01

INTRODUCTION

As an introduction to this study this chapter identifies a point of departure and a problem within the city which needs investigation. The problem is investigated on different levels before a methodology is set out on how to approach the problem.

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1.1 POINT OF DEPARTURE

In a city, such as Pretoria, there exists multiple layers of rich history, which manifest in a constant hierarchical tug of war, shouting to be seen and respected, whispering to be remembered.

These historical layers are woven together with many other physical and metaphysical characteristics, such as infrastructure and ritual, to form the urban tapestry of the city. The edges of this tapestry were initially defined by the natural topology of the landscape, in which Pretoria was established, as a closed grid system. Today, these edges in the city (see Figure 1.1), creates a specific urban condition in the way the formal city dissipates into and interacts with, the natural (nature) landscape at various places. This condition occurs in various peripheral facilities such as Pretoria Station to the south; the National Zoological Gardens (NZG) to the north and the Tshwane University of Technology to the west to name a few.

Figure 1.1 The setting of the city in the landscape with some of the peripheral facilities indicated

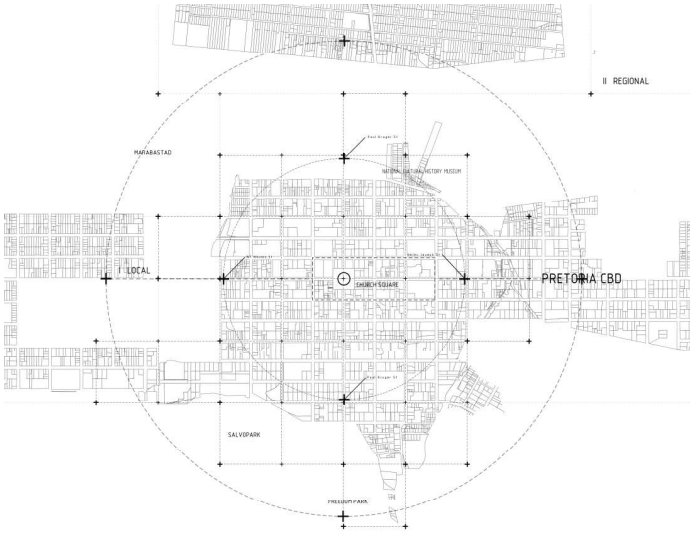


Figure 1.2 The grid and edges of the inner city as the city has developed over time into its topographic setting

The Apies River to the north and east and the Magalies ridge to the north of the city forms the topographic edge of the inner city (see Figure 1.2). The grid was however, fringed as a result of the outlying farms next to the Apies River to the north. Erven were set out around the water channel (R, Swanepoel, 2005) running alongside the farm boundaries from East to West. Along the northern most water channel a street which we today know as Boom Street later developed. As seen on the historic map from R Swanepoel's October newsletter (2005) (see Figure 1.6), and aerial views of the area today, it is evident that Boom Street forms the entire northern edge of the inner city of Pretoria.

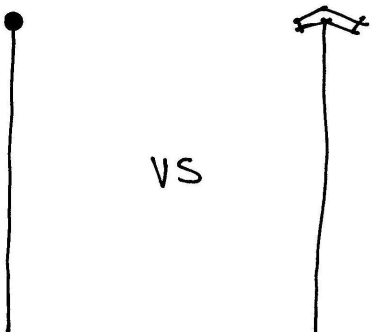


Figure 1.3 Conceptual termination of movement versus continuous movement

One of the buildings on this northern city edge of Boom Street, is the old *Staatsmuseum* building (see Figure 1.7). The museum is an example of the northern edge as a terminating edge of the urban fabric, as it is the terminating point to Thabo Sehume Street. The museum is centred at the end point of the street at a 90 degree angle to Boom Street (Figure 1.3). Even though the building was one of the very first civic buildings in this precinct, it has been neglected as having a possible design influence on the evolving context around it, leaving it like many other buildings in the vicinity, isolated.

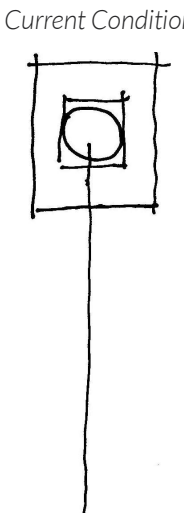


Figure 1.4 Building as Terminating Point

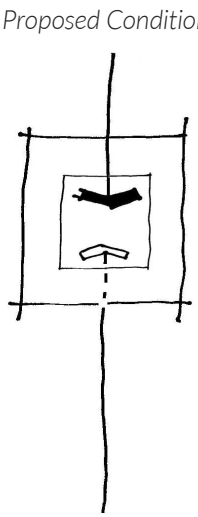
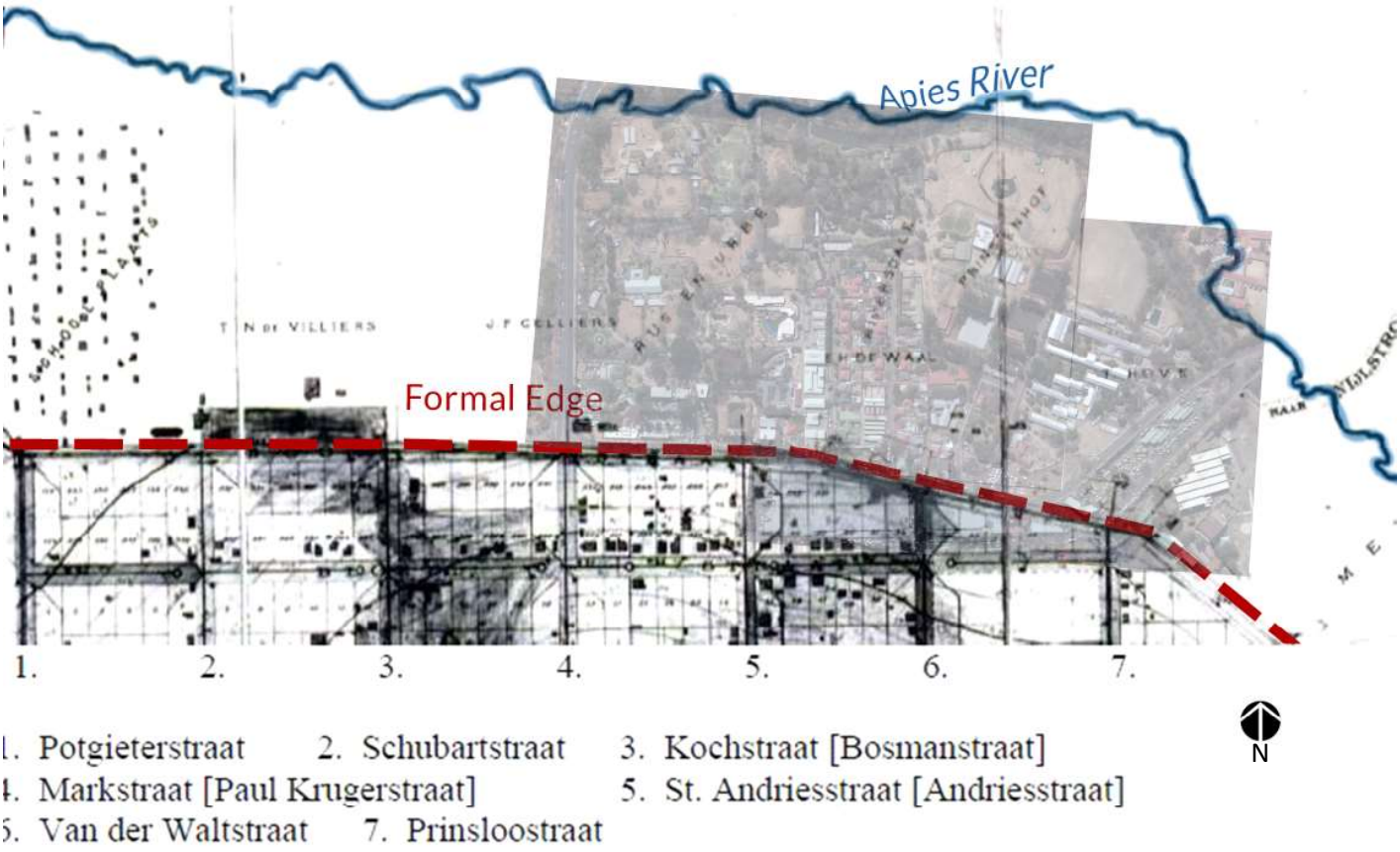


Figure 1.5 View into the building through the existing entrance, while opening the building to the back



1. Potgieterstraat 2. Schubartstraat 3. Kochstraat [Bosmanstraat]
4. Markstraat [Paul Krugerstraat] 5. St. Andriesstraat [Andriesstraat]
6. Van der Waltstraat 7. Prinsloostraat

Figure 1.6 The grid and edges of the Northern precinct

Figure 1.7 Southern entrance facade of the Staatsmuseum from Boom Street

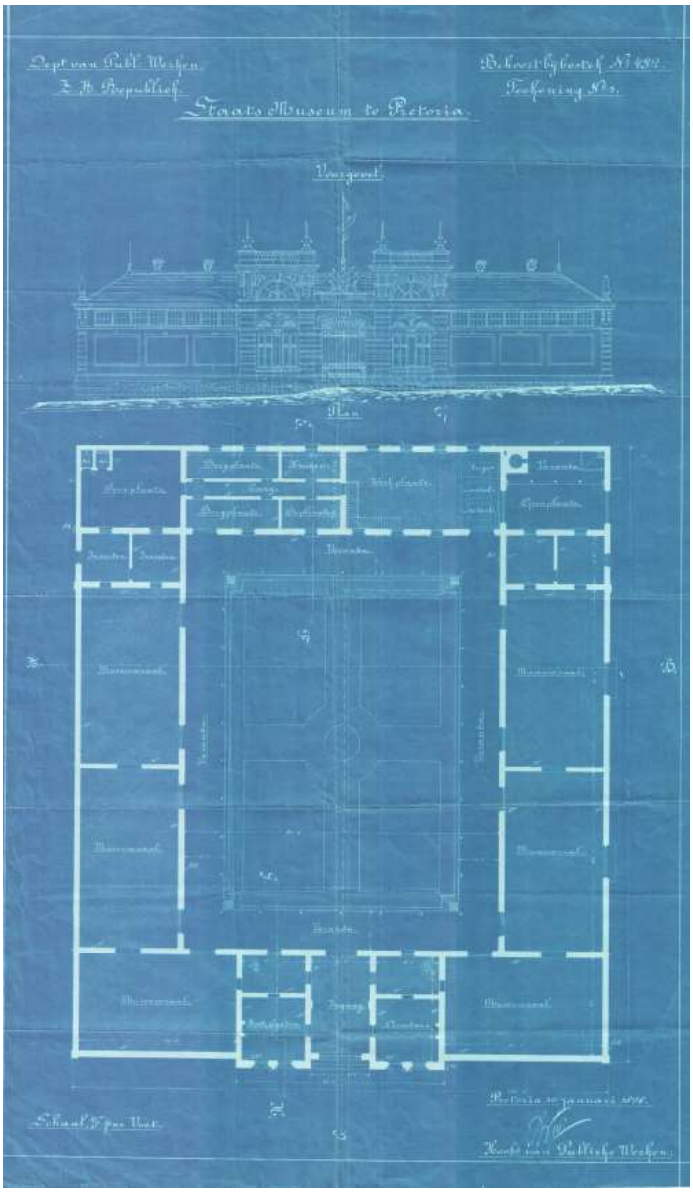


Figure 1.8 Original Elevation and Plan of the Staatsmuseum 1899

The *Staatsmuseum* can be defined as culturally and architecturally significant. In terms of history, as one of the first museums of Pretoria, and in terms of space, its contribution to the street edge of Boom Street over more than a century. Clarke (2014:165) states that the way in which the building is positioned, in relation to the larger urban context, and the way it was designed and set out by the *Departement van Publieke Werken* (Department of Public Works); the museum, as an important civic building, was given a sense of dignity.

Despite the way the building was designed to sit significantly in the landscape, and despite all the regulations that were set to protect the building structure, the building has been empty since 1992. The development of the context around the building has been done without any sensitive response to the building, stripping the building of its dignity and meaning, in terms of its original contribution it used to make in the precinct and the city.

The building is also protected under SAHRA's (South African Heritage Resources Agency) regulations as a building older than 60years. The building has also been declared a national monument (University of Pretoria, 2015) and has a grade 2 provincial heritage rating.

1.2 IDENTIFYING THE PROBLEM

The premise of the problem as identified by the study is then to find a fit between historic significance and a relevant contemporary use or function.

1.2.1 Problem Statement

The *Staatsmuseum*, as it finds itself in its current context and resultant condition, is unappreciated, it is segregated from its context, stripped of its dignity, its worthiness and its respect (see Figure 1.9 and Figure 1.10). The building is in a derelict state due to water damage and normal weathering. Some old collections and display cabinets are still evident in the building but because of a lack of maintenance, the building is currently in a static state and not usable (University of Pretoria 2013). If left as such, the building might decay to the point that it no longer exists.

Figure 1.9 Diagram illustrating the problem statement

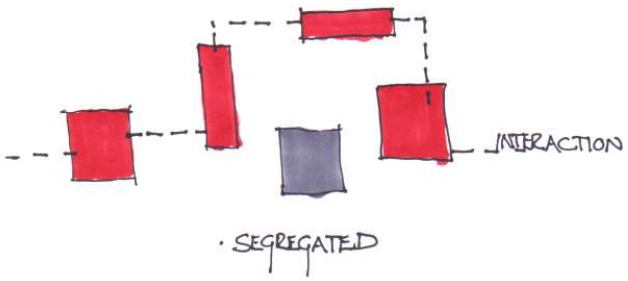


Figure 1.10 What the future Staatsmuseum might look like if it continues to decay

1.3 GENERAL ISSUE

Through the development of cities, certain places, buildings or artefacts over time, might become redundant for the initial intention, or need, it was created for. As stated by Doratli (2005:750), it has been recognised, that if historical elements are not correctly integrated in daily life, protection efforts would fail and urban centres would continue to empty: the past would simply become both a cultural stumbling block and burdensome to the public.

Furthermore, according to *The Burra Charter: The Australia ICCOMOS Charter for places of cultural significance 1999* (1999:1), places with cultural significance, enrich people's lives and these places provide a deep and inspirational sense of connection to community and to landscape and reflect a multiplicity of community.

The question then: should places with heritage significance only be leftovers of times that passed, or can such places act as design informants for the precincts they are situated in?

By introducing appropriate uses in buildings with heritage value it allows for such places to be integrated with the urban fabric through design and will ensure that they are preserved and maintained.

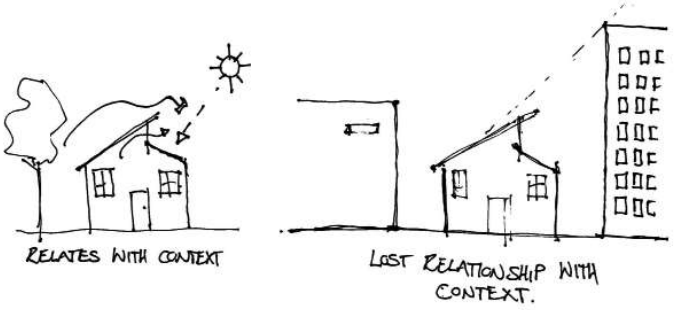


Figure 1.11 Diagram illustrating lost relationship as a result of development of the context without responding to what is existing

1.4 URBAN ISSUE

Pretoria is a city with large focus on urban revitalisation (Tshwane, 2015), as part of future development strategies for the city. Open spaces in Pretoria are not only limited, but there are various derelict and empty buildings throughout the city, that through adaptive re-use can be re-integrated with the urban fabric. Correctly integrating the historical elements into daily life, inevitably calls for positive change.

Although the city has developed in a way that is integrated with its natural landscape, the zoo (see Figure 1.12) interacts with the city bluntly, and is to a certain degree segregated from the city in the way it is fenced off. The *Staatsmuseum* is on the premises of the zoo to the southern edge. Through adaptive re-use, the *Staatsmuseum* can be re-integrated with the urban fabric to a place of public recreation and having historical significance. This will create an opportunity for better interaction with the zoo as well as interaction with the city.

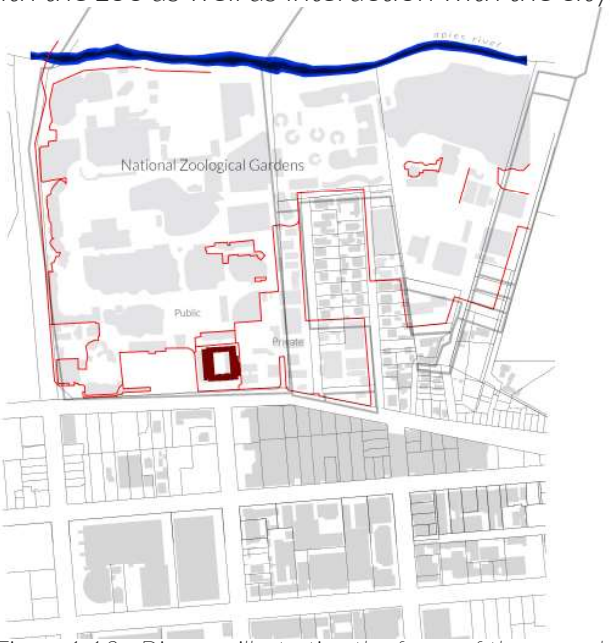


Figure 1.12 Diagram illustrating the fence of the zoo, which creates a boundary between the city and the zoo

1.5 ARCHITECTURAL ISSUE

Buildings such as the *Staatsmuseum* were designed with very specific programmatic intention and within a very specific cultural context. The museum however finds itself, a century later, within a context, stripped of its relevant dignity; a building that had historical, spatial and cultural relevance to the urban fabric of Pretoria. The context lacks any response to the museum through the way it has developed around the museum without making use of the museum as a design generator. The *Staatsmuseum* is as a result, a decomposing monument with very little spatial contribution to its context, other than the street front, deposed and floating in an urban landscape and needs to be re-connected to the landscape once again.

With the technological advancement during the past century, many new opportunities can be identified in the way a building is appropriated and re-used.

1.6 RESEARCH QUESTIONS

The research questions that evolve from these issues are the following:

i. How can a historic building that has lost its relevance, be re-appropriated in its context?

ii. How do you allow a decomposing civic building to spatially contribute to, and form part of, the city once again?

iii. How does program or use, affect the preservation of a building?

1.7 RESEARCH METHODOLOGY

Data would be obtained through qualitative, historical and analytical research methods. An analytical study, of the micro-urban context of the building, including the NZG and the surrounding area, will be carried out, in order to determine the current relationship between the *Staatsmuseum* and its surroundings.

A building analysis would be done on the *Staatsmuseum* building in order to analyse and understand the building in terms of its history, its spatial order and spatial design, the significance of the building fabric, its current condition, its tolerance for change and the building's technical capability in order to determine the building's potential to contribute to its context and to the city.

From here, a qualitative study would be carried out in order to position the architectural response within conservation best-practice. Case studies would be carried out in conjunction with this process, to understand such theories in practice, and to determine how previous projects could influence the response of this study.

A programmatic study would be carried out, in order to determine the effect of a program intervention on the use of the building.

1.8 PROGRAM AND CLIENT

The dissertation will investigate the dignity of place and how new dignity can be given to a building that has lost meaning and significance, with specific reference to the *Staatsmuseum* and its the relationship with the National Zoological Gardens.

The National Research Foundation (NRF) has a current proposal to host a life science centre in the building, with likely new additions such as a possible new public entrance to the National Zoological Gardens (NZG).

1.9 PROJECT INTENTION

For this dissertation, the possibility of hosting a Life Science Centre in the *Staatsmuseum* will be explored. A new entrance to the *Staatsmuseum* will be designed and the spaces inside the *Staatsmuseum* will be re-appropriated so that the museum will find relevance to its surroundings.

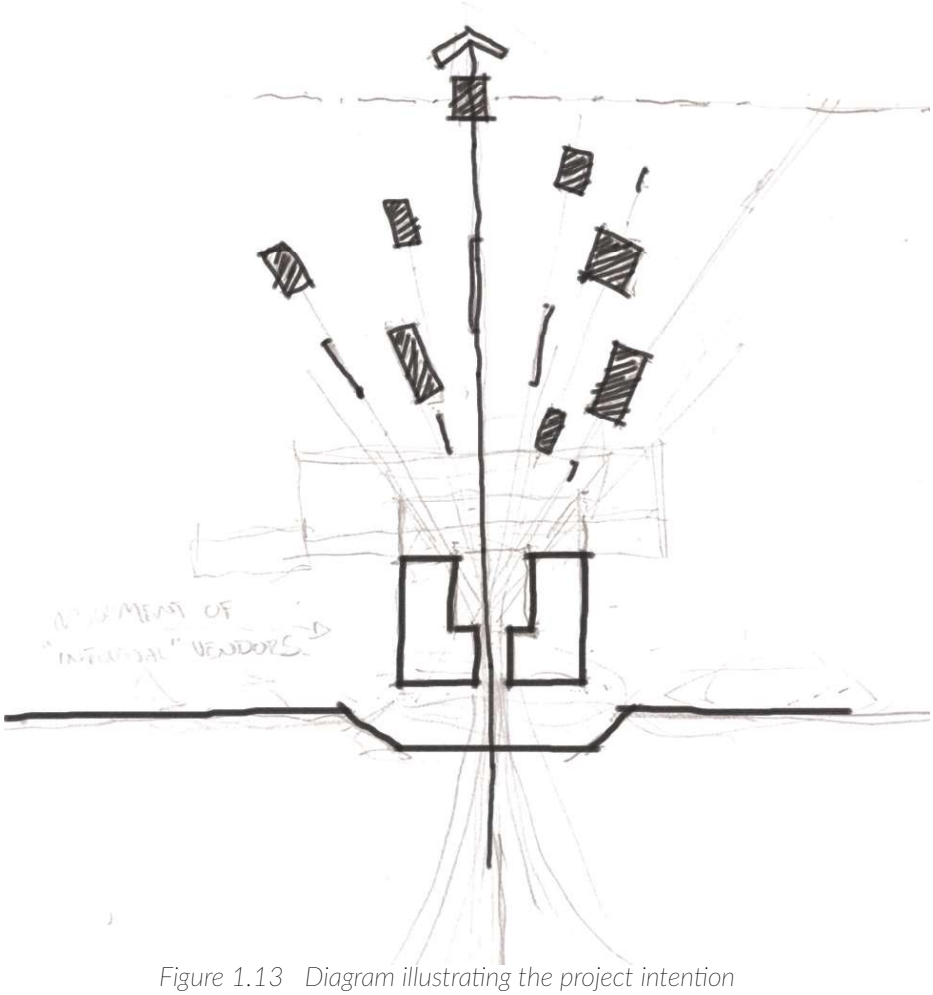


Figure 1.13 Diagram illustrating the project intention

02

FRAMEWORK

The larger, urban context of this study forms part of the north eastern quadrant of the Pretoria inner city, and is part of the larger urban vision as proposed by a group of students. The study area focussed on in this study is the Staatsmuseum building. It is situated as a terminating point to Thabo Sehume Street on Boom Street on the northern edge of the National Botanical Gardens.

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2.1 GROUP URBAN VISION

A group urban study of the north eastern quadrant of the Pretoria inner city, has been conducted through a lens of the Tshwane Vision 2055 for the City by myself, Mr. Buckley Tompson and Mr. Johann Boonzaaier. The study considered various influences in the city, in order to gain a better understanding of the future of the city. The study firstly identified, that in order to understand the current condition of the city, together with the future projection of what the city might become, the history of the city needed to be investigated first.

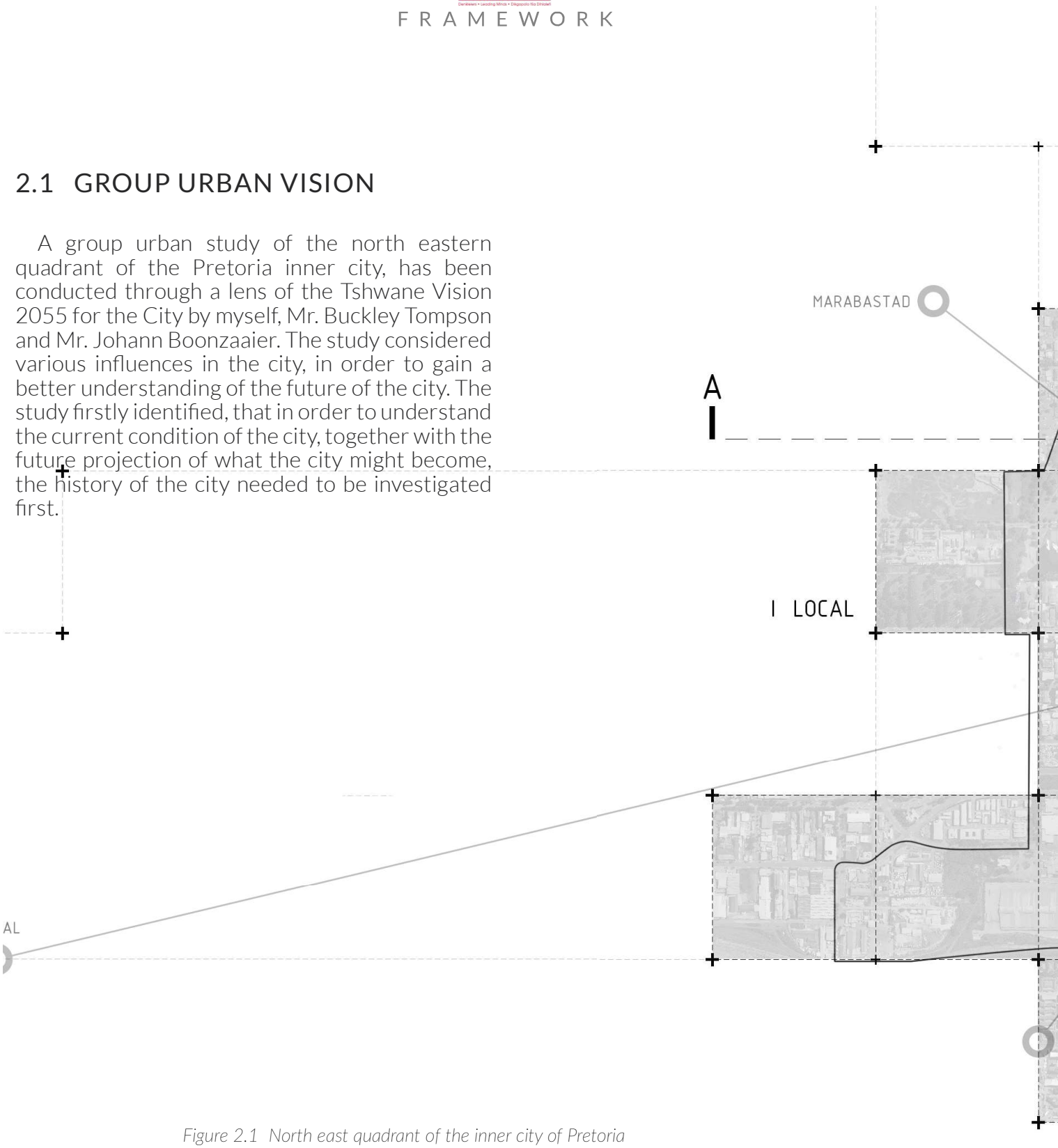
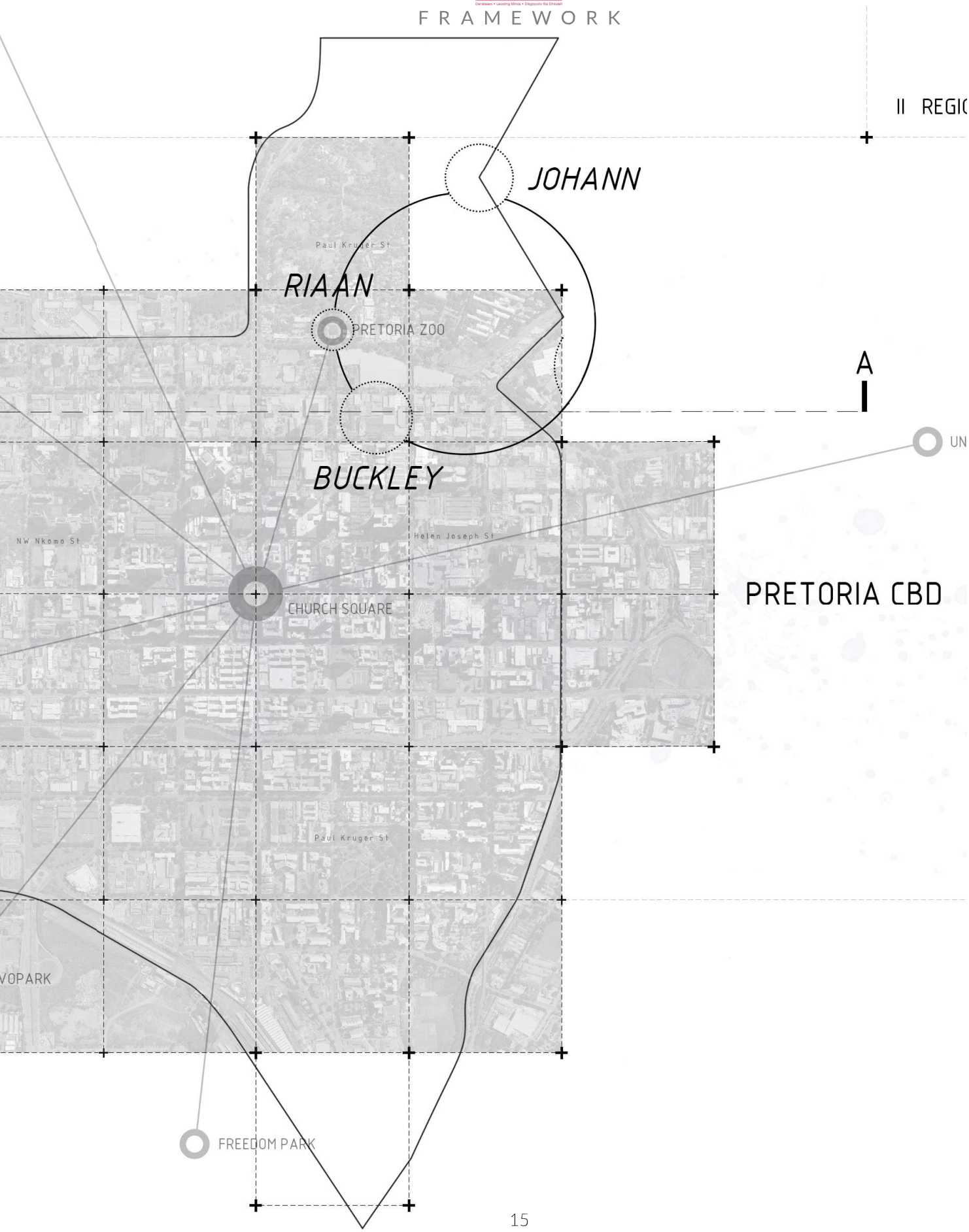


Figure 2.1 North east quadrant of the inner city of Pretoria



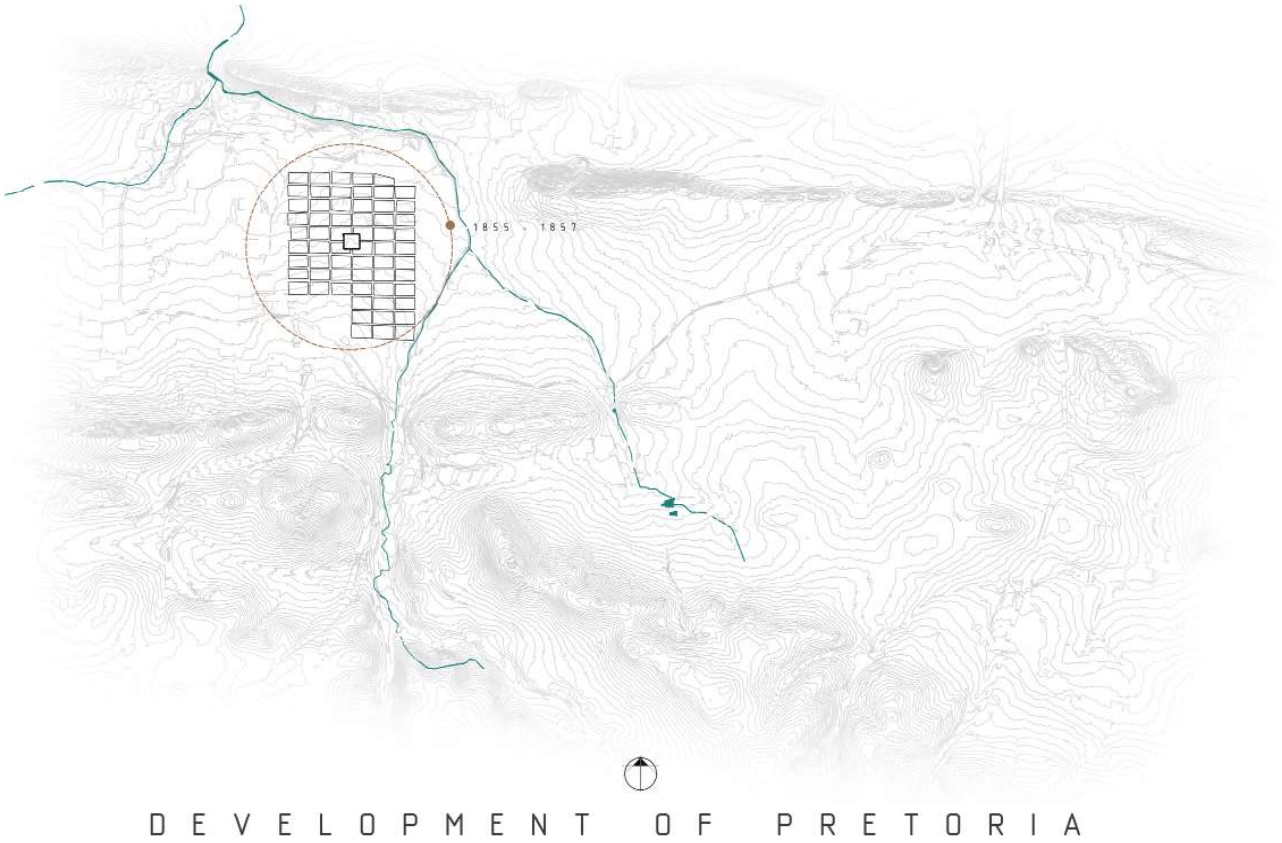


Figure 2.2 Original topography and development of Pretoria (1855-1857)

Pretoria city was set out between 1855 and 1857 and was contained by the natural typology of the area (see Figure 2.2). To the north and the south, two ridges form the natural boundaries, and to the east a stream of water forms the natural boundaries of the original city grid. Research used by Rose-Redwood (2008:42-48), regarding grid systems states that according to Stanislawski (1946), the development of a city, that is confined by any form of boundary, is known to develop according to a closed grid system, as the natural boundaries will limit the growth and sprawl of the urban fabric.

Figure 2.3 Decentralisation of Pretoria

The city of Pretoria has crossed the natural boundaries in all directions, but the majority of urban sprawl has taken place toward the east of the city (see Figure 2.3), resulting in the establishing of various CBDs throughout the city, causing many civic functions to migrate out of the inner city. The sprawl has had a significant influence, in the way the city is accessed and used today. Many people live outside the inner city and have to commute to the city for work on a daily basis. The majority of these people make use of public transport to do so.

