



WATER IN YEOVILLE

CONSIDERING FANTASY AND FRAGMENT
IN RESPONSIVE URBAN PLACEMAKING

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In accordance with Regulation 4(e) of the General Regulations (G.57) for dissertations and theses I declare that the thesis, which I hereby submit for the degree Magister in Architecture (Professional) at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

Marzanne Roux
December 2016

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To Nico, for room to grow and time in helping me collect my thoughts with delight. My sincerest gratitude.





ABSTRACT

Johannesburg's urban fabric is characterised by fragmentation. The natural landscape beyond and its remnants in the city are absorbed in a diffuse urban landscape. In the development of the public park in Yeoville, it is evident that an escalation in the population exacerbates urban expansion characterised by fragmentation and dissolution of the urban form.

The scheme proposes the use water for leisure as a means to establish a relationship between the city's users and the natural environment. In the pursuit of responsive urban place making control is taken over the effect of fragmentation on urban development in the park and the fantastical nature as well as the use of water is considered in public urban spaces where it has largely been absent.

An existing pool is the catalyst for the programme of swimming and recreation where unbounded fantasy transcends the user from the physical boundaries of the pools of water to become one with the natural environment. The proliferation of existing types of fragments finds expression in a series of courtyards that are spatial types of enclosure that offer retreat and seclusion from the context to meet the demands of the overburdened public space. The use and inherent nature of water informed the form and concept of water collection, storage, treatment and use for swimming and cleansing and is central to the narrative of navigation of the courts and pools.

The value of the architecture as a contextual response lies in the exploration of the manifold relationships between the city user, urban fabric and the natural environment and urban as well as human scale at which the haptic experience unfolds.

Keywords: urban, swimming pool, water, fantasy, fragment, park.

EKSERP

Johannesburg se stedelike weefsel word gekenmerk deur fragmentasie. Die natuurlike landskap en dit wat daarvan oor is in die stad word in 'n uiteenlopende en verbrokkelende stedelike landskap geabsorbeer. In die ontwikkeling van die publieke park in Yeoville, is dit ooglopend dat 'n styging in die bevolking stedelike groei wat gekenmerk word deur fragmentasie en ontbinding van stedelike weefsel, vererger.

Die skema beoog om deur middel van water gebruik vir plesier 'n verhouding te vestig tussen die stedelike gebruiker en hul natuurlike omgewing. In die strewe na reaktiewe stedelike plek-maak word beheer geneem oor die effek wat fragmentasie op stedelike ontwikkeling in die park het en die fantastiese natuur sowel as die gebruik van water word oorweeg in publieke stedelike ruimtes waar dit grootliks nagelaat was.

'n Bestaande publieke swembad is die katalis vir 'n program van swem en ontspanning waar die gebruiker deur ontbonde fantasie fisiese grense van poele water oortref om een met hul natuurlike omgewing te word. Die doelbewuste voortbestaan en groei van bestaande fragment-tipes vind uitdrukking in 'n reeks binnehowe wat ruimtelike tipes van omsluiting - wat afsondering van die konteks te weeg bring - om die vereistes van oorlaaide publieke ruimtes te verlig. Die gebruik en inherente natuur van water het die vorm en konsep van water-opgaarding, berging, behandeling en gebruik vir swem en reiniging ingelig en is 'n kerngedagte in die narratief van ontdekking van die binnehowe en poele.

Die waarde van die argitektuur as kontekstuele reaksie lê in die ondersoek na die meervoudige verhoudings tussen die stadsgebruiker, stedelike weefsel en die natuurlik omgewing op 'n stedelike sowel as 'n menslike skaal waar 'n tasbare ervaring ontvou.

Sleutelwoorde: stedelik, swembad, water, fantasie, fragment, park.

Address: 47 Raleigh Street, Johannesburg, 2198

Location: The Public Park, Yeoville, Johannesburg





GUIDE TO CONTENT

Intermission 1: Prologue The Fisher Pool on Beaumont Street, Johannesburg	1. SETTING 1.1. Spatial vocabulary 1.2. A contextual response 1.3. Problem statement 1.4. Intentions of the scheme	13
Intermission 2 The nature of the study	2. JOHANNESBURG 2.1. The development of urban form 2.2. A mapping method	17
Intermission 3 Ancillary spatial analysis	3. YEOVILLE 3.1. The development of urban form 3.2. The development of the Park 3.2.1. The Public Park Typology 3.2.2. The Enclosed Garden Typology 3.3. The Pool in the Park 3.3.1. The Swimming Pool Typology 3.3.2. Water and Architecture 3.3.3. Water in Johanneburg 3.4. Nostalgia in the Uban Landscape 3.4. Precedent Studies	33
Intermission 4 A synopsis of the study	4. DESIGN INTERVENTION 4.1. Spatial Principles 5. DESIGN ENRICHMENT 5.1. Materials 5.2. Composition 6. CONCLUSION 7. List of References	83 99 149 156

The photograph depicts a Sunday afternoon pool gathering in 1961 at the suburban home of Bram and Molly Fischer. Bram was the leader of the SA Communist Party at a time when physical intimacy between people of different races across colour lines was strictly prohibited. The depicted scene is one of many gatherings where other activists of all races and backgrounds joined him and his family in the unthinkable transgression of the Immorality Act. (Gevisser 2013: 112)

Stephen Clingman, Fisher's biographer writes that where this political family came to swim together, a new kind of South Africa could be represented. The pool at Beaumont Street was a mirroring element of other possibilities:



Figure 1.1 The Fischer Swimming Pool

"Its liquid absolutions would combine the amniotic with the amnesiac, and the scandal of varied skins immersed in the same lazy water could simply be forgotten. [...] In a world of apartheid's fetishisms all the more outrageous to white puritanism for its refusal to be anything more than ordinary, the pool altered no obvious dispensations, stopped no removals of communities, gave voting rights to none, it became its own kind of enchanted domain. [...] With their Sunday swimming parties the Fischers were reinterpreting – through the prism of their activism – the utopia, the bounded paradise, represented by the suburban swimming pool." Gevisser (2013:119)

THE FISCHER POOL ON BEAUMONT STREET JOHANNESBURG

INTERMISSION 1 PROLOGUE



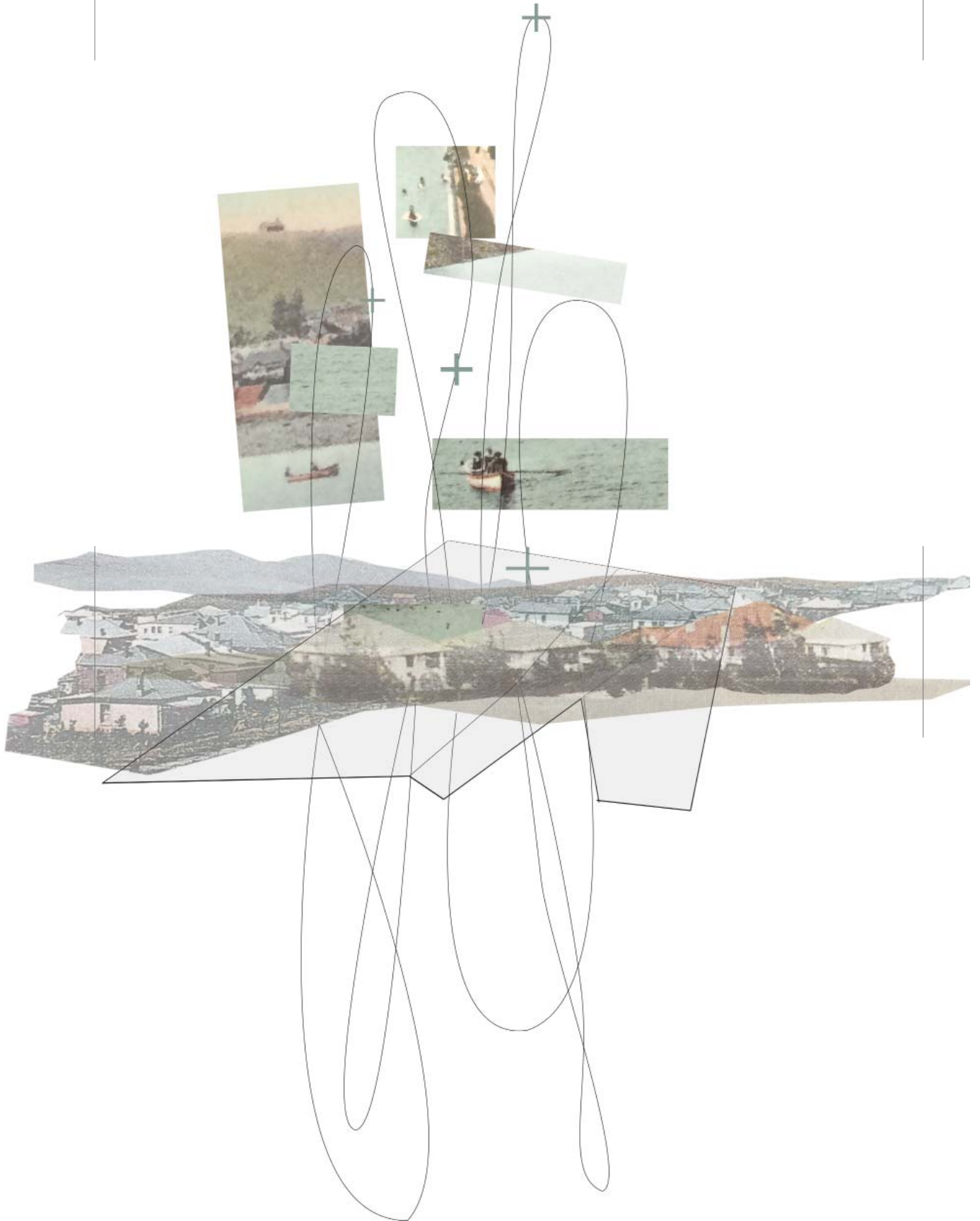


Figure 1.2 Conceptual illustration of intentions, Author

1. SETTING

1.1. A SPATIAL VOCABULARY

The scenario at the Fischer Pool introduces an influential spatial vocabulary of physical and non-physical boundaries and fascinated situations. It is a vocabulary that has been used by contemporary authors included in this study and is used to describe the origin, development and contemporary spatial condition of Johannesburg. It has subsequently been adopted to animate an understanding of the context and a reaction to it through design.

Fantasy

The notion of a fertile imagination that creates or enacts space that transcends and isn't necessarily defined by physical parameters. In this project this concept is referred to as fantasy.

Fragments

Where space is physically marked with limits and boundaries to sustain these fantasies, the notion describes the inevitable fragmentation of the urban fabric. The concept is referred to as physical fragment in this study.

At the onset of the investigation the relationship between these two concepts of fantasy and fragment is clear. It is easy to distinguish the prospector's desire for material wealth and commodity after the discovery of gold in Johannesburg as the catalyst for the development and onset of continued fragmentation of the landscape and later the city fabric. As the investigation continues, these concepts can no longer be chronologically distilled to actions of a fertile imagination and its repercussions in the timeline of city's development. They become reciprocal and invigorate each other.

The scene at the Fisher Pool therefore/also illustrates how the definitions of these concepts are elaborated. The Fisher Pool is an enclosed and limited space within a suburban dwelling, a physical fragment of its neighbourhood. The discriminatory nature of its boundary incites an enactment of enchanted domains that dissolved physical and figurative boundaries.

1.2. A CONTEXTUAL RESPONSE

The design reacts to the context of urban fabric in Johannesburg by navigating these concepts of space and time. Because it is clear that the contemporary condition is in a dialogue with its past and inseparable from its development over time the study was conducted by first investigating the formation of the city over time on a metropolitan scale and later a suburban scale in Yeoville where the design intervenes in The Public Park

1.3. PROBLEM STATEMENT

Urban development in Johannesburg is subject to densification and fragmentation. The natural landscape beyond and its remnants in the city are being absorbed in a diffuse urban landscape. As a result, one of these fragments, Yeoville. The spatial type of the pool is the looking glass for the shortcomings in its fragmented and fantasised built environments

1.4. INTENTIONS OF THE SCHEME

- nostalgia's role in creating a Place of repose -

Investigate the use of water for leisure in an urban environment

Water's role in establishing a relationship between the natural landscape and the city's users

To study the nature and use of water in architecture in ways that capture and embody its cyclic and amorphous nature.



The study that follows depicts a process of rational investigation and collection of information of place, followed by intervals of intuitive response and decision making reactions based on the information.

This cycle repeats itself multiple times over the course of the study.

INTERMISSION 2 THE NATURE OF THE STUDY

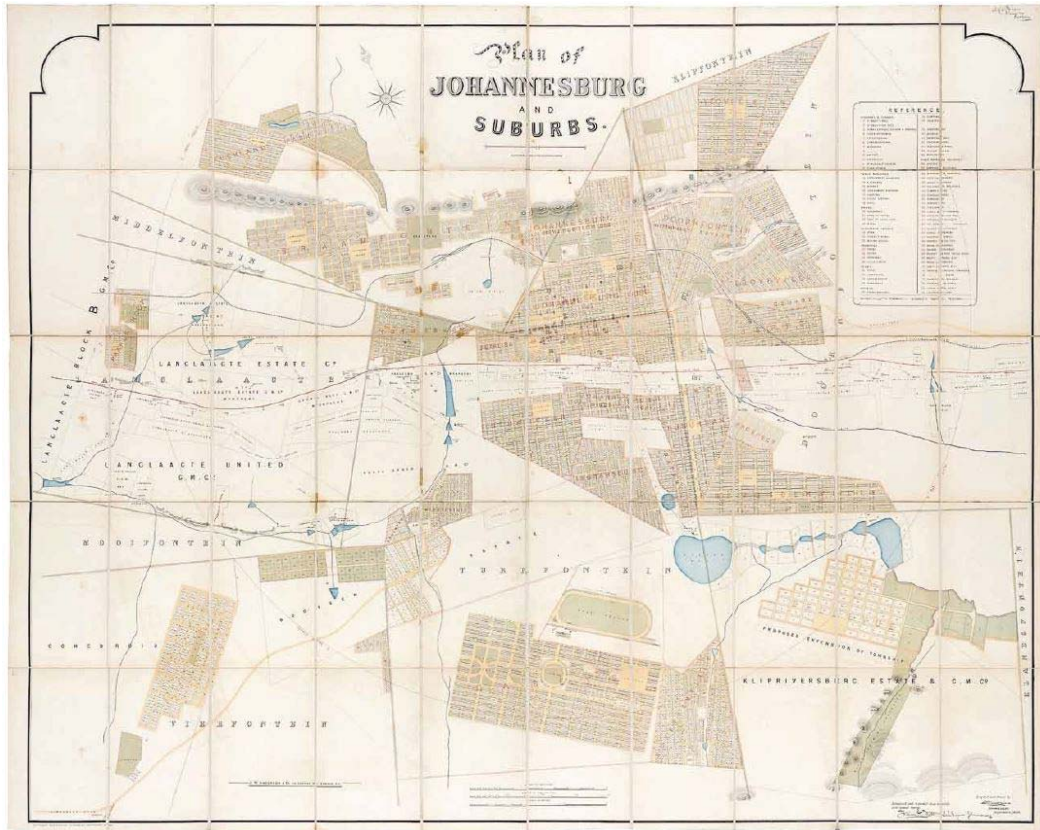




The following chapter is a synopsis of the investigation titled:

JOHANNESBURG NOSTALGIA
FANTASY & FRAGMENTS: THE REAPPROPRIATION OF THE 'MODERN UITVALGROND'
IN JOHANNESBURG

Undertaken by:
Pieterse, Elzanne
Roux, Marzanne
Struwig, Erwin
Swart, Pieter



2. JOHANNESBURG

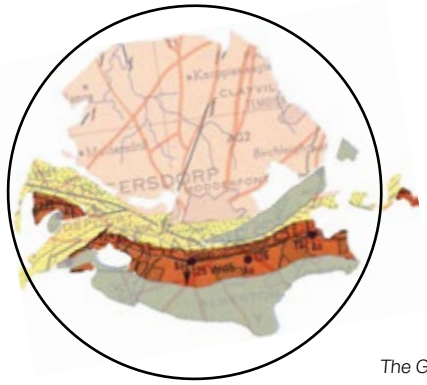
2.1. THE DEVELOPMENT OF URBAN FORM

When gold was discovered on the Witwatersrand in 1886, the acquisition of material wealth was the sole driver for the existence and development of the city (Fisher 1989:67). The first prospectors were an immigrant population of individuals (Uitlanders) whose pursuit of land for its instant investment potential and mineral reserves was their only common ground (Fisher et al, 1998:125). The mining venture was speculative by nature and characterised by trade and commerce with stock markets, high finance syndicates and the fluctuating time value of money (Fisher 1989:67). The value system that governed early settlement and subsequent urban development was unprecedented in comparison to the frugal settlement of its predecessor Pretoria (Pienaar, 2014:41) which has been the learning school in urban settlement for the authors prior to this study. The sentiments of intimate custodianship and a long term commitment to the landscape that shaped the settlement of Pretoria was lost on the immigrant population of Johannesburg. Typical natural characters such as the river, port and citadel (Fisher 1989:67) that define urban settlement were replaced by the underground of the new urban settlement. It was a repository of possibilities for invention and utopian dreams and the landscape a barrier between the miners and the potential sudden riches (Nuttall & Mbembe 2008:22).

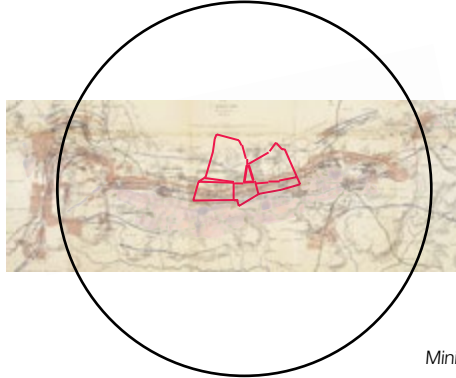
A small patch of triangular land falling between the demarcated farms of the Boers was made available for the establishment of Johannesburg. The unused land was known under the Boer republic as *Uitvalgrond* (Afrikaans for surplus ground). From there the layout of the town developed along rational and functional lines, following the acute angles of pre-existing farms. The land was subdivided into mining and living areas that were again subdivided into land for the living, land for the dead and beyond that the elusive land of the coloured work force that unearthed its riches (Fisher 1989:67).

A meticulous record of the imagination and confidence that drove the early settlement was Johannesburg's first commercial street guide (Gevisser 2013:26). It is significant to note that it was published in 1890, a mere four years after the discovery of gold. Gevisser (2013:28) recounts William Kentridge's fascination with the map that was a blueprint for the city to come. On the map Johannesburg is depicted as a grand colonial town with a handsome inner city grid arranged around civic squares between the gold mines to the south and the railway yards to the north and the fantastical residential suburbs (fantastical in that they did not exist) to the east. In the map's legend six churches, a synagogue, four banks, four theatres, four clubs, three hotels, six government buildings and around forty other 'Notable Buildings' are pinned. The map was an act of will, a determination of what would be, rather than an objective reflection of what was on the ground which was instead a chaotic and unrefined mining settlement (Gevisser 2013:28).

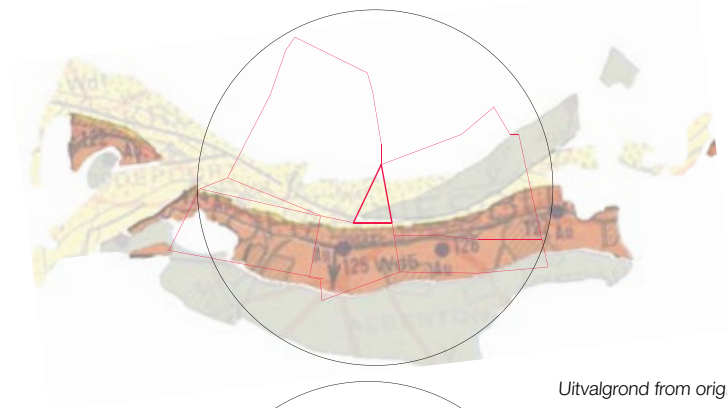
Because of the dizzying tempo of development of the urban settlement, time was essentially experienced as transitory and space eminently fleeting. The city's fabric and cultural styles borrowed from the major trends at the time and the shifts from one style to another are a testimony to its history of opulence (Nuttall & Mbembe 2008:19). Most importantly Johannesburg was a city with various boundaries. The acute lines on which the original city settlement was laid out were the drawing board for the city's spatial planners. It was however, their fantasies of racial enclaves and social distance that merely appropriated the existing boundary lines to form space rather than seeing spatial facts unfold with sociological consequence. The city was regulated according to the principle of social proximity – a concept that continues the amusing play between fantasies and fragments. The fragmented urban fabric facilitated the notion that every space possessed a sense of uniqueness and exclusiveness and that interactions between different races should be closely identified with specific demarcated areas that together composed a political body (Nuttall & Mbembe 2008:21).



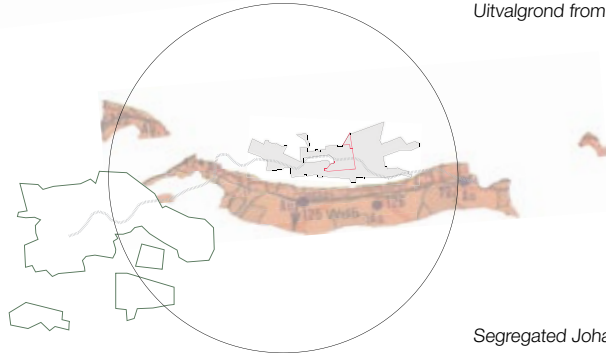
The Gold reef



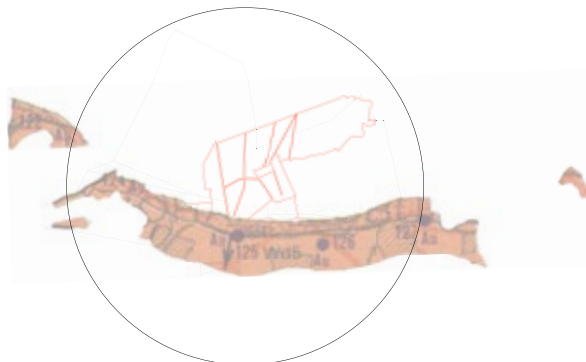
Mining activity along the reef



Uitvalgrond from original farms



Segregated Johannesburg



The development of urban form

Legislation in Johannesburg

1911 - The Mines and Works Act: prevents Africans from obtaining jobs beyond the level of manual labourer.

1912 - ANC - African National Congress is formed

1913 - The Native Land Act (No: 27) is passed, forcing Non-whites to live in specific areas

1922 - The Stallard Commission is established owing to African labour protests in the Witwatersrand, permanent African migration into towns and the emergence of squatter settlements close to towns. The Commission encouraged racial segregation.

1934 - The Slum Clearance Act: Enabled municipalities to forcibly remove people who were settled in areas that were considered to be slums.

1946 - The Asiatic Land Tenure & Indian Representation Act restricted Indian people from buying or occupying land outside certain exempted areas.

1948 - The National Party (NP): led by D.F. Malan in alliance with Nicolaas Christiaan Havenga's Afrikaner Party (AP) wins by a majority of five seats and 40% of the overall electoral vote.

1950 - The Group Areas Act: Gives the government power to create racially segregated areas where members of a specific racial group could live and work. The Act enables the authorities to forcibly remove people of a different racial group/s from an area that has been designated as belonging to another racial group.

1955 - Sophiatown is declared a White area under the Group Areas Act, and over 60 000 people are forcibly removed from the area and a suburb named 'Triomf' for whites is established in its place in

1957 - Lenasia: Indian people are forcibly removed from around Johannesburg and relocated to Lenasia

1990 - Mandela is released

1994 - Democracy - First democratic elections

It is this relationship between the underground, the surface and the edge that characterises Johannesburg (Nuttall & Mbembe 2008:17). If its metropolitan nature is its ceaseless metamorphosis, the city develops by re-articulating, layering and reusing its fragmented parts. The act of reconstruction does not necessarily imply that earlier conditions are neglected. On the contrary, its relationship with its underground and its repository of possibilities, deferred potential makes Johannesburg a city defined by nostalgia, less for the past than for the future (Malcomess & Kreutzfeldt 2013:20).

Johannesburg's fragments and their curious relationship with time

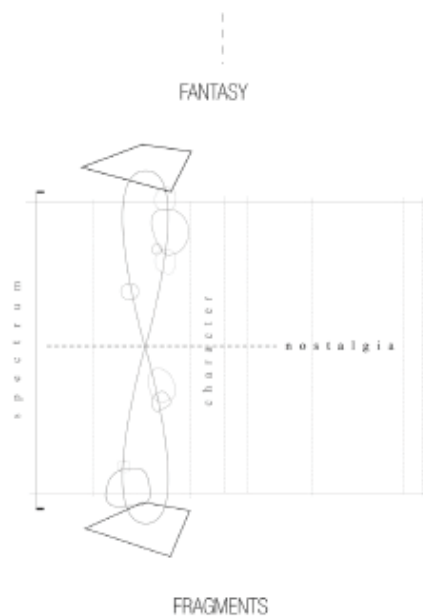
When sequential chronology is distorted, one can argue that historical progress is interrupted (Malcomess & Kreutzfeldt 2013:20). In Johannesburg the notion drew the authors to certain spatial typologies with chronological inconsistency that were discovered throughout the exploration and mapping of the city. The spatial types are arguably the contemporary Uitvalgrond of Johannesburg and include examples of places in Johannesburg that have been resilient to time and change and places that defied time with fantastical programmes that recreated spaces that denied their context in the city. The sites were investigated and became catalysts in comprehending the relationship between the concepts of fragment and fantasy and their varying characteristic relationships with time. It provided the group with a method through which to explore Johannesburg on different spatial scales and gauge the impact of spatial intervention in the present condition of Johannesburg.

2.2. A METHOD

As a methodology, the results in these explorations were used to inform, propel or contest design by the individual authors on their respective terrains within the city. In some cases the methodology was re-applied on a different scale to broaden a spatial understanding of context.

The spatial typologies are prototypes of the city within the city and are understood as islands with a concentrated bounded character. The analysis and exploration of these spatial types do not show the city of Johannesburg in a state of crisis requiring correction. They are recognised as imminent conditions in a projective model of the city.

Where the authors intervened in the city the relationships between their designs although not physically defined, share a collective spatial understanding.

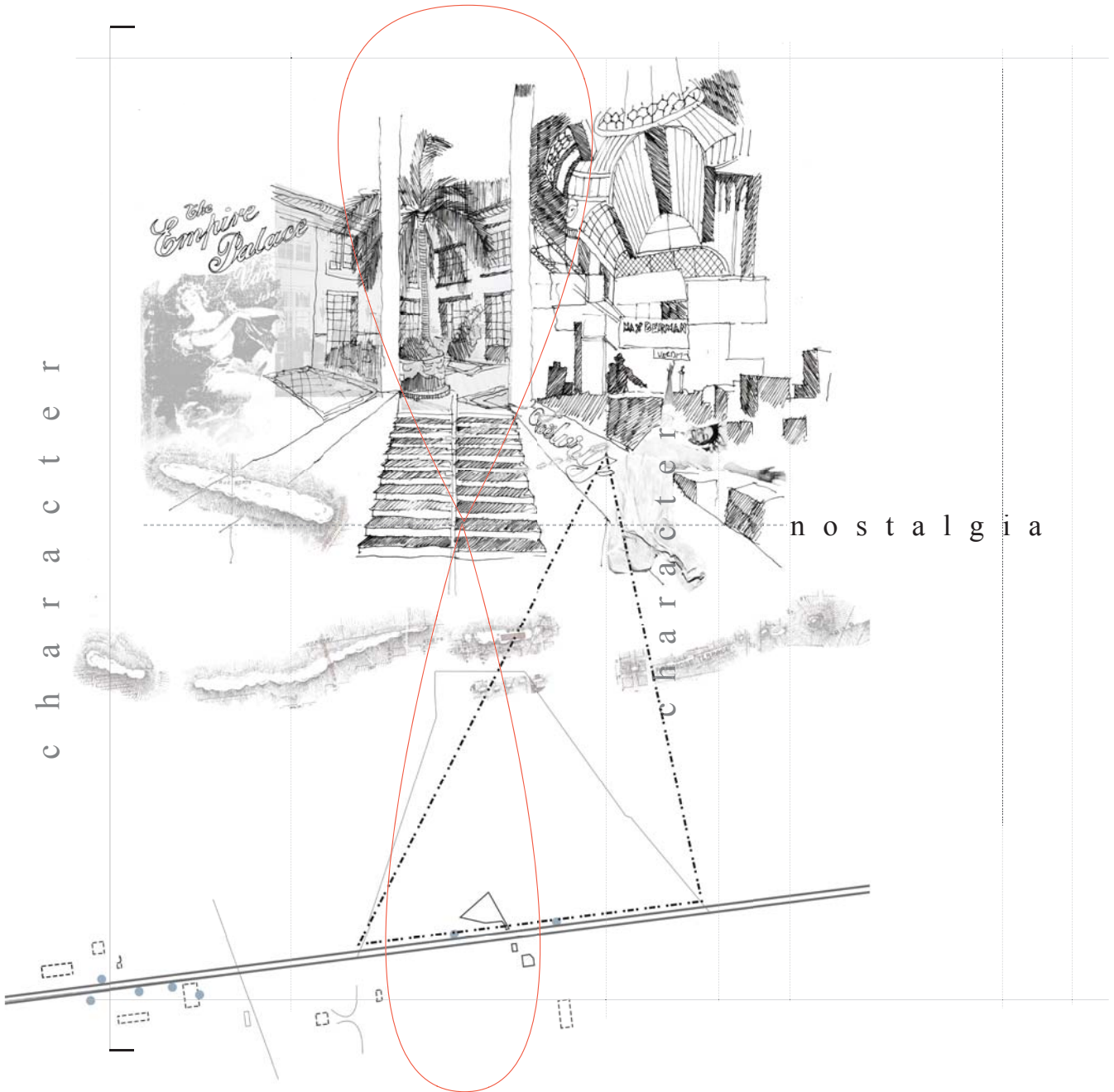


The diagram is used to position the polars of fragments and fantasy to be able to gauge its nostalgic character

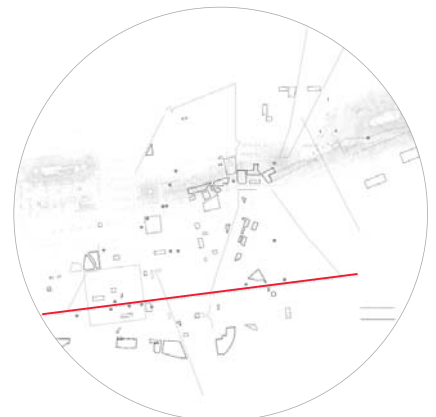


TYPOLOGY MAPPING

Mapping: Johannesburg's condition as a result of fragmentation, showing arbitrary lines, urban forms and spatial characters

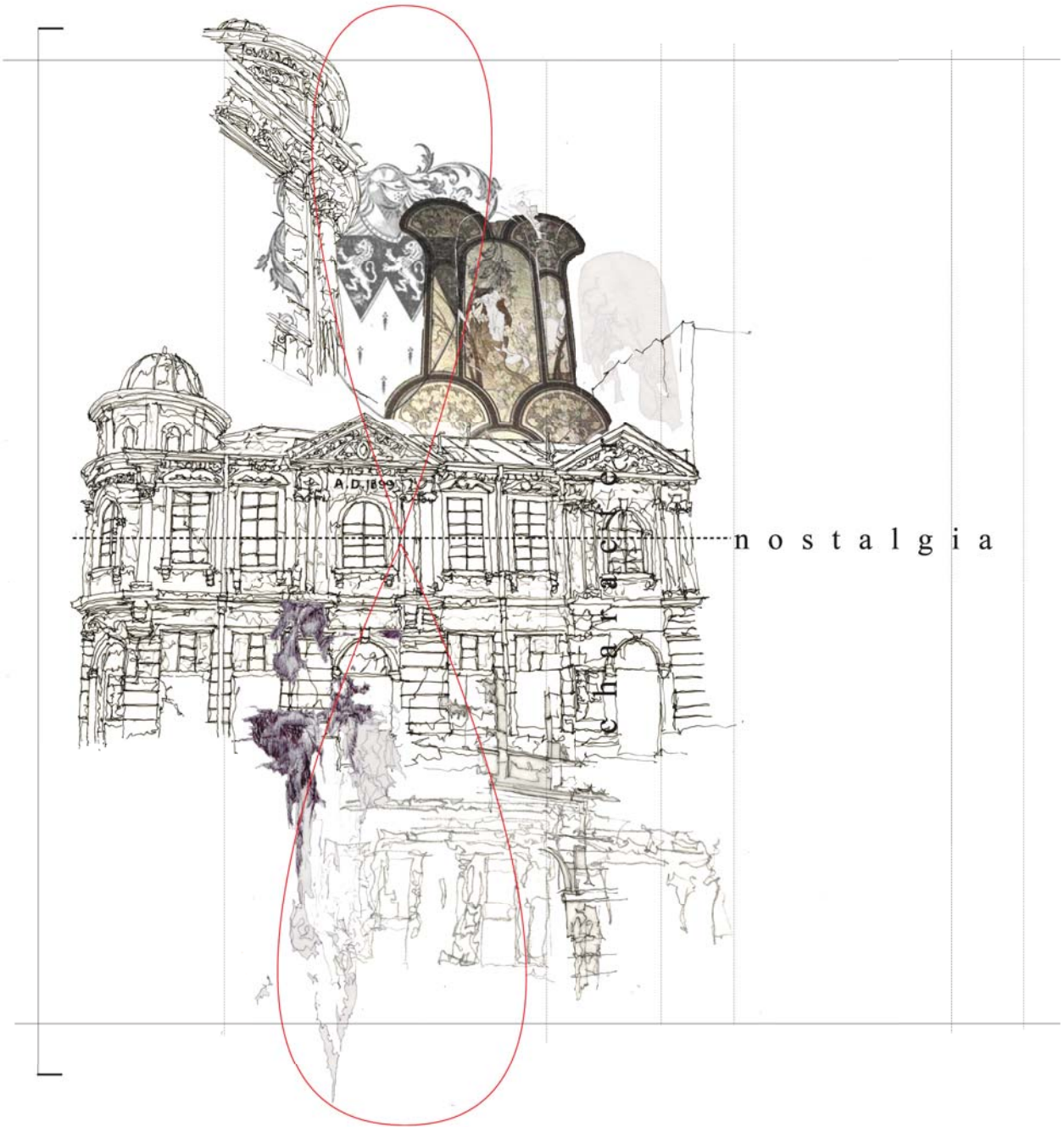


THE GREAT WHITE WAY



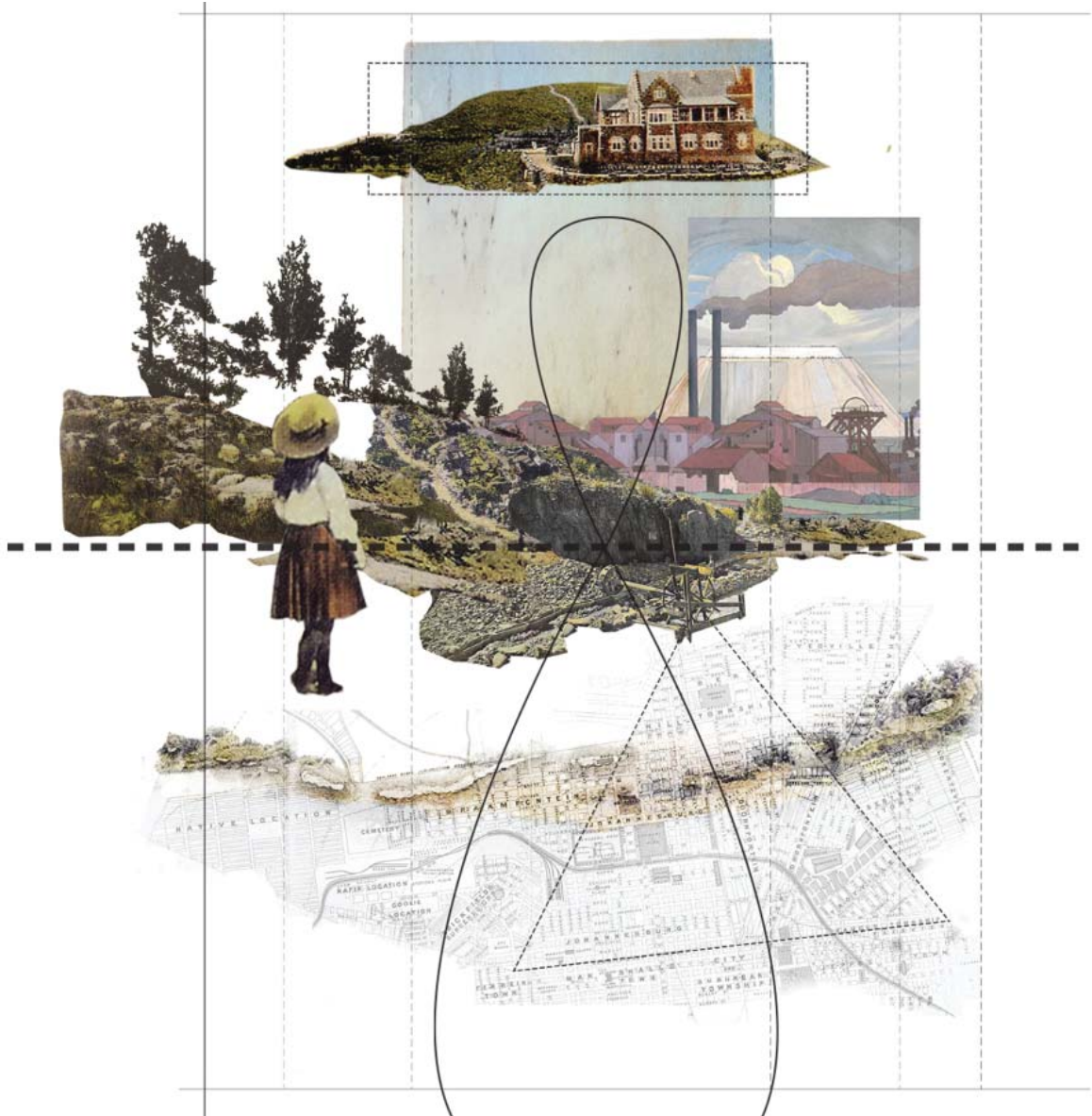


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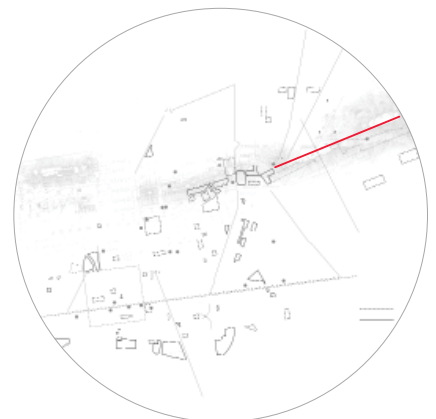


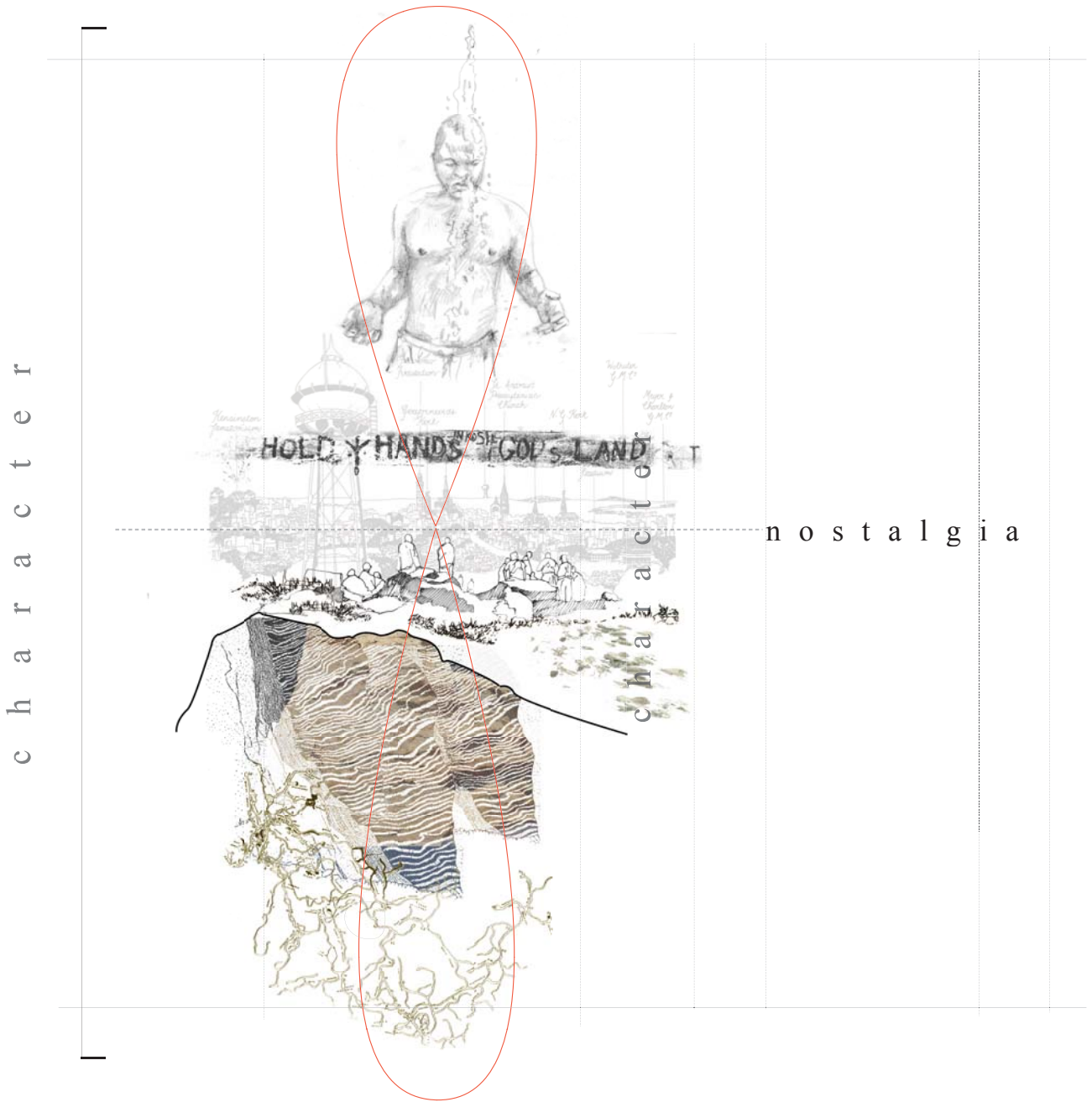
THE COSMOPOLITAN HOTEL



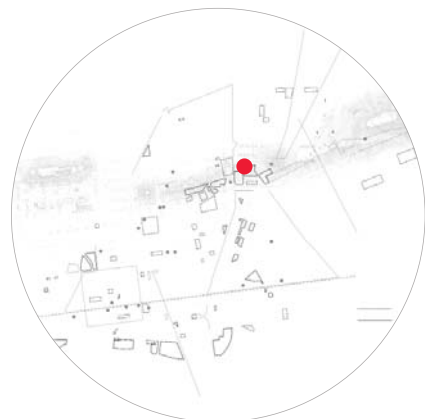


THE WITWATERSRAND RIDGE



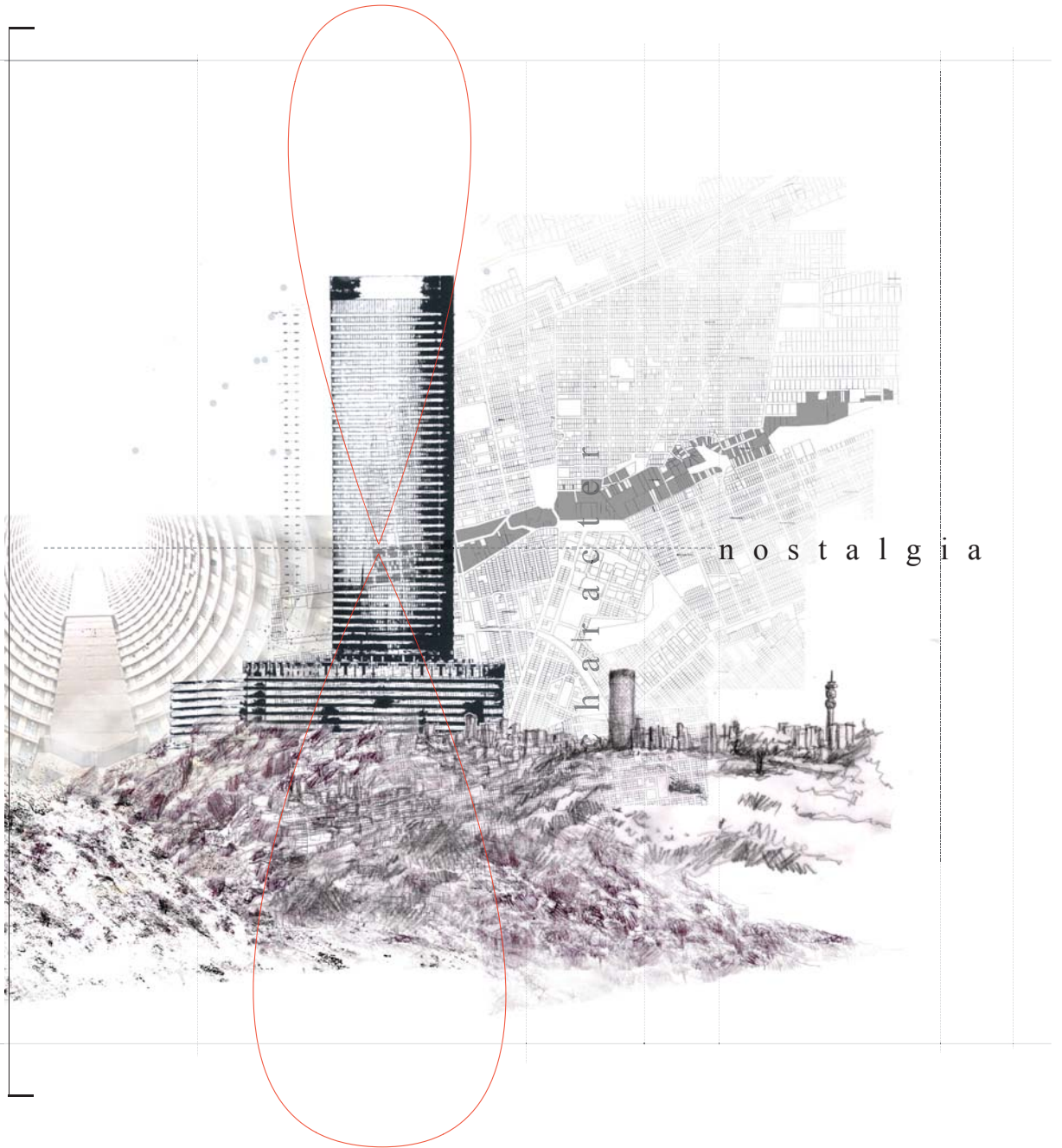


YEOVILLE KOPPIE





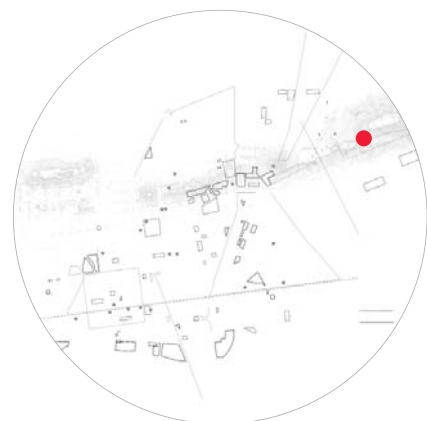
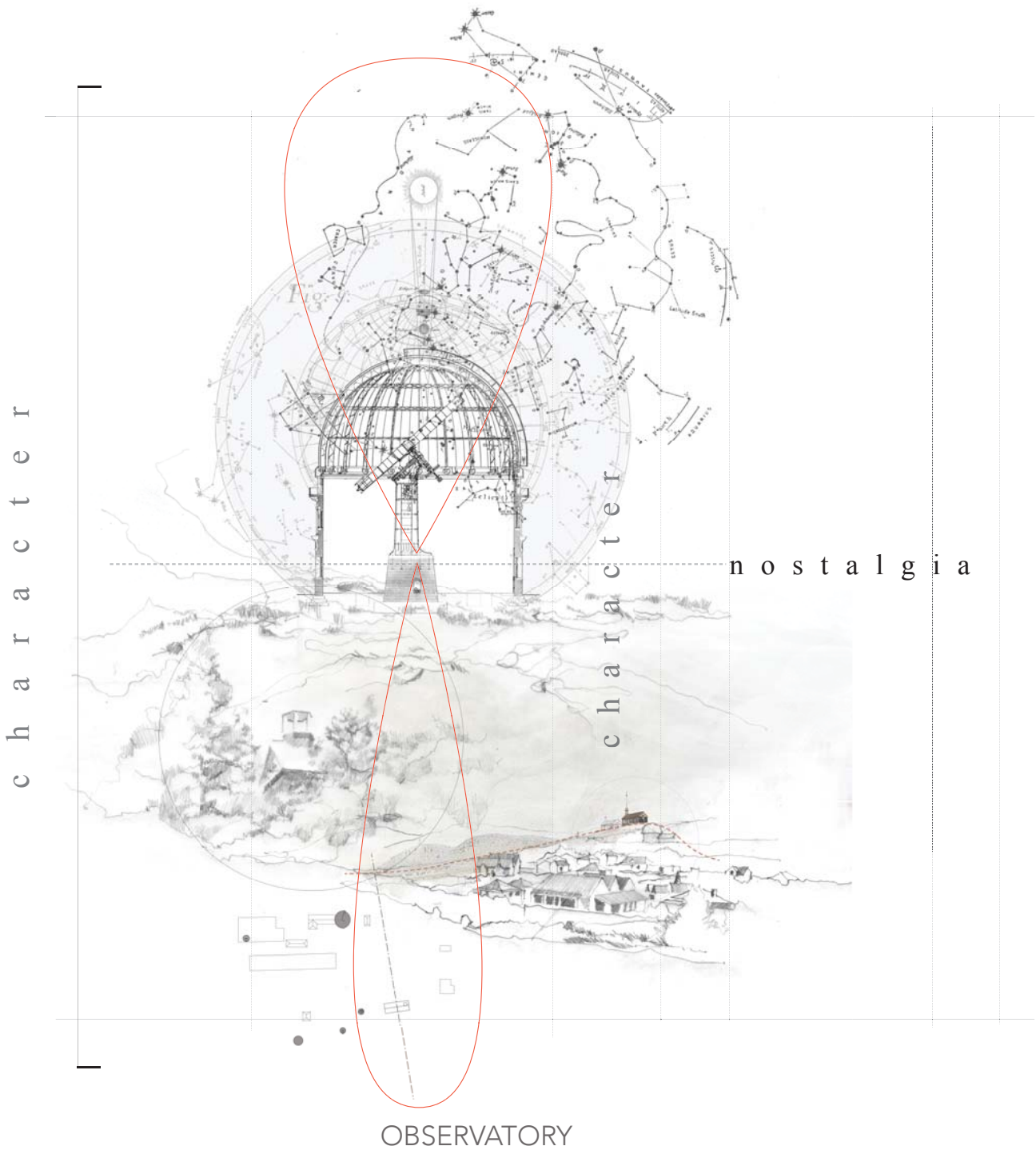
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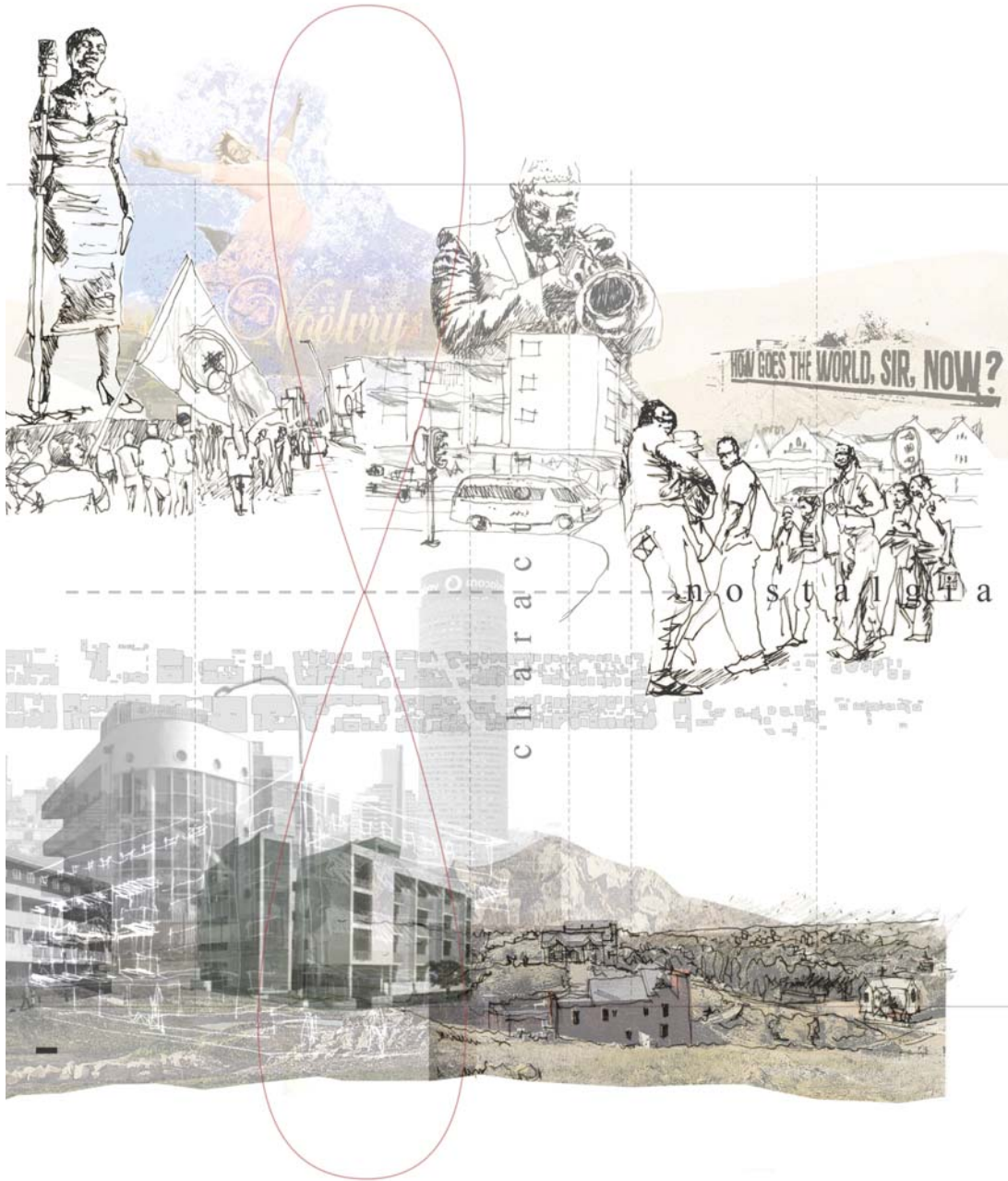


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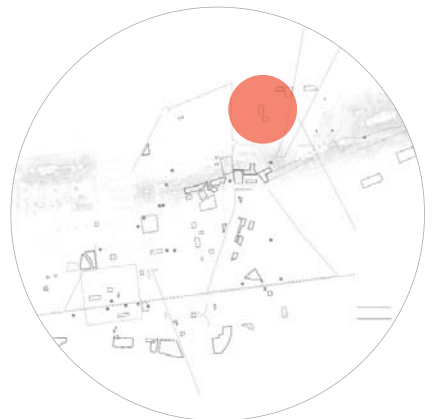
PONTE CITY







YEOVILLE





Intervention Locations

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Where the authors intervened in the city the relationships between their designs are not physically defined but rather a collective spatial understanding.



