GATEWAY INTO A CITY

A TRANSPORT INTER-CHANGE IN VEREENIGING

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I, (Paulo da Silva, 0603527A) am a student registered for the course ARPL4002 in the year 2016. I hereby declare the following:

I am aware that plagiarism (i.e. the use of someone else's work without acknowledging the original sources) is wrong. I confirm that the work submitted for assessment for the above course is my own unaided work except where I have stated explicitly otherwise. I have followed the required conventions in referencing thoughts, ideas, and visual materials of others. I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my unaided work or that I have failed to acknowledge the source of the ideas or words in my own work.
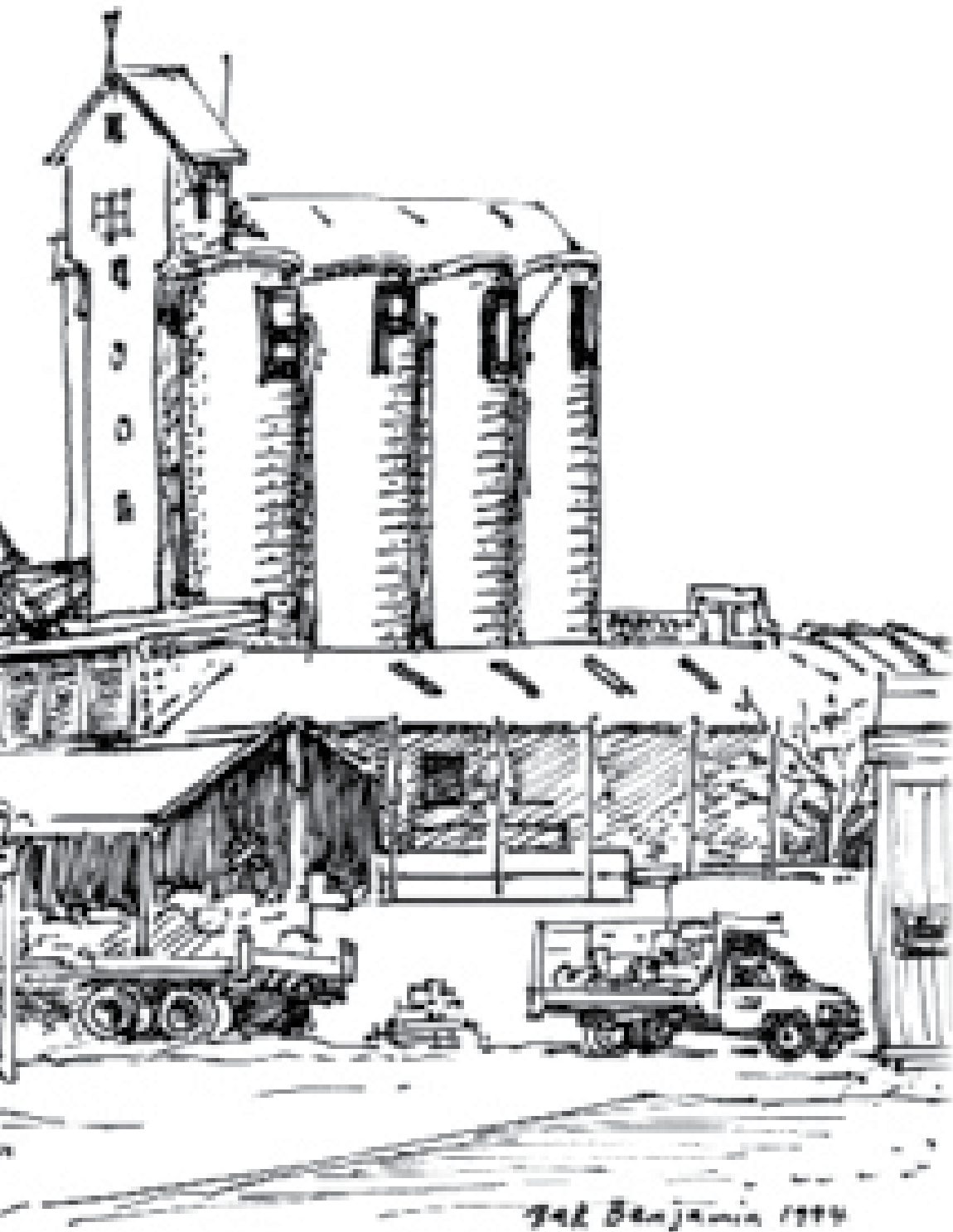
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FIG. 1:
EPOL SILO SKETCH
Source: Drawing by Izak de Villers

C O N T E N T S

<u>Gateway into a City</u>
is an anthology,
an exploration of the movements
that have created Vereeniging and
that continue to shape the city.
This book will reward
the curious individual
eager to know more about the city.

Turn the page and begin the journey
as we explore this urban landscape
- past and present

FIG. 2:
Vereeniging Station, Platform No. 2
Photo: author's own

FIG. 3:
Map of Gauteng
Drawing: author's own

FIG. 4:
Regional map showing Vereeniging
Source: NGI archives

0   100   200   300   400   500m

N

FIG. 5:
Map of the Vereeniging CBD foot print
Drawing: author's own

FIG. 6:
This drawing was part of my initial investigation into Vereeniging. It is a visual narrative of the most commonly used form of transport experienced, the mini-bus taxi. The Taxi travelled from the Sebokeng taxi rank to the Vereeniging Train Station and back again. The on looker, who gazes at the portrait, becomes immersed as a passenger in the taxi and experiences the journey I took.
Drawing: author's own
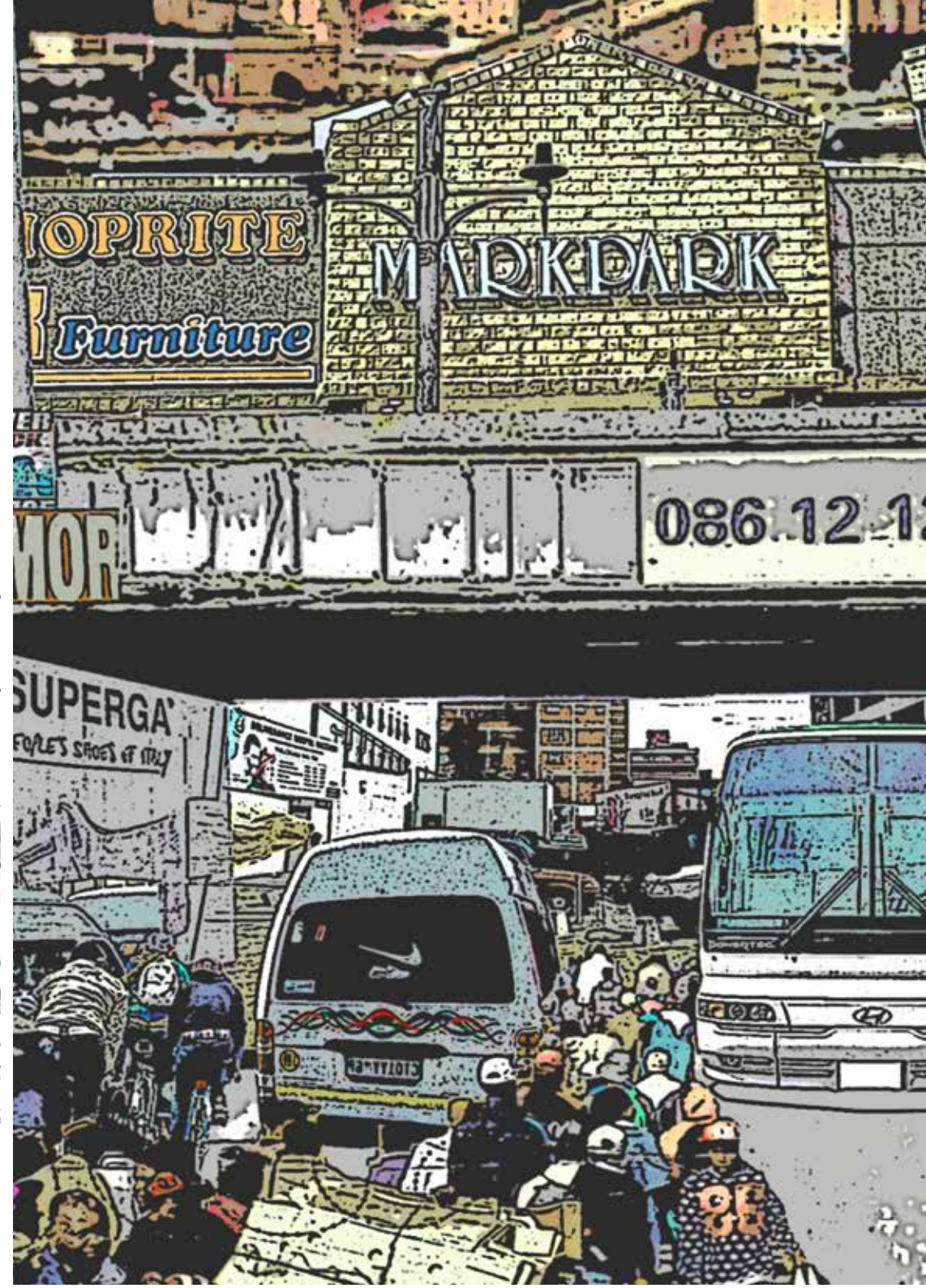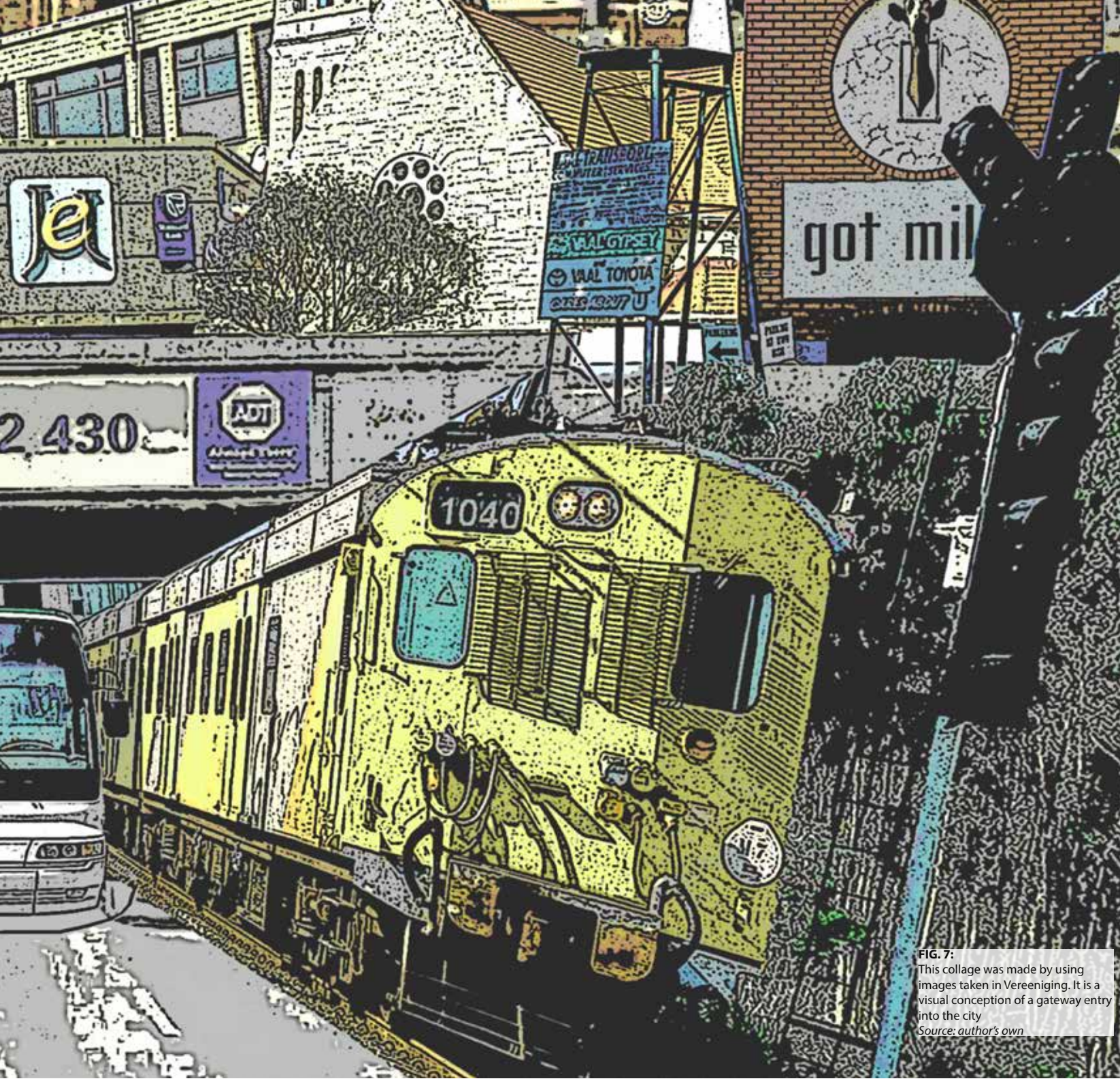
FIG. 7:
This collage was made by using images taken in Vereeniging. It is a visual conception of a gateway entry into the city
Source: author's own

Abstract

This research report is an exploration of the public arena of a transport interchange in Vereeniging's urban centre, and the opportunities created within a zone where many people of different backgrounds converge and interact. Therefore the document looks at various forms of transport converging on a single node and how best to integrate these into a single zone where all can feed off one another and enhance the experience within the public transport realm itself.

The divisions of race, class & income cannot be wished away in Vereeniging, therefore the urban context of the inner city needs to be addressed (this indirectly affects the mindsets of the city's inhabitants).

The local informal economy, mini-bus taxi industry, bus services and rail have each appropriated responses to overcome the obstacles of segregation. The entrenched presence of the local informal economy and mini-bus taxi industry and its legal conflict with formal urban systems further fuels their independence. This still young newly found independence can mature in an urban intervention in which new rules of engagement are charted and a new tradition in the built environment begins.

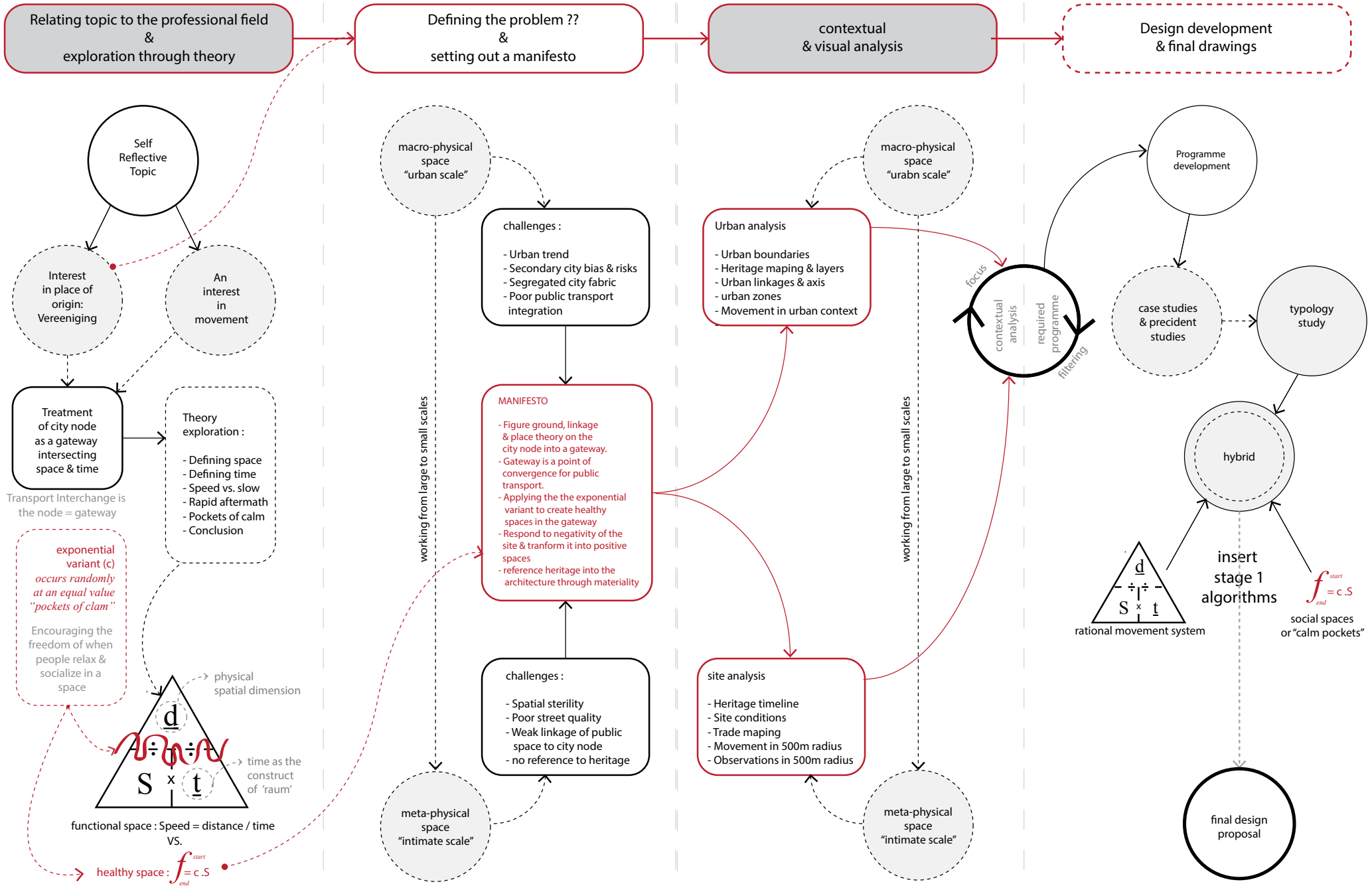Therefore a gateway is a metaphor for the integration of public transport modes into a point of convergence at an urban movement node. It is also here at the threshold of this gateway, in and out of the city, that trade is best exploited and social engagements have the highest potential. It is not about erasing but rather reassembling a viable urban future, through learning from and working within the given conditions.

STAGE 1 : INITIATION PHASE   STAGE 2 : CRITICAL ARGUMENTITIVE PHASE   STAGE 3 : ACTIVE RESEARCH   STAGE 4 : FINISHING PHASE

Relating topic to the professional field & exploration through theory

Defining the problem ?? & setting out a manifesto

contextual & visual analysis

Design development & final drawings

Stage 1

Self Reflective Topic

Interest in place of origin: Vereeniging

An interest in movement

Treatment of city node as a gateway intersecting space & time

Theory exploration :
- Defining space
- Defining time
- Speed vs. slow
- Rapid aftermath
- Pockets of calm
- Conclusion

Transport Interchange is the node = gateway

exponential variant (c)
occurs randomly at an equal value "pockets of clam"

Encouraging the freedom of when people relax & socialize in a space

→ physical spatial dimension

$\underline{d}$

$\dfrac{\div}{S \,\times\, \underline{t}}$

→ time as the construct of 'raum'

functional space : Speed = distance / time
VS.

healthy space : $f_{end}^{start} = c\,.S$

Stage 2

macro-physical space "urban scale"

challenges :
- Urban trend
- Secondary city bias & risks
- Segregated city fabric
- Poor public transport integration

working from large to small scales

MANIFESTO
- Figure ground, linkage & place theory on the city node into a gateway.
- Gateway is a point of convergence for public transport.
- Applying the the exponential variant to create healthy spaces in the gateway
- Respond to negativity of the site & tranform it into positive spaces
- reference heritage into the architecture through materiality

challenges :
- Spatial sterility
- Poor street quality
- Weak linkage of public space to city node
- no reference to heritage

meta-physical space "intimate scale"

Stage 3

macro-physical space "urabn scale"

Urban analysis
- Urban boundaries
- Heritage maping & layers
- Urban linkages & axis
- urban zones
- Movement in urban context

working from large to small scales

focus

contextual analysis   required programme

filtering

site analysis
- Heritage timeline
- Site conditions
- Trade maping
- Movement in 500m radius
- Observations in 500m radius

meta-physical space "intimate scale"

Stage 4

Programme development

case studies & precedent studies

typology study

hybrid

$\underline{d}$

$\dfrac{\div}{S \,\times\, \underline{t}}$

rational movement system

insert stage 1 algorithms

$f_{end}^{start} = c\,.S$

social spaces or "calm pockets"

final design proposal

Methodology

The structure used for the methodology is a standard structure for architecture that consists of four main stages: an initiation phase, critical argumentative phase, active research phase and the final phase.

The initiation phase begins by crafting the topic. The roots of the topic are explained and investigations are made. The topic is also explored through architectural theory. The architectural theory discussed in this research report was encountered through reading groups lead by Prof. Jonathan Noble. The theory discussed in these sessions mostly addressed urban and architectural theory relating to time in modernity.

The second phase builds an argument for the topic by defining problems relative to the architectural field and discussing it through the context of Vereeniging. The dialogue is gathered and summarized into a maifesto.

The third phase responds to the challenges in the manifesto. It is a focussed discussion on challenges in the manifesto, this broadens the research to highlight design considerations that will be carried through into the design development. This research stage is commonly understood as a combination of a contextual and visual analysis. The information gathered from the analysis helps illustrate issues, and describes the physical built environment. This process includes observations, interviews, diagrams and drawings (technical and creative).

The last phase focuses on the design process. Case studies are first examined to help develop and explore workable programme for the intended design. A step by step response to phase 3 is explained in the form of diagrams. These diagrams help to lead the design towards the final drawings. This would also include diagrams to help relate the final drawings to the initial theory from phase one.

FIG. 8:
Research mind map
Source: author's own

STAGE 1

INITIATION
PHASE

THEORY EXPLORATION

Interest in place of origin: Vereeniging

An interest in movement

Treatment of city transport node as a gateway for social engagement, arrivals and departures

Theory exploration conducted in reading groups develops written dialogue

macro-physical space "urban scale"

3. Speed/ velocity

1. physical spatial dimension 'raum' *Pg16.*

Functional scapce

5. **Pg18.**

Rapid aftermath **Pg22.**

2. time as the construct of 'raum' *Pg17.*

$\frac{d}{S \times t}$

rational movement system
functional space : Speed = distance / time

opposite reaction

sterile/ negative solid/perminent

exponential variant (c) *occurs randomly at an equal value "pockets of clam"*

Encouraging the freedom of when people relax & socialize in a space

6. Escape speed **Pg23.**

Liviable space: $= f_{end}^{start} c.S$

fertile/positive in-between/ temporal

Livable space

Pg26.

4. Slow pockets of calm **Pg19.**

working from large to small scales

meta-physical space "intimate scale"

Conclusion **Pg.**

$\frac{d}{S \times t}$

achieving a balance offering a space that is **functional & liviable**

FIG. 10:
Initiation phase: Theory diagram
Source: author's own

Introduction

In order to build up an understanding of the public realm of an industrial city, a series of explorations and questions have been undertaken. Through the process of exploration of theories , a method of asking, exploring and answering has lead to a better understanding of the motives behind the document and will in turn allow for a holistic design.

In order to define space and place, this documented theory begins with exploring the notion of space and place and comparatively argues between two extremes. These questions were raise in reading groups lead by Jonathan Noble. Out of the theory explored from the reading group two main ordering principles were deduced: defining place and the creation of place. Each principle has been catalogued into a section composing of various ideas and theories, which shall be discussed in detail in the chapters to follow.

0.1

The notion of 'raum'

The word 'space' in the English language is limited and restrictive and, to confuse us further, may also refer to outer space. Therefore an expansive understanding is necessary.

The conception of the notion of space into an ideology, that it is a representation of intellectual thought, and the systems imposed on them is at first an extremely intimidating task. The German word for space 'raum,' also means room, but here the meaning implies expansion or availability of space in a positive manner (van de Ven, 1980: XII). The German language amplified the science as it is easier through this medium to understand and identify raum as a representation of abstracted and unconstrained intellectual ideas (van de Ven, 1980: XIII).

The difficult task of manifesting the ideology

of raum may have been alien, but the concept of raum as a fundamental tool of architecture is a German contribution that was born out of the science of perception psychology- 'und analyse'.

Raum is a familiar concept to architects nowadays, but according to Immanuel Kant, a German philosopher, space and time is a primary condition of human intuition (van de Ven, 1980: XI). Human beings thus have a fixed or hard-wired natural understanding of space and time. This is a survival skill that has evolved over time.

Firstly, consider the role our senses play in forming an awareness of our surroundings and of our physical bodies - this assists us in identifying space or spatial dimension. Spatial dimension is summarized by Mitchell. W. Schwarzer, an architectural historian, where he charges the emergences of architectural space as having dimensions of a relative, moving and dynamic entity (Vidler, 2000: 2). Secondly, the ability to perceive time enables us to consciously react in real time to a situation, such as avoiding a collision by increasing one's pace.