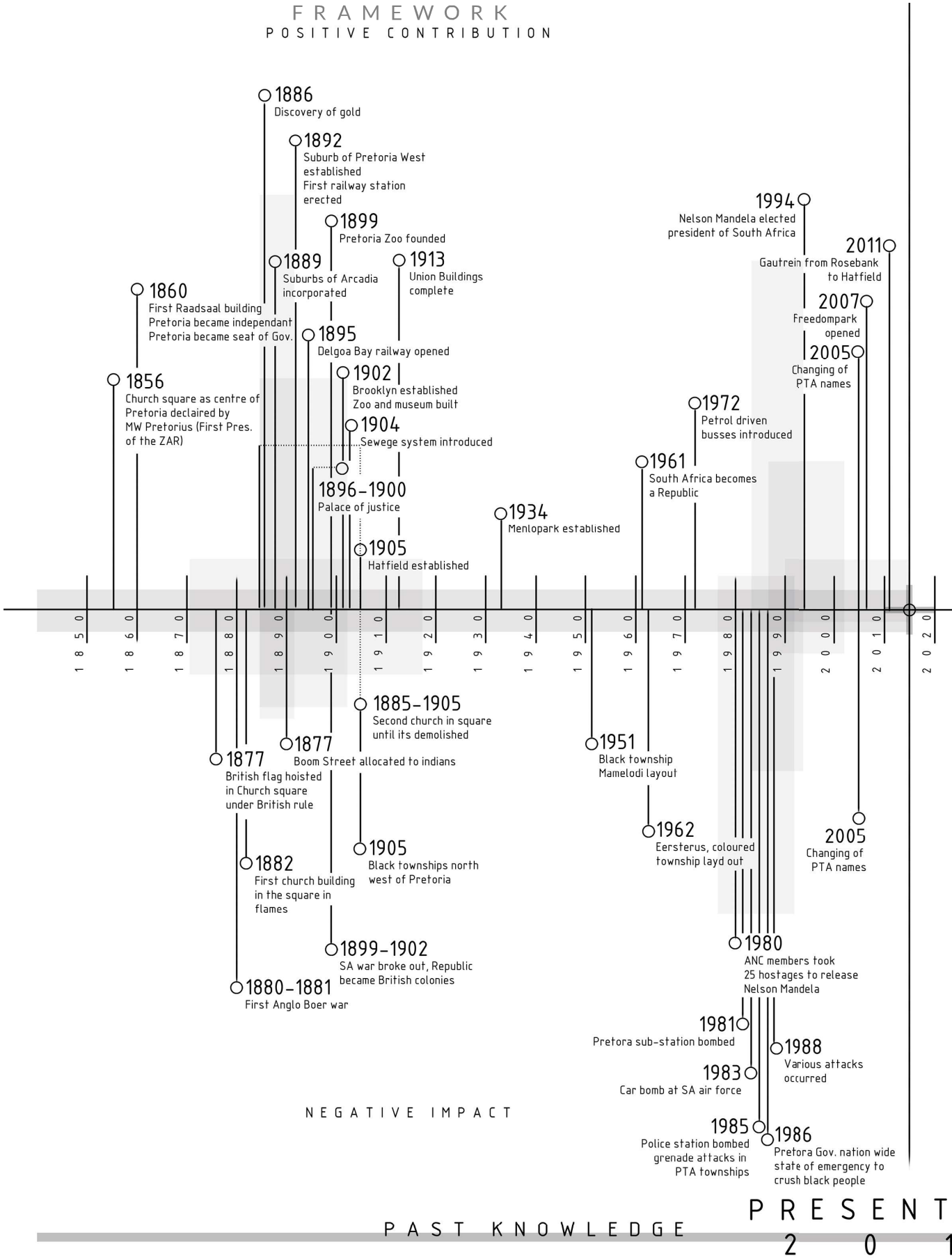
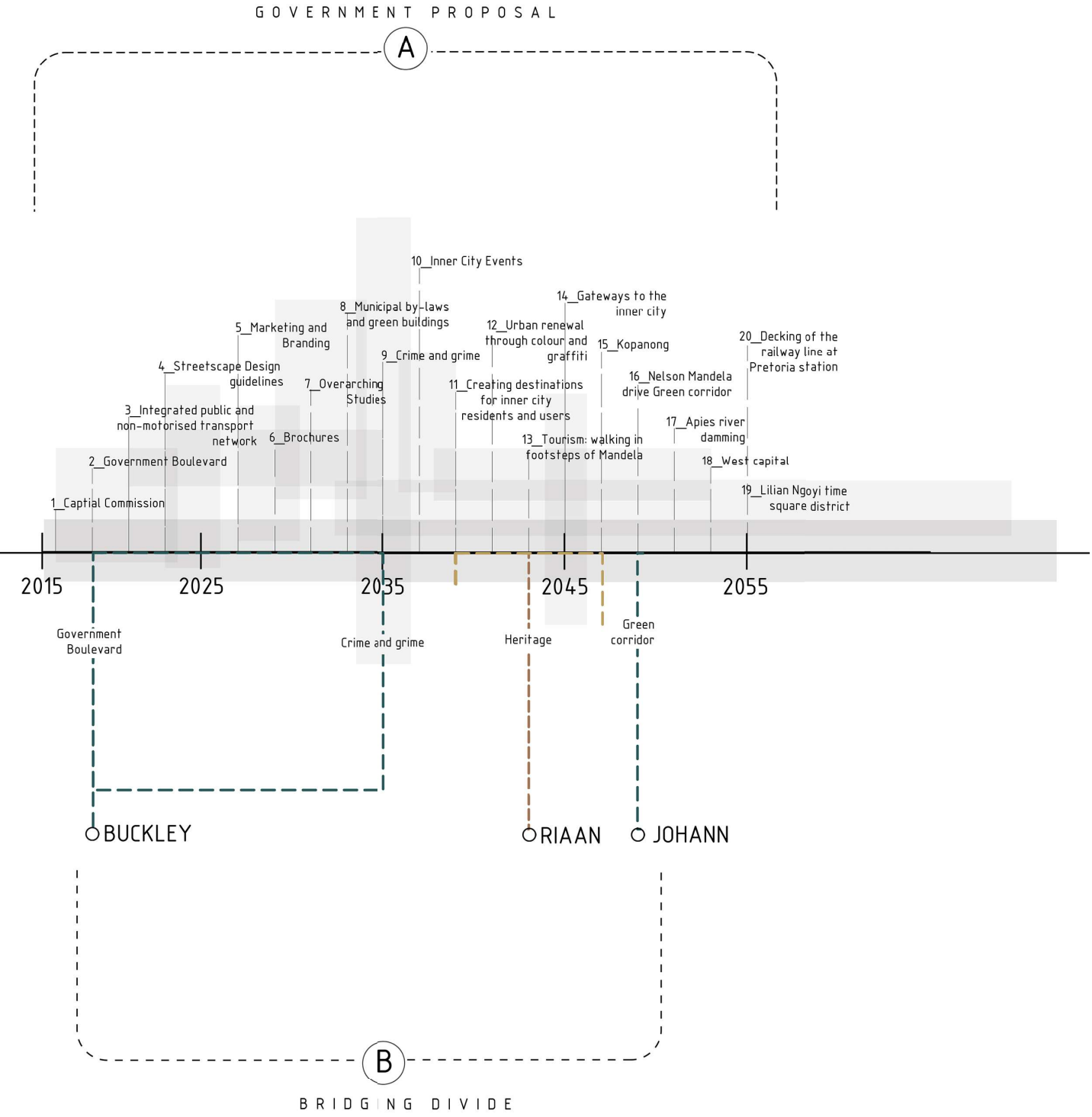


Figure 2.4 The history of Pretoria together with the Tshwane Vision 2055 used as a future projection of various projects

FRAMEWORK



DAY 5

FUTURE IMPLEMENTATION

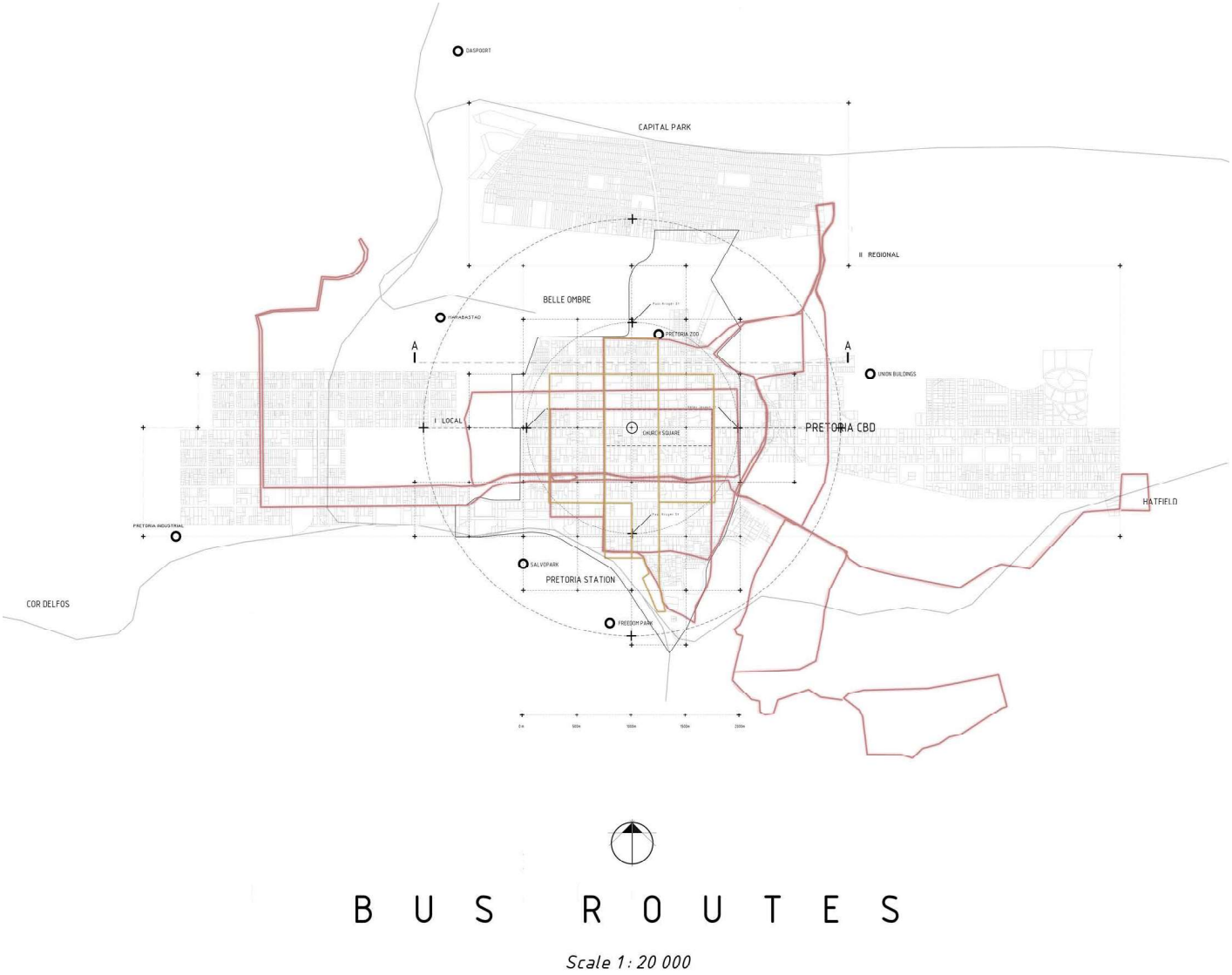


Figure 2.5 Bus routes to-, from- and in the inner city

This study has identified the position of the major train stations, bus routes and taxi ranks, in an attempt to understand the movement to and through the inner city (see Figure 2.5). One of the findings is that there were various taxi ranks, close to the centre of the city to the east, that have, as a result of urbanisation and continuous civic development of the city, been pushed to the peripheries of the city.

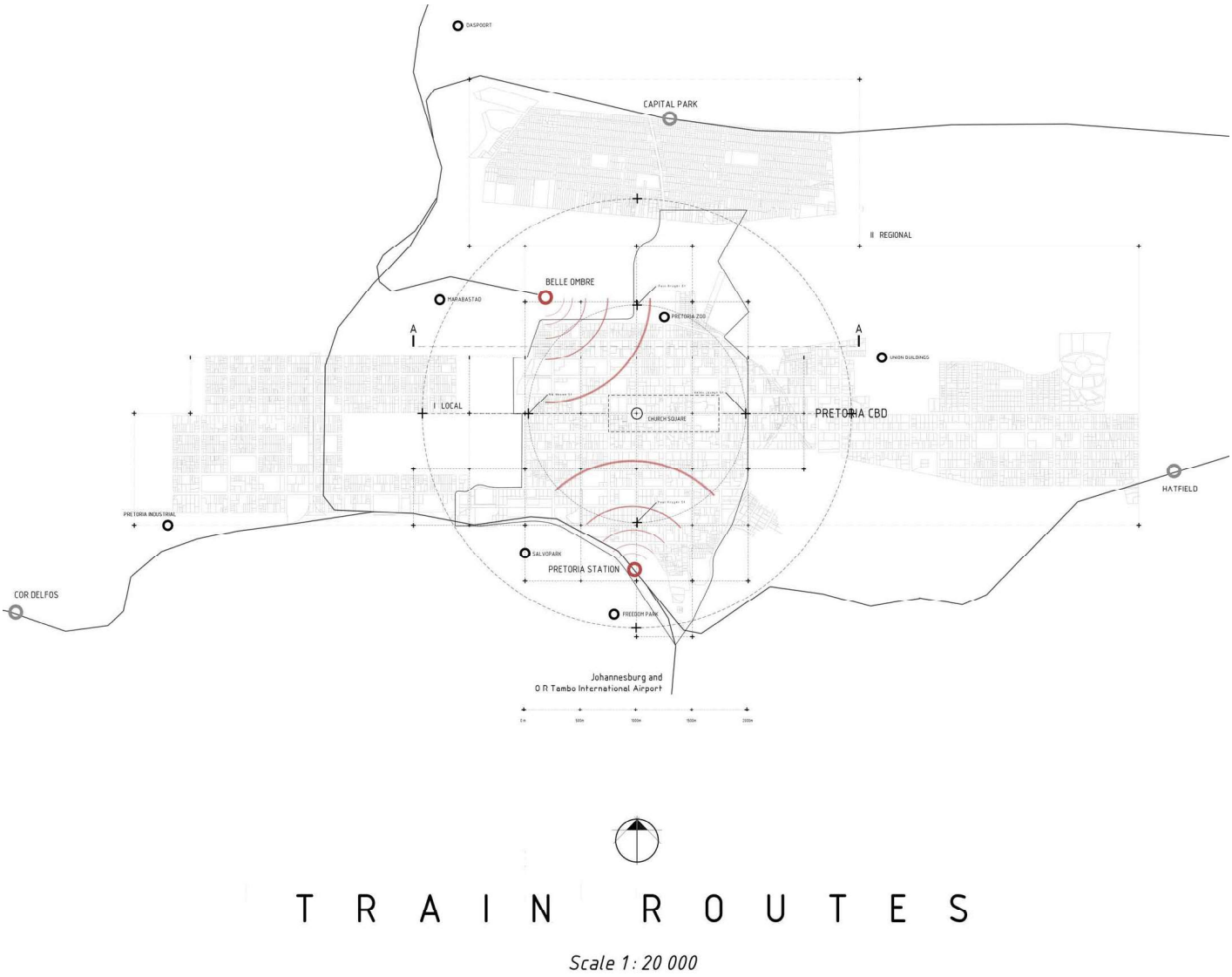


Figure 2.6 Train routes and their proximity in terms of pedestrian accessibility

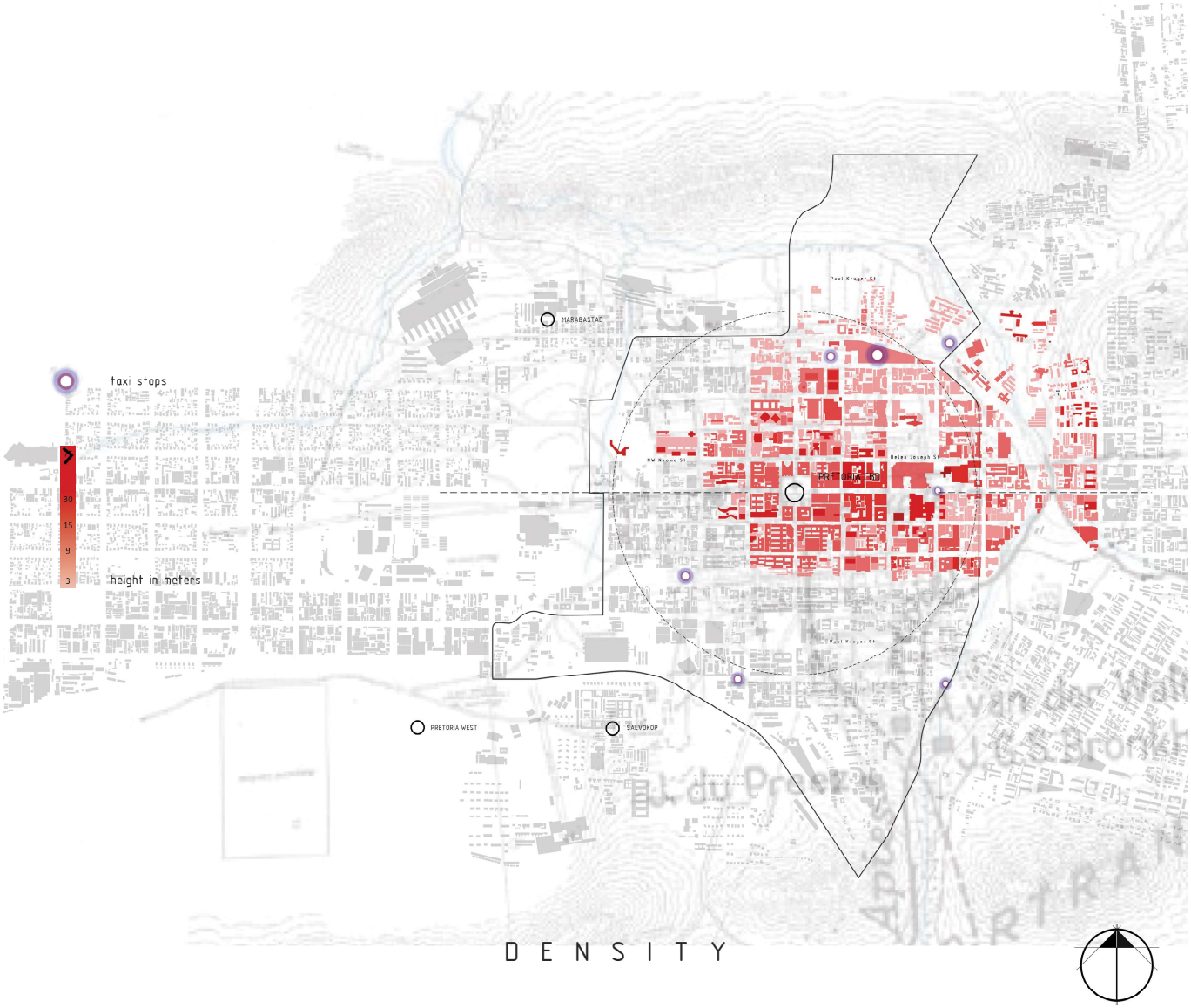


Figure 2.7 Layering of building footprint vs. building height in the inner city

A study of the building height, compared to the building footprints and urban density, shows that this quadrant is one of the least dense areas of the city in terms of building mass and height, thus showing this quadrant as a very informal part of the city (see Figure 2.7).

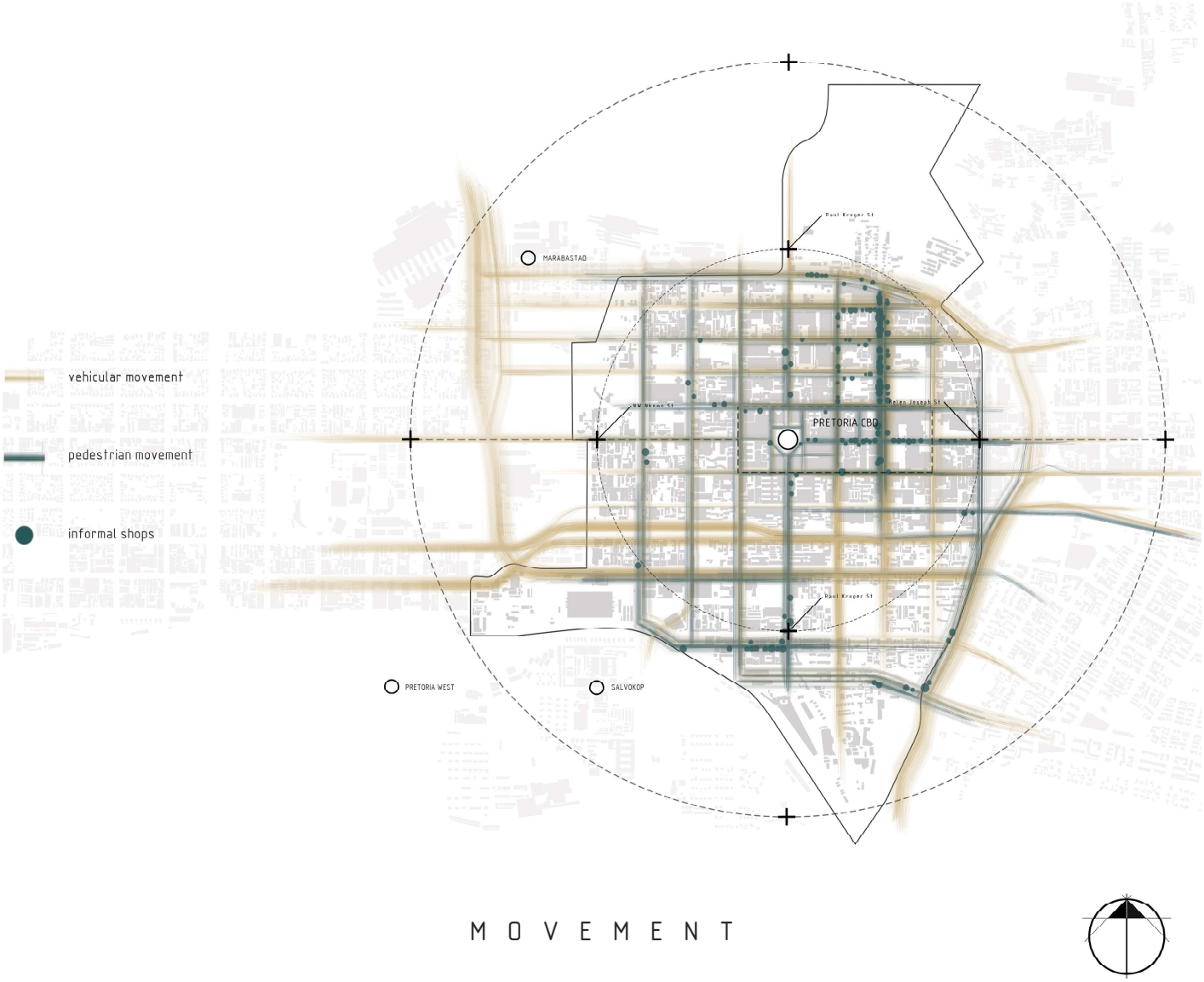


Figure 2.8 Layering of movement activity throughout the inner city

A study of the pedestrian activity in this quadrant, shows that the streets have high activity of pedestrian movement. This is as a result of the presence of two large taxi ranks to the north eastern edge of the inner city (see Figure 2.8).

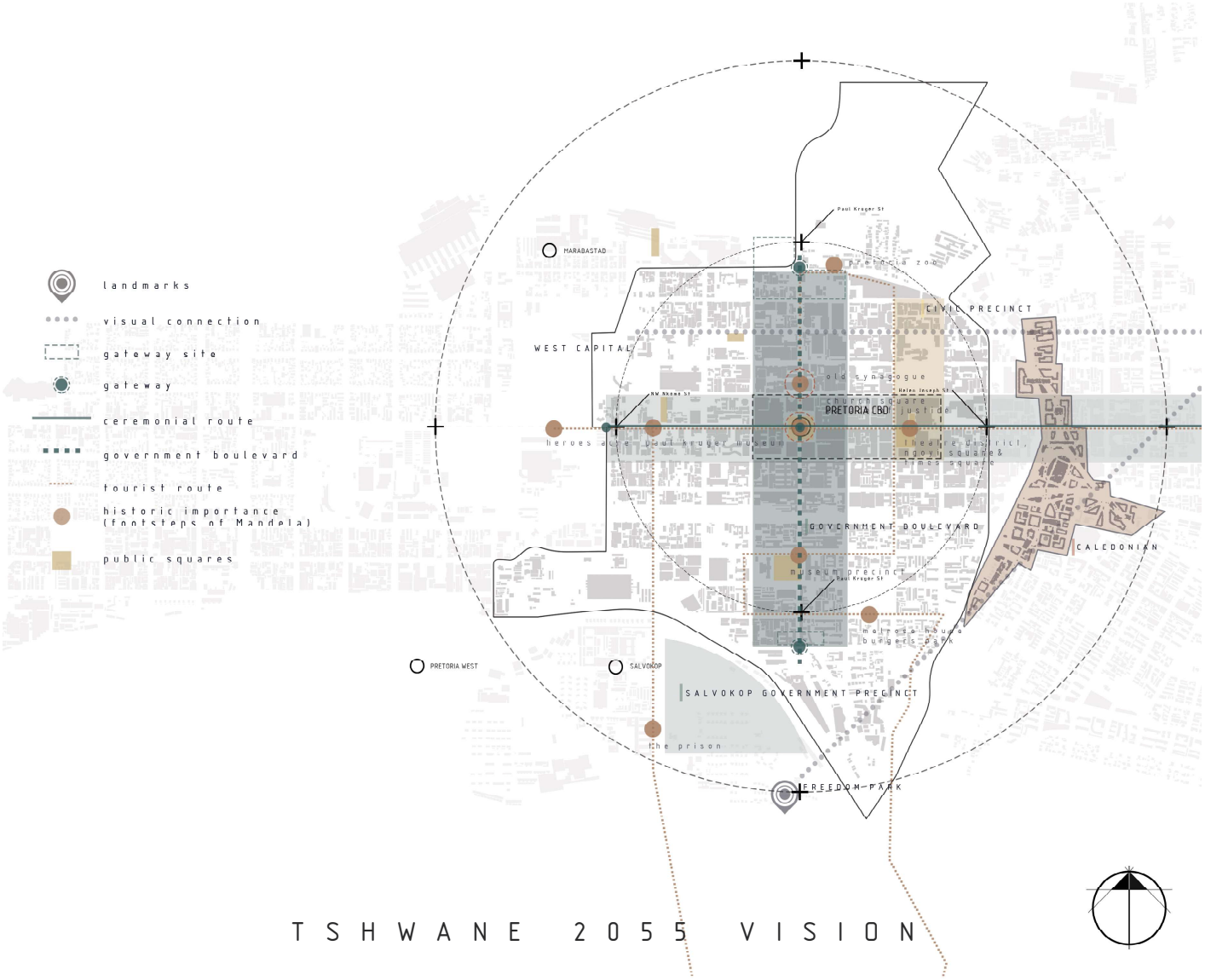


Figure 2.9 The Tshwane Vision 2055

As part of the Tshwane Vision 2055, there is a proposition to formalise the segment between Bosman Street and Thabo Sehume Street, from south to north, as a government boulevard, and the strip between Lilian Ngoyi Street and Sisulu Street, from the south to the north, as a civic precinct (see Figure 2.9).

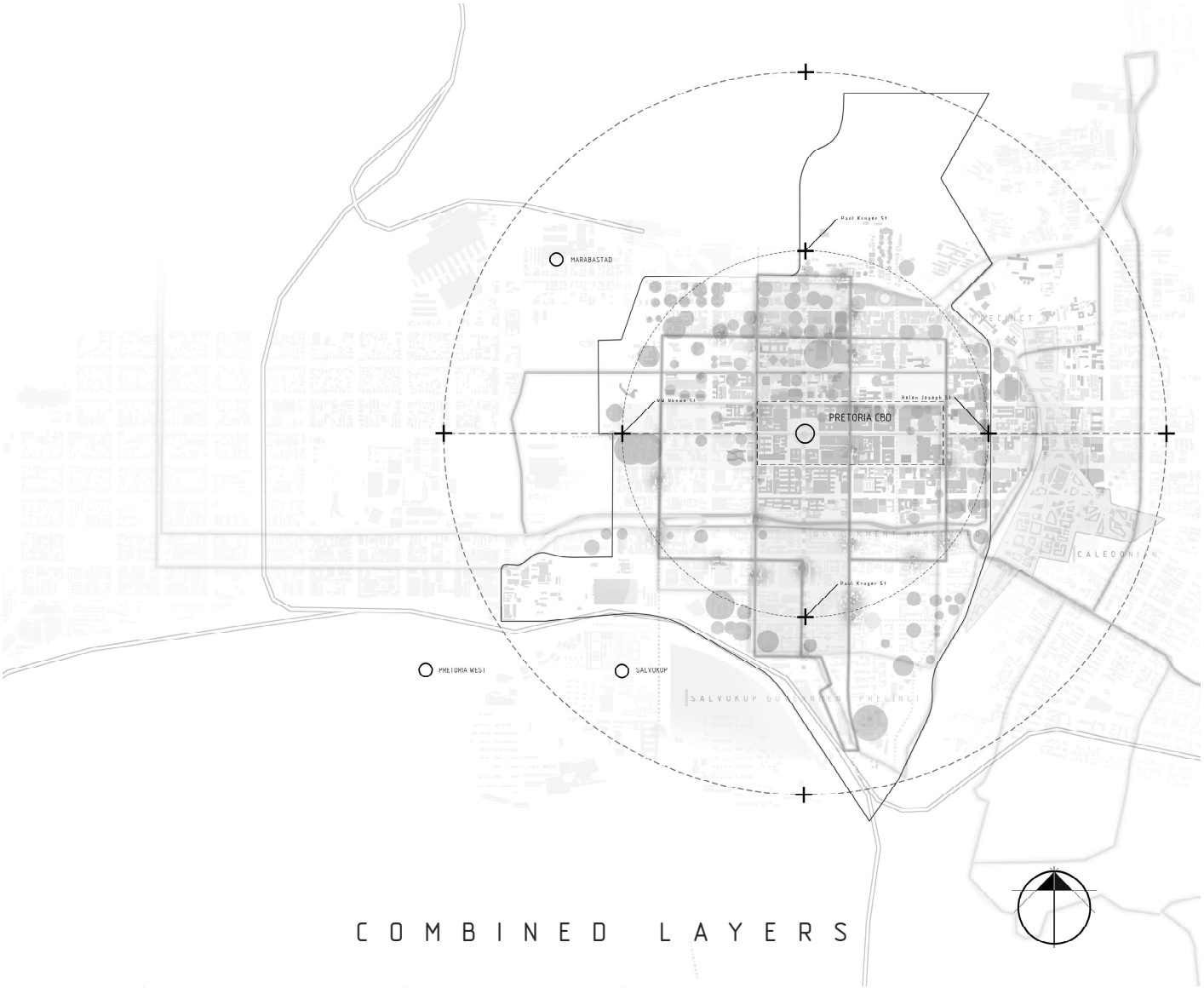
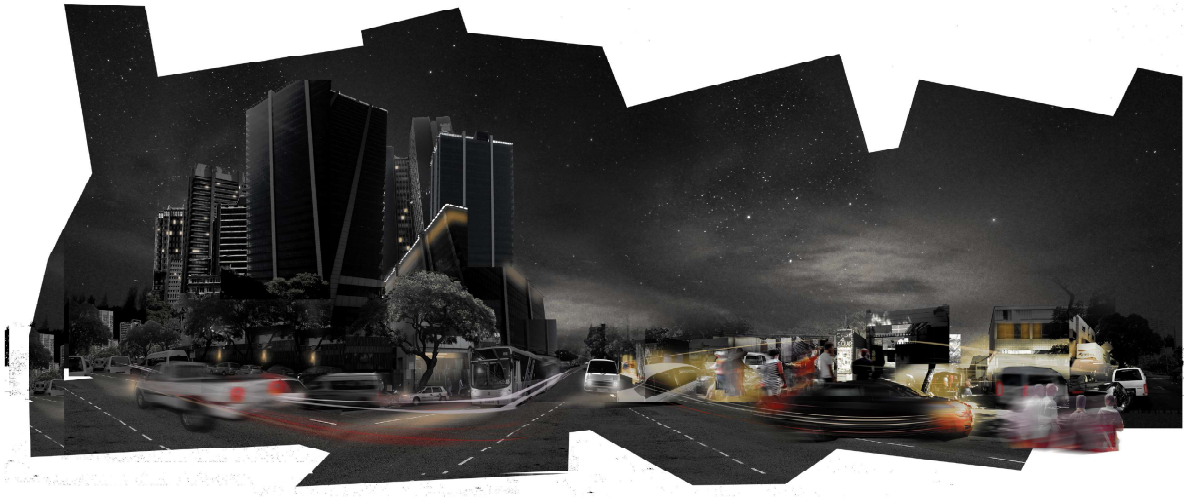
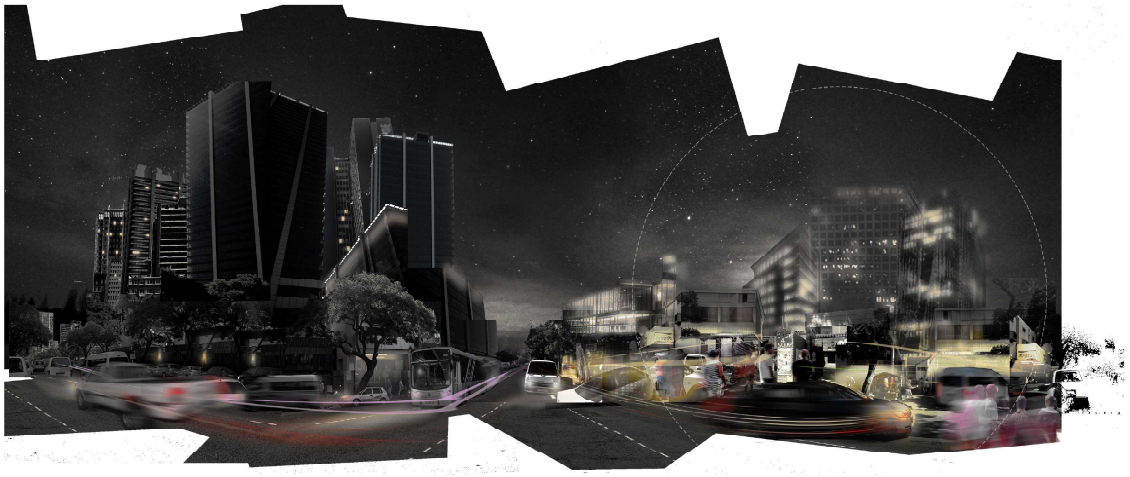


Figure 2.10 A layering of various maps to identify opportunities in the city

With the layering of the different maps of bus routes, taxi ranks, pedestrian movement, building height and density together with the Tshwane Vision 2055, it becomes evident that the north eastern quadrant of the inner city is one of the least dense areas in terms of building fabric with the most pedestrian activity however, it is excluded from the Tshwane Vision 2055 (see Figure 2.10).



GOVERNMENT - PROPOSAL A



BRIDGING THE DIVIDE - PROPOSAL B

Figure 2.11 Artist impressions of what the city might become at the hand of the Tshwane Vision 2055 vs the group's proposed vision

This study identified that this quadrant poses major development possibilities. It also identified that civic densifications adds boundaries and does not allow for informal growth and activity. To a certain extent this quadrant should be allowed to develop informally, but with some formal guidelines, to act as catalysts for development.

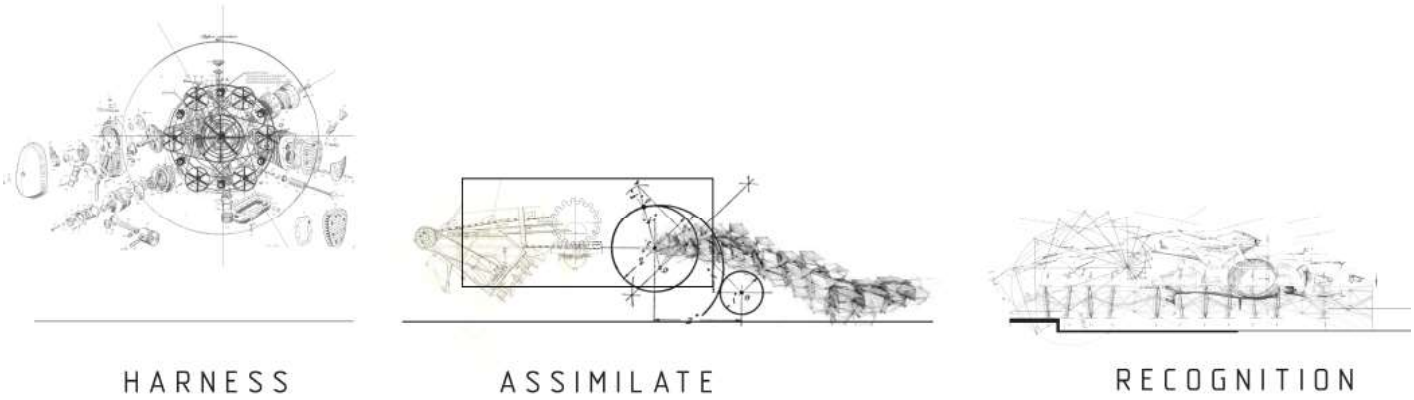


Figure 2.12 Diagrammatic representation of the three projects that will be applied to the precinct

Mr Thompson's project will aim to harness the energy and re-appropriate it in a new way as part of the formalisation of the precinct. This project will aim to assimilate the connection between the formal and the forgotten part of the city while Mr Boonzaaier's project will aim to recognise the forgotten part of the city, to become part of the city.

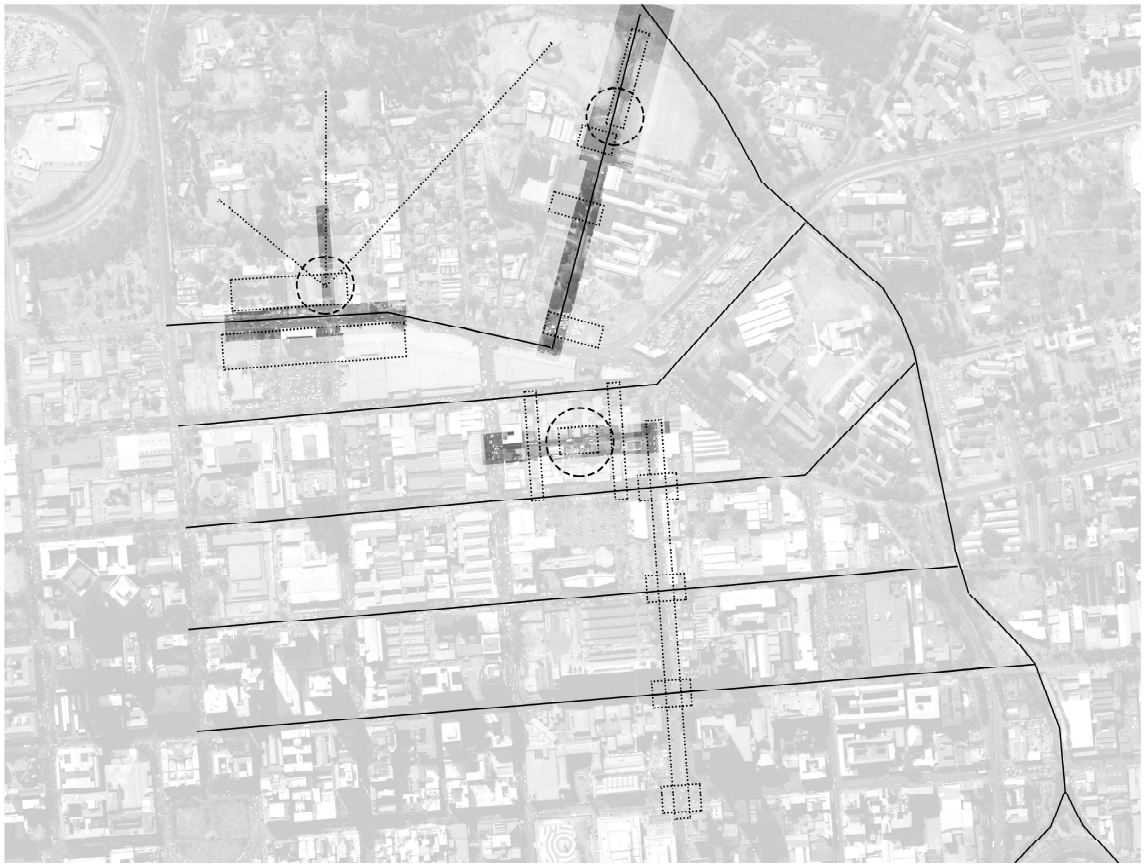


Figure 2.13 A diagrammatic map showing the three intentions for the precinct

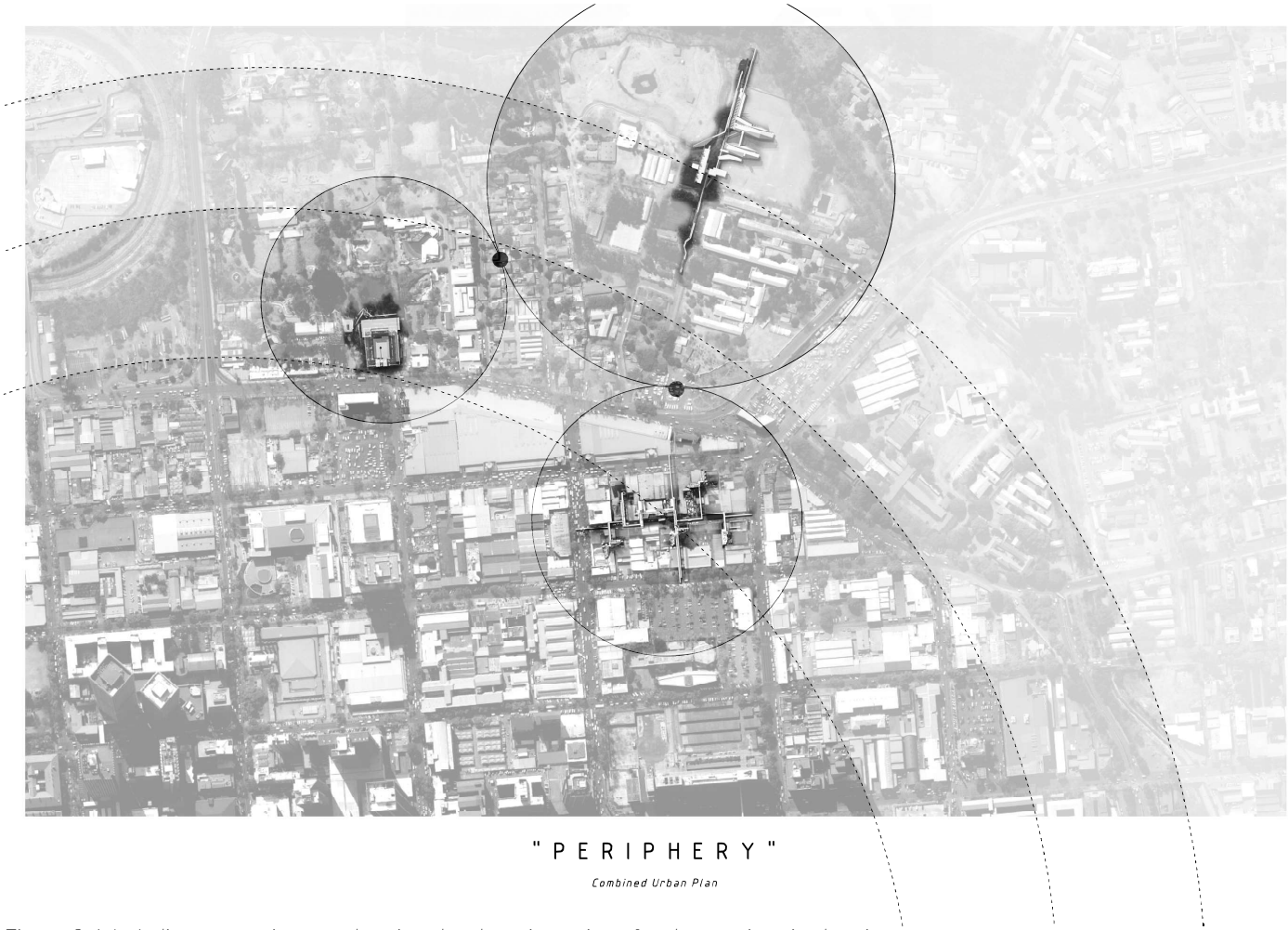


Figure 2.14 A diagrammatic map showing the three intentions for the precinct in the city

Figure 2.16 Diagrammatic plan of Mr Thompson's intervention

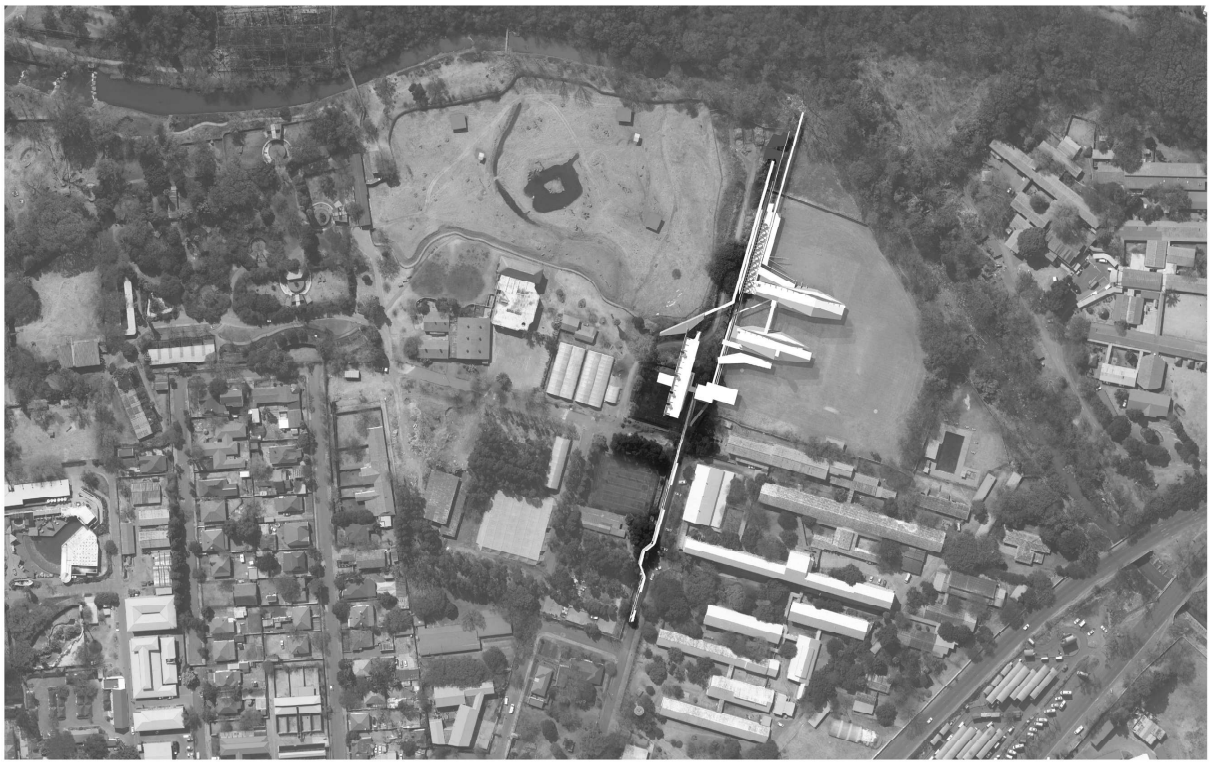


Figure 2.15 Diagrammatic plan of Mr Boonzaaier's intervention

Figure 2.17 Diagrammatic plan of the intervention proposed by this study

2.2 RESPONSE TO URBAN VISION

One of the major opportunities, as identified in this urban study, is the development opportunity of the north-eastern precinct as a neglected part of the Tshwane Vision 2055.