1907, postcard view of Yeoville



1907, Yeoville terminus

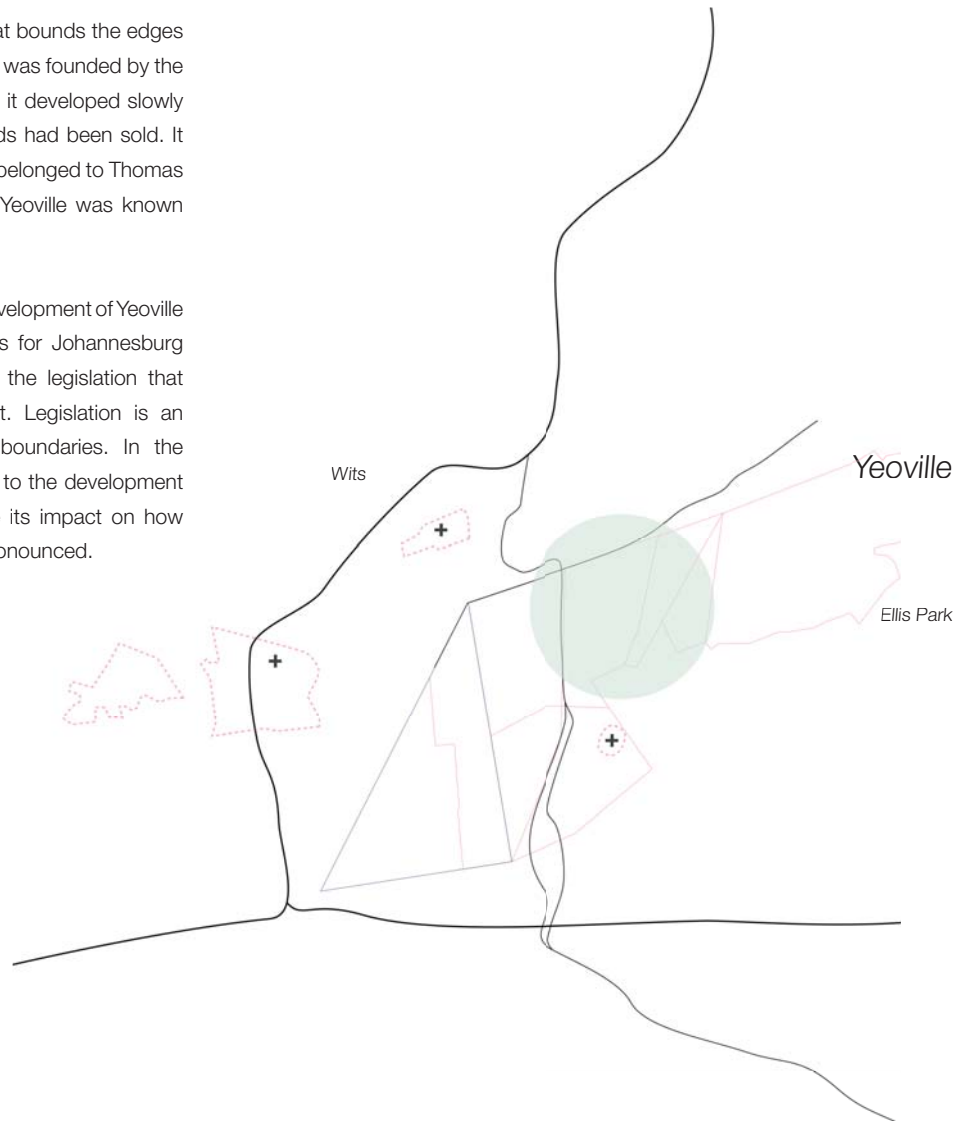
3. YEOVILLE

3.1. THE DEVELOPMENT OF URBAN FORM

Yeoville's establishment continues the narrative of urban development that characterised Johannesburg's settlement. Its inception is saturated with the fantasy of escaping the uncontrolled mining development when Johannesburg was bursting at its seams a mere four years after its declaration. Yeoville was envisioned as a suburb that would distinctly separate the new social class of Johannesburg in an exclusive escape to the natural landscape. To facilitate the principle of social distance as elaborated on by Nuttall & Mbembe (2008:21), the Witwatersrand which formed a physical barrier to the north of the mining belt was appropriated to isolate the suburb from the spatial vicinity of the mine workings and its lodging-houses, brothels, gambling joints, outlandish cafes, boisterous theatres and illicit bars (Meiring 1985:87).

Yeoville lies on the farm Doornfontein that bounds the edges of the original Uitvalgrond. When Yeoville was founded by the Johannesburg Estate syndicate in 1890 it developed slowly and by 1896 only 484 of its 1214 stands had been sold. It was probably again laid out in 1902 and belonged to Thomas Yeo Sherwell, to whose second name Yeoville was known (Meiring 1985:87).

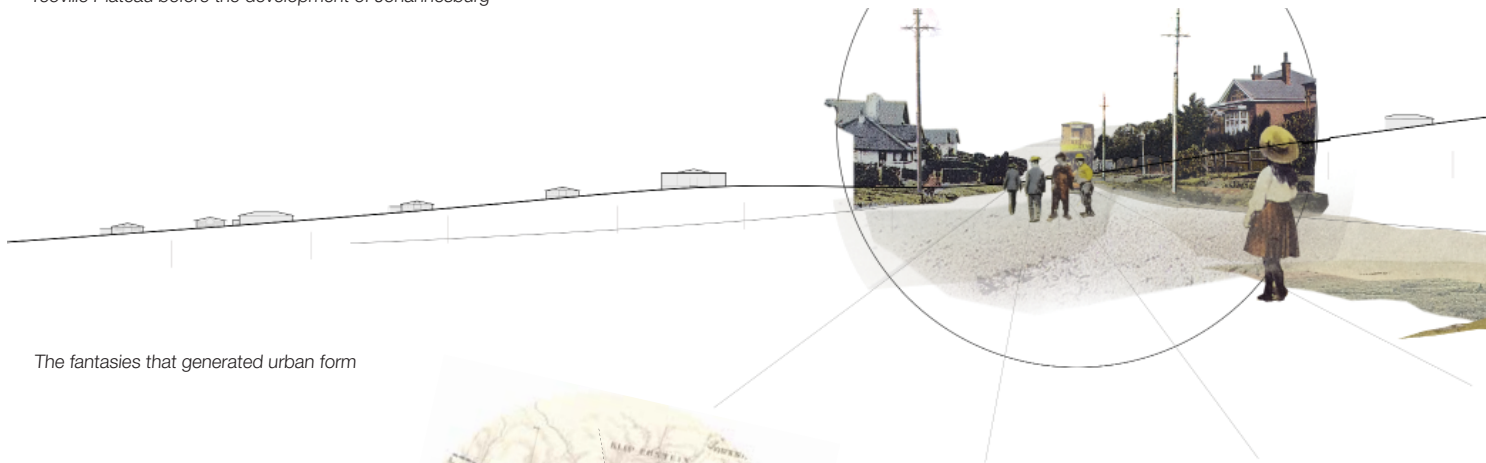
The investigation into the history of the development of Yeoville was conducted in the same manner as for Johannesburg and the results mapped in context of the legislation that significantly influenced its development. Legislation is an invisible network of regulations and boundaries. In the mapping exercise it is placed in relation to the development of Yeoville's physical urban form where its impact on how space is being used and perceived is pronounced.



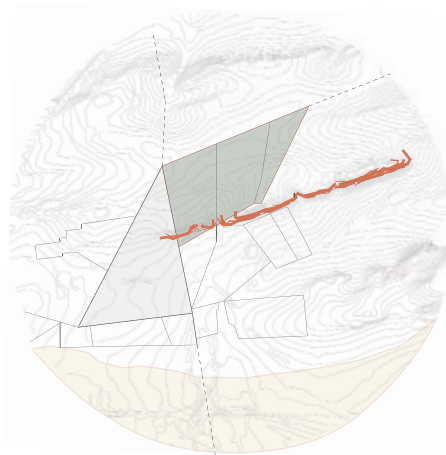
Location of study



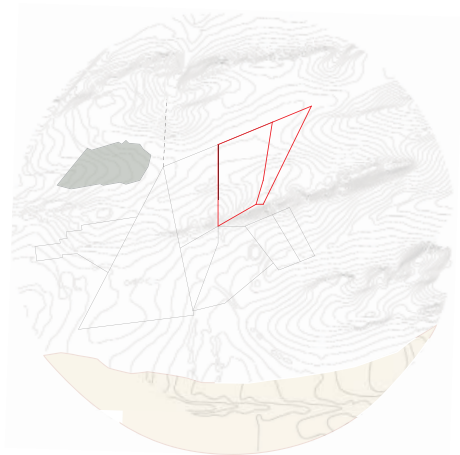
Yeoville Plateau before the development of Johannesburg



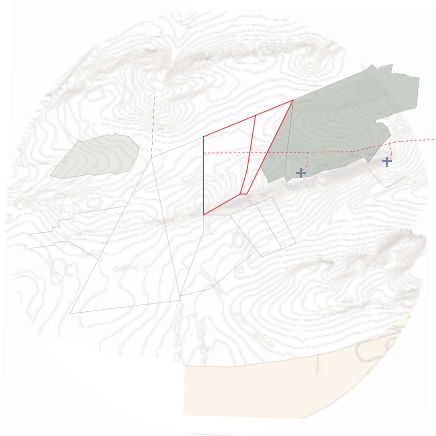
The fantasies that generated urban form



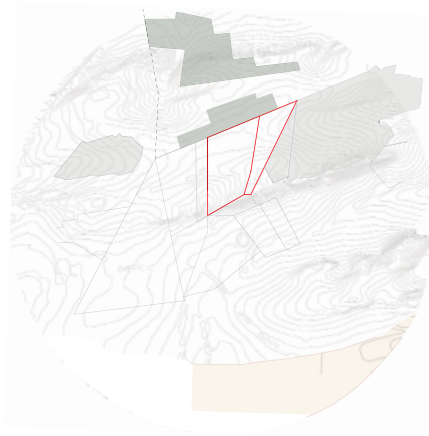
Suburban development to the north:
Yeoville, Bellevue and Bellevue-East



Parktown



Observatory



Houghton

Legislation and the development of Yeoville

1890S	PROCLAMATION OF YEOVILLE	
1910 /1920		Jews that achieved economic security and social status moved to the north-eastern parts of Johannesburg, giving rise to the Jewish communities of Yeoville and Judith's Paarl. The number of Jewish residents was so high that the suburb became colloquially known as 'Jewville' (Rubin 2004; 95).
1930S		After the Great Depression construction started yet again in Yeoville in 1933 developed into a typical middle-class area. Detached and row houses alternated rental apartment blocks and condominiums (sectional title flats) offered living space for younger newcomers of the population and the growing number of transients in their first step on the housing ladder (Jürgens 1993; 311).
1948	IMPLEMENTATION OF APARTHEID	
1950	GROUP AREAS ACT	
1970S	RELAXATION OF GROUP AREAS ACT	The aim was to create homogeneous residential areas inhabited by only one population group (Jürgens 1993; 309).
1980S		The aging white inhabitant population, high spatial mobility of young white persons, the traditionally high proportion of immigrants from overseas and the resultant cosmopolitan image of these areas meant that non-white in-migration was met with weak political resistance. Anonymous and unsupervisable high-rise or middle-rise apartment blocks could arguably also have further mobilised transformation. (Jürgens 1993; 310)
1991	SCRAPPING OF THE GROUP AREAS ACT	In-migration was initiated by affluent coloureds and Indians. (Jürgens 1993; 310) It was not until later that blacks and non-whites of generally lower social status followed from the CBD and neighbouring areas of Hillbrow and Berea. The population in Yeoville North of Raleigh Street (the main commercial street) was characterized by Orthodox Jewish communities with kosher shops, a Jewish kindergarten, a school and a number of synagogues and Torah centres. (Jürgens 1993; 312)
1994	DEMOCRACY	The area south of Raleigh Street was characterized by an ethnic variety students and self-employed people (musicians, actors, journalists) who contributed to the liberal and cosmopolitan atmosphere. As the cultural centre for many persons belonging to intellectual and student circles Rockey/Raleigh Street, its restaurants, clubs and of shops attracted young people in particular. A number of welfare organizations and a choice of rent-protected one room apartments also accomodated a concentration of retired people. (Jürgens 1993; 312)
PRESENT		People from any background and race could acquire property and settle anywhere, providing their personal income allowed them to do so (Jürgens 1993; 313). When Yeoville was red-lined by the banks some of Jewish community were forced to abandon their properties and reluctant landlords who could not sell their houses resorted to renting them out. At the same time, there was a great influx of people from all over South Africa and the neighbouring countries who wanted to be closer to the city centre. It was a liberal and cosmopolitan destination that received the influx of African immigrants with open arms. Rockey Street remained a hotbed for radicals, activists and musicians. Journalists from all over the world came and lived in this place and would mingle. After the repeal of the Group Areas Act institutional and private discrimination continued to exist. (Jürgens 1993; 313) Red-lining by banks and finance companies prevented credit from being given to buy and maintain real estate in the area and as a rule residential areas in and near the downtown see a tendency toward slum growth.



The development of urban fabric

Together with Yeoville, Berea and Bellevue were the first residential suburbs on Doornfontein to develop to the north. Chipkin (1993; 11) described these compounds of the rich with their heightened expectations, as the corpus of Victorian urbanization and an extension of the vast scale of instant Victorian townscape that was developing. (Chipkin 1993; 7)

A residential boom saw gardens planted with exotic saplings brought up from the coast by the wagonload to effect instant ecological change, creating tree lined streets and lush suburbia on the formerly treeless plateau. (Chipkin 1993; 25) Victorian houses sprung up on comparatively small lots that are homogenous in size in a rigid street grid that was super-imposed on the landscape.

It has been illustrated before that Johannesburg was a direct outlet for the architectural styles of the time. Apart from the Victorian manner in which Yeoville was formed, Modernism was the other spatial paradigm that had the biggest influence on Yeoville's urban fabric.

Modernism removed itself from traditional styles and forms (Chipkin 1993; 89) and was predisposed to the latest stylisms and hybrid forms of the predominant Art Deco movement in New York (Chipkin 1993; 92). The suburb has over two dozen Art Deco residential blocks - most true to the style of symmetrical lines, rounded corners and balconies with modernist touches. The architects responded to Yeoville's hills and dales by imaginatively curving the blocks around corners. The new types introduced an imposing scale on the existing low density fabric. Unique with portholes and streamlined mass, the apartment buildings could at once be cruise ships silently gliding on the Witwatersrand plain. As part of the hybrid architecture created at the time, Maisonettes also appeared in large numbers. With four unit blocks around a central staircases, stepped stair towers, projected slabs, rounded balconies and corners they were predominantly white modernist villas with blank cubist forms that alluded to small builders versions of Corbusier pavilions (Chipkin 1993; 124).

1890S
SUBURBAN STREET GRID AND HOUSING
NAZARETH HOUSE 1895
EASTINGTON MANSION 1900

1910 /1920
SYNAGOGUES AND CHURCHES

1930S
YEOVILLE BATHS
ART DECO COURTS: DIAMOND, GRANVILLE, HELVETIA,
RADOMA E.T.C.
THE BEACON ROYAL
MAISONNETTES
BY 1938 YEOVILLE HAD A CINEMA, POST OFFICE, LIBRARY
AND POOL (MEIRING 1993; 88)

1948
1950
1961
THE YEOVILLE RECREATION CENTRE 1964
TENNIS COURTS 1970S

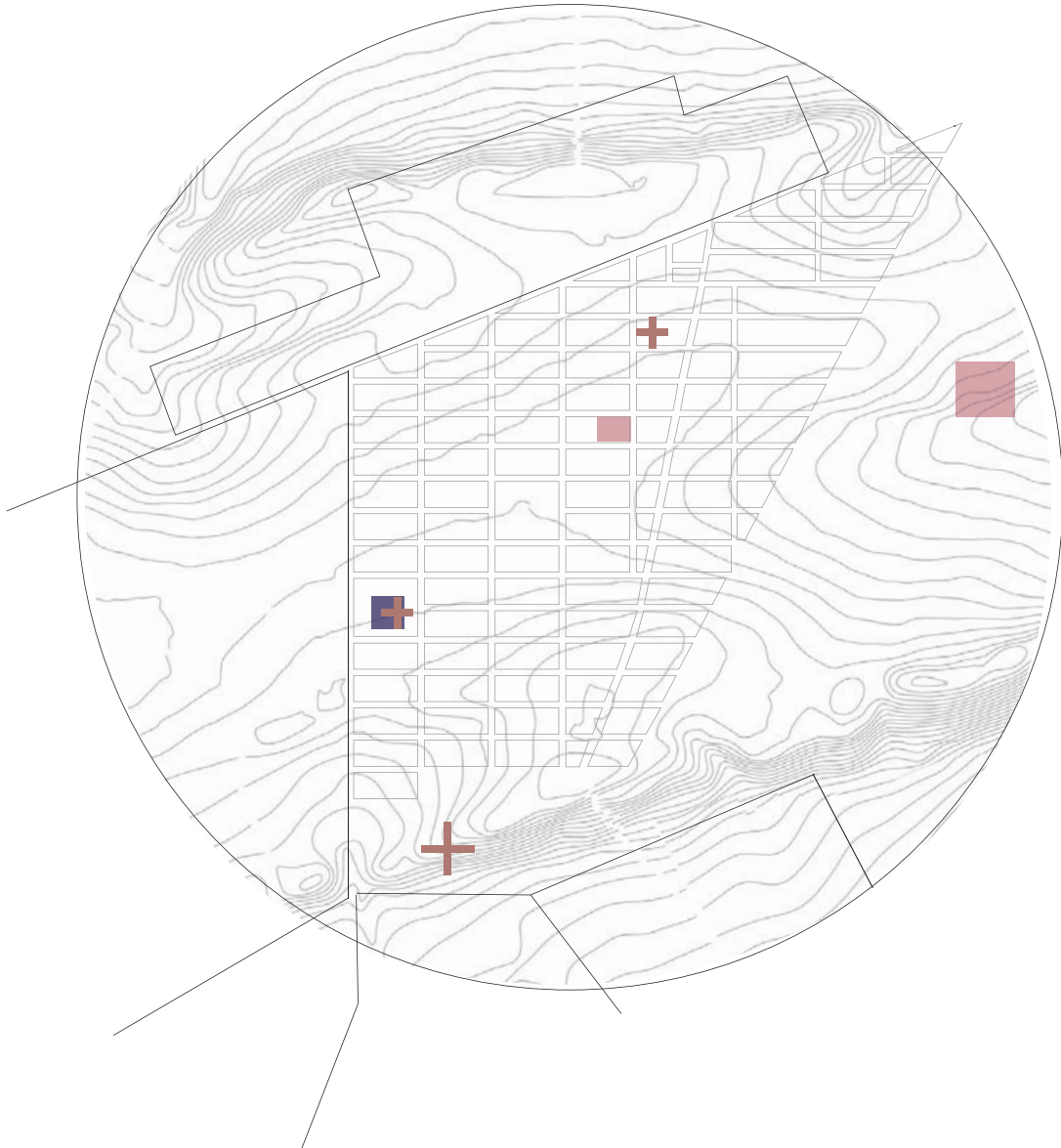
1980S

1991

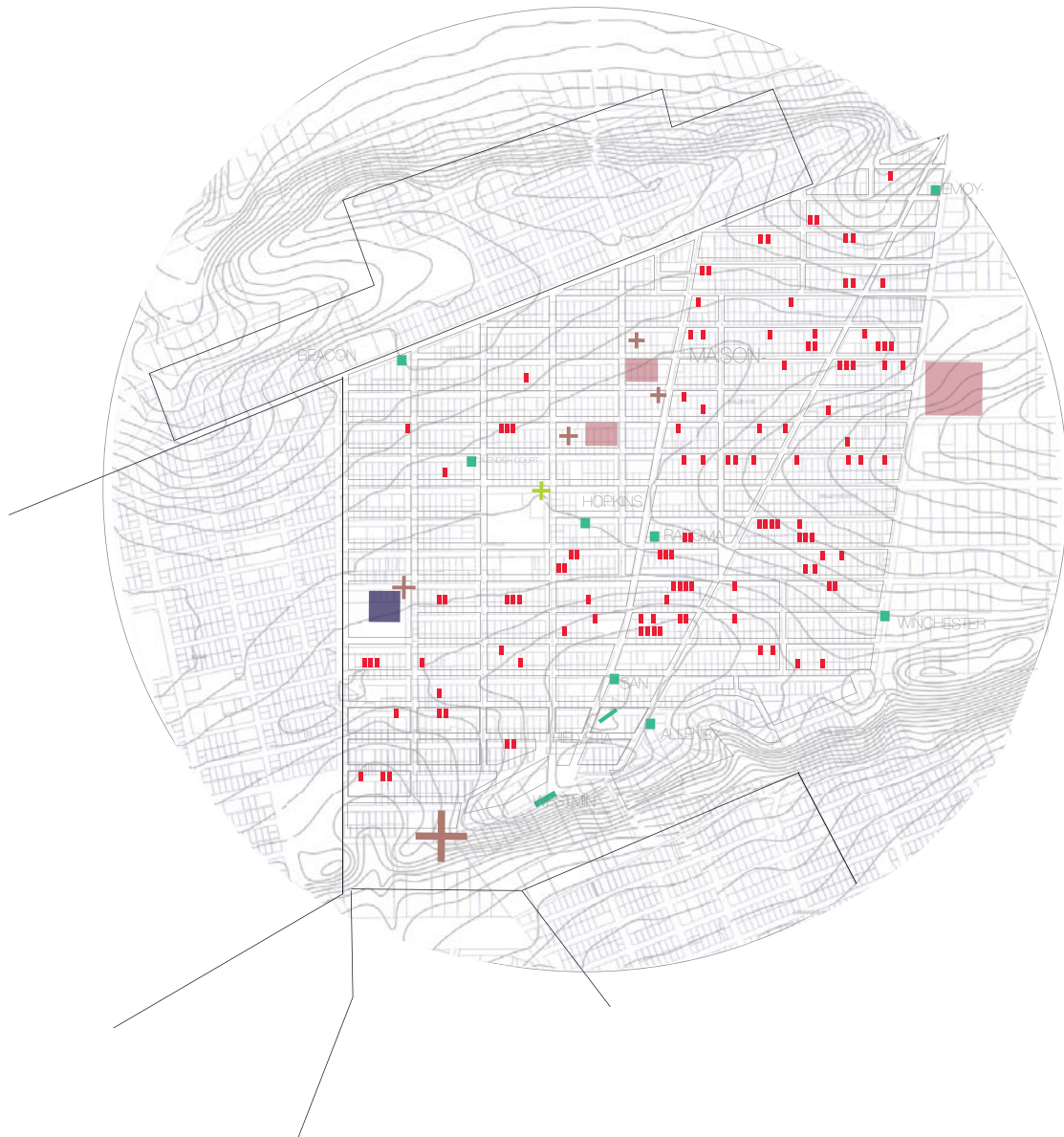
1994
1995
CLINIC 1998
YEOVILLE MARKET 2006

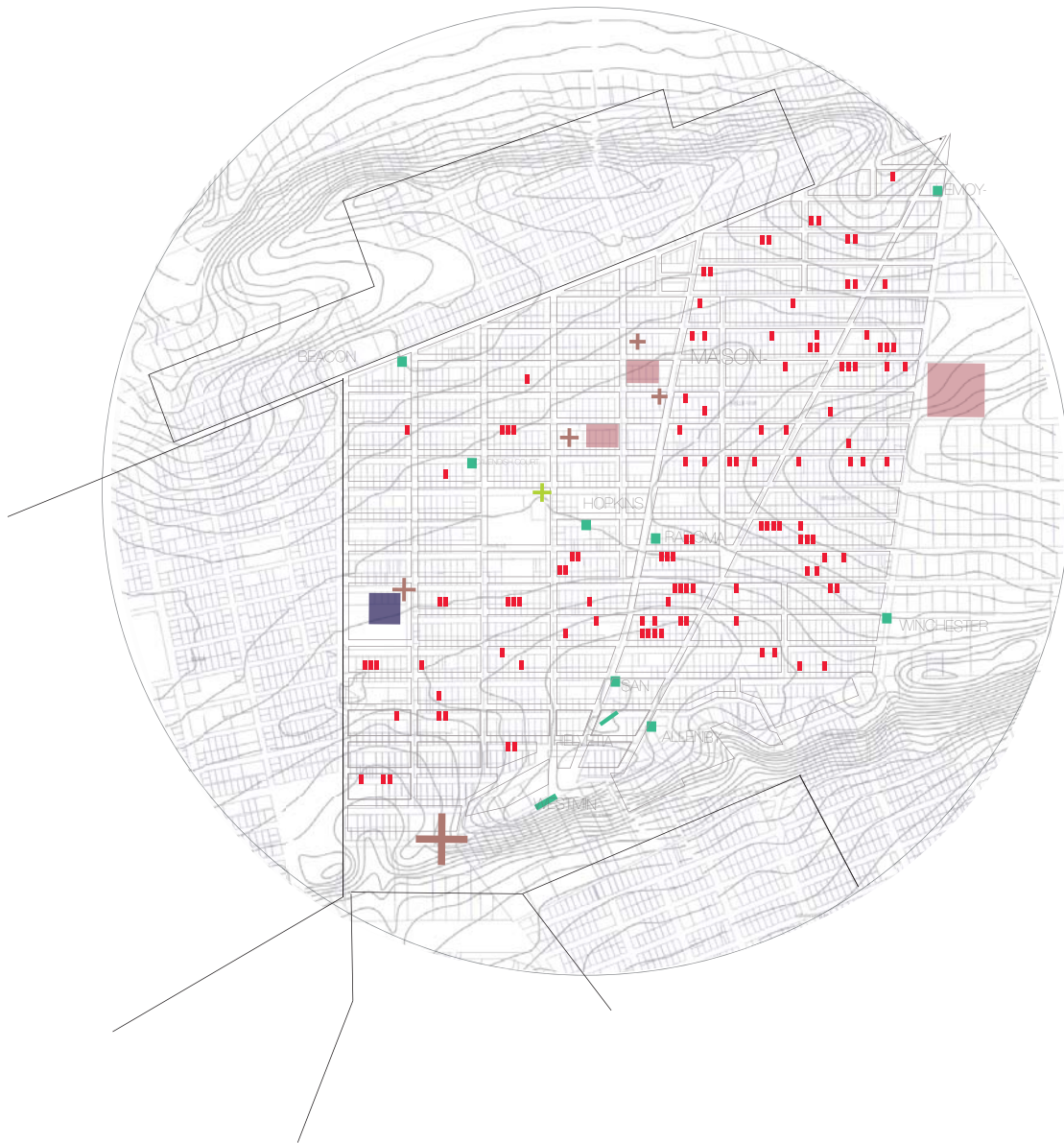
COMMUNITY CENTRE ADDITIONS 2015

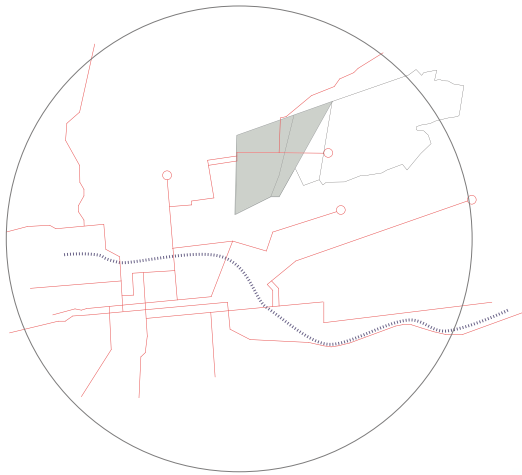
POLICE STATION
PRESENT





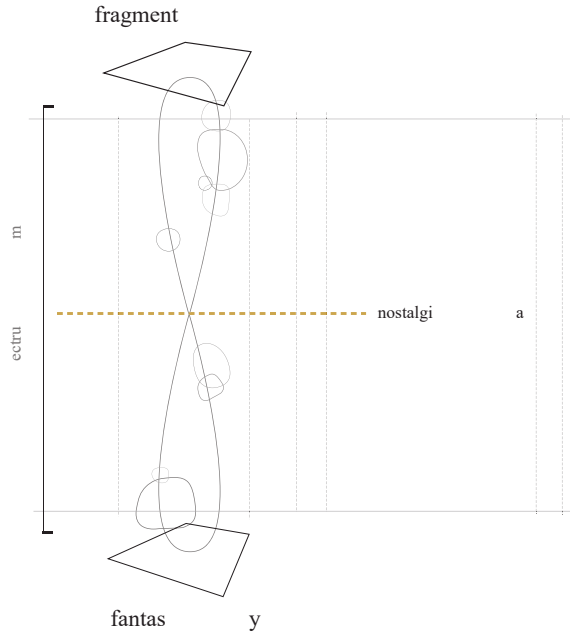








It is evident that Yeoville has been a host to multiple fantasies. From providing an emergent social class with an enclave from mining endeavours to appropriating its physical boundaries as a space to distinguish between colour boundaries only to be the place that once again represents the dissolution of these figurative limitations. Its built fabric is a fragment in its context and has significantly been able to absorb socio-political constructs without significant change to its form. On the 1890 Tompkins Map Yeoville appears in the same shape it is today (Meiring 1985:87). It is possible that its urban fabric has remained intact because buildings simply adjusted well to whatever new programme they were being appropriate for. It is also possible that the form of a building as well as its intended programme remained uninterrupted throughout Yeoville's development.



ruimtelike tipologië

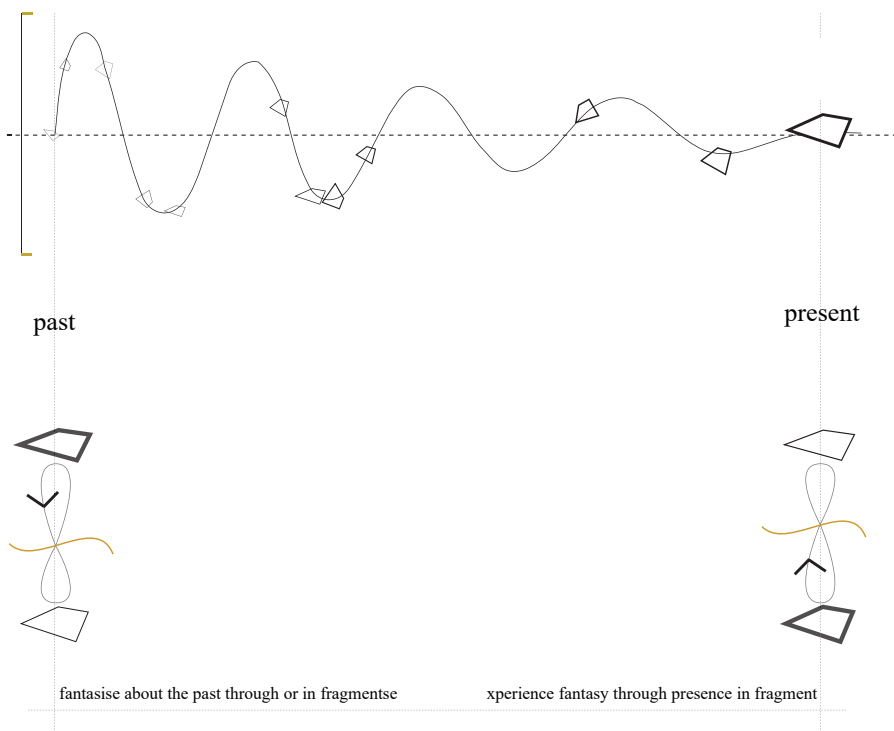
Die diagram dien as instrument om die nostalgiese aard van ruimtelike tipologieë in die stad waar te neem om 'n spesifieke veerkragtigheid te identifiseer wat inherent tot die tipologieë en hul karakters is. As gevolg van hierdie kwaliteite word die stad onbewusteloos geprojekeer en gekonstrueer deur die tasbare en ontasbare geheue daarin vervat - die gewaarwording van nostalgie in die materiaal van die stad. Veerkragtigheid word verstaan as die vermoë om fantasie en fragment te absorbeer. In Johannesburg en ook in Yeoville word nostalgie beskou as die onversadigbare en ontevrede hunkering na - en om te fantasieer oor die verlede.

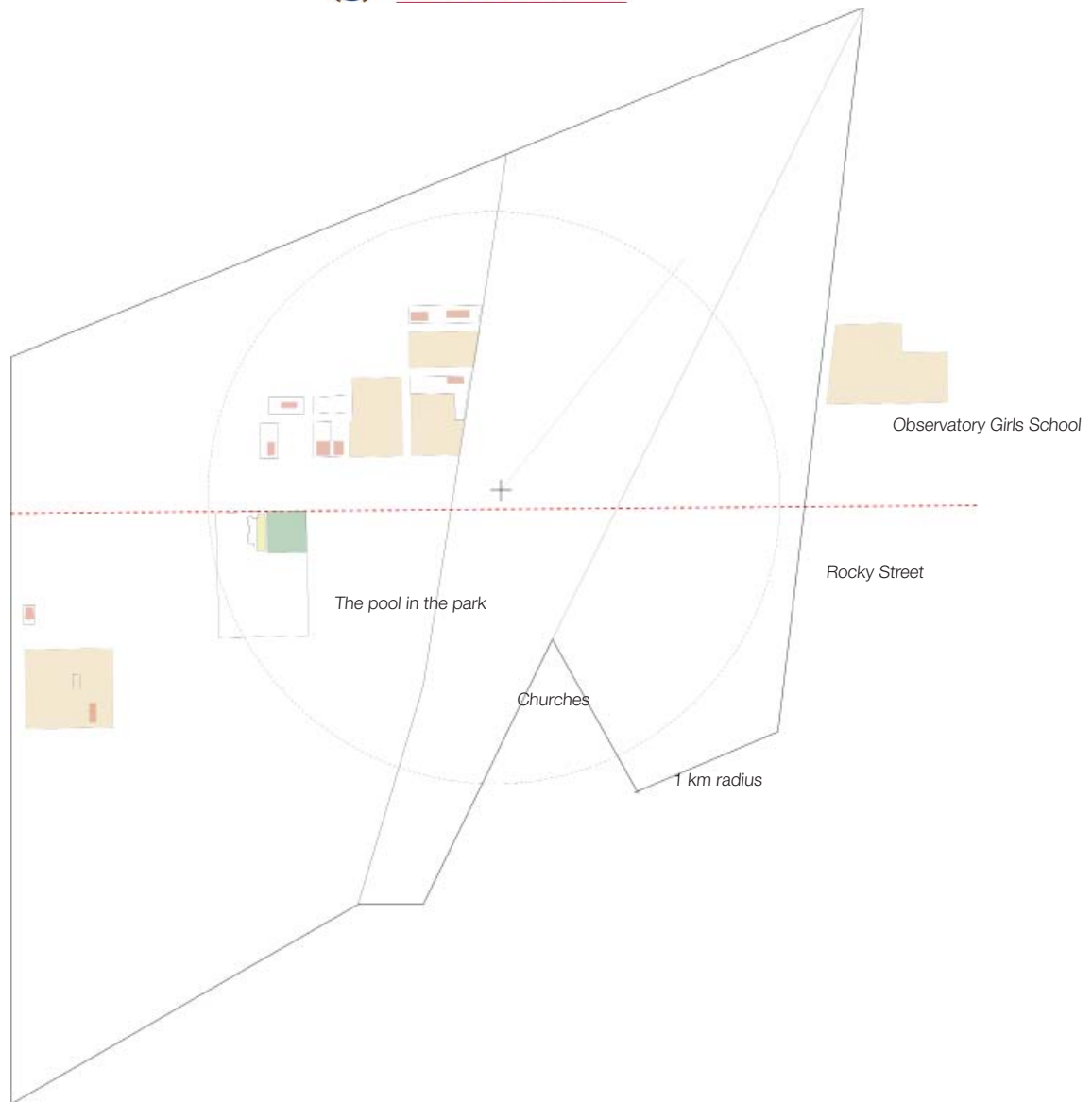
rocky/raleigh straat

eov

Die selfde vorms wat die fantasie van die verlede laat gestalte vind word vandag hergebruik om nuwe fantasieë in nuwe fragmente uit te leef

e a t o f t e c t f a r c t o a s o r e v e o p m e n





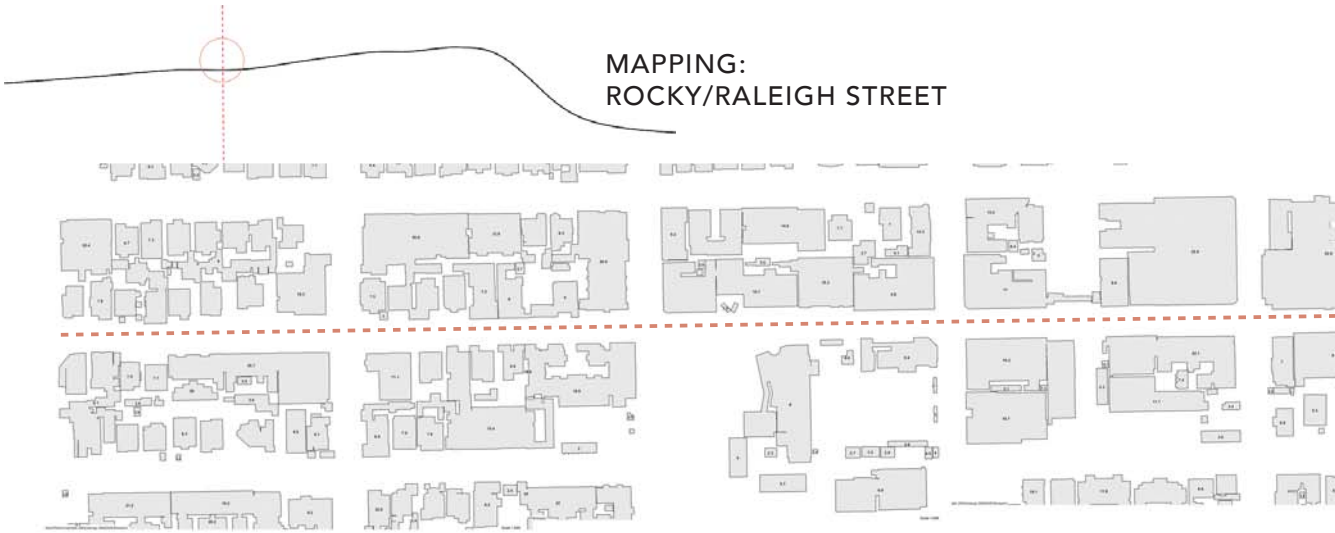
3.2. A MAPPING METHOD

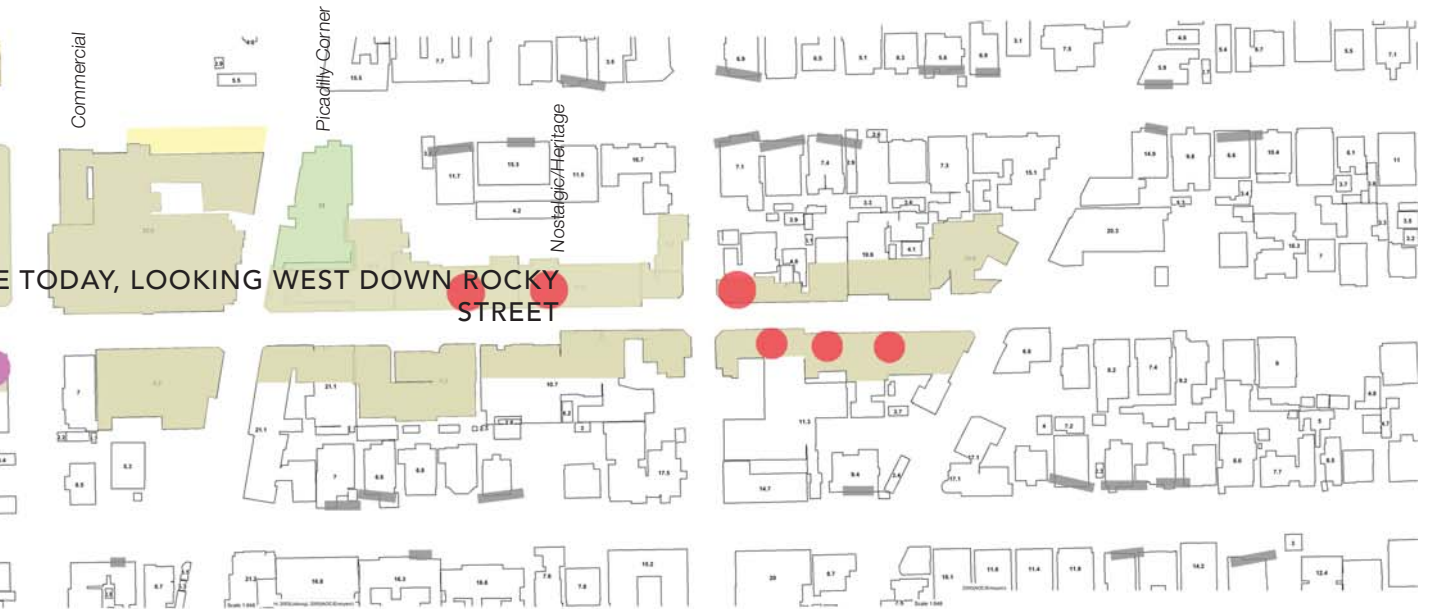
A further mapping investigation identified these uninterrupted forms as schools, churches, Nazareth Home and the public Swimming Pool which can all be traced back to their establishment.

The Yeoville Swimming Pool is a fragment of its urban context, cordoned off by physical boundaries, its use over time manipulates the navigation of non-physical boundaries throughout the development of Yeoville. As a spatial type its ability to rearticulate itself is a useful elaboration on the dynamic character between Yeoville's form and its fantasies. A swimming pool has the capacity to inspire interpretation, analysis, fantasy or narration as a building type, a material philosophy of water, problem of form and in its social ambiguities of use (Van Leeuwen 1998:4). The following exploration into the swimming pool typology unravels the intricate relationship between social engagement and play with water in urban environments. A study of water in architecture enlightens the relationship between the city dweller and their larger natural environment. Water's tactile and temporal quality then gives rise to an exploration to redefine the presence of water and its form in Yeoville.

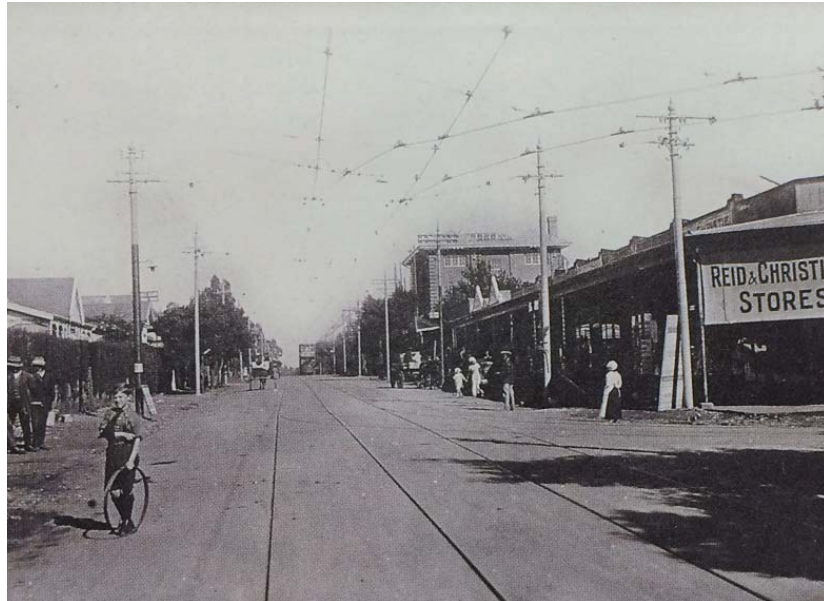


MAPPING:
ROCKY/RALEIGH STREET



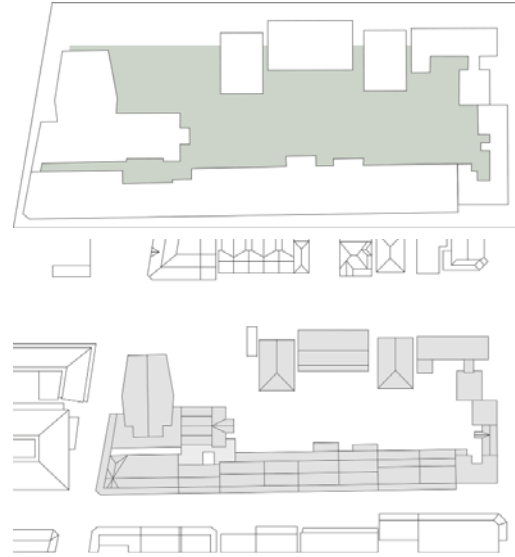
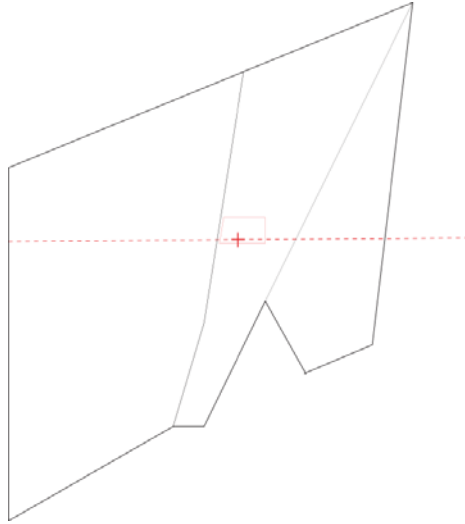






1916, Raleigh Street





The programmed boundary: The Swimming Pool, its edges, lawn and ancillary structures are enclosed with a brick wall that rises above its users. The entrance to the pool on Rocky Street is the only opening in the wall. The wall conceals the function of the pool from its surrounding context. The boundary of the city block in contrast, reverts the civic relationship between use and street. Commerce and residences line and directly live off of the activity of the sidewalk and the street, neglecting the remaining space of the block behind them.

The re-appropriated boundary: The appropriation of the buildings on the city block runs parallel to the the narrative of Yeoville's dynamic absorption of multiple fantasies in contrast to the Pool's singular programmatic practice.

The boundary and the street: The southern edge of the city block that faces Rocky Street is lined with an Edwardian portico that forms the threshold between street and interior commercial spaces, adopting the role of sidewalk. Later additions to the roof of the Edwardian shops have windows that look out onto the street. The rhythmic columns of the portico create embracing intervals with a domestic scale that has accommodated commercial endeavours since its inception. To the west, Piccadilly Centre faces the

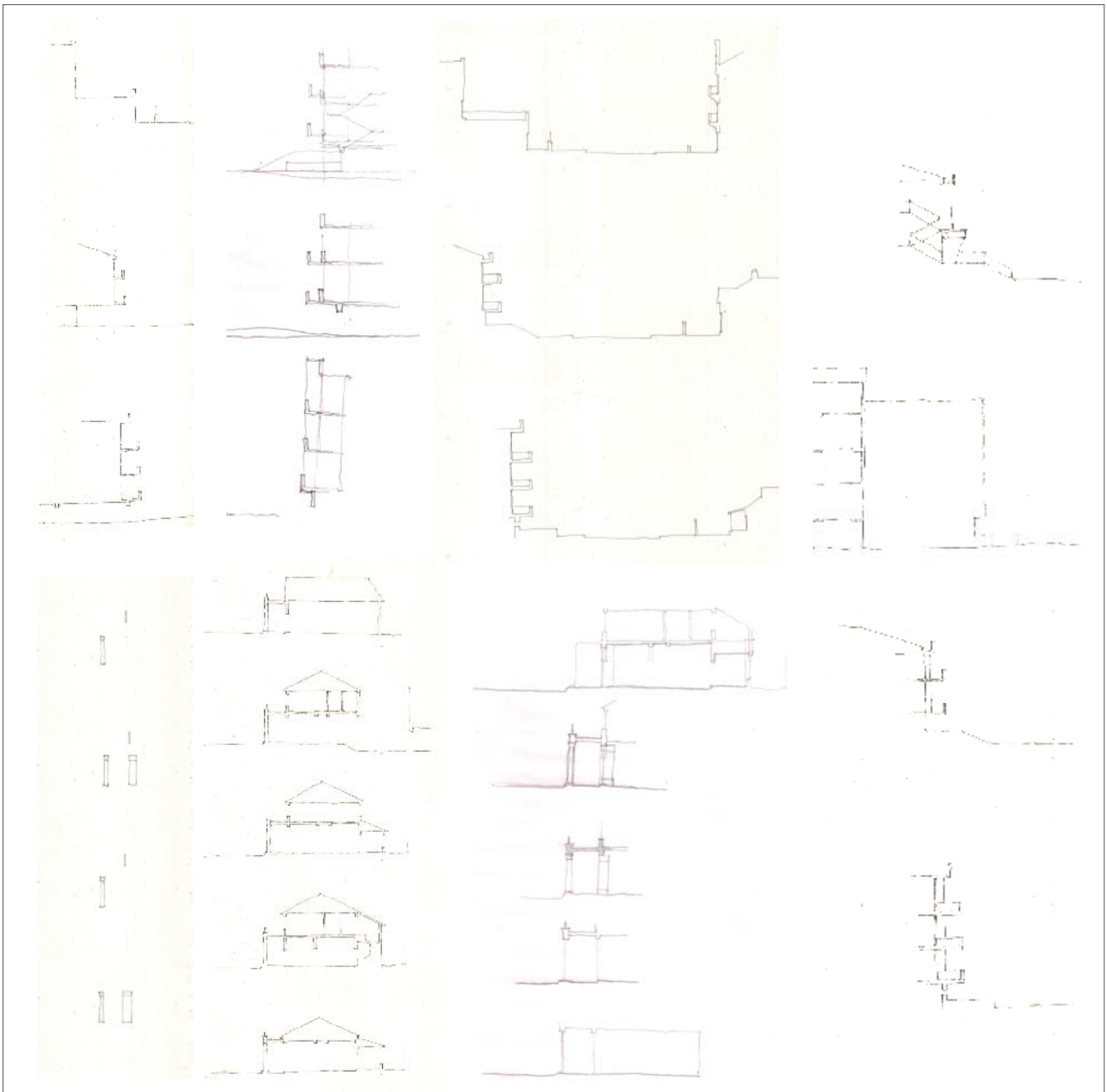
Yeoville Market. The Taxi Rank is an extension of the market and together they make for one of the busiest points on Rocky Street. Users and activities spill out from under the roof canopy onto the street and sidewalk. The ground plane of the market is informally configured and used by pedestrians. The Piccadilly Centre was originally a service station and workshop with subterranean fuel tanks and a large industrial portal frame warehouse. An edge of the warehouse, The Edwardian style commercial building and a detached home that outdates all of the structures on the block then merged into a movie theatre and jazz club. The open plan hall of the warehouse was later also transformed into an indoor shopping centre. To the north, commercial activity dissolves into a residential grain. Detached houses with verandas, Maisonettes with porticos that impose on the sidewalk and floating balconies of modern apartment blocks together compose a transition from the public realm to private residences that is ripe with semi-private retreats. The thresholds also impart visual surveillance onto the street.