Sensibly, one could argue that time is the least obvious component in the construct of a spatial experience as it is intangible. Humans cannot physically see it, touch it or examine it. It is beyond our sense of vision, but we know it exists because we are intuitively aware of time passing.

These intuitions are essential in order to grasp a spatial experience that is only achieved by moving our bodies through space and time. Raum and the inevitable experience of it occurs on different scales: macro scale (the city and landscape) and micro scale (engaging with smaller aspects of the city: a specific building or place in the city or street interface).

0.2

Time in Modernity:

Time is the least obvious component in the construct of a spatial experience.

Additional to the construct of a space is the notion of place-making which incorporates and acknowledges context. It is rooted in the understanding of a spatial experience and becomes subject to time as it is preserved in memory.

Aristotle's place theory became relevant after Albert Einstein's, a German-born theoretical physicist, theory in relativity was published in the early 19th century. The interest and concern for time brought focus to existential philosophy that was relevant to the daily humdrum of human existence which recognized an infinite whole and forced inward growth.

Without casting any doubt, the most prominent characteristic of life in the most recent portion of the 20th century is speed in cities - what we may refer to as its haste. The haste of the city is the rate at which we move and the heightened pressure at which we perform work. The haste or pace of life is defined as the rate (Lauer, 1981), speed (Amato, 1983) and relative rapidity or density of experiences, meanings, perceptions and activities (Werner et al,1985: 14). According to Paul Virilio (2004), a French philosopher, the European city prior to Modernism and Industrialism, was not the madhouse that we have become accustomed to living in today.

Modern architecture & technology was used to its fullest potential in solving the problem of the city such as mass housing and mass transit. Orientating city design for the vehicle & mass transit (fig. 11, refer to pg 90) developed out of the CIAM meetings (Eardley, 1943). The Congrès internationaux d'architecture moderne (CIAM), was an organization founded in 1928 and disbanded in 1959, and was responsible for developing and spreading the principles of the Modern Movement that was to rebuild the world's cities. It was a response to the rapidly growing urban populace around the world. It seemed necessary in the 20th century to be rational, analytical, logical, sequential, critical and selective when approaching a design scheme for cities and architecture (Goldsmid, 1997).

Modernism did more than usher in a vision of a city fit for, at the time, a futuristic 20th century; it imposed systems and technology on society: industrial time management, mass transport networks (fig. 11, refer to pg 90), instantaneous communication, electronic time and electronic light (Virilio, 2004: 83-89).

Individual existence, freedom and choice, as emphasized by an existentialist approach to life is based on the concept that humans define their own commitments and responsibilities for their own acts and decisions in an uncertain, irrational and purposeless universe (The Lexicon Webster Dictionary, 1979: 344). It is this very philosophy that questions our pace of life from one extreme to the other, from Davies poem 'Leisure' … "a poor life this, if full of care, we have no time to stand and stare." to carpe diem.

FIG. 11:
Highway intersection in Los Angeles.
Source: www.skolatroubky.com

The constant growth and development of a modern city that supports a modern life-style is the speeding up of modernity. What results from the urban growth are vectorial , the shortest and most direct path between two points, movement networks that shorten the time between arrival and departure.

The intrusion caused by this was the train timetable dictating social time as opposed to an agricultural almanac. The irony here is that an almanac is planned with the natural rhythms of nature to which humans are more attuned, whereas a train timetable is man-made and is completely forced upon a society.

Social time is shaped by timetables and rhythms and is enacted through various broadly secular and religious systems of social disciplines (May et al, 2001: 4). Its experience is multiple and heterogeneous and in social practice is spatially composed - thus making it dynamic (Thrift, 1988).

For instance, if greater productivity is to be achieved, it will rely upon a time-based discipline, so that the worker's use of time is monitored through an appropriate use of space in the workplace (May et al, 2001: 5). Similarly, other needs will also arise in a society.

0.3

Work in the city

Vectorial networks that shorten the time between work and home.

A sense of unity and place in the city is lost where city dwellers are no longer understood as inhabitants or as favoured residents. The arrival or gateway into the city is radically transformed into a conveyance of vehicles and vectors. Vectors in this instance refers to the most direct travel paths from A to B. Road users are now fused into a permanent transit where continuity is not interrupted.

Urban raum loses its geographical reality due to the benefit of systems of rapid deportation. The transport systems that caused the deportation of the agrarian landscape continues to fragment, segregate and displace the city (Virilio, 2004); they shorten the time between departure and arrival and reconstruct the social fabric. This is also realized in the desire for productivity and the construct of permanence that intrudes and changes the chronological day, therefore such things as quality family time and/or leisure time becomes important. As a result, each social time system takes shape within a particular

setting according to the spatial arrangement & its requirements. Therefore in the city a new type of day light is manufactured - the electric light as seen illustrated in the Berlin Railways station lit up at night (fig.13). It is an electronic false day that bares absolutely no relation at all with real time. Together with the computer these electronic systems do away with chronological and historical time, time that passes, and substitutes them with an instantaneous permanence and continuity of working (Virilio, 2004). This is the hyper-rapid city that never sleeps.

The intersecting and connecting grid of the highway and service system also occurs in sequences of an unnoticeable organization of time, and within this the man to machine interface replaces the facade of buildings. This system causes a deportation of attention, of the human face-to-face connection and substitutes it with urban encounters of human to machine. It occurs as the interface of the screen (fig. 12) which is an immediate, and instantaneous transmission. The magic of the screen is how the visible nothing becomes something and the greatest distance is no longer an impossible limitation. The screen transmits an instantaneous view that telescopes a place to our raum, which produces an antipodal, relating to or situated on the opposite side of the earth, place - that location that has no location/ a real -time visual projection of another part of the world. Think of skype business meetings occuring between two people each on opposite side of the world and in different time zones.

Time, like the cathode tube, has also become instantaneous. The new technological time does not bare relation to any calendar of events or any collective memory. Work has become purely artifical and work-time has dominance and imposes and constructs a permanent twenty four housr presence (Virilio, 2004: 15).

0.4

The home:
a pocket of calm

Our experiences and memories almost suspend time for a moment.

Life in the city is not necessarily only governed or consumed by the city's rapid pace. There can be pockets of intimate experiences that are slow. A hipster style stroll allows us to absorb and consume urban culture at a more leisurely pace. If one takes the home as representative of a pocket of calm, our experiences and memories almost suspend time for a moment - and also compress it. The home becomes the micro scale representation of a slow raum experience and it is what anchors and centres us to this world and represents our first universe – and in every meaning of the word, it is a representation of our psychological cosmos.

When man is cast into this world, his home is the cradle that he inhabits in terms of shelter and spatial experience second only to the womb. The home is infinitely dense and is a rich case study for phenomenology. Is it enough to perceive a home as a mere object? Is it important to go beyond describing it as just a building? Whether approached subjectively or objectively, or whether its features are recollected as wishful or factual, it is these impressions that make our experiences comfortable. Through the illusion of projection, the human imagination constructs walls for comfort whenever encountering the function of shelter.

Geographers and ethnographers can offer varied descriptions of dwellings. To a phenomenologist the aim would be to discover or uncover the original shell and the values of inhabited space. It is valuable to understand the attachment that makes for the primary function of inhabiting raum. The home attracts memories like images in a photo album, they evoke intimate daydreams and offer nostalgic reminiscences of shelter. Thereby, the home becomes a powerful source of integration of memories, thoughts and daydreams. The binding principle here is the dynamic integration of the daydreaming experiences of the past, present and future and of the role the home has for the individual.

Our first raum encounters naturally develop our raum experiences that are associated with emotions and behaviour linked to particular raum. These then are eventually recorded as memories in our conscious and subconscious minds. If we are to encounter similar raum to our past homes, it would unlock all the memories and associations - in this way memories compress time and suspend it. We do not experience or feel our first attachment in the universe of the home, but rather In our adult life- it is more reflective from our distant childhood.

The Vanna Venturi House (fig.14-15), designed by Robert Venturi, an American architect, for his mother is a fine example where the design process fundamentally redefined architecture. The conceptual sketches reveal

FIG. 14:
Vanna Venturi House, 1964
Source: www.dezeen.com
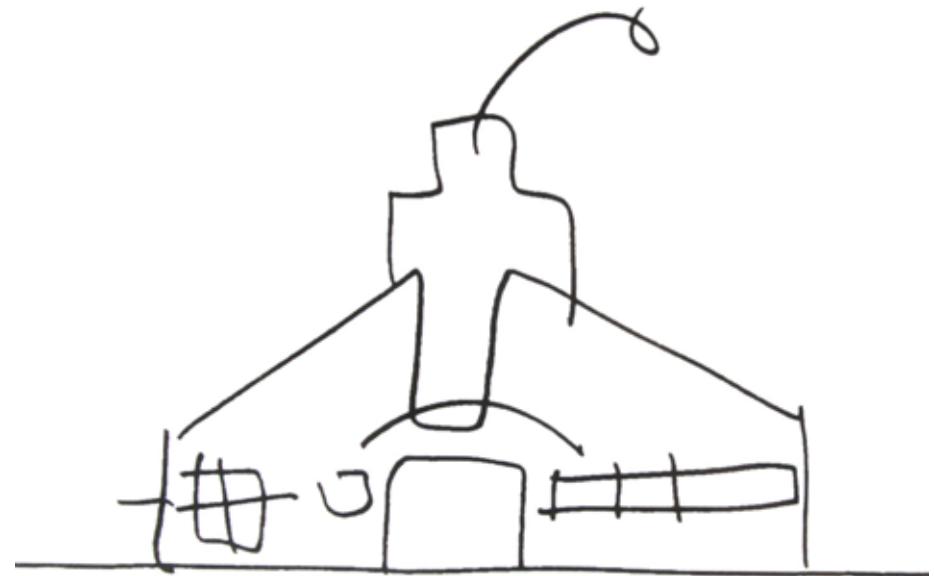
FIG. 15:
Venturi sketch of the Vanna Ventrui House
Source: www.dezeen.com, drawn by Venturi

FIG. 16:
A house on Mareka Street, Sharpeville.
Photo: author's own

FIG. 17:
The elephant on the wall - A house on Umtata Street, Three Rivers. Vereeniging.
Photo: author's own

Fig. 16 and 17 exhibit that behaviour of imprinting where personalities begin to emerge, like pretentious elephants. The two examples illustrate how between classes of wealth, rich and humble, both express individuality. The boundary wall is emphasized as it is the facade to the street, and the closest built form to passing vehicle traffic.

FIG. 18:
Neigbours sharing a courtyard in Roshnee.
Photo: author's own, courtesy of Suleman Khata.

Mr Khata had explained in an interview that a shared courtyard was a common practice in Top Location where he once lived. There was a sense of social engagement that was experienced and enjoyed by the community. This experience therefore motivated the decision between the neighbours to remove the wall dividing their property.

a childlike drawing (fig. 15) of a house that represents the central aspects of shelter: a double pitched roof, a large chimney, door and windows.

Daily life and existence in a house is not experienced through its bricks and mortar, but rather through a narrative. At my grandfather's funeral, for instance, his life story was beautifully narrated as having started with a house and ended with the same house.

The house stores a great number of our intimate memories and if we elaborate on these and explore its corners, passages and cellar, we encounter both hidden and welcome refuges. The qualities of a shelter are deeply embedded in our unconscious that a mere mention recaptures them. To a reader, the idea of a cellar is associated with a raum that is buried with walls that have soil behind them.

The more we examine the subterranean layer and its associations, the more we see that it becomes a labyrinth for the sanctuary of secrets. This was a precisely depicted by the dark and deadly dungeon in a psychopathic serial killer's house *Buffalo Bill, (figs. 19-21) in the film 'Silence of the Lambs'(1991). It is therefore no wonder why psychologists refer to the home as a site for psychoanalysis of our intimate lives. It is like an archaeological dig that can be excavated revealing our psyche (Freud, 1931).

According to Sigmund Freud, an Austrian neurologist and the founder of psychoanalysis, the layers of the psyche are the fixations responsible for a person's stability or instability – and as we live through fixations of bliss, we comfort ourselves by recalling memories of safety. The home that we grew up in instills in us various behaviours for inhabiting, and in this way we become a representation of the function of inhabiting raum.

Inhabited raum bears the source of the notion of home. Every other house or raum becomes a variation on this theme. Our former memories of dwellings are relived as daydreams, which remain fossilized in us. Through dreams we retain and treasure former days. Through thoughts and dreams we experience the reality and virtuality of the house and perceive the limits specific to the shelter.

Encountering a new house would recall flashes of memories and daydreams that would begin the synthesis of memorized and recollected experiences. It is within this zone that imprinting on raum or inhabiting raum becomes ours. An entire past descends and comes to dwell in the new home, as in the idea "we bring our lairs with us" so eloquently represented by the art of Bodies and Donniciles in the Sculpture of Louise Bourgeois.

FIG. 19:
Buffalo Bill's house interior appears unsuspecting.
Source: www.youtube.com/watch?v=yNeQm5aqrHo

FIG. 20:
Buffalo Bill's secret basement/ cellar.
Source: www.youtube.com/watch?v=yNeQm5aqrHo

Note:
The above images are not to be confused with the 'American Old West' hitorical personality - William Frederick Cody (1846-1917). Buffalo Bill in this case is a fictional character from the film "Silience of the Lambs" (1991).

FIG. 21:
Buffalo Bill's house
Source: www.dailymail.co.uk

FIG. 22:
Birds eye view of
Seoul airport.
Photo: unknown author

FIG. 23:
Interior view of the
Seoul airport concourse.
Photo: unknown author

FIG. 24: ^
Airport advertising.
Source: www. projectfireproducts.co.uk

FIG. 25: >
A view above Seoul airport concourse.
Photo: unknown author

0.5

Rapid Aftermath

Rational systems and technology that take precedence in a design that eventually degrades the architectural experience.

Rem Koolhaas, architect and architectural theorist, like Paul Virilio and many other theorists, critiques Modernism in his essay entitled 'Junkspace' (2000). Where Virilio discusses how modernism changed how we experience the city, Koolhaas also critques (amoungst others) how modernism changed architecture. It is the same discussion of the use of rational systems and technology that take precedence in a design that eventually degrades the architectural experience of the building.

Certain key points are made by both authors. These include the exploit of invention which enables extensive additions and expansions; the use of devices such as mirrors, polished surfaces and echoes or repetitions which may promote disorientation; seamless infra structure of services; a focus on the interior; multi-layering,

spaces which are devoted to inertness such as huge voids; building materials which have become generic, modular and seamless thus creating continuity; and a preference for instant gratification such as air conditioning. All of these characteristics are most notable in airport buildings and can be found in some form or another.

An airport over time needs more space and as new terminals are added, each terminal is representative of its own age as the older one becomes a readable record of the past - in this way a kind of progress is physically noticeable. The beauty and spectacle of an airport occurs after each consecutive upgrade - the idea of rebuilding on the same site gains popular currency. The airport passengers demonstrate an infinite influence on the attraction of the new. (Fig. 24)

The Seoul Airport Terminal is a mega form structure of calculated rational systems. This can be seen where individual components are integrated into a larger framework or physical structure. It is part of a system that is interconnected but open-ended which allows for the endless expansion of the structure. To maintain the link effectively, a hierarchy is established on both the vertical and horizontal scales. The tight structure of mega form 'encloses' the interior link and creates a perimeter that imposes linkage (Trancik 1986: 107).

Because of its size, the structure is indifferent to its site and only allows for growth at its ends.

0.6

Escaping speed

The inner-reflectance of the architecture is aimed at dulling out the surroundings.

The notion of place-making like the home also suspends time which strikes a memorable chord. The memories and experiences associated with architecture is what makes it slow and the more time we take to explore a building, the more we get to experience and carry with us in memory.

The Vaal landscape, consisting of Sasolburg, Vanderbijlpark and Vereeniging, is cluttered with uninspiring strip development style shops and car lots adorned with signage. Their materials, structure and even their signage differs little from their neighbours and in the foreground, juxtaposed stands industry as represented by this Steel Mill (fig. 26). To live in such surroundings reminds me of what Morris (1902: 113) once said, 'Let us eat and drink for tomorrow we die, choked by filth.' A fine example of the contrast to this

environment is the Vaal University of Technology (VUT) Chapel.

The chapel was commissioned by VUT in 2004 and built in the residential district of the campus. It is often tertiary institutions that invest in architecture, as they should. The chapel was designed with universal religious themes and is a multi-denominational building, primarily to be used as a place of worship, solace and peace for students. These universal themes are expressed through hierarchy ordering, approach and transition through raum, lightness of structure, quality of light, vertical elements and water.

The hall (fig. 29) is the main reception in the chapel. It is the heart of the building and attains a hierarchy in the manner with which raum is treated. Exterior eye-level sight is cut off from the interior and from inside the hall one is more aware of the internal space. This is a manifestation of the inner-reflectance aimed to dull out the surroundings and it is a common characteristic in religious architecture abroad. The Luxor temple complex comes to mind (fig.35) and illustrates how it transports the visitor into isolation.

Walking around the perimeter of the VUT chapel one becomes aware of the dimensions of the building. The first being the primary element of the chapel hall with its precise and rectangular shape; the second being the adjoining garden wall, courtyard and vertical elements that juxtapose the central hall. These secondary elements reshape the building's boundaries with its environment – setting it apart and creating a chora, a term used by Plato a Greek philosopher which means a nourishing quality that "gives place", like that of great Zimbabwe.

Another fine example of chora can be found in the feature of courtyards and gardens which are an essential part of Islamic

FIG. 26:
Steel mill in Vereeniging
Photo: authors own
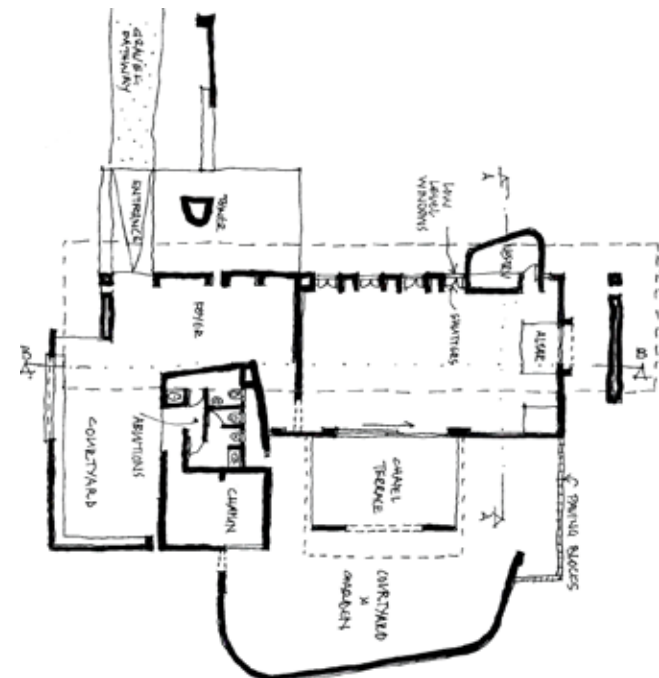
FIG. 27:
VUT Chapel plan.
Drawing: Drawn after Henri Comrie
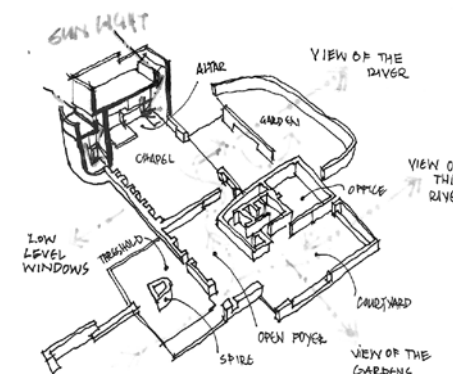
FIG. 28:
VUT Chapel sketch.
Drawing: Adapted drawing after Henrie Comrie

FIG. 29:
VUT Chapel Hall.
Photo: authors own

The court-yards serve as a point of dispersion and as part of a cleansing ritual for its visitors; further highlighting the importance of the role of water.

< FIG. 30:
Vereeniging Jumah Masjid plan
Drawing: author's own

^ FIG. 31:
Section A:A
Drawing: author's own

One can imagine that within the VUT chapel's courtyard (fig. 33), which is both comfortable and isolating in respect to the university campus, groups of students gathering to complain about the institution; parents, each other or simply waffle on about daily life. Like ancient religious buildings one doesn't simply stumble into the central raum.

It is only through progression of raums that we reach this central place. The Luxor temple complex (Fig.35) is a grand example of progression through raums, but the intentions remain the same when comparing it to the more humble VUT chapel (fig. 34). While their economies differ, their principles are the same.

FIG. 32:
Vereeniging Jumah Masjid Street elevation
Photo: Google earth

FIG. 33:
Chapel courtyard.
Photo: authors own

^ FIG. 34:
VUT chapel. Vanderbijlpark, 2004. Architect: Henrie Comrie
Photo: authors own

The VUT chapel architects aimed at producing a quality design that was affordable to build. The chapel's procession begins with a tower which points the way, guiding visitors up a gravel path (fig. 36) which leads into a the courtyard (fig.33).

The entrance (Fig.36) to the central hall is hidden behind a curved volume within the courtyard – this tightly hidden passage towards the entrance is another unmistakable characteristic also found in the Great Zimbabwe (fig. 40). The VUT tower with the cross at its peak announces its identity and is an icon of Christian architecture. (Fig. 43).

Light softens as one progresses through the building. Its overhangs shade the courtyard and entrance, and softens further to the almost twilight setting of the chapel's hall. According to Spiro Kostof (1995:248), an architectural historian, the idea of using a dramatic

FIG. 36 >
Gravel path.
Photo: authors own

< FIG. 35:
Luxor temple.
Drawing: www.templeyeternidad.blogspot.com

< FIG. 37:
Entrance.
Photo: authors own

change in light in this religious context may have been based on the words of the prophet Zarathustra who claimed that Mithras was miraculously reborn in a cave each year on the 25th of December, and thus had to be worshiped in dark places and in the vicinity of running water. What is universal in this idea of light, shade reverence and solitude in raum can also be the manifestation of the human behaviour of self-reflection and meditation, which is often done with closed eyes. In this state one is more aware of oneself and of darkness.

The dramatic change of the exterior red brick to the softer white plastered walls also adds to the transition and transforms it into a chora of peace and solace. The brick and steel are contextualize materials that are also important to referencing the heritage of the region (refer to pg 84). Looking up inside the chapel hall western light enters through vertical shafts (fig. 38) filtering light into the raum below – this is especially beautiful in the late evening during sunset when orange light glistens through. One may think of Le Corbusier's Ronchamp (fig. 39) and the chapel at the Monastery of La Tourette (fig. 41) in the treatment of light in a raum.

A clerestory window is an old characteristic in early Christian basilicas (fig. 42, refer to pg 151) and runs just below the roof plain. Small windows, at knee height, run end-to-end of the hall and break the heavy volume of the Western wall. Through their holistic approach the architects solved the complexity of designing such an inspiring building. The evidence lies in their mistakable attention to scale on various levels.

Firstly, and in general, one is aware of the heavy brick work that climbs upwards and from here to steel I-beams, curtain walling

and a lightweight roof cap of the chapel; and secondly, one's awareness naturally includes the smallest details such as those of the water outlets, the doors, the interior ceiling panels (fig. 44) and the overall anthropometry in the courtyard and garden. The latter embraces how one is accommodated in comfortable seating in the courtyard and how by design, there is a view of a river (fig. 45) which is just visible above the garden wall.

Additionally it should be noted the importance that the VUT chapel plays in the practice of architecture and more specifically in raum creation and placing making in the region.
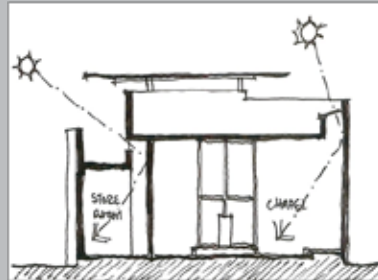
FIG. 38:
Section through the Chapel
Drawing: authors own

FIG. 39:
Ronchamp windows
Photo: www.inhabitat.com

FIG. 40:
Great Zimbabwe.
Photo: unknown author

FIG. 41:
La Tourette Monastery
Photo: www.architectage.com
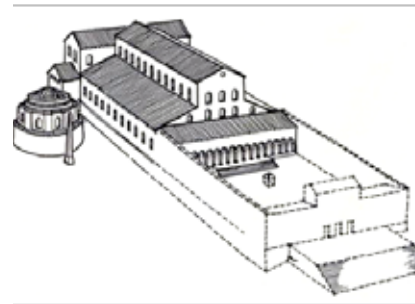
FIG. 42:
Christian Basilica
Drawing: Drawn after K. J. Conant

FIG. 43:
Chapel tower
Photo: authors own

FIG. 44:
Chapel ceiling panels & interior.
Photo: authors own

FIG. 45:
View of the river over the garden wall
Photo: authors own

FIG. 46:
Cloud Gate
Photo: www.sensefunc-tion.blogspot.com

FIG. 47:
Cloud Gate's distorted re-flections on its surface.
Photo: www.craftcouncil.org

FIG. 48:
Plan & section of Could Gate steel structure.
Drawings: Chris Horn-zee-Jones

FIG. 49:
Cross section of the human eye.
Drawing: www.pass-myexams.co.uk

The temporal discourse or liminality is a dynamic tension between the proposition of rapid space versus its alternative of slow raum in the city – and it is here that a marginal view arises (Smith, 2001).

