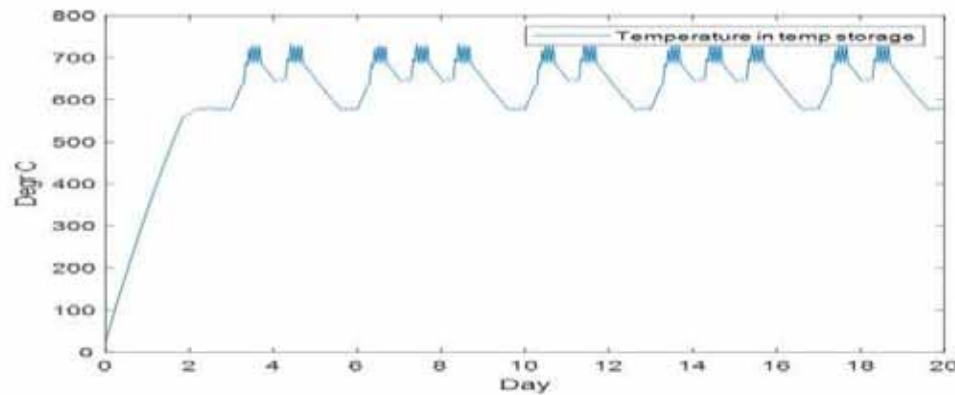


Figure 82: Temperature modelling of a twenty day crematorium furnace cycle showing two days of preheating and then a subsequent eighteen days of high temperature and standby temperature fluctuation. (Bunse.J, 2022).

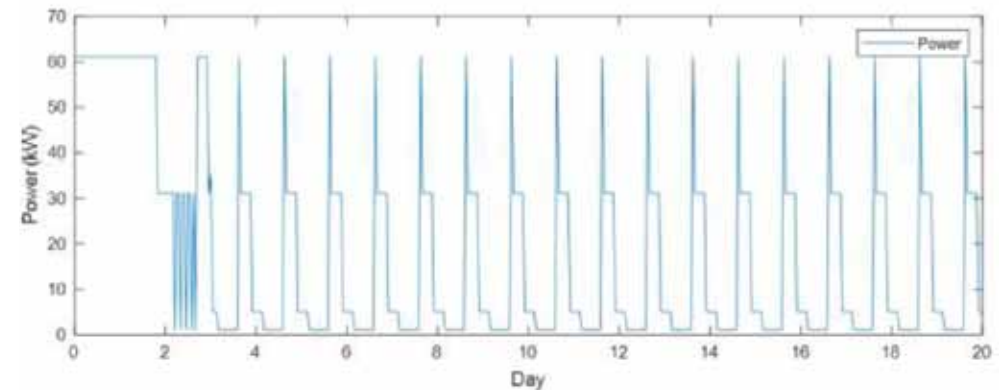


Figure 84: Suggested power production capability from heat capture per furnace (Bunse.J, 2022).

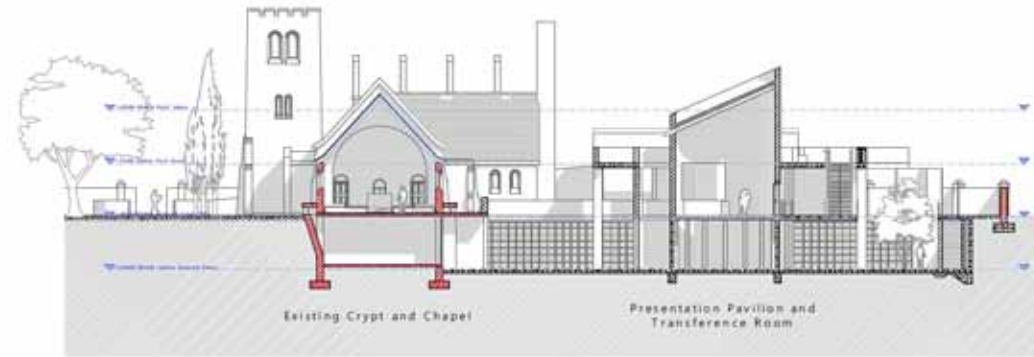


CONCLUSION

The Braamfontein Crematorium is a unique site with a unique heritage, any approach taken to additions on the site should be a process of weighing benefit against loss both of cultural and aesthetic heritage and of spatial quality. The introduction to the site of elaborated programmes of ritual, articulated with considered uses of materials that heighten the ritual experience, as well as promote integration with the greater site are paramount. In addition, the augmenting of the existing infrastructure to prolong the functional longevity of the crematorium and its surrounds ensures that, as a heritage space, it remains pragmatically relevant as a civic resource for the greater City of Johannesburg. And with the aid of analysis tools such as IESve and SBAT the functional parameters of the space can be optimised not just in terms of productivity but in terms of environmental sustainability as well.