The streets around the city block are frequented by commuters, traders and schoolchildren travelling to and from other parts of the suburb to the schools that populate the area North of Rocky Street.

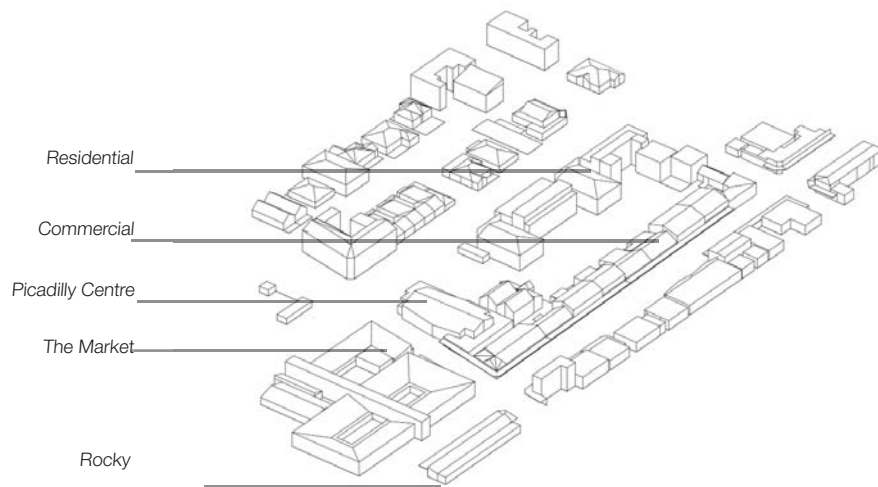
The character of a city street block just east of the Public Park in Rocky Street bears a striking resemblance to the form of the Swimming Pool and its bounding wall. The edges of the city street block are the antitheses of the bounding walls of the Pool, making it a valuable supplementary investigation into the character of the boundaries of fragments in Yeoville. The findings of the investigation are used to inform, underscore and scrutinize the design intervention in the Park and enlightens a perception of how Yeoville's users interact with the street and its edges.

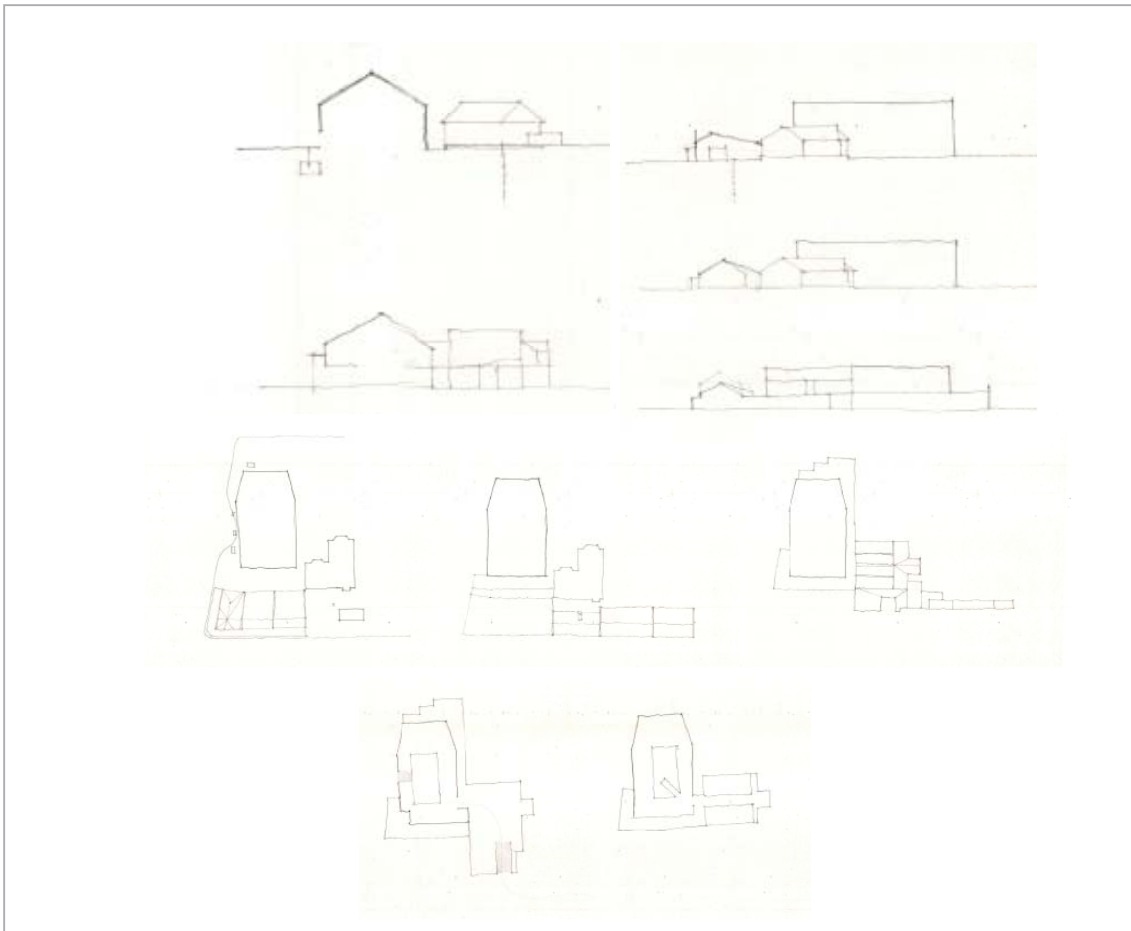
INTERMISSION 2

ANCILLARY SPATIAL ANALYSIS

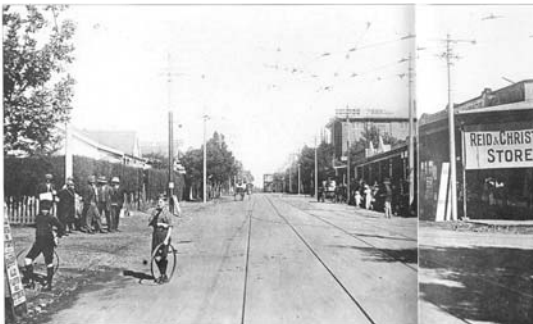


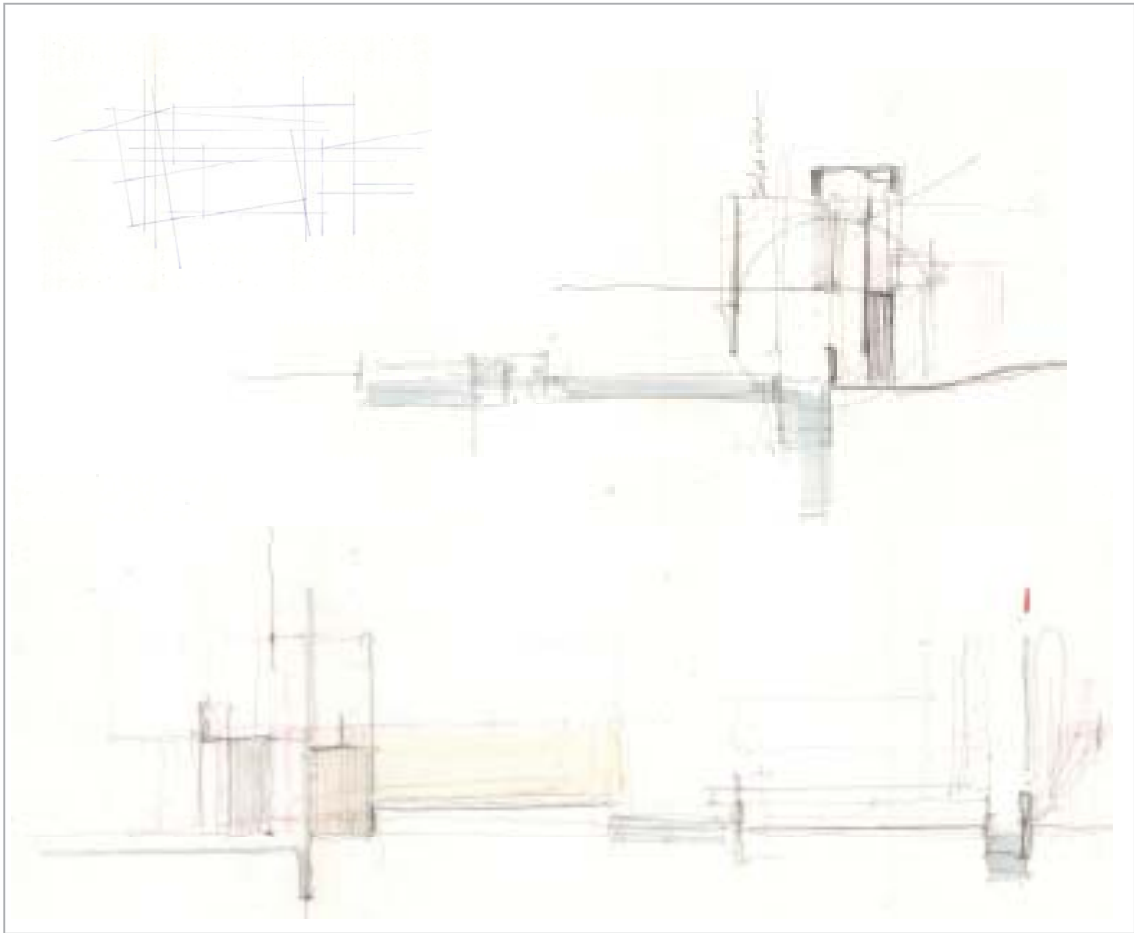
Sectional analysis of street thresholds





Fabric morphology





Spatial investigation diagrams





3.3. THE DEVELOPMENT OF THE PARK

1890

The park is one of two public open spaces in the Yeoville/Bellevue area. It is centrally located adjacent to the main commercial axis of Rockey/Raleigh Street in the vicinity of most of the civic facilities in the area.

ASM Architects and Urban Designers recently reconfigured the use of soft and hard surfaces in the park.

The Day Care Centre

The building used to be the Yeoville Clinic before it was relocated to its current location in the park. It is now used by the Siyabathanda Day Care Centre which initially schooled 20 children using the premises of St Mark's Presbyterian Church. Close to a 100 children are currently enrolled. The Day Care Centre is a non-profit community-based facility which benefits by receiving donations from the Gauteng Department of Education

Work in the park commissioned by the Johannesburg development agency (JDA):

Yeoville Recreation Centre

The centre was established in 1961 and further extensions were completed in 1962.

From 1994, the Yeoville Recreation Centre became a multi-facility centre. It is used as a meeting place, a voting station, a centre for learning whereby people from all over Africa learn how to speak English, a music hall and a forum for debate and discussions.

Urbanworks Architects in collaboration with Nsika Architects designed additions to the centre in 2010.

Yeoville Clinic - 1995

The transitional government of the City of Johannesburg commissioned medical facility for community-based healthcare. Paul Schlapobersky Architects.

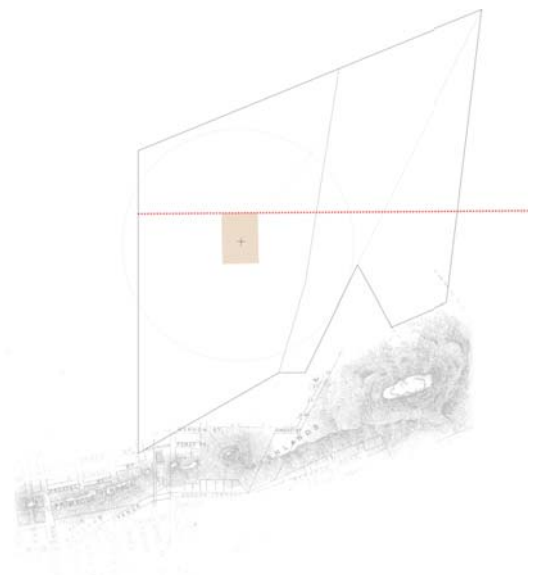
Library- 2009

An old tram shed which was built in 1924 and used to be a City Power plant that supplied power to the businesses in the Yeoville and Bellevue East area before it was converted into a place for learning and studying.

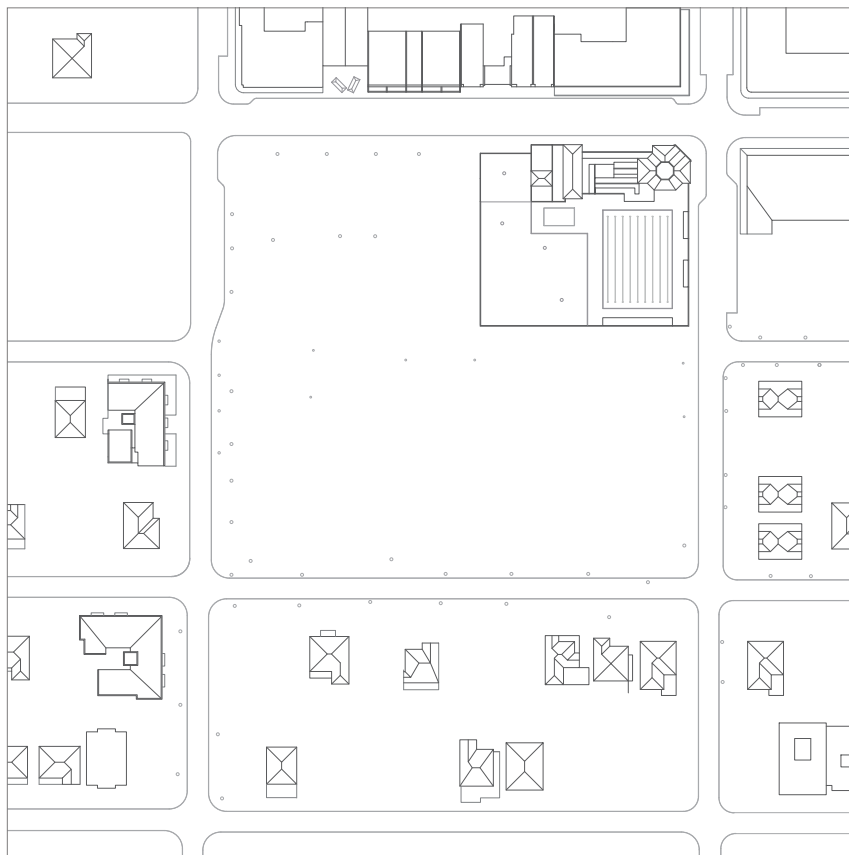
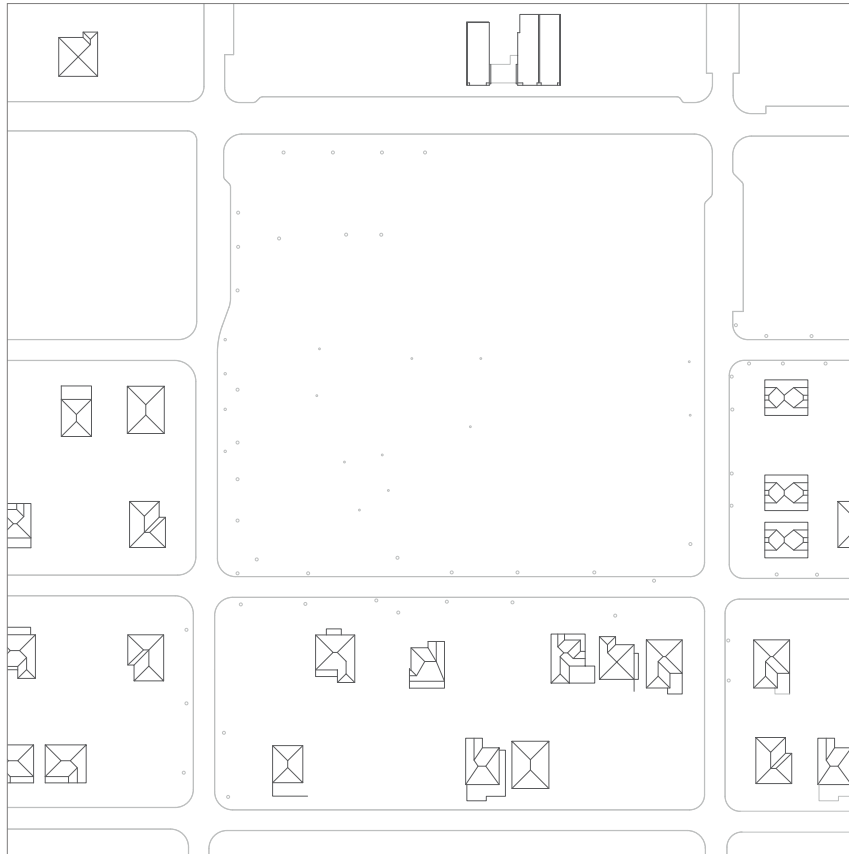
Police Station - 2015

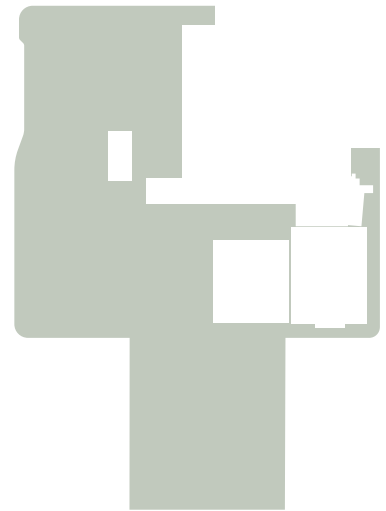
The station was originally located on the corner of Kenmere and Hunter Street in a house where it acted as a satellite station reporting to Hillbrow.

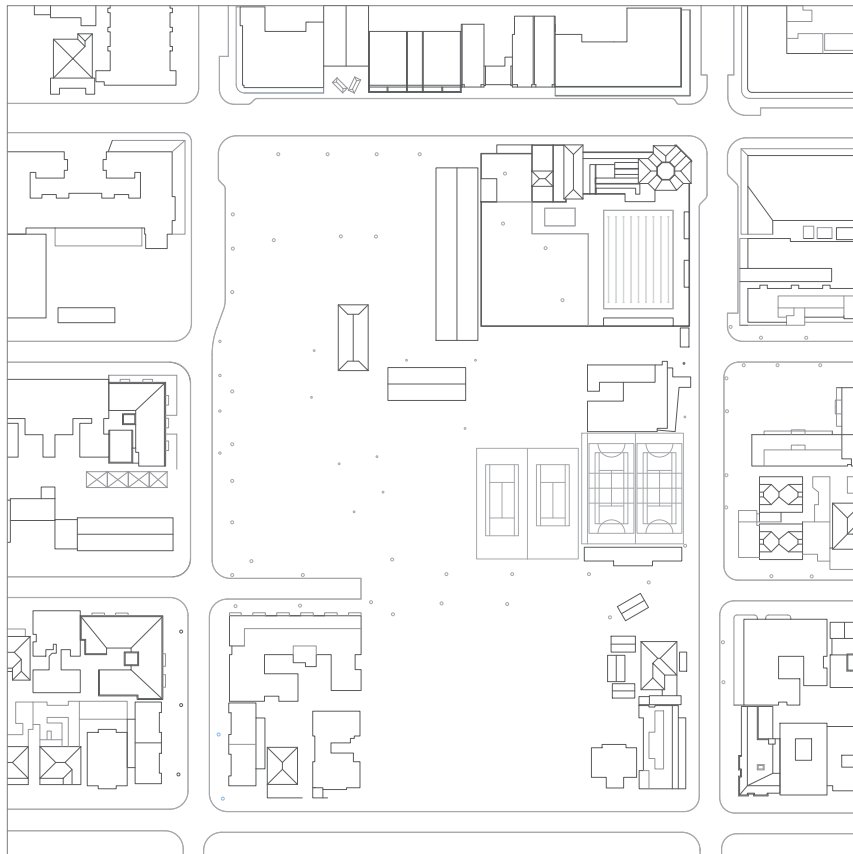
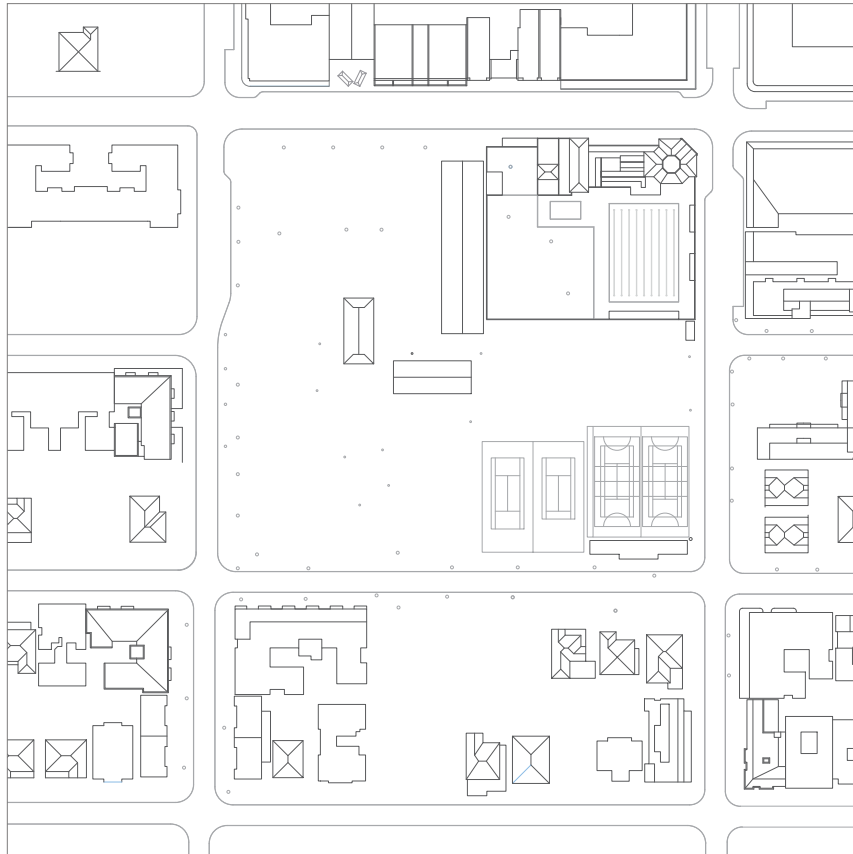
ASM Architects and Urban Designers.

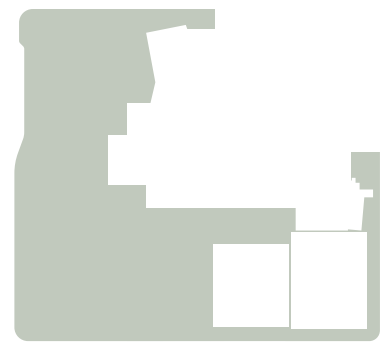
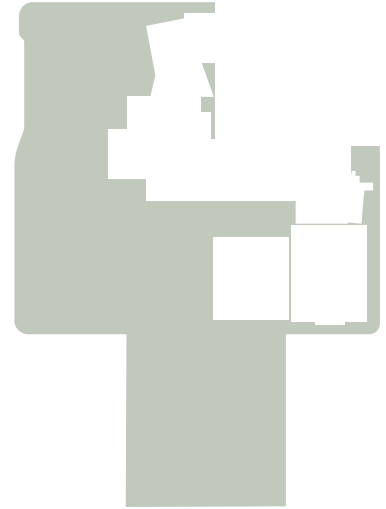


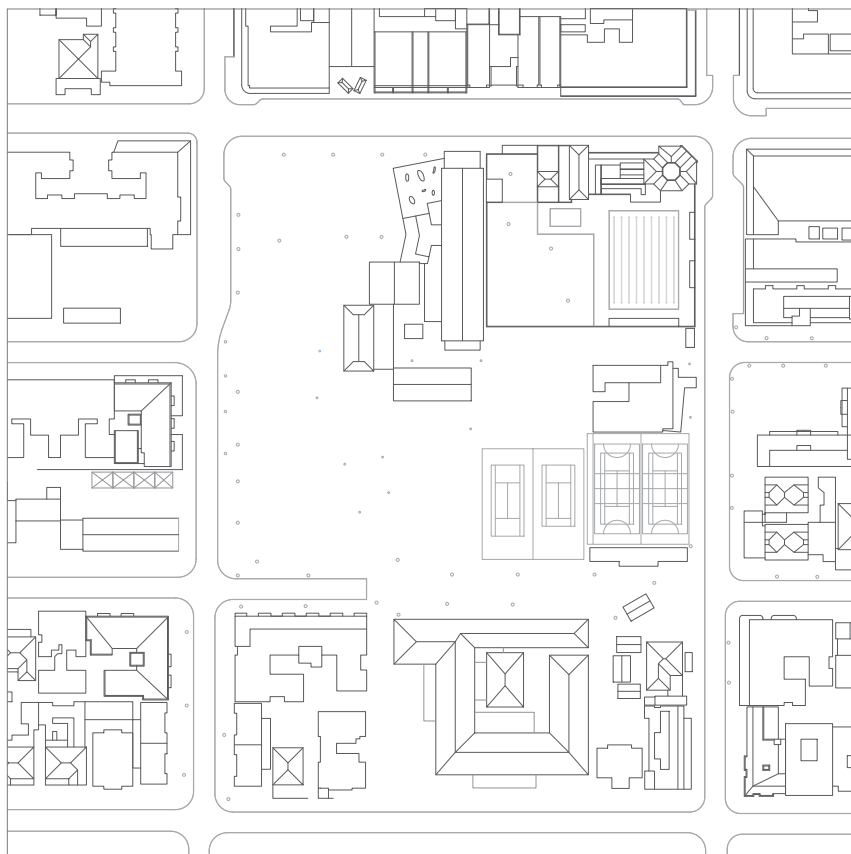
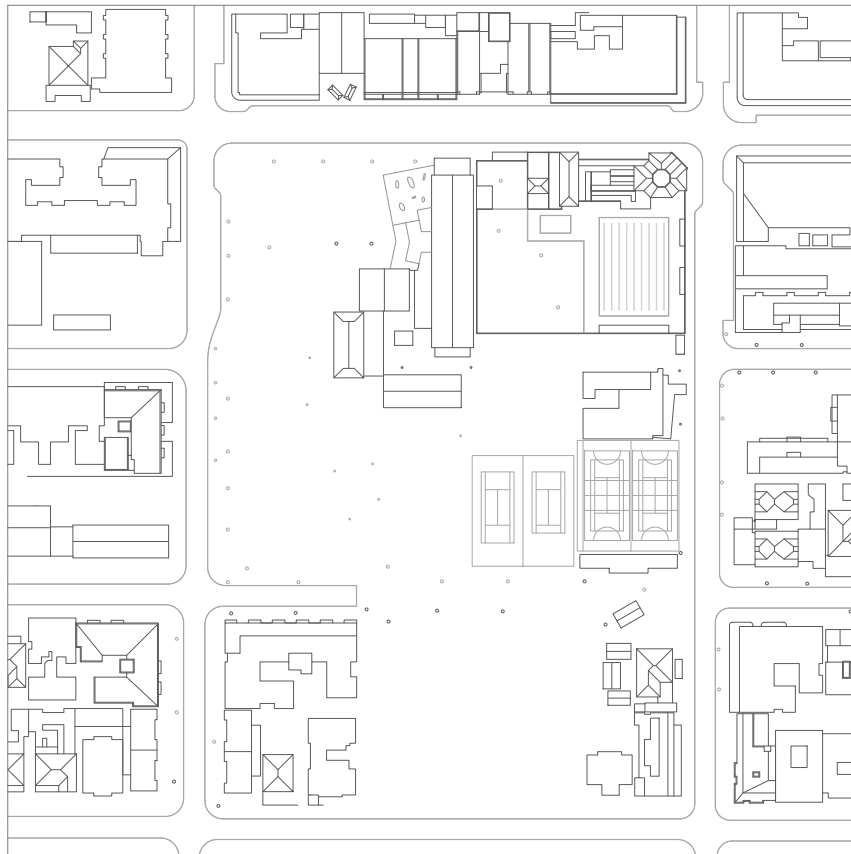














3.3.1. The evolution of the park typology

The Pool makes up a corner of the Yeoville Public Park that was established with the proclamation of Yeoville in 1890. The design will respond to the Pool as well as the park.

The relationship between man and landscape is reproduced in the garden, first as the edge between man and its constructed civilisation and later as the dissolution of the edge and incorporation into the city fabric. The distinction between city and landscape continued up to the nineteenth century, until the modern notion of spatial continuity challenged the dividing line between city and landscape (Aben & De Wit, 1999:142).

The garden first acted as saviour to the condensed and polluted Industrial city at the dawn of the nineteenth century. Where it developed as a park outside of the city, its introduction into the city had to compensate for the landscape which got out of reach and offered retreat from an unpleasant outside world through introverted green space. Low density development is interwoven with expansive collective and private green space in the Garden city. This ended the dialectic between city and landscape and resulted in an autonomous unit of building and landscape that undermined the exclusive status of the garden as the paradise was fractured into repetitive privately-bound gardens (Aben & De Wit, 1999:142). The confrontation between the park and urban tissue is further blurred where the English landscape garden was absorbed into urban morphology. Responding to the natural conditions of place, the urban built development acts as the garden's edge. Void of containment, the park expresses the endlessness around it in the form of pockets of green spaces (Aben & De Wit, 1999:141).

With the emergence of the garden city the first planned suburbs were built in the US. This American counterpart of the garden city fostered the same ideals of intertwining landscape and city, per contra abandoning its contained character, a collective, manicured grass surface flows uninterrupted from one plot to another without vertical hindrance, to create the Collective lawn (Aben & De Wit, 1999:143).

The separate zoning of functions work, dwelling, leisure, transportation, in the progressive industrial city post 1917 meant relationship between buildings and the public park would end. In the garden city the garden forfeited its exclusive character and together with the 'collective lawn' in the American suburbs, lost out on the expansiveness of natural space.

In the thinking of the Modern Movement human activities were divided into functional categories of sleeping, working and travelling and a new programme of recreation. This meant that the public park and the private garden (public urban park and collective lawn) were transformed into people's parks (Volksparken) and functional gardens and came to represent boundless space that invited walks into the horizon (Aben & De Wit, 1999:142).

The functional garden appropriated the ground plane merely a passive support for object buildings so that the definition of the garden is only comprehensible as leisure facility. The ground plane does not lend itself to be spatially defined or multi-interpretable places (Aben & De Wit, 1999:143). In its most extreme form the functional garden is fully integrated into the machine à habiter as the roof garden. Corbusier lifted his buildings from the ground so that nature could continue unspoilt beneath as a social plane and moral arena. Because the ground plane is for everyone the roof or balcony garden, away from the gaze of passers-by, is separated and allows individual activities of sunbathing, playing, conversing and the spatial game of finite and infinite brought into the building (Aben & De Wit, 1999:103).



3.3.2. The enclosed garden typology

The archetype of the enclosed garden incorporates landscape architecture, urban design and architecture to negotiate the divide between architecture and the landscape. In this archetype, the landscape becomes interior, its dimensions tamed and delimited with architectural means and a sequence of space, landscape and the city. The enclosed garden is where the real landscape and the untouched natural landscape meet. In the urban landscape where nature is at once excluded and brought into view by the enclosed garden, a haven of peace and quiet is rendered by replacing the natural horizon with an internal horizon, capturing in essence, by representation or by abstract, the expansiveness of its natural surround (Aben & De Wit, 1999:10). It is thus an intermediary between man and landscape. The design materialises the expansiveness of the landscape in the seclusion of the garden. Man reconciles himself with his surroundings by bringing it within the closest spatial proximity. Its paradoxical character of being infinite and finite heightening each other by being present simultaneously (Aben & De Wit, 1999:14). The horizon-orientated garden and enclosed garden evolved until the garden and horizon coincided in a spatial abstraction. The enclosed garden was then reduced to a category of function and dissolves its character where the landscape and space are no longer conceived in terms of their differences but their functional value.

Urban landscape and enclosed garden

The landscape is no longer the unambiguous natural or rural counter-form of the city and is getting more and more woven with the city and absorbed in a diffuse urban landscape. This new relationship between the landscape and the city is able to find expression in the enclosed garden. The garden can be as much as an Arcadian counterpart as a representation of the city, or possess one of the much more complicated intermediate forms. Gardens are likewise an expression of the image we have of nature today. In a world that is becoming more urbanised by the day the wilderness has come to represent paradise. The classic concept of nature as counterpart to culture or cultivation has split into two complementary notions: The unspoilt fragile nature of paradise, beyond the sphere and influence of the city and the unstoppable power of the urban machine (Aben & De Wit, 1999:154).





3.4.1. The Swimming Pool Typology

Swimming is traditionally a military skill encouraged by Eighteenth century Sea bathing. It developed into a competitive sport in the nineteenth century when laned pools provided more suitable conditions for racing than the open sea. In recent decades, the competitive element has been supplemented by the provision of leisure pools that simulate the enjoyment of seashore conditions and other natural water bodies with wave machines, chutes and flume rides (Wylson 1987:16).

As an architectural type the pool is easily defined by its use of swimming and playing. Its simple form retains its contents - a natural element which on the contrary is highly complex. While the pool allows intellectual wanderings and stirs the imagination, its recognisable form as an architectural object allows its wanderer to resume the thread of acquaintance where it was last left at (Van Leeuwen 1998:7).

The pool is the architectural outcome of the man's desire to become one with the element of water, privately and free of danger (Van Leeuwen 1998:2). A swim in the pool is a complex and curious activity, one that oscillates between joy and fear, between domination and submission. When a swimmer delivers himself to the forces of gravity, the sensations of weight- and timelessness contribute to the rationale of joyful swimming. The limitless and unbounded nature that attracts swimmers to water also produces a somewhat exalted feeling of oneness with the natural environment (Van Leeuwen 1998:16).

The unbounded nature of interaction with water contributes to understanding of the swimming pool as utopian spaces. The physical frame of the pool has been used to enforce fantasies of social differentiation and hierarchies based on ideas of gender, age, class, race and sexuality throughout history. However, in Europe and North America where urban development driven by industry-based economic growth responsible for deplorable living conditions of the poor, the development of the public pool advanced progress to an equal society in public space (Wylson 1987:72).

“The pool is a mirror of society, a place where we, like Narcissus, can admire ourselves and where the real and the unreal mix. It represents the very edge of possibilities, since it is both a man-made artefact and something that cannot be contained by man. The pool is where architecture becomes a mirror, a frame that does not contain the possibility of a perfect world, but reflects the world all around us back to ourselves. We can only frame water here and dream by looking into it.” Betsky (1995:13)

The Lido movement in England

Public baths and wash-houses in England were originally spatially organised along class and gender lines, with male-only participation dominating their use. In 1925 the Public Health Act legislated that baths could be closed during the winter months and used for other ‘healthful recreation’ (Pussard 2007:178). Swimming therefore fitted with the rational recreational ideals of a ‘healthy body, healthy mind’ that emphasised cleanliness and regulated bodies. Lidos or open-air swimming pool facilities emerged to alleviate the workforce of objectionable living conditions in an urban industrial population where enforced segregation along class and gender lines of bathing and swimming later declined. As a part of a recreational movement, lidos were designed in urban parks, encouraging a less regulated and more self-indulgent swimming experience. They were ambiguous spaces in urban centres that resembled halfway houses between town and country (Pussard 2007:179).

The Public Swimming Pool in New York

Public swimming pools featured prominently in the vision held for the modern city when the New York City Department of Parks, under the guidance of Robert Moses, envisioned radical urban renewal to counteract the effects of The Great Depression (Gutman 2008:553). These and other spaces for public recreation was embraced by modern architects eager for change in Harlem, Brownsville and other neighbourhoods faced with economic adversity and undergoing demographic change. The pools were new spaces of public informality that offered equal access to outdoor recreation. The pools built by Moses were not always intrinsically free from racial segregation but in this case modern architecture was key in shaping a better social world. In magnificent new places, imagined by a conservative park commissioner, play mirrored reality and reflected the state of society and the government. At public pools in New York children cut across boundaries through play, progressing the growth of democratic civic space (Gutman 2008:554).

3.4.2. Water and Architecture

Water can be in different states of sanctity. Swimming pools, ponds, puddles or deep spots in a river all demand various states of respect and awe. (Van Leeuwen 1998: 7) The use of water in architecture include the notions of water as a continuum of the universe made real, as a source of life and rebirth or a mirror that creates a heterotopic alternative to lived experience (Betsky 1995: 8). Where architecture is synthesised with water in a utilitarian, symbolic, therapeutic, leisurely or visual context these mythic dimensions inform the use of water in architecture but are not contained by them. When fountains try to embody these mythic dimensions, they are only illustrative leaving the true power of water to overwhelm their stories with splashing delight or nourishing drinks. (Betsky 1995: 8)

Within the realm of the man-made environment water removes itself from the speculative mythical realm where it is pure and inaccessible to become a representative or structuring element. (Betsky 1995: 13)

1 Representative – connecting

Buildings remove us from nature, by sheltering us from it and creating a new rational and human realm in its place and water has the potential to reconcile the divide. At the Alhambra and gardens of the Generalife water is an element of construction that heals the irreparable wound created by the very act of building (Betsky 1995: 8). This is possible not because water is an imitation of its natural equivalent but as a fragment of it that continues the architectonic qualities of water. At the Alhambra water is a spatial element - a narrative of connecting channels and pools that guide you through space. Where the heat is softened by ephemeral water rather than being cut out by walls, water weaves together rather than creating distinctions between inside and out. The Islamic view of Paradise includes a garden of delight. Here a sensual play between water and the architectonic qualities of water connect to become the new Eden complete with cool spring and fountains surrounded with plant life whose presence flows from the water (Wylson, 1987:156).

2 Structuring – development

Water can be an element that develops the character of the built environment in economically logic ways (Betsky 1995:12). In some places water is so integrated into the built fabric that it cannot be distinguished from the built for. The Netherlands of the fourteenth century, and in particular Flanders, converted a rising tide in a swamp where the river faded into the sea, into a total urban environment for maritime trading and commercial activities. It is arguably an art of representation that essentially develops control of nature (Wylson 1987:41) with the virtue of being as real and changeable as water itself.

Water in the contemporary urban environment

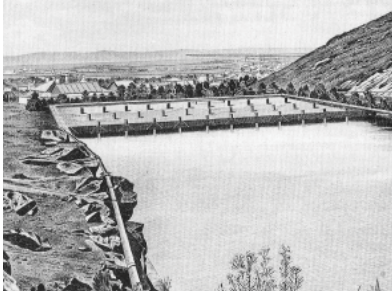
The presence of water in the contemporary urban environment has become hidden. Technology obscures the true nature of water when it is recreated it in such a way that it can be controlled, distributed and turned off at will. It exists in sewers, tunnels and reservoirs and bubbles through the surface where urban inhabitant's interaction with it is limited to the tap, sink or shower. Cities develop in amorphous patterns that defy the presence of water yet demand it all the same time with little to no trace in its man-made environment of its vast systems of extraction, purification, distribution and drainage (Betsky 1995:13).

The history of its uses have become hidden so that water now only appears as imitations of itself. The Office of Metropolitan Architecture's Floating Swimming Pool sits on the opposite pole of Betsky's (1995) representative and structuring water architecture. Adrift in the ocean, the pool purifies and converts water into a pleasure and a moving ritual of regulated swimming. The mythic dimensions and spatial opportunity of water no longer satisfies the act of leisure and the demands of what its function has come to present. The pool is the essence of modern architecture - "[...] a structure floating in a sea of desire." Betsky (1995:15).

The swimming pool, Rem Koolhaas, New York, USA, 1977



Early reservoirs and lake at Ellis Park



The reservoir at Seratoga Avenue





3.4.3. Water in Johannesburg

The Witwatersrand owes its name to the waterfalls that drop down from the ridge running east west from Krugersdorp to approximately Bedfordview. The Witwatersrand forms a watershed between the Atlantic and Indian Ocean with a shear drop on southern boundary to Yeoville (Fisher 1989:67). Before the discovery of gold the surrounding farms took their names from local springs (fontein in Afrikaans). The suburbs of Johannesburg would later adopt these names - Braamfontein is the spring by the brambles and Doornfontein, the spring by the thorn bushes (Malcomess & Kreutzfeldt 2013: 48).

Water was initially supplied by private companies to Johannesburg's growing population. Barney Barnato acquired the concessions for water that was granted by the Volksraad in 1889 and set up the Johannesburg Waterworks, Estate and Exploration Co. Ltd. A dam was built close to the oldest water fountain that provided drinking water to the miners. In 1888 the spring that originates in a small kloof near the later Harrow Road on the Bezuidenhout Farmstead was dammed to provide drinking water for the miners and subsequently a reservoir was built where Ellis Park is today (Meiring 1985: 87). From where water was pumped to the city's first gravity fed reservoir on the corner of Harrow Road and Serratoga Avenue. (Malcomess & Kreutzfeldt 2013: 48)

Malcomess & Kreutzfeldt (2013) argue the lack of visible water source in Johannesburg. The image of water, or in case the absence thereof, reflects the risk, uncertainty and fantasy of the city's subterranean origins in mining and those who do not own it. It contributes to the unnaturalness of the city, and now threatens the invisible underground water that accounts for the spruits that run deep below its asphalt grid.

1890 Berea – Harrow Road Reservoirs

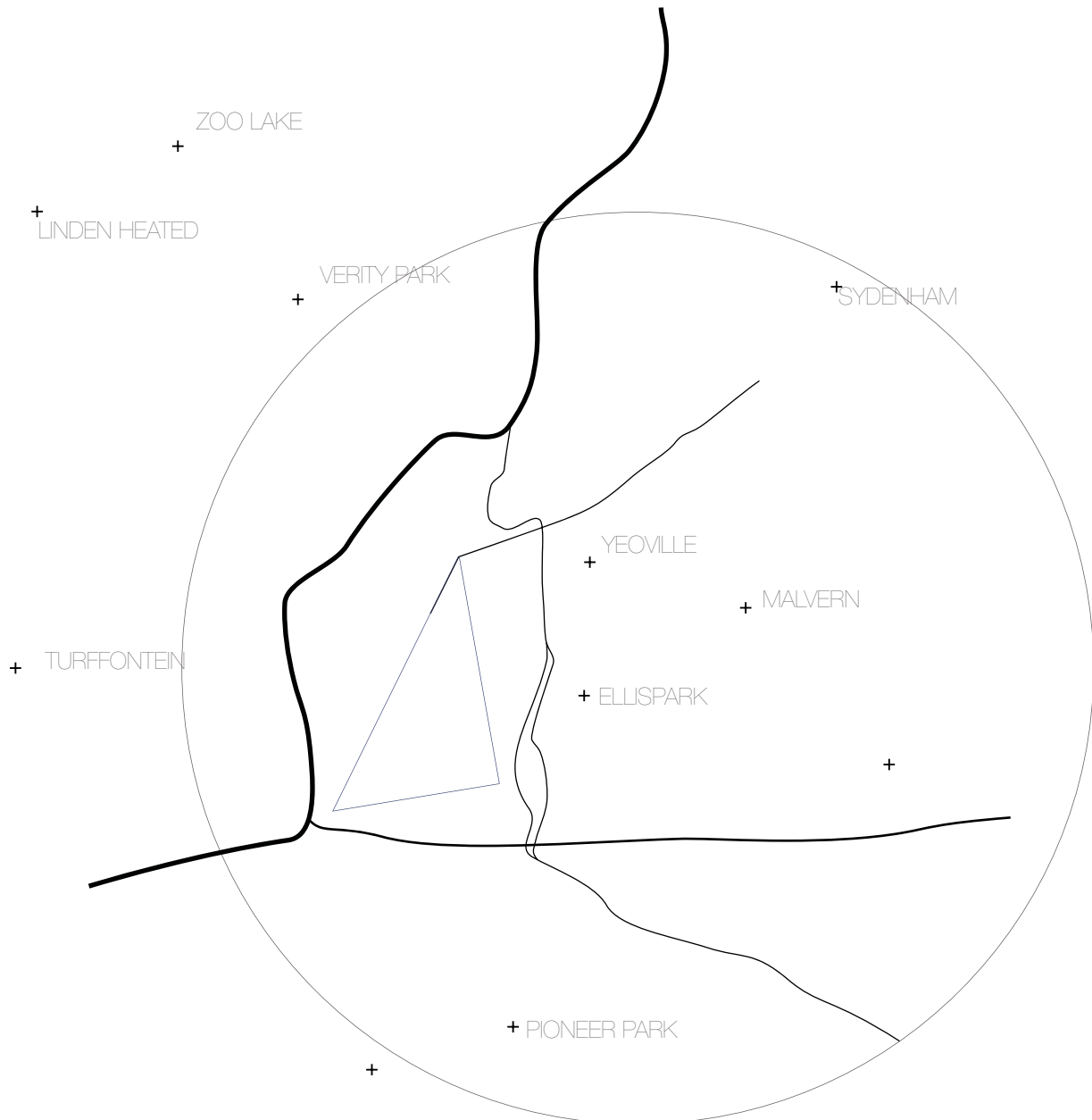
1905 The lake at Ellis Park (Norwich 1986)

1909 Water tower (Yeoville's water tower is considered a bizarre and unique structure in South Africa (Meiring 1985: 87).)

Yeoville Reservoirs

1909 Municipal Swimming Baths (Norwich 1986)

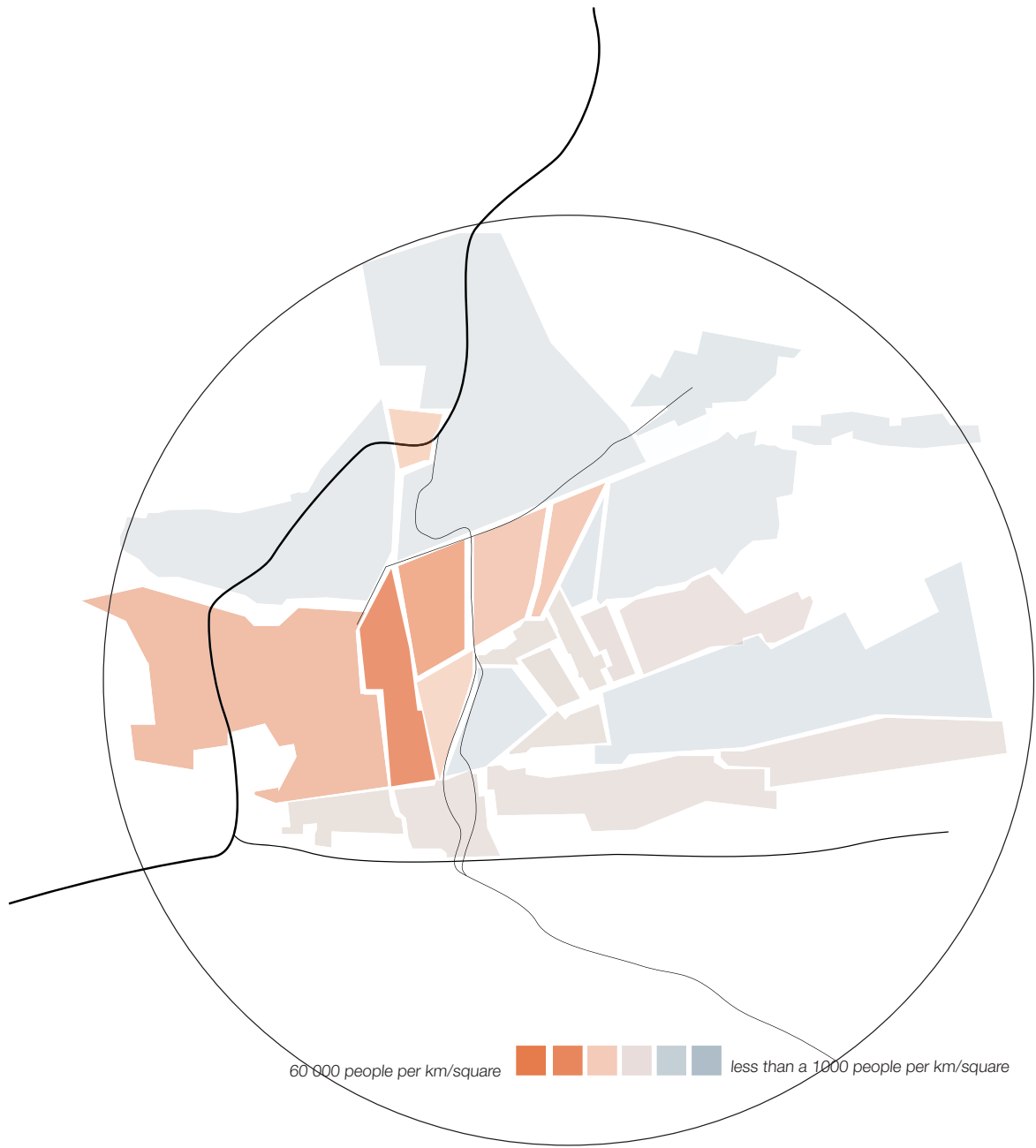
Summit Club



Mapping Public Swimming Pools in Johannesburg

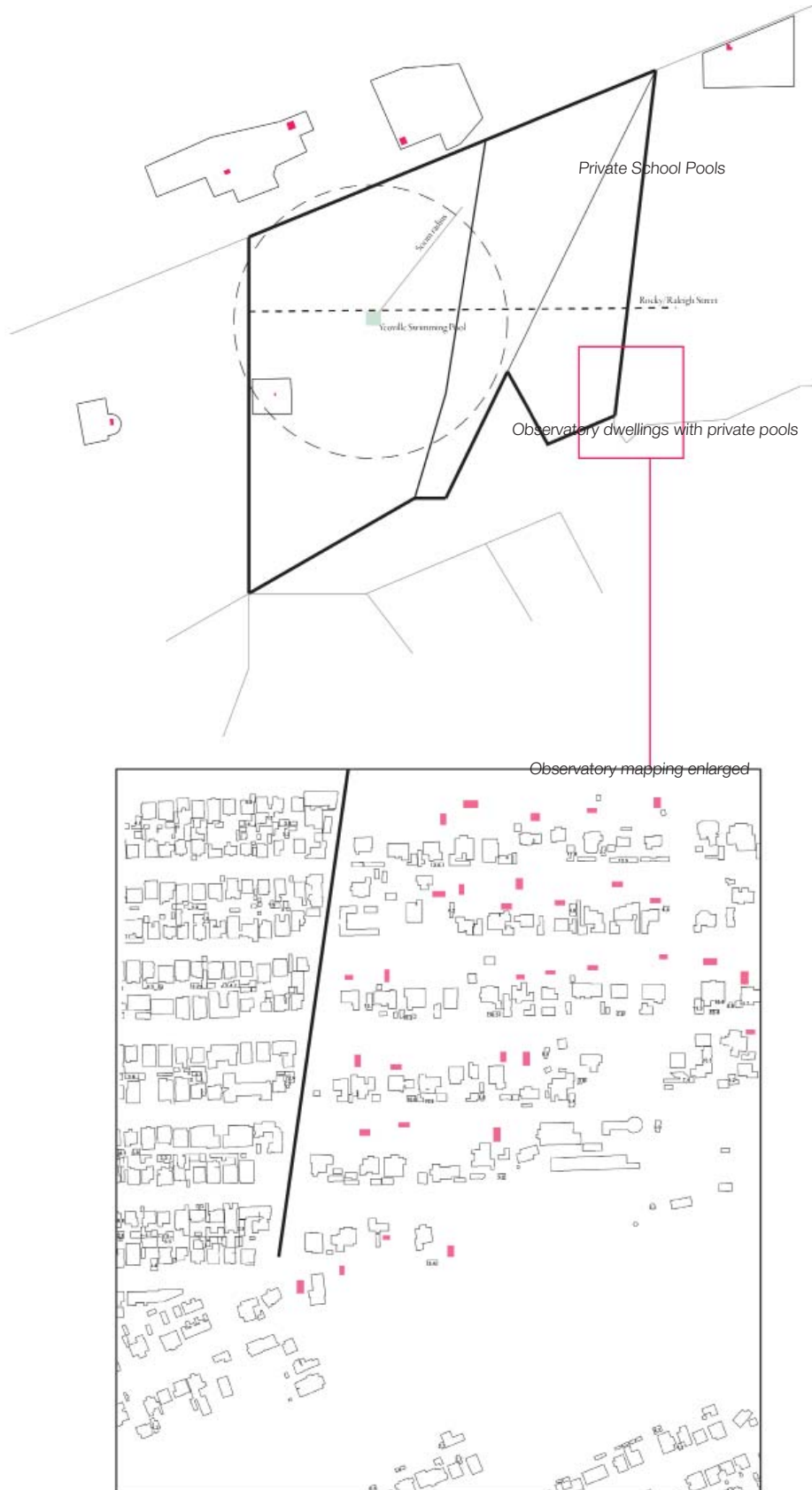
The CSIR published the Guidelines for the Provision of Social Facilities in South African that provides a quantitative and rational framework for the provision of social facilities for various levels of settlements to support the planning process and provide support to social facility investment plans. Under Classification of Settlement from Table 1 (Green & Argue 2012: 11) Johannesburg is classified as a type A in the Hierarchy of settlements. As a metropolitan city region with a

catchment size greater than a million inhabitants. Under Recreation Provision (Sports and Parks) a Swimming Pool Complex (25 m to 33 m pool) is compulsory for the Average Threshold (population) of 80 000 inhabitants within an acceptable travel distance (km) of 5 km - 10 km. A swimming Pool (50 m pool) is compulsory for the average threshold (population) of 500 000 – 1000 000 inhabitants within a variable/undefined travel distance. The provision guideline accounts for density (population per land area). (Green & Argue 2012: 28)





3.4.4. Water in Yeoville



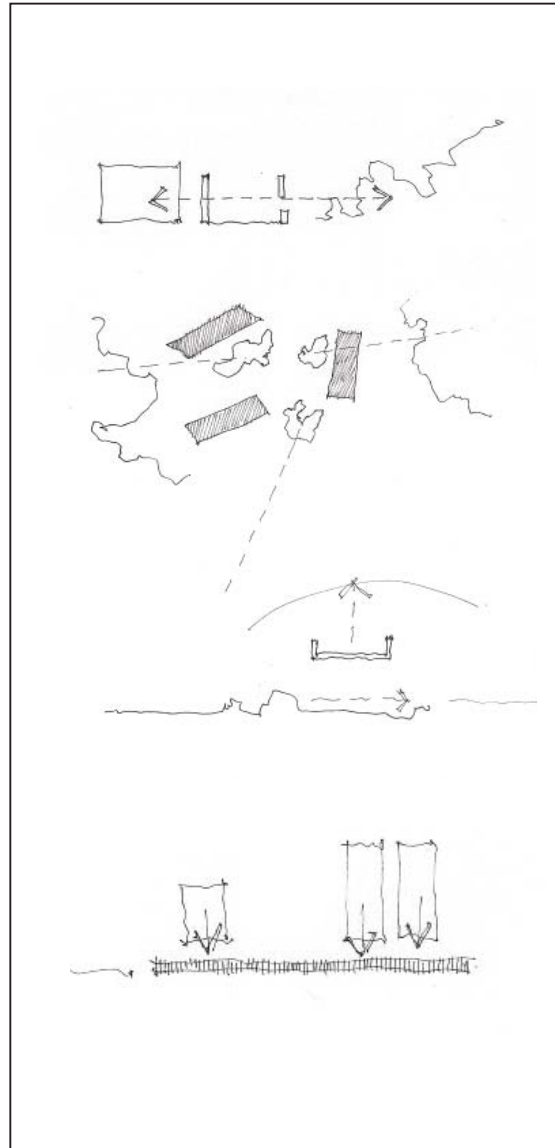
Mapping pools in the immediate vicinity



3.5. NOSTALGIA IN THE URBAN LANDSCAPE

The urge to somehow fix the landscape seems an expression of nostalgia. An attempt to hang on to a past is also the act of registering changes against the backdrop of a changing context. To expose the layered condition of the landscape we need only take one layer, the landscape as it is today and distil from it a fragment. This allows us to visualise the process of change in the landscape as a whole (Aben & De Wit, 1999:181). As a reworking of context the garden creates its own context through an architectural composition that summarizes the nature that it incorporates (Aben & De Wit, 1999:37). In the enclosed garden the progress of time is irrelevant. Eternity and the moment coincide. Linear time cedes to cyclic time. Static space materialises stationary time.