Together with this opportunity, there are high levels of pedestrian activity in the area which, if harnessed, can benefit the correct development, as an integrated part of the precinct.

As part of the larger understanding of the combined new urban framework, one finds a building that was designed in the late 19th century and which was completed in 1904. This building is known as the *Old ZAR Staatsmuseum* and is situated on the periphery of the proposed Tshwane Vision 2055 governmental boulevard at the start of Thabo Sehume Street.

The museum which once formed part of the urban precinct now finds itself lost in its context with very little relationship and reference with either the city or with the NZG leaving the building with a sense of lost identity, or lost dignity in that it adds no value to the urban fabric.

As part of a larger urban vision, the response to the building should allow the building to assimilate the relationship between the forgotten and the formal.

The old *Staatsmuseum* is ideally located; not only is it situated within this precinct, but it is also on the threshold to the NZG, creating vast opportunity for a development.

03

SITE AND CONTEXT

The site, together with the context, will be analysed and described. The analysis will focus on the history of the context as well as the history of the Staatsmuseum. A description of the current building condition is also included as part of this chapter. The outcome is to identify why an intervention is needed.

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Figure 3.1 Panoramic photograph of the inner city of Pretoria from the Daspoort ridge in the zoo

3.1 URBAN CONTEXT OF SITE

3.1.1 Location

The *Staatsmuseum* is situated in the north-eastern quadrant of the inner city of Pretoria, symmetrically on the axis where Thabo Sehume Street intersects with Boom Street. The museum falls just outside the governmental boulevard development proposal of the Tshwane Vision 2055. The museum is situated on the same erf as the National Zoological Gardens (NZG). The old *ZAR Staatsmuseum* is the focus site of this study.

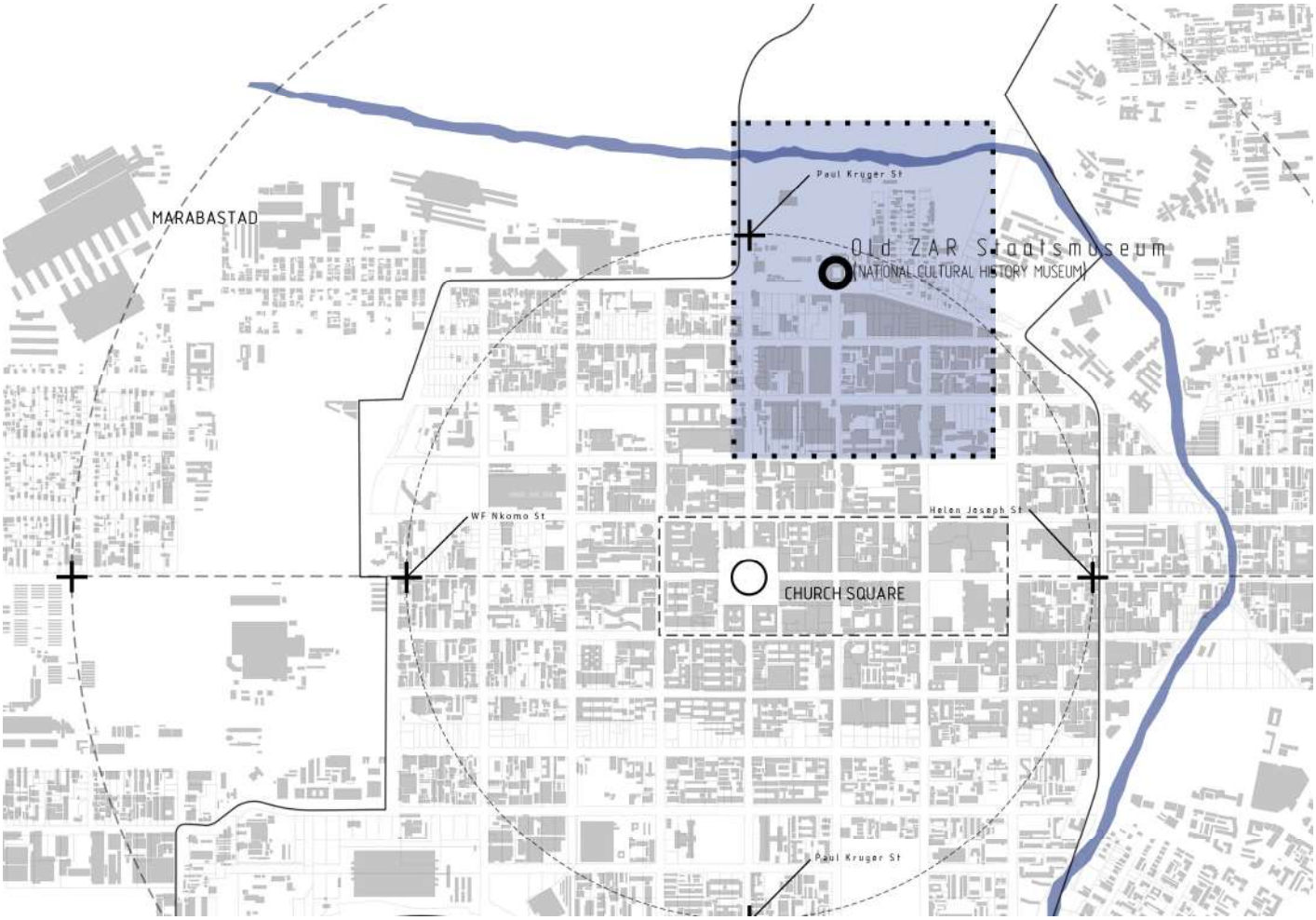


Figure 3.2 Location map indicating the physical location of the Staatsmuseum and larger study area

Figure 3.3 Location map indicating the study area

3.1.2 Owner/Custodian

The National Research Foundation (NRF) is the current custodian of both the *Staatsmuseum* and the NZG (National Zoological Gardens).

3.1.3 Climate

Pretoria's climatic condition, is described as a semi-arid cool climate according to (Pretoria. climatemps.com) with average annual temperatures of 17.3 degrees Celsius. The average monthly temperatures fluctuate by 10.5 degrees Celsius.

Total annual precipitation averages 732mm or 732 l/m2 which is summer seasonal rainfall. Typical of its Highveld setting, afternoon thunderstorm precipitation rates can peak at 90 to 100mm/ hour. Hailstorms, which can be quit severe, are also common.

Prevailing winds are very calm and sporadic, blowing from a north-easterly direction in the morning and north-westerly direction in the afternoon. Strong winds can however occur during thunderstorms, which are additionally funneled by the Daspoort Ridge (Niebuhr 2007:15, Tayob 1999: 90).

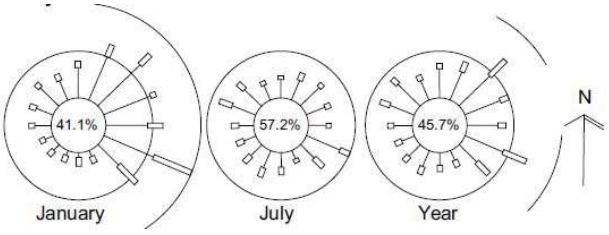


Figure 3.4 Wind roses of Pretoria

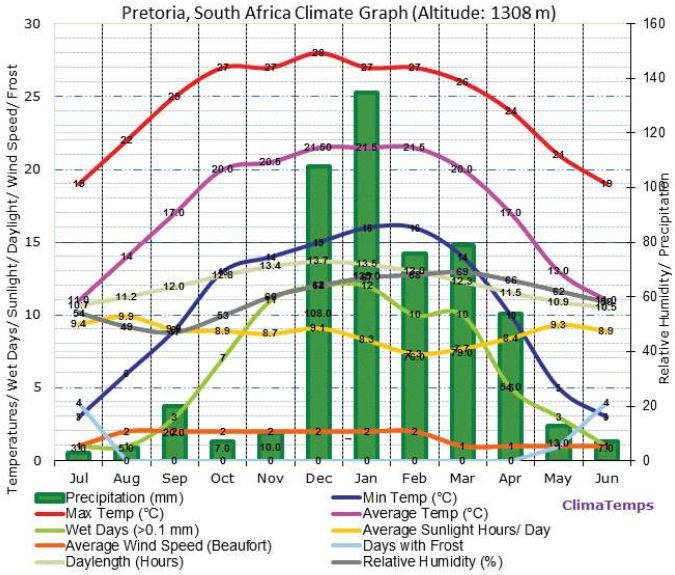


Figure 3.5 Climatic graph of Pretoria

3.1.4 Topography

The site has a mild to harsh slope of 1:27 from Boom Street (see Figure 3.6) to the Apies River, but is more severe along the old *Staatsmuseum* where the site has a fall of 2.8 meters (see Figure 3.7) from the road to the northern wing of the building towards the Apies River.

3.1.5 Geology

The geological composition of the soil layers, as indicated on a geological map, is predominantly localised Andesitic lava with agglomerate, shale and turf. This geological composition is safe for normal building practices.

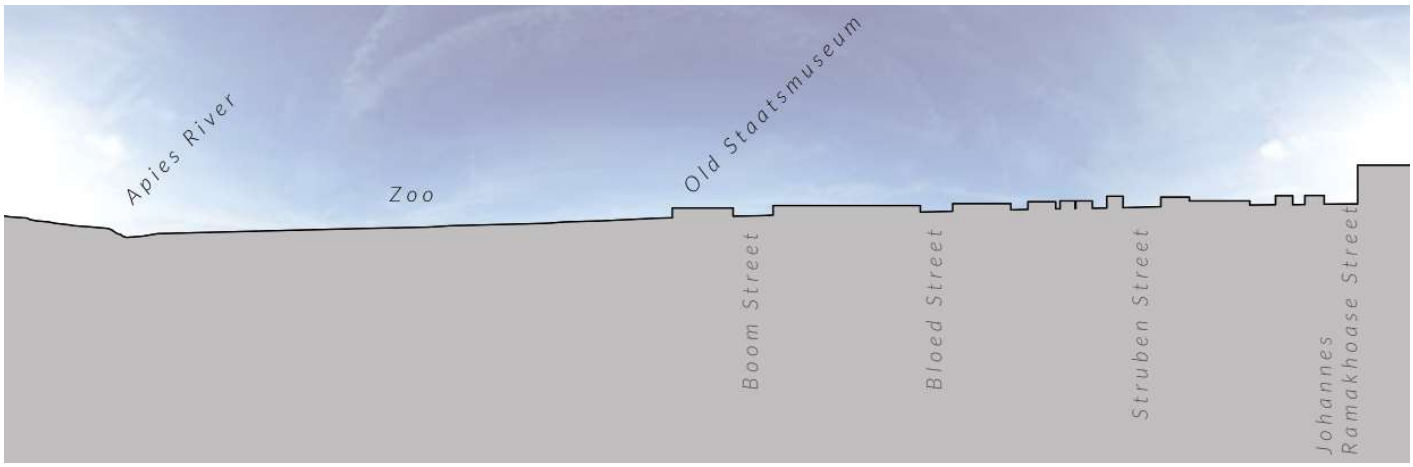


Figure 3.6 North-south section through Pretoria city centre with specific focus on the Apies River towards the city

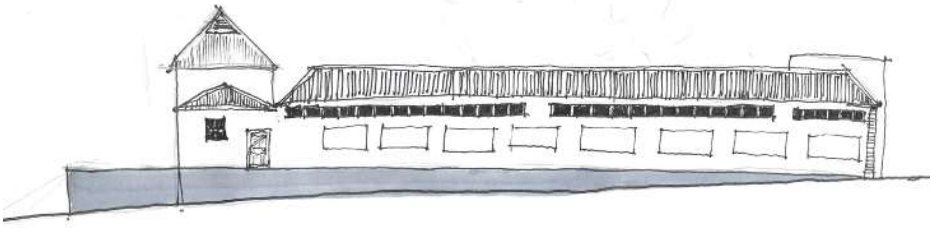


Figure 3.7 North-south elevation showing the slope of the landscpae at the Staatsmuseum

3.1.6 Development Proposals

The most recent development proposal of the NRF in the zoo precinct is aimed at the old *Staatsmuseum* building. The current custodian of the museum, the National Research Foundation (NRF), has called for tenders to introduce a Life Science Centre in the old building, as part of an adaptive re-use project (Otto 2015:22).

According to a newspaper article on the 28 of February 2015 the NRF has made a public announcement that the project is going ahead and the new proposed Life Science Centre will be housed in the building.

3.2 ZOO: HISTORY AND CONTEXT

The National Zoological Gardens, as it is known today, was established in 1899 by, the then director of the *Staatsmuseum*, Dr. Jan Boudewyn Gunning. The farm, *Rus en Urbe* (translated meaning: rest in the city) was acquired by the government in 1895, for the establishment of the zoological gardens. In the early years, the government could not afford many animals, and the zoo was predominantly used to house animals in transit between Africa and Europe or America (National Zoological Gardens of South Africa 2015). The zoo, under guidance of Dr. Gunning, did however expand and acquired national status in 1916, from when it was known as the National Zoological Gardens of South Africa. Today the NZG is rated under the top eight zoos internationally (Forbes has named the best zoos of the world 2007).

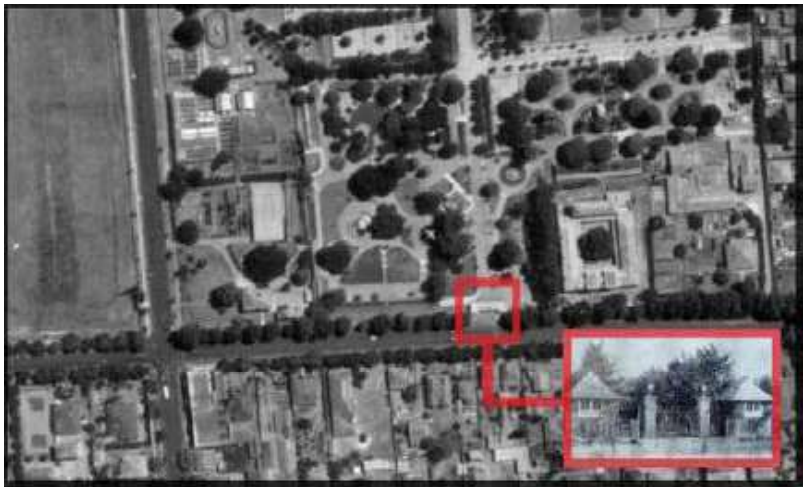


Figure 3.8 Historical map of the study area

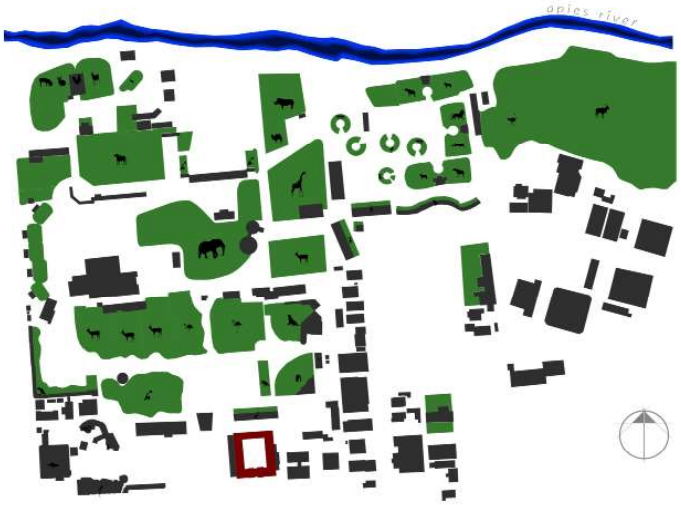


Figure 3.9 Zoo layout map (south of the Apies River)

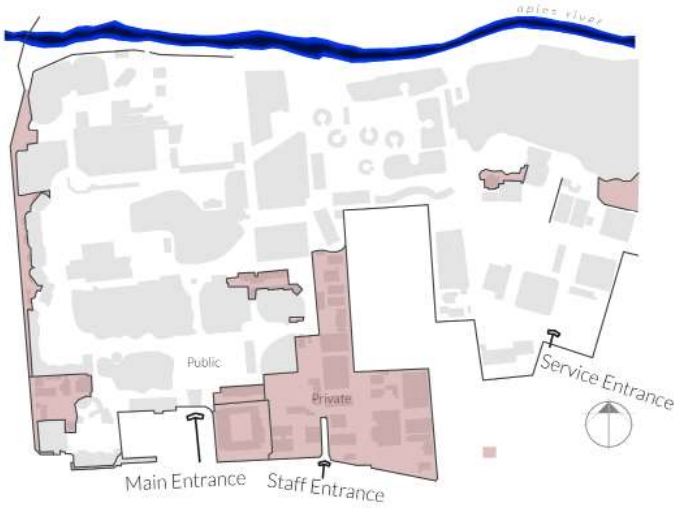


Figure 3.10 Map of the public and private spaces in the zoo. This map also depicts the segregated nature of the NZG towards the city in the way it is fenced off from the city

The NZG today (at the main facility in Pretoria) is home to approximately 5 000 different mammals, birds, fish, reptiles, amphibians and invertebrates (see Figure 3.9), comprising of around 600 species and sub-species (National Zoological Gardens of South Africa 2015).

Between 1902 and 1913 the old *Staatsmuseum* housed a large amount of artefacts, which according to (Küsel, 2000:69] was once one of the largest collections of natural and cultural significant artefacts in the world. The fact that these two places had such a prominent collection of cultural history, of living and preserved (deceased) animals, including insects, birds, fish and reptiles, places emphasis on these two places as two of the most important places with regard to exhibiting and more importantly the conservation and education of the natural world. The fact that the zoo is not only the Pretoria Zoological Gardens, but the National Zoological Gardens, places further emphasis on the importance of the NZG, as the ambassador of zoological gardens in South Africa, and perhaps more importantly, the role of conservation and education on nature, in our society.

A place such as the NZG, with significance and focus on conservation and education, should be well integrated with the urban fabric, as it plays a vital role in the community.

The current condition of the NZG, in terms of its relationship with the urban context, shows little importance of place. The entire NZG is, not only fenced off from the city, but it also turns its back on the city, neglecting any form of relationship with its context and the city dweller (see Figure 3.10).

The current entrance is situated in Boom Street. There is an amalgamation of various structures, to define the entrance (see Figures 3.12-3.15). The first of these structures, is an ad-hock stone building, which provide some space for curio-traders to sell their African goods. This building is situated between the main parking area and Boom Street (see Figure 3.12). It faces Boom Street and has no relation with the parking area, and even less of a relationship with the zoo, other than the fact that it is situated on the same erf, as it only lives out to the street.

An open parking area is framed by the curio building, the reptile enclosure, the penguin enclosure and an administrative building (see Figure 3.13). This parking is relatively small, hence a spill over parking area is located across the road, in Boom Street.

The entrance building, also forms part of the amalgamated structures, and can be said to be the most defined, in terms of "way finding" of all the buildings because of the two spiking masonry towers in front of the building (see Figure 3.14).

The suggested route, to the spiking towers of the main entrance, has been decorated with gum-pole and slat structures, to create a boulevard, or route to the entrance. This route terminates at the entrance, and once one enters the zoo there is an open green space (see Figure 3.15).

The *Staatsmuseum*, forms the eastern boundary of the entrance boulevard, but is separated from the entrance by a stone wall that veils the building. The building is hugged by the NZG on all sides, except on the street edge (see Figure 3.10 and Figure 3.11). It is however, a noteworthy tragedy that there has never been any form of physical association between the NZG and the *Staatsmuseum*, as both of these buildings turn their backs on one another, even though the buildings are managed by the same governmental department, the National Research Foundation (NRF).

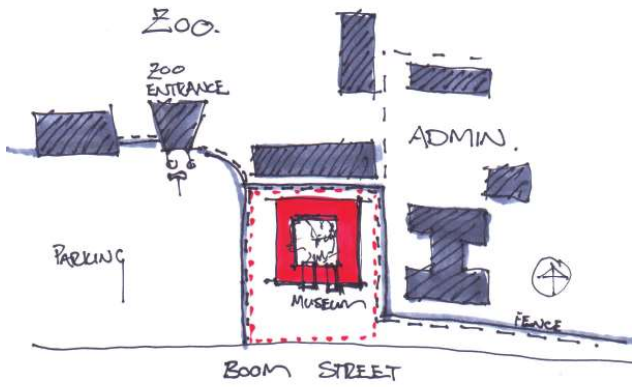


Figure 3.11 Diagram indicating the lack of relationship between the Staatsmuseum and the NZG

Figure 3.12 Photograph of the existing pedestrian entrance route

Figure 3.13 Photograph of spill out space in the zoo

Figure 3.14 Photograph of the curio building and parking area

Figure 3.15 Photograph of administrative building

Figure 3.16 Photograph of the entrance route to the zoo and the Staatsmuseum's western boundary

3.3 THE STAATSMUSEUM: A BRIEF HISTORY

The property on which the *Staatsmuseum* stands today, was originally the property of J.F. Cilliers, and was known as the farm *Rus en Urbe* which translates as 'Rest in the City'. It was bought by the Government in 1895, for their long-term plan to develop the Pretoria National Zoological Gardens (NZG) on the site.

As part of this long term investment and goal, the president of the "Zuid Afrikaansche Republiek" or ZAR (Republic of South Africa) between 1883 and 1900, Pres. Paul Kruger, was of the opinion to turn the *Transvaal* into a model state and to do this, the *Transvaal* would need infrastructure and buildings (Fisher & Clarke 2014:11). Professionals who had the skills and knowledge, regarding architecture and construction, were imported from the Netherlands. One such professional was Sytze Woepkes Wierda. He was a dutch architect who arrived in Pretoria in November 1887, after being appointed as Government Architect (Fisher & Clarke 2014:94) for the Department of *Publieke Werken* (department of Public Works).

The influence from the Dutch professionals, resulted in an architectural design aesthetic, that was mainly influenced by Dutch architecture and building styles. A style that is known today as Wilhelmiens architecture. The museum, as designed under guidance of Sytze Wierda, is one of the examples of what we today refer to as Wilhelmiens architecture in Pretoria. Some other buildings in the Wilhelmiens style in Pretoria include the "old Government Press", the "*Staatsartillerie*", "*Wesfort*" and probably, the most well-known, the "old *Raadsaal*" building (see Figure 3.18) on Church Square, to only name a few.

The *Staatsmuseum* was commissioned under the Department of Public Works in 1898, after the two previous spaces (the New Council Chambers and later a small building at the Fresh Produce Market, known today as, the Sammy Marks Square), that hosted a growing collection of artifacts and specimens of natural history from across the globe, became too small (Z*% Old ZAR Government Museum 2012). According to Grobler (1994:17) the museum's mission was set to improve and maintain public awareness toward valuable cultural aspects, with definite focus on historic, ethnographic, archaeological and natural sciences.

In 1899, with the outbreak of the Second Anglo-Boer War, construction of the museum was disrupted. The construction was resumed in 1902, under British rule and completed in 1904 (Z*% Old ZAR Government Museum 2012) as per the design of Wierda.

After the war and under British rule in 1902, the museum became known as the *Transvaal Museum* (Küsel 2000:69). This would imply that by the completion of the museum in 1904, it was was already renamed to be the *Transvaal Museum*.

In 1913 a new building was erected in Paul Kruger Street to become the new *Transvaal Museum* but it was already too small to host the entire collection from the old museum, and so only the natural history collections were moved, leaving the cultural history collections behind in the old museum (Küsel, 2000:69).

According to Küsel (2000:69), the old *Staatsmuseum* began to slowly deteriorate until 1990 when the eastern wing of the museum was flooded after a water pipe from the fire sprinkler burst. One year later a water pipe burst in the western wing and caused a flooding there. The museum was closed down because the damage to the collections, exhibitions and building was severe. The offices and the remaining cultural collections were moved to premises all over Pretoria.

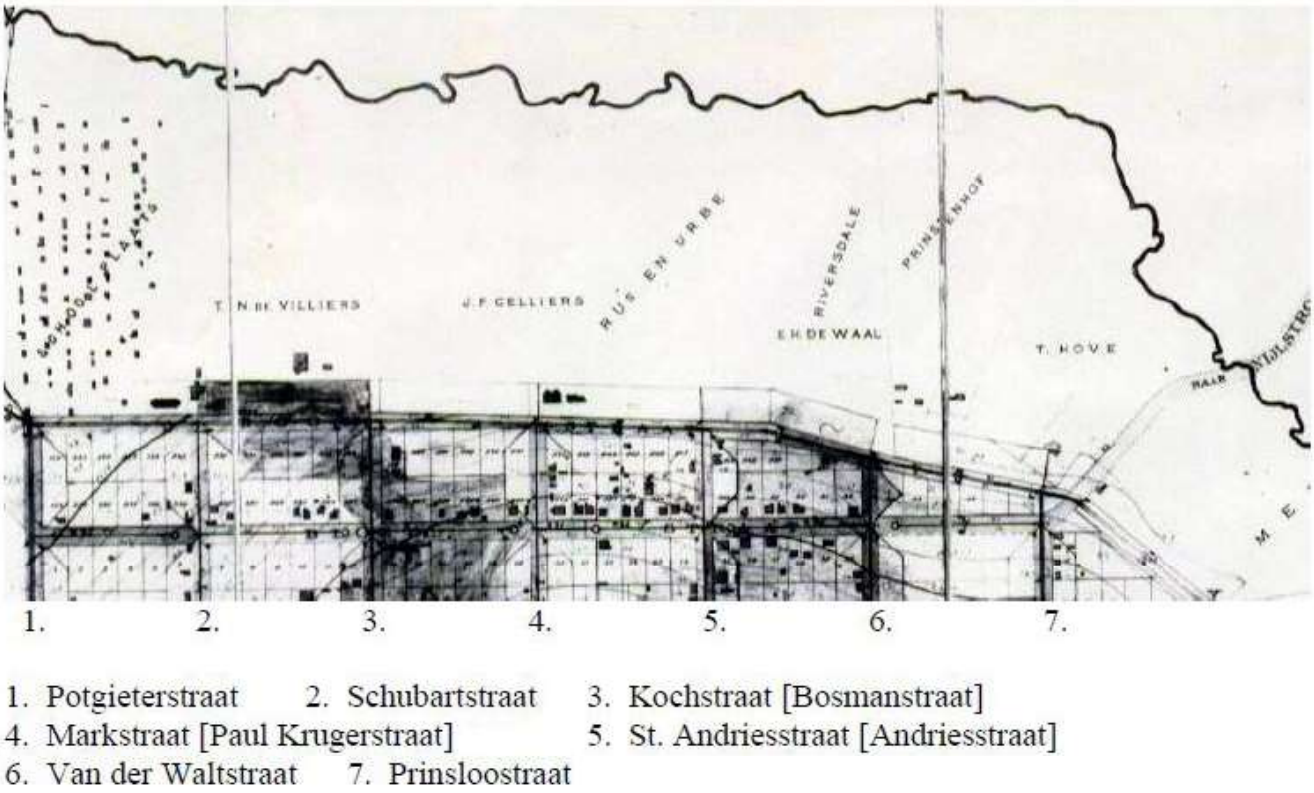


Figure 3.17 Historic map of the urban context and the farm: 'Rus en Urbe'

Figure 3.18 Photo of the Raadsaal (Council Chamber)

Figure 3.19 Historic photo of the Staatsmuseum c.1904

This caused, the largest collection of South African cultural history, to be without a museum and in 1992, the old Mint building was secured to be the new building to exhibit the remaining cultural collections (Küsel 2000:69).

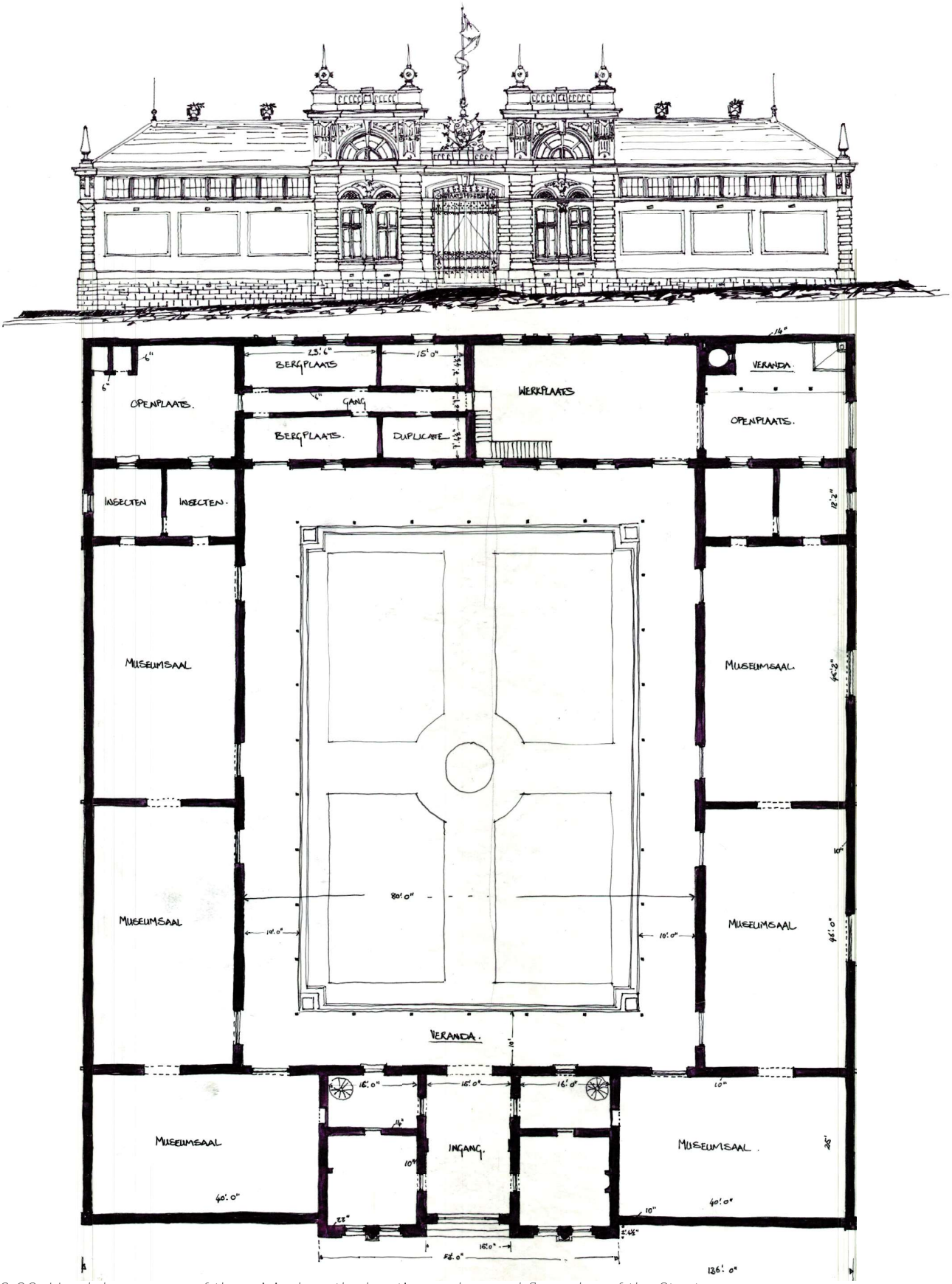


Figure 3.20 Hand drawn copy of the original south elevation and ground floor plan of the Staatsmuseum