Liminality is associated with the realm of juxtaposition and blurring between different practices and theories; and is in contrast to the more traditional perceptions of reality which are differentiated between forms of knowledge, practice and experience. It is also the modes of creative opportunity that operate within the gaps and slips of conventional thought and phenomenology (Lewis et al, 2008). Enter the liminal zone and be wary for it is a precarious and dangerous place. Individuals operate within this zone between different social roles.
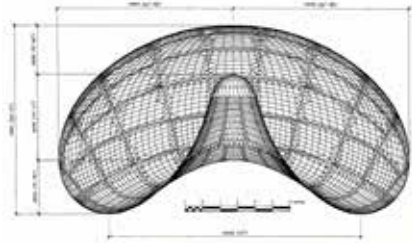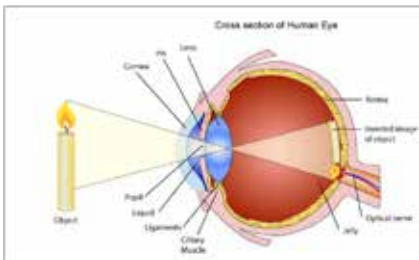
There is a rite of liminality which is an unpredictable threshold between a person's prior role in society and his or her new evolved existence. Architecturally this translates into a transitional space which is neither one place nor another, it is neither one discipline nor another, it rather becomes a third raum in-between. Architecturally this translates into a transi-

0.7

Temporal 'Raum'

In-between the hypothesis of the two extremes of rapid and slow exists the temporal raum.

To Anish Kapoor, a British-Indian sculptor, it is transcendence, and a mystical process of rational exploration of philosophical notions of emptiness. Kapoor's work also suggests that the presence of an object renders a raum emptier than a void could ever achieve.

It is a visual paradoxical transcendence, due to an absence or emptiness left on the world, which is filled with substance and meaning by people rather than being received from any transcendental entity. God has transcended and left the world with a profound emptiness (O'Brien, 1979). Paradoxical transcendence is defined as a human quality which is the ability to overcome restrictions, limitations and ideological confinements of the self (Black-ham, 1965)- its an expansive understanding of temporal city raum.

Kapoor is captivated with the state of from

certainty and stability or from uncertainty and vertigo. The conscious self is confronted with the void or abyss that threatens all the conceived notions of rationality and stability, autonomy and essence - it is this initial confrontation that interests Kapoor (Celant, 1996: 35).

Cloud Gate (fig.46) in Millennium Park, Chicago, completed in 2004 was Kapoor's first permanent public commission. It is an artwork that is placed within the 'third raum' that confronts the public realm with the notion of paradoxical transcendence. The first paradoxical encounter that occurs between an individual and the artwork is the emptiness or absence that the sculpture exhibits, but yet it exists. The mirrored effect of its polished stainless steel surface camouflages the body of the sculpture from the surrounding urban environment, and in a way, the environment consumes it. The sculpture reflects, warps and distorts its surroundings which is intriguing and compels visitors to decipher its surface (fig.47).

The second paradoxical encounter is the way in which the reflections occur on the sculpture which mimics the mechanics of the human eye, (fig.49) (Seely et al, 1995). Light reflects off an object, such as a vase, and then enters the human eye and is focused by muscles (ciliary body) which adjust the lens in the eye. The lens is concave on both sides which results in an image being projected upside down. The image is carried through the optical nerve and to the visual cortex in the brain. The inverted image is turned right side up by the brain. Prof. Theodor Erismann, of the University of Innsbruck, devised an experiment in 1950 to test how quickly the brain adjusts to our vision. Erismann's subjects took ten days to adapt to modified goggles that inverted their vision. This visual topsy-turvy phenomenon is most notable during alcohol intoxication that delays the visual information

travelling via the optical nerve to the brain. Kapoor's Cloud Gate sculpture reflects its surroundings upside down, but as one approaches and gets closer to it, the image turns right side up.

The third space liminality is also associated with ephemerality, like the temporary street performer in full regalia (fig.50) or the informal street vendor (fig.34). Both exemplify a traditional passage when referring to the phenomenology of routine between alternate states. Market squares, where festivals and the temporary informal acts of trading occurs are also good examples of ephemerality.

The Vereeniging Market Square first appeared in a map in 1892 (General Surveyor archives, refer to pg 80), whose activity today shifted outside Markpark Mall (figs. 51,52 & 55, refer to pg 106-111). The composition of the market consists of both large and small stalls all oriented towards the engaging the attention of passing pedestrians. There is a varying stream of informal and formal activity that flows down Market Avenue, into the informal market and towards the Vereeniging train station – it is this quality that has made it such a success in its trade activities.

The shifting between different dimensions would include the realm between the physical and conceptual, people and raum, the artist and the audience and one practice and its marginal alternative. This is suggestive of a contextual design that replaces the concern for finite architecturally built forms, which traditionally are more fixed, with an experimental and ambient object.

The aim of liminality is to explore how people occupy and appropriate architecture as a liminal raum rather than proposing finite conclusions. Art and architectural practices

located in public raum questions the political and social context and encourages diversity. Political and social realities change over time and affect the relationships between people and public raum.

An example of this is the practice of protests and celebration that have taken place in the gardens of the South African Union Buildings (figs.53-54). As a result, this public open garden space has been transformed. Mass public gatherings, protest action, rallies and concerts make the case for public space that is more about the amorphous relationships between people and space than it is about the physical spaces between buildings.

FIG. 50: Dancing girls performance for a crowd infront of the Vereeniging Train Station *Photo: author's own.*

Street performance is rare in Vereeniging.

FIG. 51: A street vendor in on Union Street, Vereeniging. *Photo: author's own.*

FIG. 52: The Markpark informal market Western entrance *Photo: authors own*
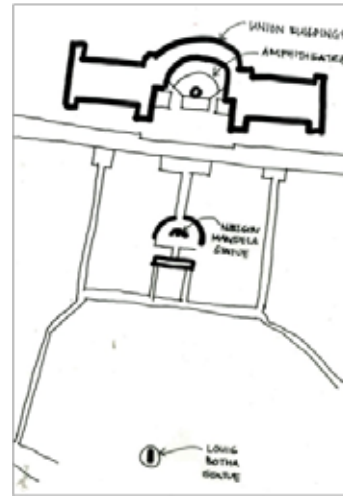
FIG. 53:
Sketch plan of Union buildings and gardens
Drawing: authors own

FIG. 54:
Protests infront of the union buildings. Date unknown
Photo: www.bdlive.co.za

0   10   20   30   40   50m

FIG. 55:
Site plan of the informal trade outside Markpark Mall
Drawing: author's own, also refer to page

FIG. 56:
Salvador Dali walking his giant anteater.
Photo: www.cdn8.openculture.com

Conclusion

Space has been defined as a stable container for bodies and objects, but as a tool of architecture it becomes more than a design component to shelter us from storms. The resulting architecture becomes an instrument of measure, a sum of knowledge that contends with the environment and organizes society's space and time - this we understand as raum which is expansive rather than limited and restrictive.

Organizing society's raum is a contemporary renewal that exists in an age of expanding airports built, on land reclaimed from the sea, shopping malls, or markets, quiet places like chapels, mosques, temples and our homes which offer us refuge from the uninspiring overexposure to the work place of the city.

Werner et al (1985) in their writings made empirical studies which helped diagnose the city's adverse effects, but are those affects lurthargic? Virilio and Koolhaas, amoungst others, argue the aftermath of Modernism and its detrimental affects on the modern city and architecture.

What if we were to ask the hipster if he approves of the modern city and its architecture? The hipster lifestyle is a modern adaption from the Latin 'festina lente.' The French refer to the Roman 'hasten slowly' as the flaneur, which is someone who loves to be seen and leisurely experience street life in the city. To put this character to light, he is Salvador Dali with a voluptuous moustache or beard, to whom is owed the social urban trends, walking his giant ant eater (fig. 56).

Subsequently this character would feel out of place on a farm where there the city's over-exposure and hyper-reality don't exist. To the flaneur who is an extrovert, is naked without the city. Like the house is a canvas for our identity which lends from our psyche, so the extrovert is the canvas and the city is his identity. Therefore as our notion of space and time have become expansive so must our understanding of the people who participate in it - it is a diverse urban environment chain where each realise on the other. The calm pocket in a city, such as a home, is best experienced after a long hard day of work. This also extends to public raum and street life in a city caught up in haste.

The city experience has changed into such a manner that the human psyche relies on it and finds comfort in it too. If the hipster is well and truly in love with the city, then surely there are places that embody transcending spatial experiences, that he/she associates with arrival and departure in the city? This place could be unique to the city and be unlike any other city.

Every megacity has a some form of a transit station; train stations, airports, bus stations and mini-bus taxi ranks; these architectural typologies have the potential to be gateways into the city- they are really places of assembly, wating and dispersal. What can be exploited at the threshold of these gateway buildings is the potential for social engagement and informal trade, which often occurs outside a building- the third raum.

Transit buildings in a city are important because they bring the work and home closer together, but it would be far more beneficial to expand beyond that brutal function, otherwise is it lost space (refer to page 52-53) to the flaneur and a conveyor belt to the commuter. Therefore the gateway building begs for an expansive notion of space and time in the city. The building should not be designed as a machine, but rather as a place to also exploit social engagement that is more integrated with the pedestrian, and potentially transending everyone who enters it into the flanuer. Thus our relationship with the city is improved.

STAGE 2

CRITICAL
ARGUMENTATIVE
PHASE

*DEFINING THE PROBLEM
& MANIFESTO*

Merriman Avenue

Voortrekker Road

WOOLWORTHS

FIG. 57:
A VIEW OF THE NORTHERN PORTION OF THE CITY
This photograph was taken from the roof top of the
Merriman Building on Merriman Avenue.
Source: author's own
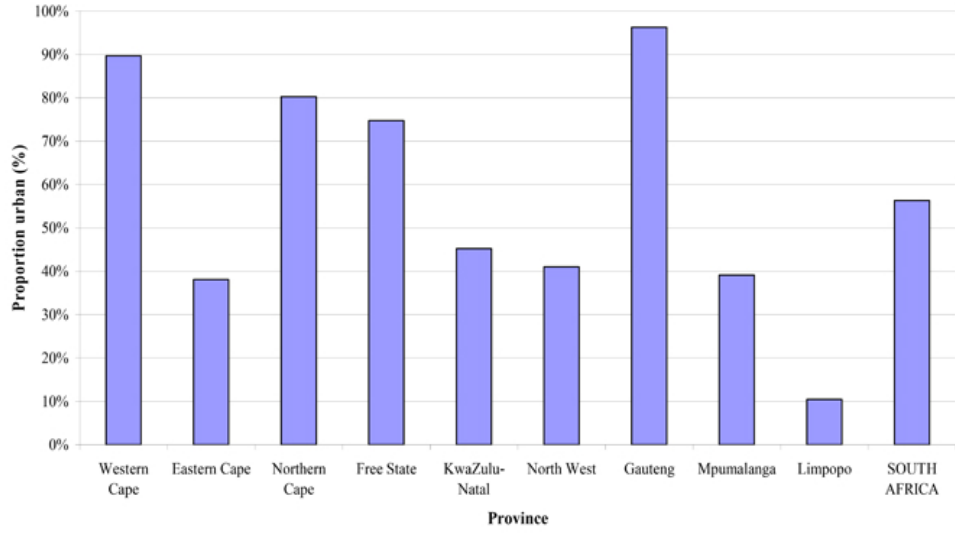
FIG. 58:
Table showing urbanization levels per province in South Africa, 2001.
source: StatsSA report No. 03-04-02, 2006: 23.
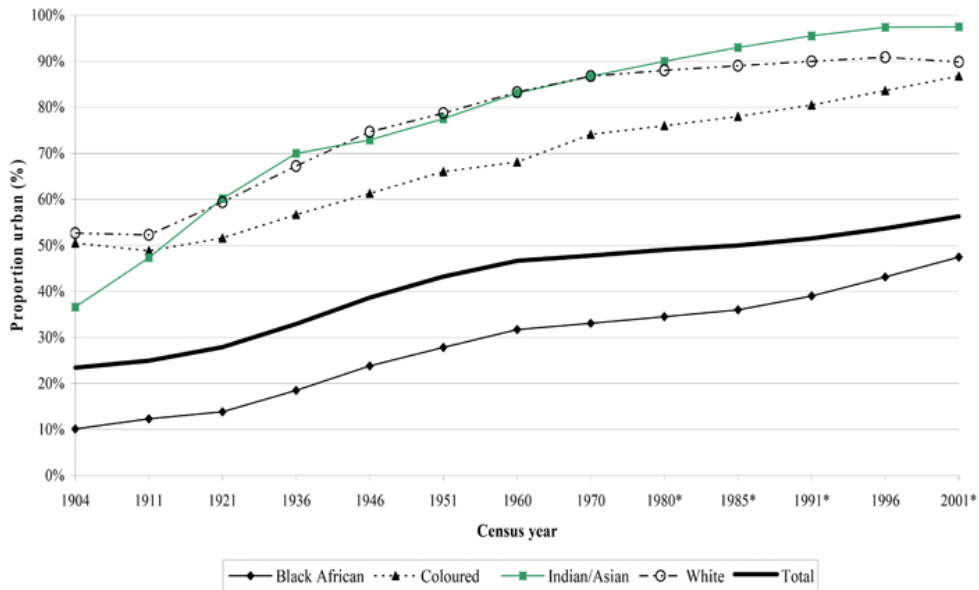
FIG. 59:
Table showing South Africa's Historical urbanisation trends from 1904-2001
source: StatsSA report No. 03-04-03, 2006: 22.

FIG. 60:
Table showing the Vereeniging & Vanderbijlpark historical population trend 1904-2016
source: StatsSA & Prinsloo, 1992: 123.

Preface

A hundred years ago, a small proportion of the population lived in cities, today South Africa is very close to being classified as an urbanized society.

South Africa has been experiencing a very rapid growth and change, writes Prof. R.S Uytenbogaardt and Pro. David Dewar (1991:10) of the university of Cape Town. This has in large, been due to the economy experiencing a large boom which had allowed a lot of infrastructure and development to occur in both the public and the private sectors. These dynamics, in turn, generated considerable thought and debate on economic, social, political and cultural fronts about the development path society should adopt. Amongst the most far-reaching dynamics of change has been urbanization.

They explain how a hundred years ago, a small proportion of the population lived in cities, today the country is very close to being classified as an urbanised society. The indicator of an urbanised society is normally taken to be when 50% of the population lives in urban areas. The South African indicator is at 42%, but this only includes major urban centres (StatsSA, 2013).

"The process of urbanization" is continuing and people are flooding to urban areas and most 'estimates' of growth hold that some 26 million people will live in South African cities by the turn of the century" (Uytenbogaardt et al, 1991:10).

Statistics South Africa report of 2006 (report No. P0302) indicates that the mid-year estimates for South Africa's population in 2006 was a total of 47 390 900, KwaZulu-Natal having the largest share of the population at 20.9% followed closely by Gauteng at 20.1%. That means that the population size of Gauteng is roughly 9 526 200 people, as shown by the graphs on the following page. Their report of migration and urbanization in South Africa (report No. 03-04-2006) states that in 2001 the total population stood at 44 819 777, with 25 217 571 of them being urbanized. Gauteng consisted of a 96% urbanization rate.

Town and Settlement Functions

- City Region
- City
- Regional Service Centres
- Service Towns
- Local and/or Niche Town

% Change

Rural areas

Annual population growth ('96 - '11)

- Sharp decrease
- Moderate decrease
- Decrease
- Growth
- Moderate growth
- Sharp growth

CSIR, 2013

FIG. 61:
Spatial hierarchy of South African cities.
Source: CSIR/SACN typology (2008)

Secondary Cities

The identification of intermediate cities Vereeniging should be based on the interaction between
various aspects such as size, location and function.

What is crucial is to have clear motivations for categorisation and to consider the complexity of size and functionality indicators.

In South Africa, the term commonly used is 'secondary cities' because these cities are considered to be secondary to metropolitan areas. However, this term emphasises the position of cities within the settlement hierarchy and focuses mainly on indicators of size rather than function. The population of secondary cities is usually between 200 000 and 750 000 people (sometimes including extensive rural populations), which is similar to the population of smaller metropolitan municipalities and significantly bigger than the average small town in South Africa (Donaldson et al , 2012).

Much of the urban research conducted around the world focuses on world cities or larger metropolitan areas. Although such research is essential, smaller and intermediate-sized urban centres appear to be neglected. Historically, the South African Cities Network (SACN) has concentrated on the eight metropolitan municipalities and Msunduzi. However, in 2012 the SACN embarked on an initial exploration of intermediate cities, with the publication of Secondary Cities in South Africa: The Start of a Conversation.

Intermediate cities have smaller populations and economies than all the metropolitan areas, but some of the larger intermediate cities are comparable to the smaller metropolitan areas.

Functionally, intermediate cities play an important role in managing urbanization, contribute to international competitiveness, are important for the country at a national scale and perform significant regional services and social roles. Yet, despite these important roles, most of the six cities appear to be locked into growth pathways that will be extremely difficult to break. These cities are also more vulnerable than metropolitan areas, as they rely on mining and energy creation and/or on one dominant manufacturing subsector, and have a small but significant dependence on global markets.

Like metropolitan areas, intermediate cities struggle with internal and external pressures. Internal pressures include municipal governance and management, municipal finance, strategic planning, spatial planning, municipal infrastructure, business-municipal relations and significant levels of urban poverty. At the same time, the cities have to deal with external pressures, including national planning, freight infrastructure decisions, environmental issues and demarcation processes. While these pressures are not very different from those of metropolitan municipalities, their economic vulnerability (dependence on mining and single manufacturing subsectors) make intermediate cities significantly more vulnerable in the medium and long term.

For the last few decades, researchers have neglected intermediate-sized cities, even

though scholars have recognised their importance. For instance, in the mid-1980s, Rondinelli (1983: 85) wrote that despite their relative weakness in economies of developing countries, intermediate cities seem to perform important economic and social functions that can contribute to national development'. Intermediate cities play a particularly important role in rural development because they serve as centres for trade, and public and private services (Bolay et al, 2004; Rodríguez-Pose et al, 2013).

Economic activity is increasingly centred in the world's main cities and large urban areas (Rodríguez-Pose et al, 2013; World Bank, 2009), but the majority of the world's population do not live in these centres.

So what future awaits the millions of people who live either in intermediate or in small cities in South Africa?

LEGEND:

━━━ railways

━━━ mainroads

━━━ mini-bus taxi routes

━━━ rivers

━━━ 5m contours

▢ erven

● taxi rank

● bus stop

● train station
(ticket sale facility)

● train station
(no ticket sales)

● entrance

AMSA - ArcelorMittal South
Africa

FIG. 62:
Map of the greater urban context around Vereeniging.
Source: https://www.1map.co.za; http://www.gcro1.wits.ac.za/gcrogis1 & https://www.maps.google.com

FIG. 63:
The Garden City Plan by
Ebenezer Howard.
Source: Beevers, 1989: 138

FIG. 64:
The Garden City concept
sketch of Vereeniging.
*Source: Vereeniging Inner
City Regeneration & Business, 2013: 59*

A specialized industrial city, mainly producing steel and construction materials, which has developed an aggregate and sluggish economy which directly impacts the built environment.

Advances in technology such as transport have allowed commuters to traverse over large distances in a short period of time. While these separate aspects have had different impacts in terms of urban form, Dewar (2004:9) maintains that the dominant tendency has been of increasing sprawl and successively decreasing density.

Upon closer inspection of Vereeniging and Gauteng at large, it bares a resemblance to the ideas based on the Garden City as theoretically developed by Ebenezer Howard.

The more affluent white residences of nearby Vanderbijlpark and the Vereeniging suburbs were planned according to the "garden city design" scheme (Hallowes et al, 2006). Thousands of trees were planted lining roads and avenues and suburbs were shielded from traffic by broad avenues. Stands were arranged circling around institution buildings and parks. The centred nodes of grouped or single standing institutional buildings, mostly churches or parks, created a rippled affect in the urban landscape.

To the far outskirts of the city one encounters agriculture which is visible from highways leaving the city. This urban approach was thought to balance out the presence of the heavy industrial industry and was strongly supported by the founder of ISCOR & ESCOM (Hallowes et al, 2006: 83), Dr H. van der Bijl: "It is well-known that the residential environment of the worker has a far-reaching effect on his health, state of mind and consequently on his efficiency and productivity", (Vesco 1948: 5).

City at a mega scale

Uytenbogaardt and Dewar, both Professors from the University of Cape Town, (1991:10) point out that a significant majority of the South African urban population is occurring amongst the poorest people; the dominant tendency is towards a younger poor urban population. Accompanying this dynamic of growth are high and increasing levels of poverty, unemployment and inequality within the largest cities. They explain how increasing numbers of people struggle daily to satisfy their basic needs, in the face of tremendous difficulties.

The built up fabric of Vereeniging is characterized by low density sprawl. This can be attributed largely to the following factors:

A segregated community caused by social-political policies set out by the apartheid regime.

city zoning; such as industrial zones, which are exclusively industrial buildings, that are wedged in-between middle class suburbs.

^ **FIG. 64:**
Layers of the urban structure as by Dewar.
Source: Dewar et al, 2004: 6

FIG. 65: >
Layers of Vereeniging's urban structure
Source: author's own

Lengend:

Natural site - 1
Movement & utilities - 2
Public space - 3
Public facilities - 4
Economic opportunities - 5
Housing - 6

Herbert and Sosnovsky (1986: 5) explain how the garden city and the principal mutant of the Garden City idea, the Garden Suburb, were amongst the most powerful formal and conceptual stimuli to physical and social planners in the first decades of the 20th century. Their definition of the Garden City is as follows: "a town designed for healthy living and industry of a size that makes possible a full measure of social life, but not larger, surrounded by the a rural belt, the whole of the land being in public ownership or held in trust for the community". The authors also argue how the Garden Suburb in some ways was a fundamental contradiction to the central idea of the Garden City, which is meant to be a self-contained community embracing a balance of living, agriculture and industry".

Jane Jacobs, an American born Canadian urbanist, writer and activist (1961:18-19) argues how city planners and designers with no interest in the Garden City are still thoroughly governed intellectually by its underlying principles. Jacobs argues the faults with Ebenezer Howard's model of the Garden City as city destroying ideas, they are as follows:

• Focus on the provision of wholesome housing as a central problem
• Categorizing city functions into simple uses
• Arranging each city function into a self contained zones
• Housing is defined by suburbian and small town physical qualities
• The urban planning is paternalistic and authoritarian
• Commerce interpreted as a routine, standardized and self-limited market

Charles Correa, an Indian architect and planner (1989:77)notes that it is impossible to enforce a fixed and preconceived plan in the third world due to the expected scale of urban growth. What Correa argues for is a flexible structural plan with the potential for growth points, which historically have been points of intersection and/ or transfer.

Developing countries are exactly as how Correa has explained it: Their social, economic and physical structure in the public realm is still in the development stages. To try and enforce a final outcome to a project without allowing for future growth or integration is near impossible. With the rate at which South Africa is growing and changing, a completed end picture is not a viable option with regard to public structure.

Prof. David Dewar and Prof. Fabio Todeschini (2004: 5) categorize the major elements of public structure as: green space, movement, public urban space, social institutions, utility services and emergency services. Their ideas counteract the Garden City Utopia, and instead attempts to integrate and intricate a multifaceted cultural life of a metropolis into the public arena as suggested by Jane Jacobs.

This document shall focus on these elements of public structure, with the main focus on movement and public urban space.