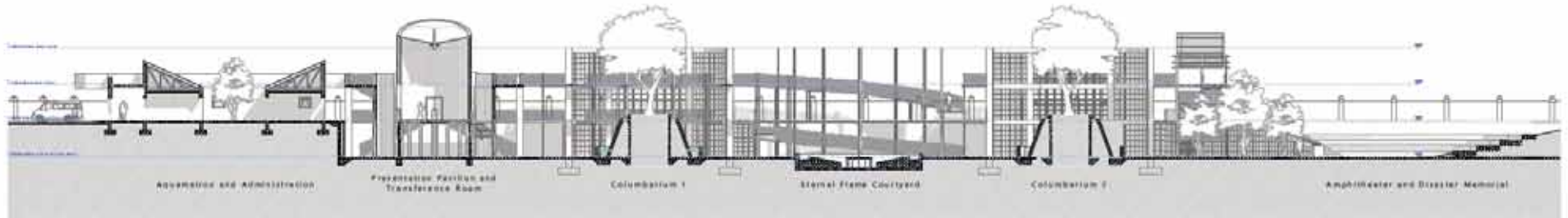
Figure 85: Rendered perspective of plaza view toward existing chapel.



AA

Section AA

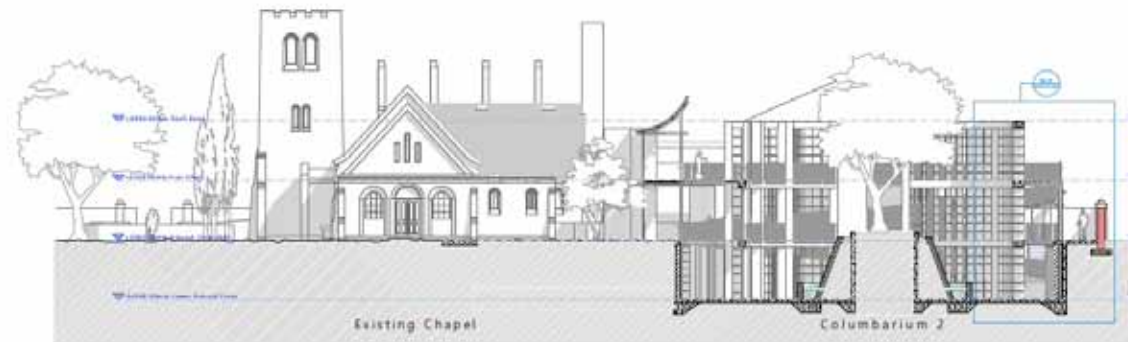
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Section BB

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CC

Section CC

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Figure 86: Compilation of detail sections showing the nature of the internal and external volumes within the new scheme.



REFLECTIONS

Architecture is a field full of dichotomies. It finds itself situated in a liminal space between the realm of objective scientific production and the realm of creative artistic expression. It must respond to and be conscious of a seemingly endless list of social, environmental and socio-economic issues facing contemporary society and yet also yield to the vacillations of stylistic taste and the relentless pace of technological development. Few fields require their practitioners to have such diverse skillsets. Regardless, this multifaceted way of thinking can in some cases lead to a watering down of the products of architecture. Products that in needing to respond to too many factors no longer have any easily discernible place in society and can no longer be clearly read by the general public. They have moved too far away from being buildings in the pure sense, they need to cure social ills, purify their environments, provide housing, generate electricity etc... Some core mandate has been lost and it is not simply the need to provide shelter.