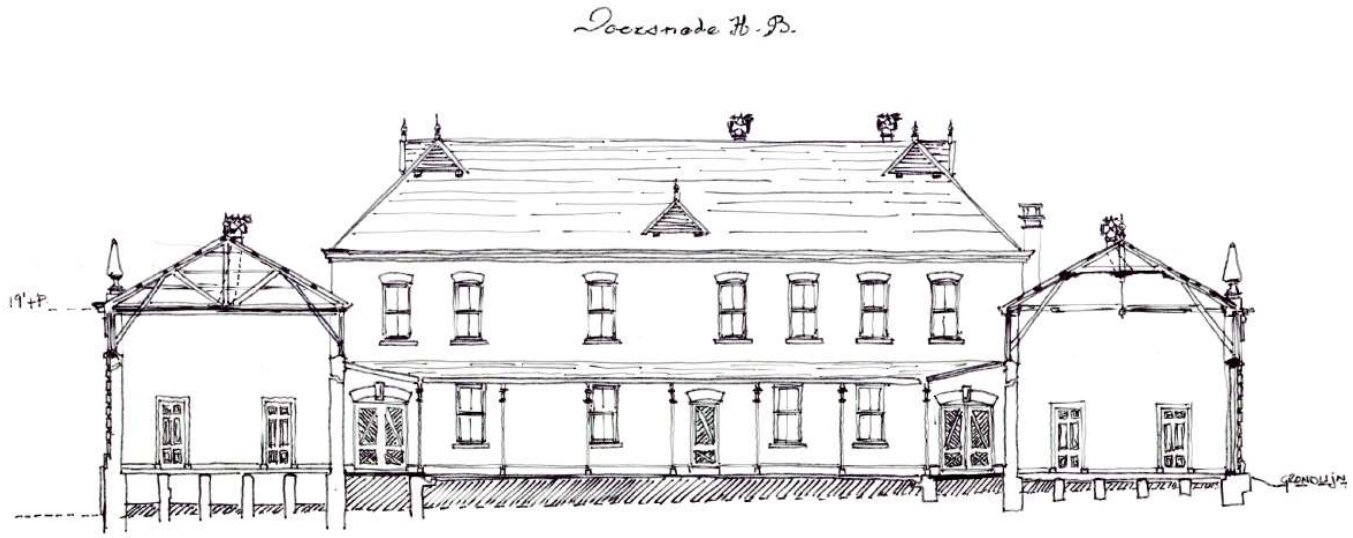


Figure 3.21 Hand drawn copy of an original section through the Staatsmuseum

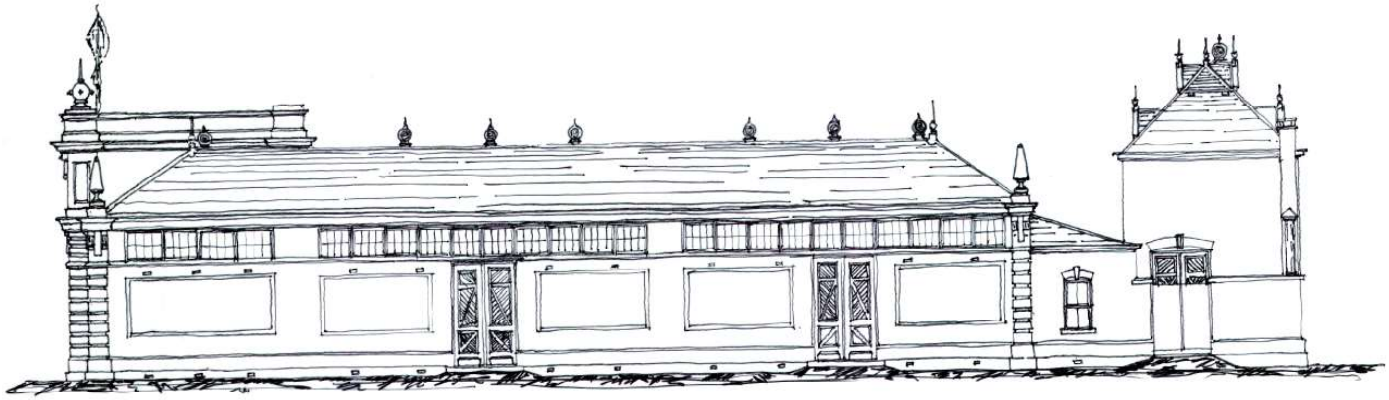


Figure 3.22 Hand drawn copy of the original east elevation of the Staatsmuseum

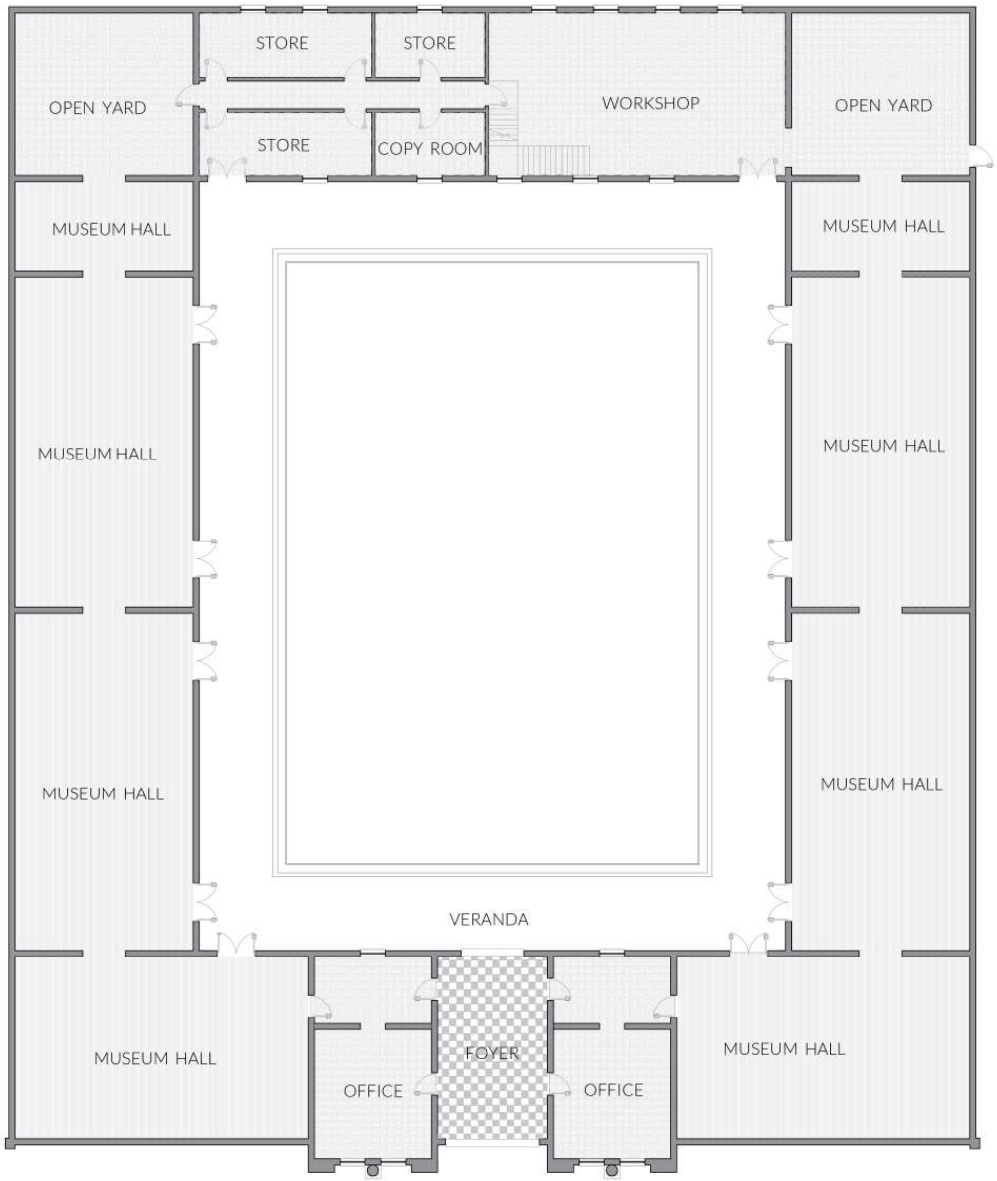
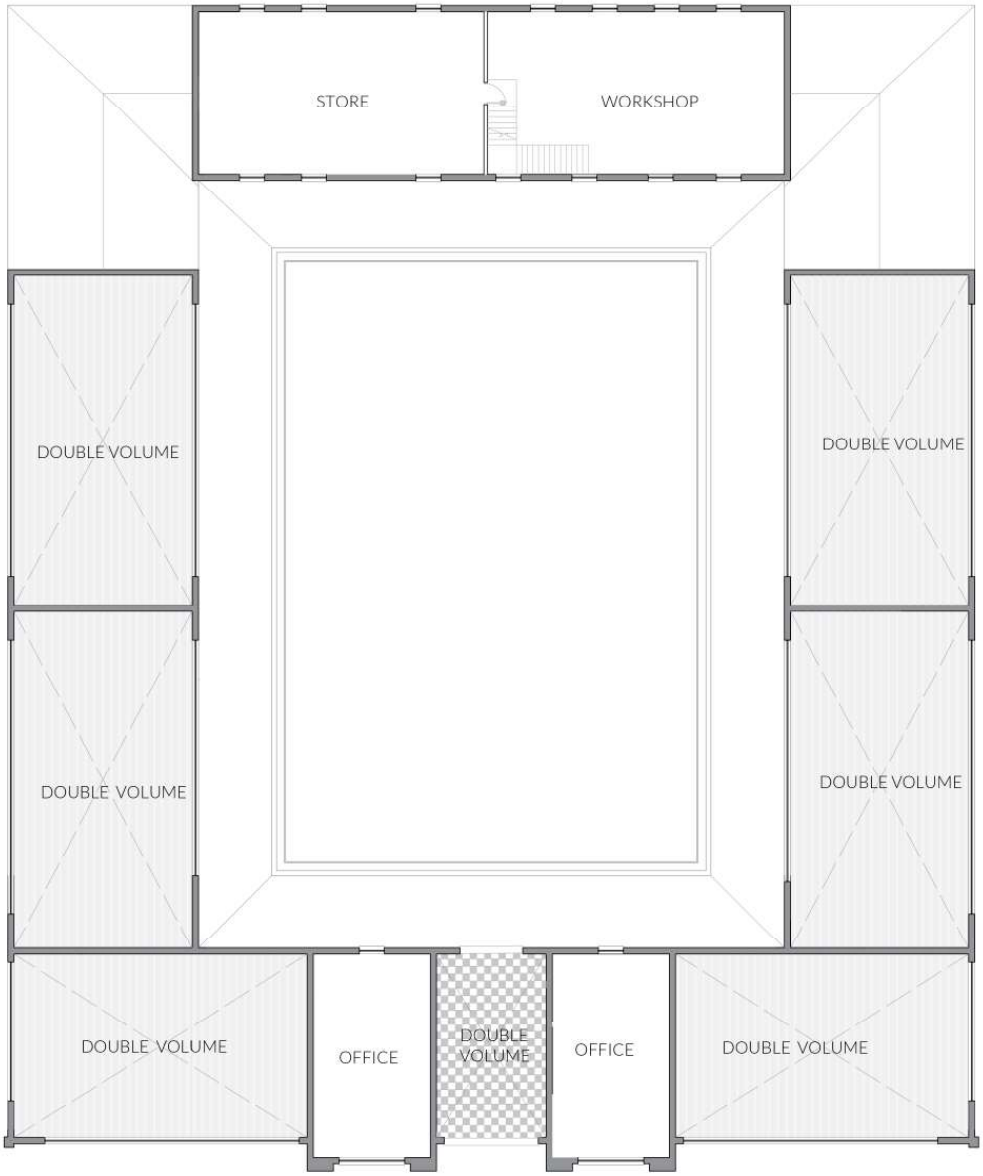


Figure 3.23 CAD representation of original ground floor plan



ORIGINAL FIRST FLOOR PLAN

Figure 3.24 CAD representation of original first floor plan

3.4 THE STAATSMUSEUM: FORM, SPACE AND FLOW

As a museum, the building was designed as a very private building in that it lived in on itself. The building has one main grandiose entrance, (see Figure 3.20) situated symmetrically in the southern wing on Boom Street, and one service entrance on the east wall of the northern wing. Two large doors (4m in height), in the western wing, allows for large exhibition elements to be easily moved in and out of the building. Horse carriages offloaded the building material and so the door openings had to be big enough to accommodate the carriages. The main entrance penetrates the rectangular building, straight into the central courtyard space (see Figure 3.25).

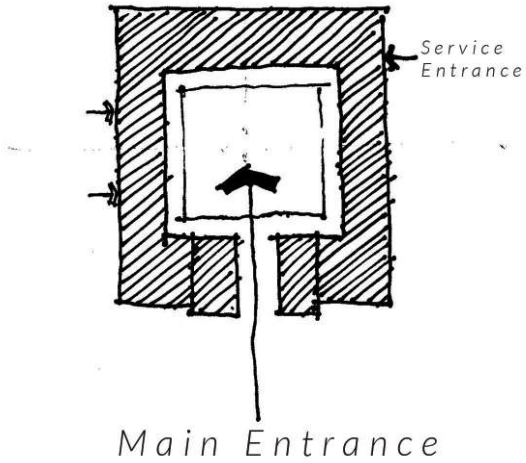


Figure 3.25 Diagram indicating the flow into the building

The spatial arrangement of the building is designed around the courtyard, establishing the courtyard as the most important and main space of the building, as illustrated in Figure 3.26.

It used to be a popular design decision for architects, to design exhibition spaces around an atrium (University of Pretoria 2013). It was considered to be a "security frame" around the artefacts and the collections of interest.

The building further consists of six large exhibition spaces, which are symmetrically organised around the central courtyard space, two office spaces on either side of the main entrance in the southern wing and work- and service spaces in the northern wing of the building, as seen on the original plan drawing (see Figure 3.21 and Figure 3.23).

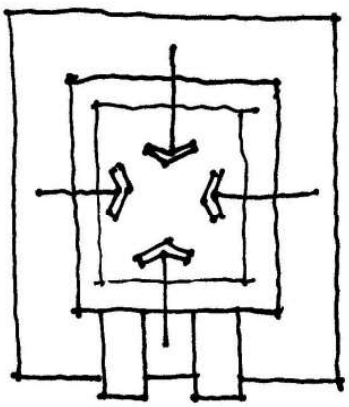


Figure 3.26 Diagram indicating the flow onto the courtyard

The northern and southern wings, both have a first floor with office spaces, while the exhibition spaces are double volume spaces (see Figure 3.24). The northern wing has, in addition to the first floor, a basement space that is accessed through a hatch door in the ground floor. This basement is nestled in the thick granite foundation walls of the building and is a result of the site's topography which has a 2.8m fall from one end to the other. The negative of this, is the fact that the northern wing of the building, was never designed to interact with the site beyond, and was functionally planned as the service core of the building. At the same time, the building has no relation with the, then open landscape and today the zoo. The zoo also interacts with the building on this edge, only in terms of services, as the space between the building and the zoo, is used as a quarantine area for the birds in the cages, next to that edge, cordoning off that space as completely private (see Figure 3.29).

The building has few windows at eye level, allowing the interior spaces to house wall-to-wall exhibitions (see Figure 3.27), with very little relationship to the surrounding context. The central courtyard space, strengthens the inward persona of the building, as all the exhibition spaces have large doors opening onto the courtyard. A veranda frames the courtyard, as threshold space, between the open-air courtyard and the internal exhibition spaces.

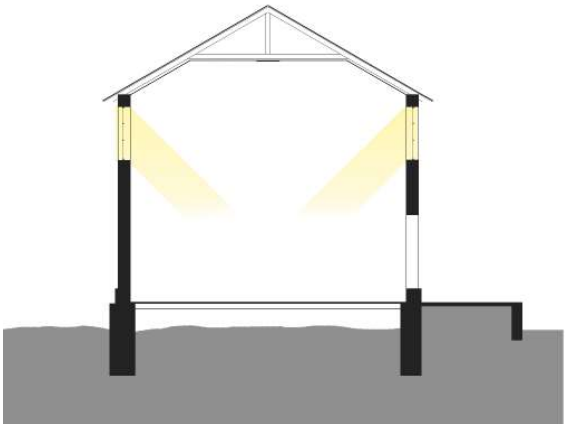


Figure 3.27 Section indicating clerestorey windows and open interior spaces

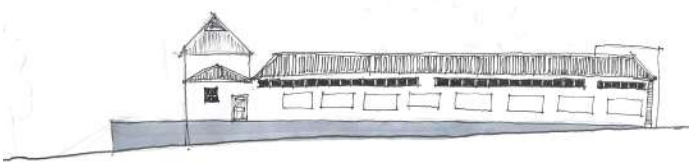


Figure 3.28 Elevation indicating 2.8m fall in topography

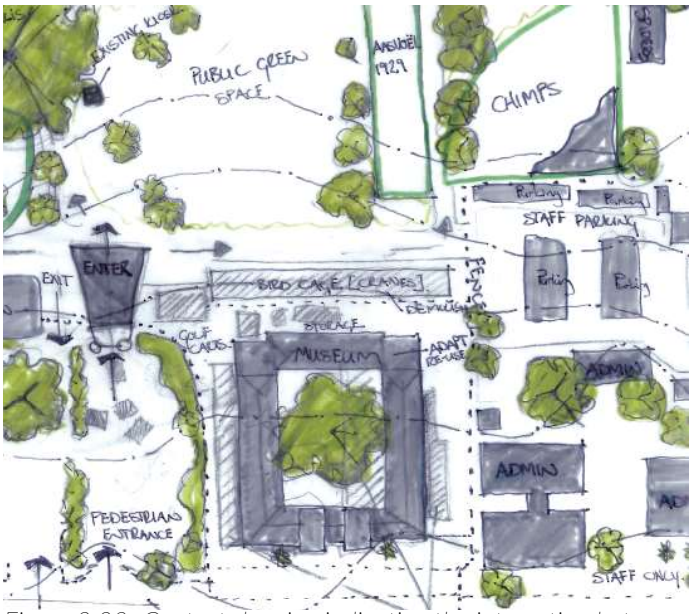


Figure 3.29 Context drawing indicating the interaction between the zoo and the north of the Staatsmuseum

3.5 CURRENT BUILDING CONDITION

Any building, left vacant for extended periods of time, will deteriorate and decompose. The same is evident in the *Staatsmuseum*, as the building has been vacant since 1991, and it has deteriorated significantly. The result of this, is that the deterioration has accumulated and worsened over time, as a result of no maintenance (University of Pretoria 2013).

3.5.1 Exterior

Walls and Paint

The building has originally been finished with a lime plaster. The plaster is giving way and is peeling off in various places. Hairline cracks, are also visible in the plaster, due to the lack of maintenance and water seeping into the walls. The bricks, used for the construction of the building, are very soft and porous, and easily erodes when coming in contact with water.

Windows

The clerestorey windows on the southern side as well as the western side has been painted, and so no light can penetrate through. This makes the southern wing and the western wing very dark inside.

Doors

Some doors have been vandalised and have broken panels. There are also traces of repair work carried out on doors, in an attempt to close holes in the timber. Doors to the foyer space, have been nailed into a semi-closed position.

Roof

Gutters and downpipes are rusted and weathered, and at some places missing.

The roof panels are very old, and at places rusted through, causing water to seep into the building.

The roof structure is very old, and although an investigation of the trusses could not be made, it is advised that the trusses be inspected for structural integrity and replaced or strengthened where needed.

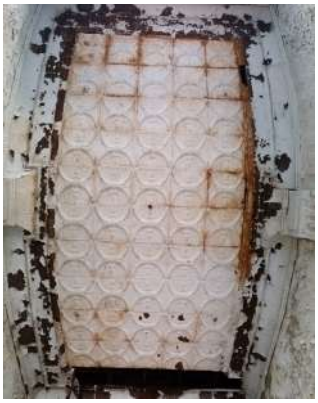
3.5.2 Interior

The interior in general, has been preserved rather well.

Interior walls have also been finished with a lime plaster. In order to prevent paint, that was later added, to seep into the walls, a pitted plaster was added to the interior walls (Niebuhr 2007:157). It is still best advised to use a lime based paint on all walls.

At some places the paint is peeling off, and where roof panels have sustained major damage, water has in turn also caused major damage to the plaster. This is mostly evident on the first floor of the northern wing.

The original pressed steel ceiling panels are rusted in places and the paint is also peeling in some areas.



Various partitions (for exhibition show cases), have been added to the interior at later stages, but have, with the building being vacated, been damaged and half-removed. Partitions have been added to define different office spaces in the northern wing of the building, but have been vandalized and are in a poor condition.

Clerestory windows in the exhibition halls of the southern wing, have been painted black, presumably in order to have better control over light. This has a very negative impact on the interior space, due to the lack of both natural and proper/ focused artificial light in the space. External, horizontal asbestos louvres have also been added by one of the previous zoo directors (Niebuhr 2007:163). It is presumed that these louvres have been installed to prevent any direct (specifically eastern and western) sunlight from entering the spaces, but they block most of the natural light from entering the spaces, and have a negative effect on the spaces.

The imported black and white checkered marble floor in the entrance foyer, is in a good condition. The original 110mm Oregon Pine timber floors have, sustained minor dents and breakages to planks. The floors were been covered with battleship lino floor covering in the western wing and with “Hunt Leuchars & Hepburn” parquet flooring in the eastern wing in the late 1960s.

Additions

The addition of a toilet, shower and wash hand basin, to the administrative wing of the building, has been done poorly without a conscious response to the building fabric in a respectful manner.

The staircase to the first floor, of the administrative wing, has been built according to the original plan, but goes past a window right up against the wall, and is a poor execution of a staircase in the space with relation to the façade. This window has consequently been boarded up.

A large part of the roof, of the added building section in the courtyard, has collapsed due to water. This space is in a very poor condition and is badly vandalised.

3.5.3 Courtyard

Roof

The veranda roof has due to a lack of maintenance, corroded severely. Various roof panels are rusted through, which has damaged ceiling panels. Some of the timber beams are rotten and not structurally sound any more. The timber columns are also rotten at places, and some are even missing in total.

Floor

Local Blue slate slabs (presumably from the Erasmuskloof quarry), have cracked at some places. Half of the veranda has been covered with a building addition in the courtyard, and the floor has been covered over with a new floor covering.

Doors

The roof has ensured that most of the doors opening out onto the veranda have been preserved fairly well. The only need for maintenance is missing ironmongery and paint.

Garden

The oak tree in the center of the courtyard, has presumably been planted after completion of the building work. The roots of the tree have not been cut back in recent years, and is causing some disruptions with the foundations and with water and drainage pipes.

The garden in general, has been neglected and most of the plants have died. The garden, as designed on the original plan, does not seem to exist anymore.

3.5.4 Basement

The granite foundation walls of the basement have been painted and the paint is peeling due to dampness on the walls.

Later additions are also evident in the way arches and openings have been closed, in order to create separate spaces within the basement.

3.5.5 Services

Electricity

There are very few indications of electricity being part of the original building design. According to a previous study and analysis of the building, as part of her Masters dissertation, I Niebuhr(2007:163) had found an old chandelier hanging from the ceiling in the entrance foyer of the building. The chandelier is not present in the building any longer. An old breaker switch is however, still present in the foyer, which is indicative that some sort of old electrical installation had been part of the building from an early stage. Other electrical installations only include fluorescent lighting in some areas as well as an electrical geyser, which are evidently later additions. The electrical supply and wiring of the building is very old, and might not be in safe working order.

Sewerage

There exists no evidence of water or sanitation being part of the original building. A toilet, wash hand basin and a shower, have been added to the northern wing of the building. A wash hand basin has also been added to the western tower of the building. A 100mm galvanized steel pipe is visible in the eastern tower, and it is assumed that the pipe was used to relay water from the central foyer's roof. A 100mm LCC (London Country Council) cast iron vent pipe (Niebuhr, 2007:164) is also present in the northern tower. This pipe, is also taken right past the windows of the basement, in order to connect to the sewerage connection at Boom Street.

3.6 IDENTIFYING THE PROBLEM(S): WHY INTERVENTION IS NEEDED

the lost part of the city. There is great opportunity for better integration of the NZG and the city, with a lot of potential energy that is present in the city on a daily basis as identified in Chapter 2.

The non-existence of any relationship between the *Staatsmuseum* and the zoo is also problematic, in that the building could have a very close relationship with the zoo, even if it is only based on the themes of both places being so closely related to one another, as both places falls under the same custodian, the National Research Foundation (NRF). The *Staatsmuseum*, in the way it is orientated, only relates to Boom Street, and forms an obstacle or boundary between the street edge and the zoo at that point. This shortcoming should be addressed.

Since the final artefacts have been moved out of the building, the building has stood empty and without any purpose. The fact that the building has no programmatic function and contributes in no functional way to the city, should be addressed. If the building continues to stand empty, it will only deteriorate, and will make conservation efforts worthless.

This study will attempt to find the best possible way of responding to these issues, specifically with relation the *Staatsmuseum*, within the guidelines of legislation, such as the National Heritage Resources Act of 1999. This response will have to allow for the preservation of the building through adaptive re-use, while also allowing a new program to be introduced in the building, that responds well to the list of problems and possibilities set out in this section.

04

HERITAGE RESPONSE

This chapter explores heritage in Architecture through the guidelines of the Burra Charter. It also looks at different ways to respond to heritage, considering methods such as wraps, weavings, juxtapositions, parasites, insertion, and the possibility of combining more than one method, when responding to heritage. Precedent studies that apply these methods, are shown.

INDEX

4.1 WHAT IS HERITAGE (in Architecture)?

Architectural heritage.

As heritage is seen as something that is passed or handed down from generation to generation, or handed down by tradition, so heritage in architecture is the "passing on" of buildings. It is the receiving generations' responsibility to prolong the historical buildings' material, design and its history.

If one further identifies architecture as a way in which people captures a piece of the *zeitgeist* of an era then, as McLachlan (2009:60) states, heritage becomes a part of understanding more about ourselves. Van Gorp and Renes (2006:407) identifies heritage as the traces of the past that a society chooses to preserve, and further argues that heritage then becomes a way of defining oneself. One can add to that statement by suggesting, that we can use heritage as a way of better defining cultural groups, rather than individual selves. We find a similar argument as to why we should conserve places with cultural significance - in The Burra Charter: the Australia ICOMOS charter for places of cultural significance 1999 (henceforth, referred to as the Burra Charter). The Burra Charter (Australia/ ICOMOS, 2000:1), suggests that the diversity of our communities is reflected by places of cultural significance, and that these places tell us about who we are and adds that our (the) past has formed us and the landscape we live in. This argument applies to, and is important to, architectural places of significance. This indicates that if such places are not preserved, it will result in a misguided understanding of who we as cultures really are.

Architecture can be considered as one of the tangible forms of heritage we find today. As a country, with great focus on future development, we tend to neglect architectural heritage, as a possible guideline of how (new) architecture responds to its context. Our architectural response to context, might need to be re-examined, as we tend to only focus on the present with very little respect for the past, and very little thought of the future.

Heritage in architecture is therefore, not only the preservation of old buildings as artefacts, or declaring buildings as monuments, but it is very much our architectural response to such buildings, as a way of understanding, respecting and learning from the cultural influences of such buildings.

4.2 THE BURRA CHARTER

In the preamble of the Burra Charter (Australia/ ICOMOS, 2000:1), the document is described as a charter that provides guidance for the conservation and for the management of places of cultural significance, also referred to as cultural heritage places. The Charter sets a standard of practice for people who provide advice, make decisions about-, or undertake works to places of cultural significance, including owners, managers and custodians.

This study will use the Burra Charter as a direct influence and guideline, in the way it sets out to respond to the *Staatsmuseum* as a building with heritage significance.

The Burra Charter, gives guidelines for almost every decision that has to be made, with regards to the conservation of any cultural significance place or object.

It sets different conservation principles, in which we as professionals need to respond and react with respect, to heritage significance. In the following section, some of these principles are identified, together with an indication of how this study will react to these principles.

4.2.1 Conservation Principles

4.2.1.1 Conservation and Management

It has already been identified that places with cultural significance need to be conserved. This conservation, according to Article 2 of the Burra Charter, should take place while retaining the cultural significance of a place. It is therefore important to identify and understand the cultural significance of a place in order to conserve it correctly.

The current state of the *Staatsmuseum*, indicates that it has been put at risk and has been left in a vulnerable state, due to the lack of conservation management. The aim of this study, is to introduce a new way of thinking and understanding the building, and formulate a proper response to it as set out in this chapter.

4.2.1.2 Cautious Approach

Article 3 of the Burra Charter, states that conservation should be based on; i) a respect for the existing fabric; ii) the current use of the place or building and; iii) any associations or meanings that a culture has attached to such a place. It is advised that one should be cautious to change as little as possible, and change only what is needed.

4.2.1.3 Knowledge, skills and techniques

In accordance with Article 4, one can apply all knowledge and conservation techniques, (both historical and modern), as part of the best possible understanding and conservation of the place. This would depend on which knowledge, or set of skills, to best benefit the place.

4.2.1.4 Values

Article 5 of the Burra Charter, states that all aspects of significance of a place, both in terms of cultural and natural should be considered. The same amount of emphasis should be placed on each aspect, when identifying the value of its significance.

4.2.1.5 Burra Charter Process

The relationship between the cultural significance, and the future use or development of a place should, in accordance with Article 6, be well considered. An understanding of the cultural significance bares first priority, followed by a development and management policy of the place; these are guidelines for future development.

4.2.1.6 Use

As the *Staatsmuseum* has not been used since 1992, Article 7 of the Burra Charter might not have such large effect on the future use of the building.

4.2.1.7 Composition

The layout that contribute to the cultural significance of the *Staatsmuseum*, has been adversely influenced by the building additions, firstly into the courtyard of the building, and also extensions to the exterior of the building.

4.2.1.8 Location and Function

The location of the *Staatsmuseum* is in itself very significant. The relocation of the exhibition in 1991, had a very big and detrimental effect on the building, in that it has been unoccupied since then. The design of the building, was very specifically aimed at hosting the very large collection of natural and cultural history, and when the exhibition was removed one can argue that the soul of the building had gone with it.

4.2.1.9 Participation and Co-existence of cultural values

Places with cultural significance should be able to co-exist within a society consisting of a multitude of different cultures.

As identified in chapter 1 of this study, the resilience of buildings in an ever changing context and cultural influences will determine the success of that building as part of the urban fabric.

4.2.2 Conservation Process

4.2.2.1 Conservation Process

The conservation process that will be followed is an adaptive-re-use approach. This approach will include the restoration of the majority of the building, as it has sustained substantial damage due to neglect, weathering as well as the adaptation of some parts, mostly in the interior spaces of the building. Some changes to the exterior will also be implemented, as part of the process of giving a new identity to the building.

4.2.2.2 Change

The *Staatsmuseum* bares significance not only as part of the Wilhelmiens buildings of the city, but also in the way it was designed to be an object in its landscape, in order to emphasize its importance (refer to Chapter 2). Changes to both the building and the surrounding context of the building will be necessary in order to retain the cultural significance.

Changes are also required, in order to ensure the building does not lose more of its cultural value through degradation as it has been doing for over 20 years. It can furthermore be argued that the building has lost its dignity, and has lost a lot of its significance, because of the neglect of the building.

To ensure that future generations do not further neglect the building some demolition of the current fabric might be required in order to breathe new life into the building. In this way, one can allow the user to remember the significance of the building and maintain the building, not as much due to its heritage, but due to the new program in the building and the value placed on that new program. Changes to the fabric will also allow the user of the building to interpret the new fabric with that which remains as much more culturally or architecturally significant.

4.2.2.3 Maintenance

Large parts of significant fabric has been damaged, due to careless additions, by the National Research Foundation and also due to the neglect of maintenance. Water damage due to burst pipes (Küsel 2000:69) is evident throughout the building and has influenced a lot of fabric, which might be difficult to restore.

4.2.2.4 Preservation

There remains enough significant fabric however, to allow for other conservation processes to be carried out.

4.2.2.5 Restoration and Reconstruction

Restoration will be carried out on parts which have been damaged, and which might contribute to further degradation of the building, or fabric. There is enough evidence in the existing fabric to guide the reconstruction process. Larger elements, such as parts of the veranda around the courtyard, which has been destroyed, will be reconstructed. These elements will be re-interpreted, as they reveal a significant cultural aspect of the courtyard, as central spill-out space from the building as its threshold. This reconstruction will be done with contrasting materials, in order to remind the user of the “loss” to the building, while

at the same time reinstating such a significant element. The remainder of the veranda roof will be used as an inspiration and guiding element for this reconstruction process.

4.2.2.6 Adaptation

Some of the fabric of the building, will be necessary to allow the building to contain a new program. Where the fabric is adapted, it will be done in a way that will change as little as possible of the cultural significance, by the way the new or adapted part will be interpreted by the user of the building. All possible alternatives will however, be considered before significant fabric or elements are adapted.

4.2.2.7 New Work

Additions to the building, both interior and exterior, will be done in such a way, that it will not distort or obscure the cultural significance of the building, but will rather enhance than detract from the interpretation and appreciation of the place. New work will also be contrasting to the existing, and will not imitate the existing, in order to show a clear difference between what is new and what is additional to the building. Through contrasting the existing with the new, one will be able to emphasize the presence of the existing significant building.

4.2.2.8 Conserving Use

As stated earlier in this section, it will not be feasible to re-incorporate the use of the building as a cultural and natural history museum of South Africa. The new use or program of the building, will however not forget the museum persona of the building, and will therefore remain an exhibition space. It will also link with the previous use of the building, in that it will be an exhibition of Life Sciences, as is relevant for the context of the building and of the time. Through incorporating the larger idea of the building's use, this study proposes to conserve, to an extent, the significance of the use of the place.

4.2.2.9 Retaining Associations and Meanings

The significance has long been lost, in that the building has been standing empty since 1991. It is also not possible to re-instate that association. The new use of the building will however, incorporate some of the meaning of the place as discussed in the previous section through the direct association between use and association.

4.2.2.10 Interpretation

The larger contextual design, and the interaction between the building and its context, will be considered and designed in a way to ensure that the interpretation of the significance is apparent. The adaptive re-use of the building, will also incorporate a section that will showcase the significance of the building in terms of its shared culture and its building technology, which is an example of the '*zeitgeist*' in which the building was designed and built, with specific reference to construction, material, natural light and ventilation.

4.2.3 Conservation Practice

4.2.3.1 Applying the Burra Charter Process

Various studies of the place will be undertaken, to ensure a proper understanding of the place and its cultural significance. These studies will include; i) the analysis of the physical building; ii) documents pertaining to the building; iii) oral history (if relevant), and iv) any other means in order to gather the most comprehensive understanding of the place as possible.

A written Statement of Significance has been included in this study and is presented as part of this chapter, together with supporting evidence to the statement. This statement will be used as a guideline, not only for the redesign and adaptive reuse policy, but also for the management policy and future strategy of the building or place.

4.2.3.2 Managing Change

This study is only a theoretical position at this stage, and does not therefore require the proper and thorough documentation of all the existing fabric and other significant elements of the place. Should this study be considered for development, it will be required that such documentation be done before any changes are made to the place.

The impact of proposed changes will be analysed, to ensure that the cultural significance is retained in the best possible manner, while allowing for the redevelopment and adaptation of the place for future use.

4.2.3.3 Disturbance of Fabric

In the event of the need arising to disturb any of the significant fabric, for study or evidence, such disturbance will be kept to a minimum and will only be carried out, to understand that fabric better and in order to find the most suitable way to conserve such fabric.

4.3 ADAPTIVE RE-USE RESPONSES

Many studies have been compiled, and many different investigations have been undergone, in order to categorise the different ways of responding to places with cultural significance, or heritage value.

In his book "*Old Buildings, New forms: new directions in architectural transformations*", Francoise Bollack (2013:24-220), categorises the different ways of responding to architectural heritage, under the following headings: Insertions, Parasites, Wraps, Juxtapositions, and Weavings . He includes in each section, a short description and a few precedent studies, to illustrate what each heading refers to, and to give examples of these responses to architectural heritage at different levels. Even though the study by Bollack (2013:24-220) is extensive, and encompasses a great array of responses, these responses are by no means the only way in which one can respond to heritage, but for the purpose of this study, offers a good and comprehensive categorisation to which

4.3.1 Wraps

Figure 4.1 Wrap diagram

These types of interventions are described by Bollack (2013:113), as a new mantle that wraps an older structure. Two main categories identified by Bollack, in which wrapping takes place is the addition of an overhead umbrella to provide shelter for fragile buildings, or the encapsulation of an entire structure by another structure. It is interesting to note some challenges that Bollack identifies with this strategy, of encasing old building elements under a new mantle, can make some originally necessary building elements redundant, robbing them of their original function. These challenges will be discussed further, in relation to this study, in Chapter 5 – DESIGN.

4.3.2 Weavings

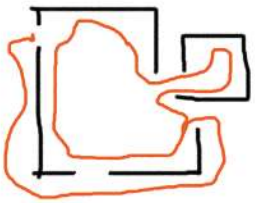


Figure 4.2 Weaving diagram

When weaving is used, as disposition to adapt or add onto an existing building, the general practice is to weave the intervention in and out and through the existing building, however not making it apparent in the way the old and the new intersect and connect with each other. The new is weaved into the existing fabric, to such an extent that it is difficult to understand the addition as an entity on its own, with its own identity. With the use of materials and colour, the addition becomes an inseparable part of the old building (Bollack 2013:179). This form of intervention is problematic, if one wants to understand the original building and be able to identify the original fabric.

4.3.3 Juxtapositions

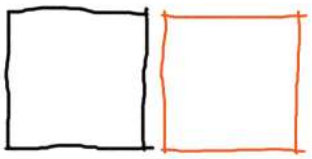


Figure 4.3 Juxtaposition diagram

Juxtaposition as a form of intervention, is when an addition is situated next to the original building without any direct dialogue or articulated relation to the original building (Bollack 2013:141). The original building stays fully intact and fully legible in its original form, while the addition is understood as a new entity in terms of structure, materiality and identity, even though they serve the same programmatic function.

4.3.4 Parasites

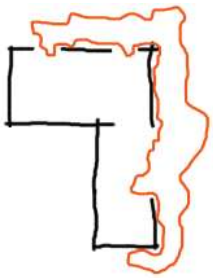


Figure 4.4 Parasite diagram

In our normal understanding of the word, we understand a parasite as something that latches onto and feeds off an existing organism, but it is however possible for the two organisms to exist harmoniously in a mutual relationship. Bollack (2013:65), describes parasitic buildings or interventions, as latching onto existing buildings and becoming one with it, as it is reliant on the original structure. A parasitic addition provides additional space, which might have not been part of the original need of the building. A parasitic addition cannot function as a separate entity, and is fully reliant on, and in total submission to the original building.

4.3.5 Insertions

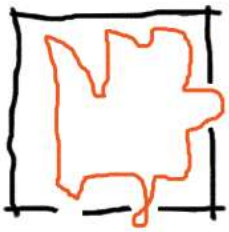


Figure 4.5 Insertion diagram

According to Bollack (2013:23), an insertion is a form of intervention where a new piece is inserted into an older volume. This new insertion makes use of the existing structure as protection, while it has its own identity apart from the identity of the existing structure.

4.4 PRECEDENTS

In order to formulate a response to the *Staatsmuseum*, this study first aims to investigate and understand other responses to heritage, with Bollack's categories as reference point.

One example of insertion as a response to an existing building, is Paulo Mendes da Rocha's "*State Museum Pinacoteca of São Paulo*."

(Sao Paulo, Brazil)

In this example, one is always aware of what the existing structure is and what the insertions are. The insertion has its very own identity that responds subtly to the different identity of the existing structure. Paulo Mendes has introduced a new system of walkways in the building, that allows the user to interact with the building on different levels, in a way other than what was initially intended.

The use of material also contradicts the existing, both in lightness of the new structure as well as the monochrome nature of the new circulation routes and connections. It is thus clear what is new, in order for the user to appreciate and associate with the original significant fabric, while being fully aware of the new insertion.

Figure 4.6 View of new walkways and how they connect the existing building fabric

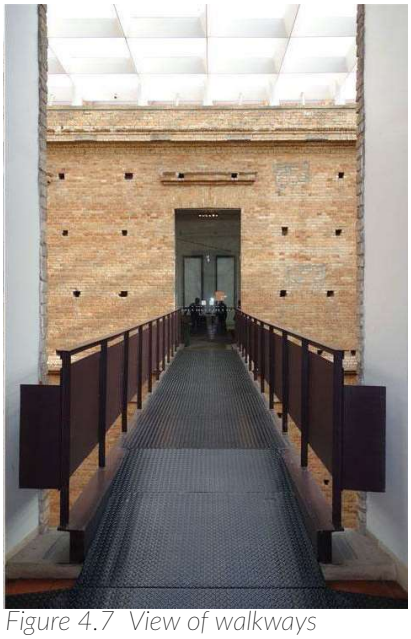


Figure 4.7 View of walkways

Figure 4.8 View of the courtyard

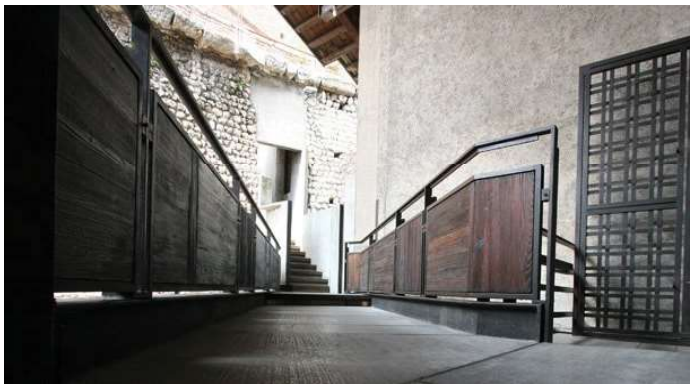
Figure 4.9 View of the building

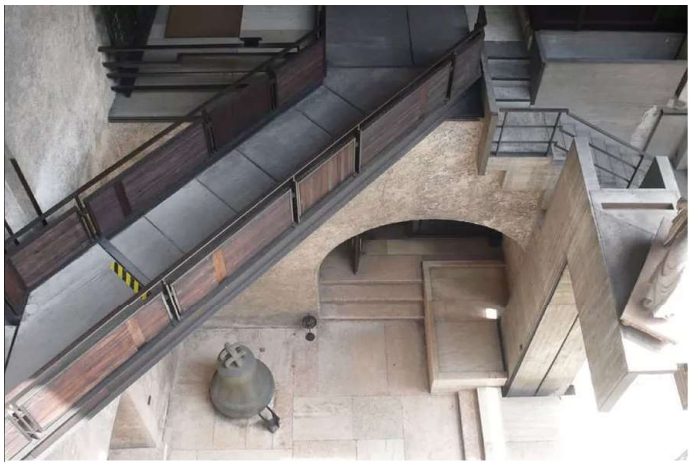
Carlo Scarpa: *Castelvecchio Museum*

(Verona, Italy)

Scarpa introduces new elements to the existing fabric without detracting from the existing, while letting the user experience both old and new as a new entity. The insertion of new elements guides the user in a way that Scarpa very specifically intended. Scarpa then in essence, becomes the new author of the special experience, as an amalgamation of existing and new. Scarpa details the new insertions very delicately, in a way that even though his use of materials are not full out contrasting with the existing, it is still clear where the new installations meet the existing.

Figure 4.10 Entrance intervention





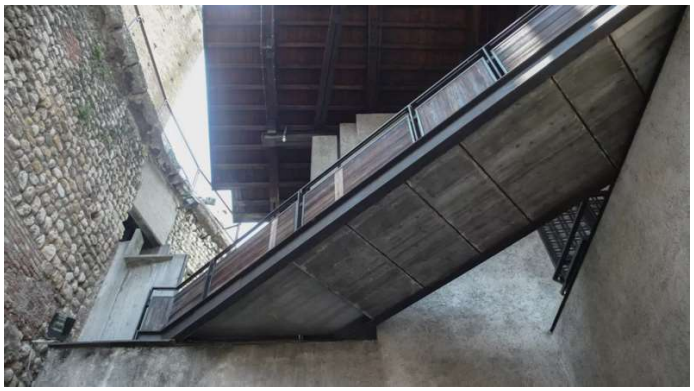


Figure 4.11 Stairway interventions

Figure 4.12 Facade intervention

Figure 4.15 New floor meets existing walls

Figure 4.13 Detail of bridge connection

Figure 4.16 Beam connection with wall

Figure 4.14 View of the building

Tadao Ando: *Punta Della Dogana* (Venice, Italy)

Ando's insertion in Punta Della Dogana contrasts with the existing fabric without conflicting with it. The insertion is done to enhance one's understanding of the existing fabric, and could even be said to cultivate a new appreciation for the significance of the existing. His use in materials and finish, plays a major role in how the new elements are perceived as an extension to the existing, and in how spaces are defined in a new manner. Ando shows respect for the existing, but is not entirely dictated by it, and it is evident that his new installation is the more prominent element present, whilst still allowing the user of the space, to view, understand and appreciate the existing building.