FIG. 66:
Topographical Map of Vereeniging, 2006
source: NGI archives
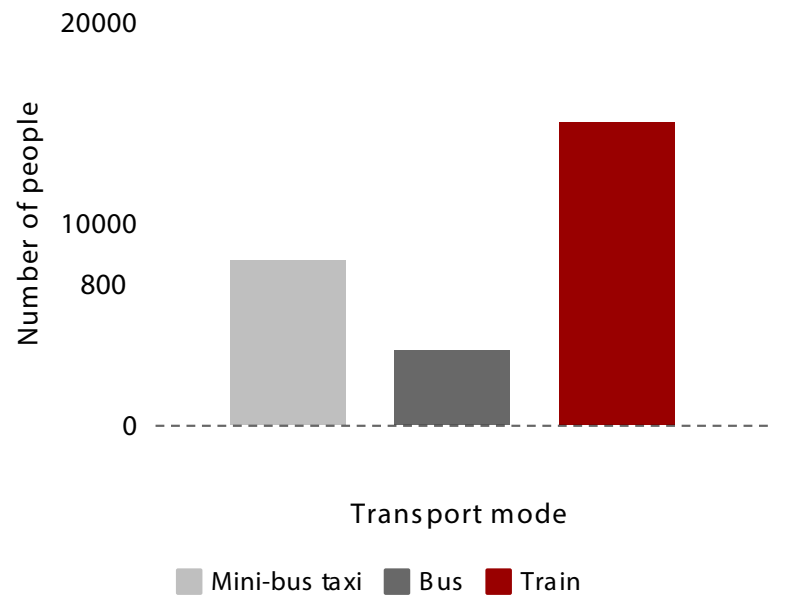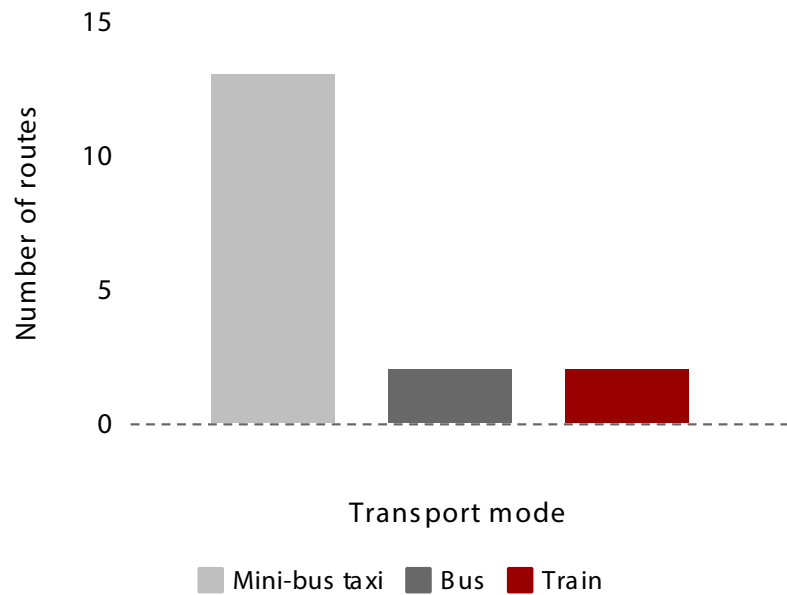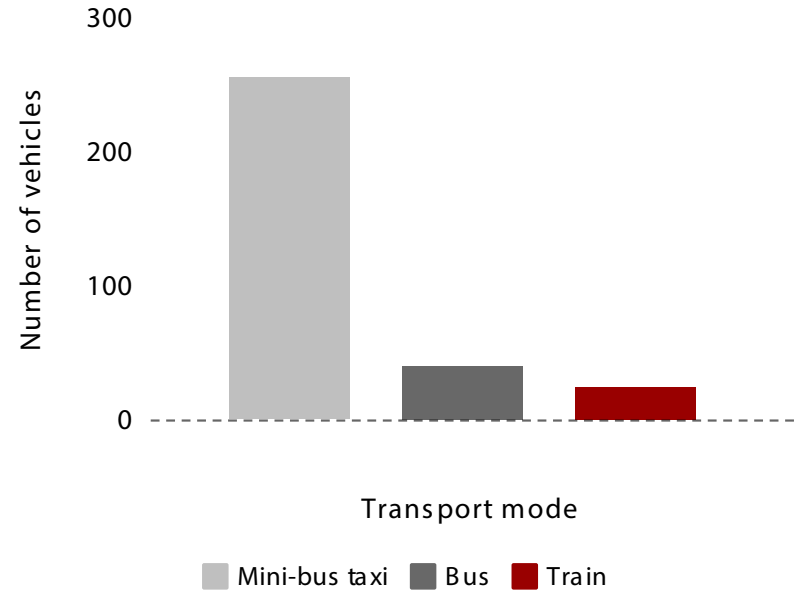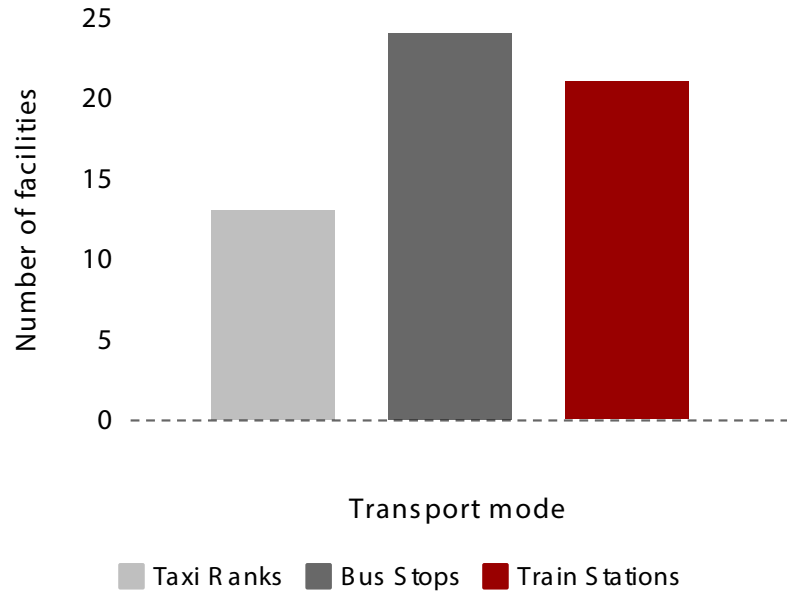
Convergence & Transition

The invention of motorised transport has transformed the perception of the urban environment through the inclusion of speed as a factor. One can only visually momentarily engage momentarily with the signs and views of the an area as you pass through it at a high speed. The measure of distance is no longer related to the shortest journey but relative to the time taken to reach the destination. Speed as a factor in the equation of travel has transformed our urban environment.

An affordable, convenient public transport system has become a necessity in modern South Africa, as work opportunities and places of residence move further apart. Dewar et al (1991:17) argue: "The entire point about urbanization is that with the increasing agglomeration, high orders of opportunities, activities and facilities can be supported if the urban poor are to gain physical access to these; however, an efficient, viable and co-ordinated public transportation is a pre-requisite. It is not an option". This coupled with the demographics of country moving towards a poorer and younger one, therefore more pressure is placed on government to provide for transport infrastructure.

Dewar et al (1991: 17) also argue that those living in cities in developing countries won't be able to afford private transport in order to gain access to facilities. This is further aggravated by inflation rising the cost of petrol in recent times. This confronts a major flaw in South Africa to the degree to which urban living is dependent upon the automobile, which in turn the urban poor are spatially marginalized and materially impoverished by the city. The technology of movement should be accessible to all.

Modern day cities place emphasis on transportation due to the above mentioned issues. Although Vereeniging does have an extensive rail and road network, public transport is yet to be fully integrated into everyday urban life at an efficient and functional level. The city is surrounded by a rail line and all major roads in the region converge to its centre. There are main arterial roads that allow access into the various parts of the city, and lastly the sub-urban roads which allow further penetration into various areas. These routes give preference to the vehicle over the pedestrian and shape the way in which the city has developed according to the availability of various opportunities.

Places where journeys commence and end have been made memorable as places where people converge and interact. These places have always had some kind of identity and importance. They act as the initial hand shake one would receive when entering into a new area, the introduction to what you might expect, or as the final good bye or last memory of an area when leaving.

The problem South Africa, along with many developing countries, is facing is the inconvenience of waiting times and the unreliability of public transport. This has lead to a large amount of private vehicles making the use of the road infrastructure. Although the need for an effective form of public transport is quickly becoming apparent as Dewar et al (2004: 21) suggests:
"The current situation is highly problematic, because of the distorted, entrenched, historical pattern of the urban opportunities and sprawling nature of the urban growth, the urban environment, the urban system militates against pedestrian movement. It also generates large amounts of one-way traffic at peak hours, with dramatic fall off at non-peak periods. This characterizes, and pattern of low density sprawl makes large capacity, fixed-line movement modes frequently non-viable. This lack of high capacity fixed-line public transportation has two major consequences: One is that many households, which would otherwise not choose to do so, are forced to own cars, and the other has been the birth of a vigorous and weakly regulated mini-bus industry."

The apartheid regime's of policies of separation opened a market that lead to the emergence of the mini-bus taxi industry. Even though the regime has ended , the taxi industry is still booming. Many people rely on it for daily transport. This has many opportunities and challenges which are deeply rooted into the South African way of life.

A lot of these problems mentioned above are visible in Vereeniging along routes such as the R59, which is the main route to Johannesburg, and the Klip River bridge along Houtkop Road. Endless vehicle convoys are witnessed in the early hours of the morning on the R59 and in the late evenings; it is a testament to a survival and seeking capital from a wealthier and more established city. Houtkop Road is an important corridor in Vereeniging as it connects Sebonkeng, a western township, more directly to the wealthier suburb of Three Rivers and its emerging business district. The effect of this bottle-necks traffic on the Klip River bridge during peak hours; which could be avoided through a public transport route that utilizes main roads that lead into the Vereeniging CBD and into the Three River suburb main road, General Hertzog Road. Therefore it is clear that to relieve the stress placed on these routes, an effective public transport network needs to be developed.

This document is therefore an exploration into the effects of a public transport on the built form of the city and the opportunities which a transport node or terminal creates. The mini-bus taxi industry and Metrorail are of significance and the opportunities that lie there in, through the creation of a public transport interchange node. By carefully acknowledging the opportunities that the movement of people converging on a point, namely the node itself, provides for interaction and how to best capitalise on this. The problem with many existing nodes is that of a negative, sterile, pragmatic and utilitarian space. Many of these existing nodes miss the opportunities afforded to them by the mixed cultures of people moving through them. The aim of this document is to challenge this negativity and sterility through the creation of public space through the application of the lessons learnt in the chapters to follow.

FIG. 67:
Indicators for public transport in Vereeniging
source: DITP 2008-2013 Sedibeng DIstrict Munciplaity

Public transport network & stakeholdlers

An integrated public transport network is a standard adapted to most cities and district conditions. In this situation it is becoming increasingly obvious that the integration of different means of transport plays a fundamental role in the success of a transport system. Hence the old concept of train, bus or taxi stations is no longer valid today. In this view, the public transport action plan phase 1 (2007-2010): catalytic integrated rapid public transport network projects indicated that in general, especially for the larger cities, this will require a city-wide controlled network of rapid public transport corridors together with a fine grained feeder system for smaller busses, taxis, bicycles, pedestrians access as well as metered taxis and park and ride facilities. The network will prioritize public transport, walking and cycling over private vehicle travel and will dedicate road space to these priority modes. Mezghani (2005: 47) has emphasized that the collaboration of authorities and operators involved in the supply of public transport service offers a guarantee for enhanced interoperability and intermodality which is a critical factor in the quality of the whole transport system. A good documented example is in Germany where encouragement of the integration of tickets, timetables, information and payment methods in a specific area contributed considerably to improvements in the quality of public transport systems. In Sedibeng's case, user suffer the inconvenience of having to tackle multiple transfers and different fares based on the location, depending on the form of transport they wish to use. As a consequence of this, a notable lack of co-ordination is apparent in the district. The effect of this situation is strongly experienced by the Sedibeng public transport users, who are also affected by the public transport system costs, onto whom higher fares are charged. Thus far McLeod (1999: 221) cautioned that the determination of the transport quality service for the automobile, bus, bicycle and pedestrian modes on urban arterials could be structured to take a multimodal analysis approach instead of an automobile approach.

Public transport is an essential aspect of society and offers considerable opportunities as in integrated factor, which contributes to better social and economic quality of life. In this sense, the Gauteng Integrated Public Transport Network (2006) attempted to integrate the SDM network, captured on the area of origin of subsidized bus contract services namely: Gauteng Coaches, Ipelegeng and Comuta Vaal Buses. In this fashion taxi services also capture the same areas of origin as that of the subsidized services. As a result these subsidized bus services operate from the peripheral of townships in the north, near the main central business districts of Vanderbijl-park and Vereeniging, as well as the industrial areas around Meyerton and key residential areas. There are also fairly strong cross-boarder movements into Johannesburg, particularly by rail.

The Metrorail line from Kwaggastroom joins with the Soweto Priority A line and then enters the Johannesburg CBD. The existing public transport network between Johannesburg and SDM were developed on optimal links between the two CBDs: Vereeniging and Johannesburg. This design, particularly the rail network, currently is aging having operated unchanged, since 1952, in the SDM region for over sixty four years. It is grossly over capacity and straining the aged infrastructure, thus leaving commuters vulnerable to the consequences due to safety and disregard.
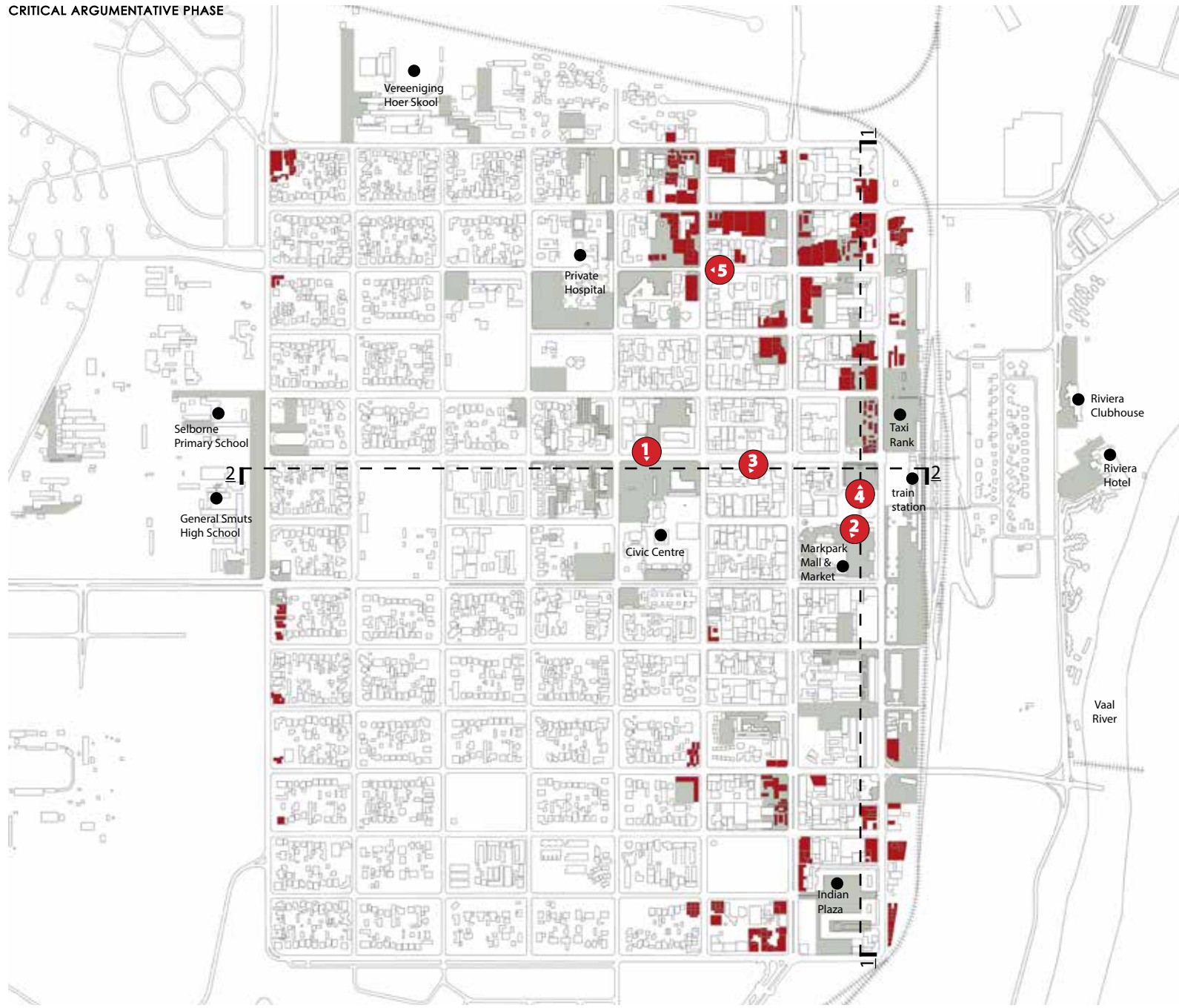
Vereeniging
Hoer Skool

Private
Hospital

Riviera
Clubhouse

Selborne
Primary School

Taxi
Rank

Riviera
Hotel

General Smuts
High School

train
station

Civic Centre

Markpark
Mall &
Market

Vaal
River

Indian
Plaza

0 10 20 30 40 50m
N

FIG. 68 :
Depicts what is defined as anit-space or lost space in the city
(refer to page 52-53). Note the invasive presence of private
vehicles in civic, commerce and public transport spaces.
Source: author's own

Legend:

■ Car dealership

☐ Parking lots

FIG. 69:
Civic Centre parking lot is empty for most of the year as seen in
this photo. Palisade fencing around this precinct further isolates
what should be publically accessible.
Photo: author's own

FIG. 70:
Markpark Mall roof top parking is isolated from the rest of the
city, which the ramp being the only access. Walls measure approx-
imately 2.3m high and are impossible to look over.
Photo: author's own

FIG. 71:
A view to the southern end of the city a landfill is visible. It is
the reminisce from the old coal mine shafts just behind it. The
Southern reaches of the region and across the Vaal river are still
being mined for coal and clay deposits. Mining has ravaged the
landscape and it is unfit for habitation.
Photo: author's own

FIG. 72:
Markpark Mall parking, mostly tarmac claimed what was called
the "Spoorweg Plein" or Railway Square that was formerly a park
before 1982. It has recently been reappropriated by Informal
traders.
Photo: author's own

SECTION 1:1

0   5   10   15   20   25m

SECTION 2:2

FIG. 73:
Note the richer internal environment
of Markpark Mall compared to outdoor spaces.
Photo: author's own

FIG. 74:
Car dealerships, second hand and new, are a common presence
in Vereeniging. It radically alters the street character. The struc-
tures are generic and similar to one another.
Photo: author's own

Sterility

Richard Sennett (1994: 25), a Prof. of sociolo-
gy and humanity, refers to what he calls the
"contemporary problem". Sennett refers to
the sensory deprivation that seems to curse
most modern buildings, the dullness, the mo-
notony and tactile sterility which afflicts the
urban environment. The Traveler experiences
the world in narcotic terms, in that indoor
environments are leisurely enhanced be it
through temperature or light, and the body
moves passively to destinations set in frag-
mented and discontinuous urban geography.

This has lead to the question: how do you
turn sterilized functional space into some-
thing more humane?

Currently, transportation and transportation
nodes are focused on getting the commuter
from one place to the next as quickly and
efficiently as possible. The reason being that
the more people they move, the more reve-
nue they generate. Even the stalls and shops
within these nodes are geared toward this.

Walking along Union Street next to the

Vereeniging Station reveals this. Opposite
the Station is a monolithic mall consisting of
shops, stalls and semi-public seating areas.
The mall, Markpark Mall, is set apart from the
areas where commuters sit and wait. There
are large open areas with very little happen-
ing, and very few views out into the city or
even out to the station opposite it.

Out on the station island platform commuters
waiting for the trains sit by themselves and
do not engage with the people sitting around
them. Transport nodes have the potential to
be very exciting and vibrant spaces. They are
filled with movement 24 hours a day. It is a
public space and there are people from all
walks of life, of all shapes and sizes, constant-
ly flowing in and out of it doors. This presents
commuters with the perfect opportunity for
chance-interactions with that of the 'oth-
er'. It can be viewed as an iconic space as it
represents the local identity and pride of a
region or city.

Therefore this notion has lead to the idea that
a transport node can be a gateway for arrival
and departure; and opening the possibility
as a social meeting point. The public space
becomes like a stage where visitors become
the actors. It should be a space where people

can take a break, get some exercise and
breathe. These ideas have been achieved in
many forms and sizes in different examples,
not necessarily only in the form of a transport
node. The one extreme could be scale of the
Champs-Elysees in Paris, with its many cafes
and idyllic tree lined streets. On the other
hand it could be as simple as a street in a local
suburb.

Allan Jacobs (1993: 4), a professor at the
University of California, talks about streets as
places of social and commercial encounter
and exchange. They are where you meet peo-
ple, which is a basic reason to have cities. The
street movement which is about watching,
passing and generally movement of people,
of forms and fleeing faces, changing postures
and dress. You notice people ahead of you
and over your shoulder or not at all. Absorbed
in whatever has taken your attention for that
moment, but aware and comfortable by the
presence of others all the same. It is possible
to stand in one place or to sit and watch the
show.

In order to challenge this sterility, the idea
of place theory has been introduced. It will
be discussed in the section "Urban Spatial
Design".

FIG. 75:
A VIEW OF THE NORTHERN PORTION OF THE CITY
This photograph was taken from the roof top of the
Merriman Building on Merriman Avenue.

SETTING OUT
THE MANIFESTO

OVERVIEW

Urban Spatial Design Theory
Analytical Enquiry
derived from Crane, Trunik & Lynch

Figure Ground Theory

HARD SPACE: *Refers to the edges of spaces & the degrees of enclosure. These spaces tend to be more perminently bound*

Defines places & spaces into categories on the relative land coverage of buildings as solid mass to open voids.

SOFT SPACE: *Is dominated by the natural environment & can also refer to social or recreational spaces. These spaces are less perminent or entreched as Hard Space.*

3 DIMENSIONAL FRAME: *Refers to the edges of spaces & the degrees of enclosure*

2 DIMENSIONAL PATTERN: *Refers to the treatment & articulation of the ground plane*

Linkage Theory

COMPOSITIONAL FORM: *Is the linkage implied between buildings imposed on a 2 dimensional plane.*

Is defined as connecting spatial elements to one another through streets, pedestrian paths, linear open spaces or other linking elements that physically connect parts of the city.

MEGA FORM: *Refers to the structures that are connected to a linear framework in a hierarchial open-ended system.*

GROUP FORM: *An organic & natural evolved accumulation of structures along a communial open space.*

Place Theory

Is defined as an urban environment where the advocates add additional richness through incorporation of unique forms & details indigenous to their context.

SPATIAL INTEGRATION

LEGIBILITY: *Refers to the mental picture of the city held by the city dweller*

STRUCTURE & IDENTITY: *Refers to the recognisable & coherent patterns of urban blocks, buildings & spaces.*

LINKAGE ABILITY: *Refers to the user's perception in motion & how people experience space in a city.*

DESIGN REQUIRMENTS: are achieved by applying Lynch's three points which integrates Trunik's urban theory inorder to create order & a sense of place.

FRAMEWORK FOR DESIGN REQUIREMENTS & CHALLENGES

CHALLENGES: Refers to as those elements gathered through the Analytical Enquiry that need to change if order & a sense of place is to be achieved.

GREAT STREETS: *Refers to the functional, pragmatic or utilitarian urban space that can also offer a memorable experience, and what makes these spaces memorable?*

CREATION OF PLACE: *Refers to those conditions that generate city diversity & understand their origins and necessity*

FINDING LOST SPACE: *Refers to anti-space which are urban areas that are in need of redesign, it is also residual-space inbetween dominant spaces with varying degrees of openess*

COMMUNICA-TIVE SPACE: *Refers to a city dominated by signs that communicate messages which are either functional, symbolic or persuasive*

Manifesto Overview

This structure enquires into urban spatial planning as proposed by Crane, Trunik & Lynch. Each author elaborates more into a grand scheme, and when stitched together offers an analytical critque and design requirements that can be applied.

One of the key challenges of the proposed site is that of sterility, dense control/ congestion and a totally unintregrated system. Therefore the document will address these problems through spatial integration.

This node will not necessarily become a destination, but rather a point along a journey to another destination. Adoptiing this mind set early in the design will assist in enhancing the experience of waiting within social public spaces.

The questions that arise now are:
- Define waiting?
- Where do we wait?
- Why do we wait?
- What are we waiting for?
- What do we do whilst waiting?

Waiting could also be defined as places of delay. Transport nodes are notorious for being delayed, hence the choice of site and topic.