In Summary:
The development of our relationship with the natural landscape in the urban environment



PRECEDENTS

To further explore the relationship between built environment and natural landscape:

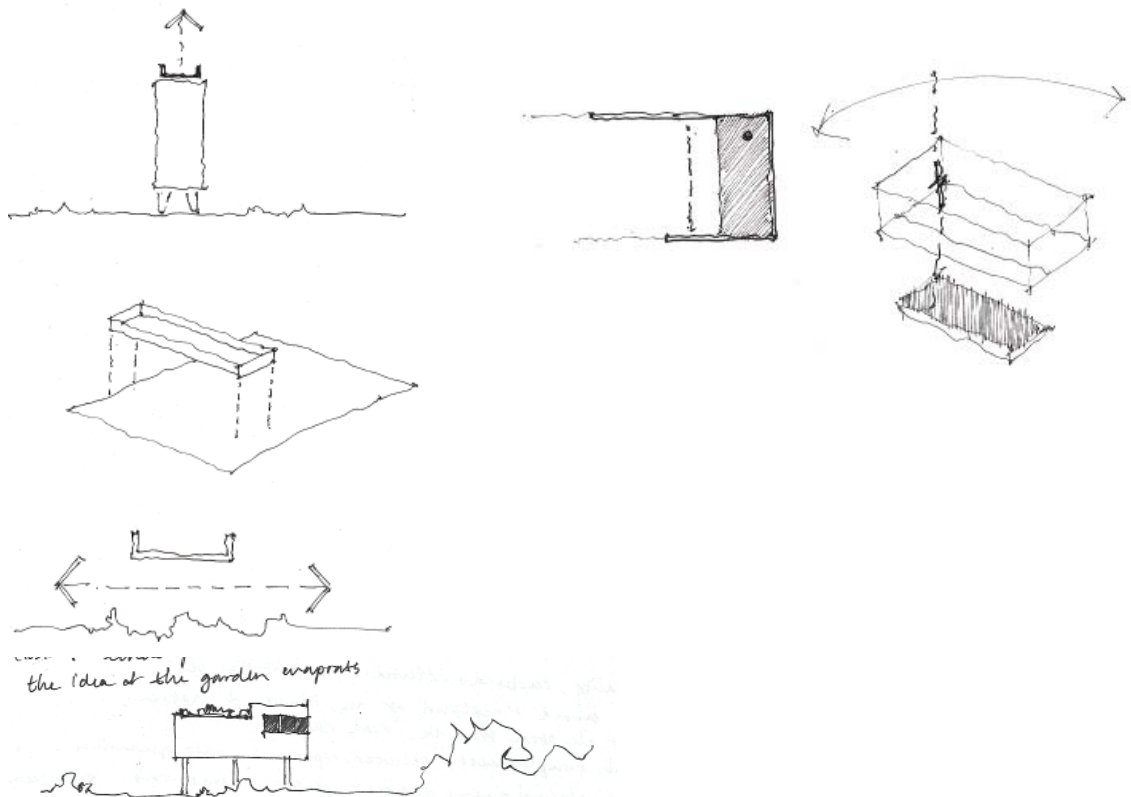
Unité d'habitation Cité radieuse, Le Corbusier, Marseille France, 1947-1952

If the functional garden is a limited domain in which nature is manipulated, the garden wall is neglected or with a grand gesture accommodated the whole world within. Where the enclosed garden once represented the world, the whole world had to become the garden. At Cité radieuse the rooftop becomes the roofscape, a functional plane that substitutes the building's relationship with its natural landscape with a social platform composed of leisure facilities and spaces that includes a nursery, running track, gymnasium, solarium and pools for paddling and swimming.

At Villa Savoye the relationship between man and nature is also taken on by the building without the intercession of a garden. The house is a free standing object on an untouched landscape. The free forms of the garden on the roof plane further detaches it from the house.

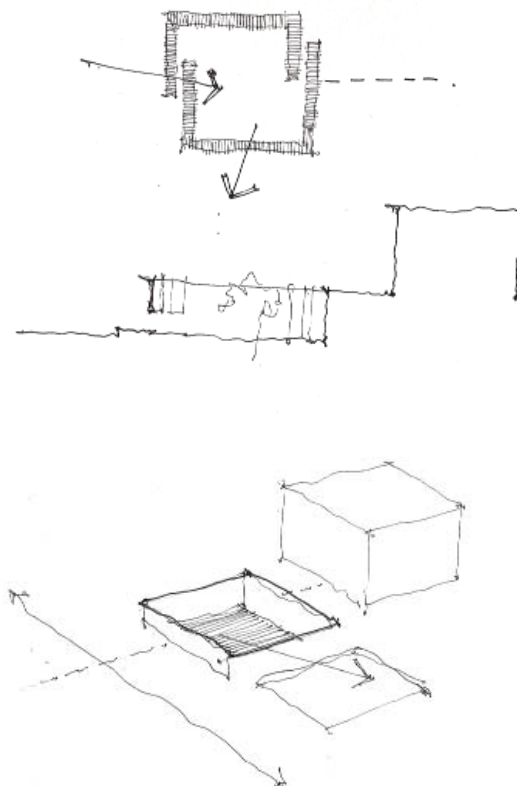
The German Pavilion, Ludwig Mies van der Rohe, Barcelona Spain' 1929

In the instance of the German Pavilion the enclosed garden is not a go-between but as a means of anchoring a centrifigural and continuous composition where inside and outside is intertwined. Typifying the sequence of the landscape, pavilion and patio sequence is a constant reversal between the absence and presence of context. The patio at the Pavilion is an inversion of the enclosed garden. Exterior space is condensed into the enclosed patio, the only space of the Pavilion that completely shuts out its surroundings. Movement in the space is restricted to the narrow strip of the gallery. The closed box with three walls and gallery is a static frame with a female statue placed off-centre, giving a vertical axis to the introverted space. The statue draws attention to the sky above and her reflection in the water below. The patio is motionless and timeless. Through its abstraction of form and material it is also a void that transcends the limitations of the rectangle.



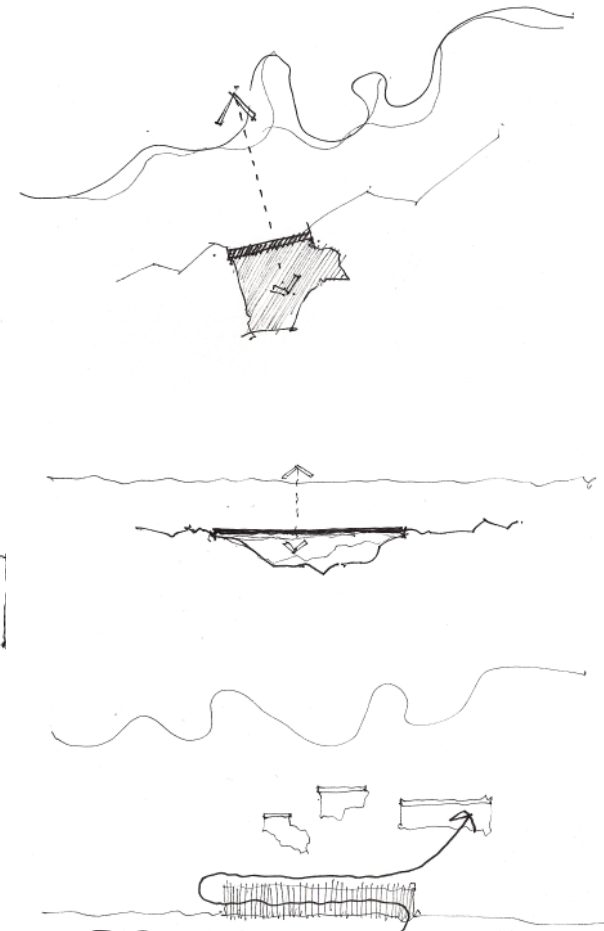
**Louis-Jeantet Research Institution,
TER Landscape Architects Geneva
Switzerland
1993**

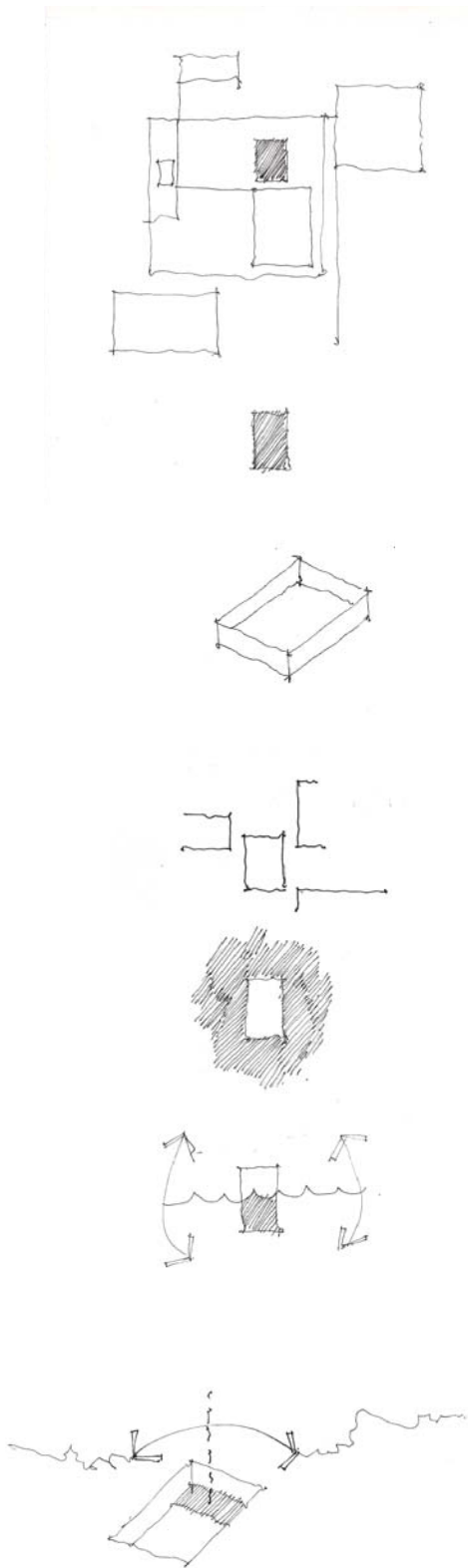
A sunken enclosed garden responds to urban infrastructure while revealing the historical layers of its context through spatial composition. The garden is the entrance to a new underground auditorium of the Research Institute. It is enclosed by two interlocking channels with a ramp poking out of the garden wall with a dark cave like opening as the only way the auditorium and the garden reveal their presence to the city. The garden is a decompression chamber that filters the sound of the city, reduces its speed with an abstract representation of nature with water trickling from the top of the interlocking channels. Its lowered ground plane renders it a spatial inversion of the existing villa and the auditorium takes its own place on the formal and linear series of street – garden – villa with an acute angle that intersects the garden.



**Leça Swimming Pools,
Alvaro Siza, Leça de Palmeira Portugal
1966**

The horizon of the natural landscape of the ocean is fragmented into rock pools that contain and simulate their greater environment. The abstraction of the landscape, a process of scaling that brings the limitless horizon into reach, transcends the manmade boundaries of the pool to an ironic tactile reconciliation of man and nature.





Fragmentation is an inherent condition

Fragments have physical and non-physical edges

Fragments with physical edges in the city can introduce new spatial typologies for urban public space

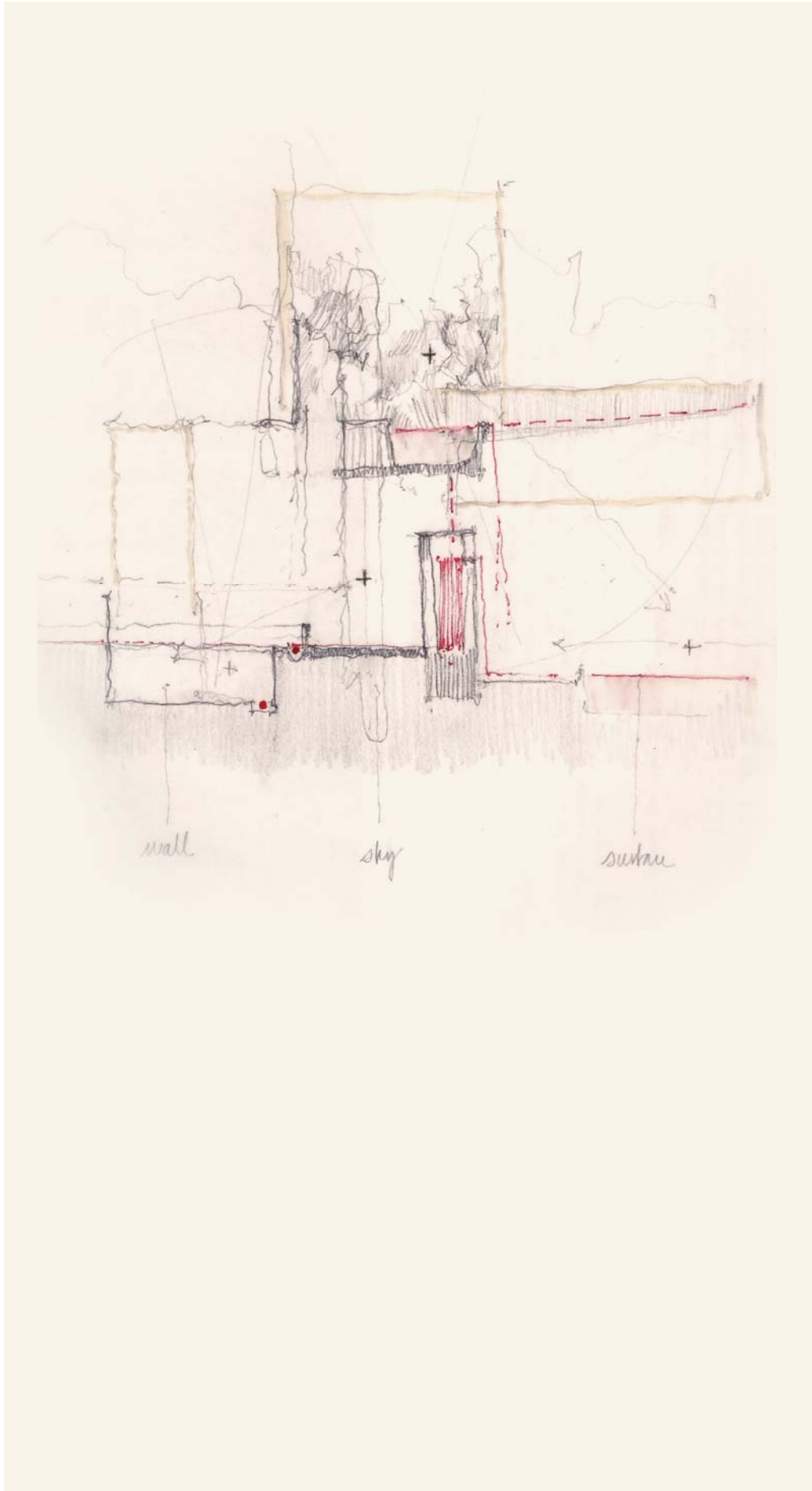
The nature of their edges isolate them from their immediate environment

If they contain a natural element, a fracture thereof or an abstraction of a natural element, these spaces can reconnect urban inhabitants with their natural environment

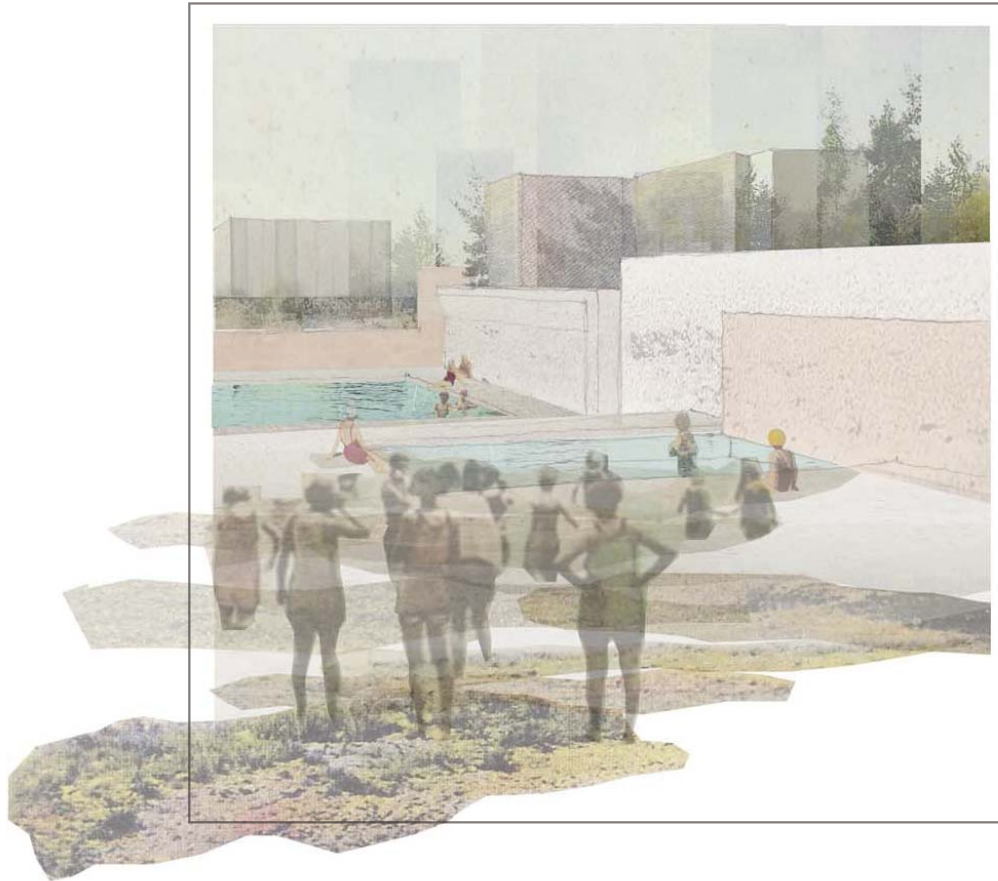
A swimming pool is an example thereof and also acts as a social condenser. Through the act of play with the universal element of water, it transcends non-physical boundaries and becomes a valuable artefact to unravel the socio-political climate of a place.

INTERMISSION 3 A SYNOPSIS OF THE STUDY



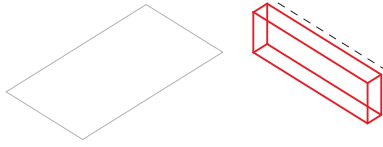


4. DESIGN INTERVENTION

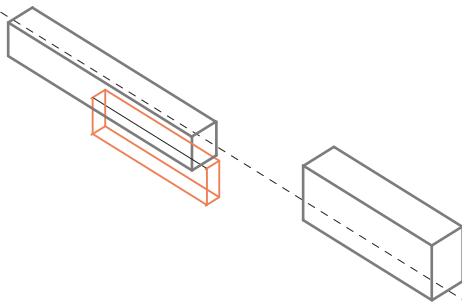


The scheme proposes the use of water for leisure as a means to establish a relationship between the city's users and the natural environment. In the pursuit of responsive urban place making, control is taken over the effect of fragmentation on urban development in the park, and the fantastical nature and use of water is considered in public urban spaces where it has largely been absent.

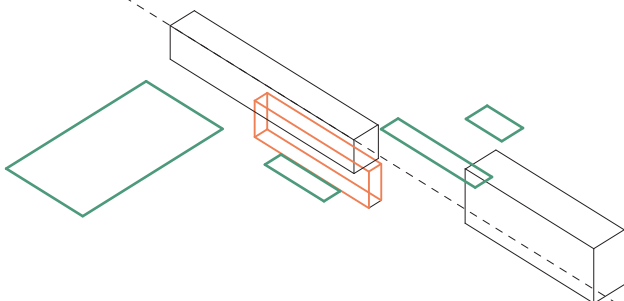
The existing pool is a critical catalyst in the use and form of the new design and a critical component in the design's conception of space. Its programme of recreation and swimming is the primary programme of the scheme. This implies that water is the first material and next catalyst in the conception of space. The collection of water takes prominence and becomes the organisational median for the design in the form of a reservoir. The nature of the spaces of enclosure that contain the original programme of swimming and also contain water were the drivers for the new courts that facilitate the new programmes that are dependant on the reservoir.



THE COLLECTION OF WATER TAKES PROMINENCE AND BECOMES THE ORGANISATIONAL MEDIAN FOR THE DESIGN IN THE FORM OF A RESERVOIR

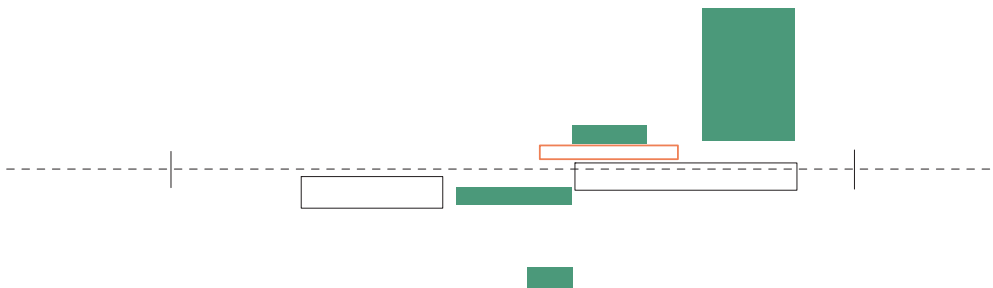
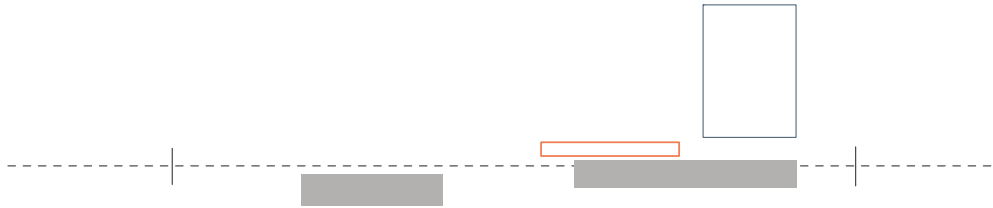
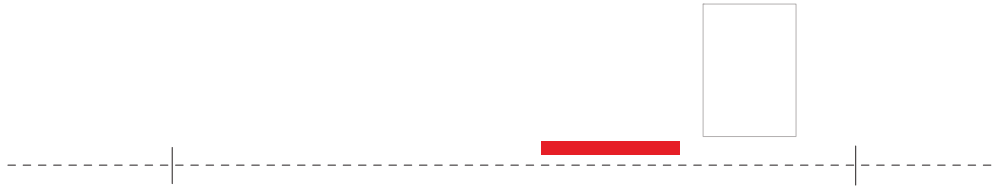


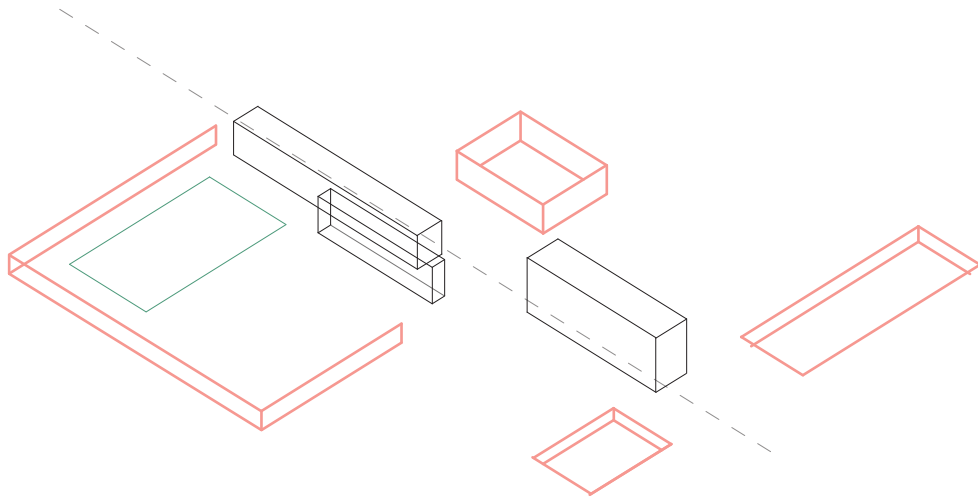
WATER DISTRIBUTED FOR CLEANSING (HAND WASH, FOOT WASH, BODY WASH, WATER CLOSETS) RESULTS IN A SERVICE CORE THAT IS AN EXTENSION OF THE RESERVOIR



WATER DISTRIBUTED FOR SWIMMING (EXISTING POOL, WADING POOL, HYDROTHERAPY POOL, LAP POOL)

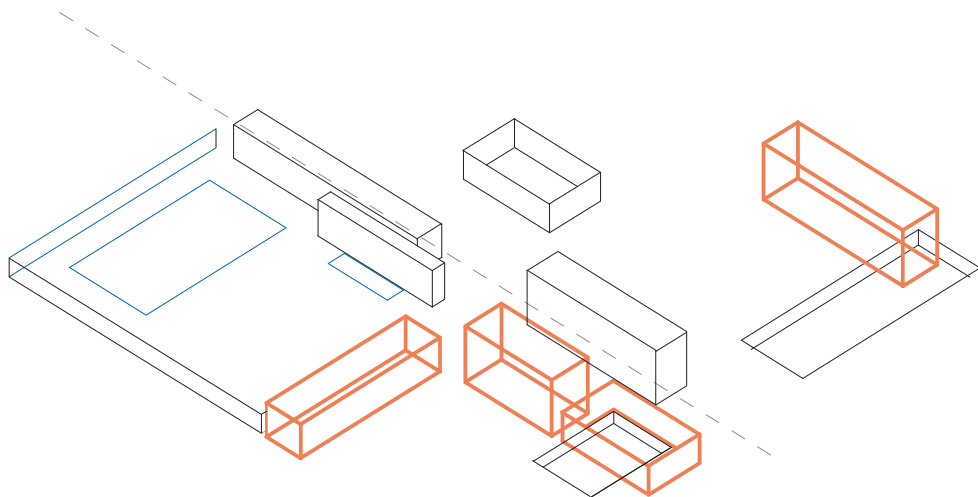
SPATIAL COMPOSITION





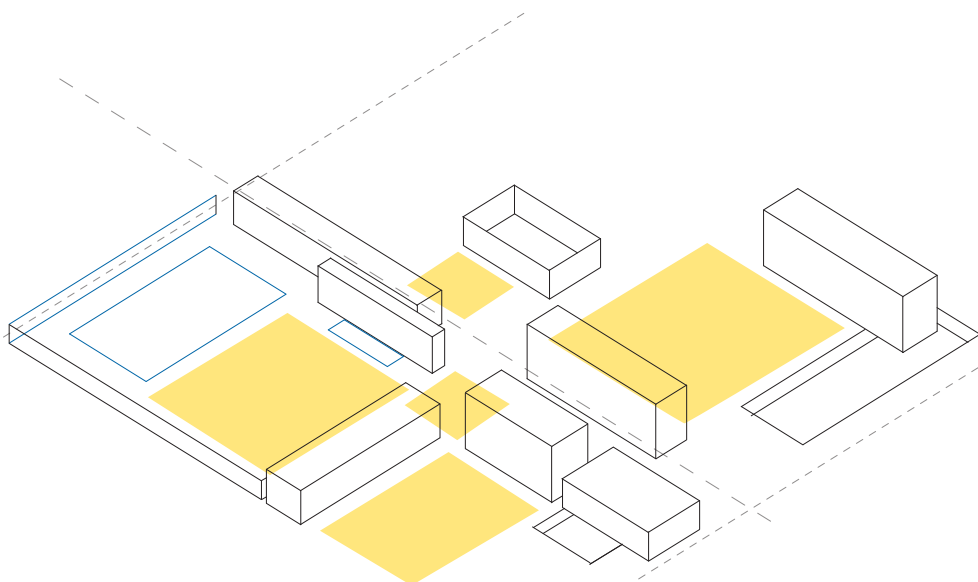
BY MANIPULATING GROUND PLANE, ENCLOSURE CREATED WITH BOUNDARIES THAT DISTANCES BUT DOES NOT EXCLUDE ACTIVITY IN THE SPACES FROM EVERYDAY LIFE. AID IN SPACES OF RETREAT.

PERFORMANCE ARENA
DAY CARE PLAY COURT
EXISTING POOL COURT
HYDROTHERAPY COURT

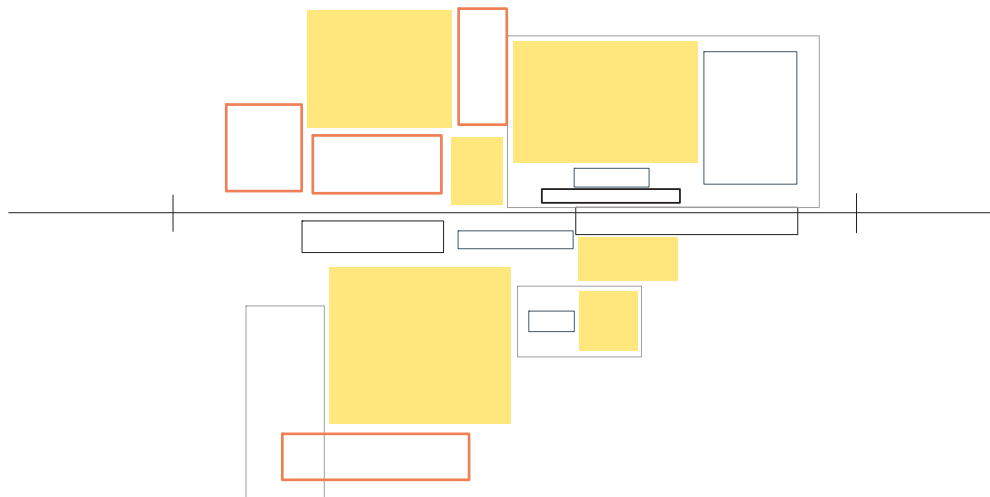
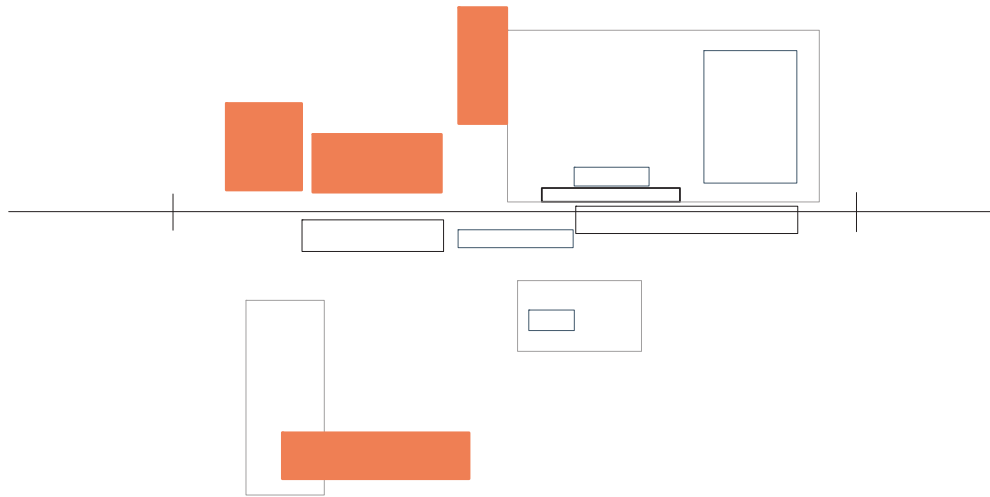
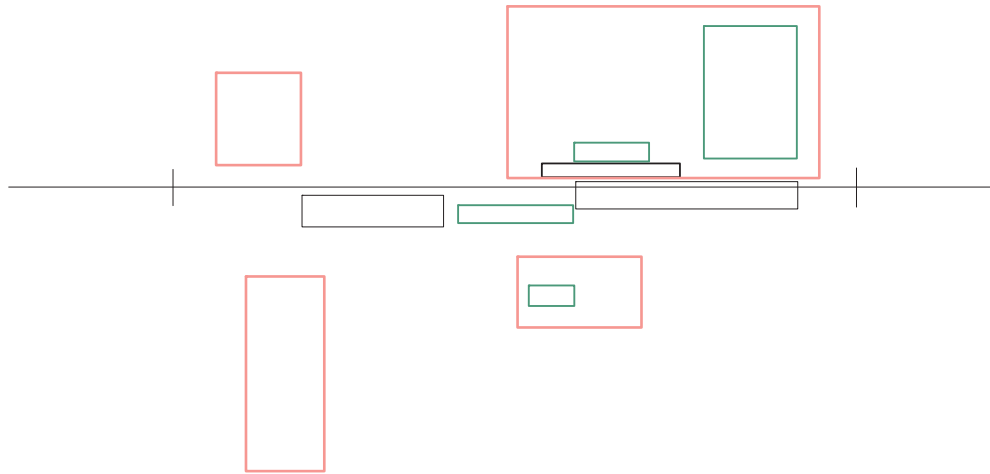


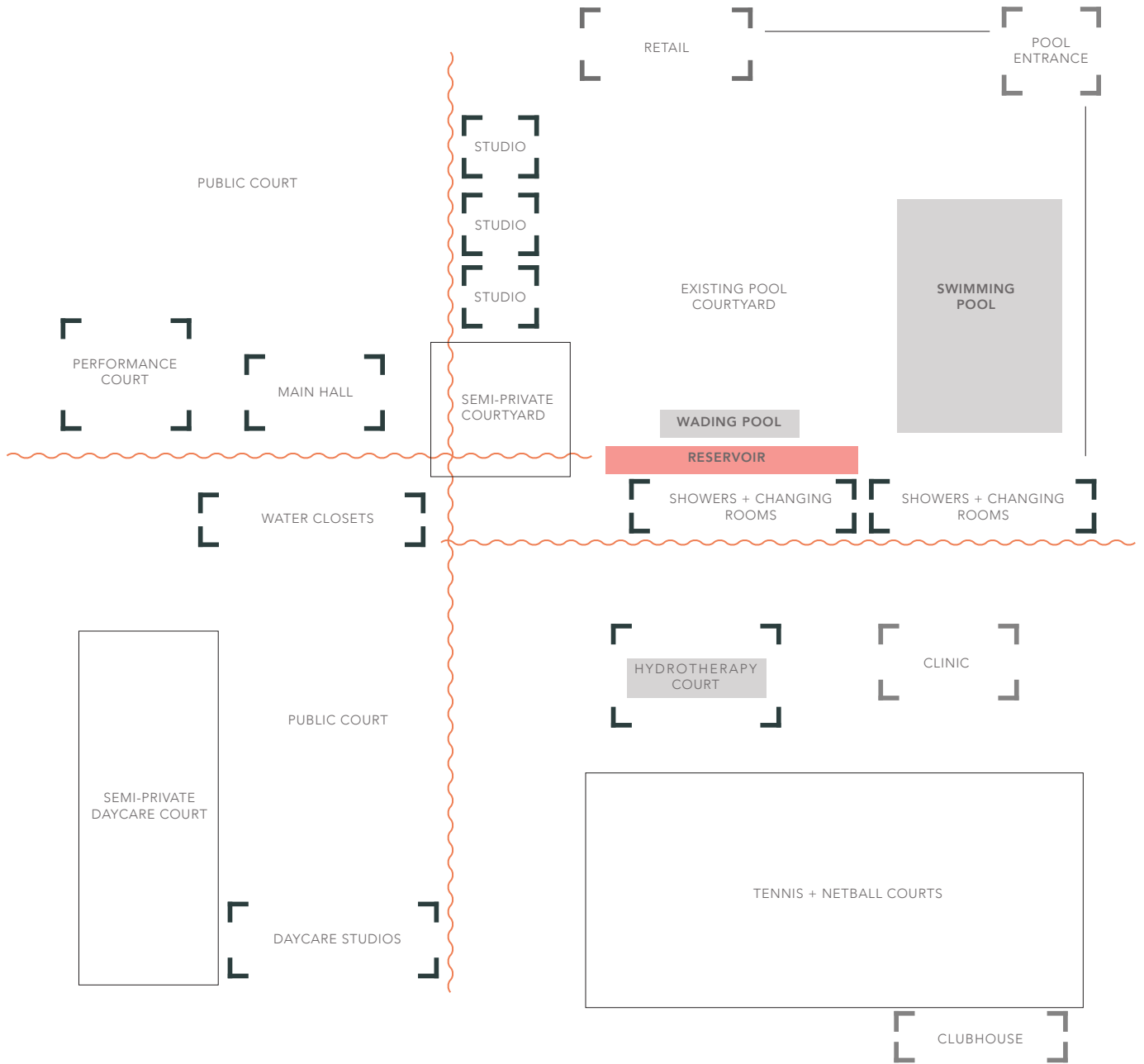
ANCILLARY PROGRAMMES:

MAIN HALL AND GYMNASIUM
PERFORMANCE ARENA
STUDIOS
DAY CARE

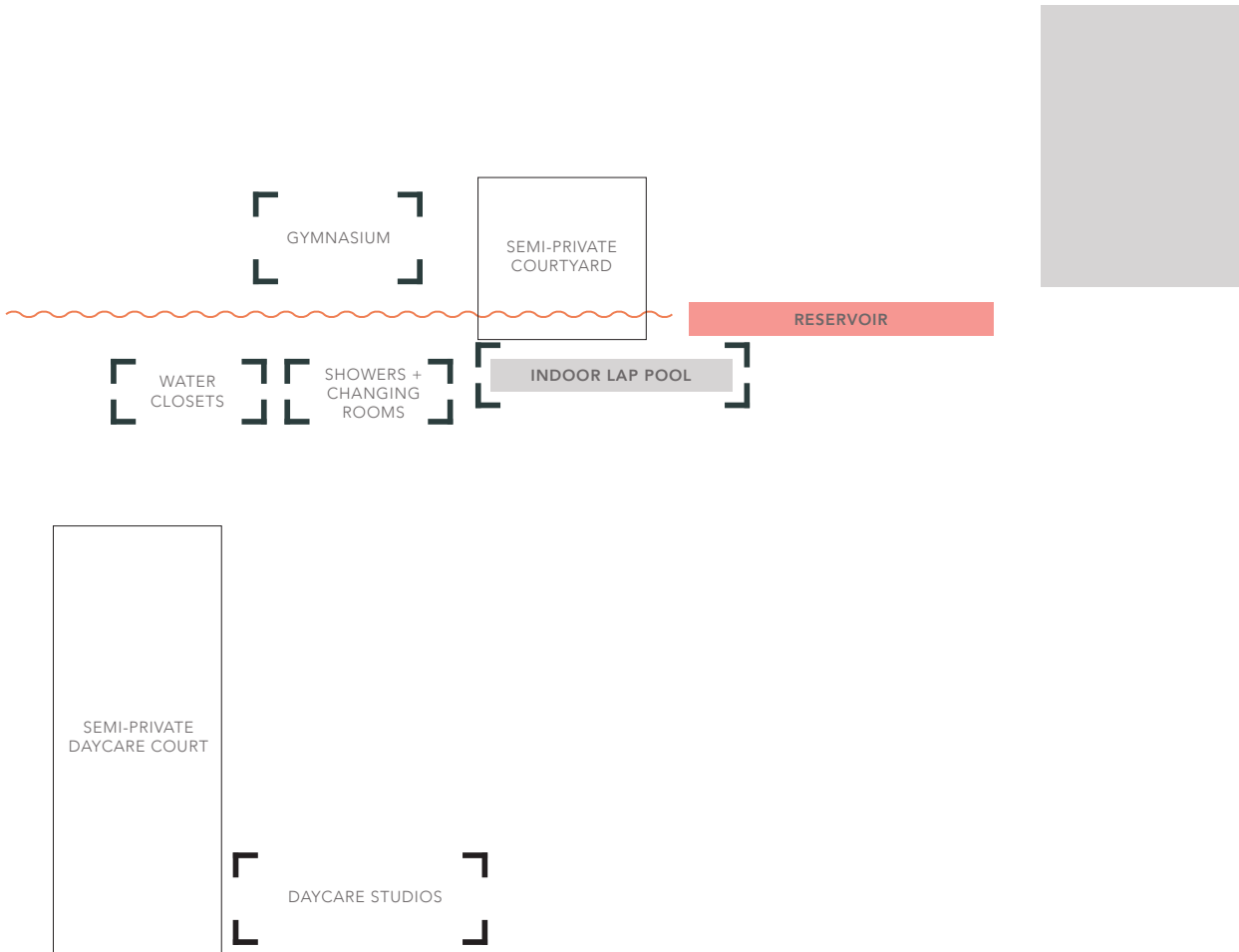


INTERSTITIAL COURTS

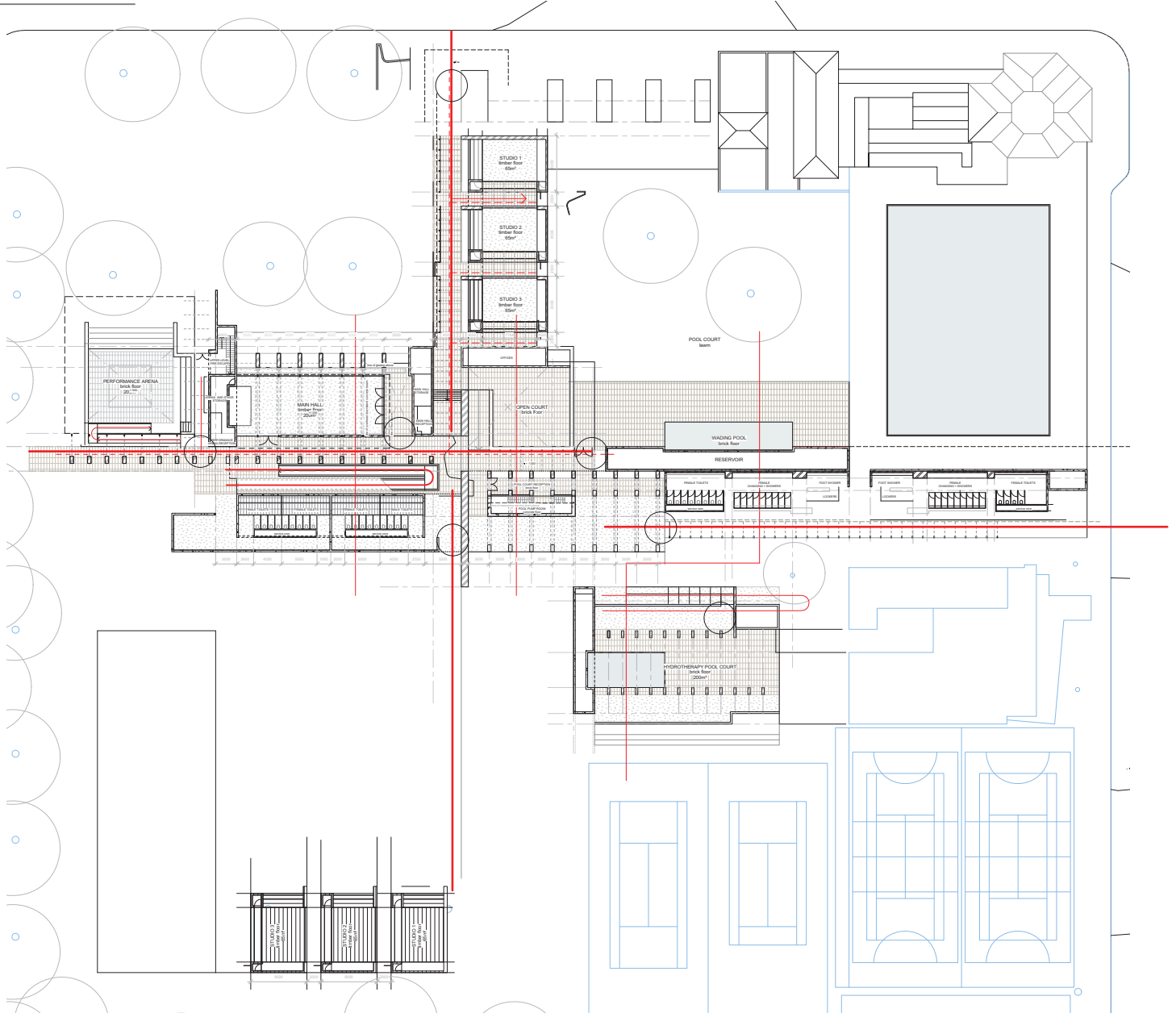




PROGRAMME + CIRCULATION
GROUND LEVEL



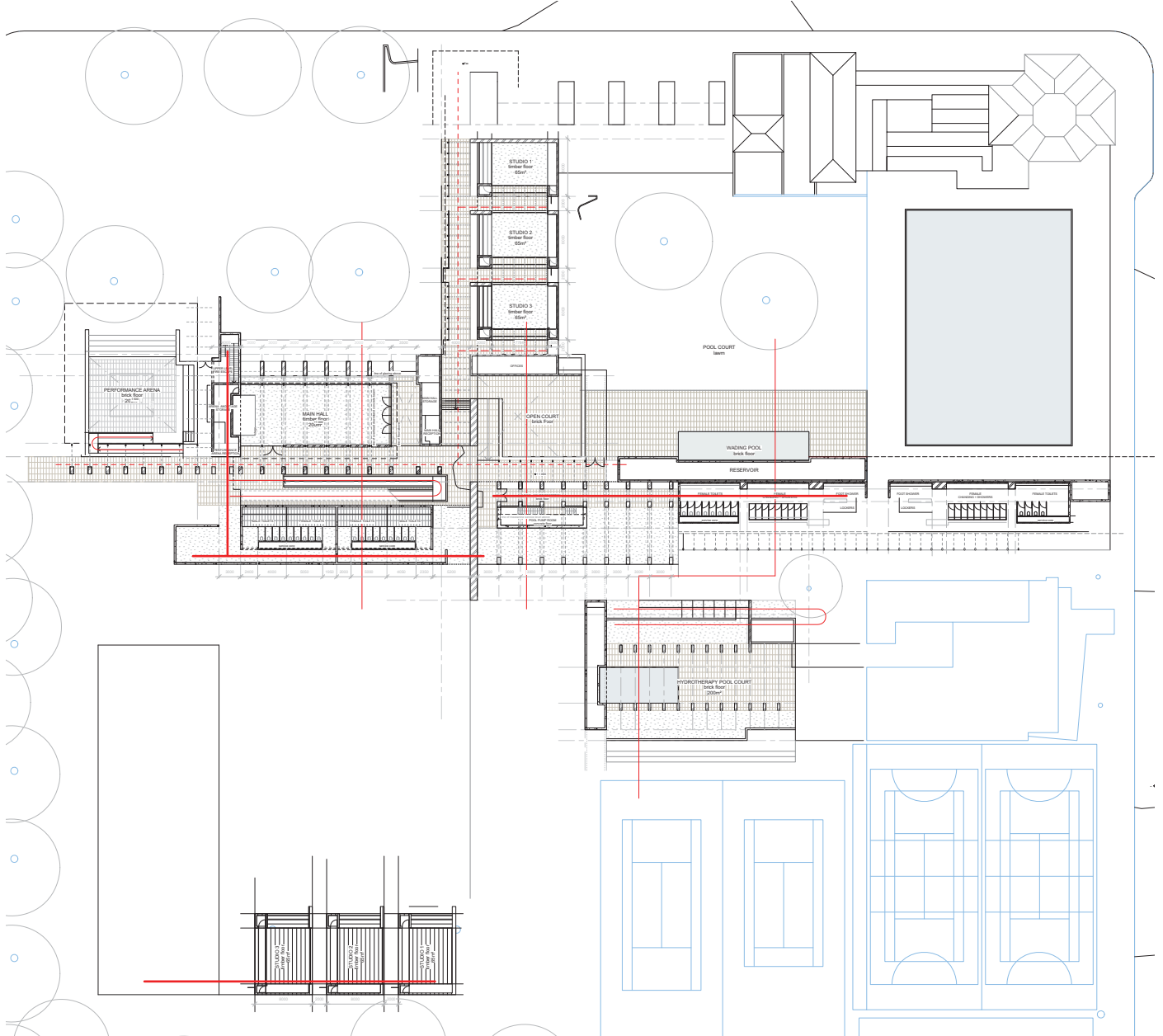
PROGRAMME + CIRCULATION
LEVEL 1



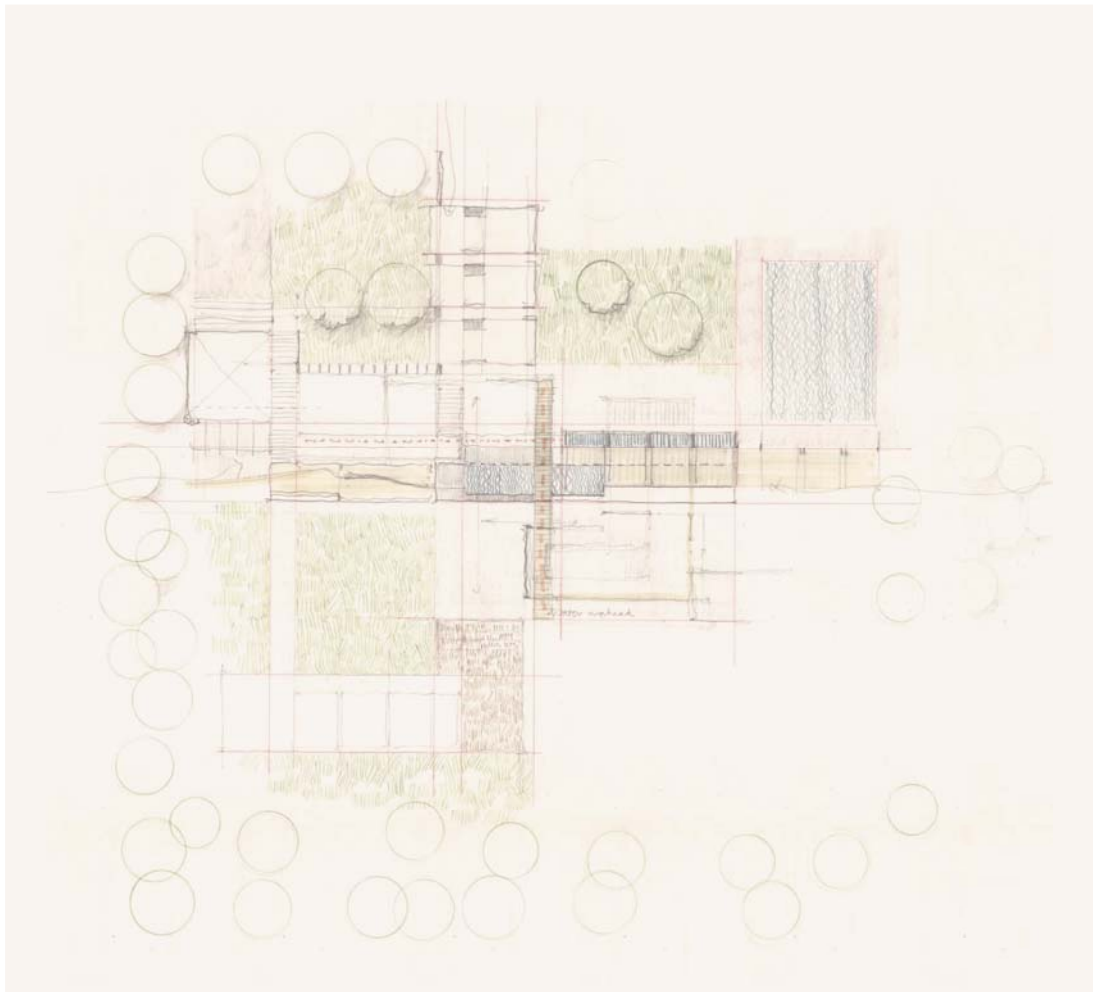
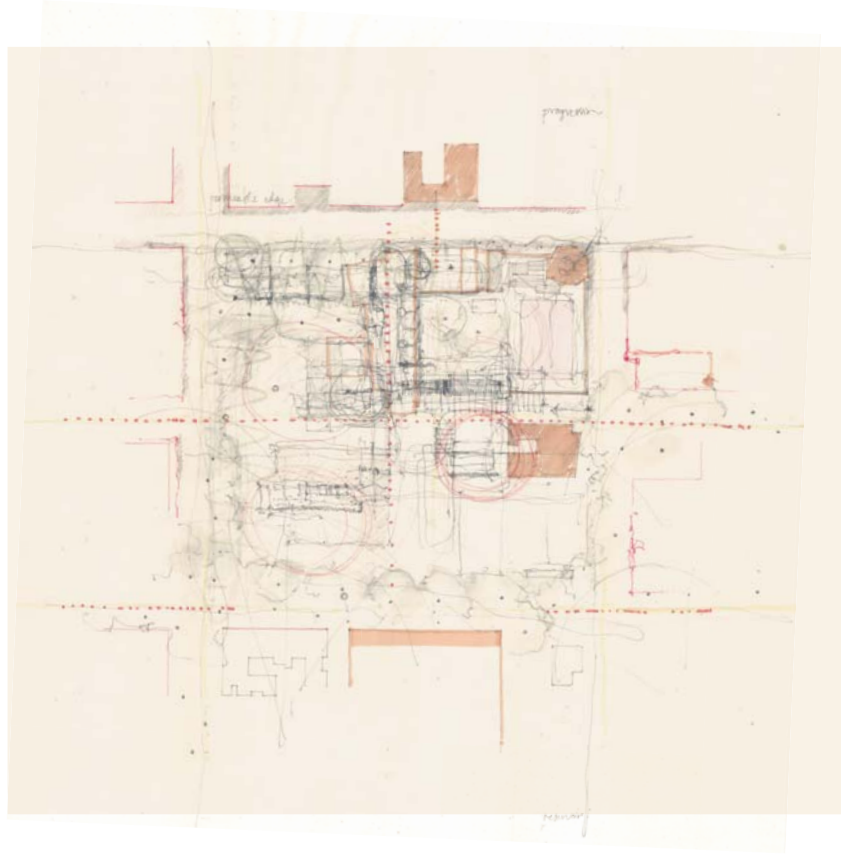
ACCESS