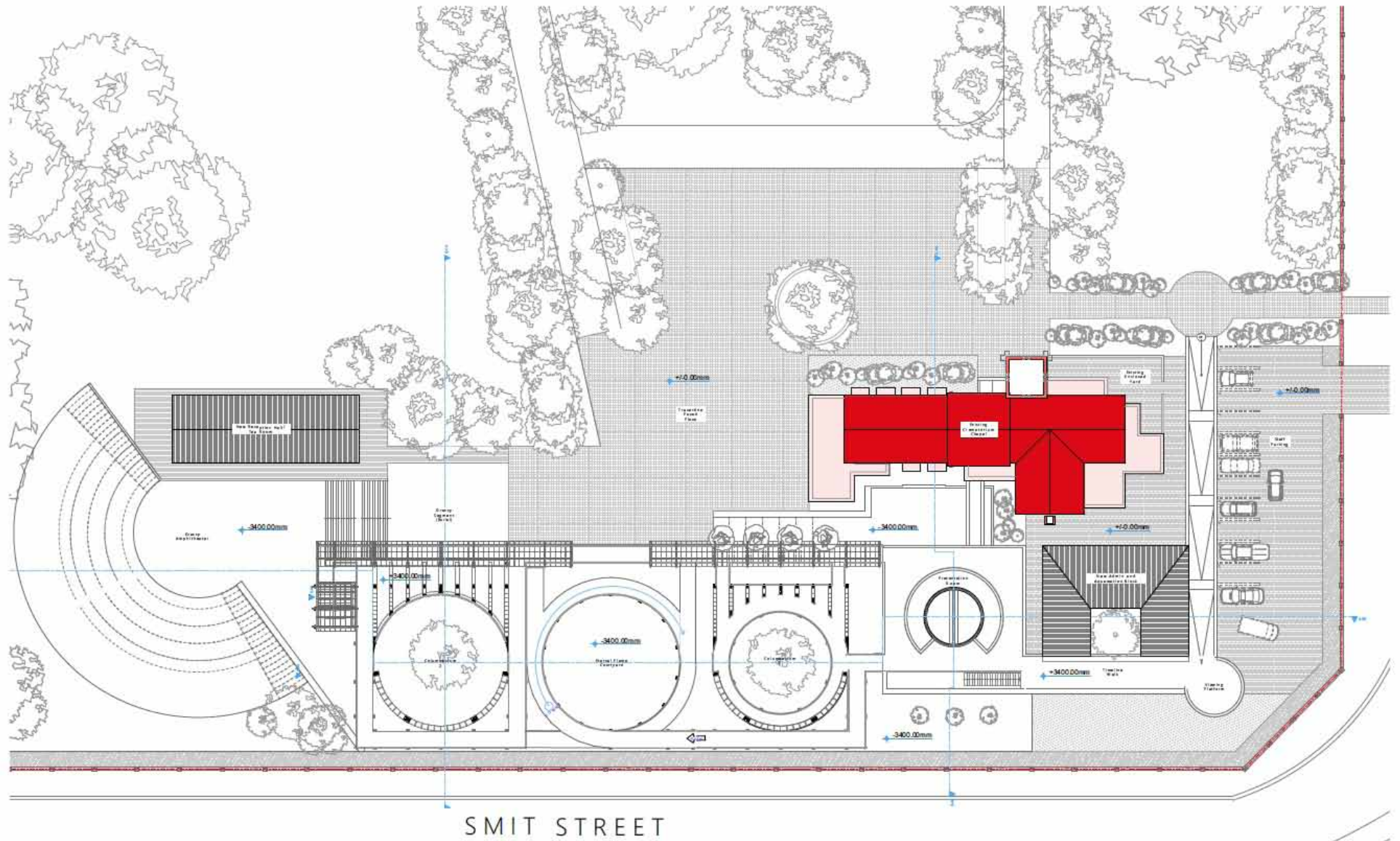
In a project such as that which I have undertaken at the Braamfontein Crematorium one has the opportunity to place oneself, as a designer of space, in a position of relative seclusion despite its physical placement within a vibrant yet heavily degraded city. This seclusion is not a result of its tree lined boundaries and heavy stone perimeter walls but rather a result of its programme. Cemeteries are places that are literally devoid of life, they are places driven by the atemporal world of memory. They do not require living people to function, but they do require a sort of passive reflection from the living, an acknowledgement of their cause at a distance, for it is only on the seldom occasions of bereavement that we viscerally experience the need for the solemn meaningful surrounds and reflective contexts that cemeteries and memorials provide.

As a means of exploring the makers and signifiers of meaning that exist within the field of architecture, this project has been a tremendous process of discovery. At the outset of the year I was sure that I wanted to explore meaning in architecture but was unsure of a programme that would allow such an exploration to naturally grow. At first I was convinced that theatre architecture would be the best means of exploring meaning generation, but artifice as a theatrical precept seldom yields tangible outcomes. By chance I stumbled across Jones' two volume discourse on the nature of meaning in the architecture of the sacred, explored through the philosophical lens of hermeneutics, and it immediately resonated with me.

Though Jones in no way attempted to produce a hand book or guide to meaning space production, a distillation of his processes of post rationalisation through hermeneutics provided a framework from which I could approach meaningful spatial production through the understanding and imbedding of ritual into space.

As my professional career unfolds I will continue to search for the meanings that lie at the heart of what we do as architects. And whilst there is no escaping the forward momentum of technology within our field, I will likely continue to think of meaningful space making as being the preserve of the natural human mind and as being the ultimate goal of any architect because buildings are far too important a part of our daily lives to relegate their analysis and production to the realm of the "merely functional" - as Peter Blundell Jones so concisely put it (Blundell Jones, 2016: 2). Instead, buildings are key facilitators of personal and social ritual and, as a result, play a significant role in how we as humans give meaning to our lives.