Charles Correa (1989: 77) notes the following: "...because of the scale of urban growth expected in the third world, it is impossible to try and enforce a fixed and preconceived end picture. What is needed is a flexible structural plan, which indicates potential growth points. Historically there have been points of inter-section and/or of absorbed into a computer of the transfer."
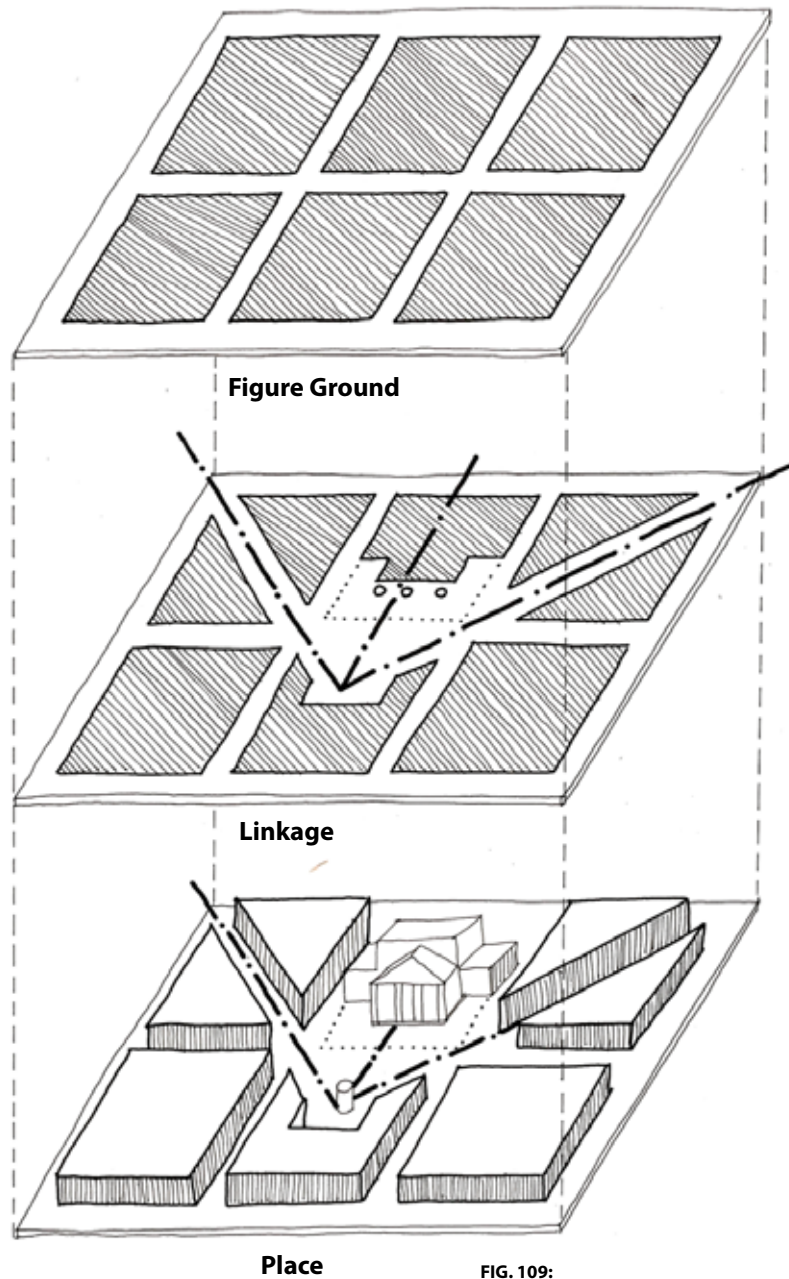
Figure Ground

Linkage

Place

FIG. 109:
A Duagram of urban design theories
source: Trancik, 1986: 98
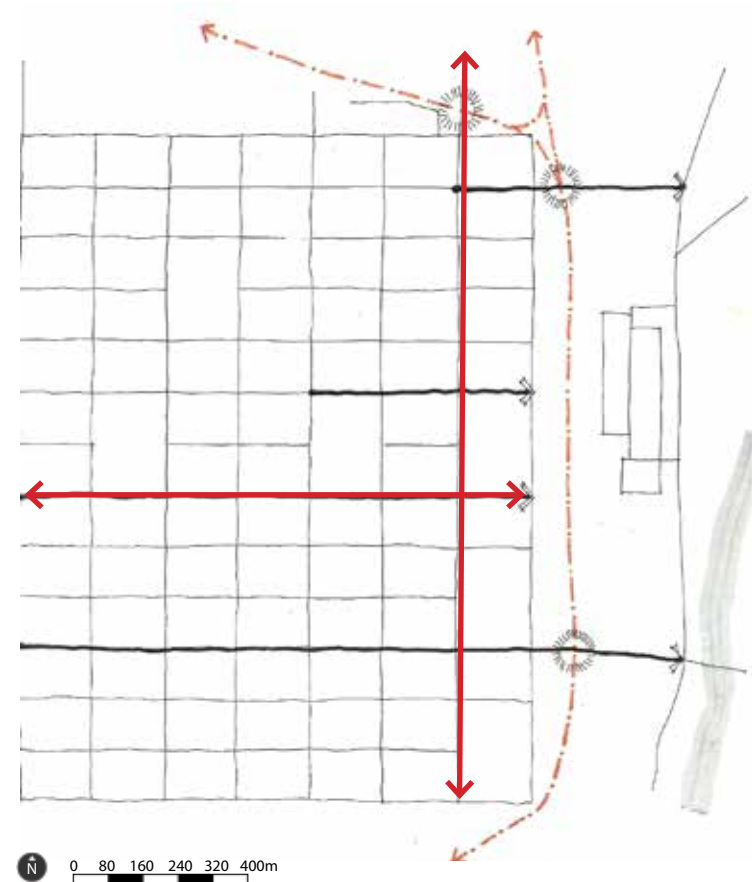
FIG. 110:
Vereeniging figure ground diagram
Drawing: author's own

Urban Spatial Design

On the basis of research into the evolution of modern space and analysis of historical precedents, Trancik (1986: 97) offers three approaches to urban-design theory:

* the figure ground theory
* the linkage theory
* place theory.
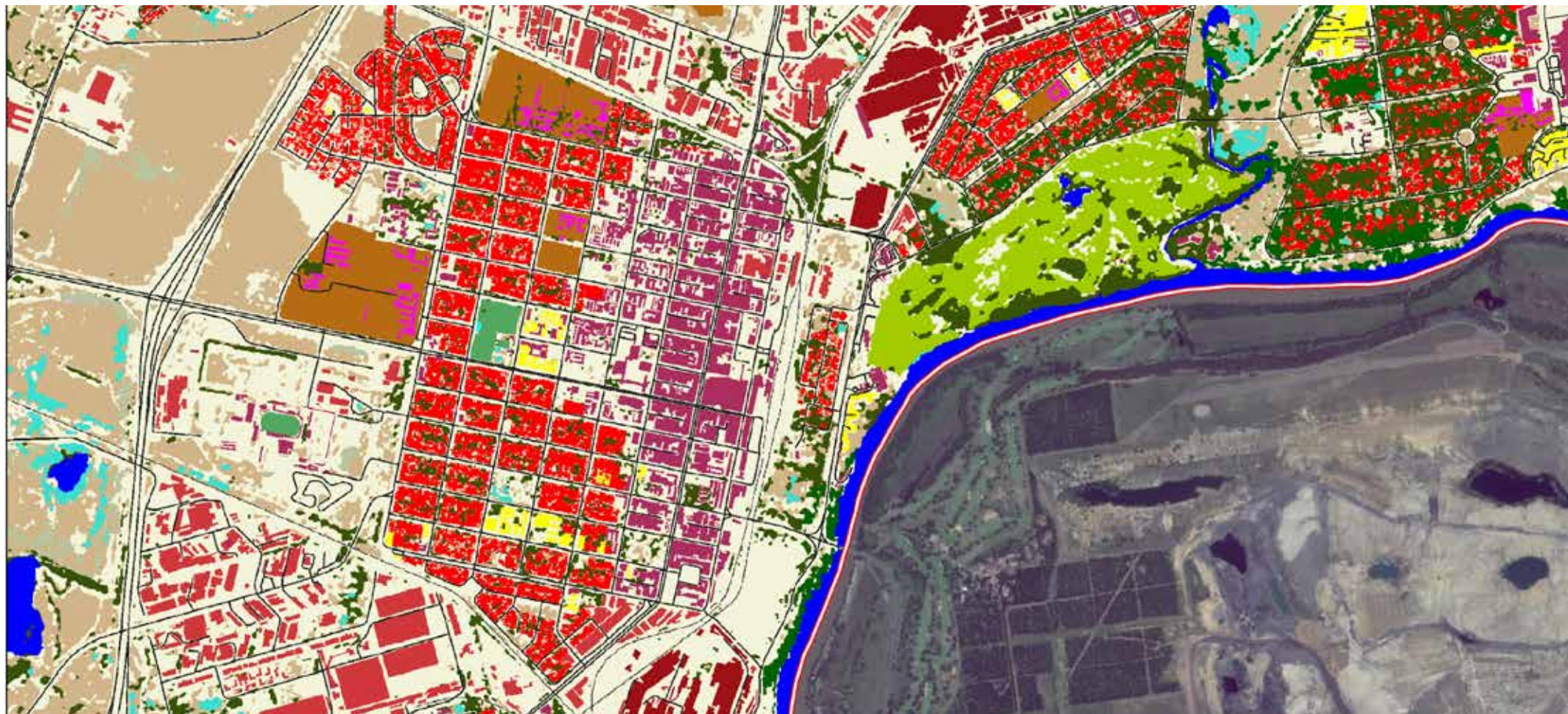
Figure Ground Theory

Figure ground theory is founded in the study on the relative land coverage of buildings as solid mass (figure) to open voids (grounds). Trancik (1986: 97) explains the following: "Each urban environment has an existing pattern of solids and voids, and the figure-ground approach to spatial design is an attempt to manipulate these relationships by adding to, subtracting from, or changing the physical geometry of the pattern. The objective of these manipulations is to clarify the structure of urban spaces in the city or the street by establishing a hierarchy of spaces of different sizes that are individually enclosed but ordered in relation to each other. A prominent field of solids and voids creates the suburban pattern, often called the fabric, and is punctuated by objects, buildings and spaces, such as major landmarks or open spaces that provide focal points and sub-centres within the field. The figure-ground drawing is a graphic tool for illustrating mass-void relationships, a two dimensional abstraction in plain view that clarifies the structure and order of urban spaces."

FIG. 111:
Vereeniging contextual map
Source:ttp://www.gcro1.wits.ac.za/gcrogis1

Legend

Buildings	Residential cluster	Wetlands
School buildings	Residential	Degraded natural vegetation
Campus buildings	Formal township	Cultivated, commercial land, irrigated
Sports stadiums	Informal township	Cultivated, commercial, dryland
School grounds	Small holdings	Mines & quarries
Sports & recreation	Bushland	Open
Golf Courses	Indigenous forest	Water
Industrial	Planted trees	Bare rock & soil
Heavy industrial	Planted & Natural grassland	New development
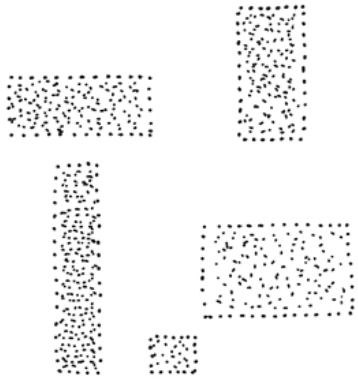
Mega Form   **Group Form**   **Compositional Form**

FIG. 112:
Linkage theory diagrams
source: Trancik, 1986: 98

source: Trancik, 1986: 98
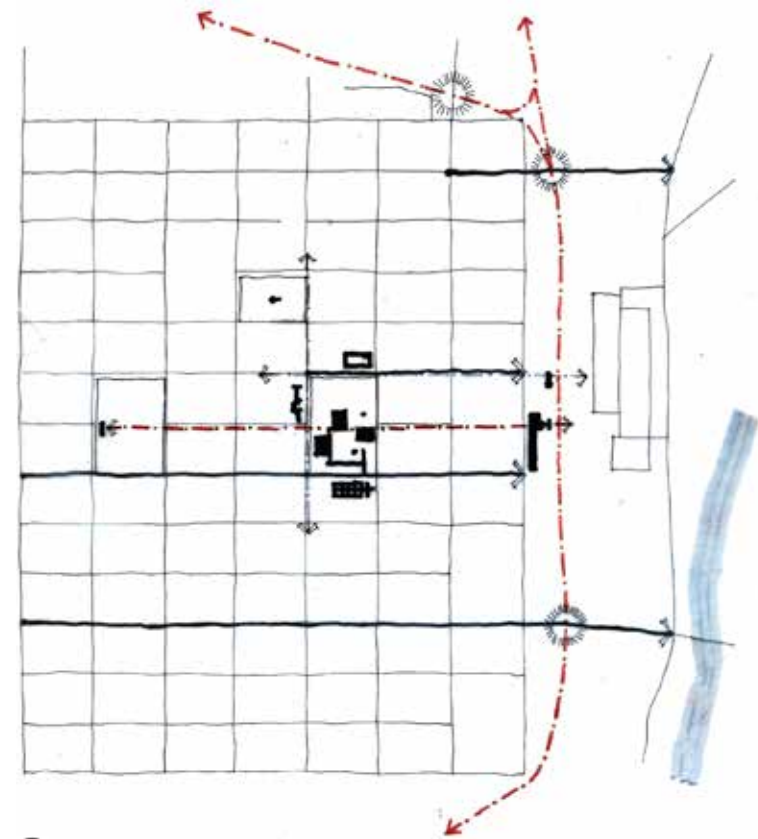
0   80   160   240   320   400m

FIG. 113:
Vereeniging figure link theory diagram.
Drawing: author's own

Linkage Theory

Linkage theory is derived from lines connecting one element to another. Trancik (1986: 97) explains the following: "These lines are formed by streets, pedestrian paths, linear open spaces, or other linking elements that physically connect parts of the city. The designer applying the linkage theory tries to organize a system of connections, or a network, that establishes a structure for ordering spaces. Emphasis is placed on the situation diagram rather than the spatial diagram of the figure-ground theory. Movement systems and the efficiency of the infrastructure take precedence over patterns of defined outdoor space."

Trancik (1987: 107) discusses Fumihiko Maki's, a Japanese architect and 1993 Pritzker Prize winner, three different types of formal urban space: compositional form, mega form and group form.

Compositional form:
Individual buildings are imposed on a two dimensional plane. In this type of urban form, spatial linkage is implied rather than overt and is typical of functionalist planning methods.

Mega form:
Structures are connected to a linear framework in a hierarchical, open-ended system where linkage is physically imposed.

Group form:
Group form results from an incremental accumulation of structures along an amateur of communal open space, where linkages naturally and organically evolved. Historic towns and villages have tended to develop in this pattern.

The linkage theory can also be applied on the smaller, more direct scale. It can affect the success of a single urban space, such as the transport node in question, and how that space will work being scrutinized under the same condition.

FIG. 114:
Place theory diagrams.
source: Trancik, 1986: 98
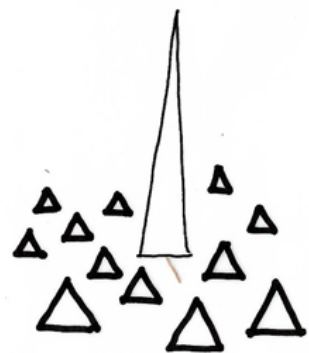
Districts

Landmarks

Paths

Edges

0   80   160   240   320   400m
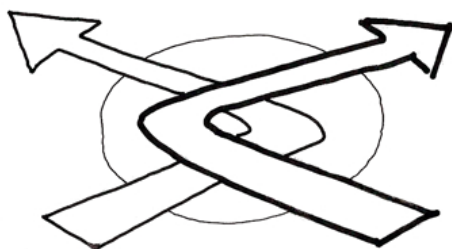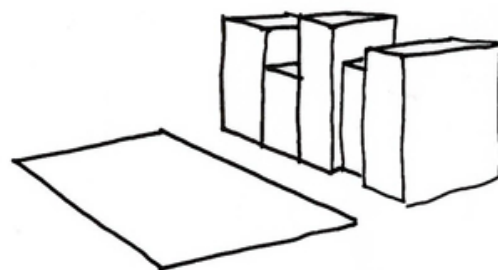
FIG. 115:
Vereeniging place theory diagrams.
Drawing: author's own

Place Theory

The place theory goes one step beyond figure-ground and linkage theories in that its components are a product of human needs: cultural, historical and natural contexts. Trancik (1986: 98) explains the following: "Advocates of the place theory give physical space additional richness by incorporating unique forms and details indigenous to its setting. The response to the context often includes history and the element of time and attempts to enhance the effect between two designs and existing conditions. In place theory, social and cultural values, visual perceptions of users and individual's control over the immediate public environment, are as important as principles of lateral enclosure and linkage."

Dewar et al (1991: 15) argue that the appropriate urban actions and decisions need to relate to, and are grounded in, the real needs, requirements and priorities of urban dwellers. It is the identification of these needs which is the basis of relevant ideas and which provide a critical capacity in reviewing or developing plans.

Trancik (1986: 118-121) discusses the Kevin Lynch, an urban planner and author who studied under Frank Lloyd Wright, to further understand place theory: He looked at the city in Parks in an attempt to define a theory of place, by looking at the city as a system that contains the set organizing structures of psychological significance to the inhabitants. He recognized that each individual forms a mental maps of his or her environment, in which paths, edges, districts, nodes and landmarks provide important reminders of physical and psychological orientation, these were termed as elements of urban form.
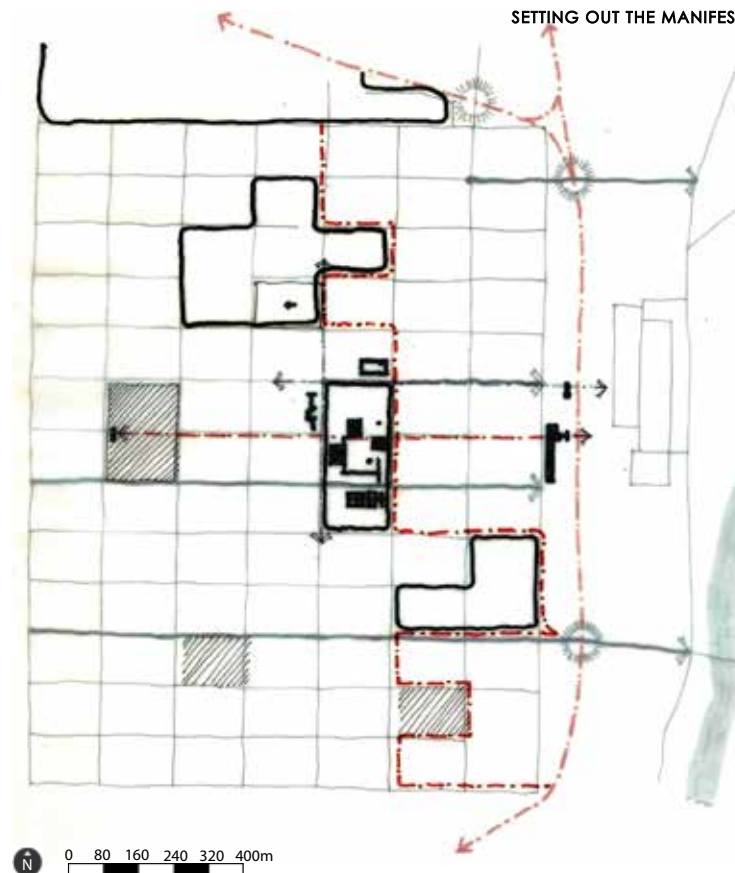
The in order for these elements to be successful Lynch noted that these elements should be designed around the following requirements:

• Legibility: the mental picture of the city held by the user on the street
• Structure and identity: the recognizable, coherent pattern of urban blocks, buildings and spaces.
• Image ability: user perception in motion and how people experience the space of the city.
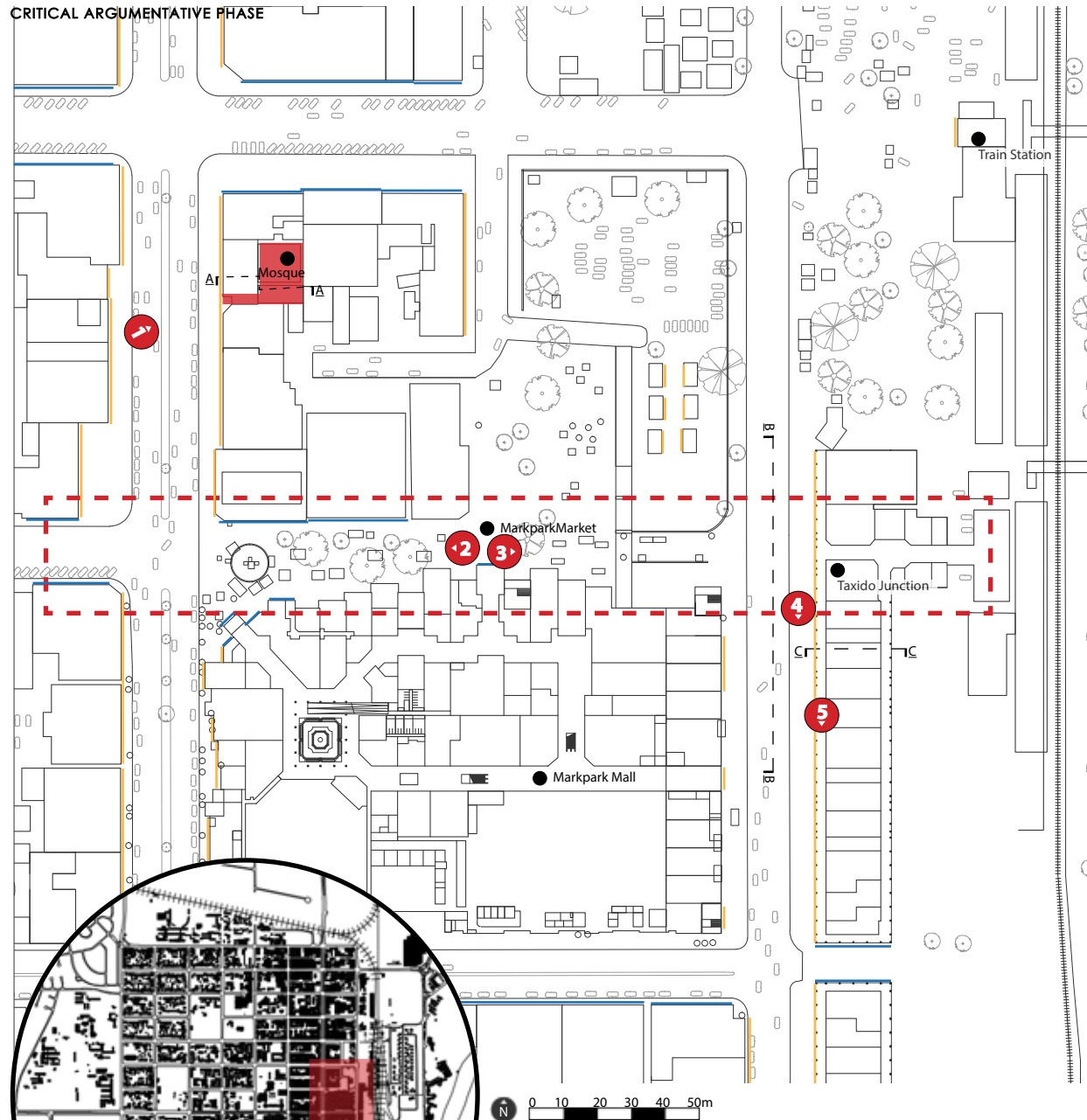
FIG. 76:
Building Facade edges & thresholds:
The above drawing illustrates some of the more significant thresholds and facade edges that have good urban street qualities. The diagram also helps to identify those areas where the street quality is poor where it should not be, in the case of the area adjacent the train station and directly in front of it.
Drawing: author's own

Legend:

— North/ South facades

— East/ West facades

FIG. 77:
A street view of facade of
the Vereeniging Jumah Masjid.
Photo: author's own

Note:
The mosque facade was altered in 1992. Refer to page for the original facade.
Source: Emfuleni Local Council Building Plan Archives

FIG. 78:
Section A:A through the Vereeniging Jumah Masjid.
Drawing: author's own

FIG. 79:
A ground floor plan of the Vereeniging Jumah Masjid.
Drawing: author's own

0 1 2 3 4 5m
FIG. 80:
Taxido Junction Street Facade, Section B:B
Drawing: author's own

Union Street   pavement   veranda   shop   shop   veranda

0 1 2 3 4 5m
FIG. 81:
Section C:C through Taxido Junction
Drawing: author's own

FIG. 82:
A Western view down the informal Market outside Markpark Mall.
Photo: author's own

FIG. 83:
Photos of the pedestrian street through the informal Market, on what use to be Market Avenue. Note the width of the pedestrian street that comfortably accommodates informal traders, trees, furniture and circulation.
Photo: author's own

FIG. 84 & 85: ^ >
Drawings depicting the threshold quality in the Taxido Junction Arcade on Union Street. Note the wide pavement in the drawing above that allows for informal trade, dense pedestrian traffic and for shop goods to be displayed. The veranda depicted in the drawing on the right protects pedestrian from the sun.
Drawing: author's own

"Great Streets"

Jacobs (1993: 2)writes, " You go back to some streets more often than others, and not because the things you do or have to do are more centred on one than the other. Maybe you focus a part of your life more on one street for reasons not necessarily economic or functional. Maybe a particular street unlocks memories or offers expectations of something pleasant to be seen or the possibility of meeting someone, known or new; the possibility of an encounter. I would rather drive on a local street to reach my home from downtown than take the freeways."