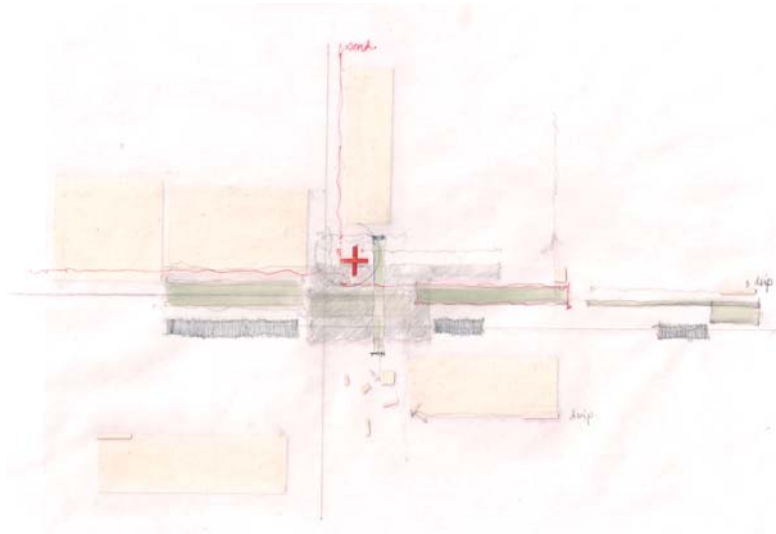
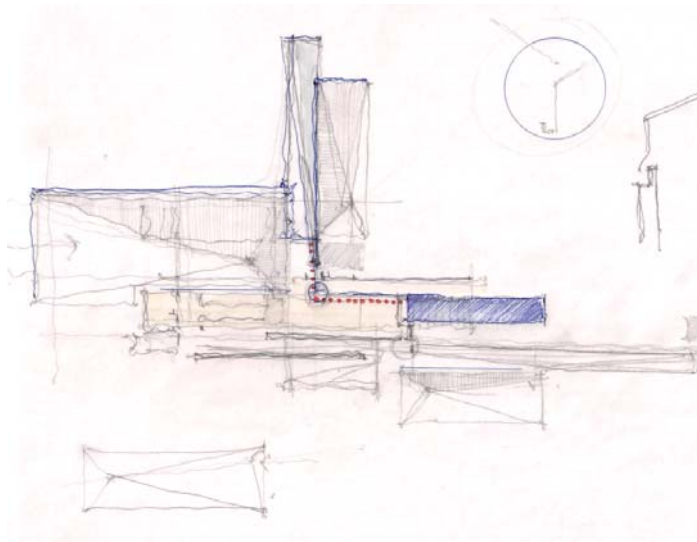
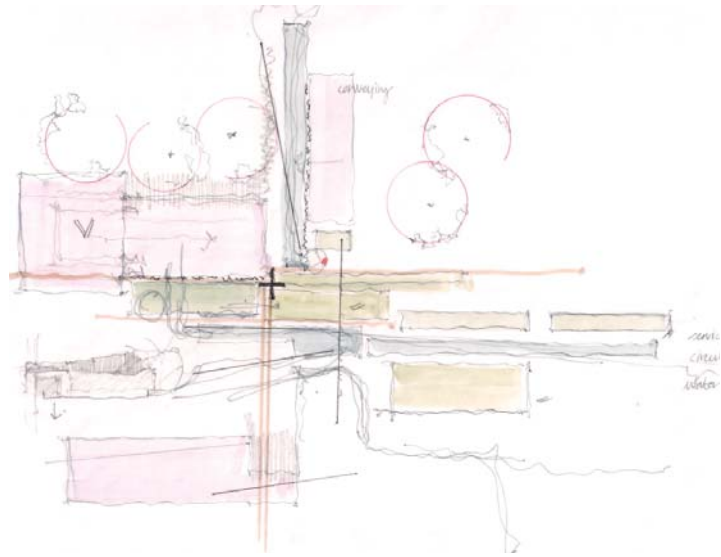
CIRCULATION
SIGHT LINES

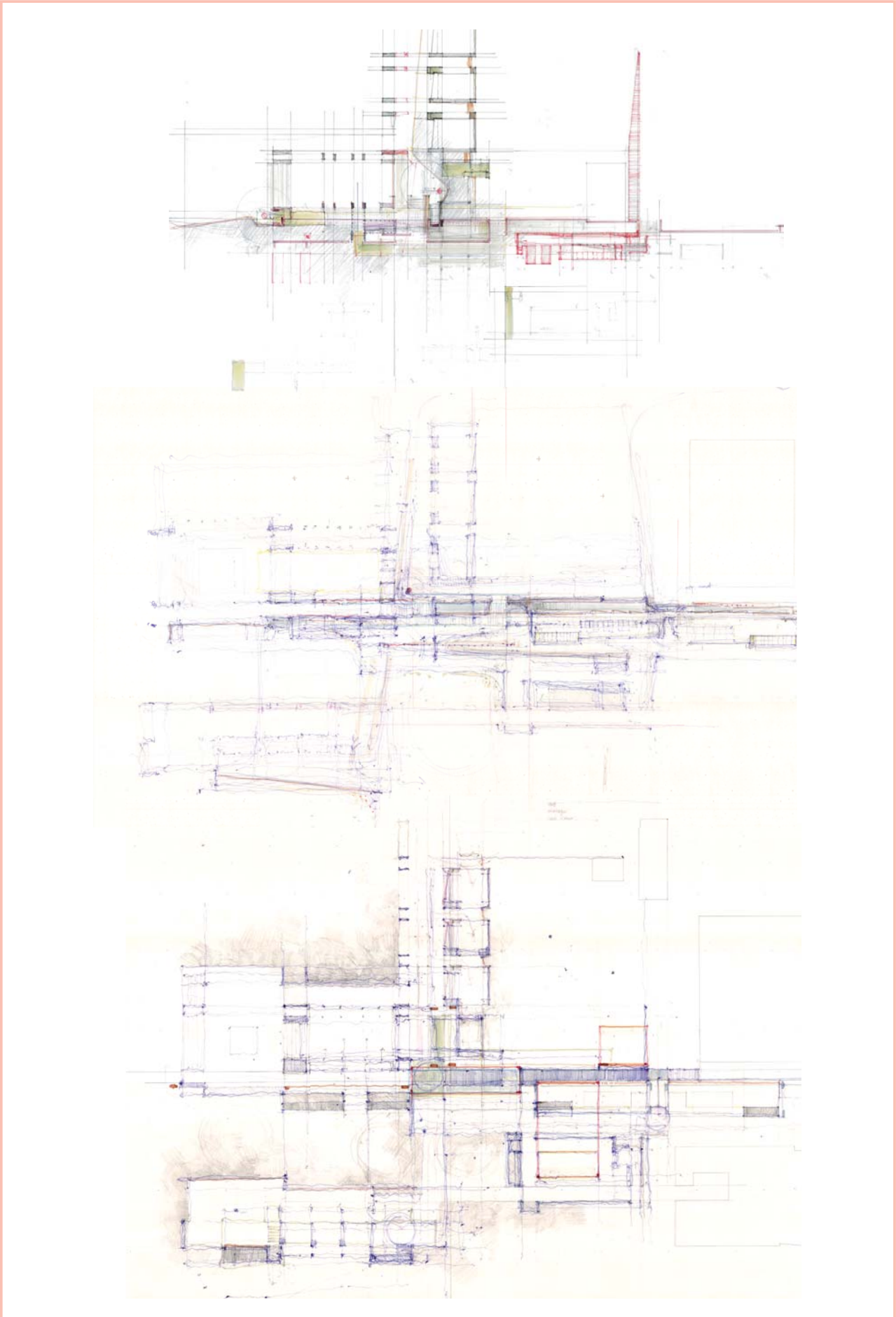
GROUND FLOOR

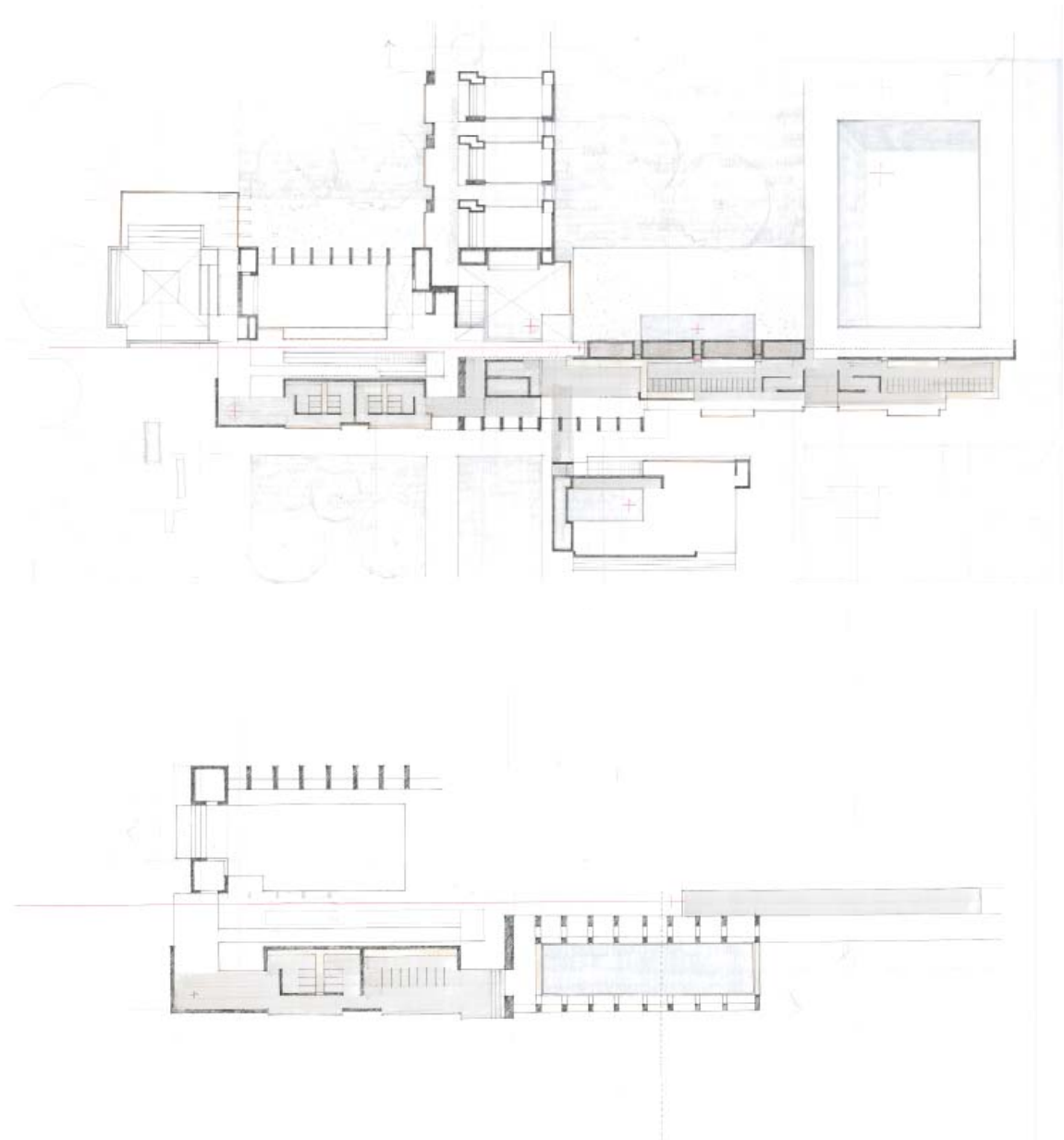


ACCESS
CIRCULATION
SIGHT LINES
FIRST FLOOR

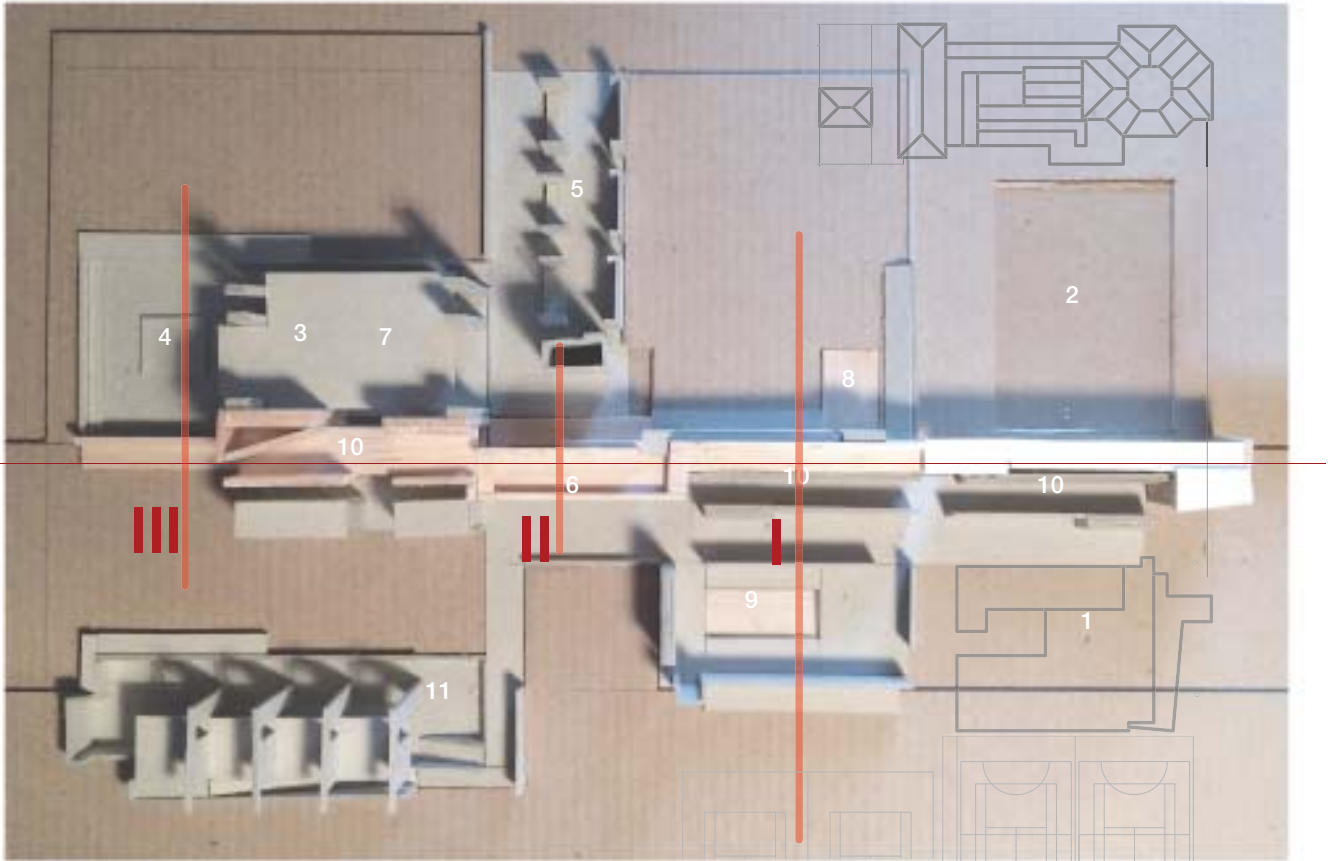








PLAN DEVELOPMENT



EXISTING 1 YEOVILLE CLINIC 2 YEOVILLE SWIMMING POOL

ADDITIONAL 3 PUBLIC HALL 4 PUBLIC STAGE 5 PUBLIC STUDIOS 6 INDOOR SWIMMING POOL 7 GYMNASIUM 8 WADING POOL 9
HYDROTHERAPY POOL 10 CHANGING ROOMS + ABLUTION 11 DAYCARE + AFTER-SCHOOL CARE

PROGRAMME



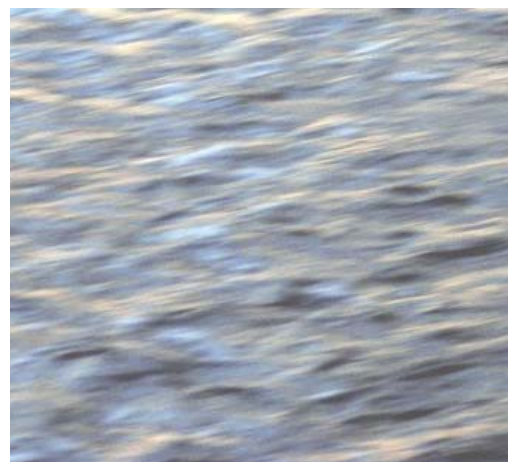
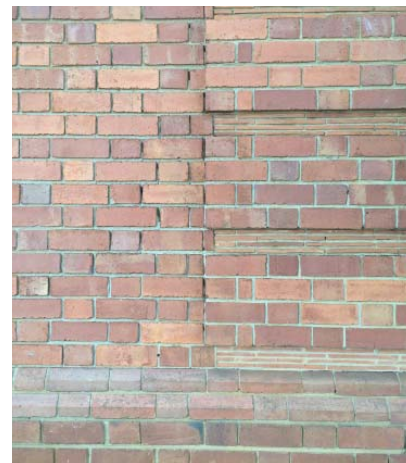
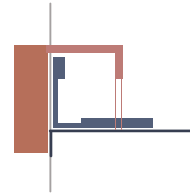


5. DESIGN ENRICHMENT

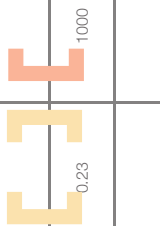
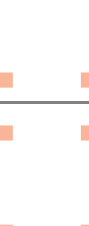

In this chapter the technology that is used to realise the spatial principles of Chapter 4 is elaborated on. Technology is unpacked in materials and composition. The Material Library Table onpg. 90 is a compilation of significant materials in the design and their intrinsic values. The table forms the vocabulary that articulates the relationship between the materiality of the spaces and their natural environment. These values range from the quantitative to the qualitative and are arranged in a manner that highlights each material's relation to the natural elements of water and the sun. Of this compilation of materials, concrete is elaborated on for its critical role as water container in the scheme and clay brick technology is further investigated for the value it adds to the relationship between city users and their natural environment. The pallet of materials are then brought into composition at critical points in the design to illustrate the concepts that drive the experience of and connections between the materials.

5.1. MATERIALS

The **water plane** is a **monolithic concrete element**. The rationale of the water container gives form to its navigation which in turn conceals and erodes the container according to the programmes in its adjacent courtyards. A **brick skin mediates** the interstitial spaces between the courts, users and the water plane. The modular nature of the brick plane allows a plastic manipulation of the skin to facilitate interaction with the water reservoir and its users.

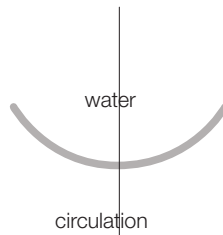




	C2	C3	C4	C5	C6	C7	C8	C8	C8	C10
	SUN									
	WATER									
	MATERIAL	APPEARANCE AND TOUCH	PERMEABILITY	WATER VAPOUR RESISTANCE FACTOR	DENSITY KG/M3	THERMAL CONDUCTIVITY W/(M K)	SPECIFIC HEAT CAPACITY J/(KG K)	THERMAL MASS (KJ/M3.K)	NOTES	
RA										
RB										
R1				<p>WATER VAPOUR IS TRANSPORTED THROUGH POROUS MATERIALS. PREDOMINANTLY BY VAPOUR DIFFUSION.</p> 	<p>A HIGH DENSITY INDICATES A HIGHER HEAT CONDUCTIVITY. LOW DENSITY MATERIALS MAY CONTAIN AIR WHICH HAS A LOW CONDUCTIVITY.</p> 	<p>THE RATE AT WHICH HEAT PASSES THROUGH A SPECIFIED MATERIAL.</p> 		<p>THE ABILITY OF A MATERIAL TO STORE HEAT. BUILDING MASS PROVIDES THERMAL DAMPING</p>		
R2	BITUMEN FELT/SHEET			50 000	1 100	0,23	1000			
R3	<p>CONCRETE</p> <p>MEDIUM DENSITY HIGH DENSITY REINFORCED (WITH 1% OF STEEL) REINFORCED (WITH 2% OF STEEL)</p>	<p>CONCRETE DARKENS TEMPORARILY IN COLOUR WHEN WET AND PERMANENT STAINING MAY BE CAUSED BY THE FLOW OF RAINWATER WHICH COLLECTS AND DEPOSITS DIRT. WET CONCRETE'S TEXTURE REMAINS UNALTERED.</p>	<p>IT IS POROUS AND PERMEABLE. WATER COMPROMISES THE DURABILITY OF A CONCRETE STRUCTURE AND IS SUBJECT TO DETERIORATION WHEN WATER AND WATER BORNE CHEMICALS PENETRATES IT. CONCRETE IS WATERPROOFED WITH A BITUMINOUS LAYER.</p>	<p>100 120 130 130</p>	<p>1800 2400 2300 2400</p>	<p>1,15 2,0 2,3 2,5</p>	<p>1000</p>	<p>2060</p>	<p>CONCRETE IS STEREOTOMIC AND DOES NOT DISCLOSE ITS INNER WORKINGS. ITS SURFACE LAYER WITHHOLDS AN UNDERSTANDING OF ITS COMPOSITION AND HOW IT WORKS AND PORTRAYS ITS CONGLOMERATE NATURE. THE QUALITY OF THE CONCRETE SURFACE CHARACTERISES THE SPACE AS A WHOLE AND IS PREDISPOSED TO THE ABSTRACT. CONCRETE IS MALLEABLE DURING CONCEPTION BUT TURNS INTO ROBUST MATERIAL WHEN CAST GIVING IT A SENSE OF PERMANENCE.</p>	
R4	<p>BRICK</p> <p>FIRE CLAY MASONRY MORTAR</p>	<p>BRICK DARKENS TEMPORARILY IN COLOUR WHEN WET AND PERMANENT STAINING MAY BE CAUSED BY THE FLOW OF RAINWATER WHICH COLLECTS AND DEPOSITS DIRT WHICH IS LESS OBVIOUS THAN ONCRETE DUE TO THE UNEVEN TEXTURE AND COLOURATION OF ITS SURFACE. ITS TEXTURE IS SUBSEQUENTLY UNAFFECTED BY WATER. SMOOTH BRICKS MAY BECOME SLIPPERY WHEN WET.</p>	<p>BRICK IS POROUS AND PERMEABLE AND HAS GRADES OF EFFLORESCENCE. THE AVERAGE WATER ABSORPTION OF CLAY BRICKS IS BETWEEN 6-14%. BRICK CAN BE WATERPROOFED WHEN A SILICA FRIT IS APPLIED AS FLUID AFTER WHICH IT IS FIRED TO FORM A WATERPROOF PROTECTIVE LAYER OF GLAZED CERAMIC FROM.</p>	<p>16 20</p>	<p>1000-2400 250-2000</p>	<p>0,44</p>	<p>1000 1000</p>	<p>1360</p>	<p>BRICK MASONRY IS A WEAVED STEREO-TOMY WITH A NETWORK OF JOINTS IN THE RHYTHMIC ROWS OF KNOTS. THIS GIVES IT A RICH TEXTURE DEFINED BY THE LIGHT AND SHADOWS CAST ON THIS NETWORK OF COUNTLESS JOINTS. WHEN BRICK IS MADE FROM THE EARTH IT GIVES FORM TO IT, IT BECOMES OF THE PLACE AND A CONTEXTUAL INTERVENTION. THE FORM OF BRICK IS CHARACTERISED BY MODULARITY.</p>	



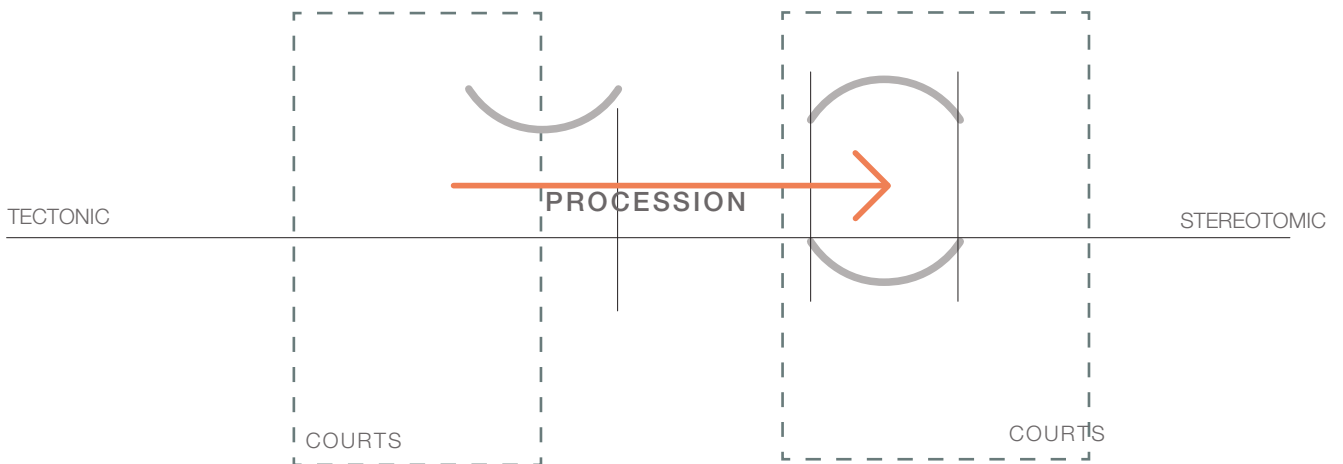
										LEADS IT TO MANUAL IMPLEMENTATION. FORMAT	STEEL TECHNOLOGY IS BASED ON THE LOGIC OF BEING REDUCED TO THE ESSENTIALS - THE SIMPLEST ECONOMIC FORMULA. IT IS BASED ON PRAGMATISM AND IS A TECHNOLOGY THAT IS STRONGLY ASSOCIATED WITH STRUCTURAL LOADBEARING (IT IS THE "HIDDEN AID" IN COMPOSITE CONSTRUCTION).	
											ITS TIES WITH INDUSTRIALISATION MEANS THAT THE MATERIAL IS REGARDED AS UNNATURAL AND PREFABRICATED OFF-SITE. RENDERING IT AN A-CONTEXTUAL MATERIAL. ITS APPLICATION AND PRODUCTION IS BASED ON REPETITION AND STANDARDISATION AND IT IS CONSIDERED A COLD CLEAN AND PRECISE PERMANENT MATERIAL.	
											WOOD IS A NATURAL OR RAW PRODUCT WITH PROPERTIES OF IRREGULARITY. IT FINDS APPLICATION IN STANDARDISED AND PREFABRICATED PANELS OR BOARDS THAT LENDS IT A TECTONIC NATURE. THE MATERIAL IS SUPPLE/TENSILE QUALITY AND APPEALING HAPTIC QUALITY DUE TO ITS RESISTANCE TO HEAT TRANSFUSION. IT IS CONSIDERED A LIGHTWEIGHT MATERIAL AND CAN BE CONTEXTUAL WHEN INDIGENOUS TIMBER IS USED TO REFLECT ITS ENVIRONMENT.	
											GLASS REFLECTS OUR WORLD, ITS SURFACE STEPS BACK FROM ITS OWN BODY AND THE MATERIAL - DESPITE ITS TRANSPARANCY - AWAKENS THE IMPRESSION THEREFORE TECTONIC AND STEREOTOMIC AT THE SAME TIME. ITS MAIN PURPOSE IS TO LET THROUGH LIGHT. IT IS TRANSPARENT, HARD AND PRECIOUS OR BRITTLE.	
R5	FERROUS METALS STEEL STAINLESS STEEL CAST IRON, WROUGHT IRON, COR-TEN	TREATED STEEL HAS NO DISCOLOURATION AS WATER DOESN'T PENETRATE THE MATERIAL. SMOOTH AND TREATED STEEL IS SLIPPERY WHEN WET. THE SOUND OF WATER MAY ALSO RESONATE ON THE MATERIAL. UNTREATED STEEL WILL CORRODE LEAVING A PATINA OF RUST AND A ROUGH WEATHERED SURFACE.	STEEL IS NON PERMEABLE BUT UNTREATED STEEL WILL CORRODE (DEGRADATION DUE TO OXIDATION WHEN THE STEEL IS EXPOSED TO OXYGEN IN THE PRESENCE OF WATER). WATERPROOFING AND CORROSION PROTECTION MEASURES FOR STEEL INCLUDE HOT DIP GALVANISING, ZINC DUSTING, POWDER COATING, COPPER OR BRASS PLATING, PAINTING AND BAKED ENAMEL.	INFINITY	7800 7900	50 17	450 500					
R6	NON FERROUS METALS ALUMINIUM/ALLOYS COPPER ZINC TIN CHROMIUM (RESISTANT TO CORROSION)	ALUMINIUM ALLOYS, ZINC AND CHROMIUM HAVE NO DISCOLOURATION. THE SOUND OF WATER MAY RESONATE ON THE MATERIAL. A GREEN-BLUE PATINA APPEARS ON THE SURFACE OF COPPER (AND BRASS WHICH IS AN ALLOY OF COPPER AND ZINC) OVER TIME.	WATER DOESN'T PENETRATE THE MATERIAL AND NO WATERPROOFING MEASURES ARE APPLIED.	INFINITY	2800 8900 7200	160 380 110	880 360 380					
R7	TIMBER SOFT WOOD 0.14 HARD WOOD 0.16 HARD BOARD 0.20	VARNISHED TIMBER WILL NOT DISCOLOUR WHEN WET AND IS SLIPPERY WHEN WET	TIMBER HAS A POROUS STRUCTURE THAT IS DEGRADED BY WATER THAT CAN LEAD TO ROT AND DECAY. WATERPROOFING TIMBER INCLUDES A SURFACE COATING (SEALANTS AND VARNISHES) THAT CAN PREVENT MOISTURE FROM ENTERING THE SURFACE OF THE TIMBER. ADEQUATE VENTILATION AND A VAPOUR BARRIER IS NECESSARY IN COLD INTERIOR ZONES TO PROTECT THE TIMBER AGAINST CONDENSATION.	INFINITY	450 500 700	0.12 0.13 0.18	1600					
R8	GLASS SODA LIME GLASS (INCLUDING FLOAT GLASS)	GLASS HAS NO DISCOLOURATION. VISIBILITY IS IMPAIRED WHEN IT IS WET AND IT IS EXTREMELY SLIPPERY WHEN WET. GLASS CAN INDICATE THE PRESENCE OF WATER IN OTHER PHYSICAL STATES SUCH AS CONDENSATION. THE SOUND OF WATER RESONATES ON THE MATERIAL WITH A DAMPLED EFFECT.	GLASS IS NON PERMEABLE AND WATERPROOF.	INFINITY	2500	1.0	750					



5.2. COMPOSITION

The materials are brought together at critical points in the composition to illustrate the concepts that drive the experience of and connections between the materials. The composition characterises the form of spaces and guides the structure of the technology. The concept of composition is best described by the user's procession through the spaces in the scheme. The role that water plays in structuring the spaces is evident from Chapter 4. Now a tectonic skin, brick and concrete materialises the procession. In the procession, taken at any point in the design, the user's experience of the composition of materials can be placed on a spectrum which at one end, will start with the tectonic (or lightness) and end in the stereotomic (or heaviness). This spectrum also helps to give structure to the procession through space

through the notion of moving from one extreme to another. This procession will see the relationship with water start from a formal one (water collection) to a haptic one (water use). To best illustrate these two spectrums and their spatial material implications, the diagram indicates how circulation is experienced at the concave form of water collection and threatment, and progresses to the convex form of spaces where water is used and touched.



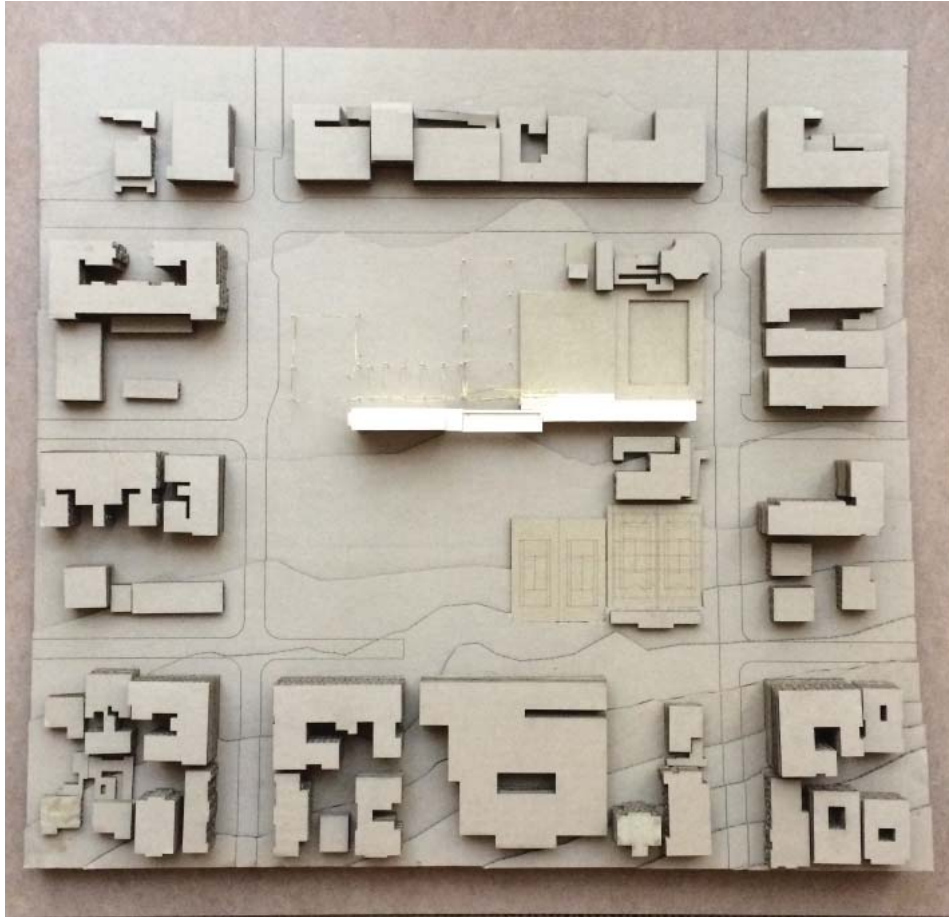
COMPOSITION OF MATERIALS

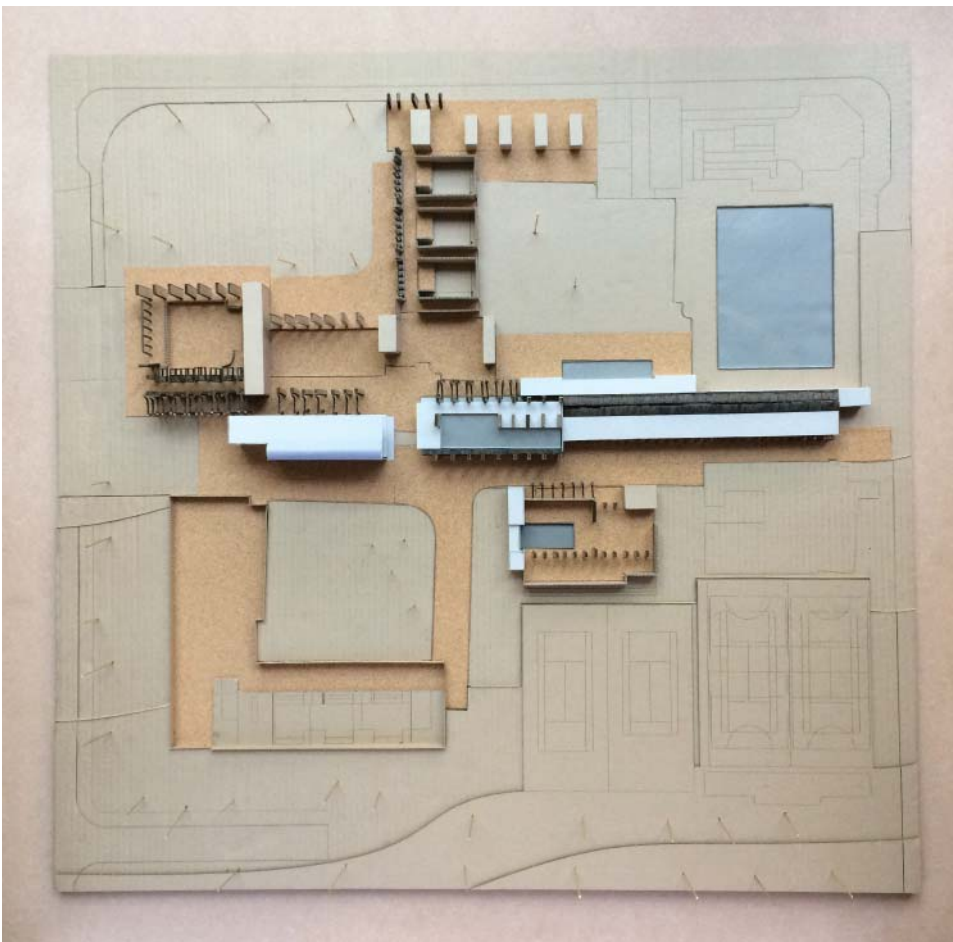
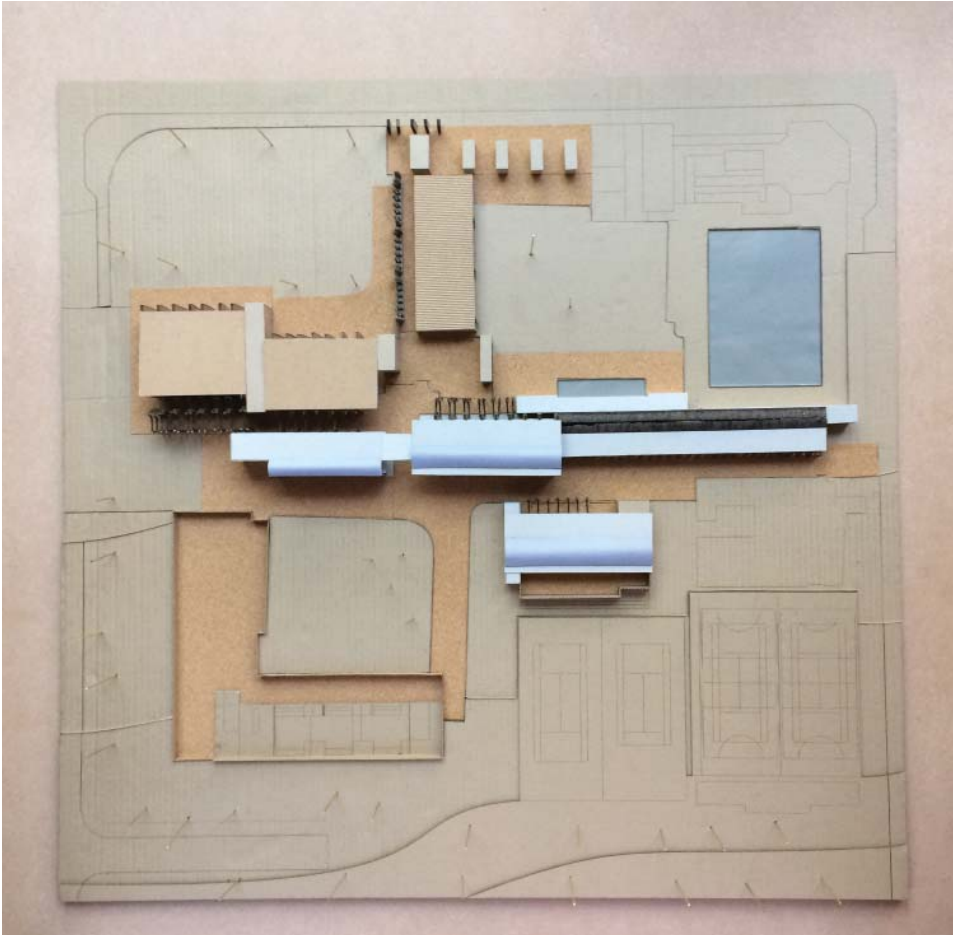
At the beginning of this spectrum of composition, a tectonic structure frames the circulation that leads the user from the most public ends of the context to water spaces. The frame is a steel column and beam structure that allows a layered skin to protect the users from the natural environment. The frame gives support to the concave form that transports roof water runoff to the reservoir. The convex steel bend forms the roof. The composition has a strong linear character and is based on repetition. Its form scales the circulation routes with the larger presence of the structures surrounding courts and scales it to a more intimate interior experience.

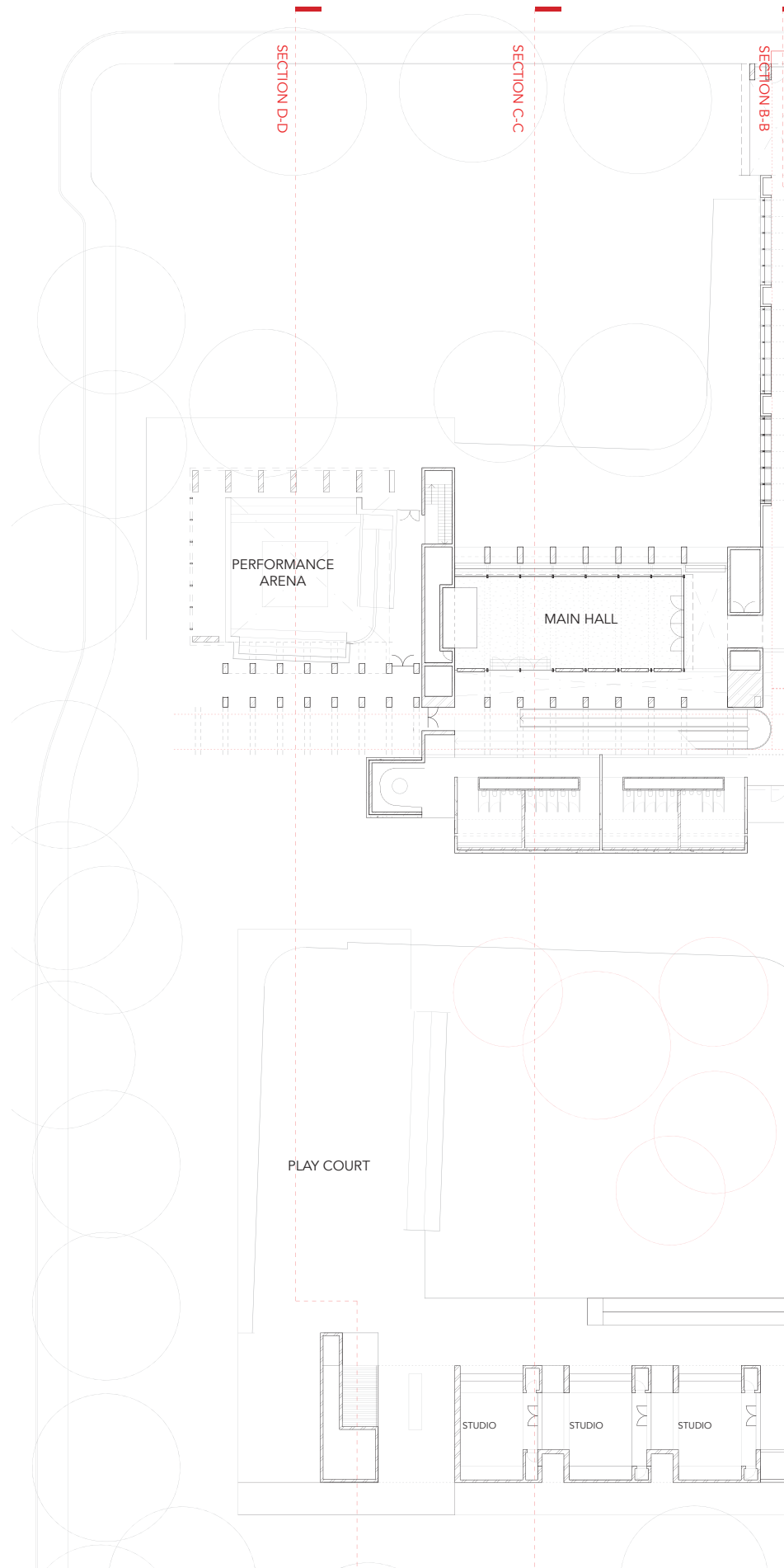
The next material in the procession of spaces is brick masonry. The connection between the steel circulation tectonic element and brickwork is expressed as being disconnected and dissimilar and achieved through shadow lines and convex turns and bends towards brickwork. Brickwork gives form to the interstices/conversion between circulation and water spaces. Brickwork is also an important contextual reference that it ties in with the historic masonry built fabric from the context. It acts as a lining membrane and finds application as a carpet that reaches out through the circulation arteries and courts. It also becomes a vertical lining

membrane for interstitial programmes. Its structure consists of self supporting walls, reinforced walls and rectangular columns. These ranges of columns gives control over sight lines from the public courts and controlled overlooked views from inside the spaces. The last and perhaps most prominent role of brick masonry is its connection with the next material in the procession composition - concrete. Here it acts as a mediating membrane between the user and concrete surfaces. It becomes a haptic membrane that brings concrete work to the scale of the individual. The membrane peels away from the concrete from where access to water is gained.

The final material that marks the destination in the composition of procession is concrete. It is the functional and monolithic container for water and water-based use spaces. Its convex nature results in vaulted spaces. It is cast in situ that lends a sculptural nature to the most private spaces. impenetrable nature. It is the central element to the design with a strong axis/alignment with the east west street. Its exterior is rough bush-hammered appearance that transforms into smooth and polished surfaces on its interior.