Figure 4.18 Exhibition hall

Figure 4.17 View of the building

Figure 4.19 Exhibition space intervention

Figure 4.20 Concrete staircase intervention

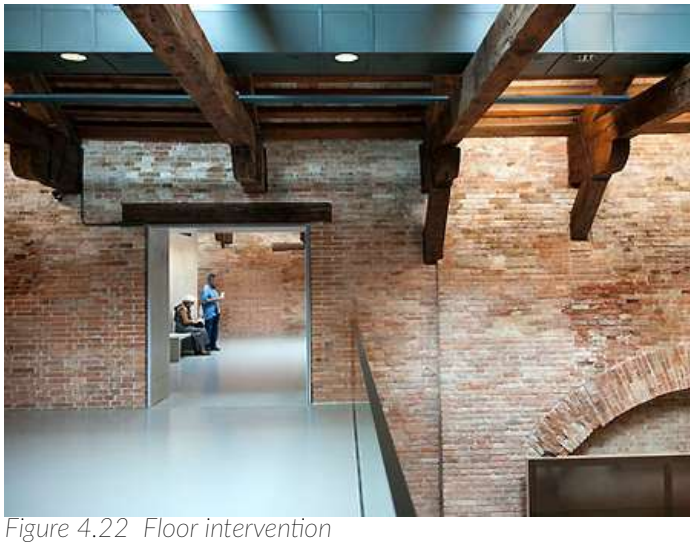


Figure 4.22 Floor intervention

Figure 4.21 Beam connection to the wall

Daniel Libeskind: *Royal Ontario Museum* (Toronto, Canada)

The additions to the Royal Ontario Museum is an example of a parasitic addition to a heritage building. The new addition is in form, layout and material, a juxtaposition to the existing fabric. It is a clear new entity placed in the front courtyard of the existing building. Daniel Libeskind has received critique in the way the addition overpowers the existing building in a seemingly disrespectful manner. The interior spaces are according to many who visit the building, poorly designed and there are a lot of wasted space inside the building due to its unconventional shape.

It is thus important for an architect, to be cautious of creating too much non-functional space, when designing any unconventional shapes.

Figure 4.23 View of the building with the parasitic intervention

Figure 4.24 View of the exterior parasitic intervention

Figure 4.25 Parasitic intervention reflecting the existing building

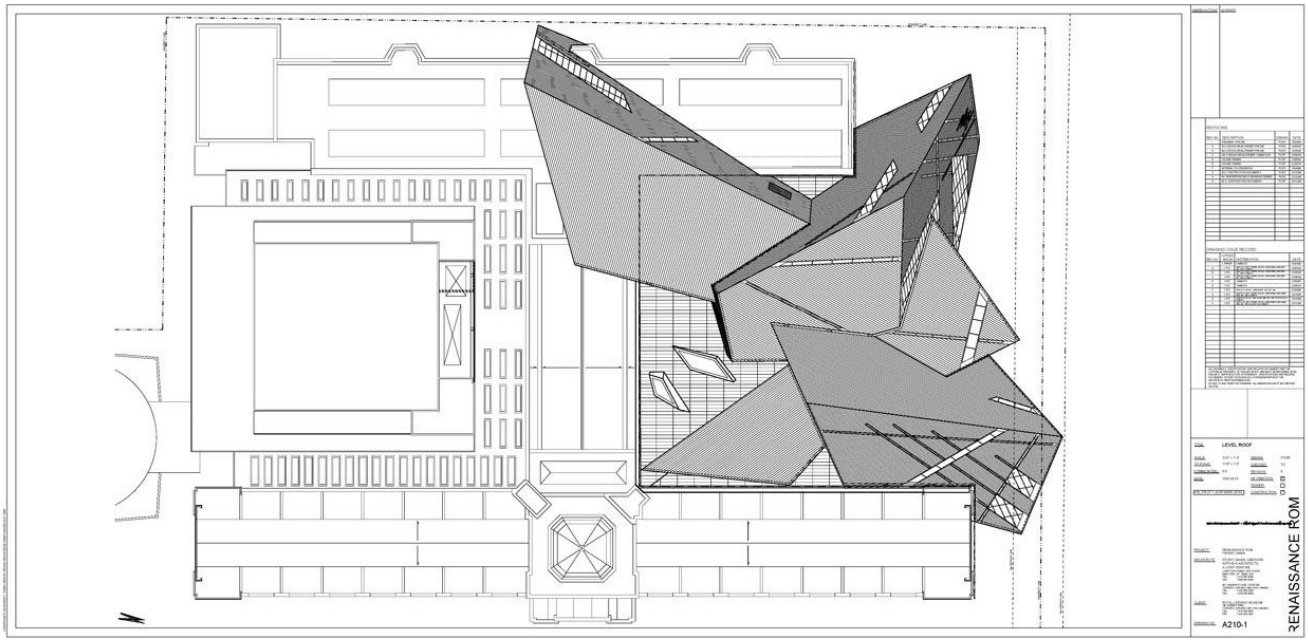


Figure 4.26 Site plan

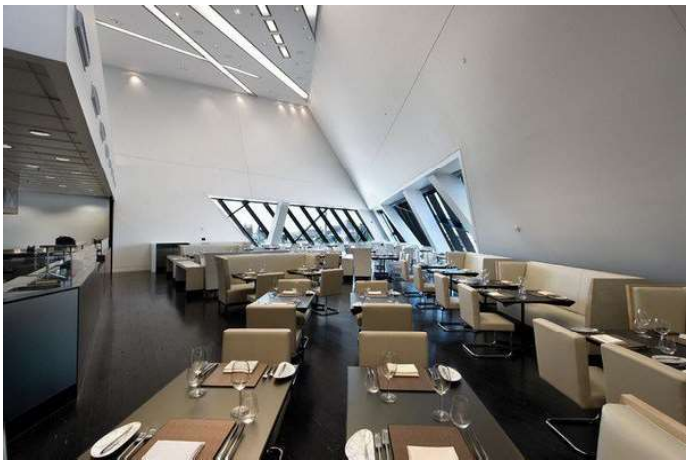


Figure 4.27 Interior: restaurant

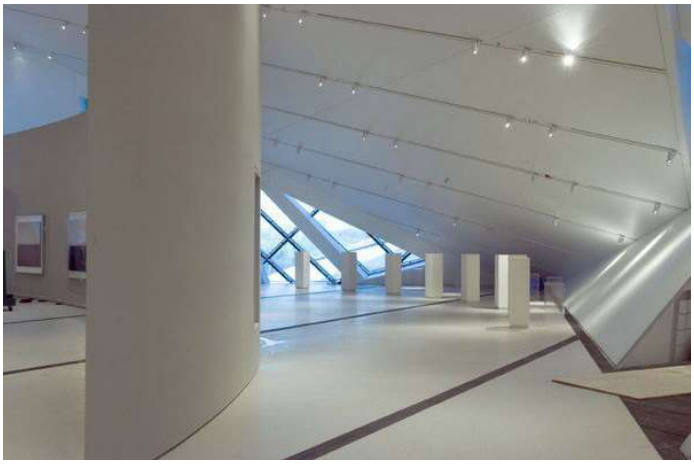


Figure 4.28 Exhibition space, showing wasted space where the walls and floors meet

Project Orange: *192 Shoreham Street*

(Sheffield, UK)

The intention of the project as described by Project Orange was that:

"The completed development seeks to rehabilitate the once redundant building, to celebrate its industrial heritage and allow the building to be once again relevant for use" (Project Orange 2013).

This juxtaposing addition shows respect for the existing building while being in contradiction with the existing building. The new addition is honest as a new building in the materiality and shape of it has, but also responds well to the surrounding context of the neighbourhood in which it is situated.

Even though the context of the building is no longer industrial, the adaptive re-use of interior spaces has enabled the building to once again make a functional contribution to the urban fabric.

Figure 4.29 View of the building and the parasitic intervention

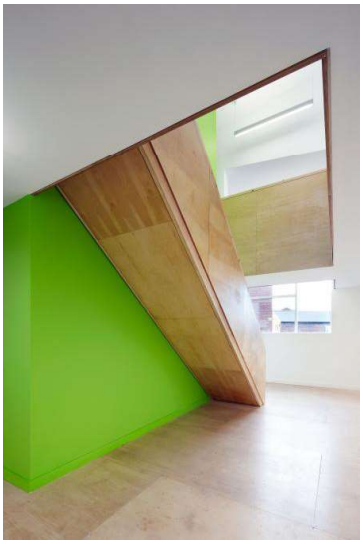


Figure 4.30 Staircase intervention

Figure 4.31 Staircase intervention

Figure 4.32 Series of images showing parasitic intervention

Figure 4.33 View of the building

4.5 DIGNITY OF BUILDINGS

The Loss of Dignity

What constitutes dignity in buildings?

Dignity as defined by the Webster dictionary (Mirriam-Webster 2006) is "the state of being worthy or honourable". The Freebase dictionary furthers the definition to state that it is a term that is used to "signify that a being has an innate right to be valued..." (Definitions 2015). Freebase also states that "in ordinary usage it (dignity) denotes respect and status".

If buildings are evaluated in accordance with this term, one could argue that a building with dignity is a building that is worthy or honourable with regard to its contribution to the city and it's forming part of the urban fabric. The building is also shown respect and given status when the surrounding context relates to and responds to it properly. In this way the building is valued for its contribution to the greater context.

If one wishes to identify the loss of dignity, it can be argued that a building that does not form part of- or add value to, the urban context, is in turn disregarded by its context and is a building without dignity.

What is the role of preservation?

The correct preservation of buildings does not only allow them to retain their dignity, but as Gavin McLachlan (2009:60) states, it is also vital, to sustain old buildings, because it links us with the past and gives us a sense of identity and self-worth. It is valuable to add to this sentiment though, that as identified by Donaldson (2005:802), conservation is seen as a key element of economic regeneration. One way of achieving this, is through improving the physical conditions of the historical built environment, increasing residential use and encouraging commercial development in under-used areas. Donaldson further argues that, conservation should be a self-sustaining process that acknowledges the larger context of urban change. Change is thus imperative in any urban or economic environment. A further argument however, can be applied in the relationship between conservation and change. It is identified by Naidoo (2013:16), when he refers to Professor Paul Meurs' argument, that when the symbolic meaning of spatial qualities of cultural history is integrated with the design for renewal, it enriches change (Meurs 2008:11).

Regained dignity through conservation

In the case of the *Staatsmuseum*, it has been identified that the urban context has changed without acknowledging the symbolic meaning of the spatial qualities of the building. In addition to this, the building has been neglected and not been preserved since its evacuation in the early 1990's. Following the different arguments made with regards to dignity and to preservation, it can be said that through following the correct preservation methodology, the *Staatsmuseum* can regain its dignity once again through a renewed relationship with the city.

The key then, is to adaptively re-use the building in order to preserve the building in a way that it partakes in the activities of the city.

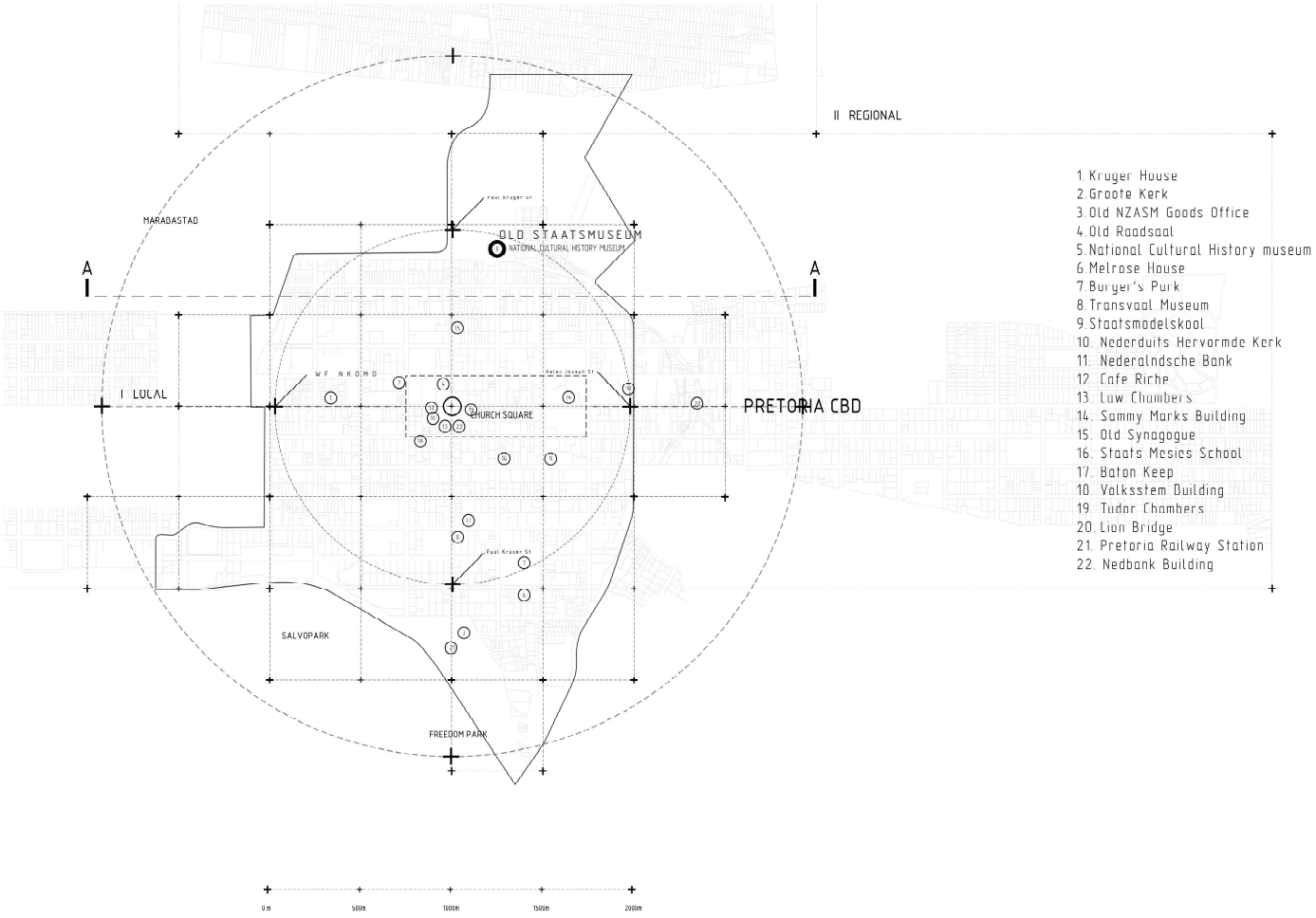
Although certain parts of the building can be restored to its original state, in order to allow the building to add to the identity of the city/people, it cannot be merely applied throughout the building. If compared to other heritage buildings in the city, it is evident that buildings that contribute to, and form part of the economic arena of the city, are much better preserved than buildings that do not contribute. Case and point: Tudor Chambers (see Figure 4.34), did not form part of the economic sector of the city, as it stood empty for a long time. A private client identified the building, presumably for its setting in the city and the economic possibilities (due to its location). After a refurbishment of the building, in a heritage conscious way under leadership of Nicholas Clarke and Karel Bakker, the building has been re-integrated with the city to such an extent that it not only forms part of, but can contribute to the urban context. The building now forms part of the urban context as office space that is occupied by various private companies. If one compares successful integration projects such as Tudor Chambers with other neglected or abandoned buildings in the city; the *Staatsmuseum* (see Figure 4.37); the old *Staatsdrukkery* building (see Figure 4.36); the old Jewish Synagogue (see Figure 4.35), the opposite is evident. If a building has no contribution to the urban context or no function or continuous use, it will not be respected and preserved, and it will deteriorate.

Figure 4.34 Tudor Chambers


Figure 4.35 Jewish Synagogue


Figure 4.36 Old ZAR Printing Works


Figure 4.37 Old ZAR Staatsmuseum



HERITAGE SITES

Figure 4.38 Map of heritage sites throughout the inner city

4.6 STATEMENT OF SIGNIFICANCE

Many different factors, as investigated in the chapters leading up to this point, adds to the significance of the *Staatsmuseum*. The *Staatsmuseum*, as designed by one of South Africa's foremost architects, in Wilhelmiens style, bares more significance than its shared cultural value with the Dutch (Clarke, 2014:165). The building is significant in the way that it is situated in a landscape with a very specific spatial intent in mind, as was the *zeitgeist* of pragmatic South Africa. The building is, as all public buildings were, publically accessible and placed in a visually conspicuous way within its landscape. The *Staatsmuseum* is also a very good example of the bilateral strategy that dominated the siting of public buildings in the early twentieth century. It was a symmetrical building situated on an axis at a 90degree angle to the façade. This strategy was used on the most important public buildings (as seen with the *Raadsaal* and various other civic buildings), which in turn indicates that the *Staatsmuseum* was a very important public building. At the conception of the building it was already clear that it would be a monumental termination of (then) Andries Street, set against the Magalies Mountain, as backdrop.

The placement of the building is however, not the only element giving significance to the building. The spatial layout of the building is significant in the way the building was designed to function. The central courtyard was designed, and is still today, the central public space of the building. One is aware of the courtyard from every space in the building. This gives the courtyard significance as orientated central space. The veranda roof framing the courtyard, also bares significance as threshold space between interior and exterior.

In terms of aesthetics, the main entrance is the most significant façade. This entrance bares significance in the way that it is the only detailed façade, as well as the fact that it has formed part of the street edge (in Boom Street) for more than 100 years. Other aesthetics that bare significance are the rhythm created by the clerestory windows and the plaster blocks on the other façades. The roof is also significant in the contribution it makes to the overall aesthetic of the building. The southern façade bares the least significance as it was designed as the administrative 'back' of the building.

The internal exhibition, spaces of the building, is significant in the way the spaces were designed 'in terms of height', to control light, and presumably also ventilation. Other than that, the open un-programmed exhibition halls bare significance, in the way they are only 'skeletal structures' that can be filled in any way needed, to best portray what is exhibited.

The programmatic association of the building, is significant in its link with the zoo and its reference to nature (natural and cultural history).

05

DESIGN DISCOURSE

Taking into consideration, all aspects and principals investigated in the previous chapters, a design approach and concept will be formulated as a response. Other design aspects, and the influence they have on the final outcome/design, will be investigated and discussed, as part of the design development.

INDEX

5.1 CONTEXT [a new urban context]

As part of the larger urban vision (discussed in Chapter 2) and in light of furthering, or bettering the Tshwane Vision 2055, the old *Staatsmuseum* has been identified as a place that can mediate the integration between the formal and the forgotten parts of the urban fabric (see Figure 5.1).

As identified and discussed in the chapters leading up to the design investigation, the *Staatsmuseum* has been identified as a building that needs new relevance and meaning in its context. If the building is to relate better, the direct (micro) context needs to have a better relationship with the larger urban context.

In order to re-appropriate the *Staatsmuseum* in its context, as a building that bares relevance and significance, its context has to first be altered to form a better relationship with the city. New opportunities for relationship with the building, need to be created, in order to establish the building anew.

As part of the design process of the urban context (see Figure 5.2), this investigation challenges the barred nature of the zoo, the relationship thereof with the city and the threshold between city and recreation, and even nature.

As an urban design concept, various open spaces have been identified (see Figure 5.3). These spaces include; the parking area in front of the zoo; the open green space to the north east of the entrance to the zoo; and the courtyard space of the old *Staatsmuseum*. These spaces form the premise of a new urban context, and the correct integration of these spaces with one another can result in a much

Figure 5.1 Existing larger urban context

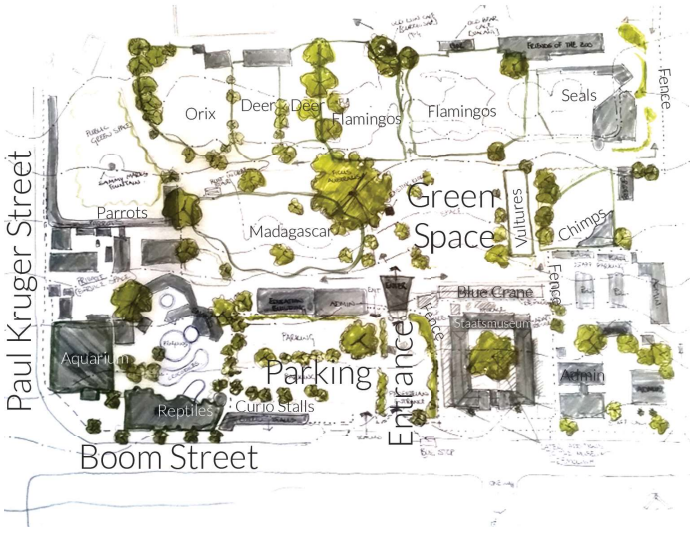


Figure 5.2 Existing micro context

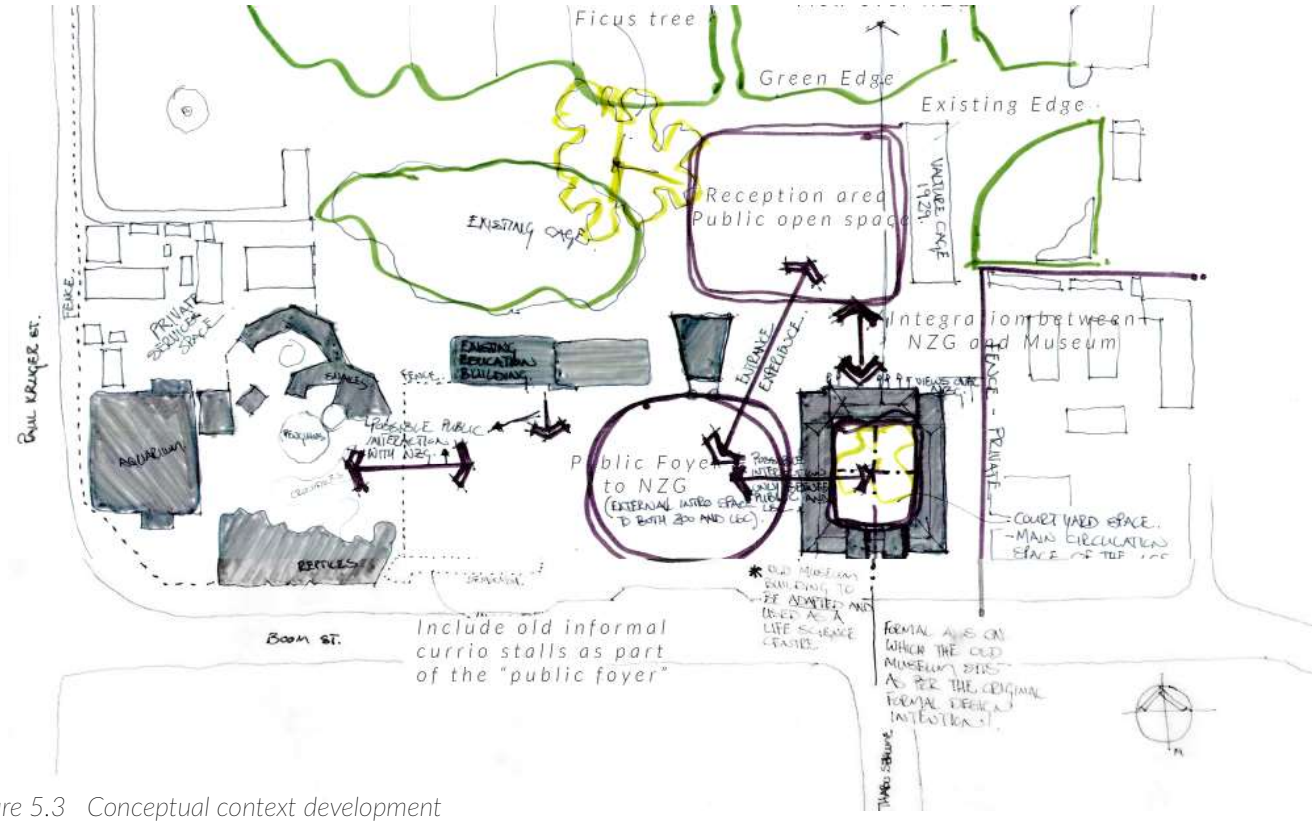


Figure 5.3 Conceptual context development

Figure 5.4 New urban context

more successful and vibrant urban context for the entire area.

Various changes to the urban framework would be identified and explained, in order to gain a better understanding of the new collective, which will form the new context of the zoo and the museum.

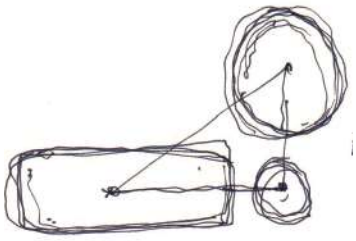


Figure 5.5 Identification of a possible relationship between three major open spaces

5.1.1 Concept Proposal: Context

i) The first proposition is to relocate the main parking area to the site across the road, in Boom Street, with the possibility of a multi-storey parking, incorporated as part of the National Research Foundation (NRF) Office Park. It is proposed that this parking be re-designed as a boulevard connecting the new parking with the zoo (see Figure 5.4). As part of this boulevard, it is proposed that the curio trader stalls be better integrated by incorporating them as integral part of the route. The nature of this new route or boulevard, will be a slow moving pedestrian route that cuts diagonally across the current site. Covered with the existing trees and new trees, and defined and embanked with shrubs and other foliage, this will become an urban park forming the outside reception area of the zoo.

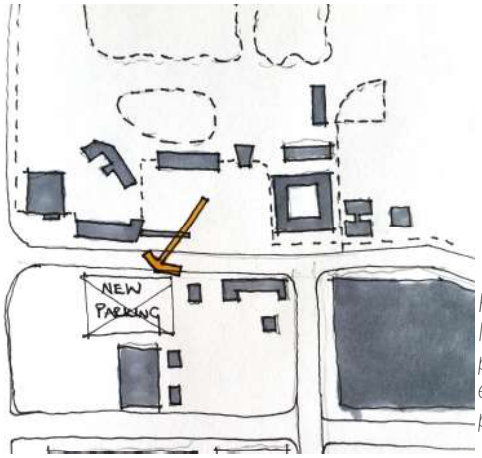


Figure 5.6 New position of parking, opening existing parking as public open space

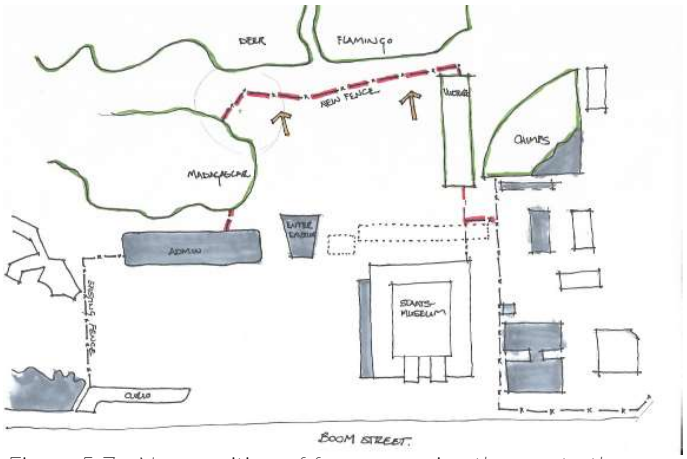


Figure 5.7 New position of fence, opening the zoo to the public

ii) The next proposition is to move the fence around the entrance of the zoo. This proposition is to (during the day time), allow the fence to be opened to allow the city dweller to partake in some of the activities of the zoo without committing to entering the zoo. The new fence of the zoo will allow

the public to view the flamingos, the vultures and the little Madagascar island. By moving the fence a new public green space is created. This green space will be unique in the fact that it forms part of a forgotten space of the city (refer to Chapter 2).

iii) This new green space, as reception area to the zoo, is the third intervention as part of the new micro urban framework. This green space is easily accessible and is designed, not only as open public space, but as a space that orientates the user in terms of the zoo and the *Staatsmuseum* building anew.

The focus of this investigation and design project is too limited to resolve the new urban framework in detail, therefore only a rough conceptual design will be presented. This conceptual suggestion, will form the urban context basis of the new design intervention of the *Staatsmuseum* building.

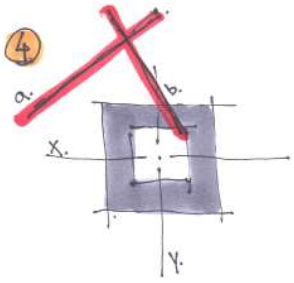


Figure 5.8 Diagrammatic exploration of the existing axis vs a possible new juxtaposing axis created for the precinct

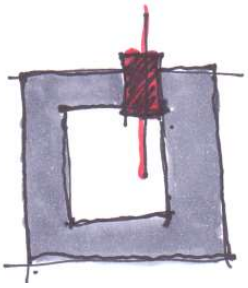


Figure 5.9 Illustration of the juxtaposing of the symmetrical nature of the Staatsmuseum

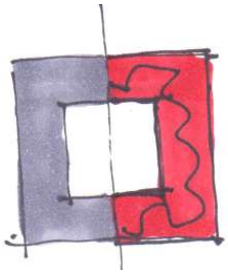


Figure 5.10 Conceptual illustration of the juxtaposing nature of interior intervention in the building

5.1.2 Concept Proposal: Museum

Through the investigation, towards this document, the museum building was identified as a building with significance, regarding its shared architectural heritage with the Dutch, and also its history as one of the first large civic buildings of the city (refer to Chapter 3 and 4). The building also bares significance as part of the history of the city due to the exhibitions and artefacts that were displayed there. The building has formed part of the urban fabric and of the street edge of Boom Street for more than 100 years, and is also significant as one of the defining elements on that street edge.

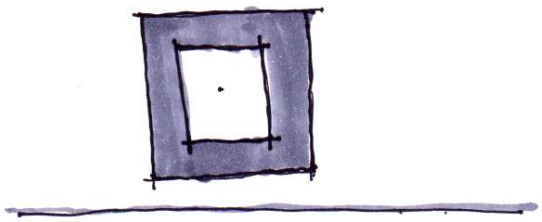
5.2 CONCEPT DEVELOPMENT

Taking into consideration, all aspects and principals investigated in the previous chapters, a **design approach and concept** will be formulated as a response to all aspects pertaining to this investigation, while other design aspects and the influence they have on the final outcome/design, will be investigated and discussed as part of the **design development**.

The core concept is that the building was designed to be an object in the landscape. The fact that the building was designed to stand isolated gave the building a certain persona (see Figure 5.11).

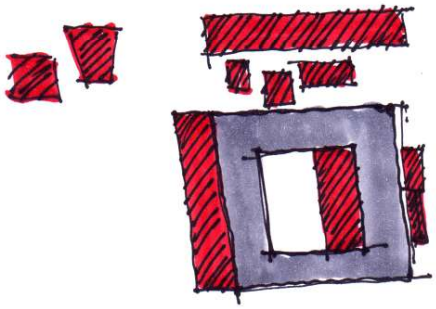
The surrounding context has however changed greatly during the building's lifetime. The context developed to such an extend that it deprived the building of its original object persona (see Figure 5.12).

In order to give the building its original persona back, one will have to demolish any structure that is depriving to the building as an object (see Figure 5.13).



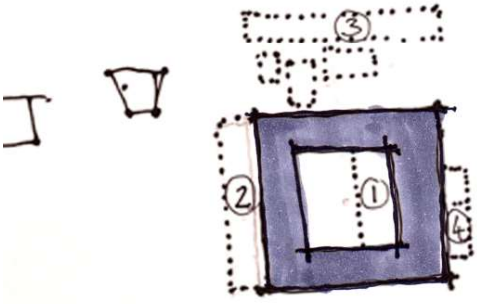
Building as an object

Figure 5.11 Original building as an object in the landscape



Development of context and building additions

Figure 5.12 The development of the context around the building as it is today



Hierarchical demolition plan

Figure 5.13 Diagram indicating the proposed demolition work and hierarchy of buildings that is most important to demolish as the detract the most from the building

5.3 APPLYING THE BURRA CHARTER

5.3.1 Conservation and Management

In accordance with this study, a statement of significance has been compiled for the Staatsmuseum. This statement should be referred to with any changes planned for the building, as forming part of the conservation management plan for the building.

5.3.2 Cautious Approach

With regards to existing fabric and the importance of specific elements the following is evident from this study:

1. The courtyard is the most important and central space of the building. The courtyard should thus be obstructed minimally, and all spaces should be easily accessible from the courtyard (see Figure 5.11).

2. The entrance facade (see Figure 5.14) is important, due to two things. The first is, the fact that it is the most highly detailed and decorated facade of the building, making it clear that it is the most important point on the external envelope. The use of fabric and detailing in the decoration, is also evident of the Wilhelmiens persona of the building (which is very scarce throughout the rest of the building). The other factor adding to the importance of the entrance facade is, the fact that it has formed part of the street edge for more than 100 years, and has been very resilient as part of this street edge.

The entrance can therefore not be destroyed, or altered in any way that will detract from it as an important part of the buildings' 'Wilhelmiens'

Figure 5.14 Entrance facade

history and its being part of the streetscape for many years.

3. The rhythm created by the other elements, such as the plastered blocks and clerestory windows (see Figure 5.15) on the external envelopes has been identified as important. Any changes to the external envelopes may break, but should not destroy this rhythm.

Figure 5.15 West facade

4. Internal exhibition spaces (see Figure 5.16), are important as evidence of the buildings programmatic function, as per the initial design of the building (the building has only been used as a museum as per the original design). Not all the exhibition spaces have to be preserved as is, but a person should, at some point, be able to perceive what the original internal spaces were like. The idea of exhibition can be challenged. Any

Figure 5.16
Exhibition hall

changes to the interior spaces should however be reversible with minimal impact on the existing building fabric.

5.3.3 Knowledge, Skills and Techniques

As part of the investigation of the current building condition (refer to Chapter 3), the following was identified and will be considered when altering the building in any way:

1. The walls will be painted with a gypsum based paint.

2. The voids under the floors will not be closed as they are a key part of the breathing of the building.

3. The bricks used are very soft and porous. Where openings need to be made, it will be done in such a way that water can escape without being trapped in the wall, to avoid the erosion of the bricks.

5.3.4 Burra Charter Process

The cultural significance of the *Staatsmuseum* has been negatively influenced by the context of the museum, as identified in this study. The context therefore will have to be changed, as per the proposal at the start of this chapter, before any changes can be made to the building. This new context, together with other changes to the building, as discussed later in this chapter, is done to ensure an understanding of the building's significance, baring first priority.

5.3.5 Use

The building's original exhibition outgrew the building, making the proposal of the charter, to re-introduce the use back into the building redundant. The new program is however linked to the same concept in that it represents life at a different level, which in turn also links back to the zoo as well.

5.3.6 Composition

The layout, that contributes to the cultural significance of the *Staatsmuseum* has been adversely influenced by the additions, firstly to the courtyard of the building, and also as extensions to the exterior of the building. The context has also been developed in an unsympathetic manner, which has not added to, but has rather degraded the building's as importance (see Figure 5.12).

As part of the proposed concept development, any additions to the direct setting of the building are to be demolished.

5.3.7 Location and Contents

The location of the *Staatsmuseum*, is in itself very significant. The moving of the exhibition in 1991, had a very big and detrimental effect on the

building, in that it has been unoccupied since then. The design of the building was very specifically aimed at hosting the very large collection of natural and cultural history. When the exhibition was moved out of the building, one can argue that the soul of the building had gone with it. With the implementation of a new exhibition, this study aims at giving new life, and once again a sense of dignity or meaning, to the building. As part of the new exhibition, it is proposed that a part of the initial exhibition, be displayed as part of the new exhibition, to pay tribute to the exhibition that once gave life to the building.

5.3.8 Participation and Co-existence of Cultural Values

The NZG is a place without cultural and social boundaries as it is inviting to all culture- and social groups. The *Staatsmuseum* is proposed to form part of the NZG context very directly (see Figure 5.4), allowing the building to participate in, and form part of, the co-existence of cultural values.

5.4 DESIGN DEVELOPMENT

Figure 5.17 Perspective view of the new entrance from the public zoo green space: looking south

INTERVENTIONS

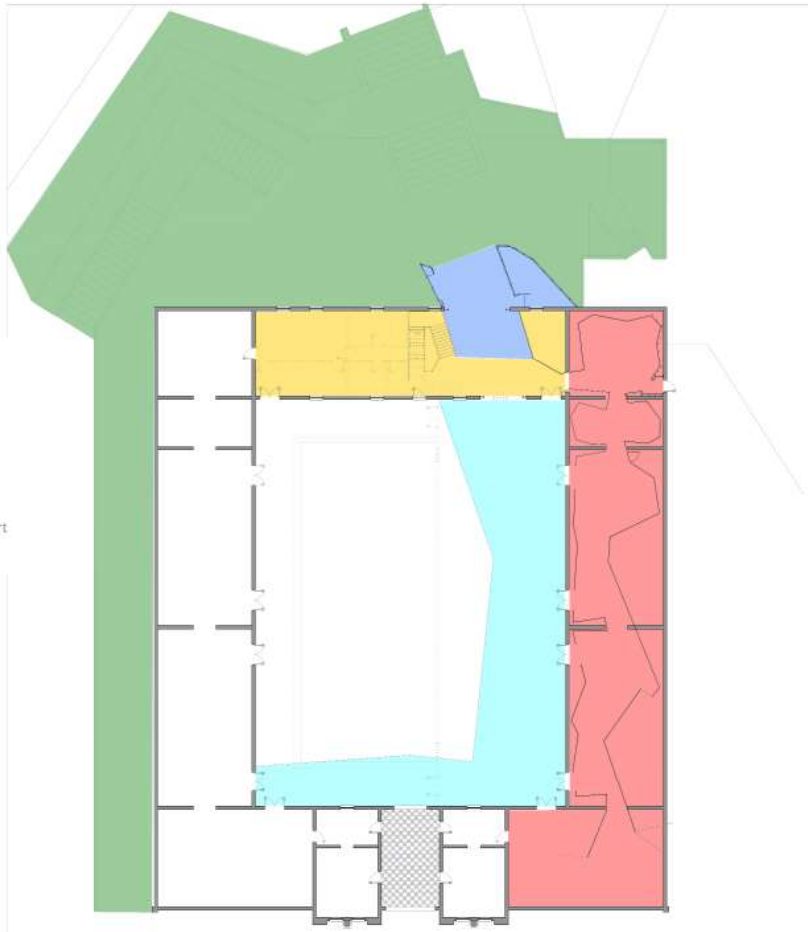
PLINTH- as a new platform for the building to stand proud of its context

NEW ENTRANCE- contesting the existing entrance and contradicting the existing building in all aspects, from form to materiality

NEW EXHIBITION SPACE- continueing the ideals of the new entrance into the existing building shell

NEW STAIRCASE- together with a new interpretation of the adminastrative spaces of the building.