In the extract Jacobs introduces streets to us as something that is far more than just pragmatic or utilitarian. It is a functional space that offers an experience. He argues (1993: 3-4) how they moderate the form and structure and comfort of urban communities. Sociability is a large part of why cities exist

and streets are a major, if not the only, public place for that sociability to develop. Some streets are for exchange of services or goods, places to do business. Jacobs (1993:10) also notes that within cities there are different kinds of streets: for living, shopping, working, walking, driving, leisure, or for any other number of activities or combinations.

This brought me to my next question: what makes a street great? From the extracts above we can deduce that they should moderate form and function. They should be places of social and commercial encounter and exchange, and they should focus attention and activities on one or more centres. In order for it to be truly great, it should be focused on the interplay of human activity with the physical place.
Due to the difficulty of pinpointing the physical qualities that make certain streets

stand out over others, Jacobs (1993: 8-9) sets out the following criteria for what it is great streets should do.

Firstly and foremost, a great street should help make a community. It should facilitate people acting and interacting to achieve in concert what they might not alone.

A great street is physically comfortable and safe. A great street might be cooler and shadier than another on a hot summer day and therefore more pleasant to be on. It should provoke a sense of confinement. Physical safety can mean many things, but the general concern is that of comfort away from the traffic and ease of movement.

The best streets encourage participation. People stop to talk or maybe they sit and watch, as passive participants, taking in what

the street has to offer. Participation in the life of the street involves the ability of people who occupy the buildings, including houses or shops, to add something to the street, individually or collectively to be a part of it. That contribution can take the form of signs, flowers or awnings or colour, or in altering bridges.

The best streets are those that can be remembered. They leave strong, long lasting positive impressions. Thinking of a city, including one's own, one might well think of a particular street and have a desire to be there, such a street is memorable.

The truly great street is one that is representative. It is the epitome of a type, to the point where it can stand for others as a benchmark.
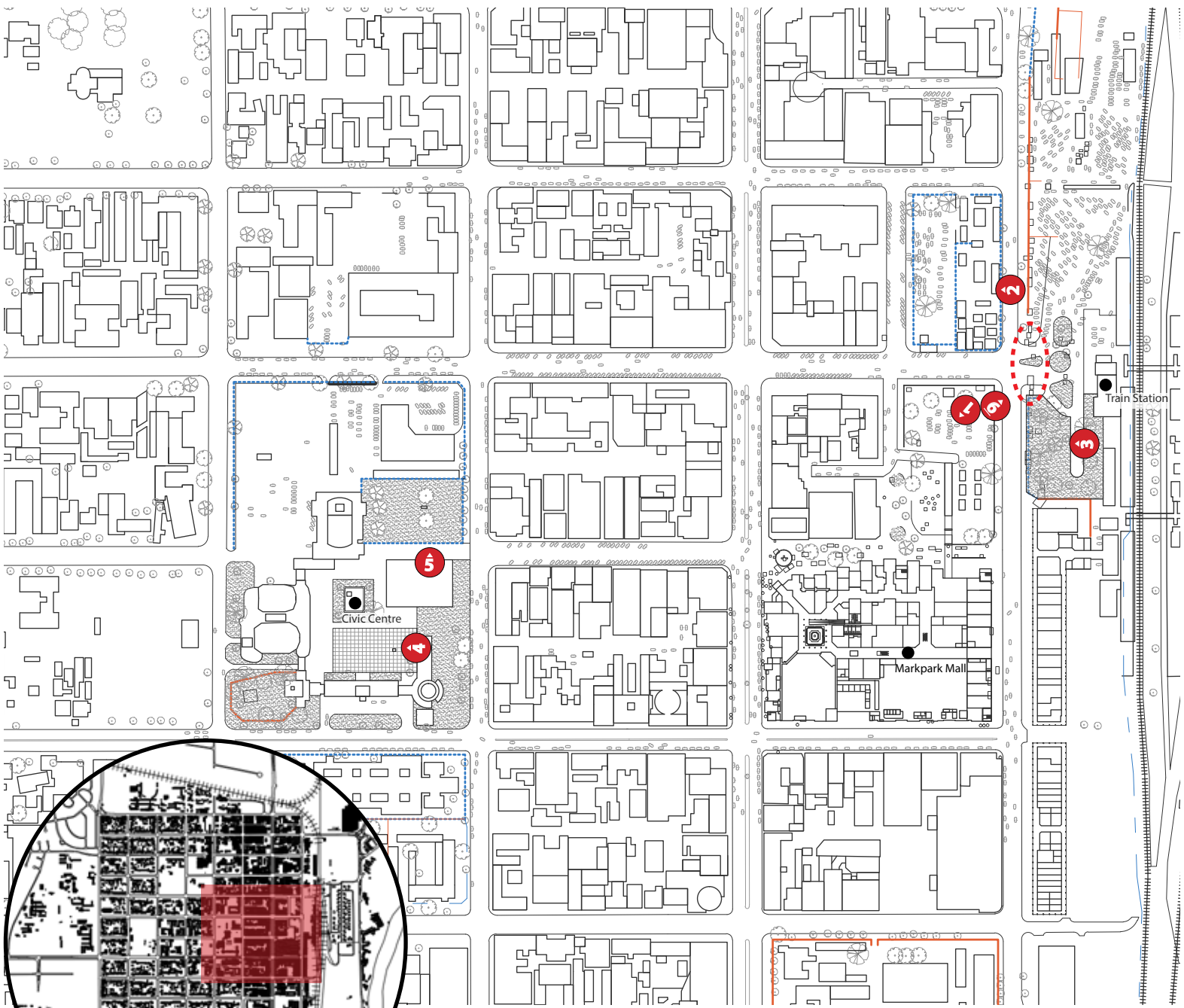
FIG. 86:
This drawing illustrates spaces that define the city.
Drawing: author's own.

0 20 40 60 80 100m

N

Legend:

—— Wall

—— Fence

- - - Assembly point

▦ Grass lawns

Train Station

Civic Centre

Markpark Mall

FIG. 87:
Markkpark parking lot opposite the Train Station.
Photo: author's own

FIG. 88:
A car dealership on Union Street opposite the Vereeniging Train station.
Photo: author's own

FIG. 89:
Park in front of the Vereeniging Train Station.
Photo: author's own

The above images depict areas of the the city where the creation of place is strong and evident (image) and areas that have potential such as the train station. The Train station faces numerous challenges of which the most dire is the dominance of anit-space. Anti-space is the resultant of the presence of car dealerships and parking lots around the site of the train station which conflict with a site that requires a places of convergence, dispersal and waiting that should not be dominanted by the structure of private transport.

FIG.90/1 :
Constitution Square, formerly Market Square & Civic Centre.
Photo: author's own

FIG. 91:
The Vereeniging Train Station & Taxi Rank on a Sunday.
Photo: author's own

FIG. 92:
The Vereeniging Train Station & Taxi Rank on a Friday afternoon.
 Photo: author's own

FIG. 90/2:
Note the fence around the public lawns in the background.
Photo: author's own
Refer to pg 124-125 for guidelines on public space

Creation of Place

The conditions that generate city diversity are quite easy to discover by observing places in which diversity flourishes, and studying the economic reasons why it can flourish in these places (Jacobs, 1961: 150-151).

Jacobs argues that in order to generate diversity in a city's streets and districts, four conditions are indispensible:

The district, and indeed ass many of its internal parts as possible, must serve more than one primary function; preferably more than two. These must insure the presence of people who go outdoors on different schedules and are in the places for different purposes, but who are able to use many facilities in common.

Most blocks must be short, that is, streets and opportunities to turn corners must be frequent.

The district must mingle buildings that vary in age and in condition, including a good proportion of old ones so that they vary in economic yield that they must produce. This mingling must be fairly close-grained.

There must be a sufficiently dense concentration of people for whatever purposes that may be there. This includes dense concentration in the case of people who are there because of residence.

A transport node is the ideal setting for the diversity of which Jacobs discusses. It allows for the movement of people almost the entire day, with people passing through it for different reasons, and the diversity of the people using it allows for many more different opportunities with regard to use.

Jacobs (1961: 151) explains further stating," In combination, these four conditions create effective economic pools of use... given the development of these four conditions (or the best approximation to their full development that can be managed in real life), a city district should be able to realize its best potential, whatever that may be, wherever that may lie."

Dewar et al(1991: 30-35) suggest that three points need to be stressed about the public investment structure when looking at urban public spaces such as "Great Streets":
Firstly the elements of infrastructure may be used differently at different times or in different contexts according to the dominant needs of the urban population. Public spaces can be primarily social or they can be used opportunistically as small scale trading

and manufacturing in viable locations. The most efficient system will result when the multi-functional use of urban elements are promoted, and when these elements meet the full range of demands thrown upon them. The understanding of this is that, in the case of multi-functional space, the elements in question may not accommodate any one activity optimally and certain conflicts may be generated. Although the system is enriched by this conflict to the greatest degree possible and resources are optimally utilized (Dewar et al, 1991: 34).

The second point is about the spatial quality of such a place. Dewar et al (1991: 35) discusses that although the organizational geometry of the structure affects the range and type of opportunities made, the spatial quality of the applied structure in turn affects the quality of those choices. For example, if the public spatial environment is poor, then the entire environment will be negative. This affect will follow through regardless of how well the individual buildings are designed. Conversely, when the public environment is of a high quality, the pressure is reduced off of individually built elements and they therefore do not need to generate quality entirely internally. Thus, a successful urban public environment will concern itself with the quality of a space before anything else. It is the designer's job to assess what it is that would make a space successful, as this may vary according to the context in which the project is found.

The third point relates to the organization of the investment into the public structure and the importance not to remove structural conflict right away. Dewar et al(1991: 36) add that the conflict that is generated through the tension of conflicting or competing structural elements, creates opportunities to which people respond to and which results in complex and diverse environments.
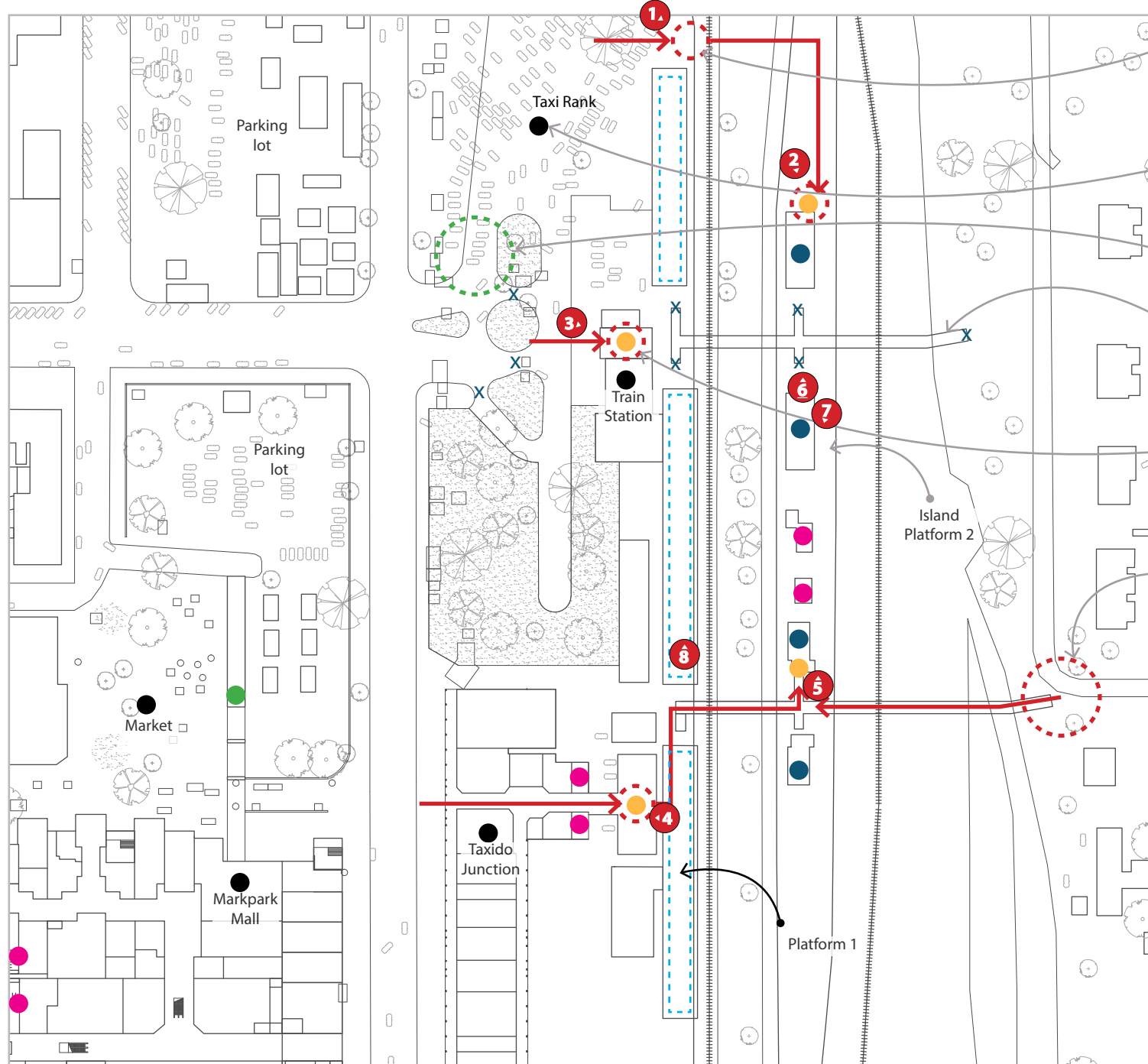
This entrance is unsafe as users cross railway tracks, but it is a resultant to the need for an efficient link from Platform 2 to the taxi rank.

This space was allocated to be a taxi rank industry, but was originally a parking lot. It should be designed to better function as a taxi rank. Currently it lacks facilities such as public toilets, sufficient structures for trading, socializing (passengers and drivers) and comfortable spaces for waiting.

More than 200 taxis enter and exit through this narrow width causing a bottle neck effect.

This pedestrian bridge was closed off due to safety concerns. This puts pressure on the other bridge further to the South. The bridges are both extremely narrow (1.3m wide) and only support traffic of two people side by side.

This is the main entrance to the Train Station and the building has a prominent facade. The entrance lobby is spacious but lacks seating. There is a ticket office, but this entrance is sometimes locked and visitors are forced to use other entrances.

The Eastern end of the Station is not integrated at all with the existing residential area. The residential area is a government housing district that can potentially benefit from an integrated scheme.

The Market suffers the same challenges as the taxi rank, as there are no any facilities to help support it presence. Informal traders build their own trading shelters but they still require public toilets. Using the Malls toilets should be viewed as a temporary solution.
Storage for informal traders' goods and dismountable shelters is in demand. There is a small room under the Mall's ramp that leads to the roof parking. This room is the only form of storage for those that can afford to use the service.

Platform 1 has become underutilized. It is rare to see people waiting on this Platform. It is wasted space and accommodates far less people seated than in Platform 2.

Overview:
The overall view of the quality of these spaces is unsparing and their users are forced into vulnerability.
It is a poor treatment to the men, women and children that work incredibly hard in this city.

FIG. 93:
Ocupational movement diagram of the Vereeniging Train Station.
Drawing: author's own

Legend:
- Ablution
- Ticket sales
- Storage
- Waiting space
- Entrance/ exit
- Closed off routes
- Unused waiting spaces

0 10 20 30 40 50m

FIG. 94:
Platform No. 2 link into the Taxi Rank.
Photo: author's own

FIG. 95:
Platform No. 2 entrance.
Photo: author's own

FIG. 96:
Main Train Station entrance.
Photo: author's own

FIG. 97:
Entrance from Taxido Junction & ticket office.
Photo: author's own

FIG. 98:
Cash ticket sale on Platform 2.
Photo: author's own

FIG. 99:
Closed-off pedestrian bridge.
Photo: author's own

FIG. 100:
Waiting space on Platform No. 2
Photo: author's own

FIG. 101:
Unused waiting space on Platform No. 1
Photo: author's own

Finding Lost Space

The siting of such a project is crucial to its final outcome. Roger Trancik, an urban planner, talks about the lost space in his book entitled, " Finding lost space." Trancik (1986: 3-4) writes, "Lost spaces are the undesirable urban areas that are in need of redesign- anti-spaces, making no positive contribution to the surroundings or users. They are ill-defined, without measurable boundaries, and fail to connect elements in a coherent way."

This brought about the next question, where is lost space? Trancik (1986: 61-63) makes reference to Steven Peterson who describes space vs. anti-space. According to Peterson, space can be described as conceivable, it can be measured. It has definite and perceivable boundaries. It discontinues in principle, closed, static and yet serial in composition. He compares this to anti-space, which he describes as, inconceivable, shapeless, continuous and lacking perceivable edges or form.

Robert Venturi (1972) points out that, the problem is not the land cover urban spaces in the city, but its openness. Trancik quotes Robert Venturi (1986: 61),"Residuals space in-between dominant spaces with varying degrees of openness are not unknown in our cities... the open spaces under highways and the buffer zones around them. Instead of acknowledging and exploiting these characteristics kinds of space we make them into parking lots, or feeble patches of grass-no-man's land between the scale of the region and the locality."

The of many examples of these anti-spaces all around our cities, used as buffer zones between residential areas and industrial areas, she separates one space from another, to define the edges, ect...

Streets and roads can also be seen as 'residual' spaces, as their true potential has not been fully realised. Tranciks (1986: 3) explains how roads and parking lots often interrupt pedestrian connections within the city. Walking is frequently unpleasant and disorientating experience. Trancik (1986: 7) notes, "the artery replaced by avenue and the street lost its social meaning as a multipurpose space." By this he means that vehicular movement has taken preference over pedestrian movement. The 'artery' it's about getting from one place to another, as quickly and efficiently as possible, without experiencing the place that you are moving through. Trancik (1986: 7) also adds, "Neighbourhoods and districts no longer interact, but become isolated, homogenous enclaves. Unique and the desire for order and mobility has undermined the diversity and richness of urban public life."

How do we break away from this cycle? Trancik (1986: 3-4) points out that, "Anti-spaces offer tremendous opportunities to the designer for urban redevelopment and creative infill and for rediscovering many hidden resources in our cities." The spaces around the Train Station demarcated for vehicles is an underutilized space, and it should be orientated towards the pedestrian and public transport users. The stations platforms are difficult to navigated to due to the lack of communication to the pedestrian approaching the site. Multiple entry points also make it confusing. There is a lack of demarcation of space, particularly where assembly, dispersal, waiting and trading takes place in and around the site. Even the taxi rank is lost in it urban context and is indistinguishable from the adjacent parking lots.

Integration of Space

Trancik (1986: 61) defines and places space into two categories: hard space vs. soft space.

Hard space:
"Hard spaces of those principally bounded by architectural walls, these are often intended to function as major gathering places of social activity." (Trancik, 1986: 61-63)

The built environment, generally, can be regarded as hard urban space. Trancik studies multiple case studies and precedents to decide what the components of a successful hard urban space are. From his studies, he points out three:

The three dimensional frame:
This defines the edges of space, the degrees of enclosure, and their characteristics of the spatial wall. Transparency, opacity, openings, and surface ornament a significant impact on the character of space, as does the relationship of vertical methods to for example space. The scale of the war in relation to human scale and away the frame meets the ground were also major factors in the definition of the three dimensional edge.

The two dimensional pattern:
This refers to the treatment and articulation of the ground plane. Two dimensional pattern looks at their materials, texture and composition of the ground plane.
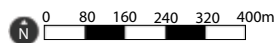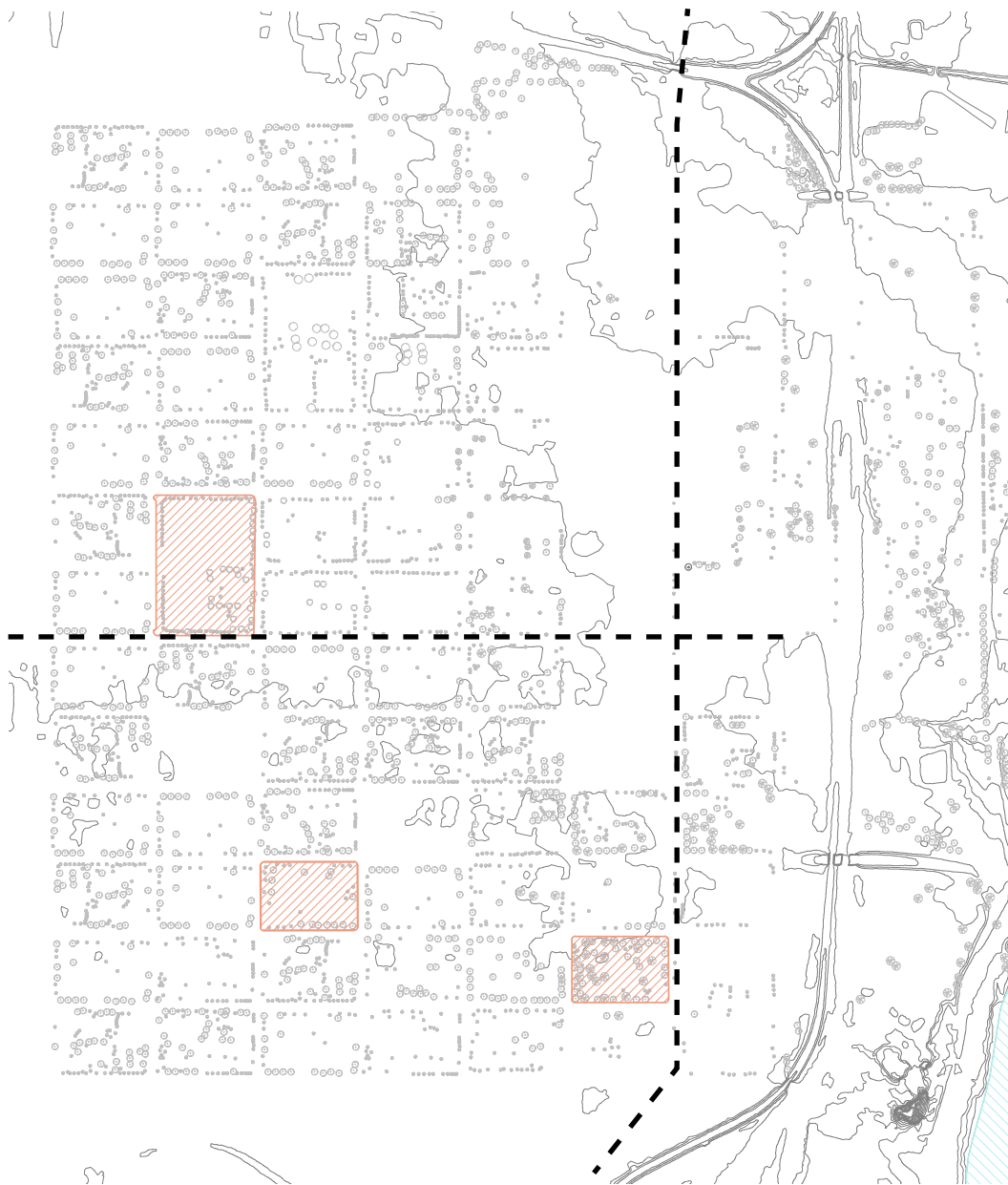
0   80   160   240   320   400m

N

FIG. 102:
A map of the hard elements in the urban landscape. This would include core districts, that are the primary elements, and that are also treated as permanent features in the urban landscape.
Drawing: author's own

Legend:

- - - - Main roads

� Train Station

◧ Institutional

◧ Schools

◧ Vaal River

FIG. 103:
Maps the soft elements in the urban landscape. This includes things more connected to nature such as parks and trees.
Drawing: author's own

Legend:

- - - -   Main roads

▨   Parks

Objects in space:
These are the elements such as sculptures, water features and trees can that accents or focal points and make a space memorable. Objects can be used to anchor the centre and to give vitality to spaces. The most vital elements of all are the human actors who use the space, giving it life.