This meaning is not created through coded decoration or deliberate aesthetic message - though these undoubtedly have a role to play - but rather through the manner in which they are used, the objects of ritual that are housed within them and the deeply subjective connotative and denotative meanings that people generate through interactions, within their walls. Though arguments of how meaning is generated within architecture are numerous, this dissertation seeks to add to the discourse that the contemporary move of architecture toward spatial generation through computational Parametricism and the acknowledged need to focus our efforts on environmental sustainability, are not sufficient in producing spaces that are meaningful in and of themselves outside of any pragmatic consideration of function. Whilst those who espouse Parametricism as the most all-encompassing means of imbuing buildings with the societal complexity that exists in contemporary civilisation today (Schumacher (ed), 2016: 9), something remains within the nature of architecture that is far less easy to computationally iterate upon. Rodger Scruton perhaps puts this best in his summation that many buildings today tend to be "faceless", they offer a kind of obsequious anonymity by literally reflecting their surroundings, borrowing from systems that do not exist on any level directly accessible to human understanding and, by decontextualising themselves from culture and society (Scruton, 2013).



1 Roof Plan 1:200

Figure 87: Scheme roof level plan showing existing crematorium in red juxtaposed with the new ritual scheme.

SOURCE LIST

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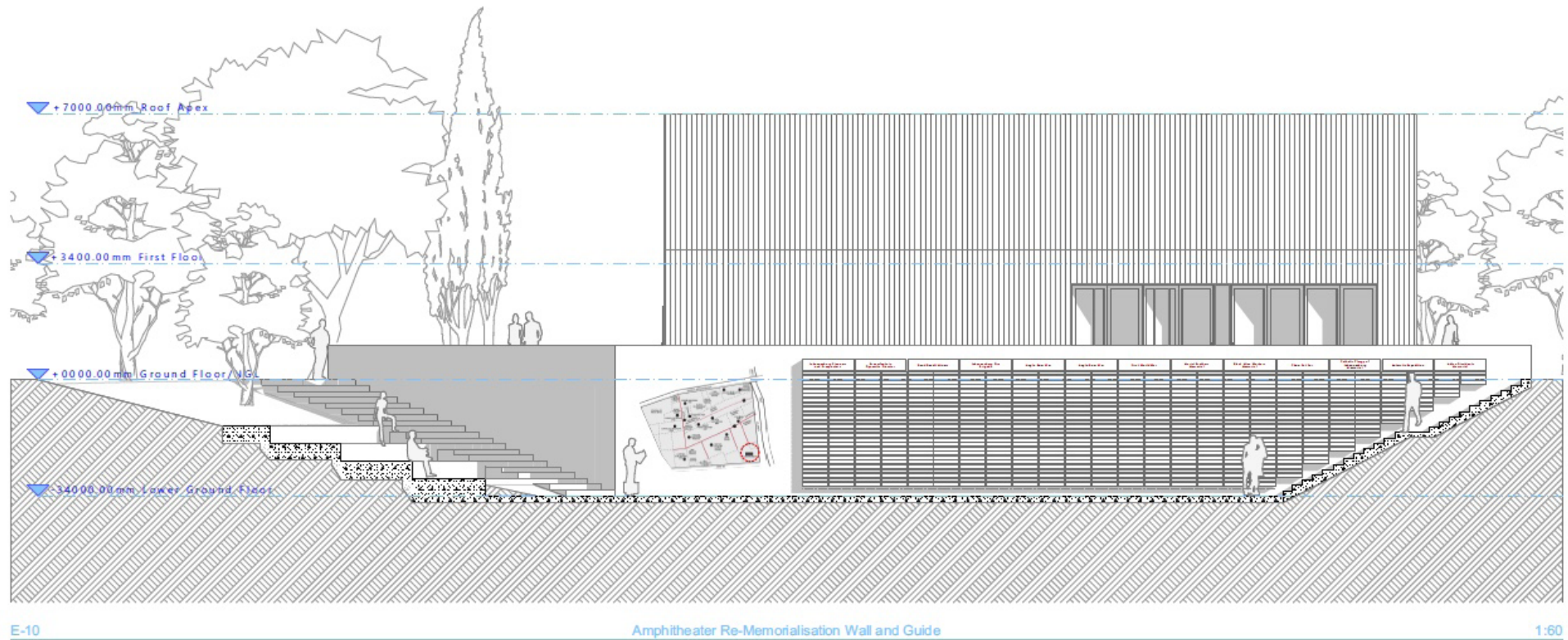


Figure 88: Amphitheatre and re-memorialisation Wall in which the tragedies commemorated across the Braamfontein cemetery are re-memorialised in a unified space. Heritage tourists are given the opportunity to explore the greater cemetery from this space using a site map with a curated journey.