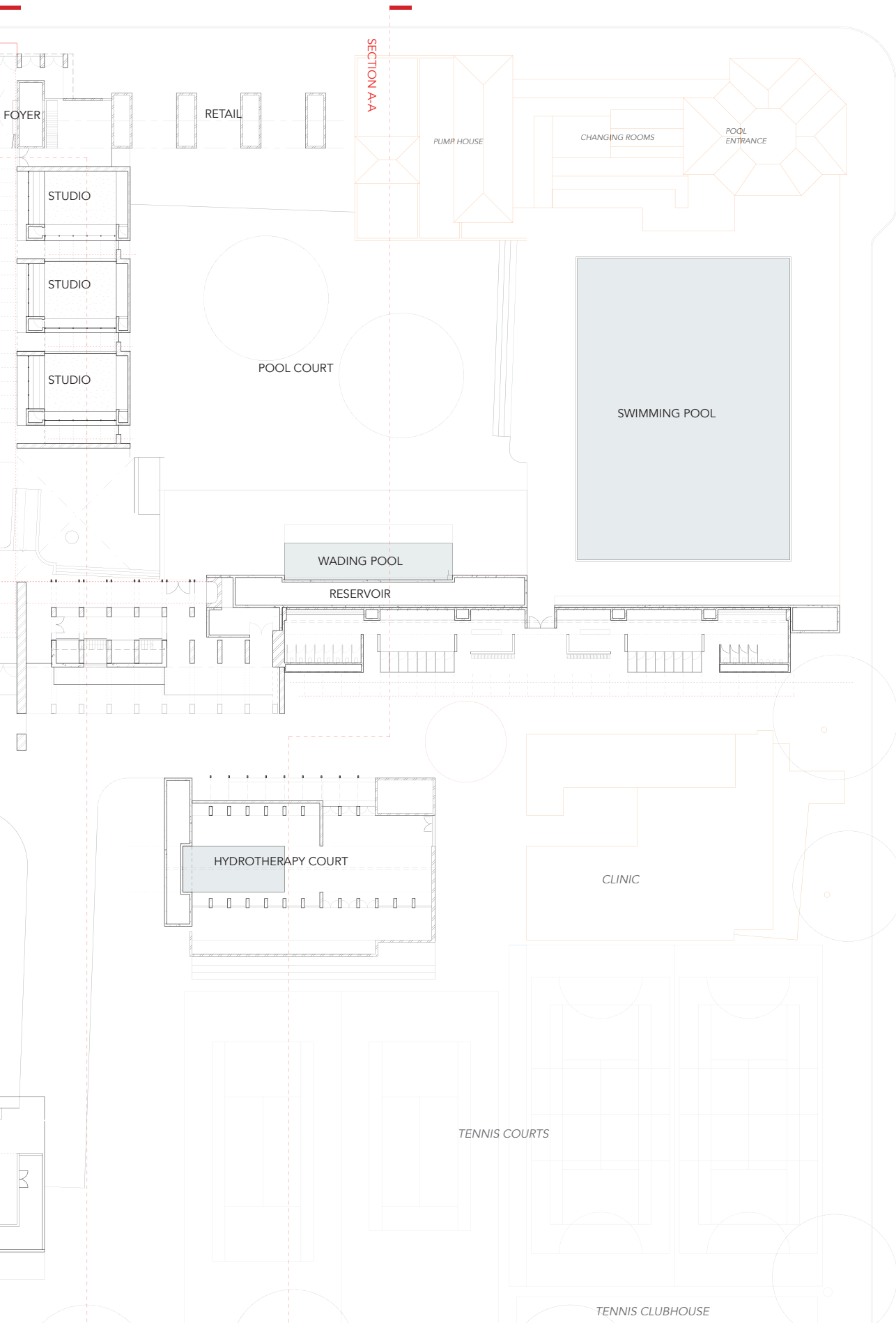




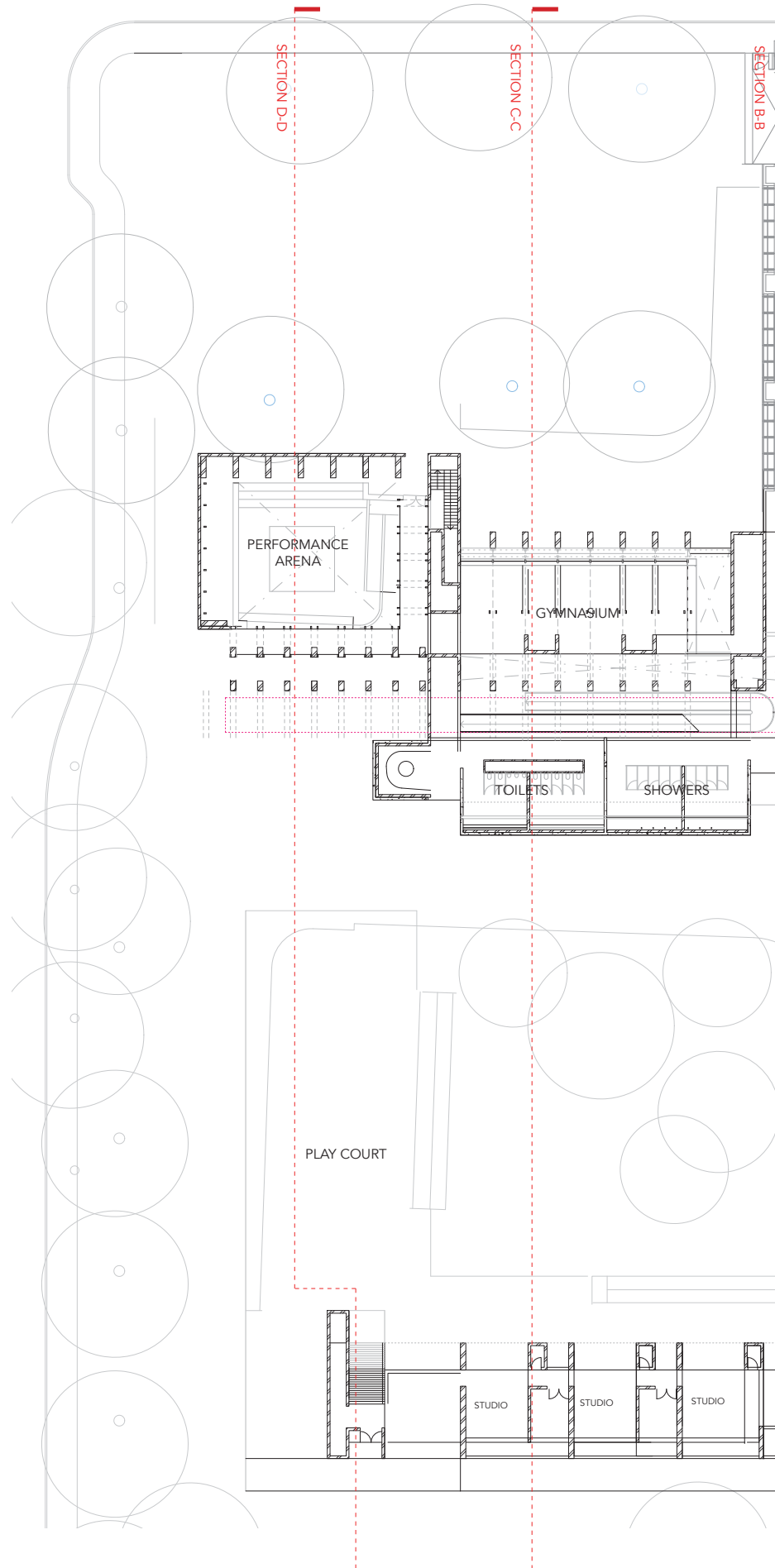




RALEIGH STREET

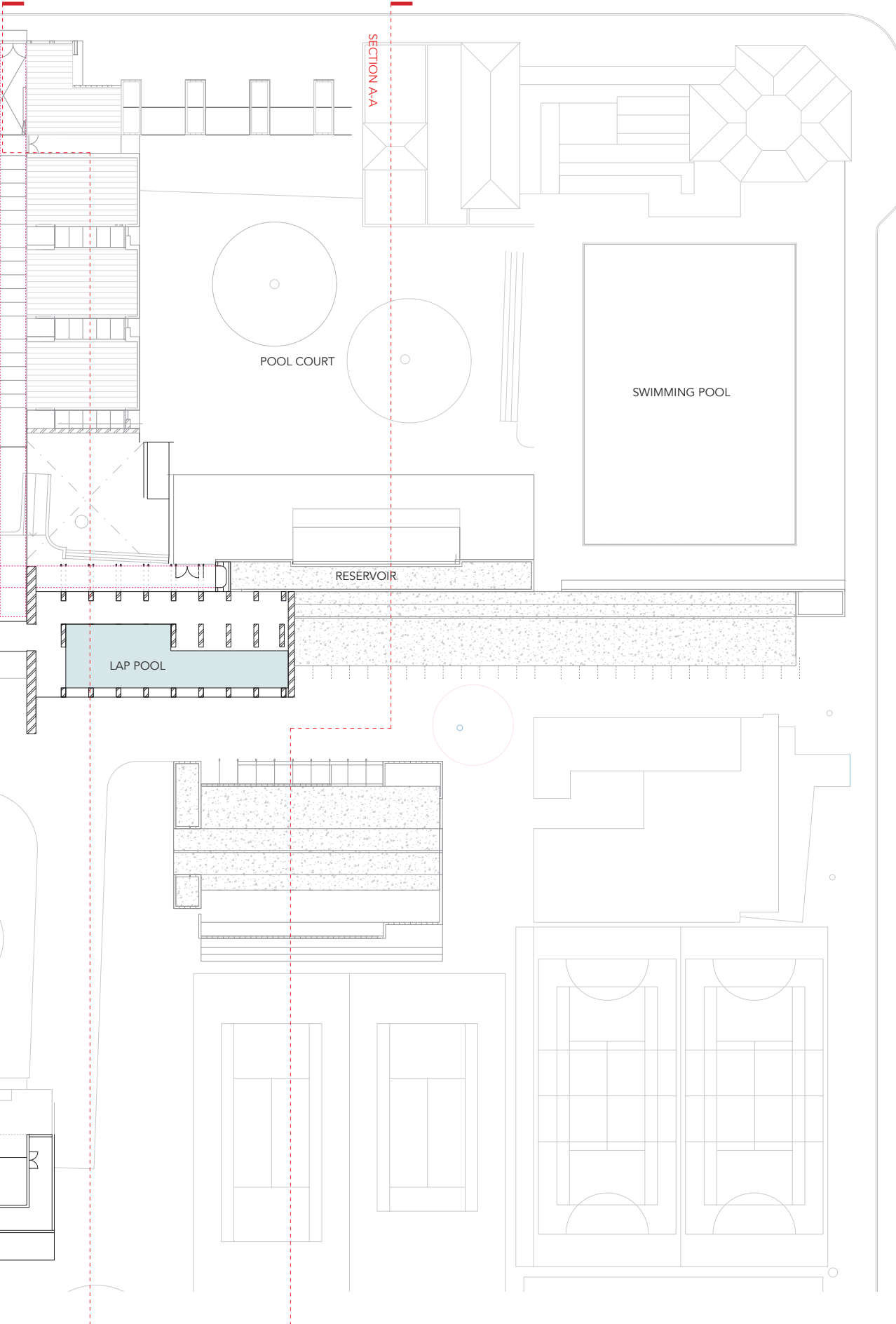


LOWER FLOOR LEVEL 1 1:200 NTS

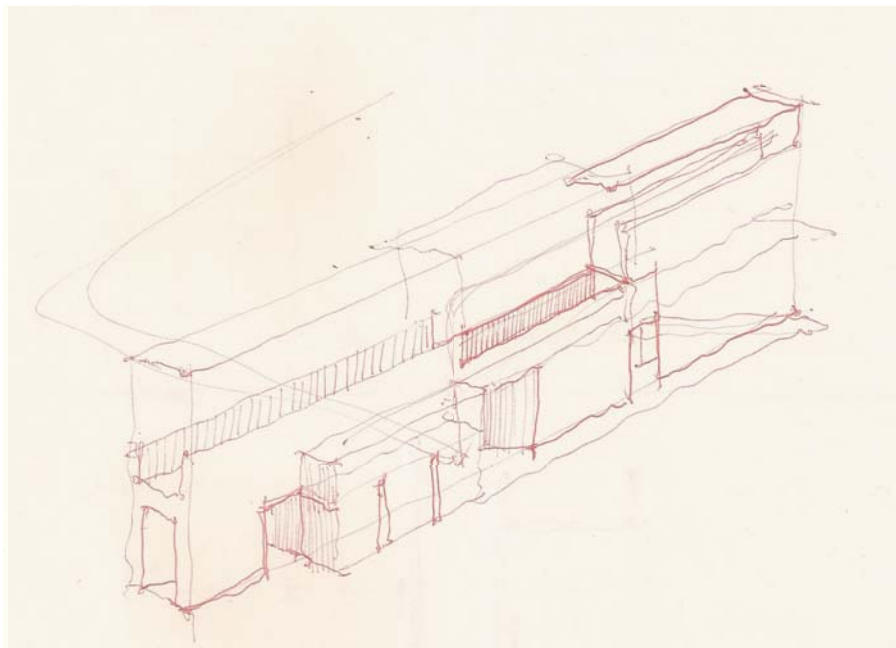
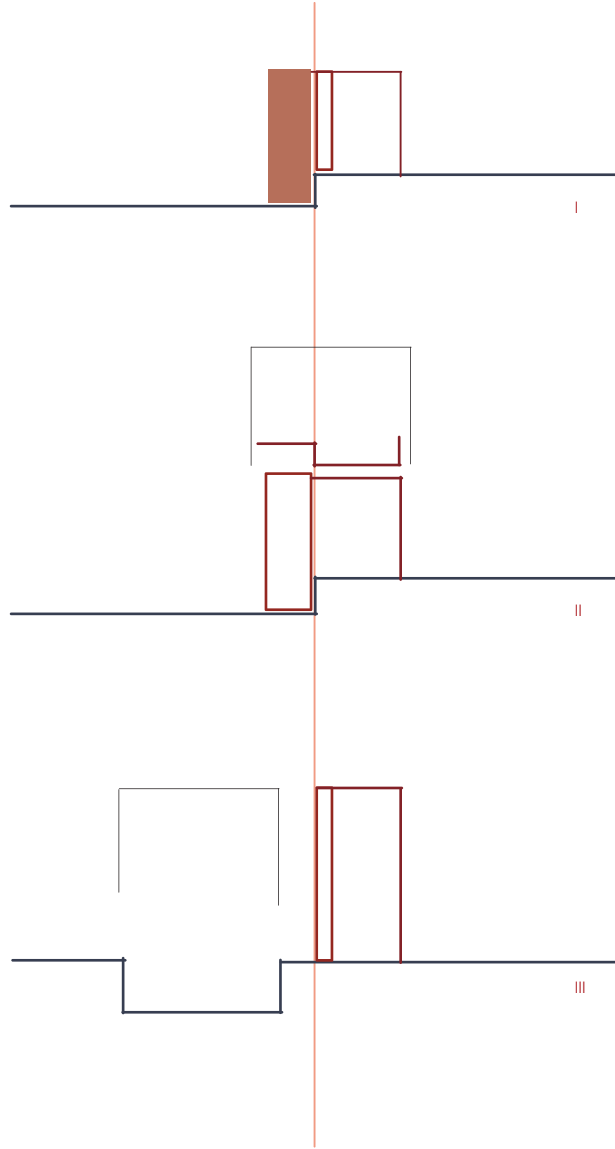


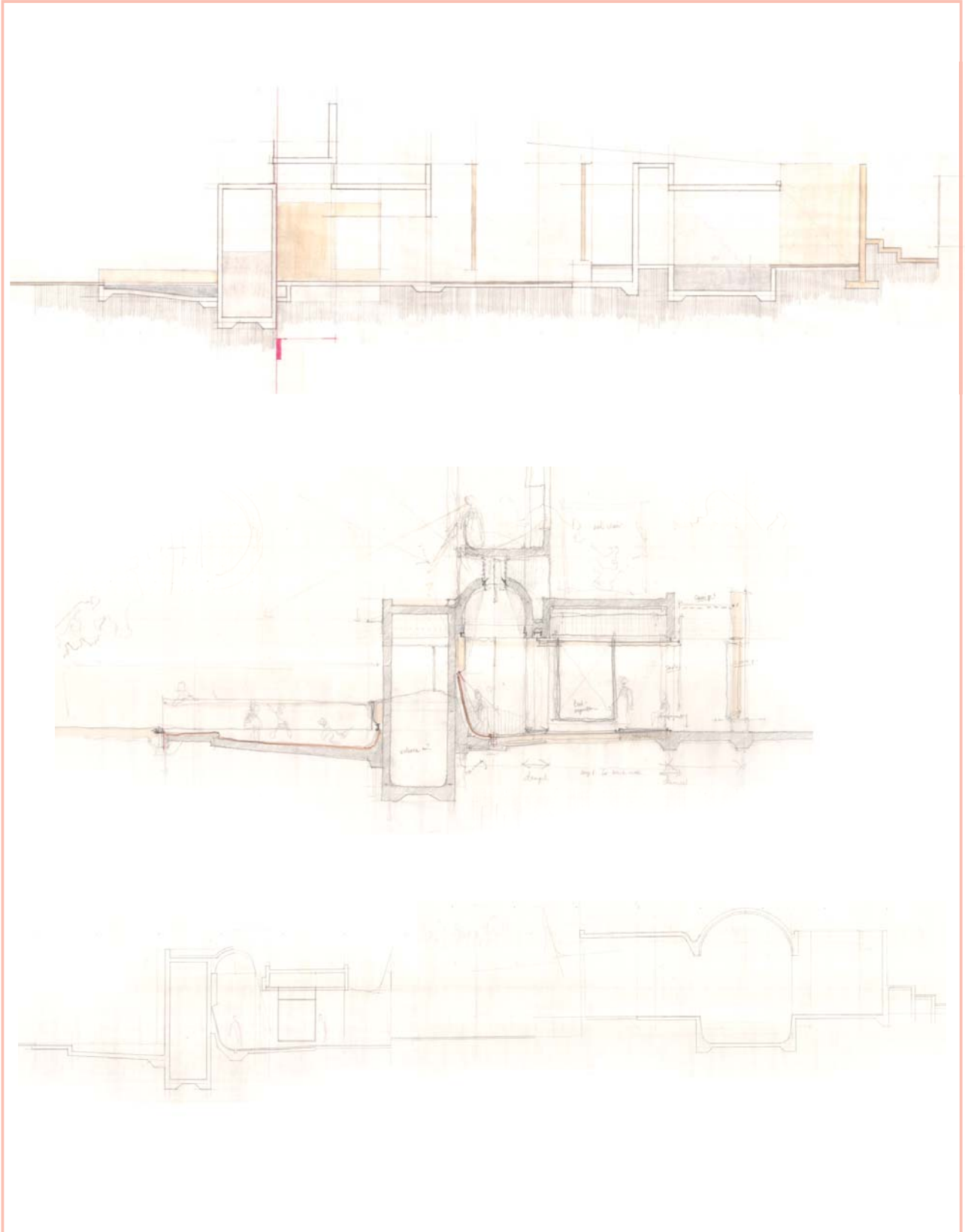
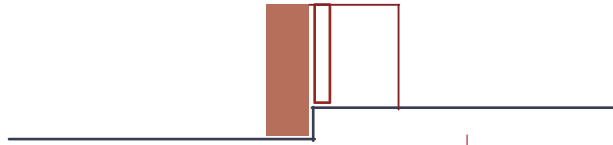


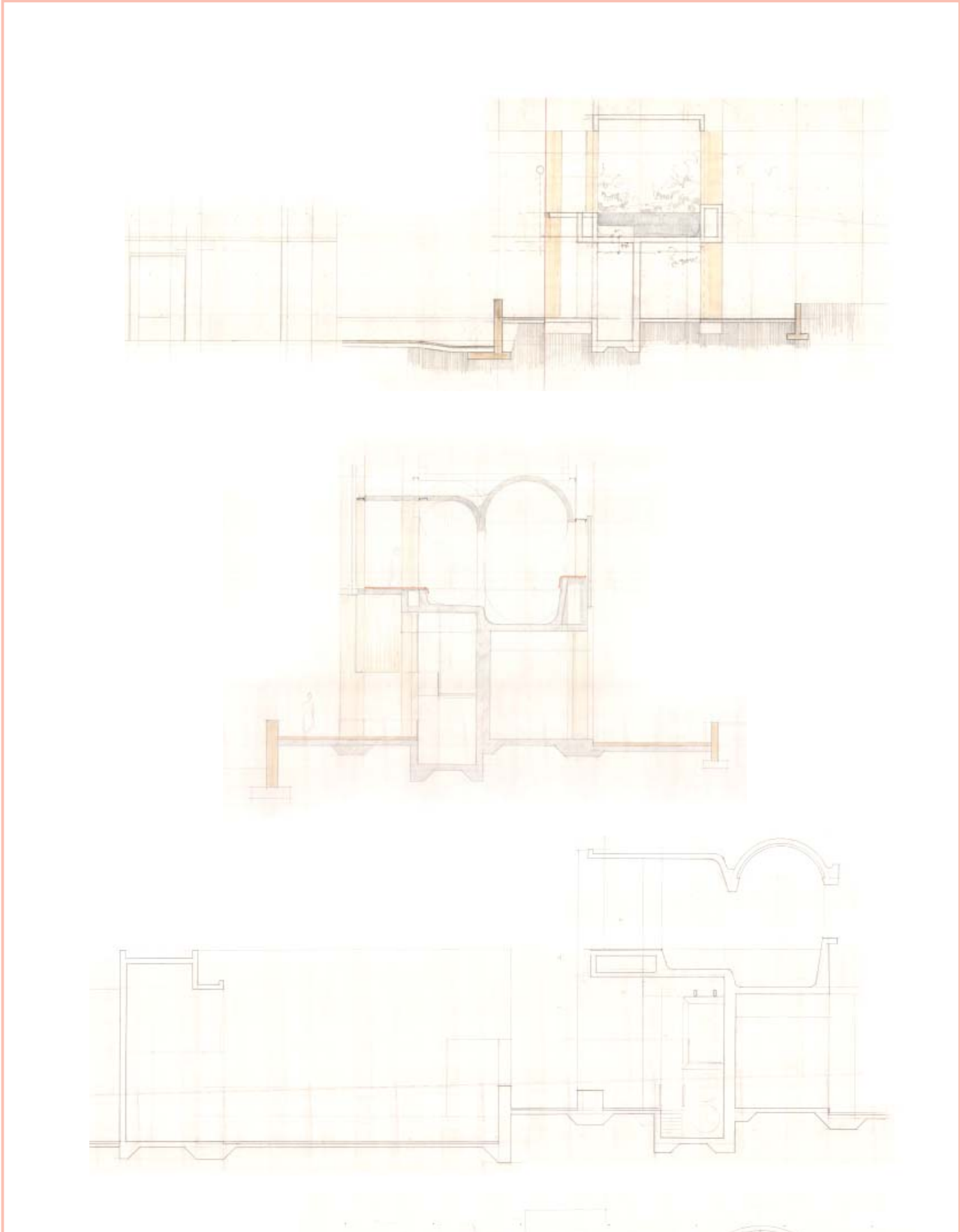
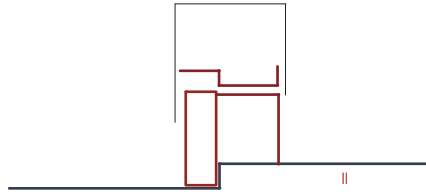
RALEIGH STREET

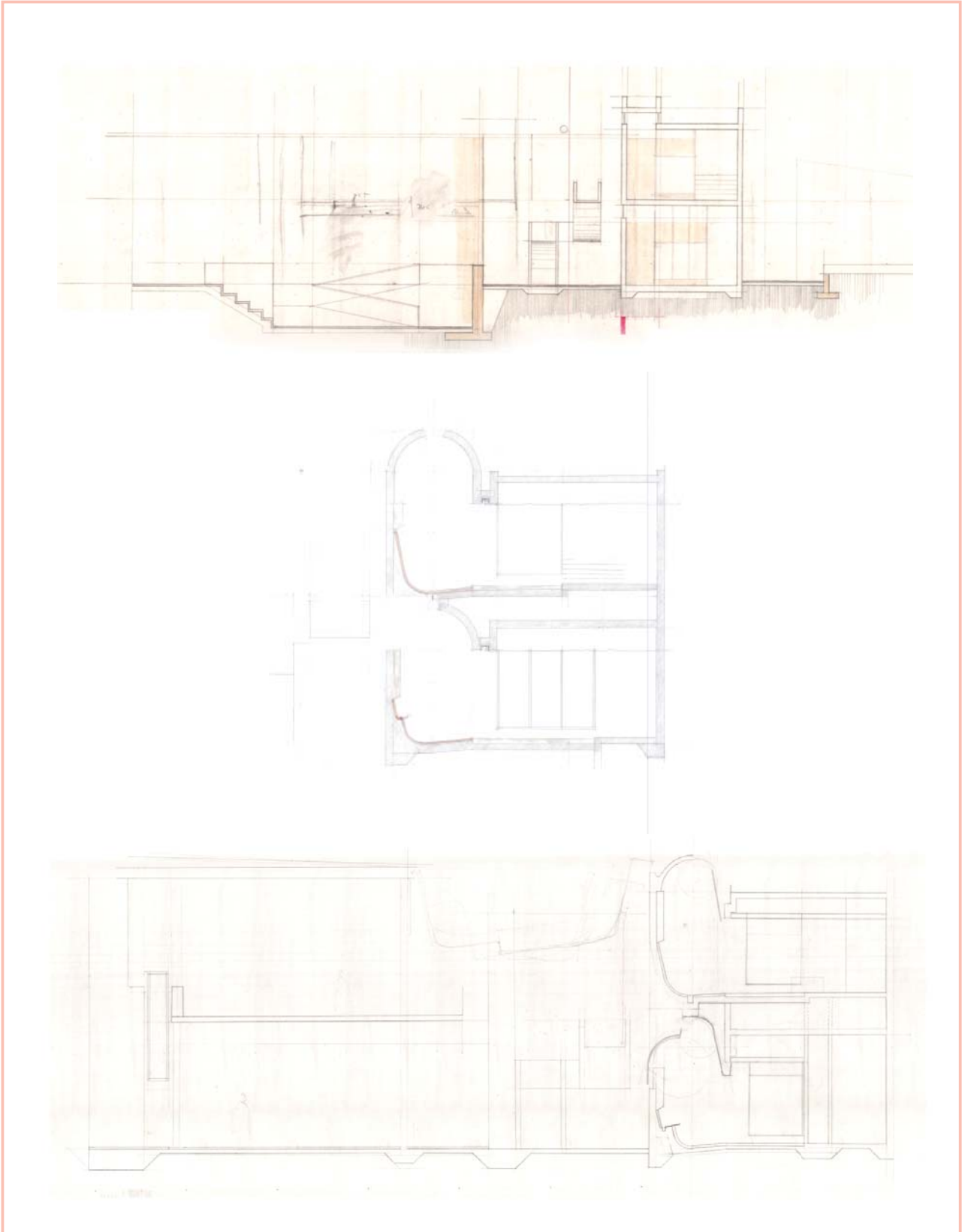
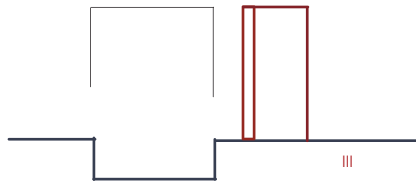


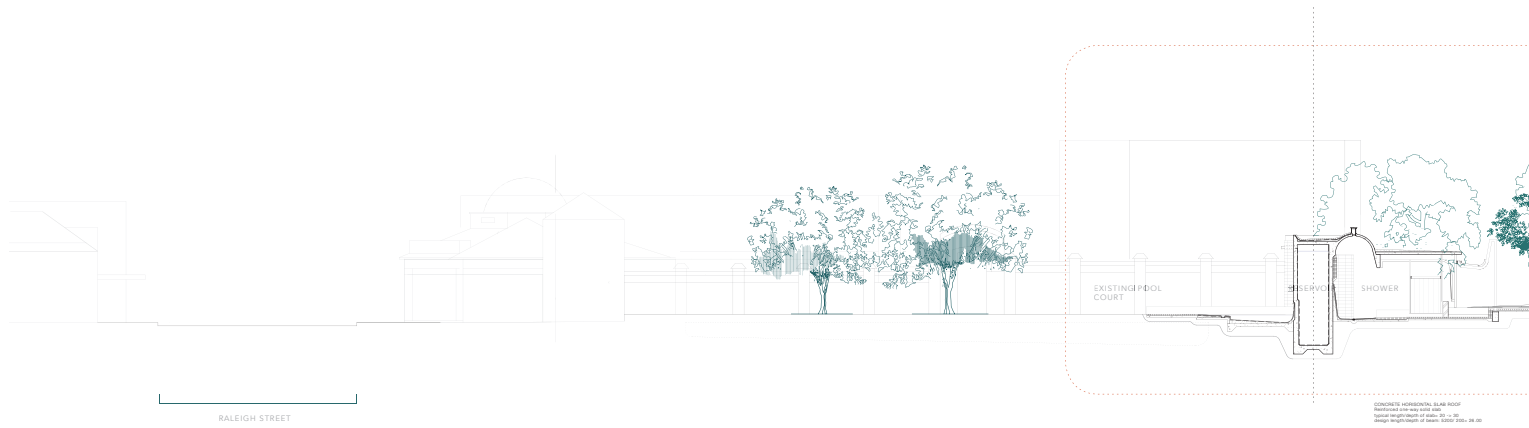
UPPER FLOOR LEVEL 1 1:200 NTS









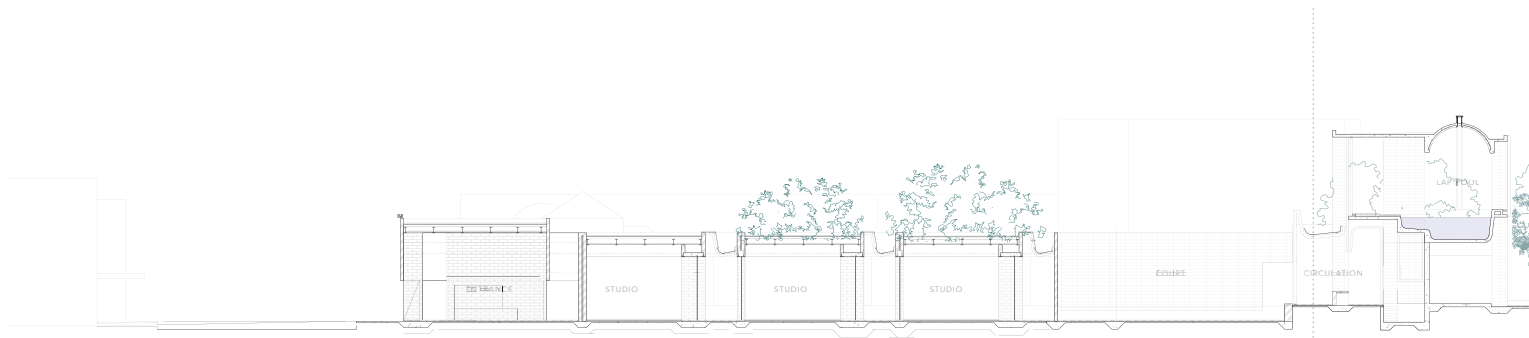


RALEIGH STREET

EXISTING POOL COURT

SHOWER

CONCRETE HORIZONTAL SLAB ROOF
Reinforced with steel mesh
Overall height (depth) of slab: 200 mm
Average length (depth) of slab: 10000 mm x 20 mm



RALEIGH STREET

STUDIO

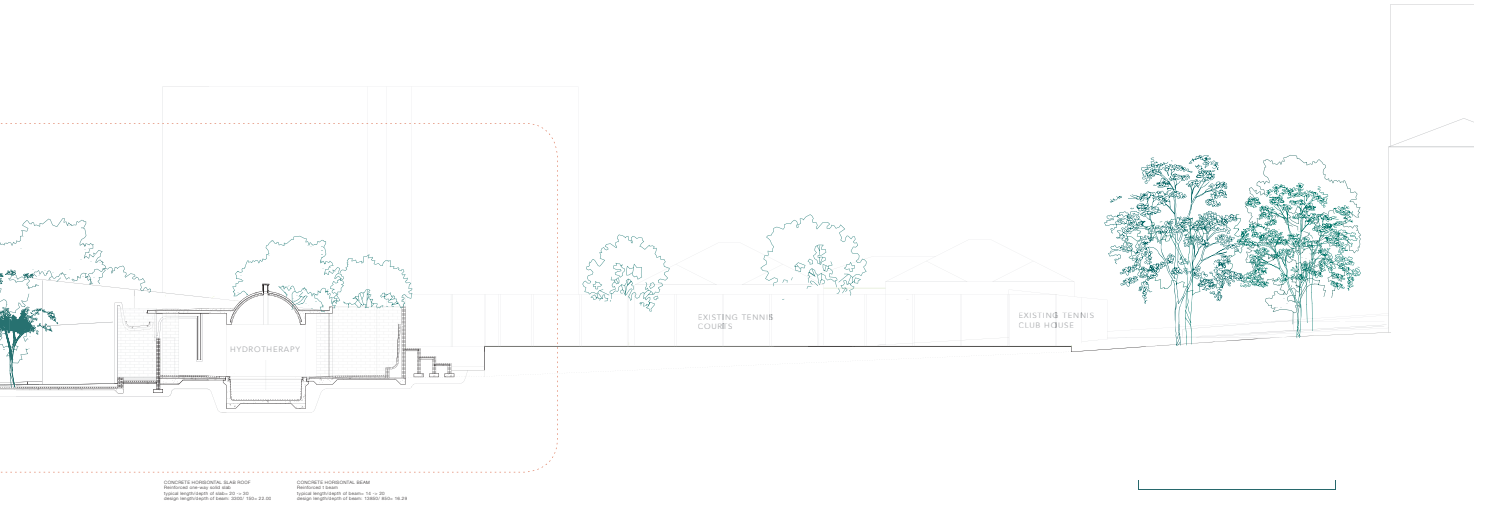
COURTYARD

CIRCULATION

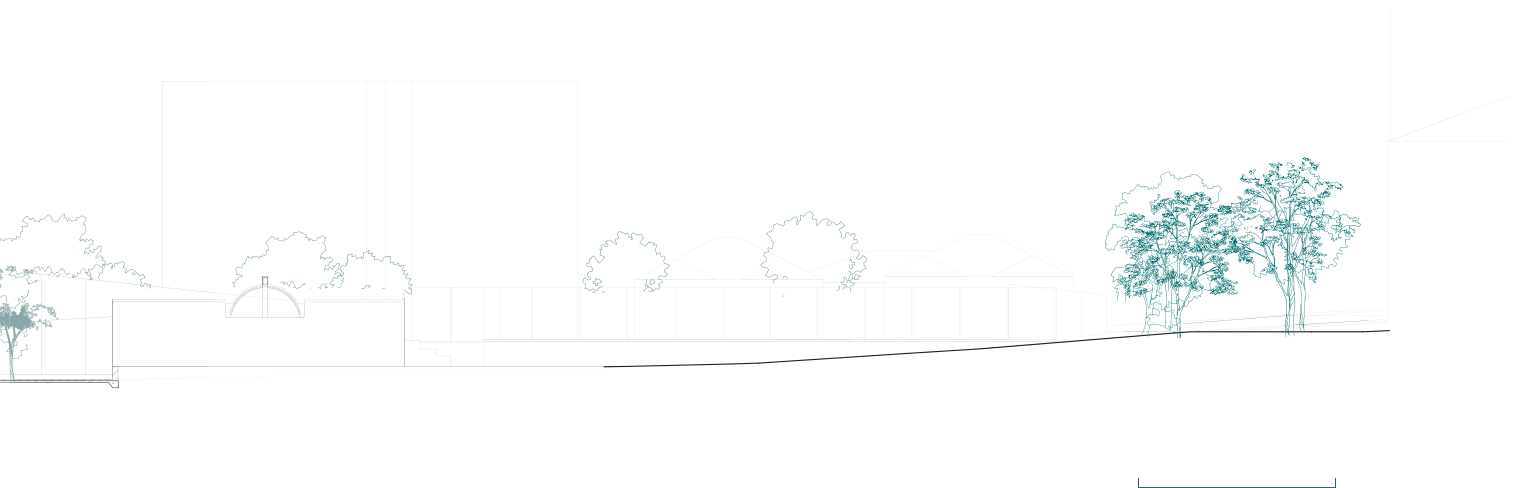
LAP POOL

STEEL HORIZONTAL BEAM
Reinforced with steel mesh
Overall height (depth) of beam: 200 mm
Average length (depth) of beam: 10000 mm x 20 mm

CONCRETE HORIZONTAL SLAB ROOF
Reinforced with steel mesh
Overall height (depth) of slab: 200 mm
Average length (depth) of slab: 10000 mm x 20 mm



SECTION A-A 1:100 NTS



SECTION B-B 1:100 NTS

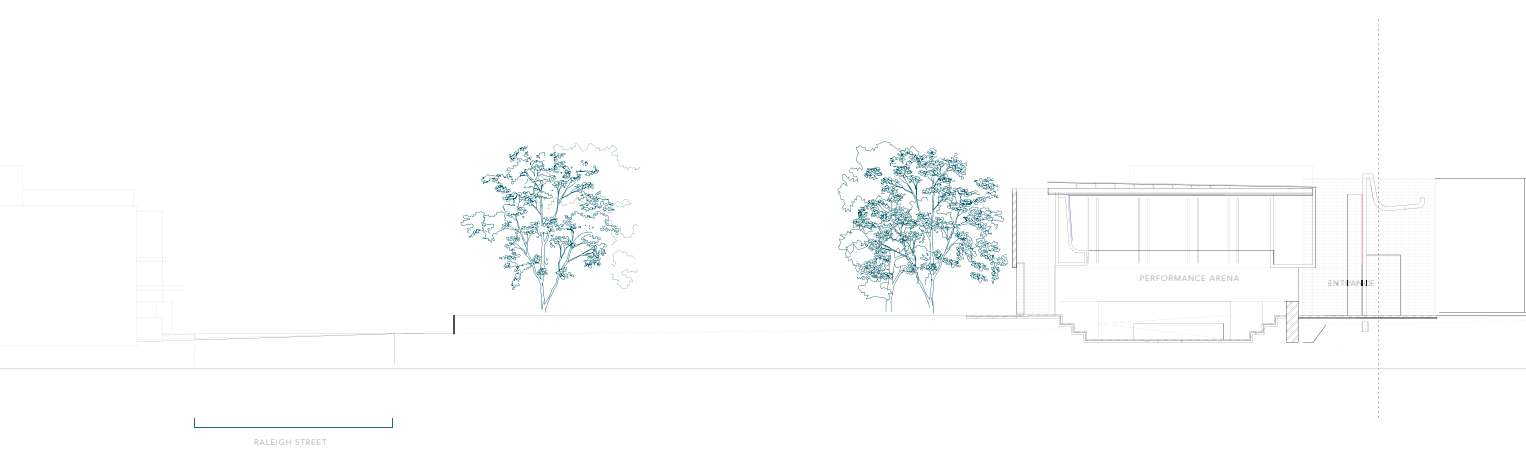


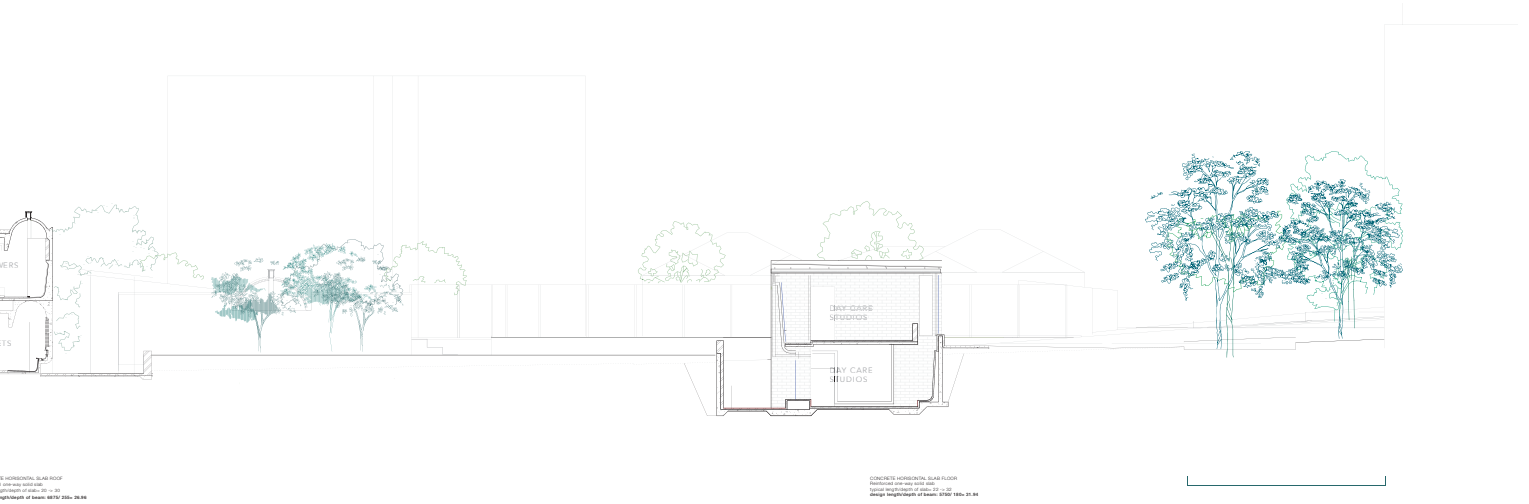
STEEL HORIZONTAL BEAM
 Deep rolled steel section
 Nominal depth/height: 400 x 200
 Weight/m length: 105.21 kg/m
 Number: 200 x 178 x 8.2

STEEL VERTICAL SUPPORT
 Rolled I-beam section
 Nominal depth/height: 200 x 100
 Weight/m length: 24.00 kg/m
 Number: 200 x 100 x 8.0

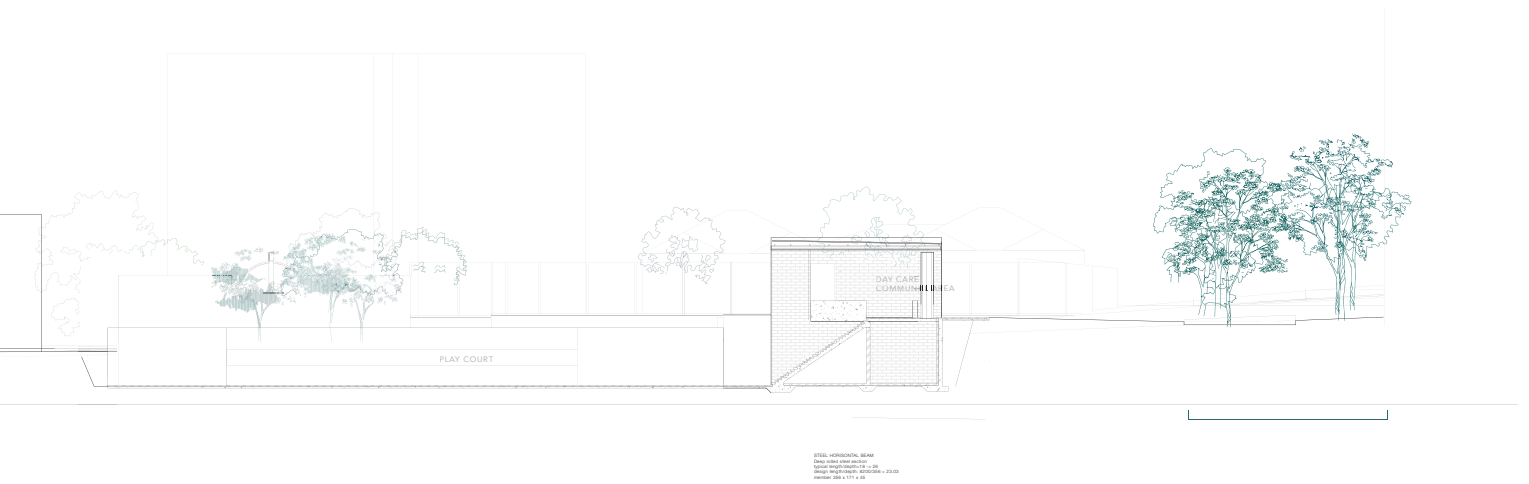
CONCRETE HORIZONTAL BEAM
 Reinforced concrete
 Nominal depth/height of beam: 140 x 200
 Depth of concrete cover: 20 mm
 Weight/m length: 12.00 kg/m
 (Weight/m length of beam: 12.00 kg/m)

CONCRETE HORIZONTAL SLAB FLOOR
 Reinforced concrete slab
 Nominal depth/height of slab: 120
 Weight/m length of beam: 10.00 kg/m