In order to achieve and truly successful hard urban space, the space must comprise of the rich mixture of all these organizational concepts.

Christiaan Norberg Schulz, a Norwegian architect, he is quoted by Tranick (1986: 66), "The distinctive quality of any manmade and place is enclosure. Its character and spatial properties are determined   by a how it is enclosed. Enclosure primarily means and distinct area which is separated from the surroundings by means of a built boundary. The main urban elements are centres and paths. As such, they are enclosures: the spatial density depends upon the presence of relatively continuous lateral boundaries."

The statement reinforces Trancik's ideas about space as inconceivable boundaries. By densifying the edges, the visual quality of an enclosed space is reinforced.

Streets could also, quite effectively, been seen as a hard urban space. Trancik (1986: 70) discusses how successful streets through

the use of many a form have the properties of three dimensional frame, two dimensional pattern and objects to provide interest and focal points and focal points. Movement is the essence of streets, but they also serve broader functions, which have often been lost in modern emphasis on rapid passage through the city. The district should be a spatial entity rather than just residual space after the buildings have been placed along it.

Soft space:
"Some spaces are those dominated by the natural environment, whether inside or outside the city. In the urban setting they are the parks and gardens and linear greenways that provide opportunities for the recreation or retreat from the built environment." (Trancik, 1986: 61)

Trancik encourages that soft landscape should remain soft. Trancik (1986: 90) argues, "The what makes these non architectural rooms effective as city spaces is that they fill the void the between buildings in a positive way."

One must not confuse as a space with a buffer what anti-space. The soft space is still definable in that it has edges and can be measured, where an anti-space he is inconceivable with no apparent boundaries.

Communicative space:

The problem worth most contemporary urban streets he is there emphasis on rapid movement, the inappropriate scale and the lack of a consistent and unifying framework. Another problem that affects the urban space in general he is the proliferation of signs in the modern city (Trancik, 1986: 86). For this reason Trancik suggests a third type of space: communicative space. Trancik notes, "All public spaces in cities communicate messages- functional, symbolic or persuasive. These messages are conveyed in the manner in which buildings are grouped, in their facades, and especially on the commercial strip, in the signs they display." By this Trancik means that the objects in and around a public space symbolically communicate the meaning of the place itself.

Although Trancik warns against over consisting the space with signage. Trancik (1986: 86) argues that the messages of the city were often more cogently expressed by complex fragments of an exterior environment than by the architecture of an individual buildings. The view from the road or sidewalk is

dominated by the vocabulary. In cities in the western and eastern hemisphere, objects of communication are often dominated by our perception of urban space. The extent of this is that is written messages or advertisements take over the space, as if edge defining buildings never existed in the first place.

Modern cities need a clever physical definition of the public domain that is less dependent on communication systems and the clutter of free enterprise. Space rather than signs should communicate the values of a culture.

Robert Venturi, a Pritzker prize winning architect and Denise Scott Brown, a respected urban designer and planner, note in their book entitled, Learning from Las Vegas (1977: 8), that the architecture of styles and signs is anti-spatial: it is an of architecture of communication over space, communication dominates space as an element in the architecture and in the landscape.

0 80 160 240 320 400m
Ñ

FIG. 104:
A map of the relationship between advertising and the vehicle.
Drawing: author's own

Although Venturi and Brown (1977: 8-9) do argue that it is for a new scale of landscape, "The commercial persuasion of roadside eclecticism provokes bold impact in the vast and complex setting of the new landscape of big spaces, high speeds and complex programs. Stules and signs make connections among many elements, far apart and seen fast. The message is basically commercial, the context is basically new." They indicate

how words and symbols that used in space for commercial persuasion with the image on the left.

The Middle Eastern bazaar contains no signs, where as the strip is only signs. Venturi and Brown state further, "In the bazaar, communication works through proximity. Along its narrow aisles, buyers feel and smell the merchandise, and the merchant applies ex-

plicit oral persuasion." This is much the same as the informal markets here in South Africa. Venturi and Brown continue, in the narrow streets of the medieval town, although signs occur, persuasion is mainly through the sight and smell of the real cakes through the doors and windows of the bakery. On Beaconsfield Avenue & Voortrekker Street in Vereeniging, shop window displays for pedestrians along the sidewalks and bollards the dominate the

scene almost equally.

On the commercial strip the supermarket windows contain no merchandise. There may be signs announcing the day's bargains, but they are to be read by pedestrians approaching from the sidewalk or parking lot. The building is set back from the highway and half hidden, as is most of the urban environment, by parked cars.

FIG. 105:
The McDonalds drive-thru on the corner of Voortrekker Street and Rhodes Avenue.
Source: Google earth

FIG. 107:
A panorama overlooking the Dadabah's sign on Voortrekker Street.
Photo: author's own

FIG.106 : Photo taken showing street signage from the drivers perspective along Voortrekker Street.
Source: Google earth

FIG. 108:
Photo taken on the corner of Union Street and Beaconsfield Avenue.
Photo: author's own

The above and left images depict communication in the urban enviroment. There is a variant from the signed being attached to facades and others free standing. What is important to note in these examples is the focus on private transport or the driver of a vehicle verses the pedestrian. The images used are part of streets that experience frequent traffic both pedestrian and vehicle. The larger signs are impossible to be seen by a pedestrian unless he/ she is on the opposite side of the street in respect to the sign. The signage has adapted well to the structure of roads and the approach of vehicles. It is a response to the city's ""anti-space""

Legend:
— Signage angled perpendicular to the street

- - Signage parallel to the street and encompassing a building's facade

With the high speeds than people travel in cars, he is no time to consider minor details. One relies on signs for guidance- enormous science in fast spaces at high speeds.

Venturi and Brown (1977: 13) argue that the parking lot is the current phase in the evolution of vast space. The space than divides high speed highway and low sparse buildings, produces no enclosure and little direction. To move through this landscape is to move over vast expansive texture: the mega-texture of the commercial landscape. This could be referred to as the lost space discussed earlier.

Venturi and Brown argue that this has brought about the need for large commercial signage to orientate oneself in this sort of space: "But it is the highway signs, through the sculptural forms or pictorial silhouettes, their particular position in space, their inflected shapes, and their graphic meanings, and that identify and unify the mega-texture. They make verbal and symbolic connections through space, communicating a complexity of meanings through hundreds of associations in a few seconds from far away."

Venturi and Brown argue that symbols dominate this space and that architecture is not enough: "Because the spatial relationships are made by symbols more than by forms, architecture in this landscape becomes a symbol in space rather than a form in space. It is a new spatial order relating the automobile and highway communication on an architecture which and abandons pure form in favour of mixed media."

STAGE 3

ACTIVE
RESEARCH PHASE

CONTEXTUAL & VISUAL ANALYSIS

FIG. 117:
A VIEW OF THE EASTERN PORTION OF MERRIMAN AVENUE OVERLOOKING THE TAXI RANK AND THE TRAIN STATION
This view of the cross road between Merriman Avenue & Voortrekker Road is the intersection between the two most busiest roads in the city.
Photo: author's own

Introduction

The analysis was subdivided into several parts: a site analysis, a movement analysis & observation study (which is centered around the Vereeniging station and taxi rank at a 500m radius), trade and an urban timeline. The focus is to intensely study the various urban layers.

The movement analysis documents the modes of transport and their movements within a 500m radius of the context.

The observation study is a head count of the various participants that contribute to movement. A dot density index was used, as indicated in the mapping one dot represents an estimated number. This method was used as it was impossible to accurately count crowds of people and numerous vehicles in peak hour traffic.

The trade analysis documents informal and formal trade around the proposed site.

The heritage study unveils the urban history by analyizing the growth of the urban environment over time and those whose contributed to it.

The challenges encountered on site were:

Collecting accurate head counts, train delays that forced extended site visits and personal safety.

From the mapping it can be deduced that the main modes of transport are: pedestrian, rail and mini-bus taxi. The mini-bus taxi are the most frequently used of all the transport services and is also the most congested.
An additional valuable element that was discovered was the pedestrian traffic routes leaving and entering the station and taxi rank.

From this exercise of observation and inquiry it is possible to establish which modes of transport are needed to be incorporated, and how much of each one. This is also coupled with an occupancy count which helps scale the building. Additionally a hierarchy of movement routes, both pedestrian and vehicular can be rationalized into a system, this will integrate the building into the city context more effeciently and meaningfully.

FIG. 62:
Map of the greater urban context around Vereeniging.
Source: https://www.1map.co.za; http://www.gcro1.wits.ac.za/gcrogis1 & https://www.maps.google.com

Greater Urban Context
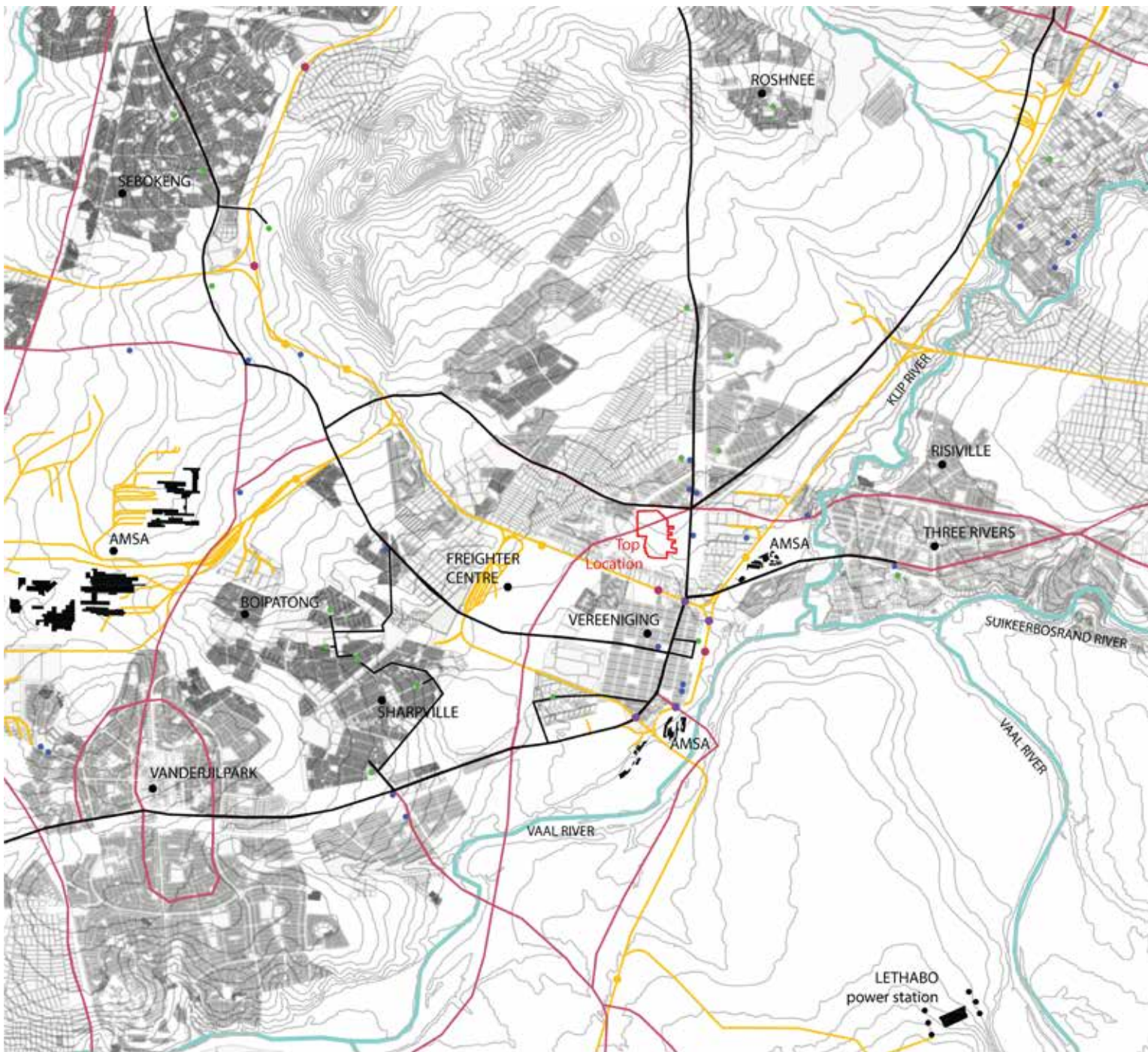
The oldest urban settlement in the Emfuleni municpality is Vereeniging and it was established in 1892 (Leigh, 1968: 13). Vereeniging emerged out of the wake of industrialization. It began as a coal mining compound (Leigh, 1968: 13) south of Vereeniging CBD on the banks of the Vaal River (refer to page 144).

The earliest known location, Asiatic Location which was more commonly known as Top Location and located to the north of Vereeniging, was drawn up in 1906 (General Surveyor archives) but only established in the 1920s after company worker compounds and allocated stands in the Vereeniging CBD exceeded their capacity (Chaskalson, 1986). Top Location was destroyed in 1958-1959 (Chaskalson, 1986) and the inhabitants were relocated to Sharpeville, Roshnee and Risiville according to race. Other townships sprung up following the boom of the steel industry (Hallowes et al, 2006).

A noticeable characteristic of the Bantu townships is the immense density. The density is notable by the darker shade in comparison to the white suburbs that were located in Vanderbijlpark, north and eastern parts of Vereeniging. The Black townships were planned in tightly packed grids and placed in close proximity to the Vanderbijlpark steel works.

In comparison with the more affluent white residences of Vanderbijlpark and Three Rivers which were planned according to the "garden city design" scheme (Hallowes et al, 2006). Thousands of trees were planted lining roads and avenues and suburbs were shielded from traffic by broad avenues. Stands were arranged circling around institution buildings and parks. The centered nodes of institutional buildings, mostly churches, created a rippled effect in the urban landscape.

The Vereeniging CBD in relation to the transport infrastructure of the region is at a crossroad of interchange, because of this condition it benefits from a high concentration of formal and informal commercial activity. The South and Eastern reaches of Emfuleni are more effectively reached by bus or taxi, where as the North-western reaches are effectively reached by rail.

LEGEND:

railways		erven	
mainroads		taxi rank	
mini-bus taxi routes		bus stop	
rivers		train station (ticket sale facility)	
5m contours		train station (no ticket sales)	
		entrance	

FIG. 118:
Vereeniging urban footprint map
Photo: author's own

Proposed Site

SECTION 1:1

Van Riebeek Street — George Street — President Park — Botha Street — Edward Street — Joubert Street — Civic Centre — Leslie Street — Voortrekker Street — Markpark Mall — Union Street — Train Station — Rail — Mario Mallani Street — Vaal River

SECTION 2:2

Vaal River — Mario Mallani Street — Train Station — Rail — Union Street — Voortrekker Street — Civic Centre — Leslie Street — Joubert Street — Edward Street — Botha Street — George Street — Van Riebeek Street

SECTION 3:3

Van Riebeek Street — George Street — Botha Street — Edward Street — Joubert Street — Leslie Street — Voortrekker Street — Union Street — Train Station — Rail — Mario Mallani Street — Vaal River

SECTION 4:4

Vaal River — Mario Mallani Street — Train Station — Rail — Union Street — Voortrekker Street — Leslie Street — Joubert Street — Edward Street — Botha Street — George Street — Van Riebeek Street

SECTION 5:5

De Villers Avenue — Rhodes Avenue — King's Oval — Grey Avenue — Hofmeyer Avenue — Kruger Avenue — Merriman Avenue — Market Avenue — Beaconsfield Avenue — Senator Marks Avenue — Stanley Avenue — Victoria Avenue — Smuts Avenue — Livingston Avenue — Lewis Avenue

SECTION 6:6

Lewis Avenue — Livingston Avenue — Smuts Avenue — Victoria Avenue — Stanley Avenue — Senator Marks Avenue — Beaconsfield Avenue — Markpark Mall — Market Avenue — Merriman Avenue — Kruger Avenue — Hofmeyer Avenue — Grey Avenue — Rhodes Avenue — De Villers Avenue

SECTION 7:7

De Villers Avenue — Rhodes Avenue — Grey Avenue — Hofmeyer Avenue — Kruger Avenue — Merriman Avenue — Market Avenue — Markpark Mall — Beaconsfield Avenue — Senator Marks Avenue — Stanley Avenue — Victoria Avenue — Smuts Avenue — Livingston Avenue — Lewis Avenue

SECTION 8:8

Livingston Avenue — Market Avenue — Merriman Avenue — Kruger Avenue — Train Station — Hofmeyer Avenue — Grey Avenue — Rhodes Avenue — De Villers Avenue

0 5 10 15 20 25m

FIG. 119:
A navigating panorama of the eastern portion of Vereeniging.
Photo: author's own

Epol silo

Taxi rank

Train Station

Union Road

Railway Road

WOOLWORTHS

Voortrekker Road

Merriman Avenue

House Home

Landfill

Riviera hotel

Taxido Junction Arcade

Markpark Mall ramp

Lethabo Power Station

Markpark Mall

Markpark Mall parking lot

Mosque

Voortrekker Road
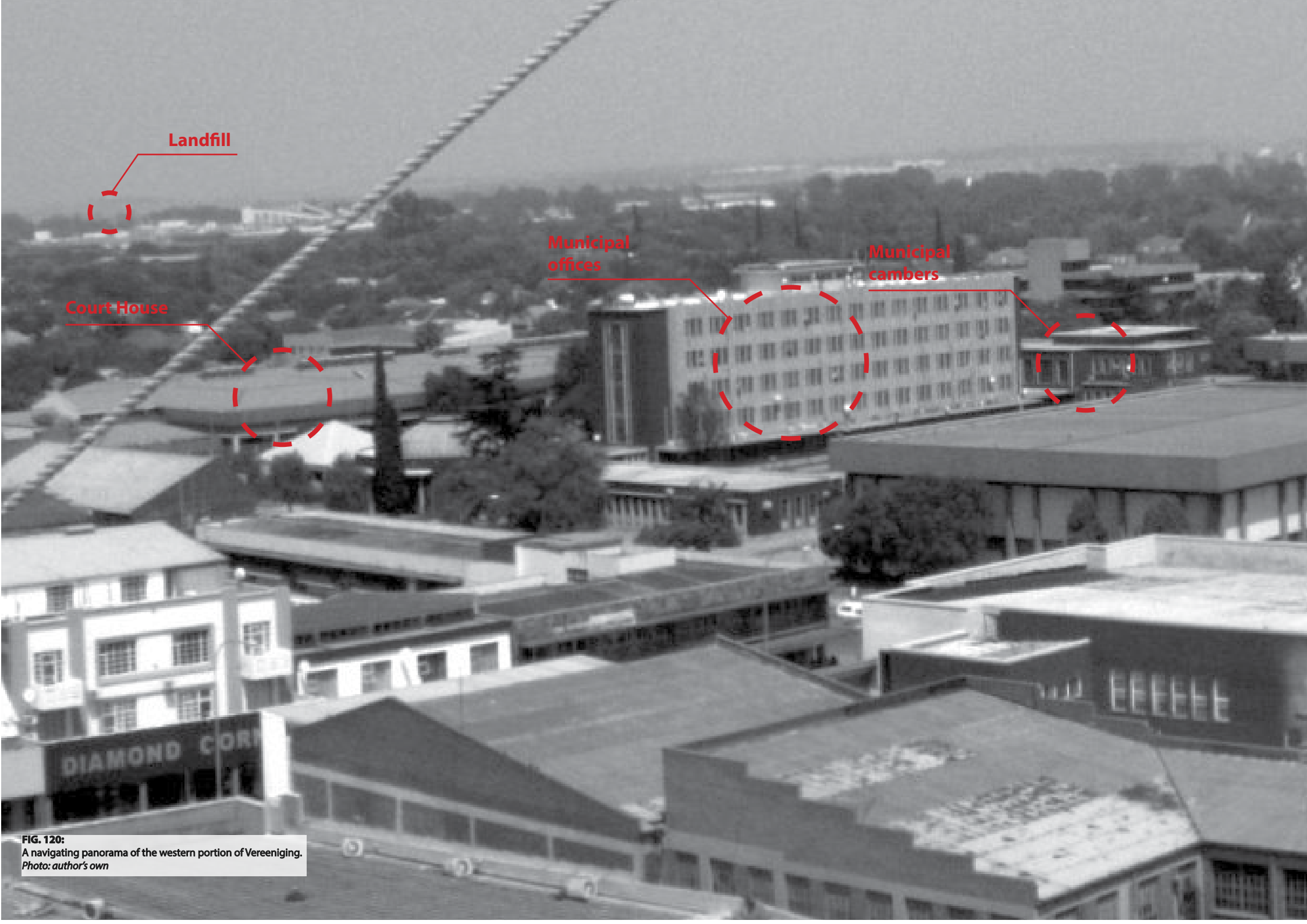
Landfill

Court House

Municipal offices

Municipal cambers

DIAMOND COR

FIG. 120:
A navigating panorama of the western portion of Vereeniging.
Photo: author's own

Community Hall

Civic theatre

Library

Freedom Monument

2

FIG. 121:
Vereeniging context map
Drawing: author's own

FIG. 122:
Street traders at the Markpark Mall parking lot.
Photo: author's own

FIG. 123:
Street traders outside Markpark Mall along Voortrekker Street.
Photo: author's own