NEW VERANDA- as an extention of the new entrance into the courtyard to form 'spill-out' space for the permanent exibition and act as a guiding mechanism as part of the exhibition narrative



Plan N.T.S

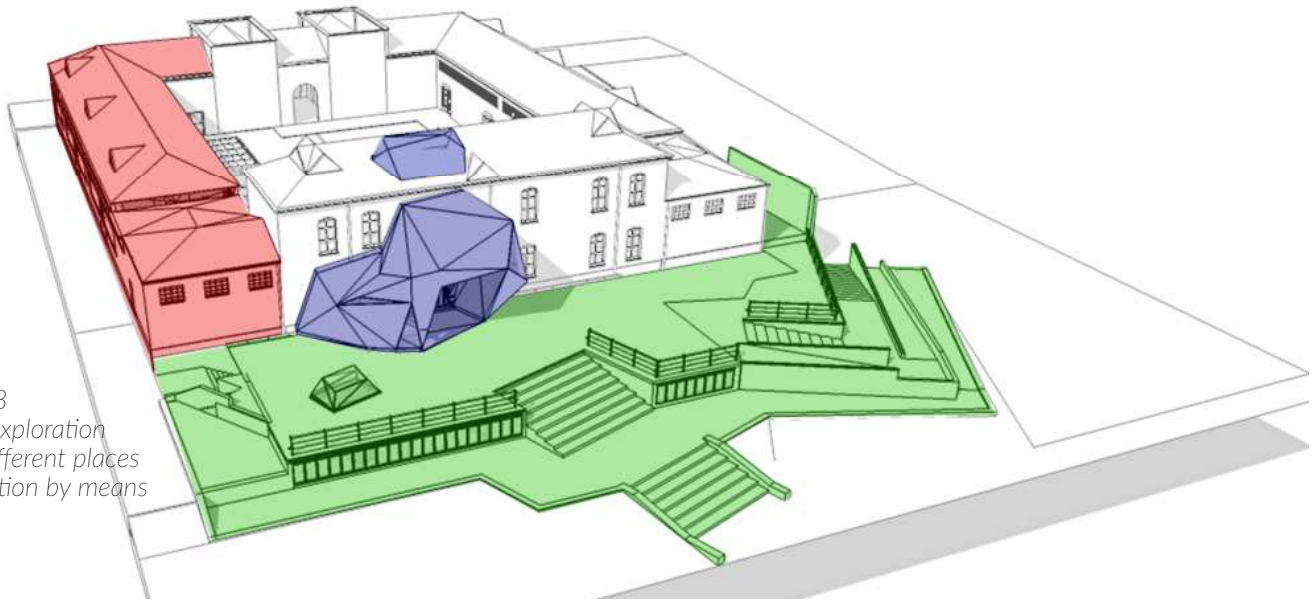


Figure 5.18
Isometric exploration showing different places of intervention by means of colour

5.4.1 Prominence by Means of Topography

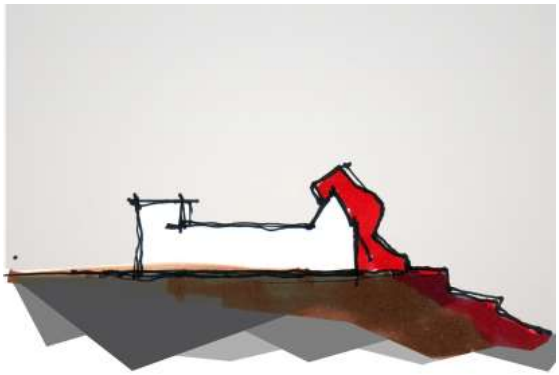


Figure 5.19 Illustration of the landscape becoming the plinth, and then latching onto the building

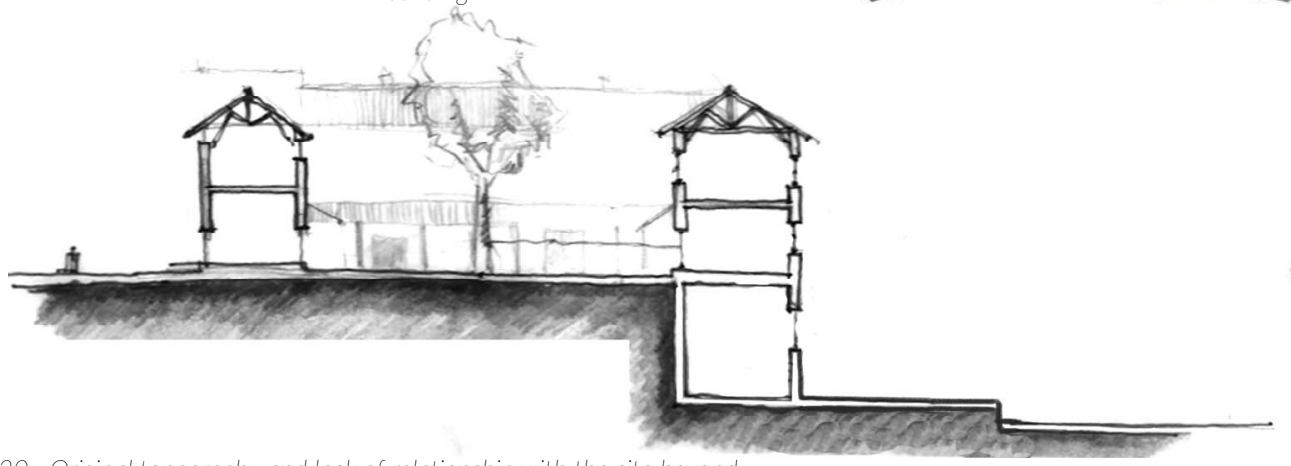


Figure 5.20 Original topography and lack of relationship with the site beyond

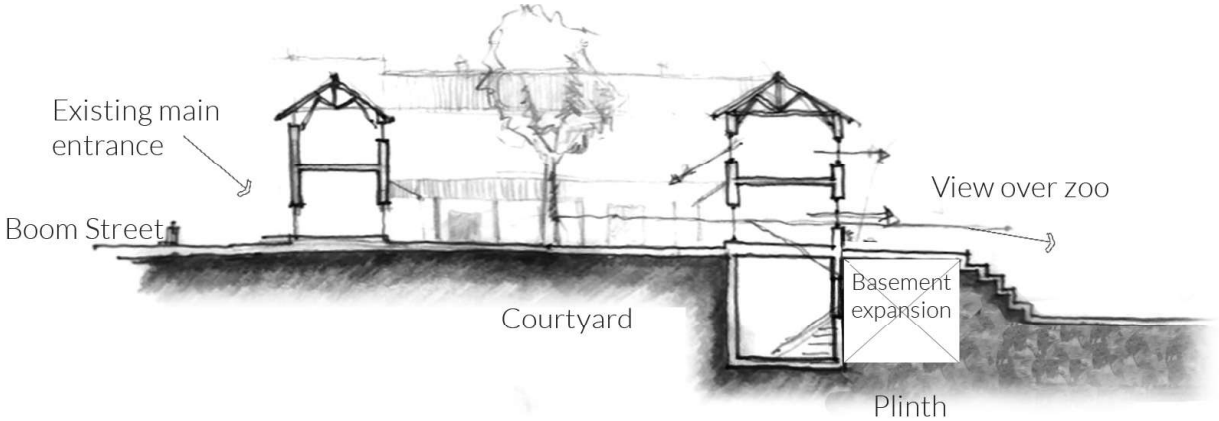
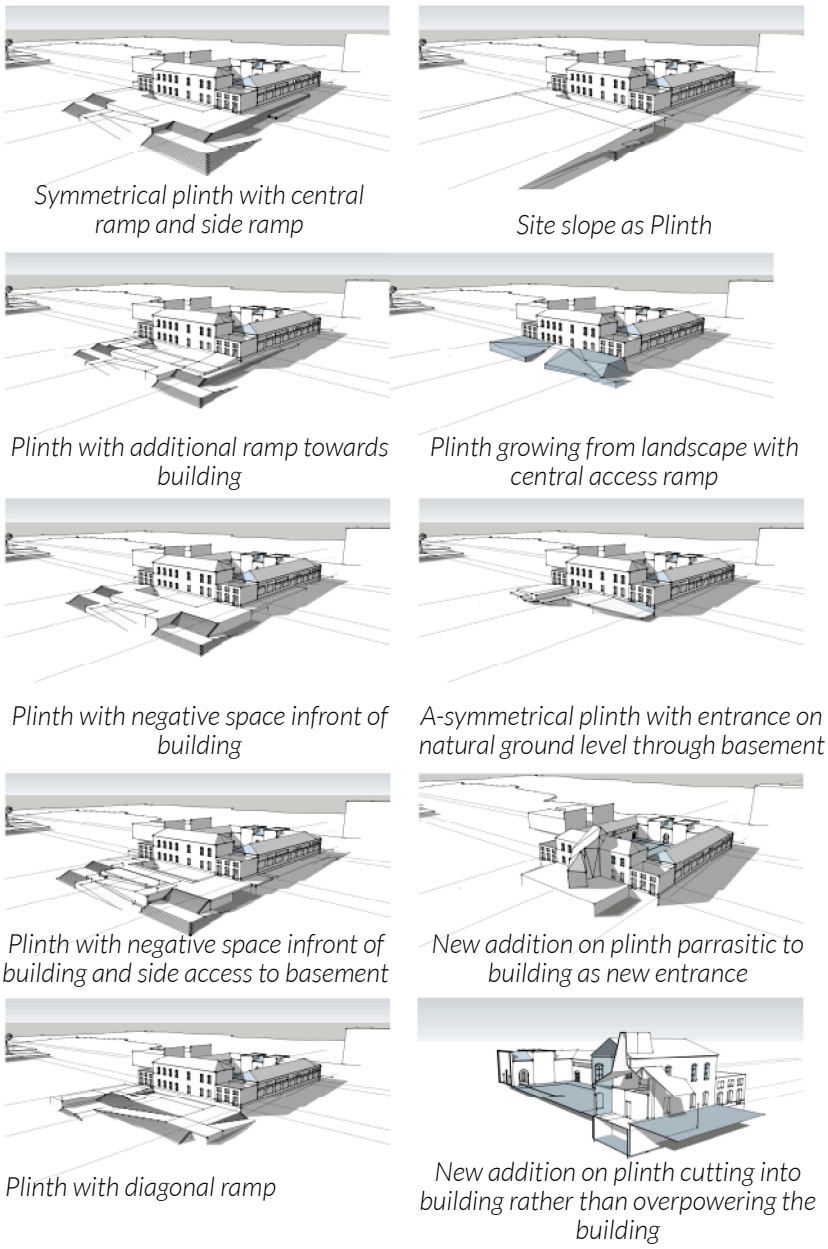


Figure 5.21 Conceptual section indicating the new possibility of raising the building proud of its landscape and the new relationship between the building and the landscape beyond, as a result

- Explorations of the Plinth to get to a Final Resolution



The main design approach is to establish the *Staatsmuseum* as a prominent building in its context, once again. The first step to achieve this is to make use of the topography of the site.

The topography of the site is of such nature that it has a downward slope toward the Apies River of almost three meters from the street edge to the back of the building. This drastic slope creates the opportunity to lift the building proud of its context, raising it up on some sort of pedestal or plinth, to be celebrated.

Different approaches to the concept of plinth have been explored. It was envisioned that the plinth is not a plinth directly in the classical term of the word, but is rather an extension of the landscape that creates different planes and view points of the building.

The plinth will be an addition to the existing basement of the building (refer to basement plan), and will house a system that forms the core of the educational exhibition (refer to Interior section of this chapter). This system will be discussed in more detail in the next chapter.

Figure 5.22 Isometric explorations of the plinth to get to a final resolution

5.4.2 ENTRANCE

The influence of the topography, together with a response to the micro-urban framework, resultantly calls for a reconsidered entrance to the building. The new urban context of the building, will bring a lot of people to the north of the building, where there is ample space for groups to gather as part of formal or informal recreational and social gatherings. The existing entrance of the building, also stands in isolation on the street edge, with limited space and very little relation to the context. The best response to the way the building is approached, is to relocate the entrance of the building to the northern side of the building.

Figure 5.23 Conceptual response to entrance i.t.o height

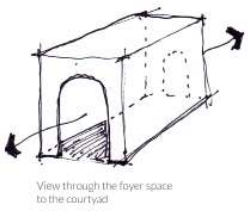


Figure 5.24 Concept of viewing through the entrance

Figure 5.25 Change of height through the entrance foyer

RESPONSE TO ENTRANCE

To design a new entrance to the building, it cannot be done without some sort of response to the existing entrance, in the way it forms a vital part of the building aesthetically, and in terms of the approach and spatial experience of the building.

The design of a new entrance, contests the existing entrance conceptually, in terms of its height, ensuring a statement is made to indicate its importance as the entrance to the building. It will also aesthetically and architecturally challenge and juxtapose the symmetry and formality of the entrance and the entire building (see to Figures 3.8-3.10). This juxtaposition is affirmed by the new axis created, as part of the new urban framework and approach to the site. The new access route toward the new public reception area of the zoo, together with the new entrance route to the *Staatsmuseum*

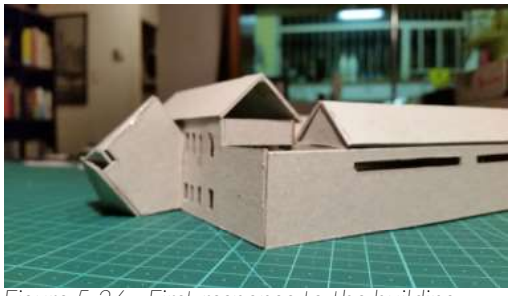


Figure 5.26 First response to the building

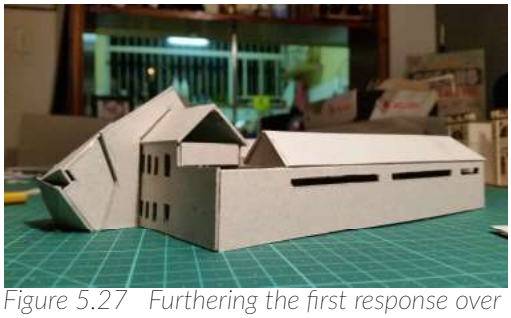


Figure 5.27 Furthering the first response over the building

Figure 5.28 Furthering the idea of responding over the building

Figure 5.29 Completing the idea of overpowering the building with a new intervention, showing that a new entrance has been created

creates a new set of axes that juxtapose the formal grid and axis system of the city. This contradicting axis, places emphasis on, and clearly indicates the new interventions on a larger scale. The shape of the new entrance will also be a juxtaposition, in terms of the form giving shapes, to emphasise the intervention as new and not originally part of the building. It will make a clear statement, as a new insertion in the existing built fabric. Faceted panels will be assembled in such a way, that it creates a morphing object that not only latches onto, but also penetrates the existing building structure.

Figure 5.30 Perspective view of the new entrance from the ramp toward the east

5.4.3 INSERTION

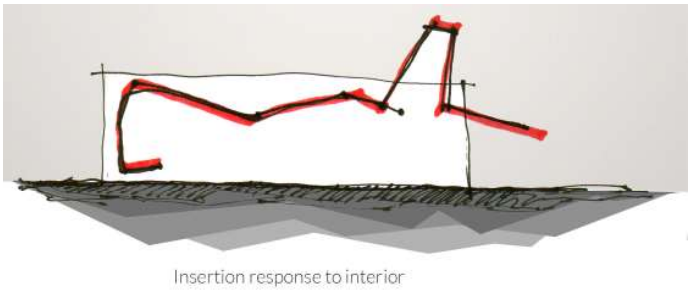


Figure 5.31 Conceptual illustration of the new entrance intervention penetrating the building to form a new skin inside the building

The idea of entrance is taken further to not only be an entrance, but conceptually to create an element that grows out of the landscape, becoming a plinth for the building, then pops up to become the entrance to the building, contending the building. The entrance subdues to the building, by not overpowering it, but rather penetrating into the building. This plane then penetrates through the roof, in order to make the onlooker aware of the fact that it has entered the building and is creating new spaces inside the building. This plane then forms walls, ceilings, and at some places, the floor parasitically enter the entire east wing of the building. These planes also create new exhibition spaces, but more than that, become the exhibition, until it reaches the old entrance of the building where it exits the building into the courtyard, and guides the user to the western wing of the building, as a new veranda. This element does not enter the building again, and creates a contrast between what is new and what is existing.

Figure 5.32 Perspective view of the new interior exhibition installation

• EXHIBITION

In exhibition design there are various aspects that needs to be taken into consideration in order to design a successful exhibition.

A recent study has shown that people who do not actively read after they have left school, lose the ability to read, to such an extent that their reading skill falls back to that of a grade seven pupil. The major target group for this exhibition will be school children, which in turn, indicates low to medium reading speeds.

Exhibitions with a lot of reading, as primary exhibition, will therefore not be a very successful exhibition.

Conceptually, exhibitions work best when the primary exhibition, as an artefact, can be viewed and can be easily interpreted, with minimal text as part of that artefact. The secondary exhibition will then consist of a combination of images and text, and tertiary exhibition, will in the main, consist of text.

The speed at which these three levels of exhibition are viewed will be different. The primary exhibition will require the least amount of time to view and understand, while the parts with majority text will take the longest to view and understand.

Figure 5.34 Hierarchy of an exhibit, based on peoples ability to grasp a concept fast

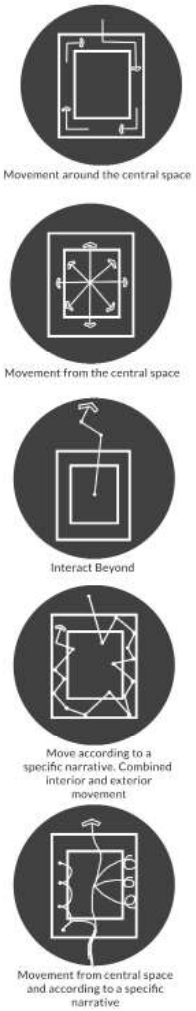


Figure 5.33 Diagrammatic exploration of exhibition flow options

- LIGHT

A study has found that people move faster through darker spaces and slower through light spaces. People also tend to move from light spot to light spot (see Figure 5.39).

The museum was designed in a time when electricity was still a new found commodity (refer to Chapter 3), and did not provide the quality of light we know today. It was important as part of any exhibition space to maximise the amount of natural light, in order to maximise the view of the artefacts. In the design of museums however, it is important to minimise or eliminate the amount of sunlight on the artefacts, in order to minimise the deteriorating effects of radiation on the artefacts. This design principle is evident in the *Staatsmuseum* with its clerestory windows that allow ample sunlight to enter the spaces, with minimal direct sunlight (see Figure 5.37).

A study has shown that this kind of indirect light is not the most beneficial light for exhibitions. The light places no emphasis on any artefact on display, but rather lights up the entire space. It is important when exhibiting items, to make use of artificial or natural light, to place emphasis on items on display, without causing any radiation damage to them(see Figure 5.38).

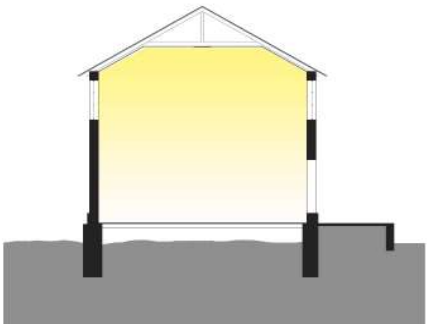


Figure 5.35 Clerestory windows allowing the maximum amount of natural light without any direct radiation beams reaching the floor/exhibition

Figure 5.36 Using artificial light as focus lights on artefacts

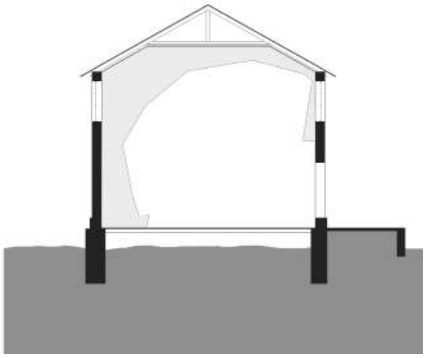


Figure 5.37 Using a combination of artificial and natural light with the introduction of a new interior skin to regulate light

- MOVEMENT

According to (STUDY/CITE), upon entering a space, people tend to move left way round the space. Other than that semi-constant likelihood in people's movement, it is very difficult, if not impossible to predict the way in which people will move through a space. The only way to ensure people follow a specific narrative, is to create definite boundaries. This can be done by means of manipulating light and space sizes in order to guide people, and to a certain degree predict their movement, without forcing them through a crush (see Figure 5.40).

The effective use of larger open spaces for slower relaxed movement, and smaller cramped spaces for faster movement, will be applied throughout the permanent exhibition both on plan and on section (see Figure 5.41).

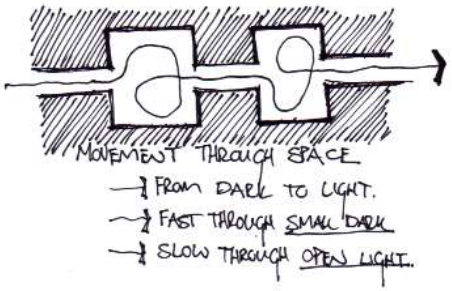


Figure 5.38 Diagram explaining movement through open and cramped spaces on plan

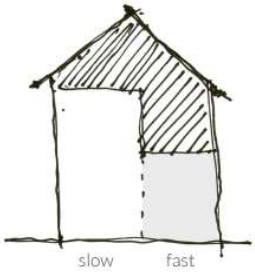


Figure 5.39 Diagram explaining the effect of open and cramped spaces on section

- PROGRAM

The programmatic intention is to introduce a program that links with the zoo. A life sciences centre will be introduced with specific focus on how life can be used to harness and generate electricity.

An education exhibition that focuses on the basic structure of life, known as DNA, where it is stored in cells, and how DNA creates proteins that has many different functions. The ability of proteins to digest matter is the next focus point, with specific reference to an organic digester system which generates methane gas. The final focus point of the exhibition is the energy harnessed from burning the gas, and how the CO_2 generated by the electrical generator can be transformed into O_2 through algae bio-reactors, making the entire system a zero waste system as illustrated in Figure 5.42.

Figure 5.40 Diagram explanation of the programmatic intention in the Staatsmuseum.

- STAIRCASE

The existing staircase and trapdoor will be removed and a new staircase will be installed, that relates better with the spatial layout of the new foyer.

The new staircase, as all other design elements, will showcase the main design driver and response to the building. It is orientated with the new penetrating axis into the building, making one aware of the fact that it is a new installation. The staircase does however, extend to overtake the entire first floor, as a clear orange metal insertion into the building. This insertion is made up of pre-manufactured steel sections in order to create an easy to install seamless insertion (Refer to detailing and assembly in Chapter 6).

Figure 5.41 View through the new entrance into the courtyard

Figure 5.42 View of the reception area

Figure 5.43 Existing staircase to first floor

Figure 5.44 Existing trap- door to basement

Figure 5.45 Existing staircase to first floor

- COURTYARD AND VERANDA

The addition to the courtyard will be demolished as it detracts from the courtyard as being the central space of the building. The veranda roof that was demolished at that time, will be re-interpreted as a combination of the construction line of the demolished addition (where it touched the north and south wings), and the new insertion by means of the new axis formed as part of the new insertion. The new line will make the user of the space aware of the fact that the roof is an addition. The envelopes of the additional roof will be double glazed (see Figure 5.48) in order to create additional exhibition space that relates to the courtyard, visually. The construction of the roof will be done in such a manner that it creates the effect of a flat, lightweight structure that guides the user of the space visually on a horizontal level (refer to ground floor plan and details in Chapter 6).

Figure 5.46 Perspective view of the new veranda roof in the courtyard

5.5 DESIGN RESPONSE AND DIRECTIVE

As a response to the building, a main directive will be formulated and followed. Certain elements will however, be identified as significant elements and a clear directive will be set out for each of these elements.

The main design directive, as a form of response to heritage as categorised by Bollak (2013), is to respond to the building by means of an insertion. This insertion and every part thereof should, where it touches the building be sensitive to the building and be clear that the place where the two meet, reflects this concept. Where the building is penetrated, the same should be reflected in the way the penetration or puncture is detailed.

Different elements that need to be responded to, separately and specifically, include the following:

- The existing entrance (façade): The existing entrance is one of the most significant parts of the building. It is the only fully detailed and decorated façade or part of the entire building. It is also the one part which has relationship with the street edge, through the opening of the front gate, thereby giving the public the ability to gain visual access into the courtyard of the building.
  - Response – The response of this design, as described in more detail in the previous section of this chapter, is to restore the entrance façade, the gate, and the tunnel to the courtyard. The entrance will no longer be the main entrance to the building, but will be replaced by a new contesting entrance on the northern façade (opposite side) of the building. The entrance will however, still be used for evening functions or on prior arrangement to let larger groups of people into the building.
- Other façades: The other façades of the building are much less significant architecturally, but still bare significance through forming part of the way in which the street edge has been read and understood or experienced by many generations of people throughout the past century. The rhythm created by the plaster blocks of the façades, the rhythm of the clerestory strip windows and the shape of the roof against the skyline all bare significance as part of the street edge of Boom Street.
  - Response – The rhythm created by these elements should not be destroyed. The elements in themselves are however, not as significant, and can be replaced by other elements, but keeping the same rhythm as the existing elements.
- Internal spaces: The main function of the interior spaces is to house exhibitions. The spaces were designed as plain as possible, to allow for different responses in terms of exhibition. Some of the old exhibitions are still visible in the building today (refer to Figure 5.16). The new programmatic intervention, once again allows the interior spaces to be exhibition spaces. The way in which exhibitions are designed and set out however, has changed a lot with our better understanding of the influence of space planning on people's experience.
  - Response – The new exhibition spaces will be a new interpretation of these psychological "rules", using the existing building only as a shell. The exhibition installation will be an extension of the new entrance intervention and insertion concept,

as main architectural response driver. The new intervention will be designed to be understood as planes inserted into an existing space, altering the persona of that space to house a specific function. It is important though that part of the building's interior spaces should still be understood and viewed as its original design. These spaces will be restored fully, to allow for a more informal function to be introduced.

- Administrative wing: The administrative wing of the building is the northern wing. This part of the building has windows to the courtyard and windows to the zoo. It is the one part of the building with the most interaction between interior and exterior. This is also one of the areas within the building, which has undergone some changes since the conception of the building. This part of the building is the least significant, with regard to the initial programmatic intention of the building.
  - Response – The response to the administrative wing of the building can be less sensitive than to the other parts of the building in terms of building fabric, spatial qualities and intentions of the original design. Although the largest intervention will take place in this part of the building, the main design directive of touching the building lightly, will still influence the design of any intervention in this part of the building and beyond.
- Courtyard space: The courtyard space is the main space of the building, as all other spaces live out onto it.
  - Response – The main design directive for this space, is to keep it as the central green space of the building. Any additions should be done in a way that is conscience to the courtyard as 'central space'.

5.6 SPATIAL DEVELOPMENT: PLANS

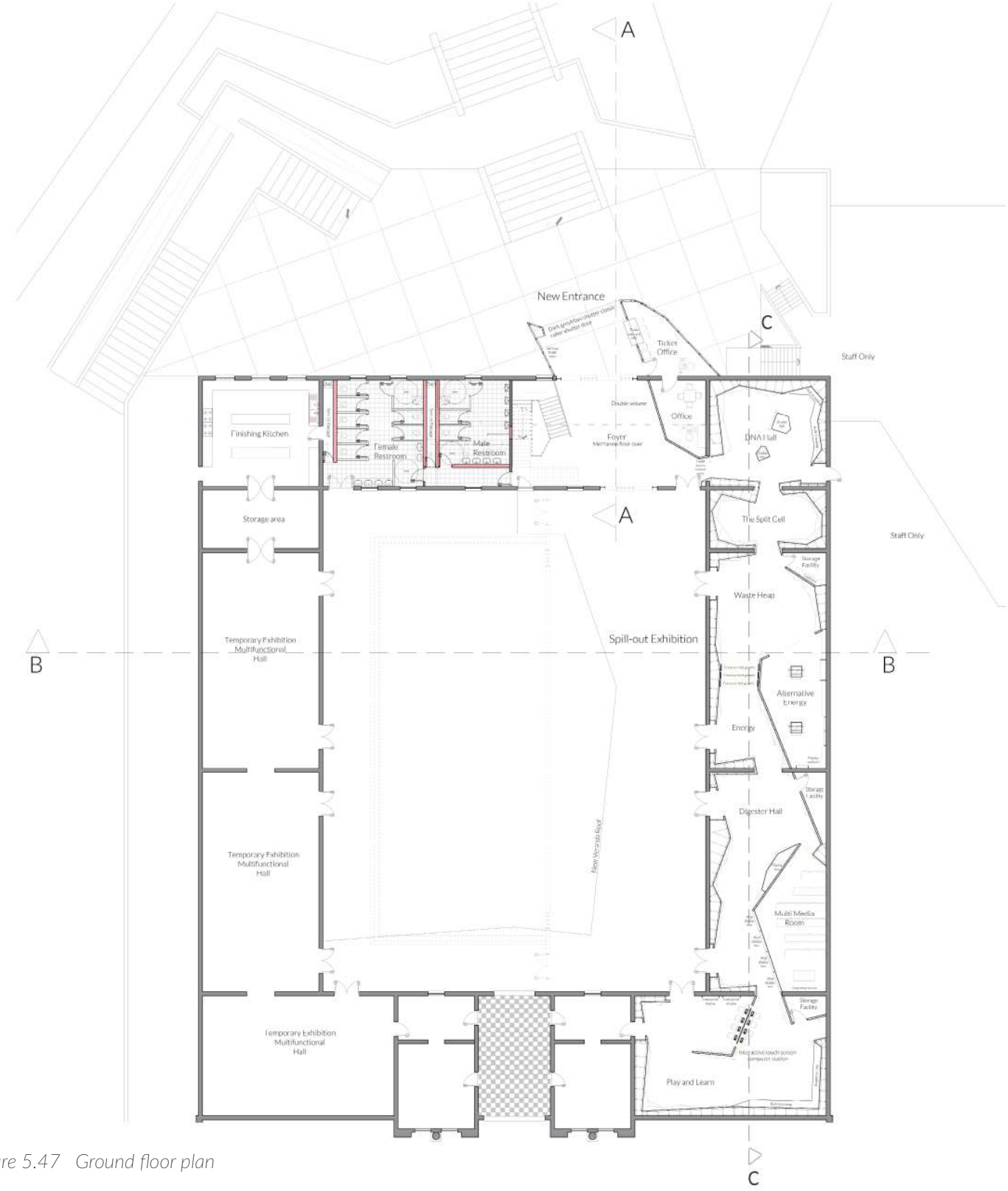
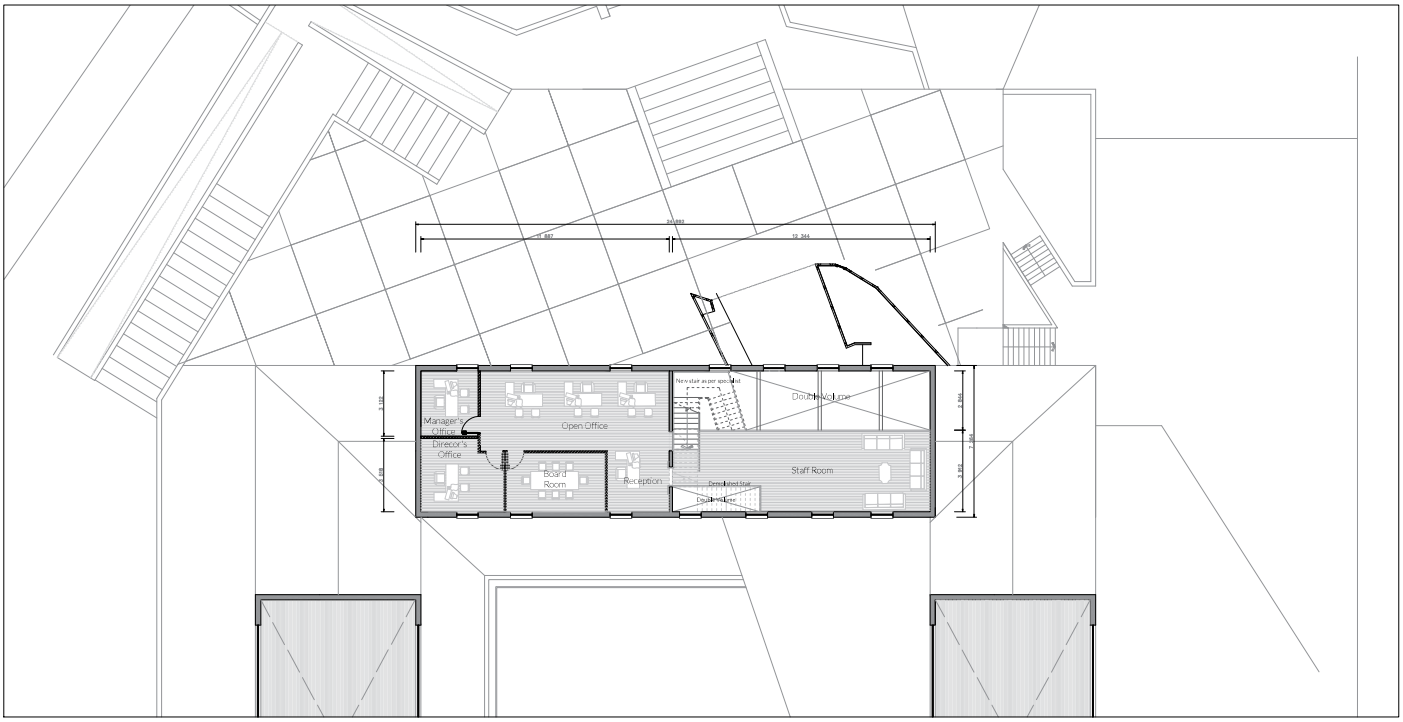


Figure 5.47 Ground floor plan



FIRST FLOOR PLAN
N.T.S.

Figure 5.48 First floor plan

06

TECHNICAL INVESTIGATION

In this chapter, a technical concept is developed, which relates to each part of the project as set out in the design discourse.

INDEX

6.1 TECHNICAL CONCEPT

A technical concept is derived from the main design concept of a membrane, that through insertion, forms new spaces inside an existing shell or structure. This new membrane is understood as a separate entity, in the way it intersects and responds to the existing building on various levels. This interaction responds to the existing building fabric lightly. Wherever it touches the fabric, it does so very lightly and honestly, as a separate intervention.

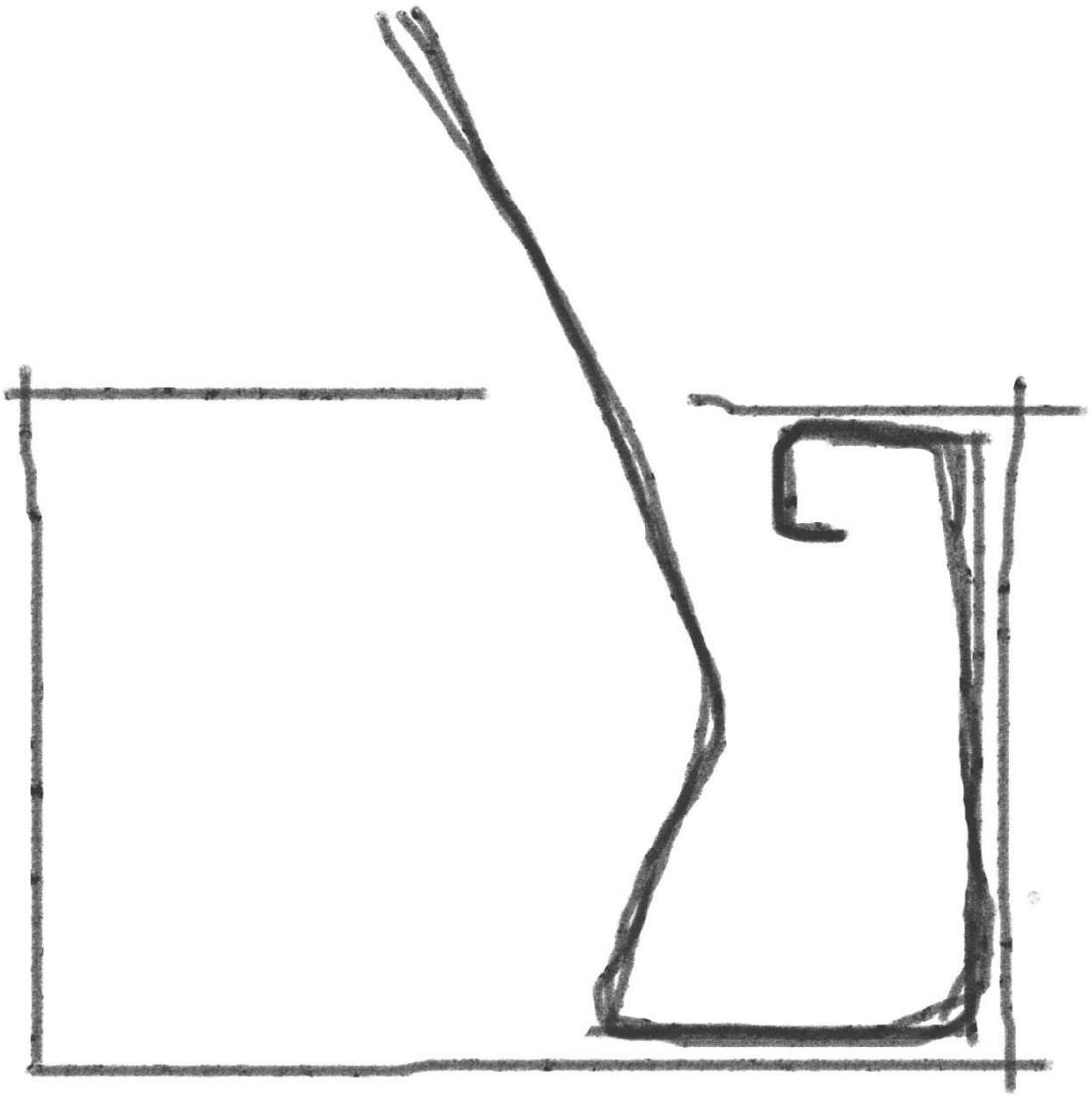


Figure 6.1 Parti diagram

6.2 TECHNICAL RESOLUTION

6.2.1 Plinth

Even though the plinth grows out of the landscape, it is still partially a monolithic structure, that creates an elevated platform for the Staatsmuseum. The monolithic nature of a plinth is however, placed subject to the technical concept. The plinth forms the first part of the membrane that is inserted, or responds to the building in a certain way. The plinth is also respectful, where it touches the building as an honest separate entity. A person is made aware of the fact that the plinth is not the natural ground level, and is an insertion or addition, at various different points.

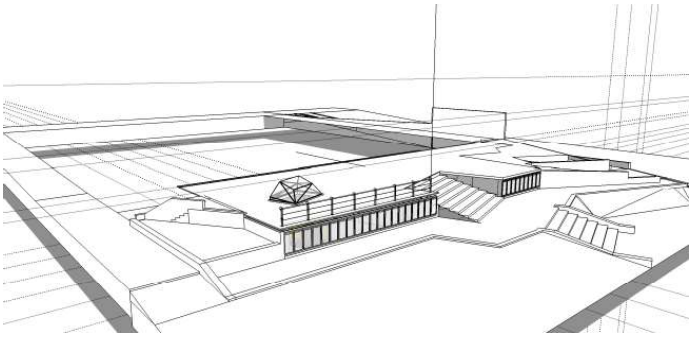


Figure 6.2 Plinth

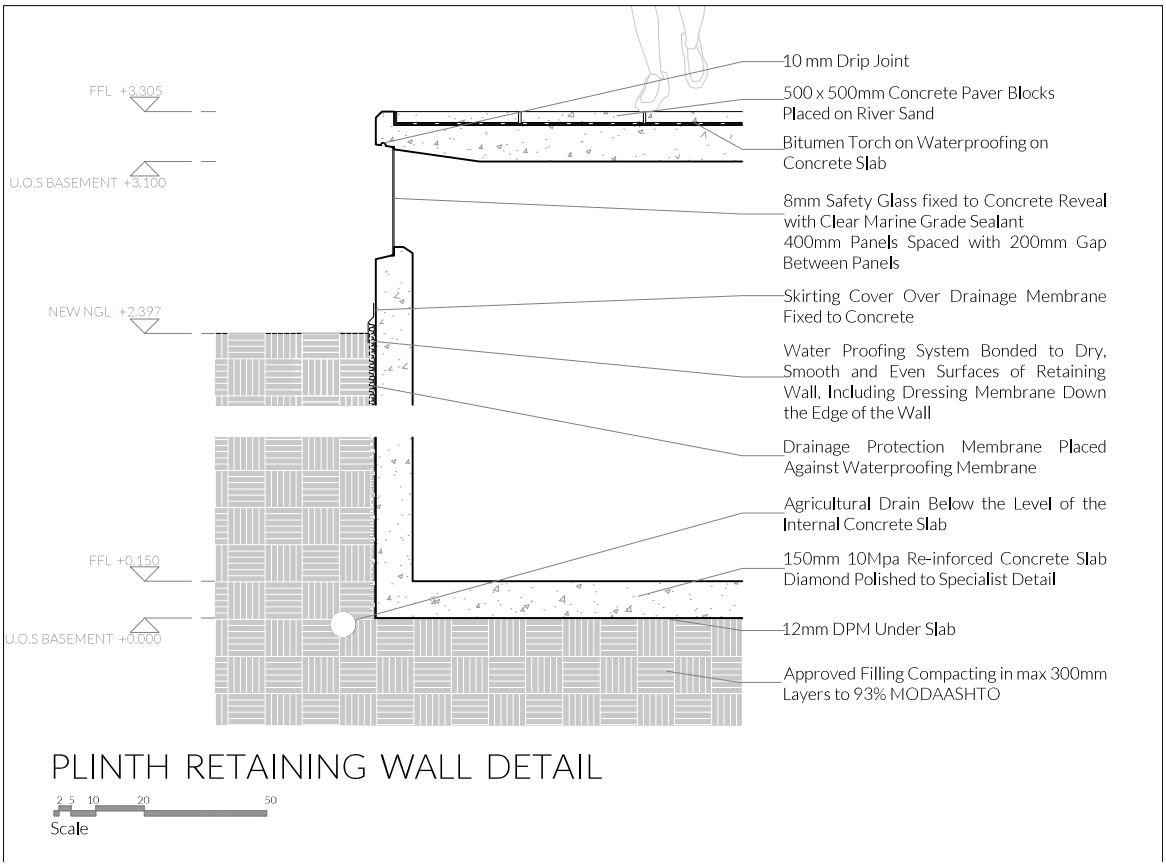


Figure 6.3 Detailed section through plinth and retaining wall NTS

6.2.2 Entrance

A structural system is created, that relates to the concept of the new intervention, not only being an insertion or a form of parasitic intervention, but also embodying the character of the new intervention as an entity on its own. A structural system is developed that allows the new membrane to be structure and skin simultaneously, thereby supporting itself.