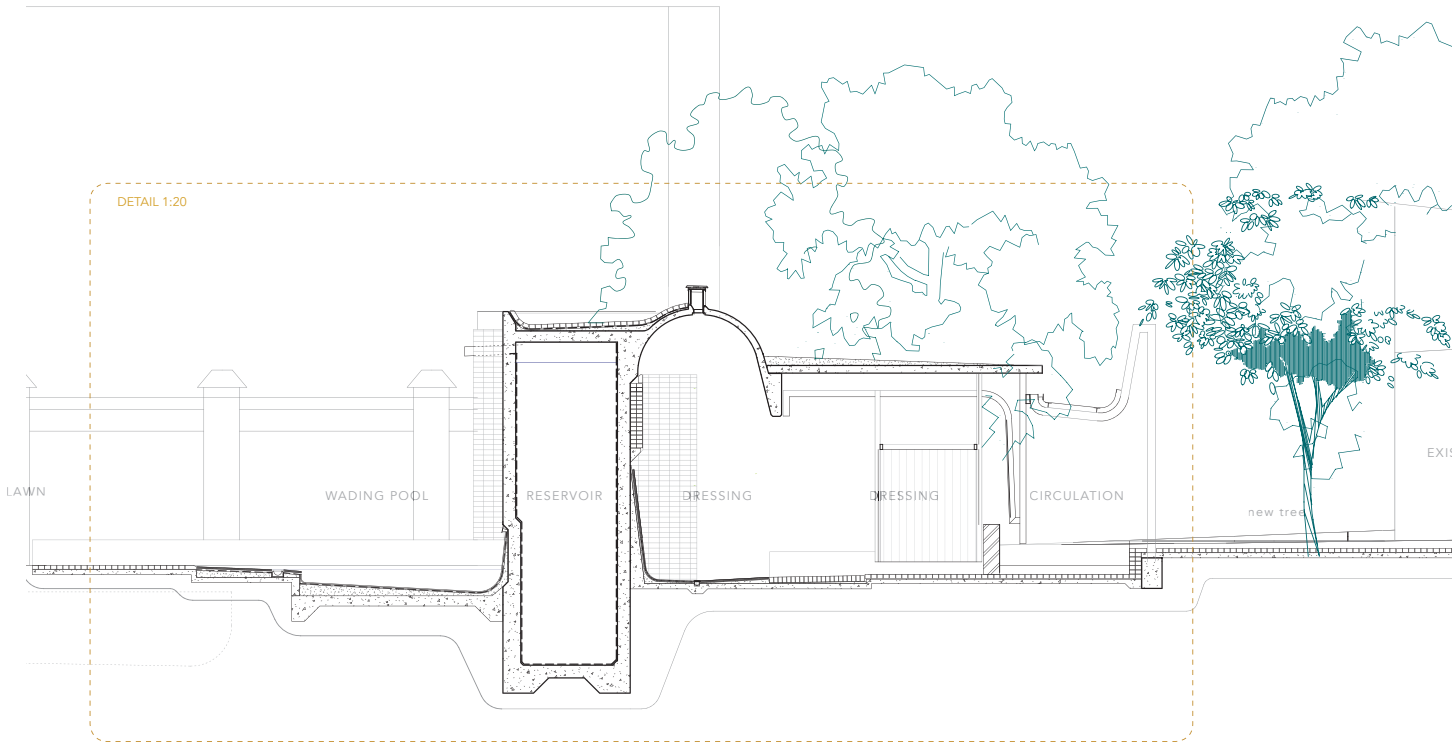


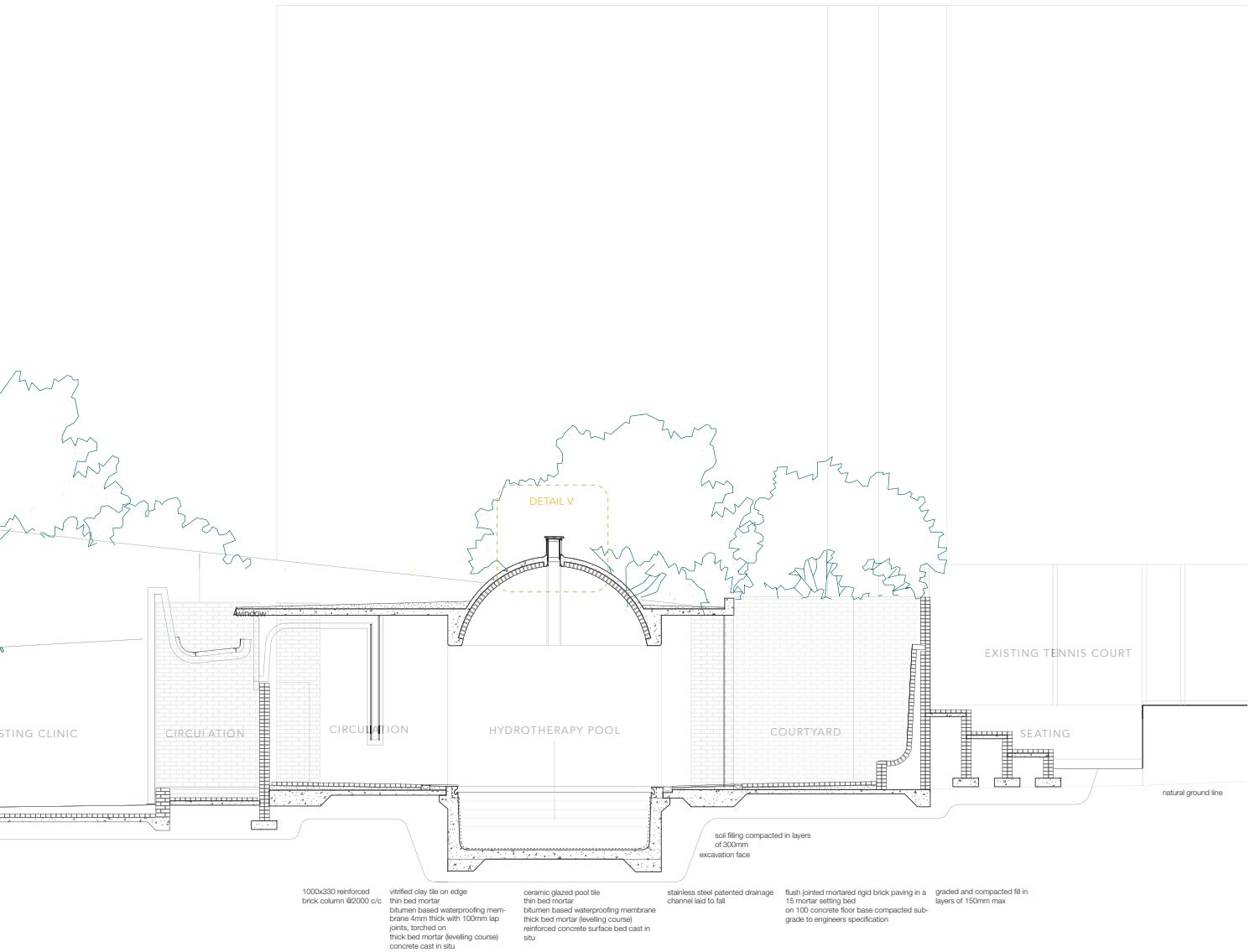


SECTION C-C 1:100 NTS

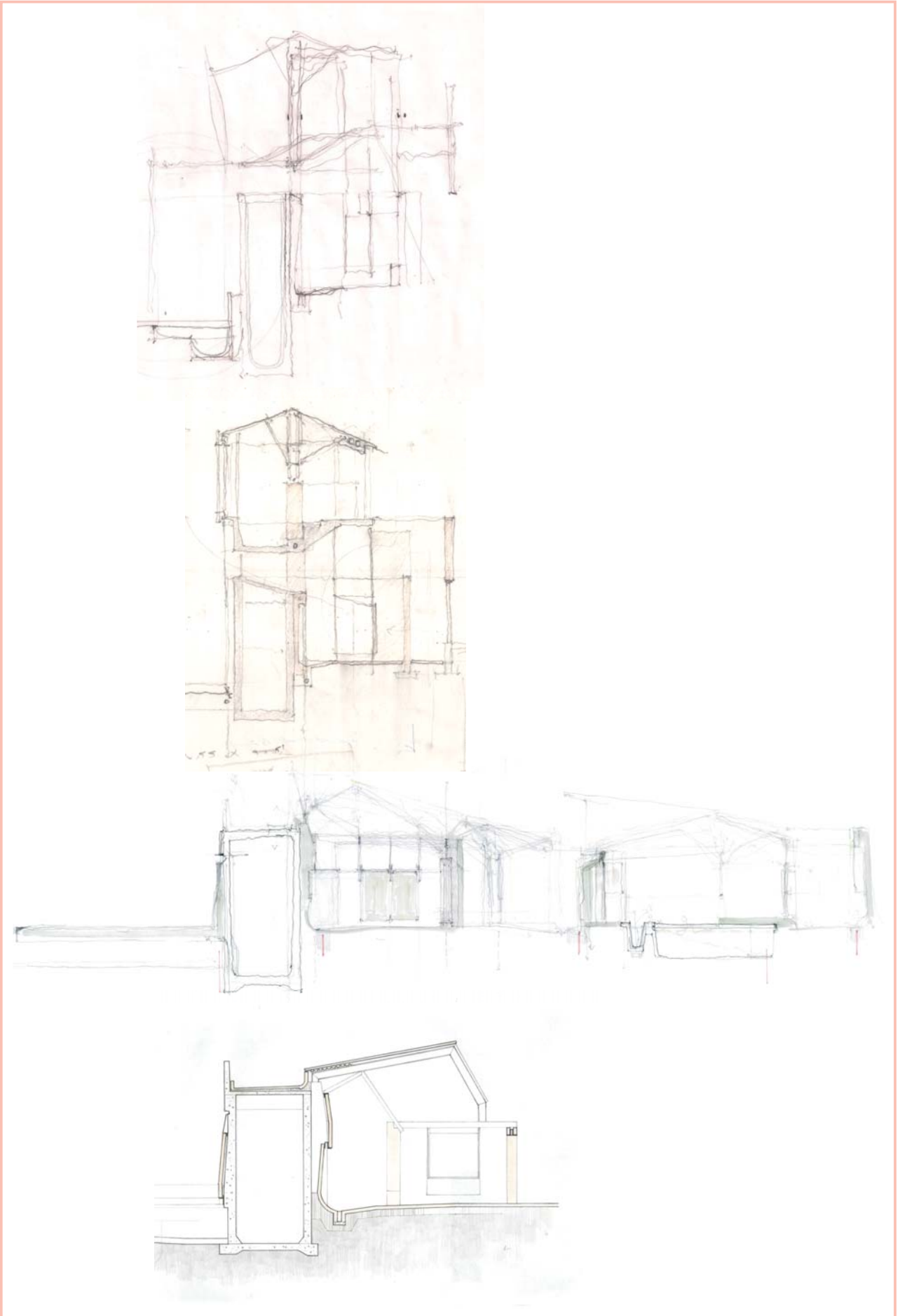


SECTION D-D 1:100 NTS

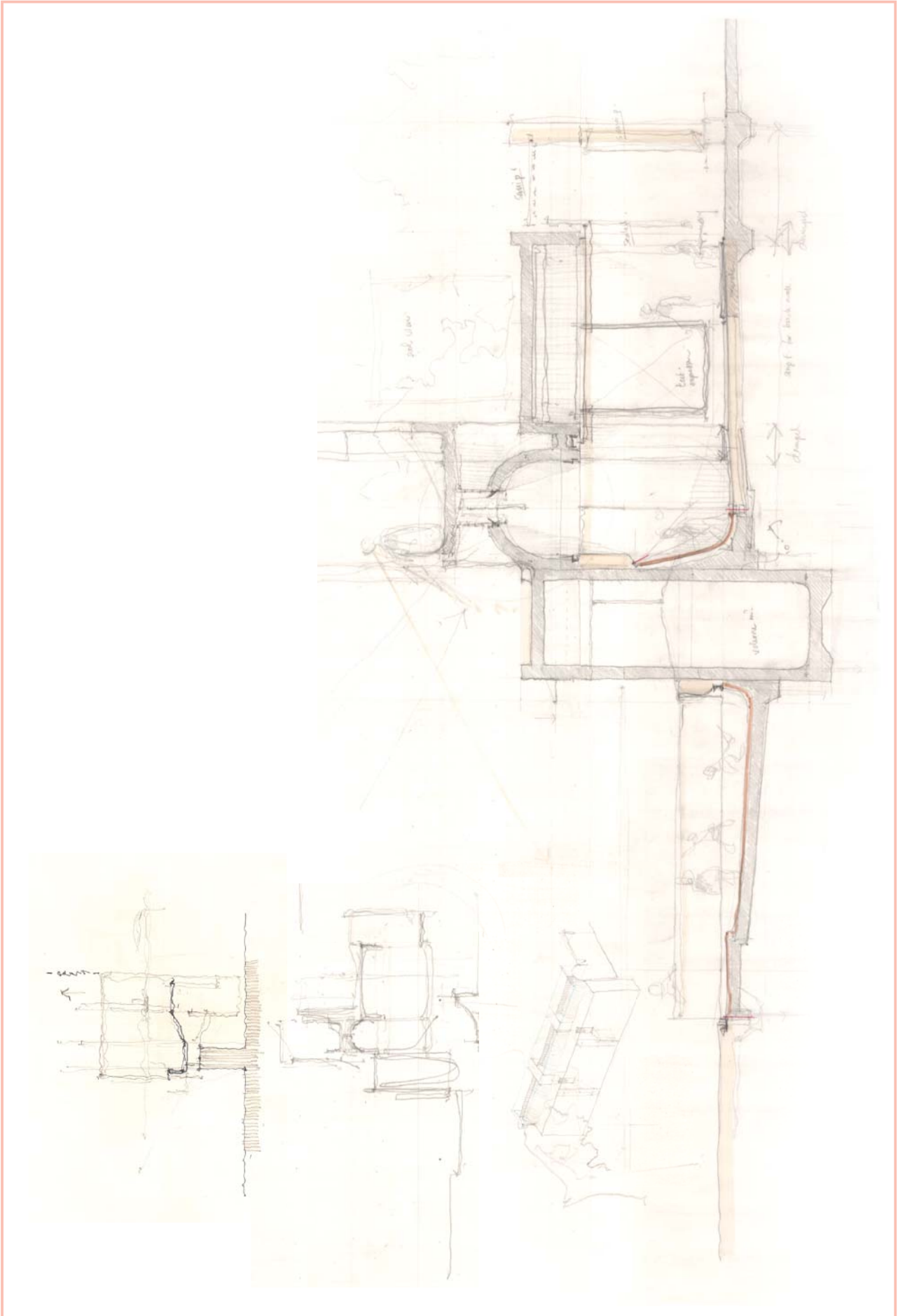




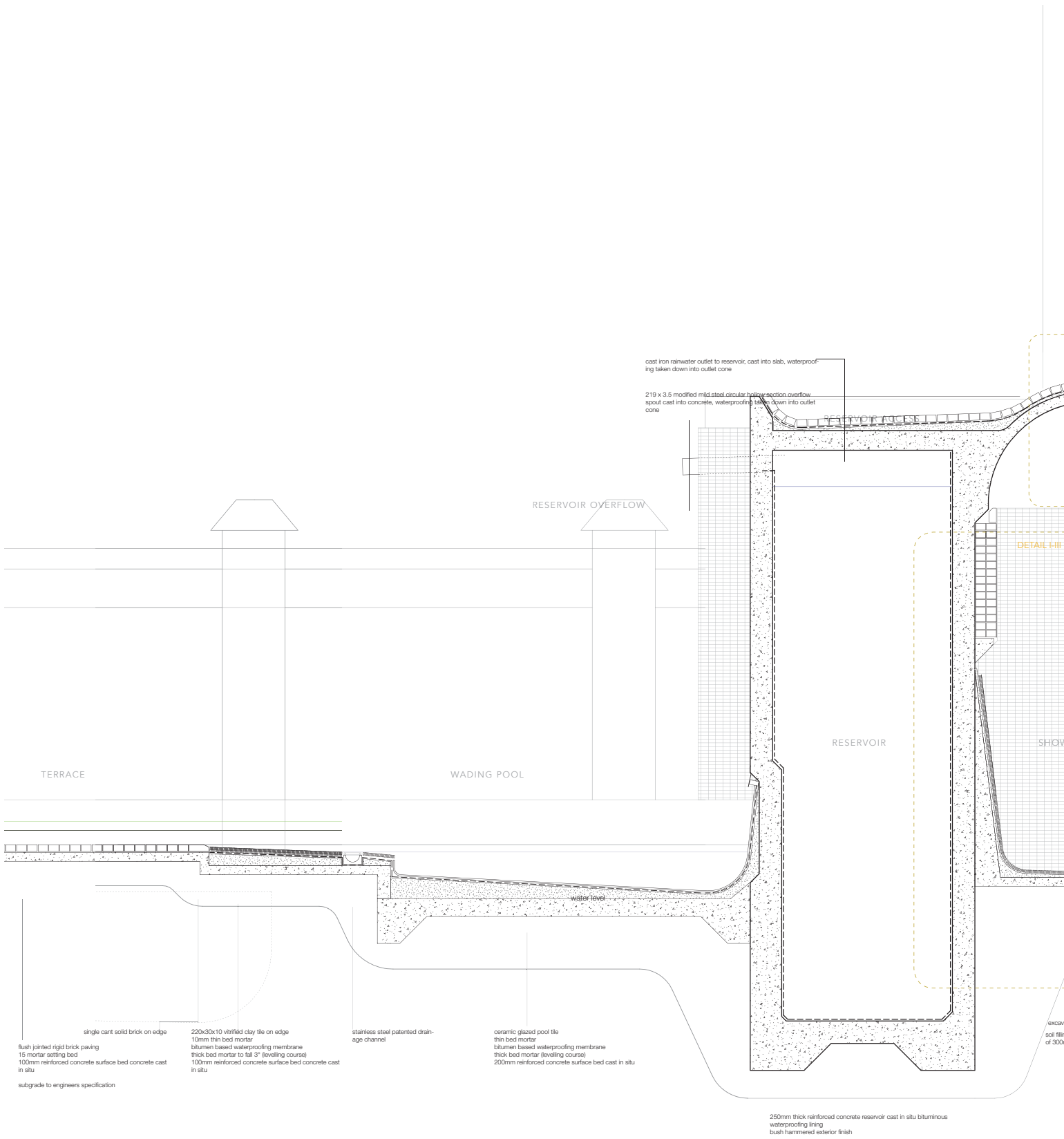
SECTION A-A 1:50 NTS



DEVELOPMENT OF THE 1:20 SECTION

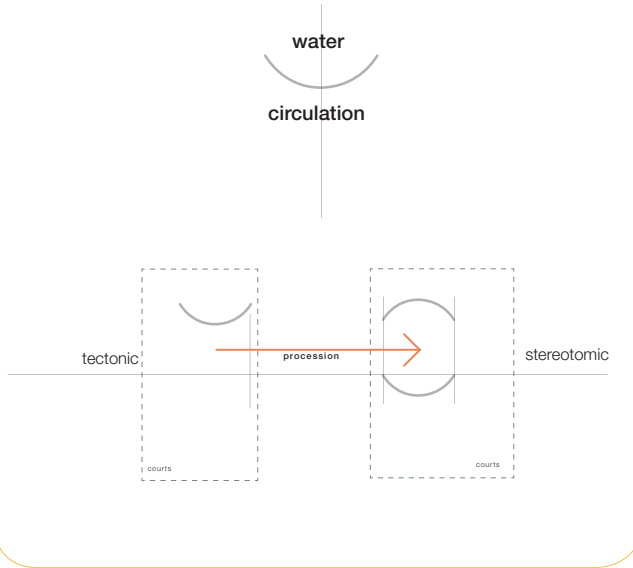


DEVELOPMENT OF THE 1:20 SECTION

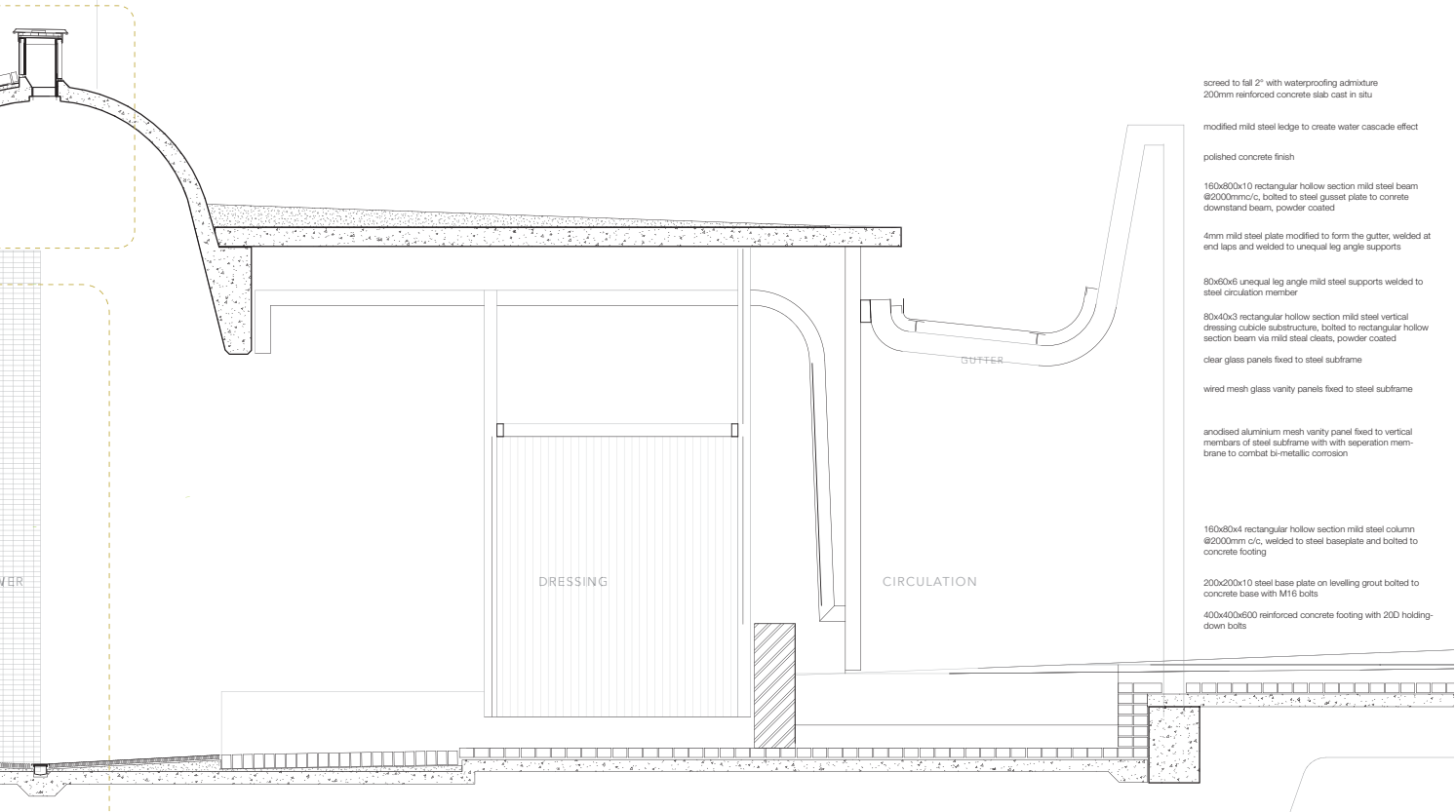




COMPOSITION



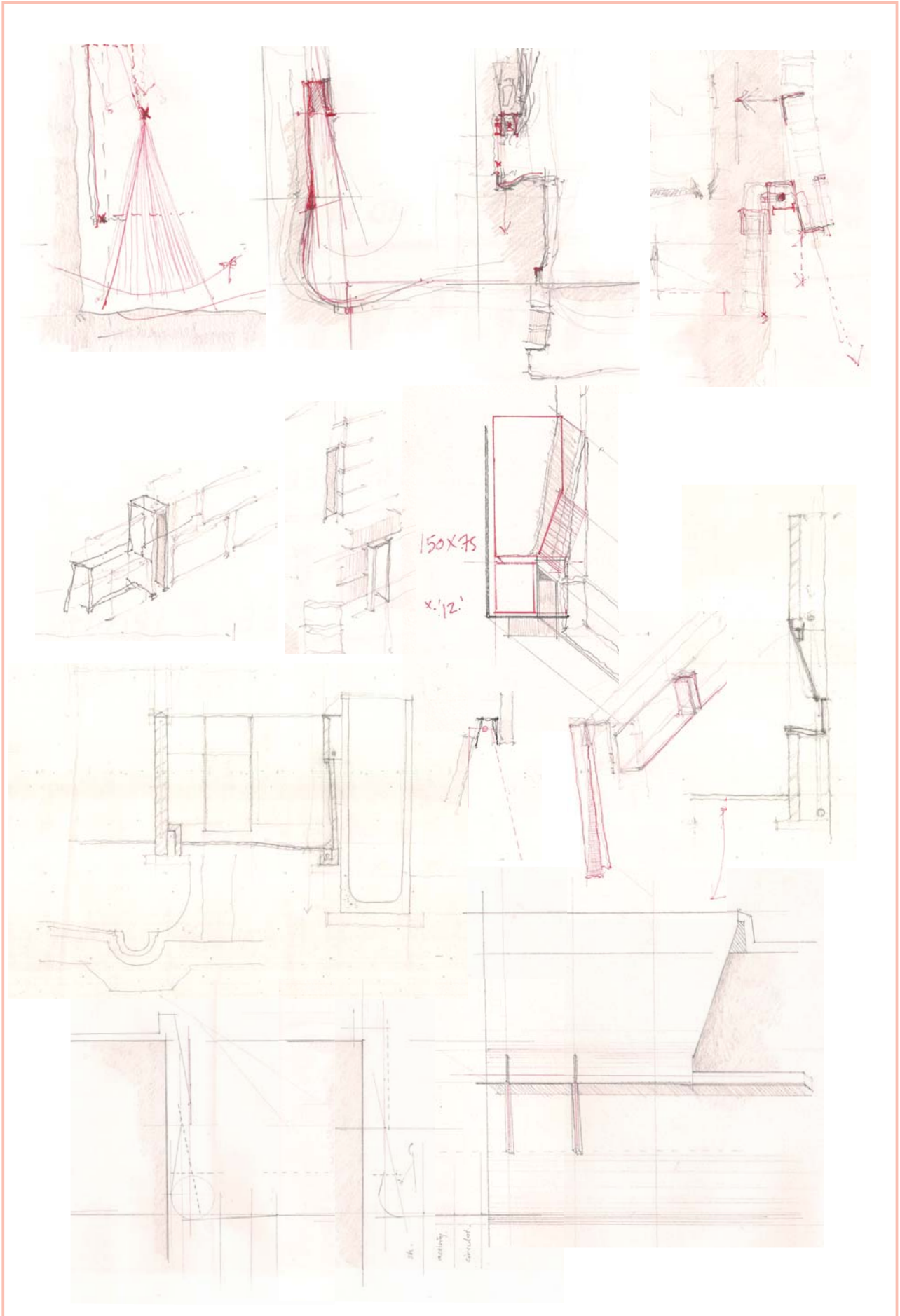
DETAIL IV

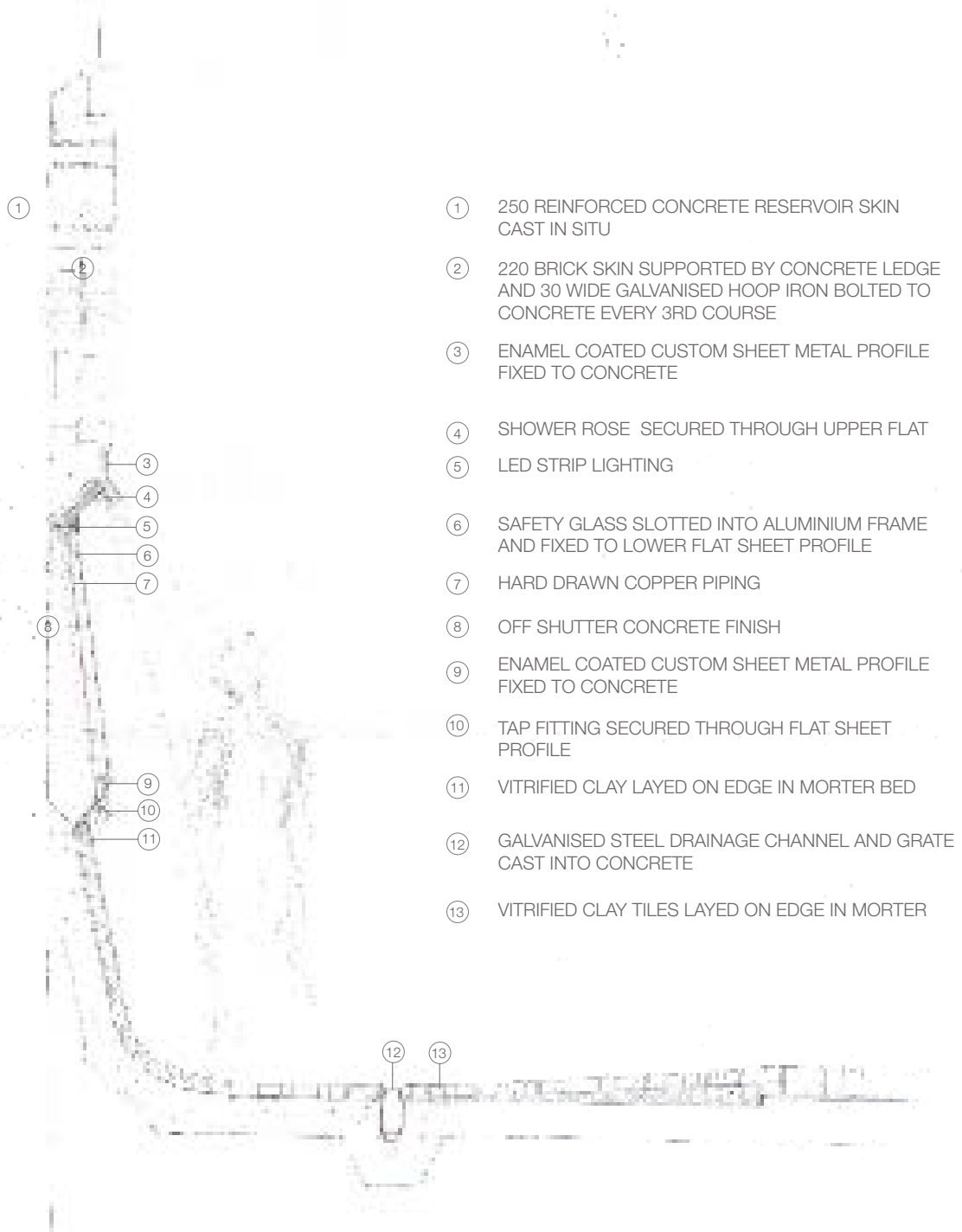


- screed to fall 2" with waterproofing admixture
- 200mm reinforced concrete slab cast in situ
- modified mild steel ledge to create water cascade effect
- polished concrete finish
- 150x80x10 rectangular hollow section mild steel beam @2000mm/c, bolted to steel gusset plate to concrete downstand beam, powder coated
- 4mm mild steel plate modified to form the gutter, welded at end lips and welded to unequal leg angle supports
- 80x60x6 unequal leg angle mild steel supports welded to steel circulation member
- 80x40x3 rectangular hollow section mild steel vertical dressing cubicle substructure, bolted to rectangular hollow section beam via mild steel cleats, powder coated
- clear glass panels fixed to steel subframe
- wired mesh glass vanity panels fixed to steel subframe
- anodised aluminium mesh vanity panel fixed to vertical members of steel subframe with separation membrane to combat bi-metallic corrosion
- 150x80x4 rectangular hollow section mild steel column @2000mm c/c, welded to steel baseplate and bolted to concrete footing
- 200x200x10 steel base plate on levelling grout bolted to concrete base with M16 bolts
- 400x400x600 reinforced concrete footing with 200 holding-down bolts

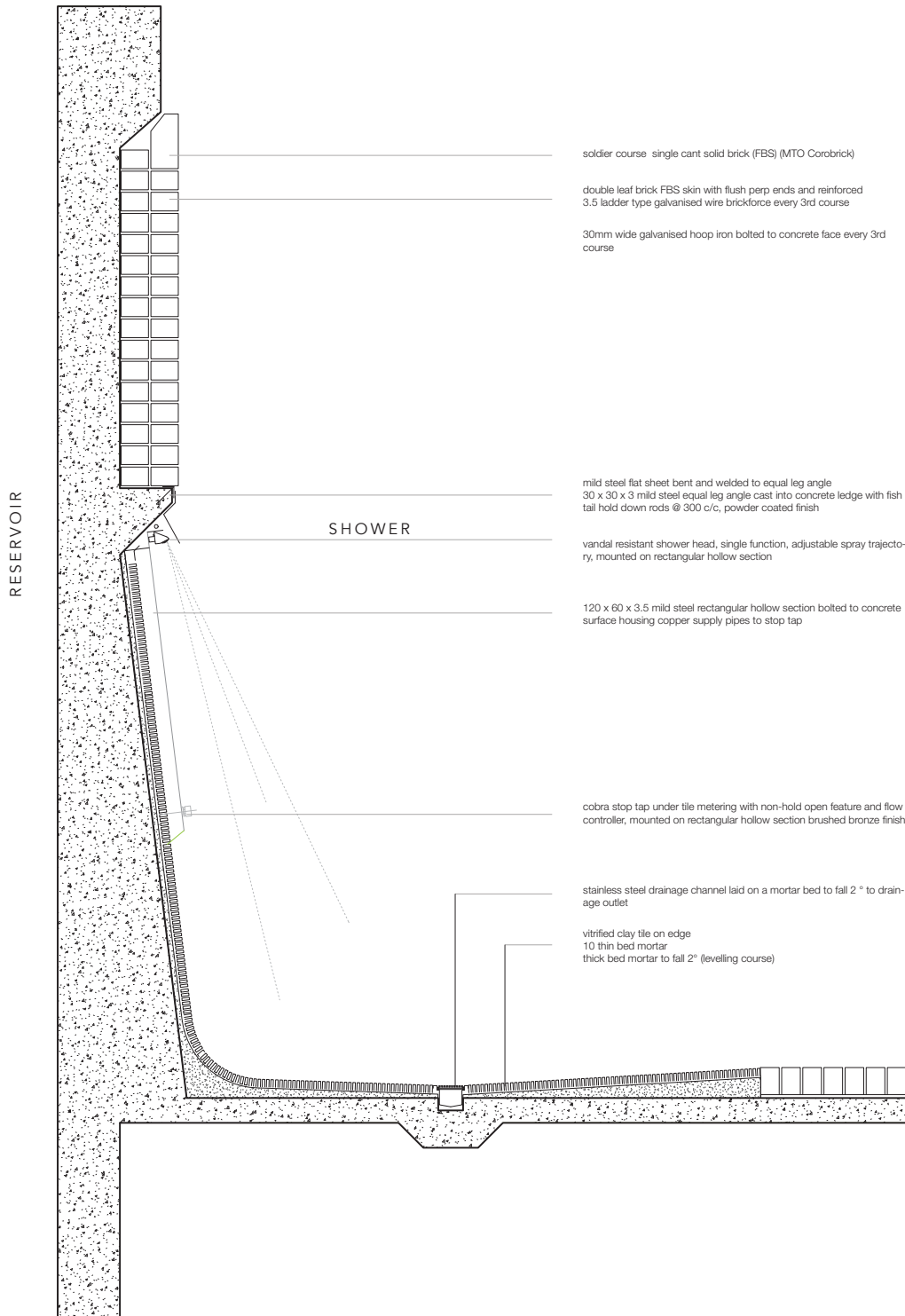
- ation face
- ing compacted in layers
- mm
- 220 x 30 x 10 vitrified clay tile on edge
- 10mm thin bed mortar
- bitumen based waterproofing membrane
- thick bed mortar to fall 2" (levelling course)
- 100mm reinforced concrete surface bed cast in situ
- 40mm sand binding layer
- graded and compacted fill in layers of 150mm max to 90% modAAShto to engineers specification
- clay brick on edge,
- 10mm thin bed mortar
- bitumen based waterproofing membrane
- thick bed mortar to fall 2" (levelling course)
- sanded and sealed
- stretcher course

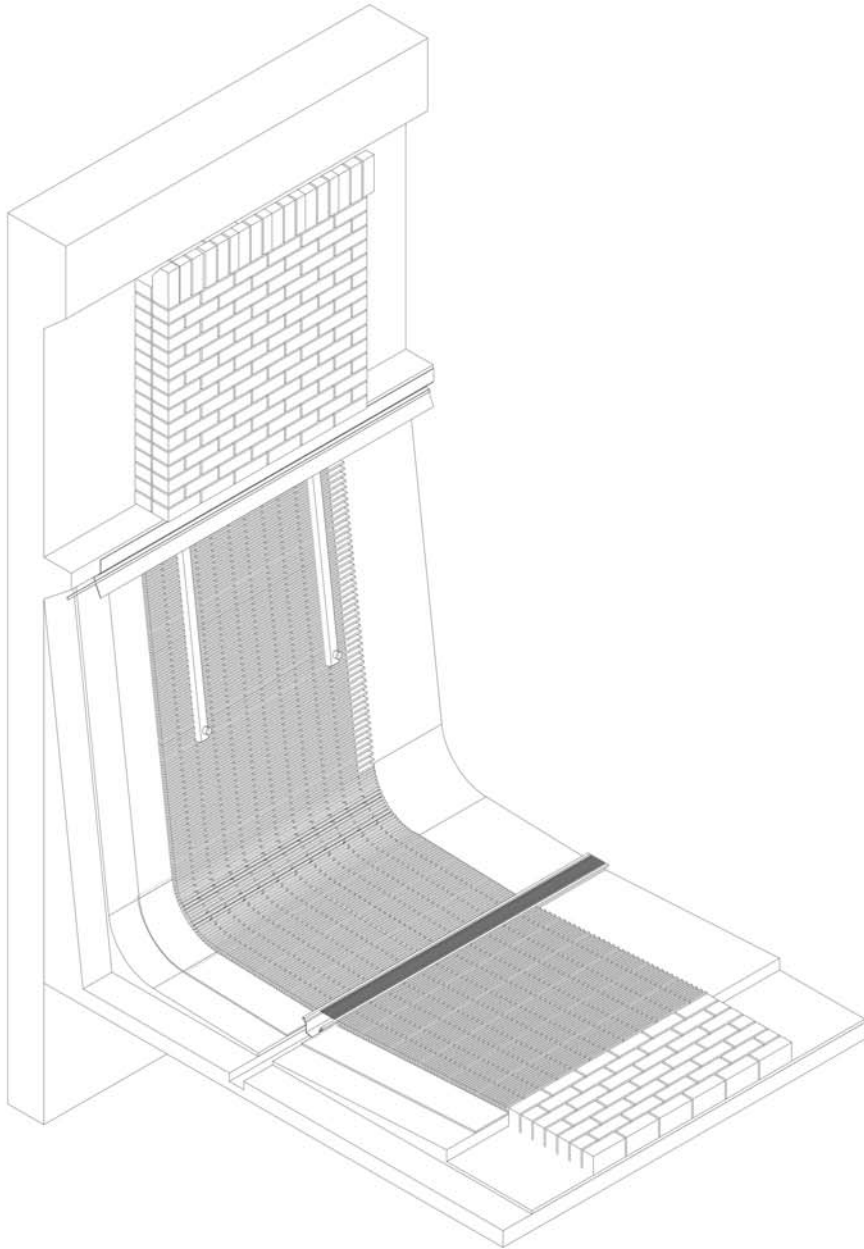
SECTION A-A 1:20 NTS



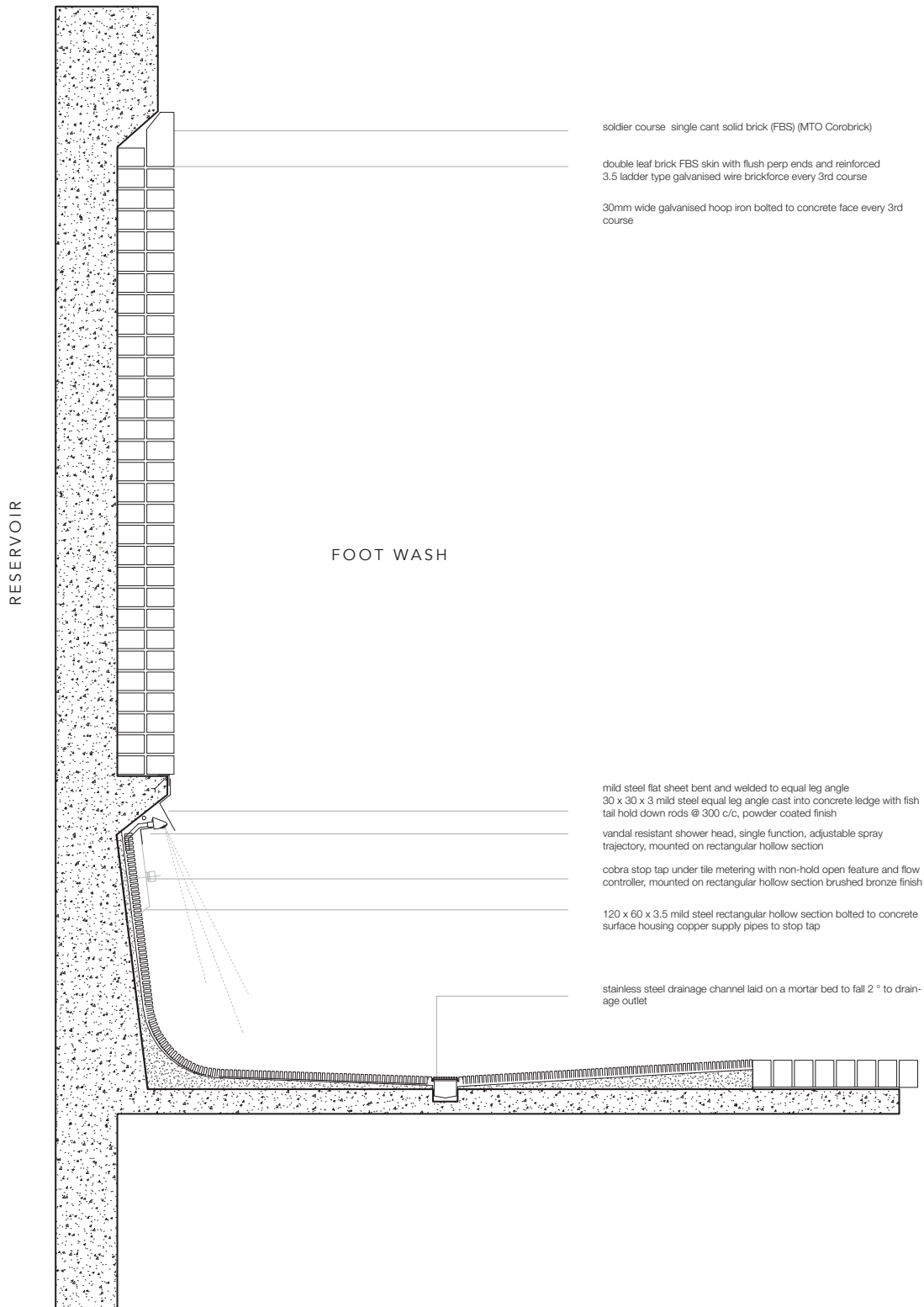


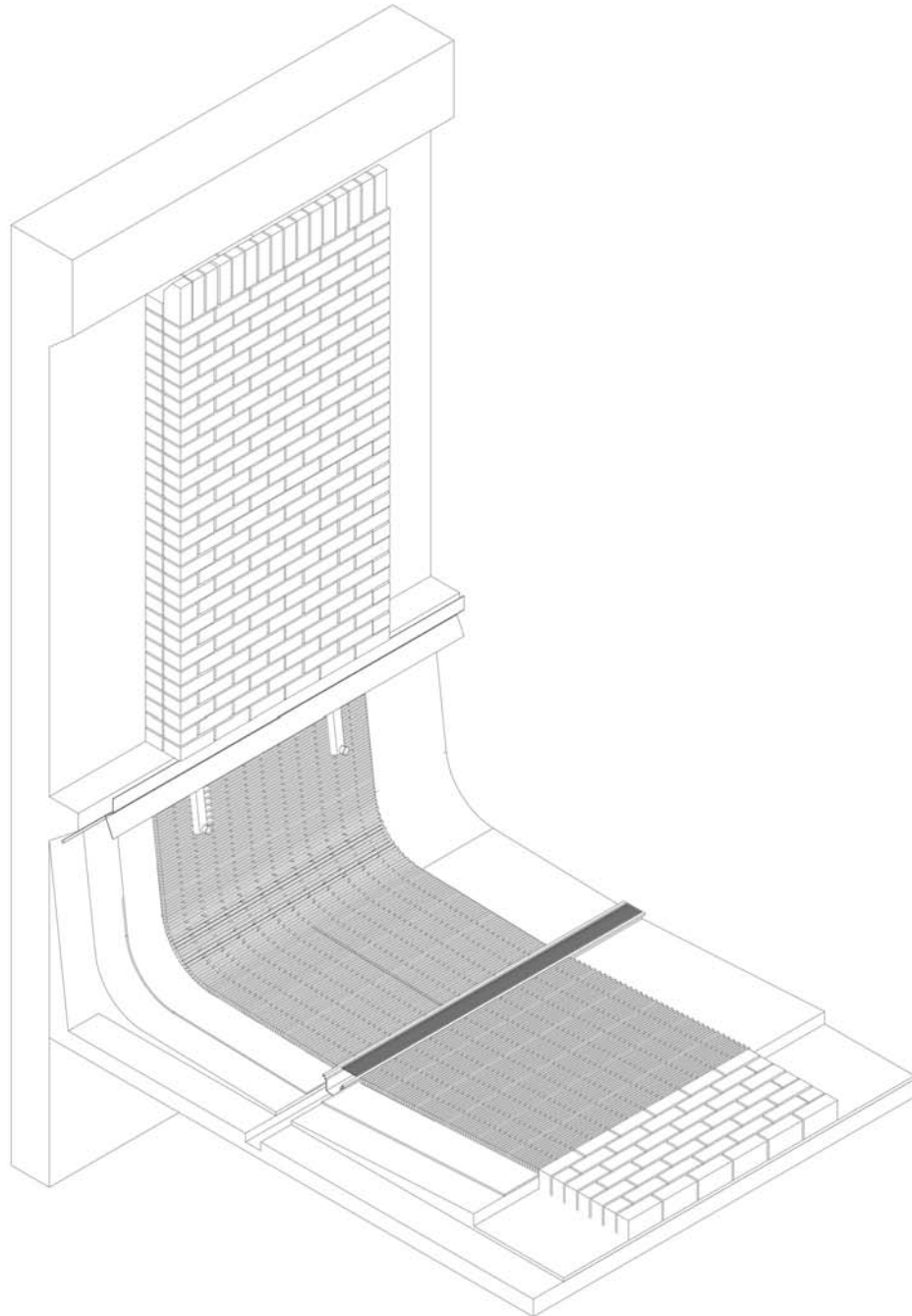
(1:10 TYPE) SHOWER DETAIL I NTS



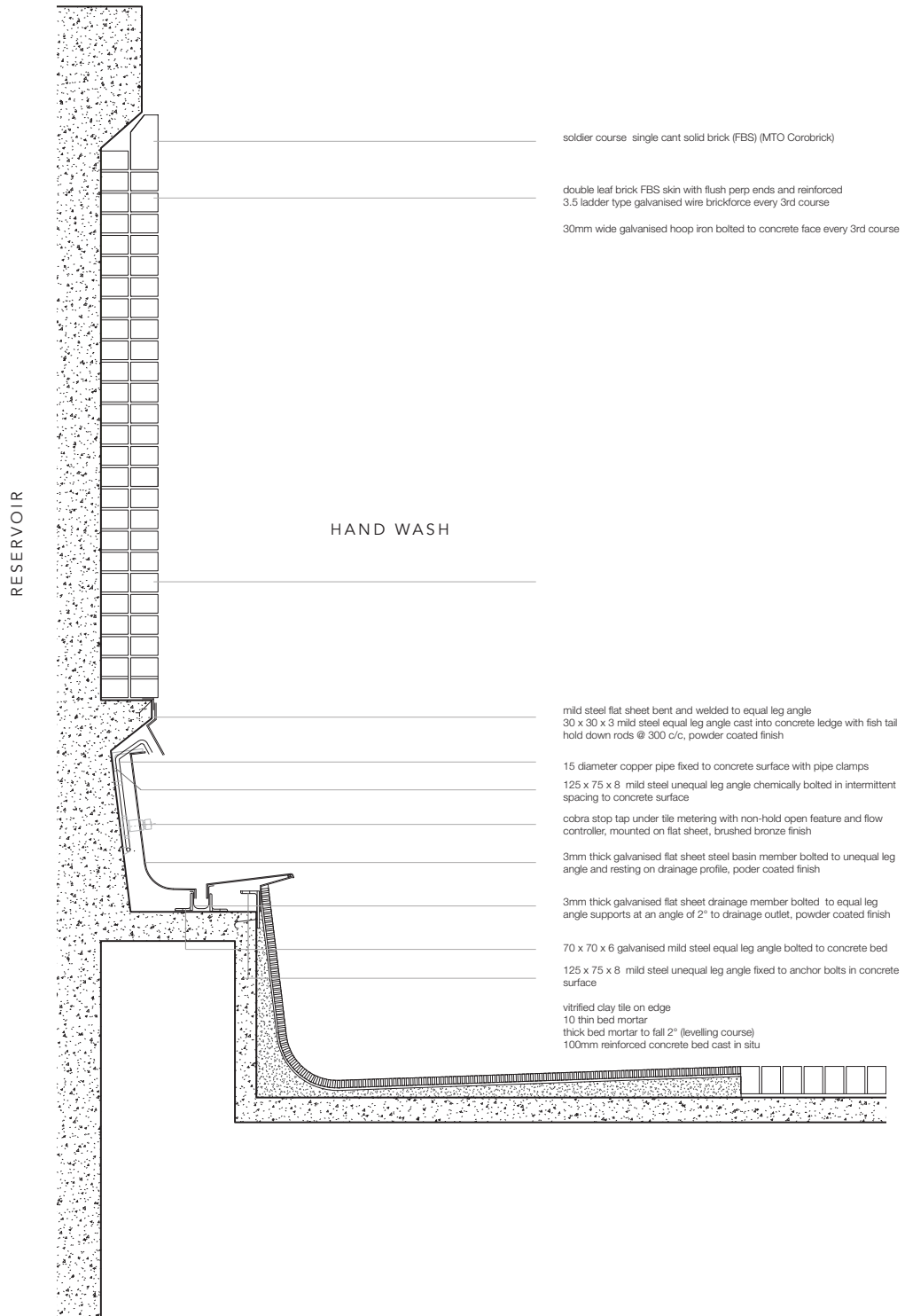


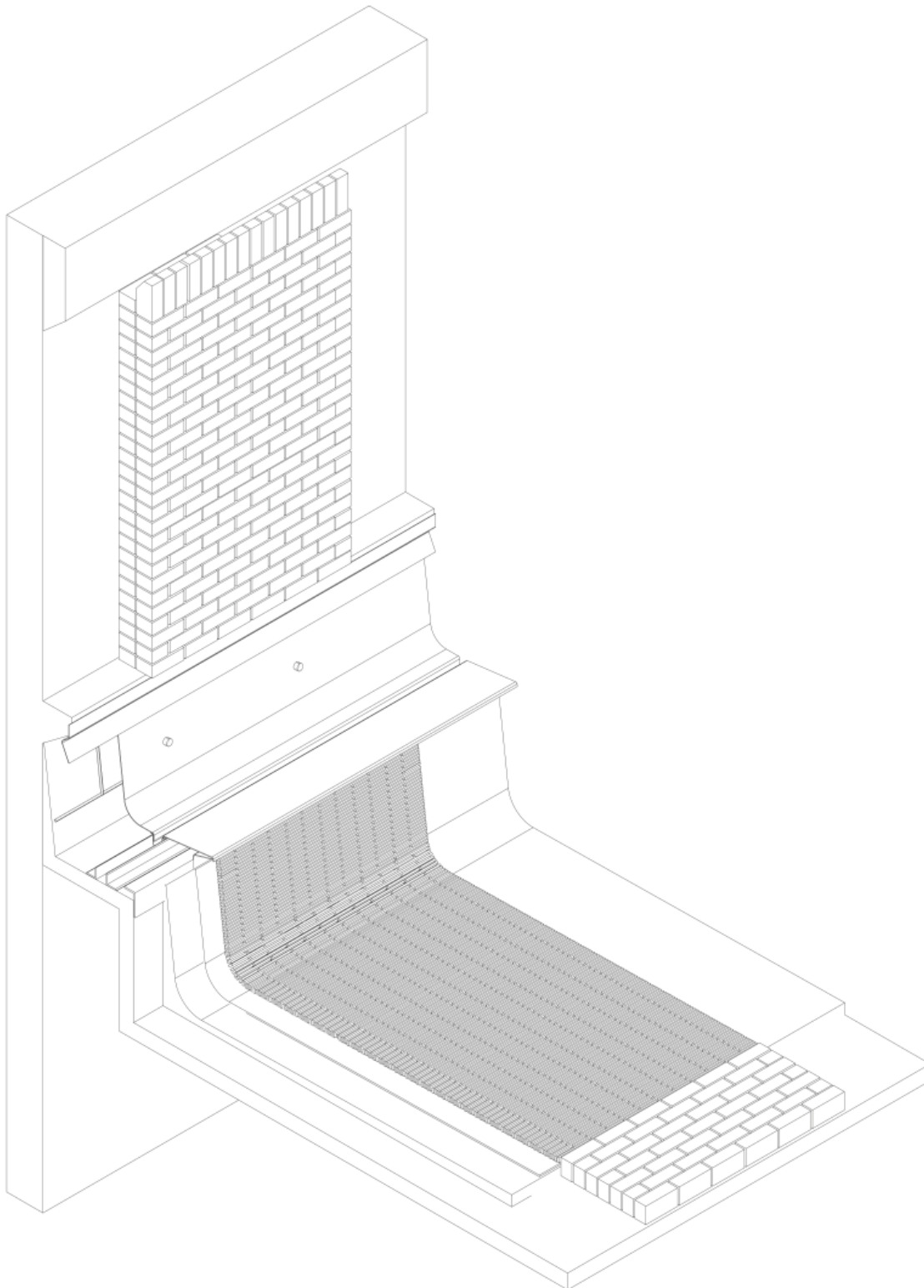
DETAIL I 1:10 NTS



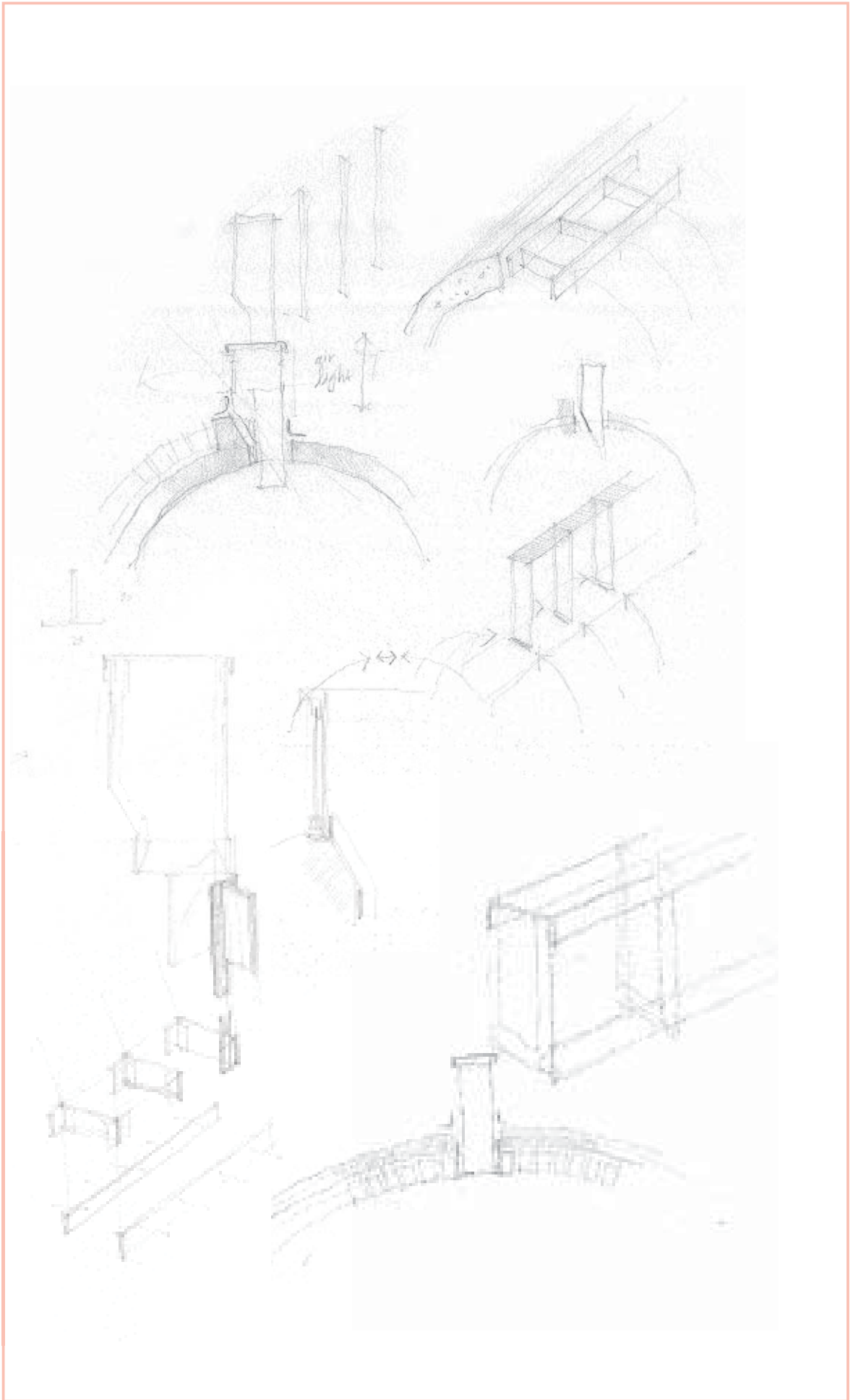


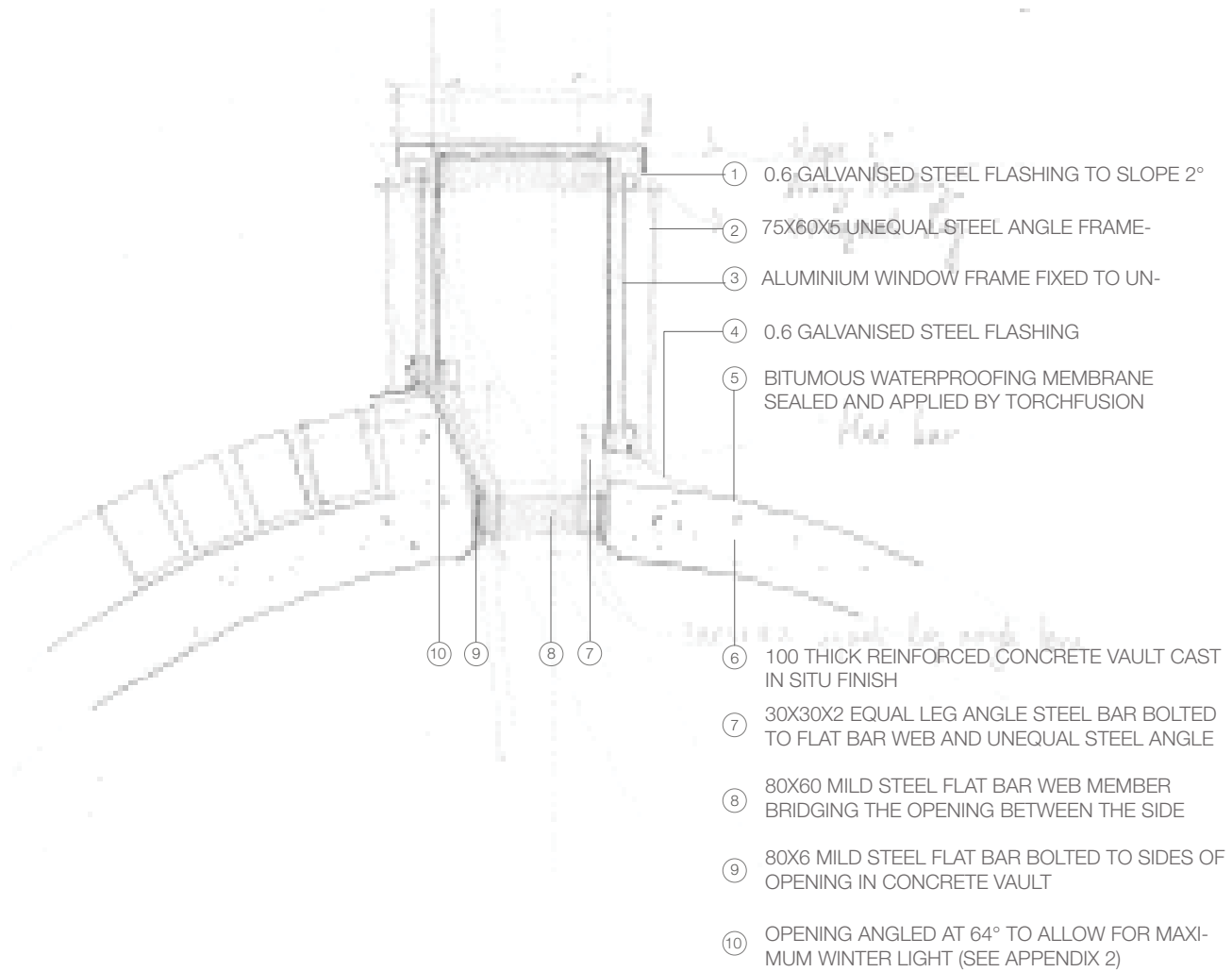
DETAIL II 1:10 NTS



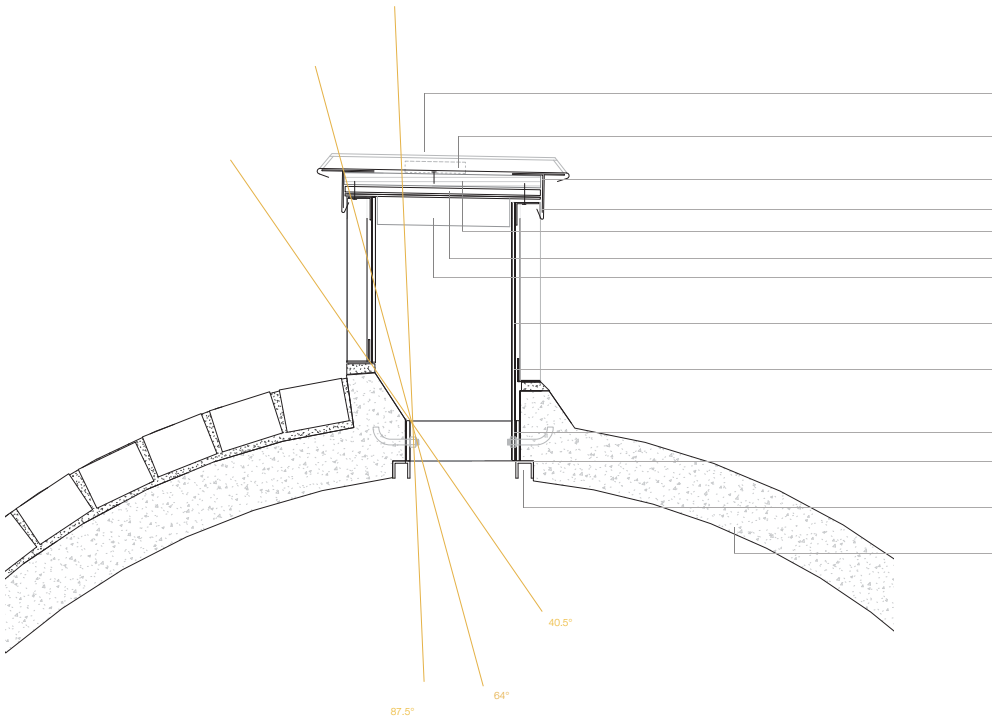


DETAIL III 1:10 NTS





(1:10 TYPE) SKYLIGHT DETAIL II NTS



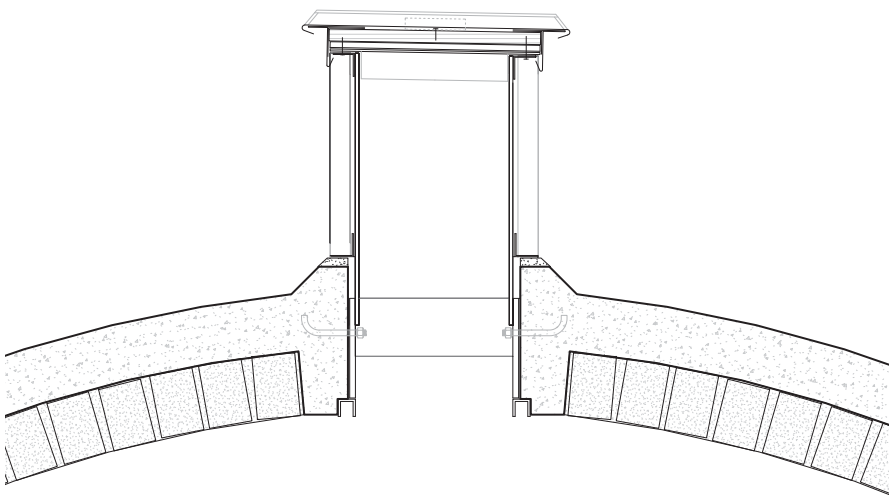
- 0.45 Rheinzinc zinc sheet with standing seams folded over cleat and pinched seams
- 44 x 38 x 0.6 cleat at 300 c/c nailed to marine ply
- layer of felt
- starter clip
- drip edge
- 25 marine plywood solid deck fixed to horizontal leg angle
- vinyl faced gypsum ceiling panel nailed to plywood deck
- 50x50x3 mild steel equal leg angle horizontal member, welded to vertical leg angle, powder coated finish
- 50x50x3 mild steel equal leg angle vertical support welded to mild steel plate, powder coated
- 45x45x3 mild steel equal leg angle sill welded to vertical supports
- levelling grout
- 700x8 mild steel plate bolted to concrete surface with pre-cast anchor bolts, powder coated
- 700x12x180 mild steel plate web member @ 900 c/c, welded to steel plate, powder coated
- 30x30x3 mild steel equal leg angle shadow line, welded to flat sheet, powder coated
- 100 reinforced concrete vault cast in situ
- brick on edge permanent vault shuttering with flush mortar joints

*Waterproofing Concrete Admixture

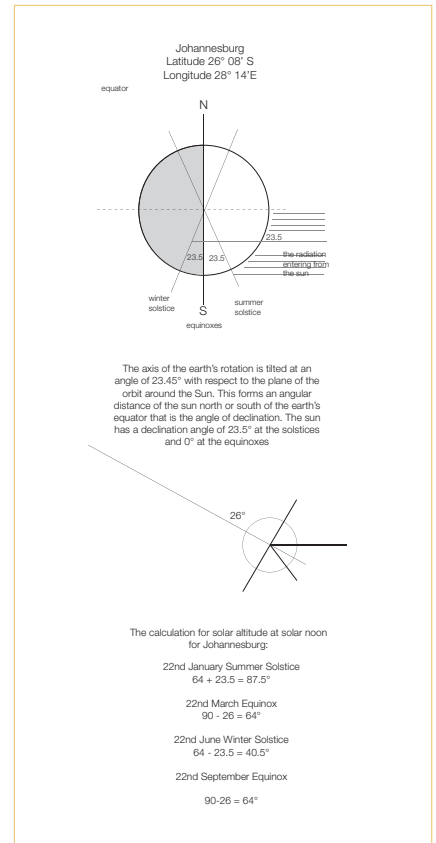
An integral crystalline waterproofing admix is added to the concrete mix at batching stage of the material mix to ratios ranging from 1-2% of the mixture. It consists of Portland cement, very fine treated silica sand and various active, proprietary chemicals. These active chemicals react with moisture and the chemical by-products of cement hydration to cause a catalytic reaction that generates a non-soluble crystalline formation throughout the pores and capillary tracts of the concrete so that it becomes impermeable to water and other liquids.