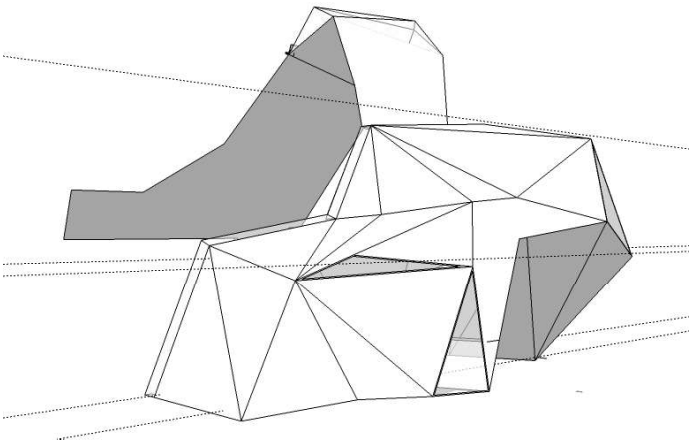


Figure 6.4 Entrance

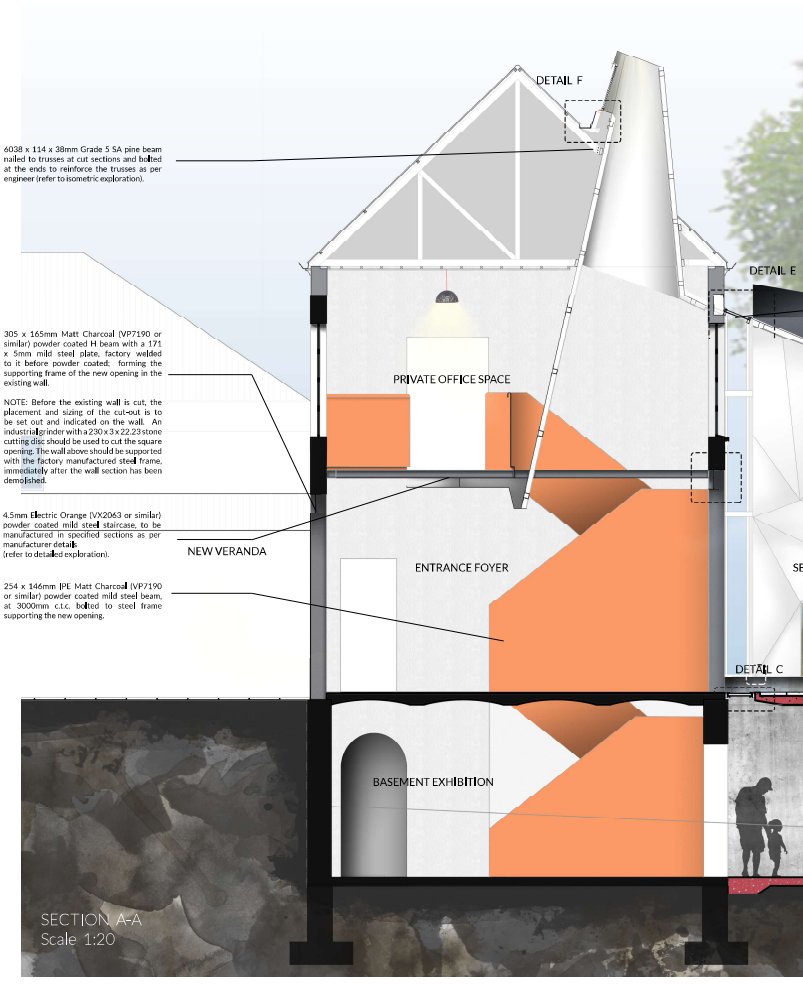
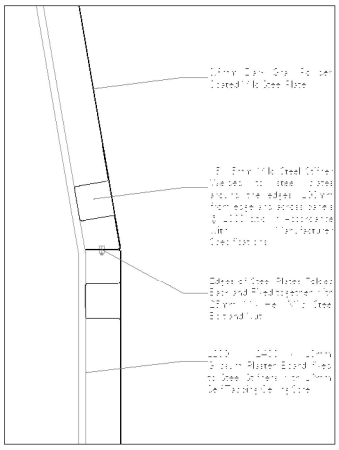


Figure 6.5 Isometric section NTS



STEEL CLADDING FIXING DETAIL
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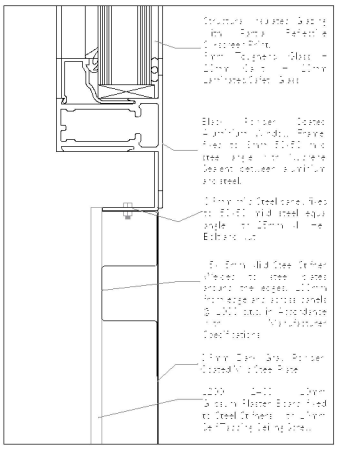

STEEL CLADDING GLAZING DETAIL
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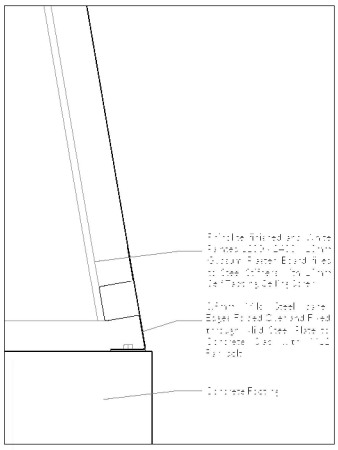

STEEL CLADDING FIXING DETAIL
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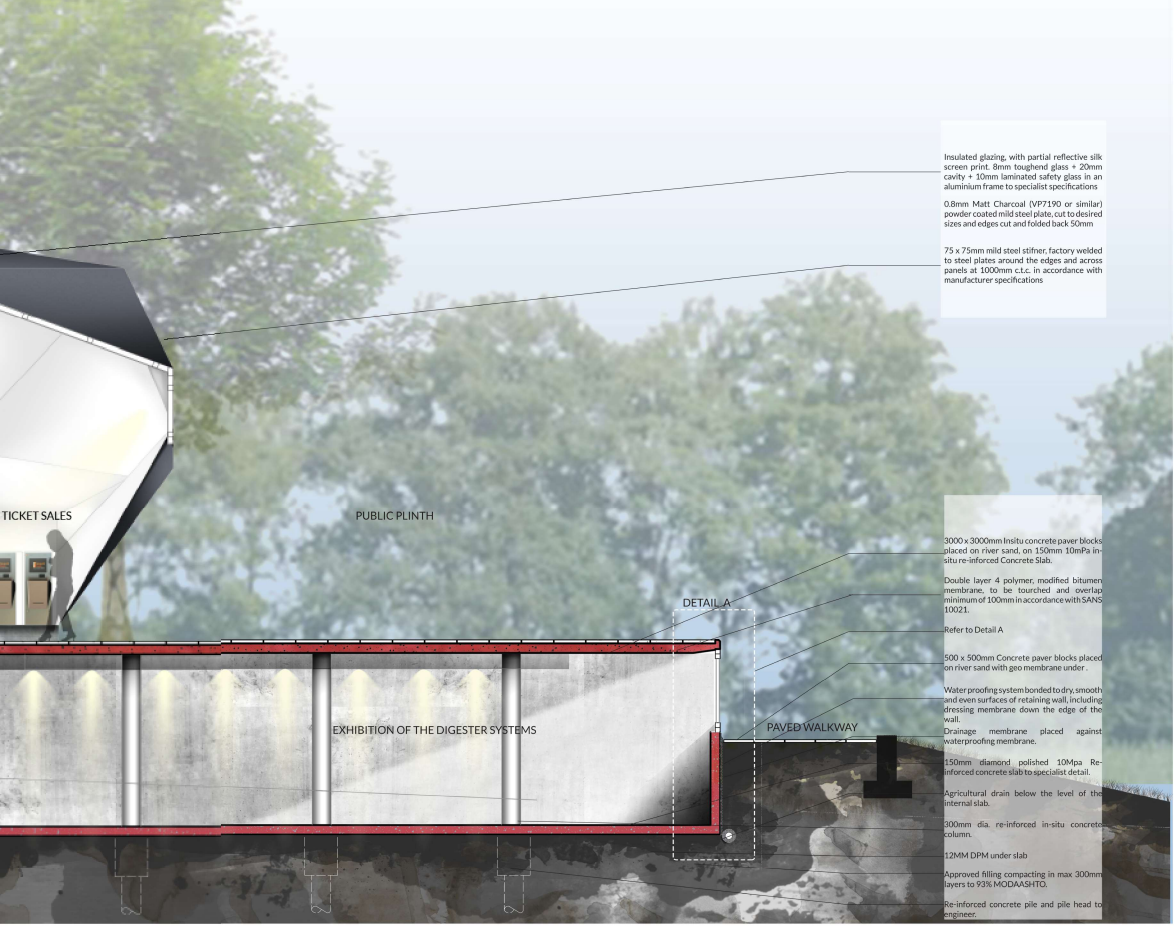


6.2.3 Interior

A new interior shell is inserted throughout the eastern wing of the *Staatsmuseum*. This shell is designed and understood as being apart from the existing structure, and reads as one membrane that morphs through the spaces. To achieve this, a light gauge steel sub-frame is built to accommodate faceted panels to be attached to the structure. The panels will mostly be gypsum plaster board with plywood infill.

Figure 6.6 East west section indicating new intervention as well as restored wing NTS

Figure 6.7 Detail section of cladding material fixing

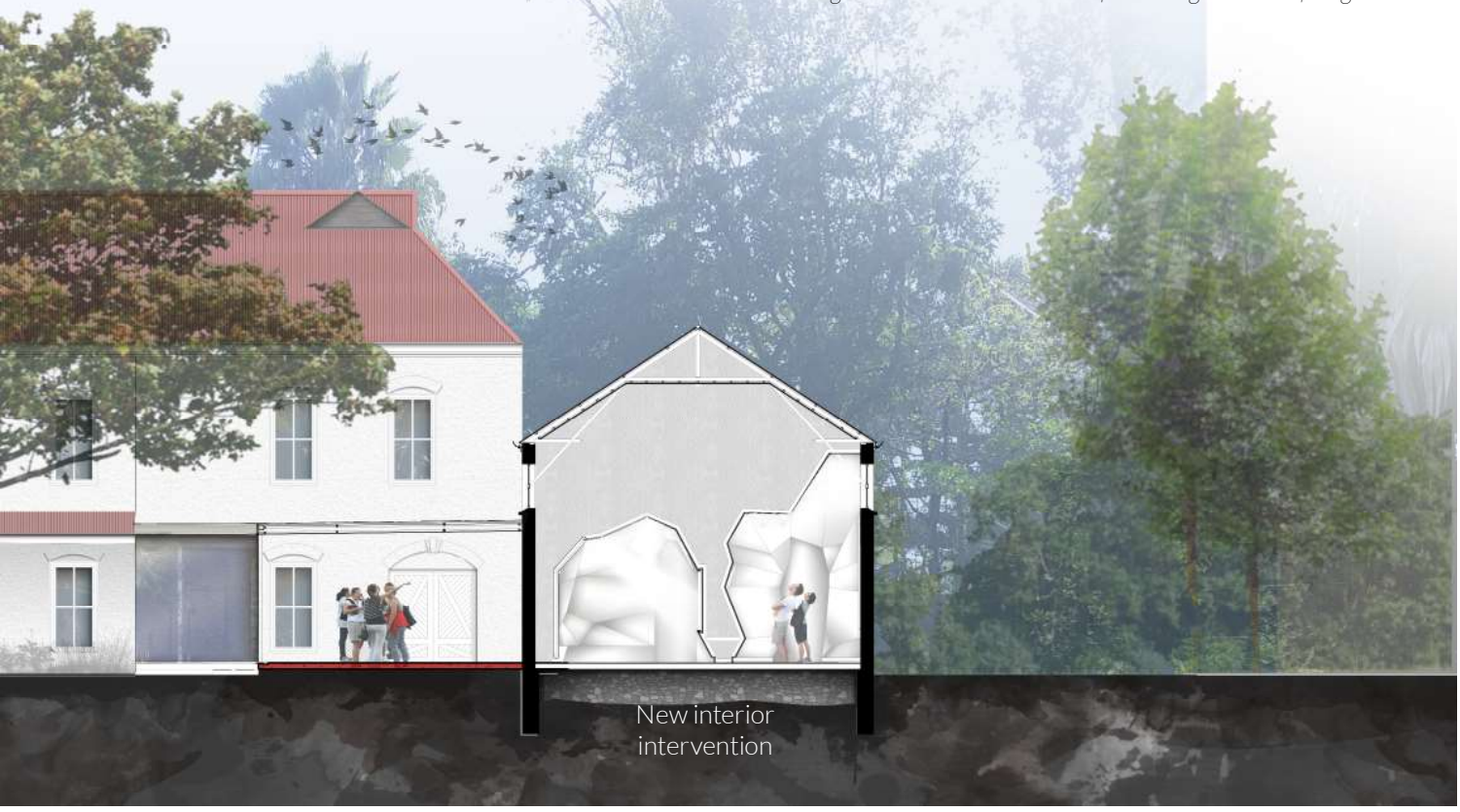
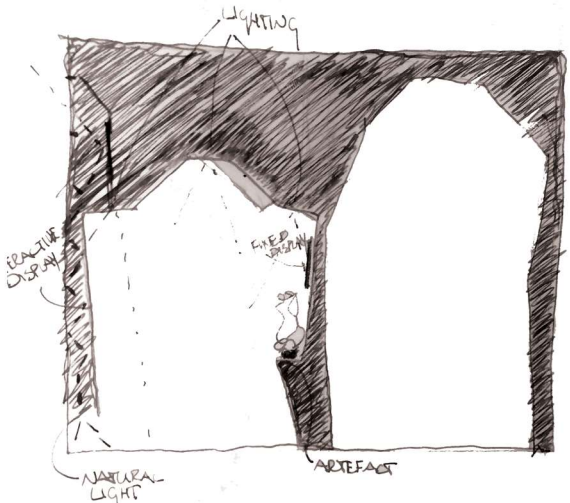
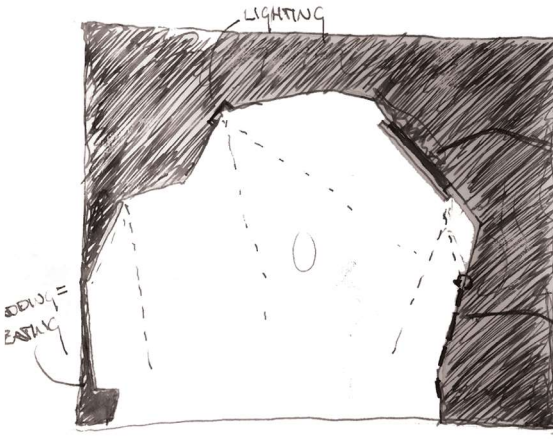


Figure 6.9 Section through exhibition installation explaining each part of exhibition part 1

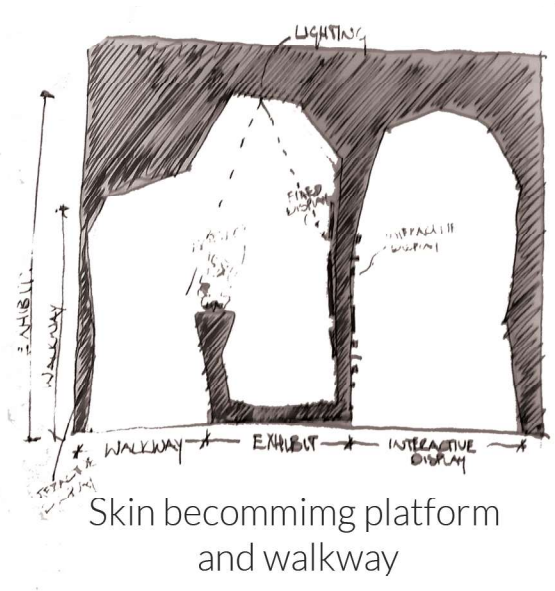


Skin allowing for multiple spaces and becommimg exhibition platform



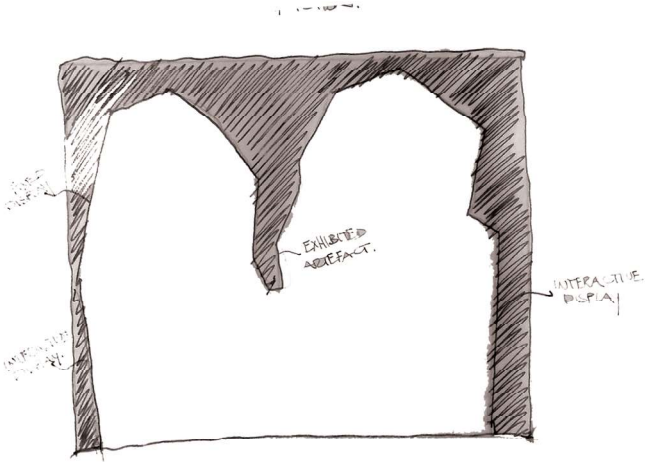
Skin allowing for various exhibiti planes and can also become seating

Figure 6.10 Explorative Sections

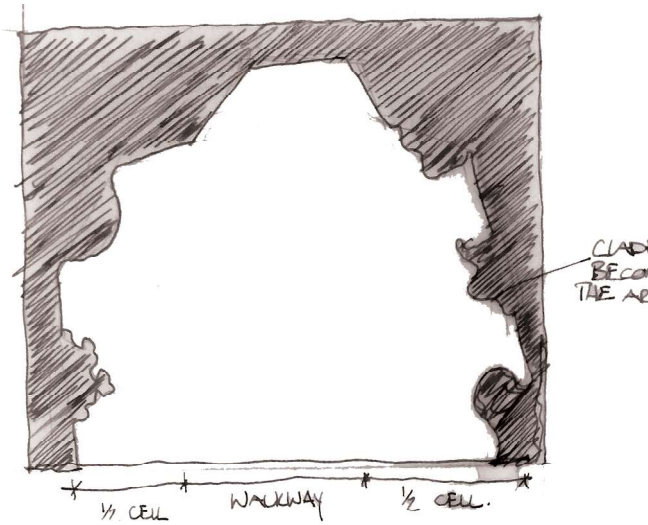


Skin becommimg platform and walkway

Figure 6.11 Section through exhibition installation explaining each part of exhibition part 2



Skin Allowing for different perspective



Skin being manipulated to become the artefact

Figure 6.12 Explorative Sections

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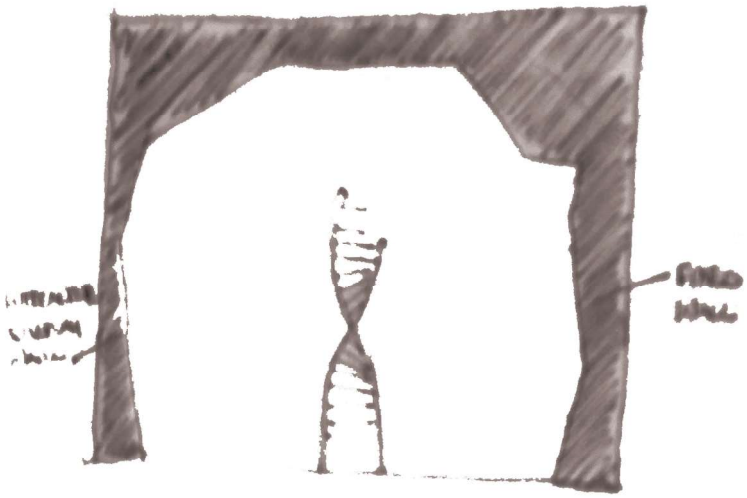
TECHNICAL INVESTIGATION



Artefact in center of space being the focus point

6.2.4 Courtyard

The new courtyard veranda roof is designed to be a flat floating roof, guiding the user visually, as horizontal plane.

The roof is made up of a timber support structure, with plywood roofing, which is waterproofed with torch-on Bitumen water proofing and finished with steel profile sheeting over.

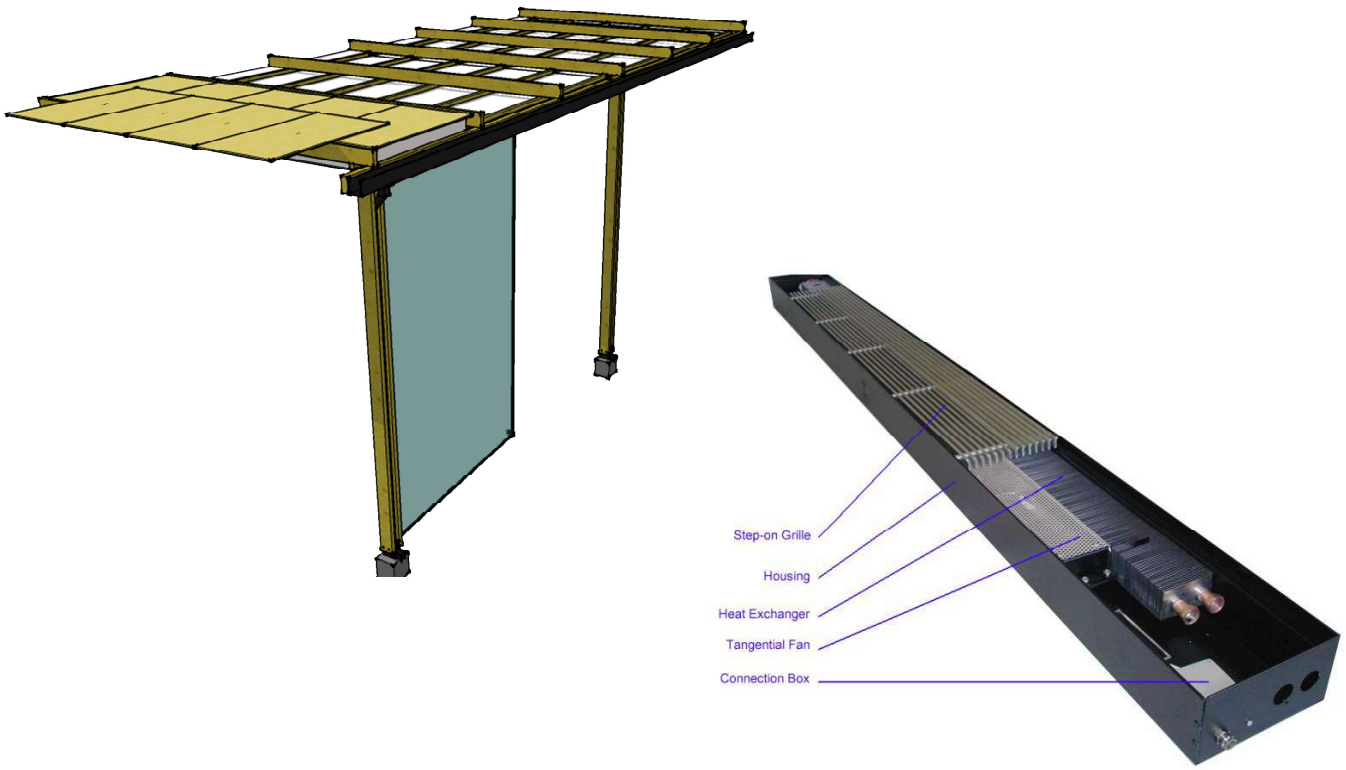
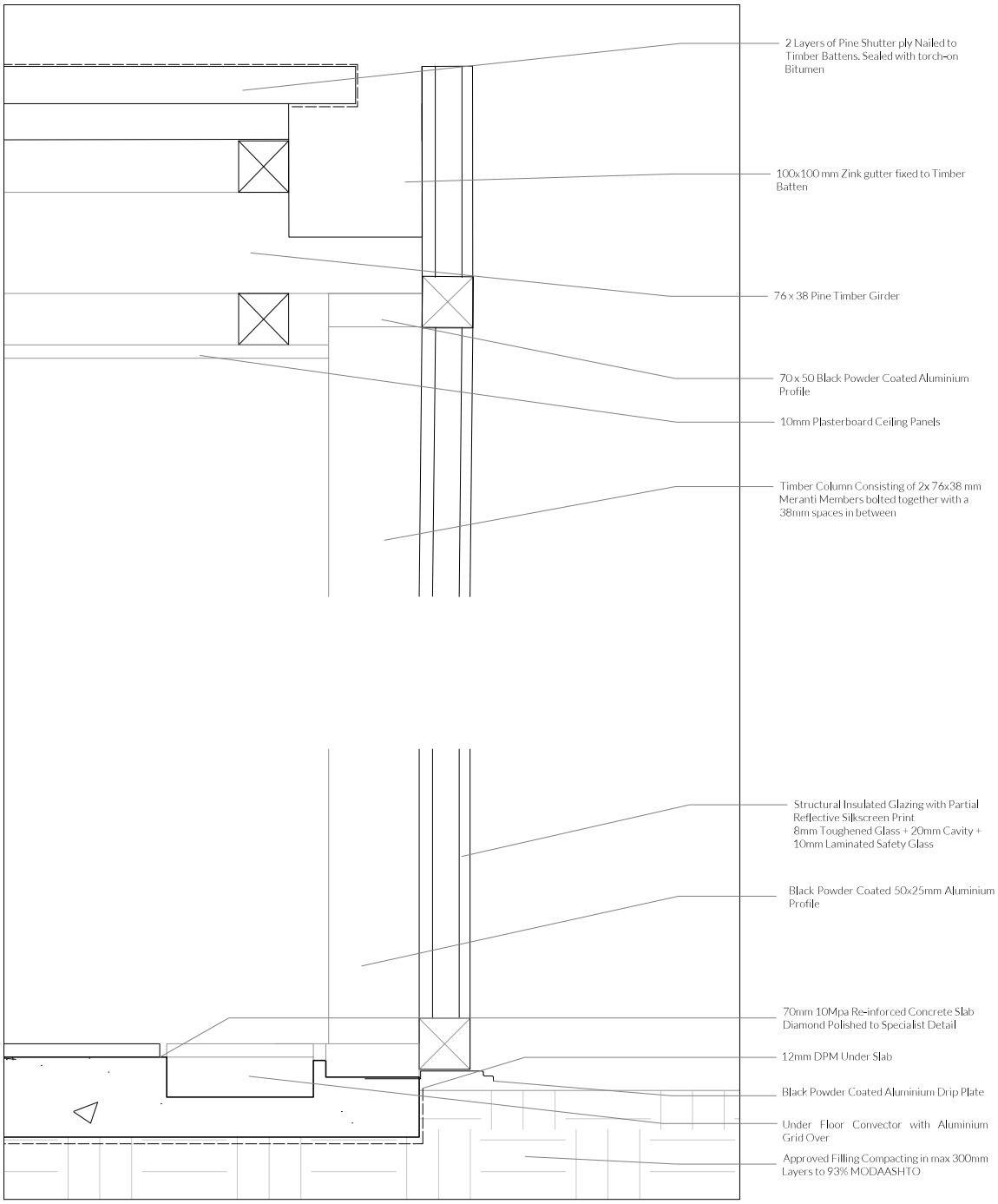


Figure 6.13 Isometric of the new roof addition of the courtyard



COURTYARD FLOOR AND GLAZING AND ROOF DETAIL
N.T.S.

Figure 6.14 Detailed section of the new addition of the courtyard

6.3 SERVICE SYSTEMS

The manipulation of light in the new exhibition area, will form the main service system in the building. Conceptually, people move from light point to light point and will move faster through darker and smaller spaces. The intention is to manipulate and use light in such a manner, that it will roughly dictate people's movement through the building.

Light has been investigated as part of the design discourse. Natural lighting in the east wing will be controlled very specifically, through allowing the light to bounce of different panels (behind the new exhibition structure), and to be revealed as a more focused light source in open gathering spaces or along pathways, as a means of way finding and guiding the user.

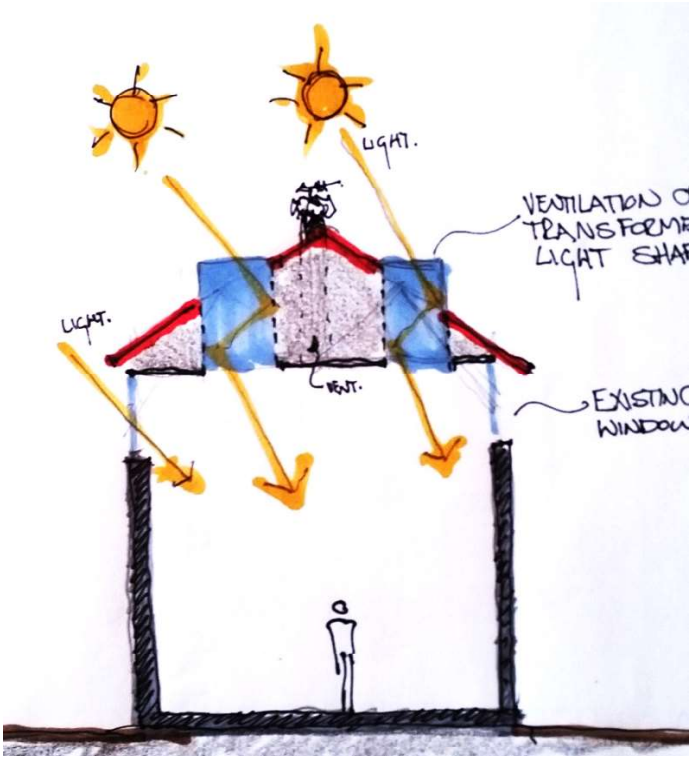


Figure 6.15 Isometric section of the use of light

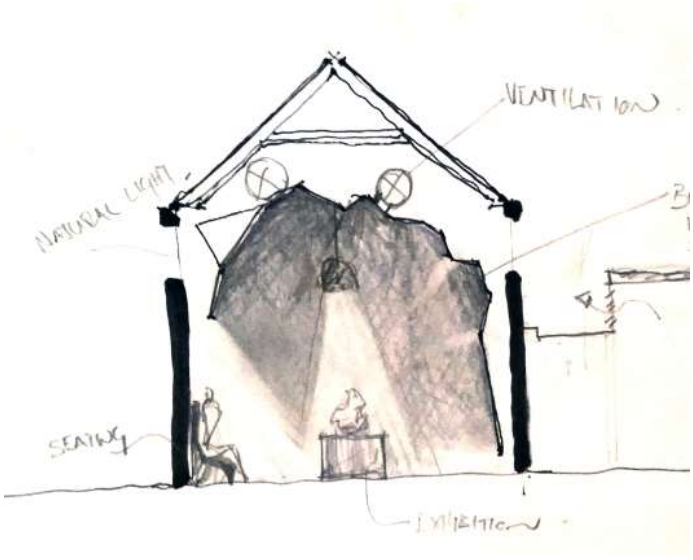
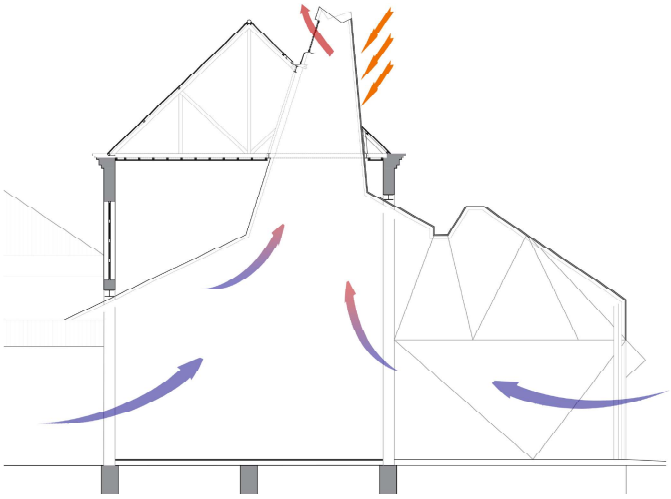


Figure 6.16 Control over natural light

6.3.1 Ventilation: Heat Stack

Ventilation

The new entrance structure's design is done in such a way that it will create a heat stack. The heat stack will be heated by means of solar radiation at the top part, which penetrates the existing roof.

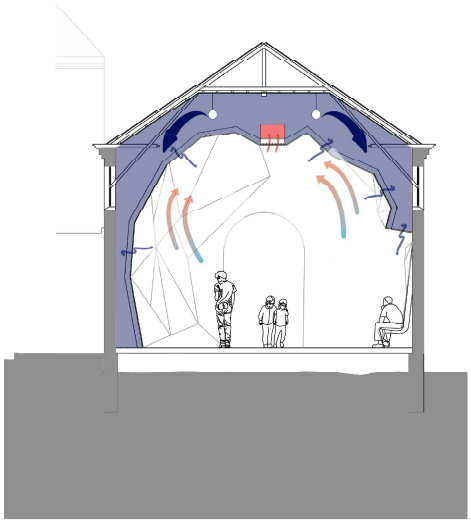


Natural Ventilation

The new entrance of the building is open to the zoo and open to the internal courtyard.
This addition to the building penetrates through the existing roof, allowing for a heat stack to form.
No insulation will be installed on the protruding part of the installation, allowing the sun to heat up the space at the top of the protruding structure.
By installing aluminium louvres on the south of this tower, one allows for the hot air to escape. This creates a negative pressure inside the space, which in turn pulls up more air into this space. This system creates air movement and will allow for the entrance foyer space to be well ventilated naturally.

Figure 6.18 Natural Ventilation System

6.3.2 Ventilation: Mechanical System



HVAC System

A mechanical heating, ventilation and cooling system will be installed due to the high volumes of people that will occupy each exhibition space.

This system is based on sealing and pressurising the voids behind the exhibition panels and introduce fresh and cool/hot air to these void spaces.
By installing perforated panels in between the exhibition panels, the cool air is forced to slowly move through the panels and into the space.

Hot air will naturally rise and accumulate at the highest point in the space. An extraction system will be installed along the highest points to extract hot air by means of a pumped duct system with diffusers.

Figure 6.17 Section of mechanical ventilation system

6.4 ENVIRONMENTAL RESPONSE

The environmental systems, that allow the building, to function as a self-sustaining entity, will be placed in the plinth and will be accessible to the public. The main system is a digester system that makes use of organic waste material, gathered from the NZG, which is grained and added to a digester system. The digester decomposes the waste and generates methane gas. The methane gas is collected in a container off site, to be burned in an electrical generator. The CO_2 gas produced by the generator, will be driven through algae bio reactors which converts the gas to O_2 and generates heat, that can be used for space heating inside the building.

Figure 6.19 Algae bioreactor glass

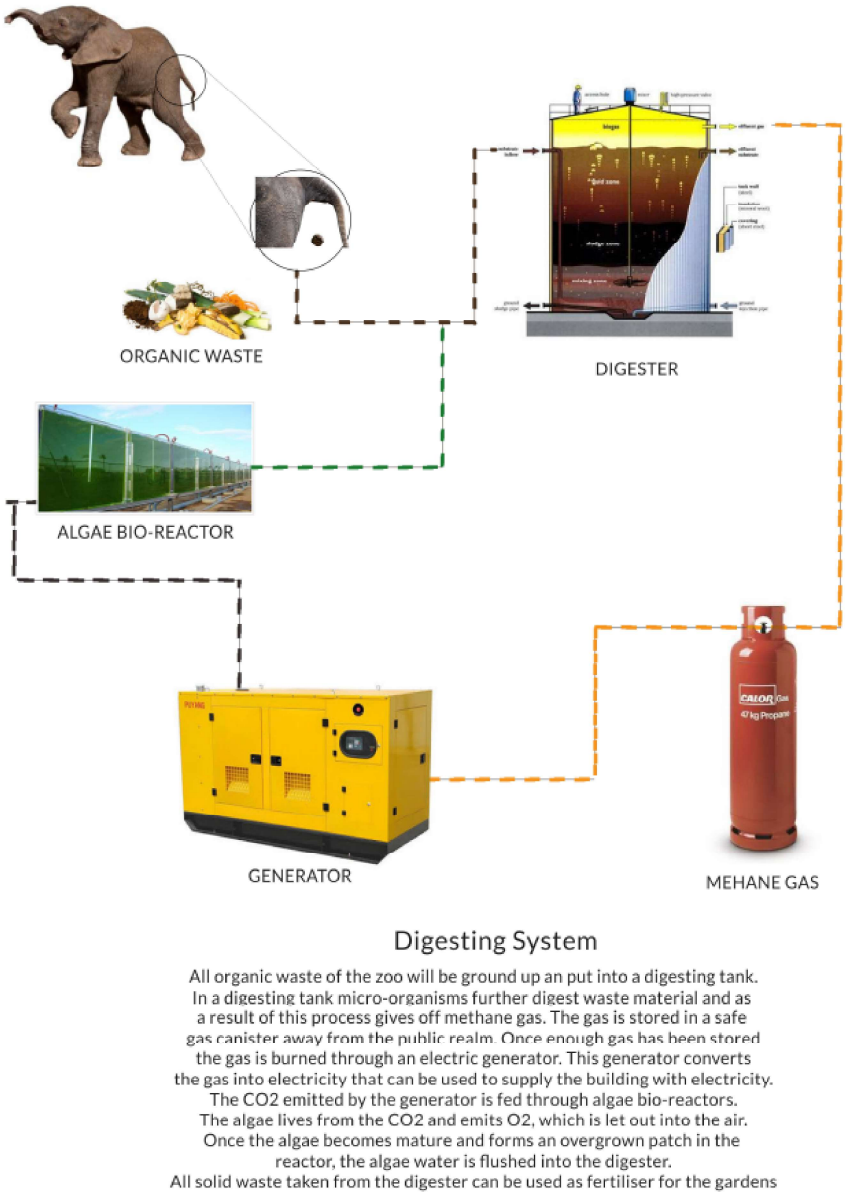


Figure 6.20 Diagrammatic exploration of a typical digester system panels

6.4.1 Digester System

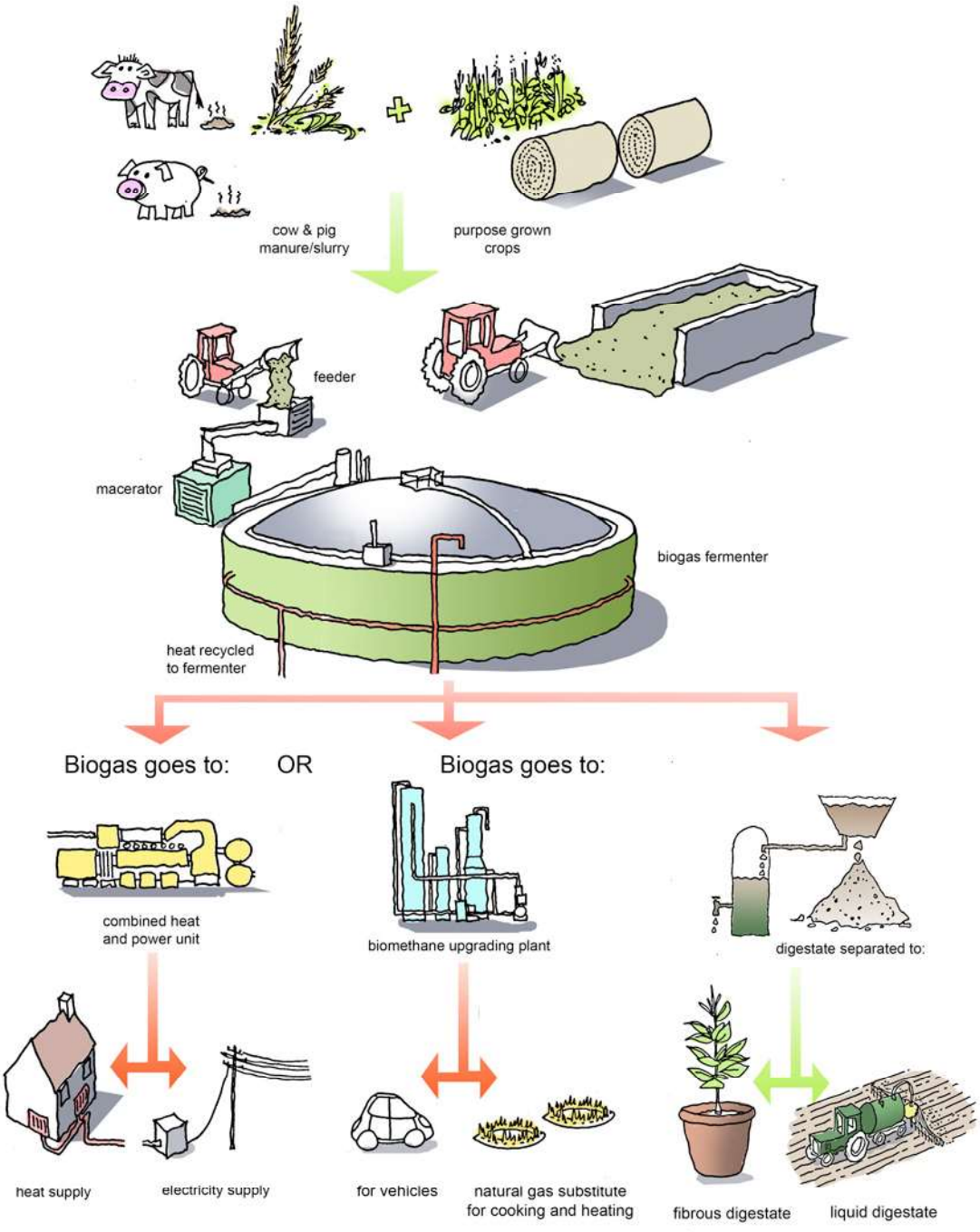


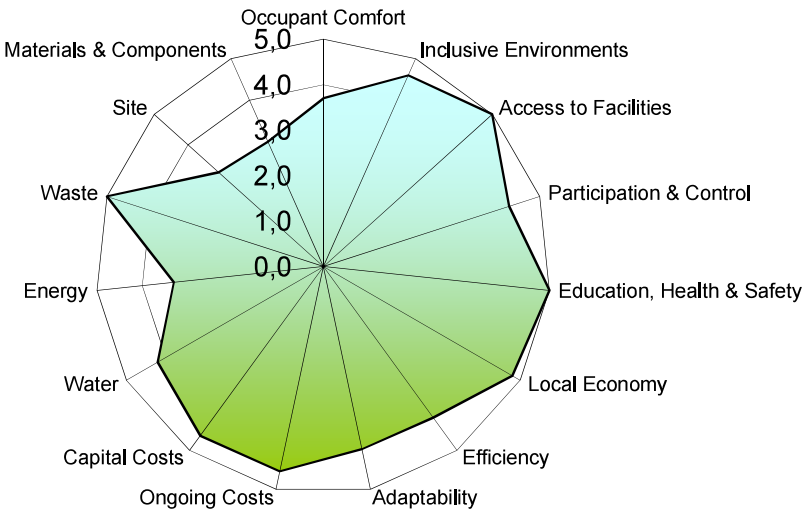
Figure 6.21 Organic digester

6.5 ENERGY RATING - SBAT

The SBAT analysis that has been carried out on the project has scored the following:

Social:	4.5
Economic:	4.4
Environmental:	3.7
Over All:	4.2

This is a good indication of the influence this project will have on the social, economic and environmental spheres in the city. The analysis indicates clearly that more focus can be given to environmental responses to ensure the best possible result is gained with the least negative influence.



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07

CONCLUSION

7.1 CONCLUSION

This study is aimed at making buildings with historical significance that has lost relevance and dignity, relevant in its context once again through adaptive re-use.

Specific focus is given to an example of such a building in Pretoria; the old ZAR Staaatsmuseum. The building was designed to sit in, and react to its context in a specific way. The development of its direct context over a period of 120years, together with the rapid expansion of the museum's collection has led to the museum being stripped of its worth as a building contributing to the city.

Through creating a new urban context, with specific focus on the National Zoological Gardens, and the possible relationship between the zoo and the museum, this study sets out to make the Staaatsmuseum relevant once again.

The topography of the site and the relationship between the museum and one of the open spaces within the zoo proves vital in creating a new context and design driver for the study in response to the museum.

By responding to the museum at the hand of a new context, this study identifies different parts of intervention flowing from one concept. This concept is to create a new intervention in the building that originates in the landscape, and penetrates the building in various ways.

This new approach to the building is a breath of fresh air to the building. It allows the building to once again be relevant not only in the way it sits in the landscape but also in the way it plays a contributing role to the urban context once again.

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APPENDIX A

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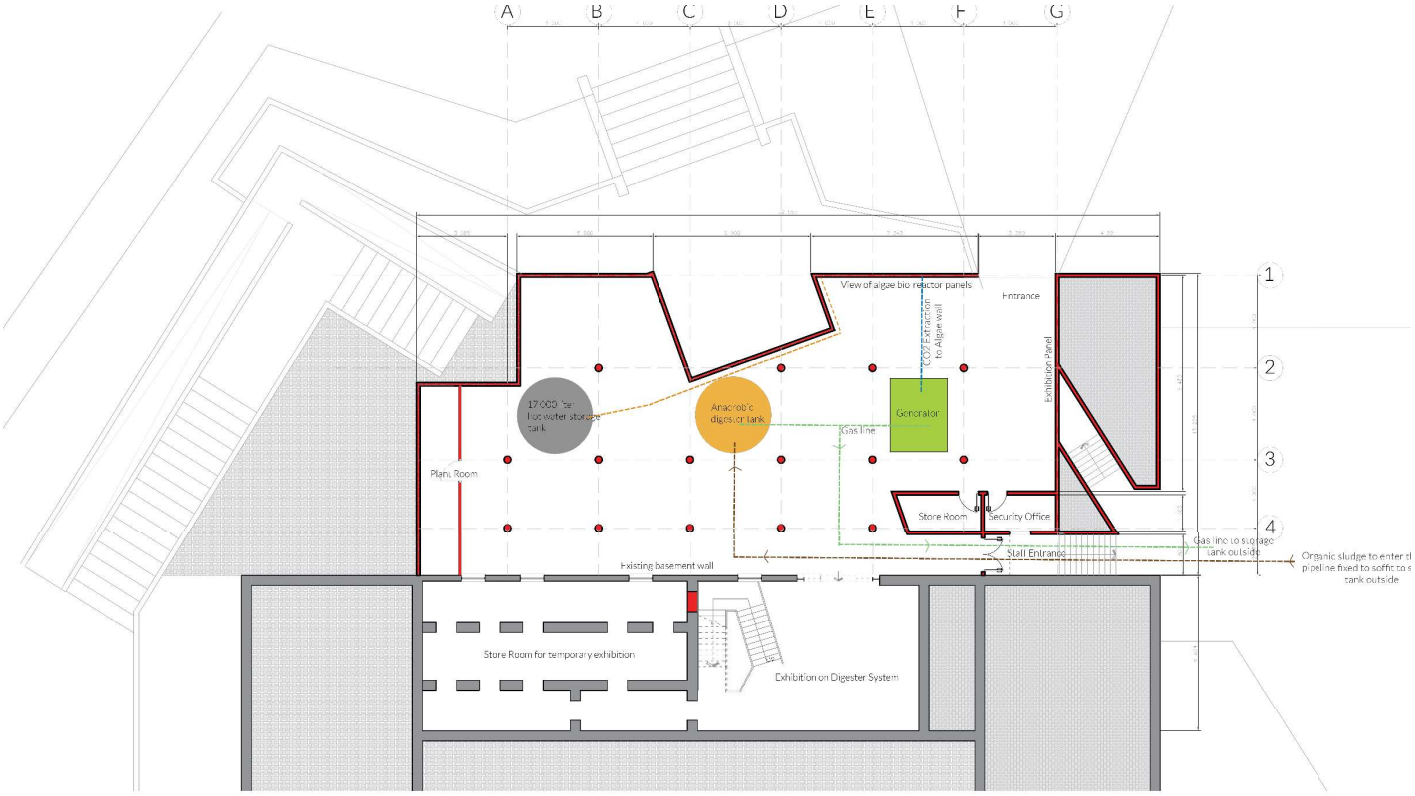
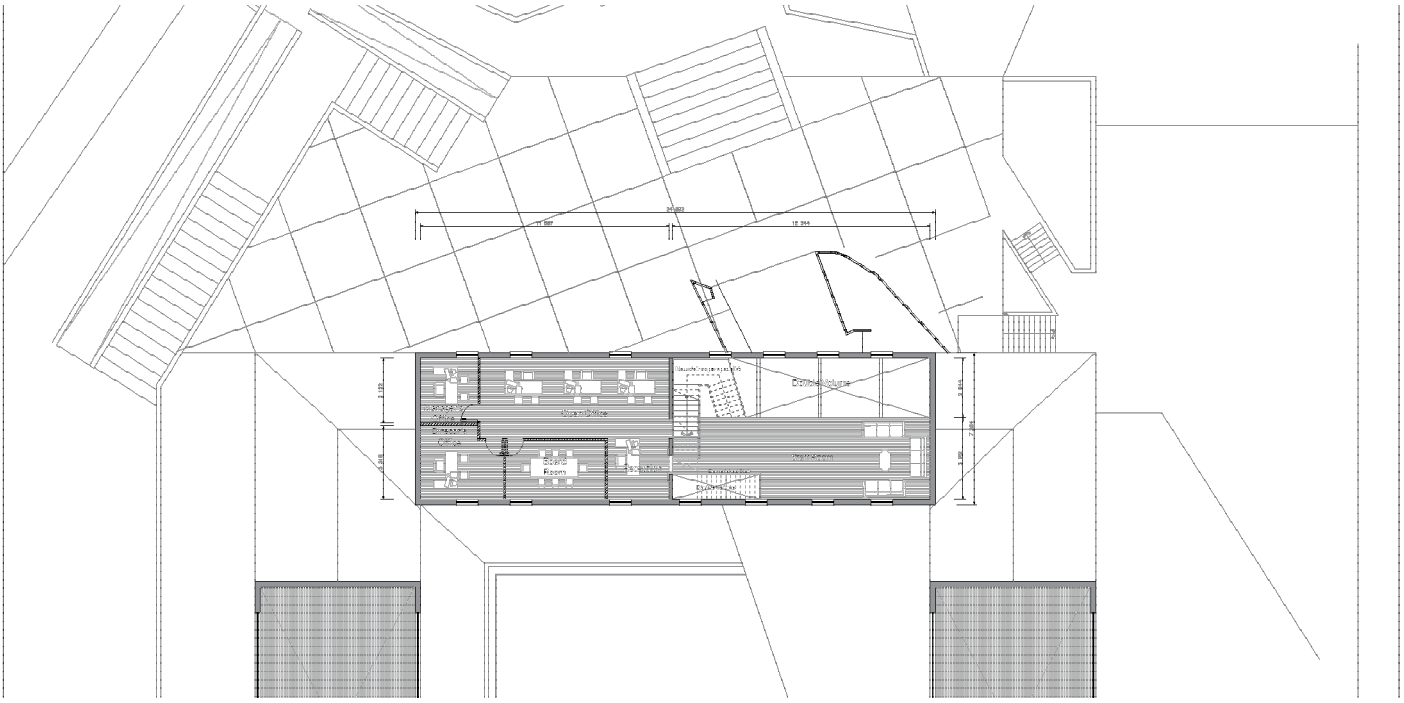
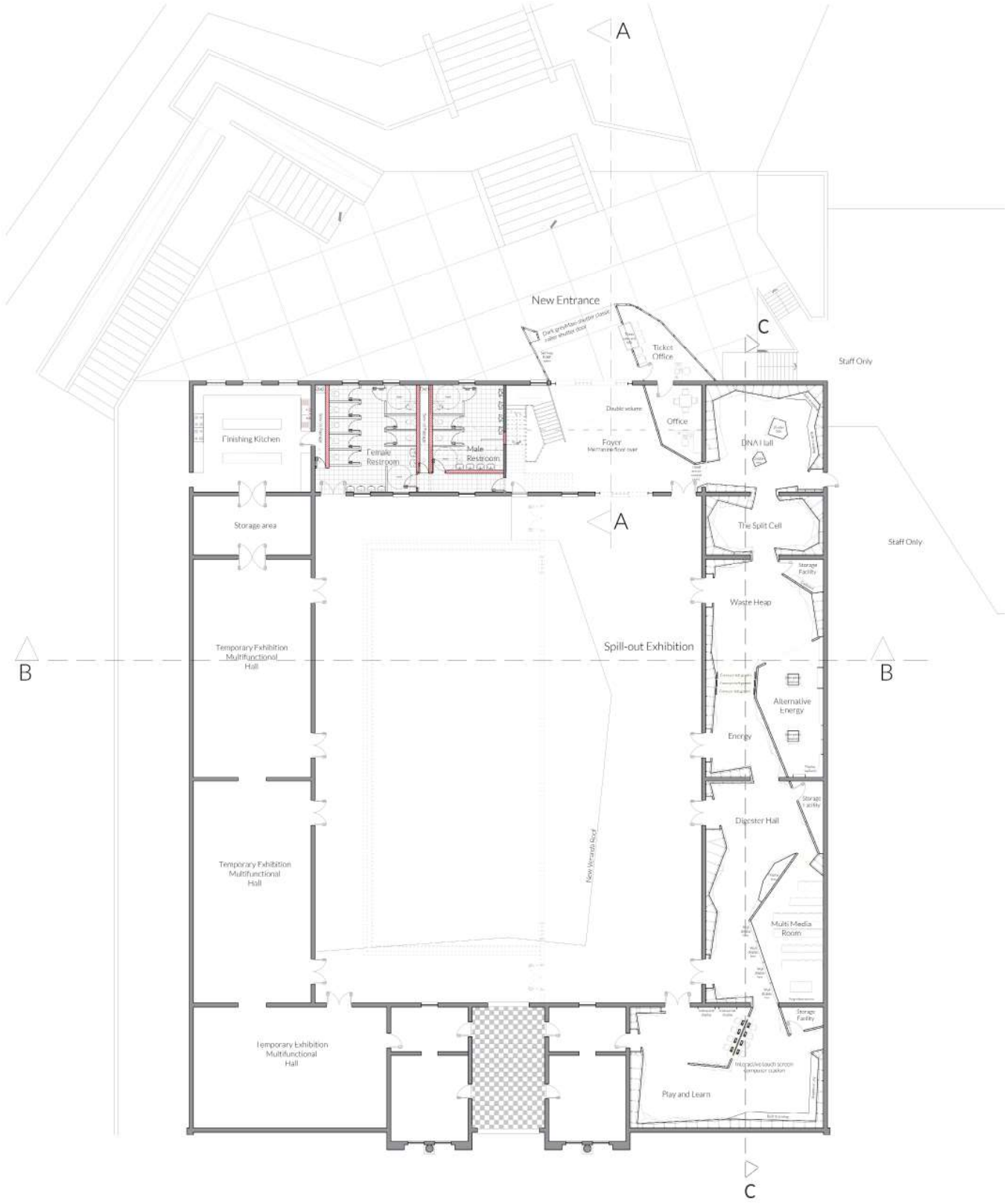


Basement Plan



First Floor Plan

APPENDIX A



Ground Floor Plan

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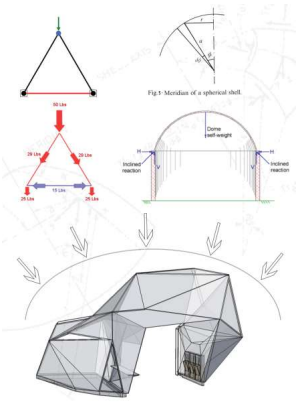
APPENDIX A

NEW ENTRANCE

New entrance structure as a entity on its own



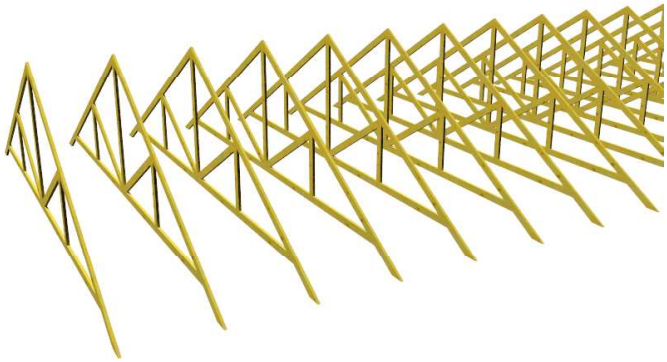
Exploration of the dome structure

View into the new entrance toward the self help ticket sales incorporated into the new structure

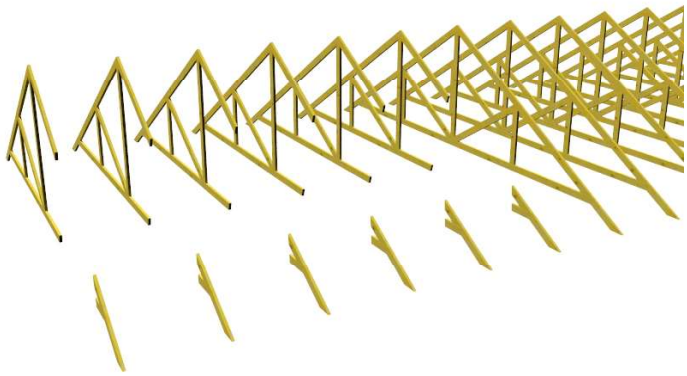
View of new entrance over the plinth and the skylight allowing views into the basement

View of the new entrance as approached from the ramp linking from Boom Street

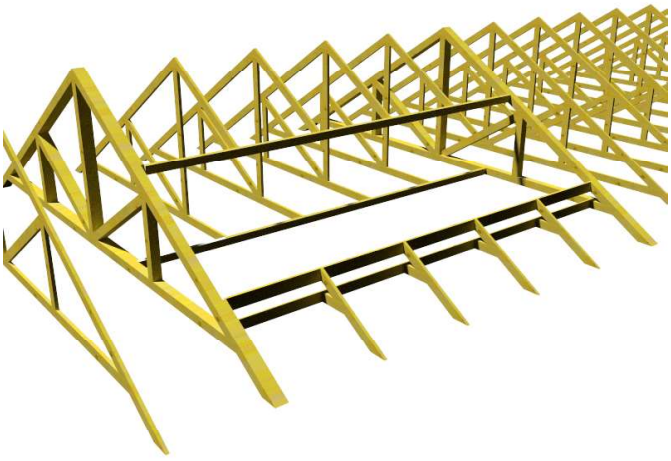
ROOF SECTION DETAIL



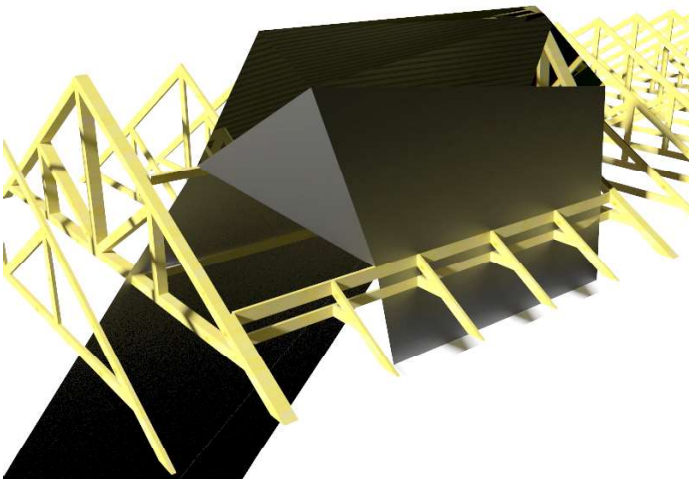
Existing roof trusses. 114 x 38 Pine trusses at 900 centres



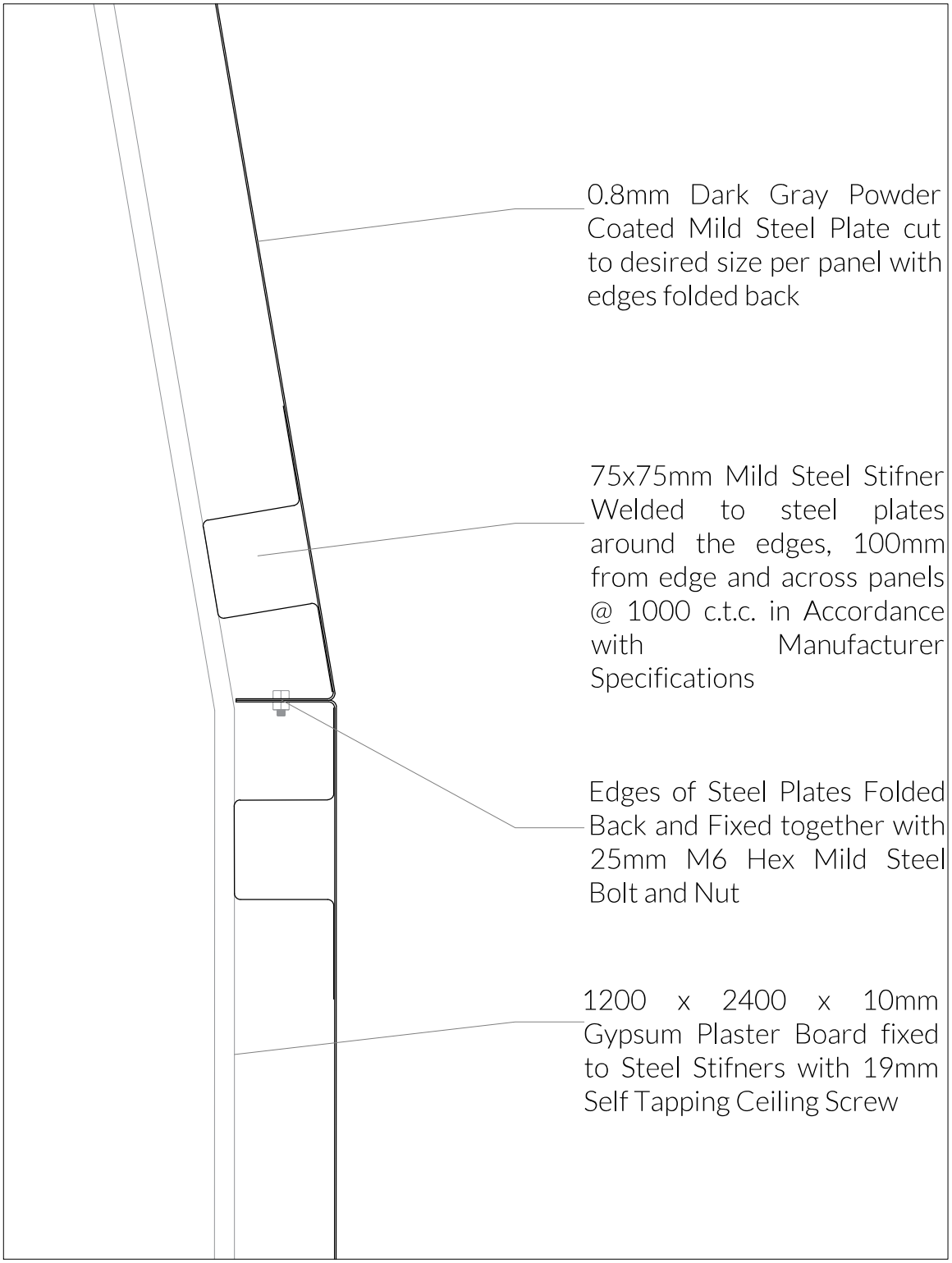
Cut trusses where new intervention is to be made



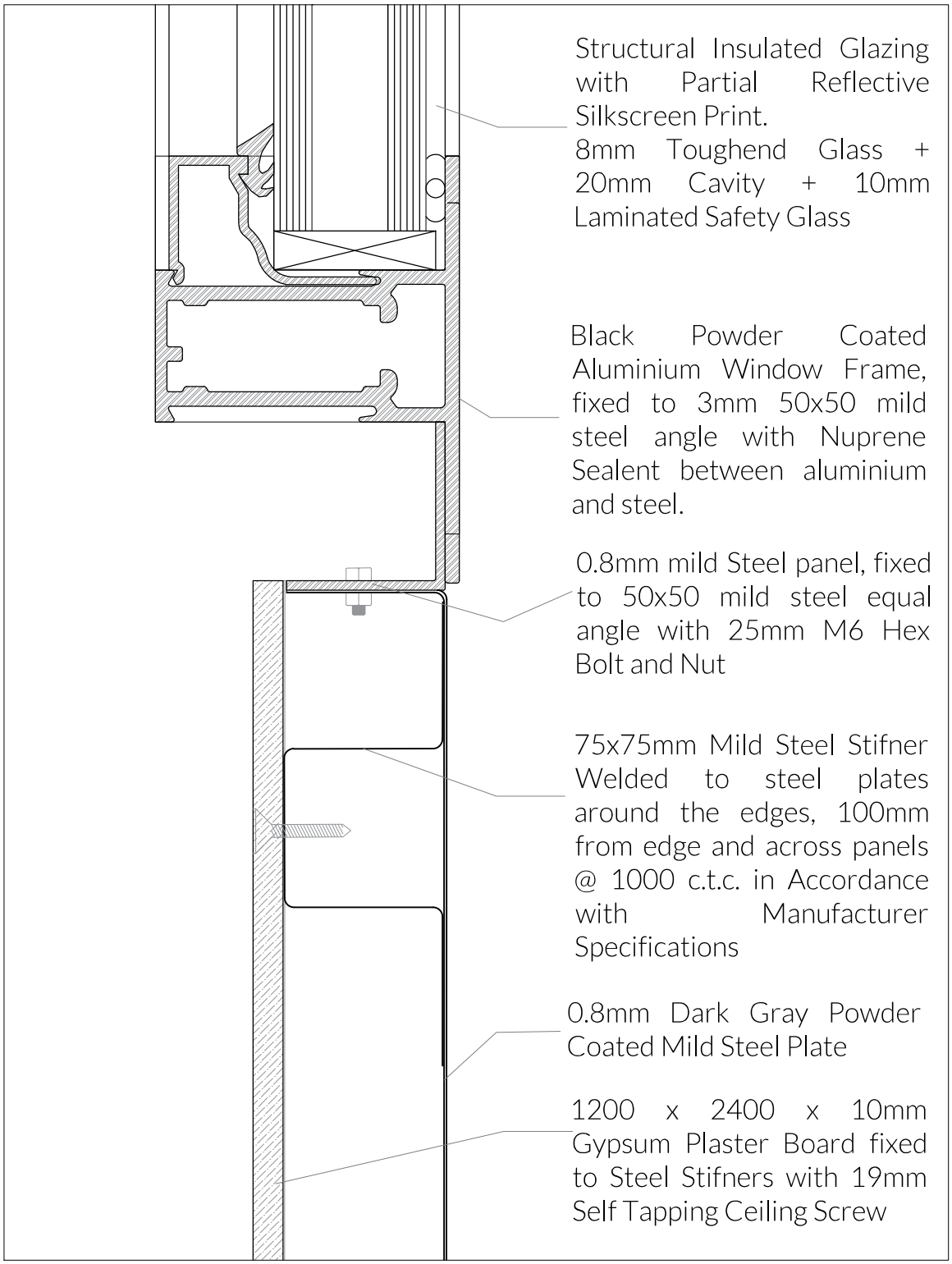
Insert 114x38 mm SA Pine strengthner beams accross section cut. One truss is added for each cut truss to carry the roof load



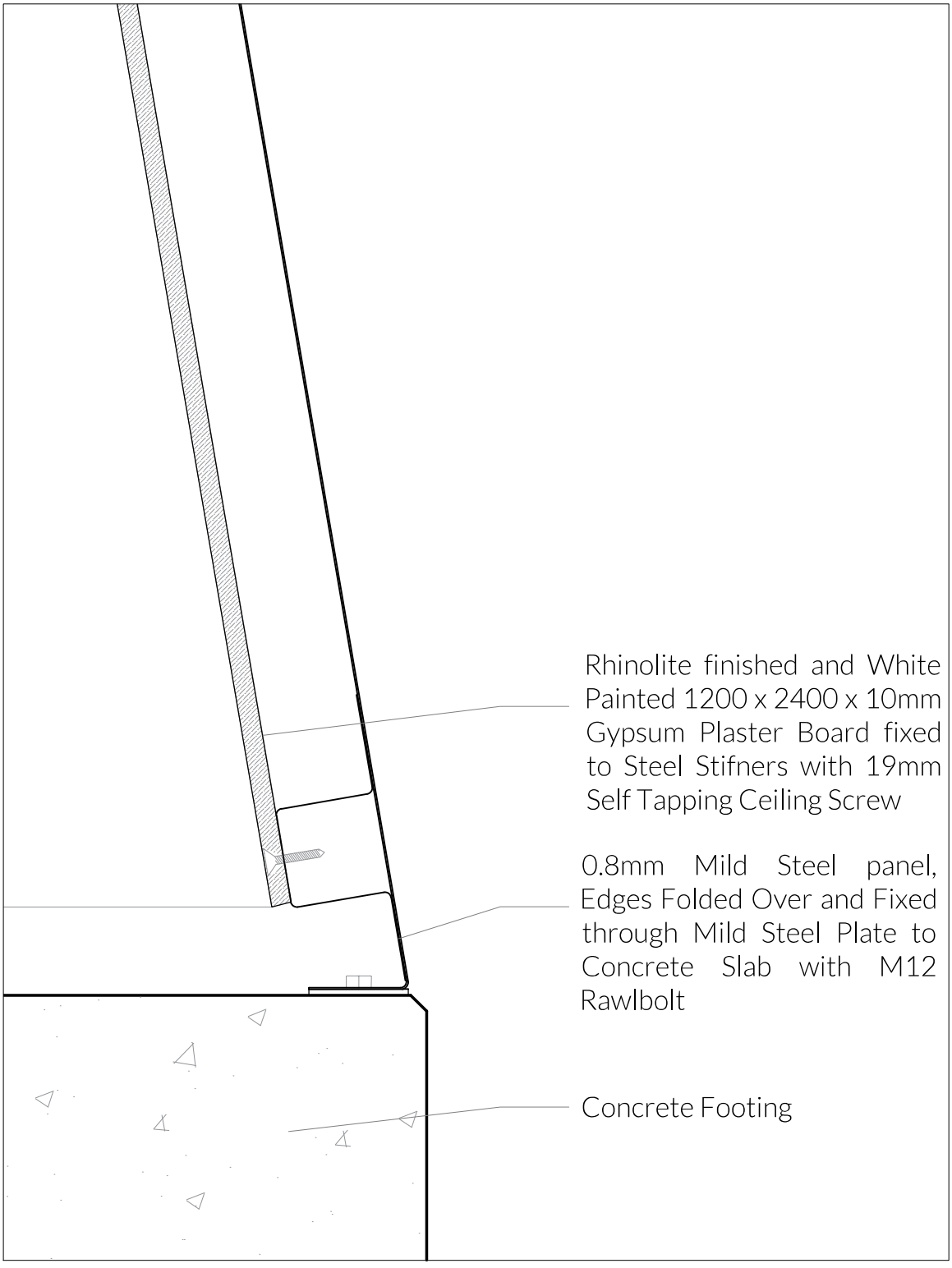
The new intervention is added without having to rely on the existing roof structure for support



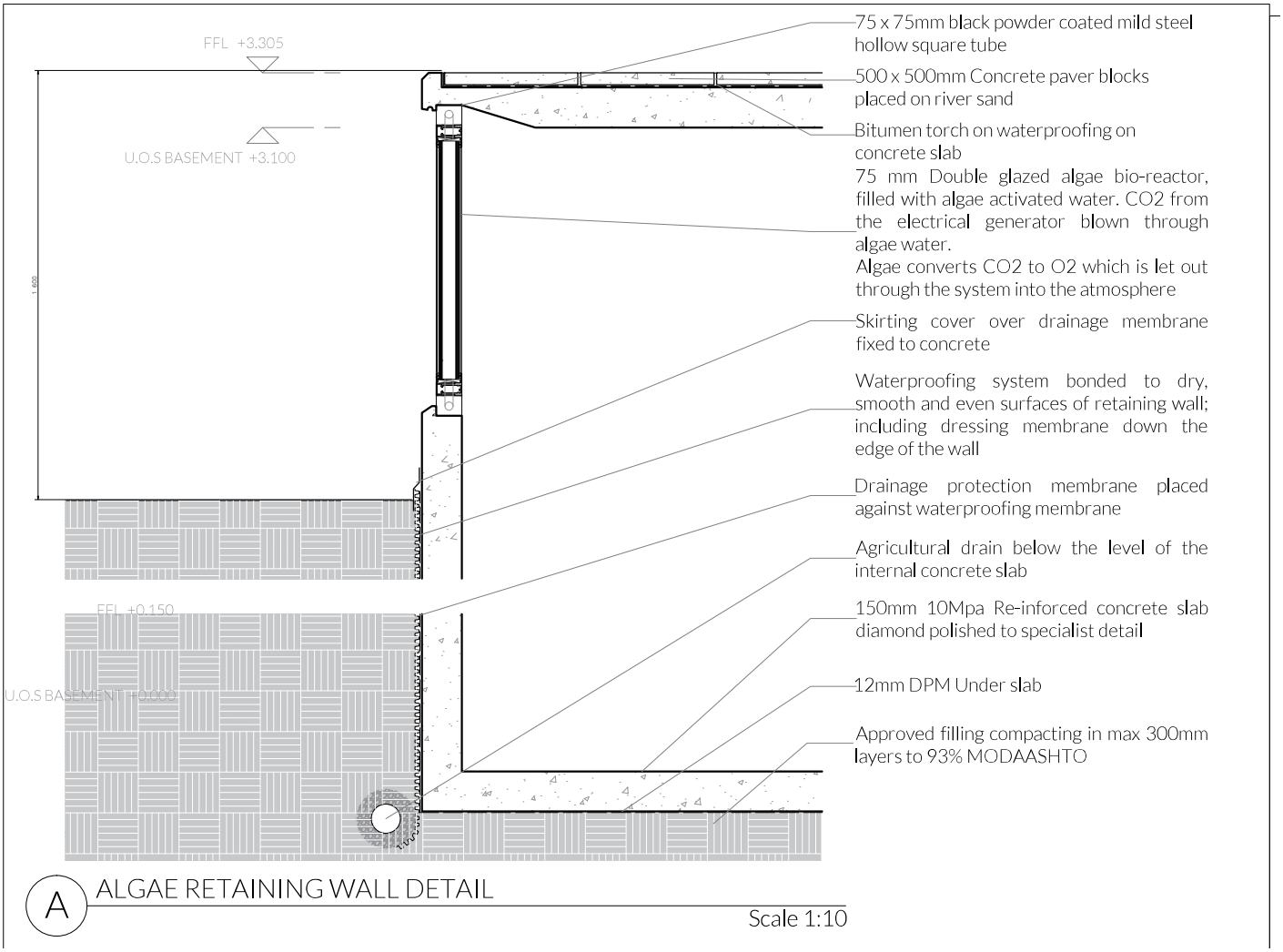
STEEL CLADDING FIXING DETAIL



STEEL CLADDING GLAZING DETAIL



STEEL CLADDING FIXING DETAIL



A ALGAE RETAINING WALL DETAIL

Scale 1:10

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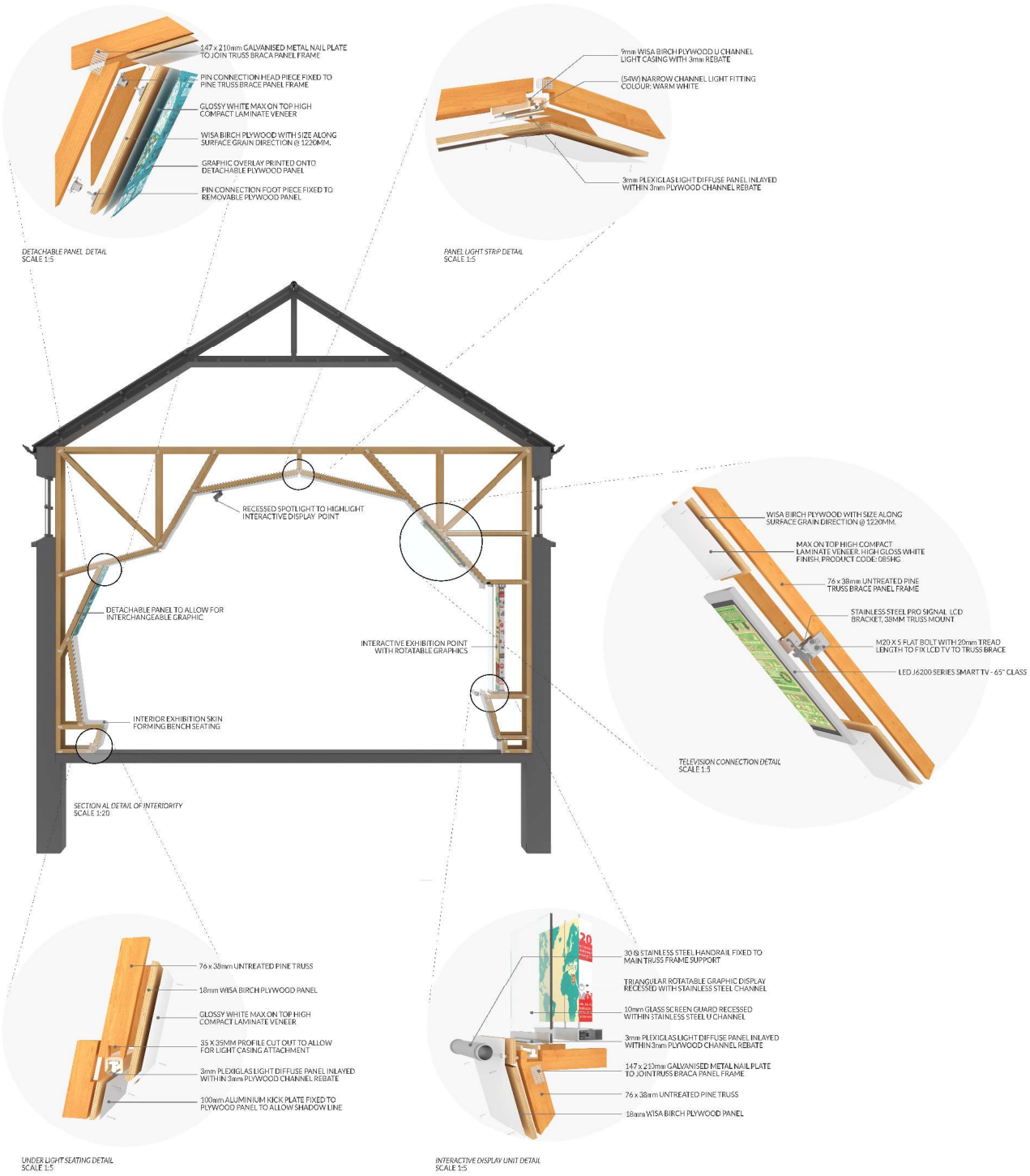
INTERIOR SECTION DETAIL



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