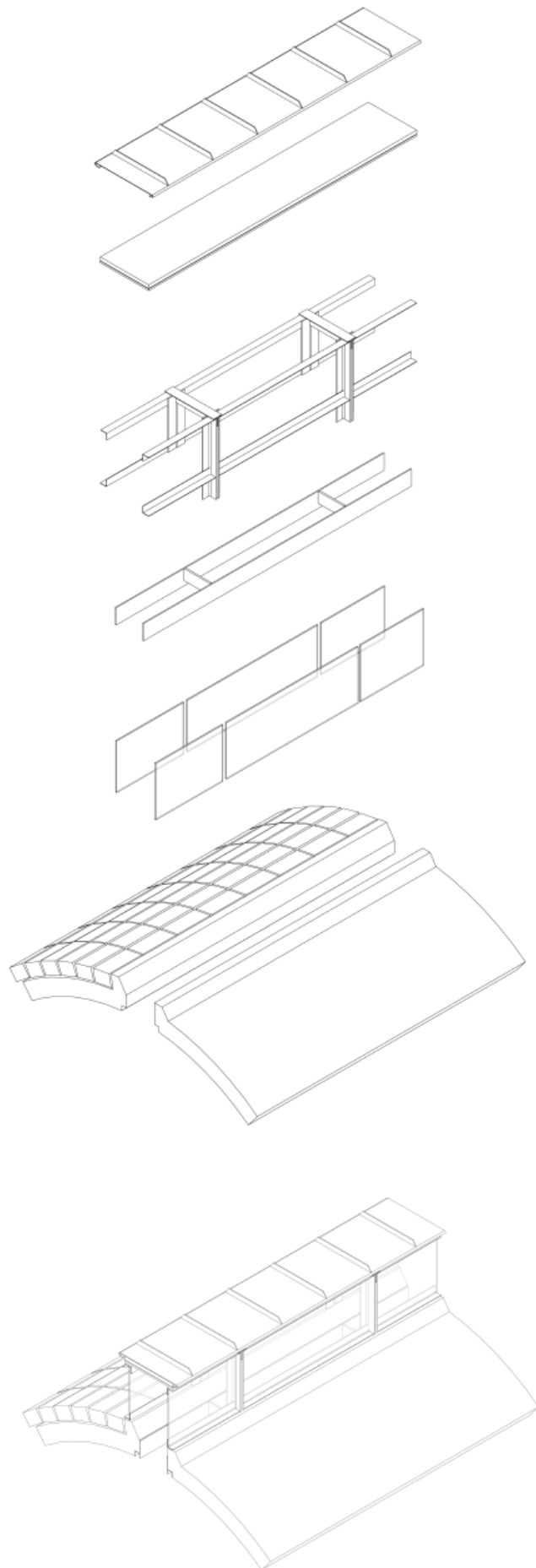
Lafarge Ultra Waterproof Concrete
PENETRON ADMIX®
Xypex Admix C-1000/C-1000 NF
Krystol Internal Membrane™ (KIM®)
CHRYSOBCWA 10

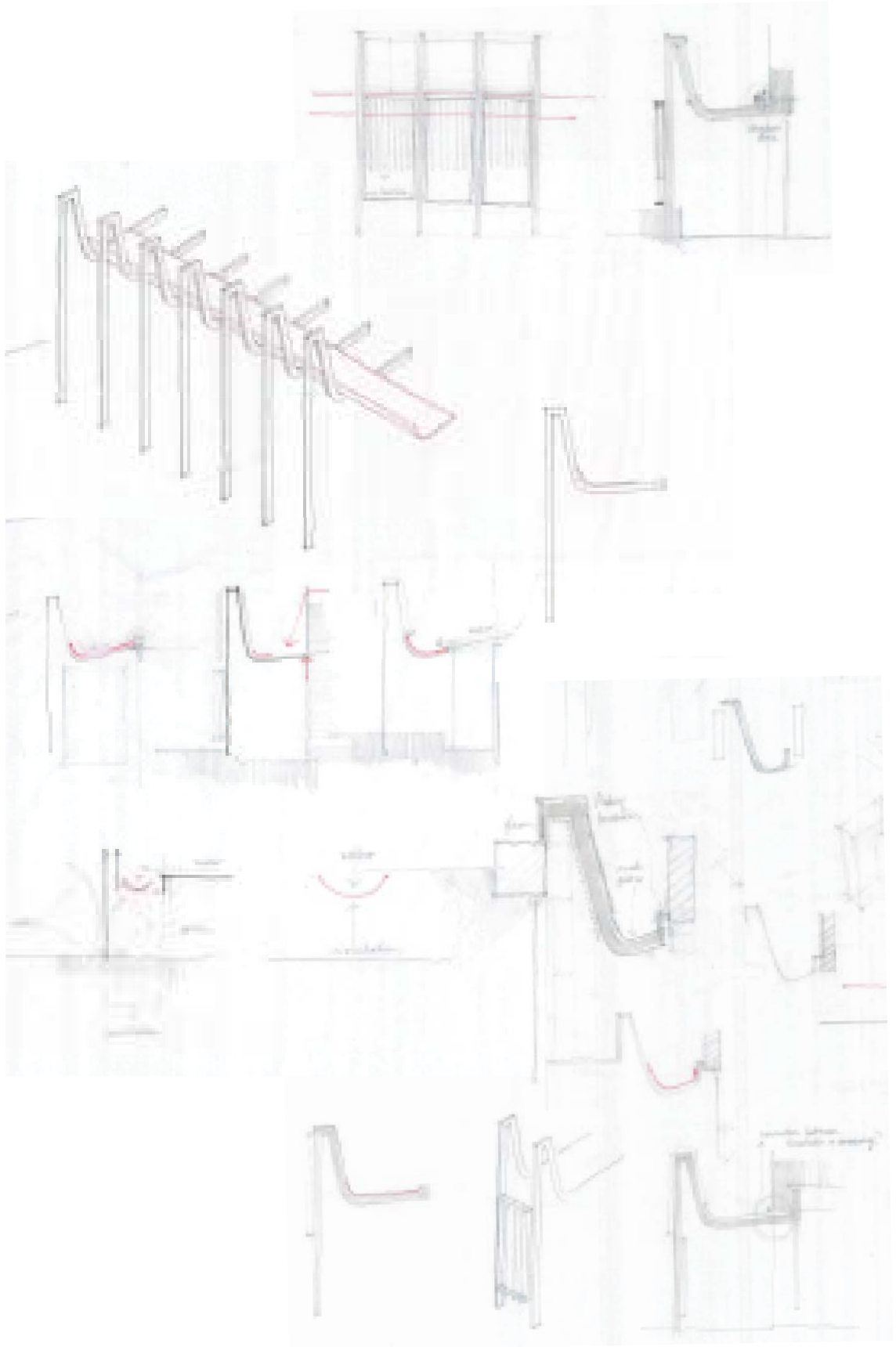
DETAIL IV 1:5 NTS



DETAIL V 1:5 NTS

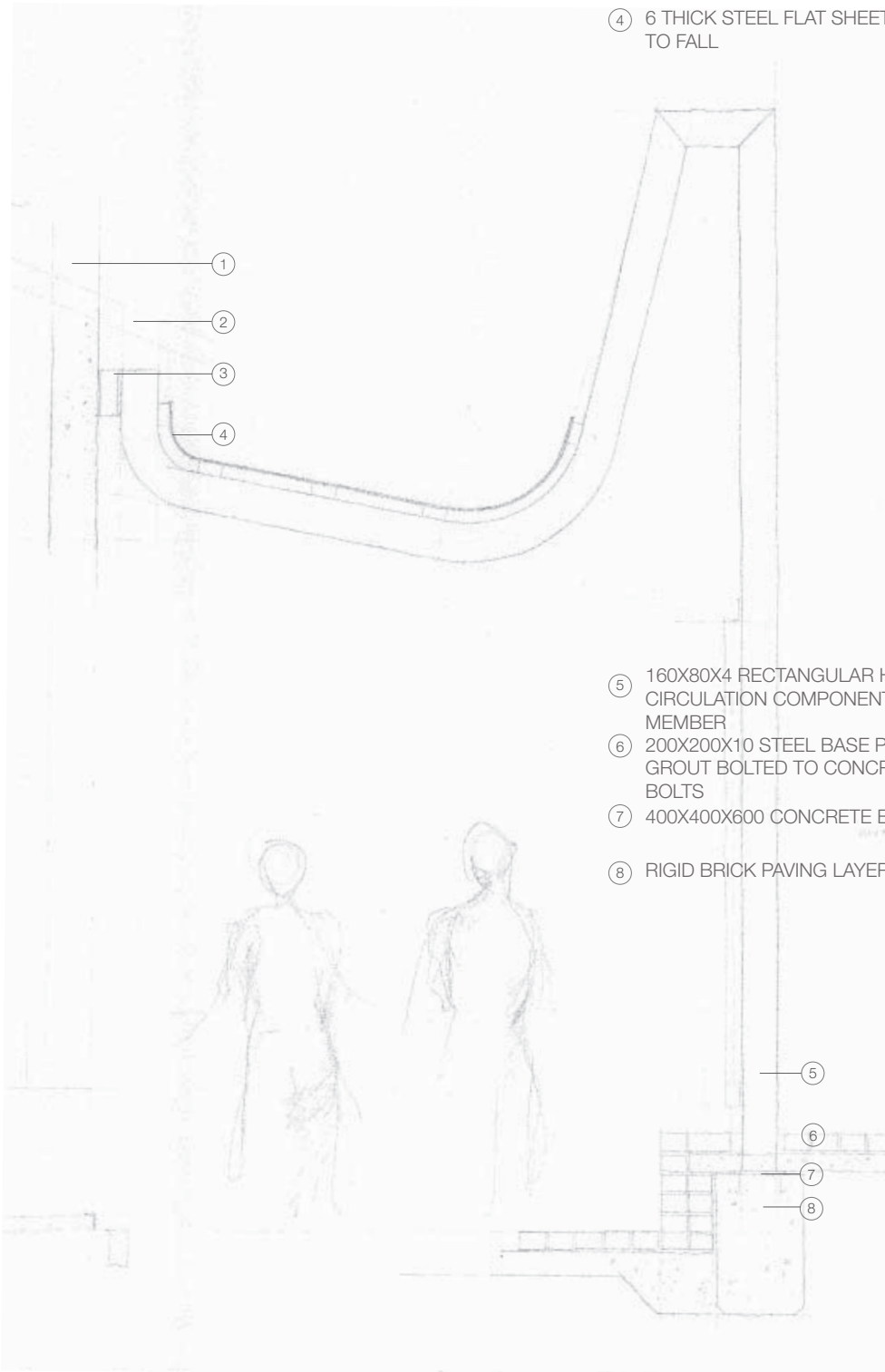






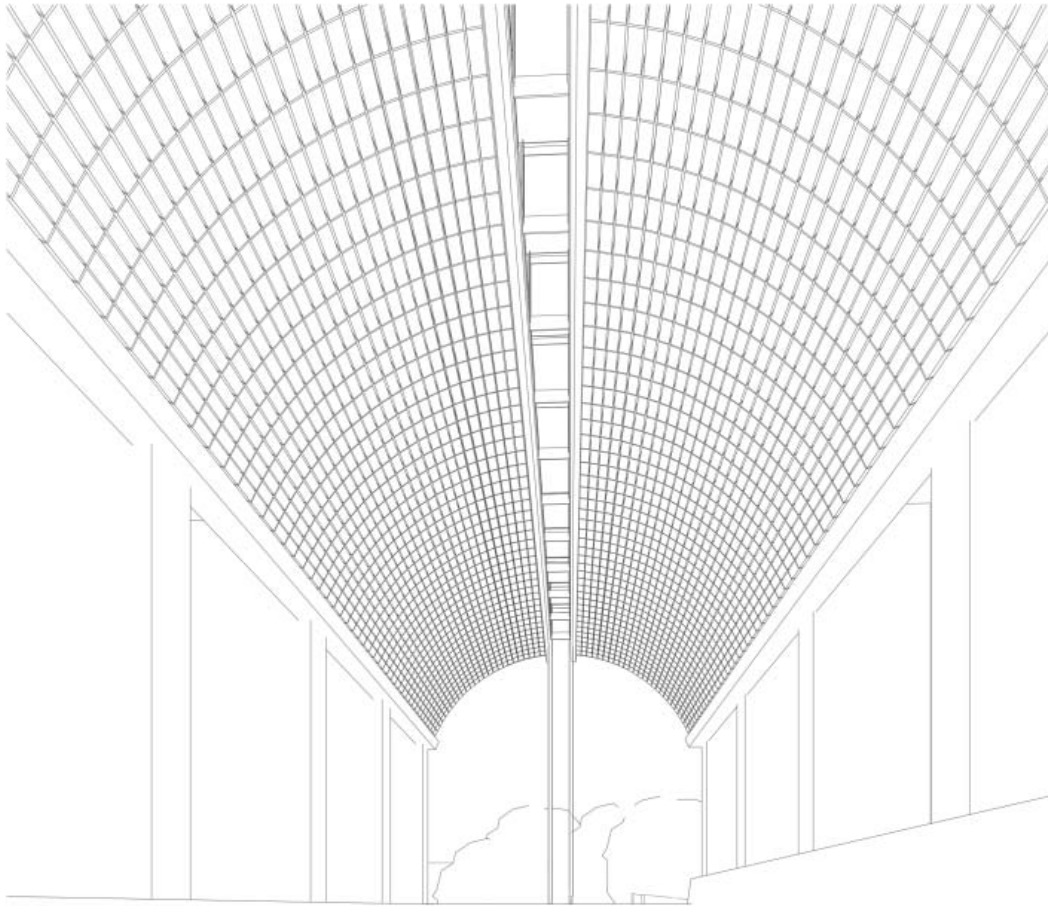


- ① 200 THICK REINFORCED CONCRETE
- ② CIRCULAR MILD STEEL HOLLOW SECTION SPOUT
- ③ 100X55X4 STEEL I-SECTION WEB MEMBER BOLTED TO
- ④ 6 THICK STEEL FLAT SHEET CUSTOM PROFILE GUTTER TO FALL



- ⑤ 160X80X4 RECTANGULAR HOLLOW SECTION CIRCULATION COMPONENT WELDED TO WEB MEMBER
- ⑥ 200X200X10 STEEL BASE PLATE ON LEVELLING GROUT BOLTED TO CONCRETE BASE WITH M16 BOLTS
- ⑦ 400X400X600 CONCRETE BASE
- ⑧ RIGID BRICK PAVING LAYER ON 100 CONCRETE BED

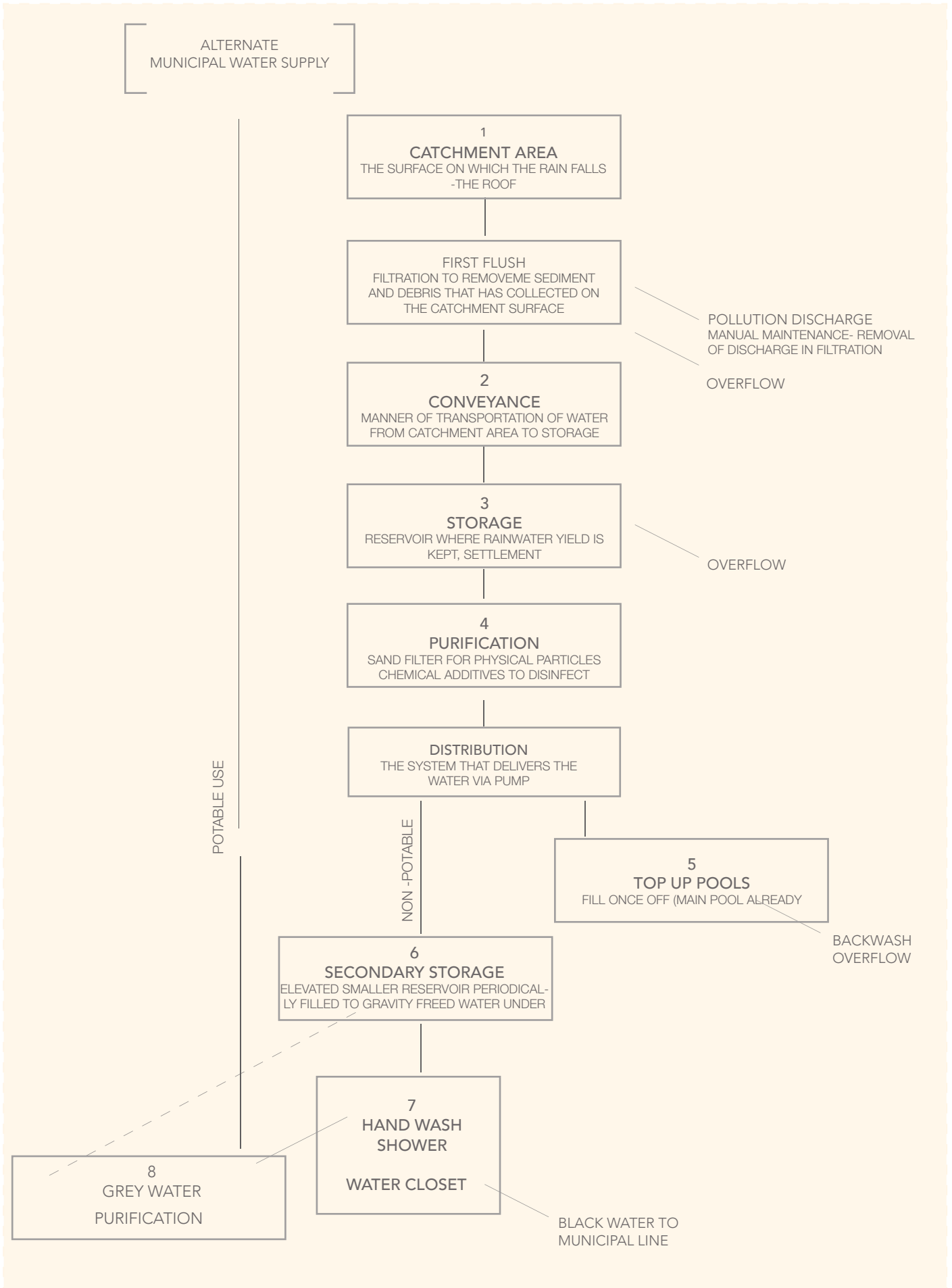
(1:10 TYPE) CIRCULATION DETAIL III NTS







WATER NETWORK





1

2

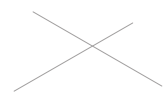
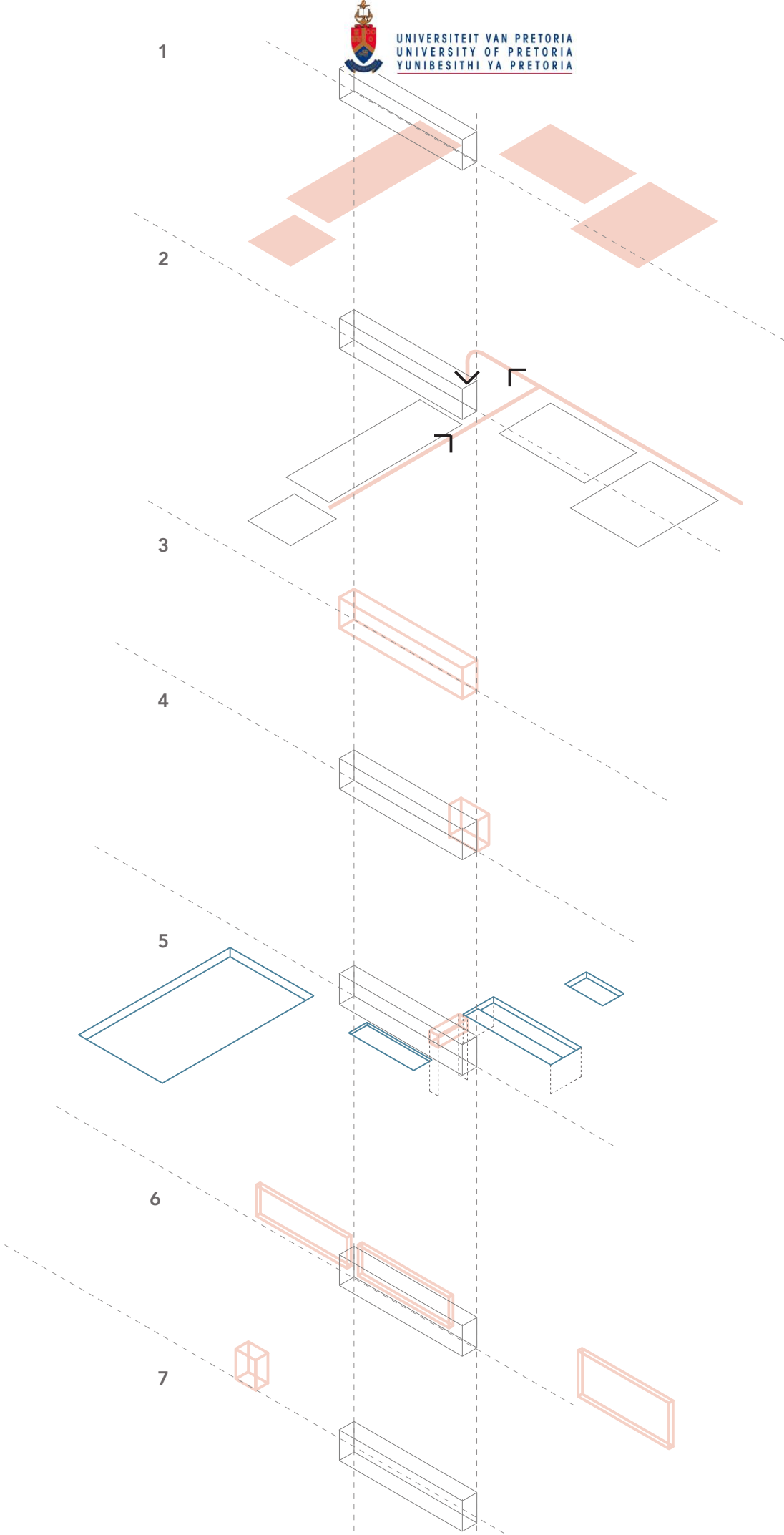
3

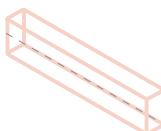
4

5

6

7





STORAGE

CALCULATING THE AMOUNT OF FACILITIES AND THEIR WATER DEMAND

UNDERSTANDING THE WATER DEMAND OF THE BUILDING

PROGRAMME	AREA (M ²)	WATER AREA	SANS OCCUPANCY	POPULATION	SERVICES								NOTES	
					TOILETS			HAND WASH		CHANG-ING ROOMS		SHOW-ERS		
					MEN	(URINALS)	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN		WOMEN
STUDIOS	180		A3	36	1	2	3	2	2					1PERSON/ 5M ²
MAIN HALL	200		A2	120	1	3	5	1	3					1PERSON/ M ² OR CHAIR
					1	1	2	1	1					MAIN HALL PERSONNEL
PERFORMANCE	200		A2	120	1	3	5	1	3					
GYMNASIUM	210		A3	42	3	3	6	3	3	4	4			1PERSON/ 5M ² PEOPLE/HOUR
EXISTING POOL	2200	726		145	3	4	8	4	4	22	22	7	7	5M ² /PERSON STEADY STATE
POOL SURROUND	700		A5	70	2	2	5	3	3					
WADING POOL	300	70		23	1	1	2	2	2	4	4	2	2	3M ² /PERSON 9 PEOPLE/HOUR AND
INDOOR LAP POOL	110	150		28	2	2	3	3	3	4	4	2	2	3M ² /PERSON 10 PEOPLE/45MIN
HYDROTHERAPY	280	55		18	1	1	2	2	2	3	3	1	1	÷3M ² /PERSON 33 PEOPLE/HOUR
CARETAKER			H3	2	1		1	1	1			1	1	
OFFICES	100		G1	7	1	1	2	1	1					1PERSON/ 15M ²
DAYCARE	300		A3	60	2	3	5	3	3					

POOL CAPACITY - BATHING LOAD FOR UN-PROGRAMMED RECREATIONAL SWIMMING A MINIMUM WATER AREA (OCCUPANCY RATIO) OF 3M² PER BATHER SHOULD BE ALLOWED TO ENSURE PHYSICAL SAFETY PP 11 THE SPORT ENGLAND FACILITY PLANNING MODEL USES A FIGURE OF 6M² PER BATHER
TABLE 8 PP48 CHANGING ROOMS AND SHOWERS

SOUTH AFRICAN NATIONAL STANDARD
SANS 10400-A:2010 EDITION 3 ISBN 978-0-626-25157-4

PART A: GENERAL PRINCIPLES AND REQUIREMENTS

SANS 10400-A: 2010 EDITION 3

A20 CLASSIFICATION AND DESIGNATION OF OCCUPANCIES

TABLE 1 - OCCUPANCY OR BUILDING CLASSIFICATION (PP43)

A21 POPULATION

POPULATION PER CLASS OF OCCUPANCY OF ROOM OR STOREY OR PORTION THEREOF

TABLE 2 - DESIGN POPULATION (PP 45)

PART P: DRAINAGE

SANS 10400-P: 2010 EDITION 3

THE MINIMUM NUMBER OF SANITARY FITTINGS TO BE PROVIDED IN ANY BUILDING

4.11 PROVISION OF SANITARY FIXTURES

FIXTURES PER TYPE OF OCCUPANCY AND POPULATION

TABLE 4 — PROVISION OF SANITARY FIXTURES (PP29)

TABLE 6 - PROVISION OF SANITARY FIXTURES FOR PERSONNEL (PP 31)

TABLE 7 - PROVISION OF SANITARY FIXTURES FOR PUBLIC, VIS-

POTENTIAL RAINWATER HARVESTING CAPACITY

TOTAL AREA OF THE ROOF (M ²)	ANNUAL RAINFALL (MM)	POTENTIAL RAINFALL HARVESTING CAPACITY (L)	RUNOFF COEFFICIENT FOR A ROOF	ACTUAL RAINFALL HARVESTING CAPACITY (L)
A			C	
1670	0.714	1192 M3	0.9	1073 M3

	AVERAGE MONTHLY PRECIPITATION (MM)	AVERAGE MONTHLY PRECIPITATION (M)	ROOF YIELD (M3)
		P	P X A X C
JAN	126	0.126	189.378
FEB	90	0.090	135.270
MAR	91	0.091	136.773
APR	52	0.052	78.156
MAY	13	0.013	19.539
JUN	8	0.008	12.024
JUL	4	0.004	6.012
AUG	6	0.006	9.018
SEP	28	0.028	42.084
OCT	73	0.073	109.719
NOV	118	0.118	177.354
DEC	105	0.105	157.815



WATER CAPITA PER DAY FOR SHOWERS, WATER CLOSETS, URINALS AND HAND WASHING

PROGRAMME	POPULATION	WATER USE (L)							
		TOILETS			HAND WASH				
VISITORS	FREQUENCY USE PP PER DAY	0.25	0.75	0.85	0.75	0.85		0.75	
WATER USE PER APPLIANCE		6L	2L	6L	1.4L	1.4L		18 L	
		MALE	(URINALS)	FEMALE	MALE	FEMALE		M + F	
							TOTAL		SUM TOTAL
STUDIOS	36	27	27	92	19	21	186		186
MAIN HALL	120	90	90	306	63	71	620		620
PERFORMANCE ARENA	120	90	90	92	63	71	406		406
GYMNASIUM	42	32	32	214	22	25	324		324
EXISTING POOL COURT	145	109	109	372	77	87	754	1958	2712
POOL SURROUND	70	53	53	179	37	42	362		362
WADING POOL	23	17	17	61	13	14	123	311	434
INDOOR LAP POOL	28	21	21	71	15	17	145	378	523
HYDROTHERAPY	18	14	14	46	9	11	93	243	336
FULL TIME	FREQUENCY USE PP	1	2	3	3	3			
CARETAKER	2	6	4	18	4	4	36		
OFFICES	7	21	14	63	15	15	127		



DEMAND PER MONTH INDICATING THE SEASONAL INFLUENCES ON FREQUENCY AND CAPACITY FOR DIFFERENT PROGRAMMES

															WATER CAPITA A MONTH (L)	DEMAND PER MONTH (M3)
		STUDIOS	MAIN HALL	PERFORMANCE ARENA	GYMNASIUM	EXISTING POOL COURT	POOL SURROUND/ COURT	WADING POOL	INDOOR LAP POOL	HYDROTHERAPY	CARETAKER	OFFICES	DAYCARE			
	WC UR HW	186	620	406	324	754	362	123	145	93	36	127	1092			
	SH					1958		311	378	243						
DAYS IN FULL CAPACITY USE PER MONTH	JAN	20	16	12	20	20	5	20	20	20	31	24	20	132.906	132.906	
	FEB	20	16	12	20	16	5	16	16	16	28	24	20	116.85	116.85	
	MAR	20	16	12	20	12	5	12	12	12	31	24	20	100.866	100.866	
	APR	20	16	12	20		5		12	12	30	24	20	63.078	63.078	
	MAY	20	16	12	20		5		12	12	31	24	20	63.114	63.114	
	JUN	20	16	12	20		5		12	12	30	24	20	63.078	63.078	
	JUL	20	16	12	20		5		12	12	31	24	20	63.114	63.114	
	AUG	20	16	12	20		5		12	12	31	24	20	63.114	63.114	
	SEP	20	16	12	20		5		12	12	30	24	20	63.078	63.078	
	OCT	20	16	12	20	12	5	12	12	12	31	24	20	100.866	100.866	
	NOV	20	16	12	20	16	5	16	16	12	30	24	20	116.85	116.85	
	DEC	20	16	12	20	20	5	20	20	12	31	24	20	132.906	132.906	

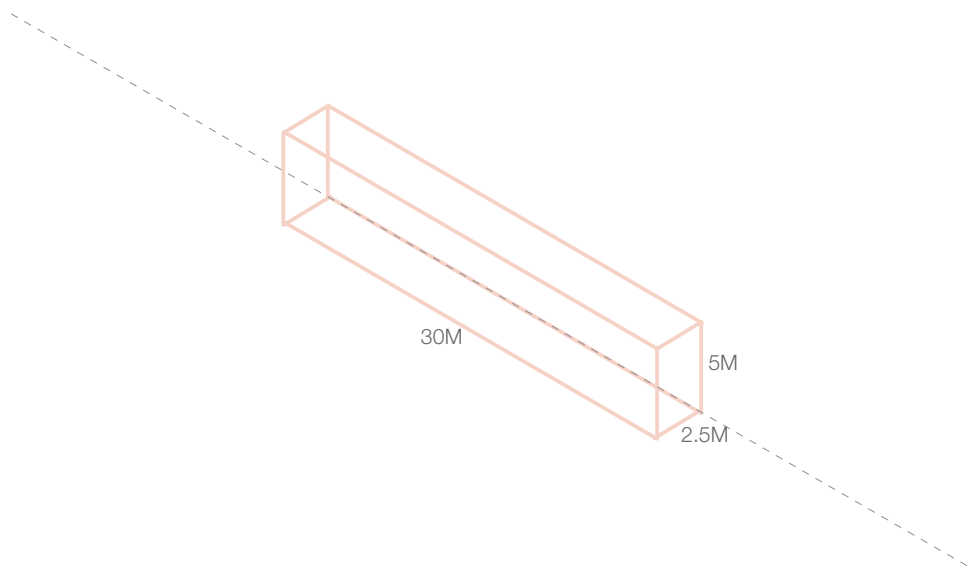
WATER BALANCE AND RESERVOIR SIZE

	ROOF YIELD (M3)	DEMAND PER MONTH (M3)	BALANCE
	P X A X C		
JAN	189.378	132.906	150.738
FEB	135.27	116.85	169.23
MAR	136.773	100.866	205.23
APR	78.156	63.078	220.215
MAY	19.539	63.114	176.64
JUN	12.024	63.078	125.586
JUL	6.012	63.114	68.484
AUG	9.018	63.114	14.388
SEP	42.084	63.078	-6.6.6
OCT	109.719	100.866	8.853
NOV	177.354	116.85	69.357
DEC	157.815	132.906	94.266

The reservoir size was determined by allowing a volume that will contain the maximum monthly water demand per month as well as the maximum amount of surplus water from the yearly water balance:

length x breadth x height

30m x 2.5m x 5m
375m³









6. CONCLUSION

The dissertation is a study in the nature and form of water in an urban environment. The purpose of the dissertation was to consider the use of water in a public urban space where it has largely been absent.

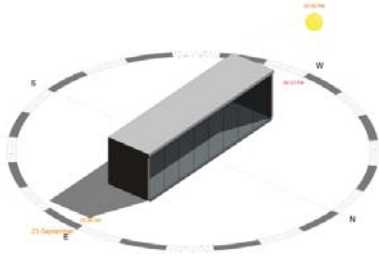
A spatial vocabulary of physical and non-physical boundaries and fascinated situations has been investigated as themes in this study to describe the origin, development and contemporary spatial condition of Johannesburg in the group framework. It has subsequently been adopted to animate an understanding of the context and a reaction to it through design.

The design process has been invigorated with an analysis of the development of the context that takes the growth and stagnation of fantasies and fragments into account. In an attempt to realise a design intervention, the dichotomy between the conceptual nature of water and the rational form saw a design in favour of the detail resolution where the everyday use and ritual in water is celebrated in public space.

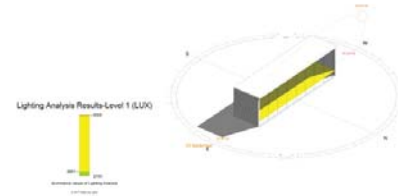
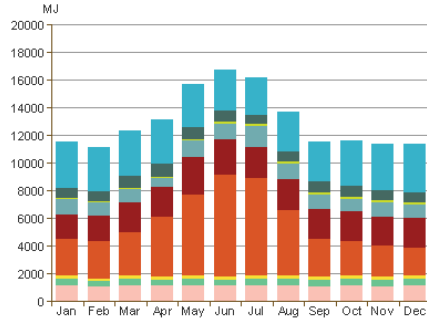
The value of the architecture as a contextual response lies in the exploration of the manifold relationships between the city user, urban fabric and the natural environment and urban as well as human scale at which the haptic experience unfolds.



SINGLE GLAZING WALL



Monthly Cooling Load



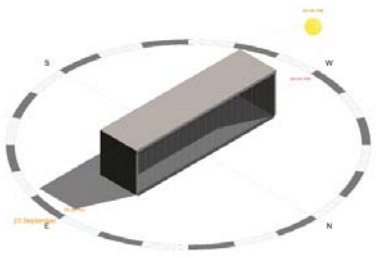
LIGHTING ANALYSIS FOR REVIT

LEED V4 EQC7 OPT2 LIGHTING ANALYSIS RESULTS SUMMARY

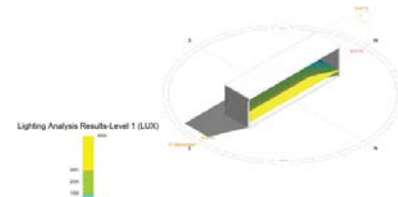
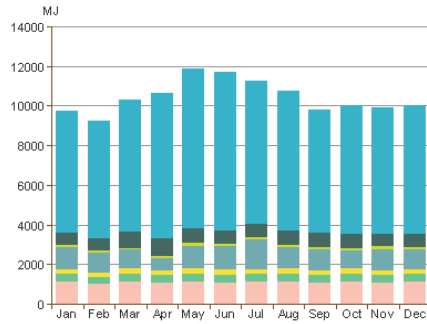
9AM SEPTEMBER 22 GHI: 644, DNI: 727, DHI: 93 WIM2 INCLUDED AREA BELOW LOWER THRESHOLD: 21% INCLUDED AREA PASSING THRESHOLD LIMITS: 78% OLD LIMITS: 82% INCLUDED AREA ABOVE UPPER THRESHOLD: 1%	3AM SEPTEMBER 17 GHI: 525, DNI: 90, DHI: 90 WIM2 INCLUDED AREA BELOW LOWER THRESHOLD: 18% INCLUDED AREA PASSING THRESHOLD LIMITS: 82% INCLUDED AREA ABOVE UPPER THRESHOLD: 1%
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NOTES:

POLYCARBONATE



Monthly Cooling Load



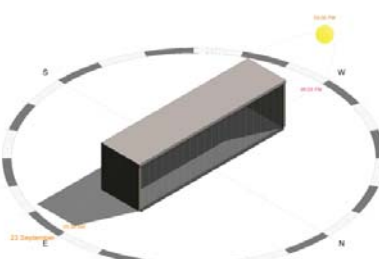
50% TRANSPARRANCY 20 MM CLEAR POLYCARB

LIGHTING ANALYSIS FOR REVIT

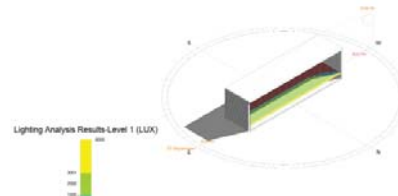
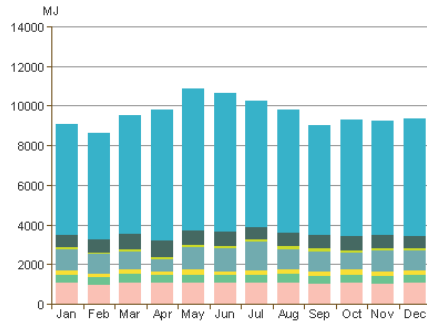
LEED V4 EQC7 OPT2 LIGHTING ANALYSIS RESULTS SUMMARY

9AM SEPTEMBER 22 GHI: 644, DNI: 727, DHI: 93 WIM2 INCLUDED AREA BELOW LOWER THRESHOLD: 0% INCLUDED AREA PASSING THRESHOLD LIMITS: 52% INCLUDED AREA ABOVE UPPER THRESHOLD: 41%	3AM SEPTEMBER 17 GHI: 525, DNI: 90, DHI: 90 WIM2 INCLUDED AREA BELOW LOWER THRESHOLD: 0% INCLUDED AREA PASSING THRESHOLD LIMITS: 59% INCLUDED AREA ABOVE UPPER THRESHOLD: 48%
--	---

DOUBLE POLYCARBONATE



Monthly Cooling Load



50% TRANSPARRANCY 20 MM CLEAR POLYCARB X2

LIGHTING ANALYSIS FOR REVIT

LEED V4 EQC7 OPT2 LIGHTING ANALYSIS RESULTS SUMMARY

9AM SEPTEMBER 22 GHI: 644, DNI: 727, DHI: 93 WIM2 INCLUDED AREA BELOW LOWER THRESHOLD: 99% INCLUDED AREA PASSING THRESHOLD LIMITS: 1% INCLUDED AREA ABOVE UPPER THRESHOLD: 0%	3AM SEPTEMBER 17 GHI: 525, DNI: 90, DHI: 90 WIM2 INCLUDED AREA BELOW LOWER THRESHOLD: 99% INCLUDED AREA PASSING THRESHOLD LIMITS: 1% INCLUDED AREA ABOVE UPPER THRESHOLD: 1%
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NOTES:



50% TRANSPARRANCY 20 MM CLEAR POLYCARB X2

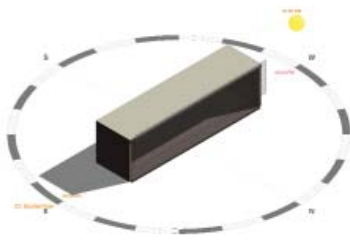
NORTH + SOUTH
LIGHTING ANALYSIS FOR REVIT

LEED V4 EQC7 OPT2 LIGHTING ANALYSIS RESULTS SUMMARY

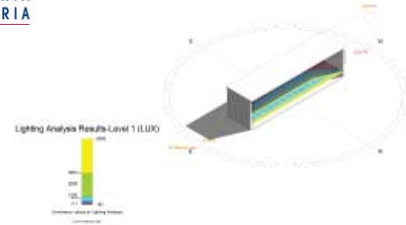
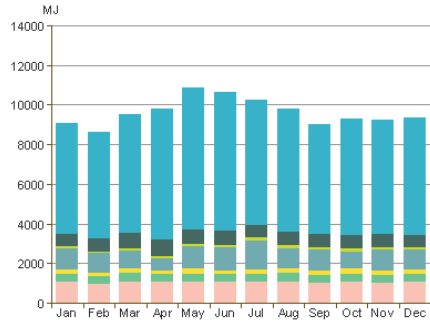
9AM SEPTEMBER 22 GHI: 644, DNI: 727, DHI: 93 WIM2 INCLUDED AREA BELOW LOWER THRESHOLD: 8% INCLUDED AREA PASSING THRESHOLD LIMITS: 81% INCLUDED AREA ABOVE UPPER THRESHOLD: 11%	3AM SEPTEMBER 17 GHI: 525, DNI: 90, DHI: 90 WIM2 INCLUDED AREA BELOW LOWER THRESHOLD: 8% INCLUDED AREA PASSING THRESHOLD LIMITS: 81% INCLUDED AREA ABOVE UPPER THRESHOLD: 11%
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ALUMINIUM



Monthly Cooling Load



Lighting Analysis Results Level 1 (LUX)

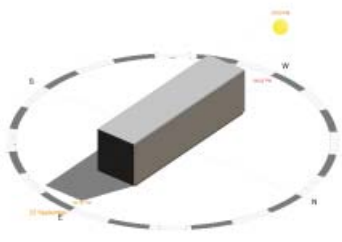
LIGHTING ANALYSIS FOR REVIT

LEED V4 EQC7 OPT2 LIGHTING ANALYSIS RESULTS SUMMARY

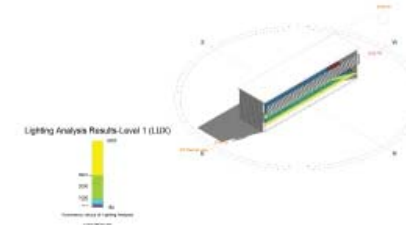
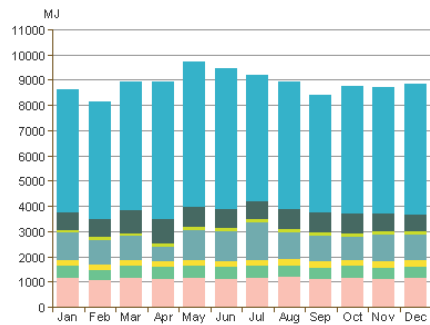
9AM SEPTEMBER 22 GHI: 644, DNI: 727, DHI: 93 WIM2
 INCLUDED AREA BELOW LOWER THRESHOLD: 38%
 THRESHOLD: 29%
 INCLUDED AREA PASSING THRESHOLD LIMITS: 61%
 LIMITS: 70%
 INCLUDED AREA ABOVE UPPER THRESHOLD: 1%
 THRESHOLD: 1%

3AM SEPTEMBER 17 GHI: 525, DNI: 90, DHI: 90 WIM2
 INCLUDED AREA BELOW LOWER THRESHOLD: 38%
 INCLUDED AREA PASSING THRESHOLD LIMITS: 61%
 INCLUDED AREA ABOVE UPPER THRESHOLD: 1%

220 MASONRY WALL



Monthly Cooling Load



Lighting Analysis Results Level 1 (LUX)

LIGHTING ANALYSIS FOR REVIT

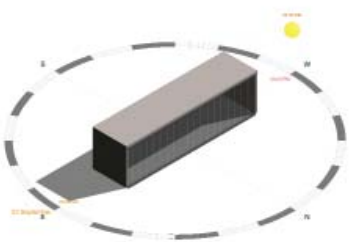
LEED V4 EQC7 OPT2 LIGHTING ANALYSIS RESULTS SUMMARY

9AM SEPTEMBER 22 GHI: 644, DNI: 727, DHI: 93 WIM2
 INCLUDED AREA BELOW LOWER THRESHOLD: 13%
 THRESHOLD: 11%
 INCLUDED AREA PASSING THRESHOLD LIMITS: 86%
 OLD LIMITS: 89%
 INCLUDED AREA ABOVE UPPER THRESHOLD: 1%
 THRESHOLD: 1%

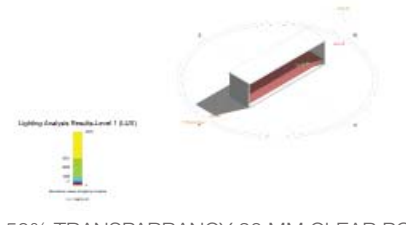
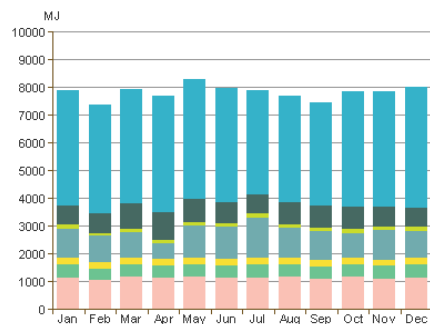
3AM SEPTEMBER 17 GHI: 525, DNI: 90, DHI: 90 WIM2
 INCLUDED AREA BELOW LOWER THRESHOLD: 13%
 INCLUDED AREA PASSING THRESHOLD LIMITS: 86%
 INCLUDED AREA ABOVE UPPER THRESHOLD: 1%
 THRESHOLD: 1%

NOTES:
 LEED REQUIRES THAT BOTH ANALYSIS TIMES MEET PASSING CRITERIA OF AT LEAST 75%

INSULATION



Monthly Cooling Load



Lighting Analysis Results Level 1 (LUX)

LIGHTING ANALYSIS FOR REVIT

LEED V4 EQC7 OPT2 LIGHTING ANALYSIS RESULTS SUMMARY

50% TRANSPARRANCY 20 MM CLEAR POLYCARB 20MM 32 DENSITY GLASS FIBRE BATTING

9AM SEPTEMBER 22 GHI: 644, DNI: 727, DHI: 93 WIM2
 INCLUDED AREA BELOW LOWER THRESHOLD: 59%
 53%
 INCLUDED AREA PASSING THRESHOLD LIMITS: 40%
 47%
 INCLUDED AREA ABOVE UPPER THRESHOLD: 1%
 THRESHOLD: 1%

3AM SEPTEMBER 17 GHI: 525, DNI: 90, DHI: 90 WIM2
 INCLUDED AREA BELOW LOWER THRESHOLD: 59%
 INCLUDED AREA PASSING THRESHOLD LIMITS: 40%
 INCLUDED AREA ABOVE UPPER THRESHOLD: 1%
 THRESHOLD: 1%

NOTES:
 LEED REQUIRES THAT BOTH ANALYSIS TIMES MEET PASSING CRITERIA OF AT LEAST 75%

50% TRANSPARRANCY 20 MM CLEAR POLYCARB 20MM 16 DENSITY GLASS FIBRE BATTING

LIGHTING ANALYSIS FOR REVIT

LEED V4 EQC7 OPT2 LIGHTING ANALYSIS RESULTS SUMMARY

9AM SEPTEMBER 22 GHI: 644, DNI: 727, DHI: 93 WIM2
 INCLUDED AREA BELOW LOWER THRESHOLD: 0%
 0%
 INCLUDED AREA PASSING THRESHOLD LIMITS: 1%
 LIMITS: 0%
 INCLUDED AREA ABOVE UPPER THRESHOLD: 100%
 100%
 THRESHOLD: 100%

3AM SEPTEMBER 17 GHI: 525, DNI: 90, DHI: 90 WIM2
 INCLUDED AREA BELOW LOWER THRESHOLD: 0%
 INCLUDED AREA PASSING THRESHOLD LIMITS: 0%
 INCLUDED AREA ABOVE UPPER THRESHOLD: 100%
 THRESHOLD: 100%

NOTES:
 LEED REQUIRES THAT BOTH ANALYSIS TIMES MEET PASSING CRITERIA OF AT LEAST 75%



		VARIABLE WALLS						
					K			
			U VALUE (CON- DUC- TANCE)	R VALUE (INSULA- TION) THERMAL RESIS- TANCE	THERMAL/MA- TERIAL CONDUCTIVITY	THER- MAL MASS	MATERIAL DENSITY	SOLAR HEAT GAIN FACTOR SHGF
MODEL A			W/M ² K	M ² K/W	W/MK	KJ/K		
	220	FIRED CLAY BRICK	2	0.44	0.54		1 550	
MODEL B								
	6	SINGLE GLAZING	6	0.91	1.1		2480	CLEAR 0.84
MODEL C								
	6	GLAZING	3	2.04	1.1		2480	0.67
	12	AIR SPACE						
	6	GLAZING			1.1		2480	
MODEL D								
	10	POLYCARBONATE			0.192		1350	
IMPACT RESIS- TANCE, WEIGHT, UV PROTECTION		SUNPAL 600 X 25.5 X 33 10MM	2.10	0.47				50% 0.56
		MULTIWALL CLICKFIX 40MM			0.99			44% 0.28
		DUROPLASTIC	2.5					34%
		TUFLITE 16MM			0.21		1200	80% (CLEAR)
		AMPELITE LEXAN THERMOCLEAR 16 MM THERMOCLICK 40 MM POLYRIB 16	2.27 1.27 2					74 (CLEAR) 59 0.64 62
MODEL E								
	10	POLYCARBONATE						
	150	AIR SPACE		1				
	10	POLYCARBONATE						
		DANPATHERM K 7 FACADE AIR GAP 12 46 12 INSULATED GAP 12 46 12	1.18 0.79	0.89				35 0.4 19 0.3
MODEL F								
	10	POLYCARBONATE						
	150	AIR SPACE		1				
	10	POLYCARBONATE						
	200	AIR SPACE		1				
	10	ALUMINIUM		0.61	230		2700	





APPENDIX 1

		EXISTING POOL	WADING POOL	INDOOR LAP POOL	HYDROTHER- APY
	POOL WATER AREA M ² AREA TO BE SERVED BY CHANGING ROOMS	726	70	150	55
STEADY STATE CONDITION					
A	CAPACITY WATER AREA (RANGING FROM 3M ² PER PERSON FOR UNPROGRAMMED SWIMMING TO 6M ² PER PERSON FOR PROGRAMMED SWIMMING)	145	23	25	18
B	ASSSUMED TIME IN POOL COURT (HOURS)	0.75	0.75	0.75	0.75
C	NUMBER CHANGING PER HOUR = A/B	193	31	33	24
D	NUMBER OF PLACES REQ= C/4.5 (CHANGING ROOMS OPEN OR CLOSED) M + F 4.5 BY ASSUMING AN AVG. TIME FOR CHANGING OF 13 MINUTES DIVIDED IT INTO 1 HOUR	43	7	7	5
E	LOCKER PROVISION = A X 75%	108	17	19	14
SANITARY APPLIANCES					
	MALE OCCUPANCY = A X 50%	73	12	13	9
	2 FOR UP TO 100	WC	2	1	1
	1 PER 20	URI	3	1	1
	1 PER WC AND 1 PER 5 URINALS	HW	3	2	2
	1 PER 10	SH	7	1	1
	FEMALE OCCUPANCY = A X 50%	73	12	13	9
	1 PER 10 UP TO 50 AND 1 PER ADDITIONAL 10 THEREAFTER	WC	6	1	1
	1 + 1 PER 2 WC	HW	3	2	2
	1 PER 10	SH	7	1	1

(SWIMMING POOLS DESIGN. UPDATED GUIDANCE FOR 2011., 2011) PG 85-86

SANS FROM TABLE 9 - PROVISION OF SANITARY FIXTURES FOR PARTICIPANTS IN SPORT						
SANITARY APPLIANCES						
MALE OCCUPANCY = A X 50%		73	12	13	9	
	WC	4	1	1	1	
	URI	5	1	1	1	
	HW	5	1	1	1	
	SH	5	2	2	2	
FEMALE OCCUPANCY = A X 50%		73	12	13	9	
	WC	8	2	2	2	
	HW	5	1	1	1	
	SH	5	2	2	2	

JOHANNESBURG WEATHER DATA

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
MAXIMUM MONTHLY TEMPERATURE DEGC	25.6	25.1	24.7	21.2	18.9	16	16.6	19.3	22.8	23.7	24.1	25.2
MINIMUM MONTHLY TEMPERATURE DEGC	14.7	14.2	13.2	10.4	7.3	4.2	4.3	6.3	9.5	11.3	12.7	13.9
AVERAGE PRECIPITATION MM	126	90	91	52	13	8	4	6	28	73	118	105
NUMBER OF WET DAYS	15	12	12	7	4	1	2	2	4	9	13	15

7. LIST OF REFERENCES

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