FIG. 124:
Street traders on Union Street along Markpark Mall.
Photo: author's own
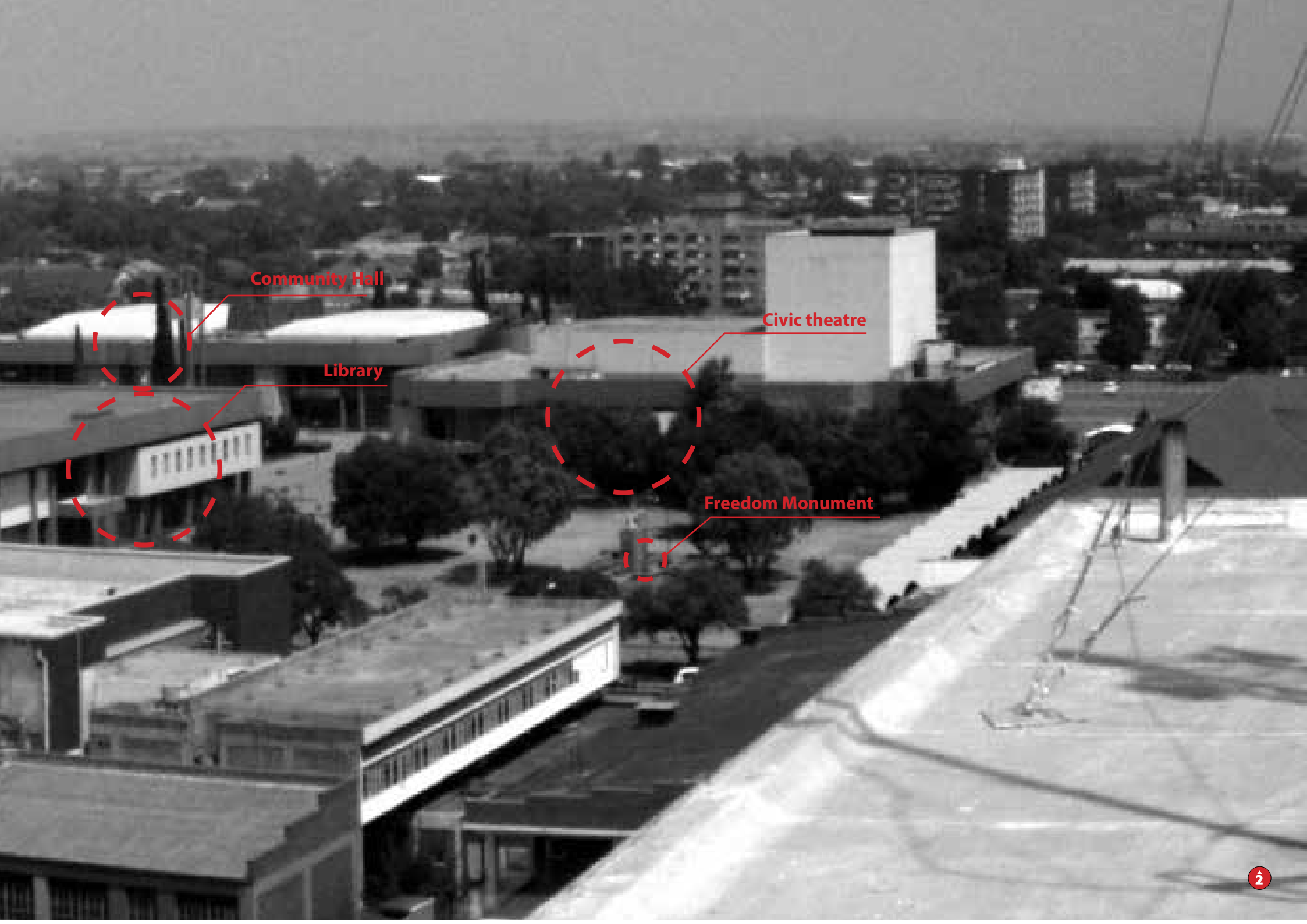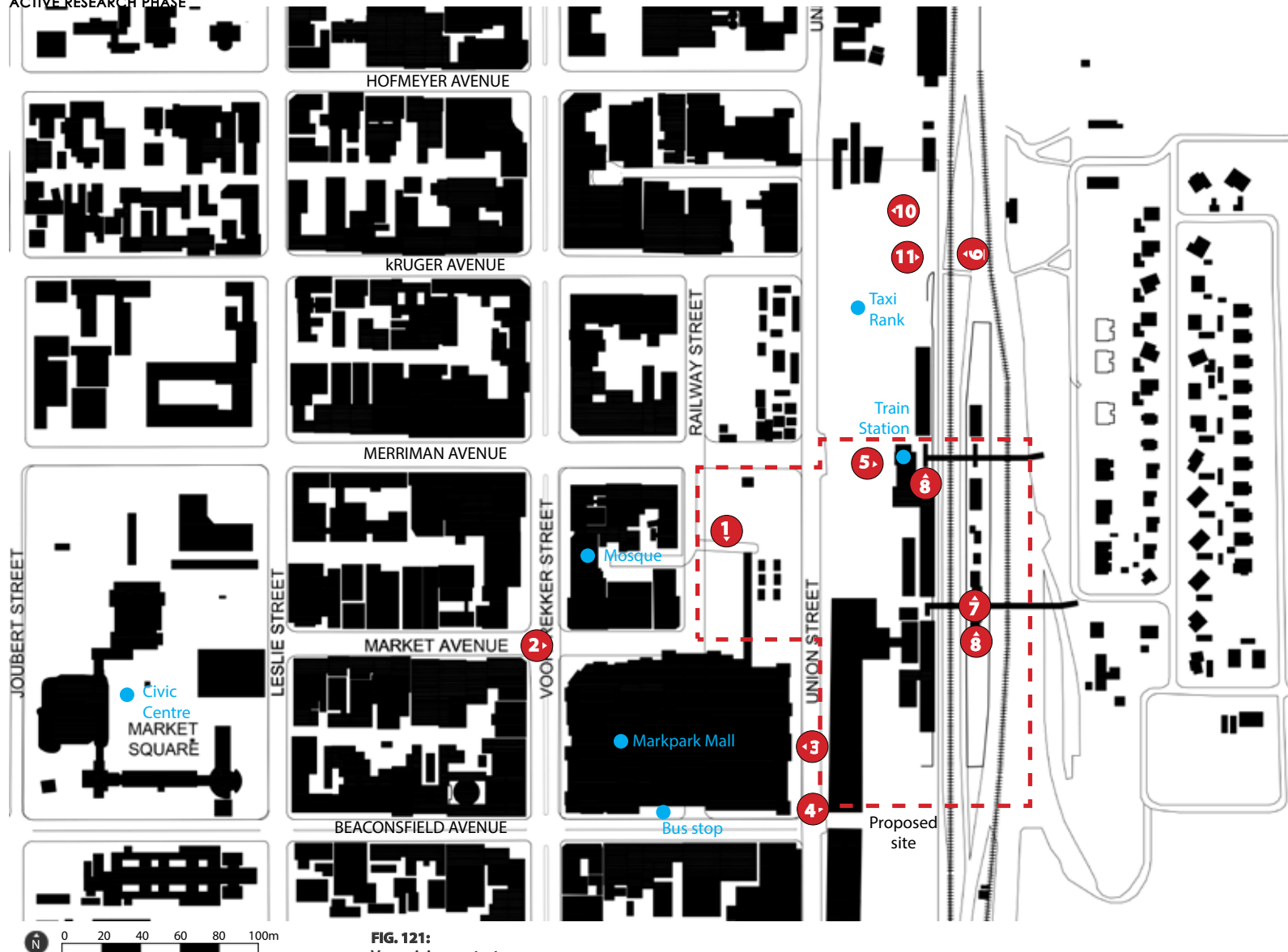
FIG. 125:
The Taxido Junction Arcade, corner of Union Street & Beaconsfield Avenue.
Photo: author's own

The proposed site is located within the vicinity of the Vereeniging Train & Taxi Rank. The site is an important public transport node that is yet to be integrated with other modes of transport. Movement as a result of assembly and dispersal from the transport node attracts informal trade.

The Station's parking lot has been reassigned as a Taxi Rank, but the site has not been designed to accommodate the imposed traffic. The Station and Taxi Rank are generally overcrowded, this is made worse due to the fact that there is not public space effect for assembly, dispersal and waiting for the public.

The site is unsparing due to the vulnerability imposed onto those visiting the site. This extends to the Station's staff in the informal handling of cash ticket sales. A majority of the site is open to the elements, this factor demotivates the use of the train service during times of rain except by those dependant on it.

The Train platforms of the Station are only accessible via the pedestrian bridges. There are only two with one which is closed off to the public. One of the key issues with the Station is its age and over use. It was built in 1952 and has remain relatively the same since, despite the massive increase in the population (particularly between 2000-2010, refer to page 34) over the last 64 years.

FIG. 126:
Vereeniging Train Station
Photo: author's own
⑤

FIG. 127:
Metrorail train approaching platform No. 2
Photo: author's own
⑥

FIG. 128:
View of Platform No. 2
Photo: author's own
⑦

FIG. 128:
Closed off pedestrian bridge
Photo: author's own
⑧

FIG. 129:
Ticket sales on Platform No. 2
Photo: author's own
⑨

FIG. 131:
Commuters exiting Platform No. 2 and entering the Taxi Rank
Photo: author's own
⑪
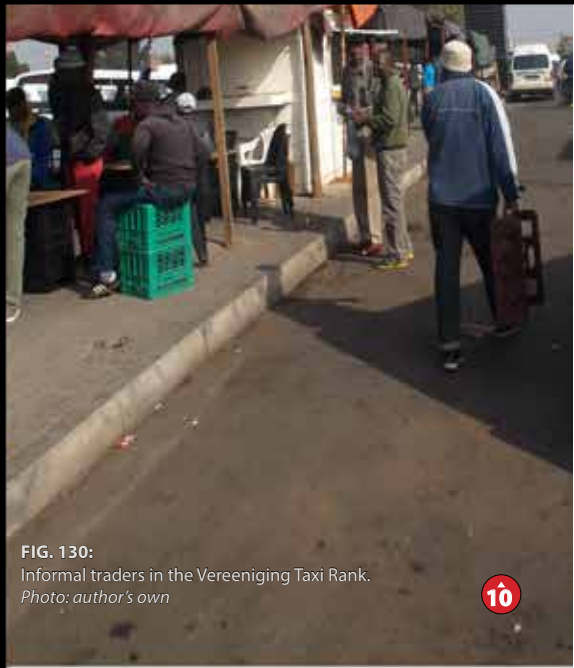
FIG. 130:
Informal traders in the Vereeniging Taxi Rank.
Photo: author's own
⑩
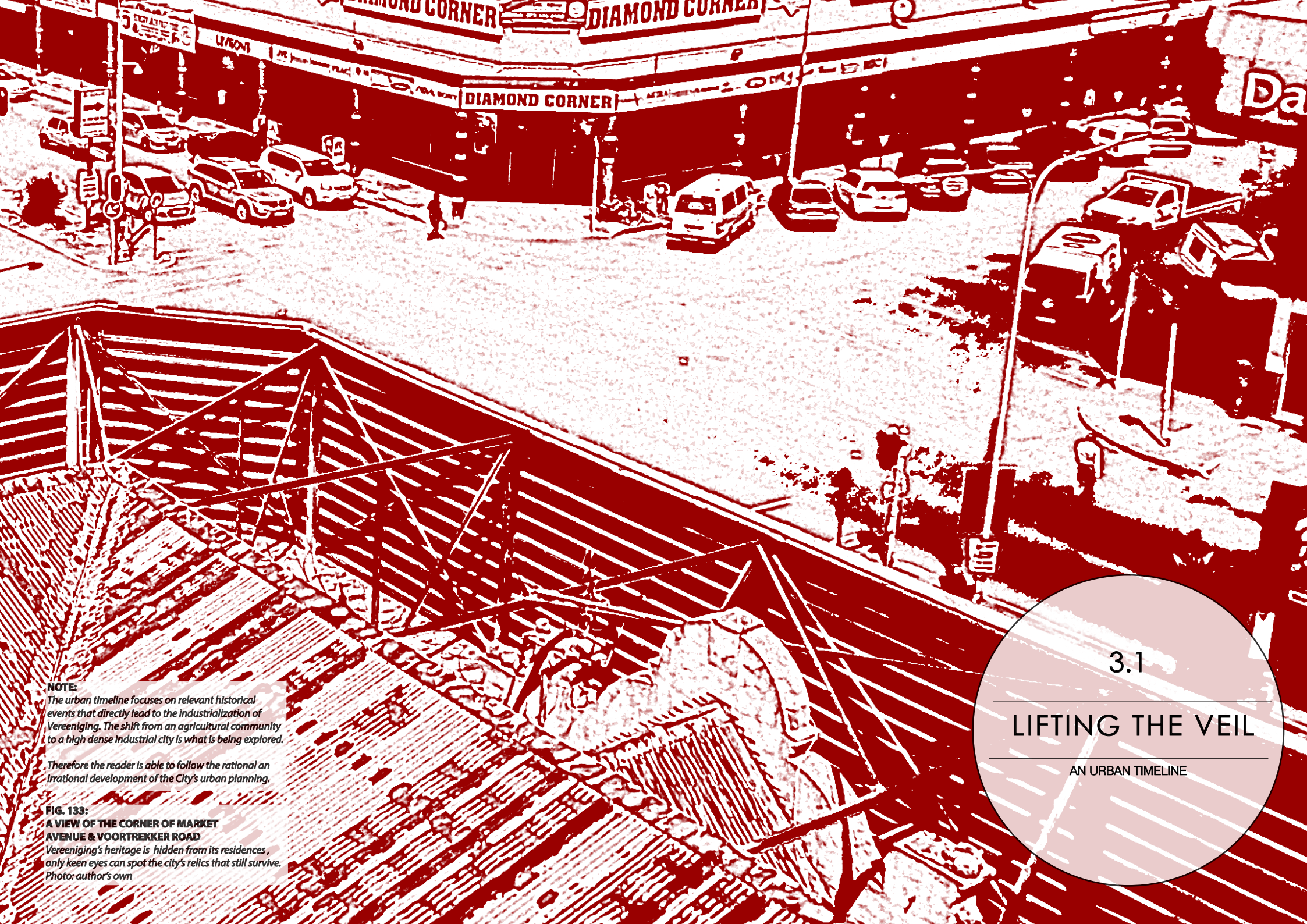
NOTE:
The urban timeline focuses on relevant historical events that directly lead to the industrialization of Vereeniging. The shift from an agricultural community to a high dense industrial city is what is being explored.

Therefore the reader is able to follow the rational an irrational development of the City's urban planning.

FIG. 133:
A VIEW OF THE CORNER OF MARKET AVENUE & VOORTREKKER ROAD
Vereeniging's heritage is hidden from its residences, only keen eyes can spot the city's relics that still survive.
Photo: author's own

3.1

LIFTING THE VEIL

AN URBAN TIMELINE

Langlaagte

Germiston

Practising architectural firms in Vereeniging:
- Hawke & McKinlay, 1911
source: www.artefacts.co.za

to Germiston

Vaal River Bridge

Colliery

Bloemfontein & Cape Town

Kookfontein

Waldrift

Vyfontein

Klipplaatsdrift

Zuur-fontein

Klip-fontein

Leeuwkuil

O.F.S
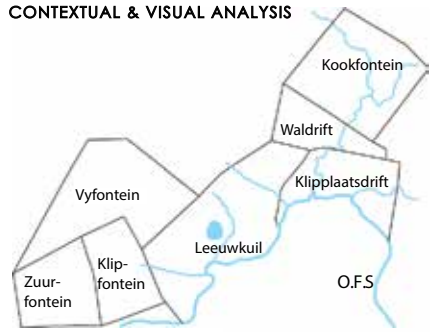
1878 - Farm erfs
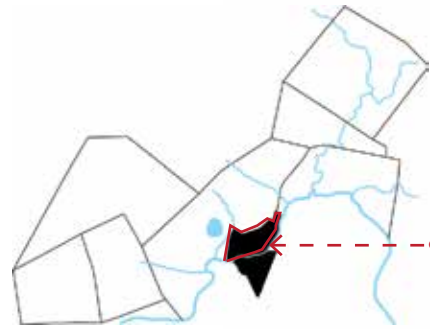
colliery

1880 - Vereeniging Estates Colliery & Farms

refer to page 149
Asiatic Location/ Top Location

Vereeniging CDB

1919
drawn after PJ Prinsloo

public space
institutional
industrial
residential
commercial
segregated locations

0 80 160 240 320 400m

N

Map :
drawn by author

1917
The Vereeniging Jumah Masjid.
Architect: unknown
refer to pages 24 & 48.
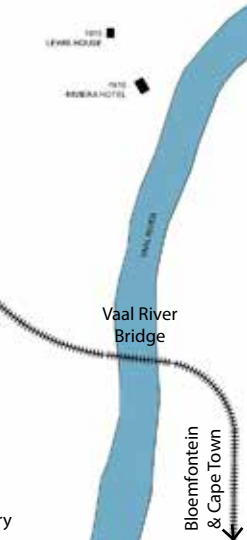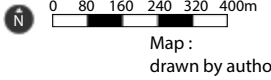
1908
View of Market Avenue

1894 (demolished)
The Grand hotel is the first hotel to open in Vereeniging

1894 (demolished)
The Vereeniging Train Station, NZASM

1905 (demolished)
Courthouse built by Dr. Thomas Leslie

1905 (demolished)
Jail built by Dr. Thomas Leslie

1917 (demolished)
NG Church

1917
Vereeniging Milling Company maize mill. SA's first maize silo, also known as the Epol silo.

1880
Coal mining begins on the farm Leeuwkuil. The first mining camps, compounds and native locations are established, refer to page144,

1886
Gold discovered in the Witwatersrand, Johannesburg

1892
Johan Rissik sets out an urban grid and surveys the town

1911
Samuel Marks establishes USCO (Union Steel Corporation)

1912
British Occupation of Vereeniging & Annexation from the ZAR. Street and park names are changed.
The VFP power plant is built on the Vaal River

1840

1822 - 1882
George William Stow

1843 - 1920
Samuel Marks founder of Vereeniging & industrial tycoon

1878
George William Stow discovers coal along the Vaal River

1900

1904
Evaton Township is established

1858 - 1942
Dr. Thomas Leslie. Honorary Doctrine Degree of Science awarded to him by the University of the Witwatersrand. The first Mayor of Vereeniging

1919

1795   mfecane / difaqane   1870
european settlement

colonial period
S.A wars   1878-1915

W W I

2023 M.A Vredefort Impact & Vereeniging Dome

George William Stow discovers coal along the Vaal river & into the OFS. In 1880 a Colliery Village is established South of modern day Vereeniging.

1889

1889
Railway tracks and a bridge near Viljoensdrift are built connecting the ZAR to the OFS. The route extends to Cape Town. Vereeniging is proclaimed a town by the ZAR.

1902
Anglo-Boer War Peace Treaty signed in Vereeniging

1903
Rand Water Board is established. Indians moved out of Vereeniging to Asiatic location (later Top Location).

1910
The Union of SA is constituted

1913
The first steel ingot in SA is cast in Vereeniging

1914

1917
Vereeniging Jumuah Masjid: The Indian Muslim community purchased a site in Main Street, now known as Voortrekker Street for for £360, where a mosque was built

1918
Spanish flu strikes Vereeniging

except where stated:
all photos: Vaal Teknorama Archives
building's dates & architects: www.artefacts.co.za & Vaal Teknorama Archives

Black mine workers at the Colliery

Vereeniging CDB

Practising architectural firms in Vereeniging:
- Charles Guy Dixon
- Kallenbach, Kennedy & Furner
- Hawke & McKinlay
- Stegmann, Orpen & Porter

1.
1922
The Dickson House designed by Percy Rogers Cooke
Photo: authors own refer to page 210

2.
1930 Market Avenue
Corner of Main Street (now Voortrekker Street) & Market Avenue

3.
1922 (demolished)
The Vereeniging Town Hall designed by Hawke & Mckinlay

4.
1926
The Vereeniging Klipkerk designed by Gerard Moerdyk & Wynand Louw
Photo: author's own refer to page 211

5.
1939 (demolished)
The Vereeniging Public Hospital designed by Stegmann, Orpen & Porter

6.
1938
Centenary Celebrations on Leslie Street

legend:
- public space
- institutional
- industrial
- residential
- commercial
- segregated locations
- macadamised & tarred roads

1930s
drawn after PJ Prinsloo

Amina Cachalia apartheid & women's rights activist

0 80 160 240 320 400m

N

Map :
drawn by author

1920

1922
Completion of the Vaal Barrage.

Coal miners strike followed by the Rand Revolt.

James Halliwell Dickinson.
Mayor of Vereeniging in 1925 and founder of the Dickinson Group Company

1928
UP government passes the Electricity Act which further catalyzed the industrialization of Vereeniging, and creates the Electricity Supply Commission (ESCOM)

1933
The first macadmised streets of Vereeniging was the section of Market Avenue running west to Botha Street

1930

Hendrik van der Bijl acquires a majority share of Union Steel

1934
A narrow middle strip was tarred down Main Street, now Voortrekker Street, to carry through-traffic and to connect with the road from Vereeniging to Johannesburg.

400MW Klip Power Station is built

1935
Tar was laid on Vereeniging's main shopping thoroughfare, Market Avenue, between the town hall and the railway

1939

Nimrod Nathale (Anti-apartheid activist) is born in Evaton

1923
A new Town Hall, designed by architects Hawke & McKinlay, is built on the Market Square by James Halliwell Dickinson

1929
ISCOR (Pretoria works) is established & founded by DR. Hendrik van der Bijl

1929

The great depression

1930-1933
Amina Cachalia (apartheid & women's rights activist) is born in Top Location, Vereeniging. Her family moves to Fordsburg in 1933

1935
Sharpeville is established, but the first houses are only built in 1942
African Cables is also established

1937
AMCOR is established (African Minerals Corporation)

1938
Centenary Celebration and Great Trek re-enactment

except where stated:
all photos: Vaal Teknorama Archives
building's dates & architects: www.artefacts.co.za & Vaal Teknorama Archives

^ ABOVE FIG.:
The landscape of the Vredefort Dome.
Source: Reimold, 2005: 4
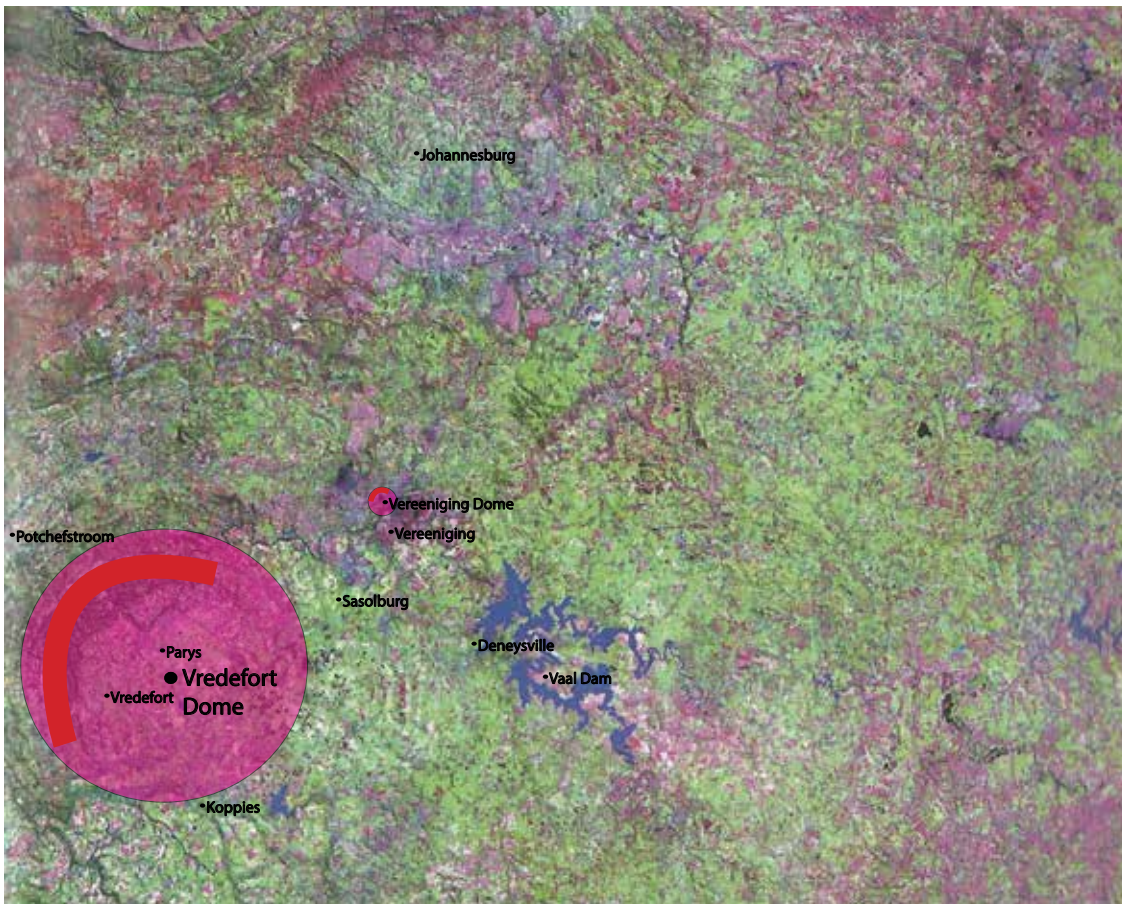
^ ABOVE FIG.:
False-colour Landsat Thermal-Mapper satellite image of the Vredefort Dome & surrounding Witwatersrand basin.
Source: Modified after Mike Phillips. Reimold, 2005: 230-231

Introduction

The Vredefort impact site deformed the landscape creating ripples of hills and valleys. Within the earth, the dolomitic limestone was warped upwards and acid rain produced from the cataclysmic evident created the famous Strekfonstein caves, amoungst other numerous caves. Paleontology discoveries of Homo Naledi (2013) and the Taung child (1924) in these caves have linked the importance of early societies in caves. The history of urbanism in the Gauteng & Free State provinces begins with caves, this history is also preserved at the Maropeng Heritage Site.

Evidence of Stone Age (Schoemansdrift & Redan) and Iron Age settlements (Askoppies) have also been in the found in Vereeniging and Vredefort. The area was as attractive then to people as it is today, purhaps more so then because of the presence of the once abundant wild life and fertile valleys. The modern Vereeniging landscape gradually became more arid, until it stablized into a wild grassland ecosystem with seasonal wetlands.

The earliest European settlers (Voortrekkers) that first crossed the Mooi River in 1839 would came to call the area "Grats-rand" which originates from the Dutch language: Gat zijn rand directly translate to "the rim of the hole." Fierce fighting occuring between the first arriving Voortrekkers and Bantu groups over control of the fertile lands along the Vaal river.

The discovery of gold is also linked to the meteor impact, because it had brought the rich "gold ore" layers deep in the earth closer to the surface. This layer was also sloped which made it possible to dig into the reef. The geology of this region is directly responsible for creating the highest concentration of industrial urbanisation in Africa.

Significant Evidence

Prior to key discoveries in the 1980s, there were two hypotheses put forward to explain the Vredefort structure (this included the Vredefort Dome and other nearby dome formations): magmatic updoming and tectonic origin similar to brachystructures (Jansen, 1959).

From the 1970s and into the 1980s researchers started gathering evidence and aguing the origin of the Vredefort Dome which eventually supported the impact & shock wave theory:

- Duncan Stepto recognises a thrid terrance called the Steynskraal Metamorphic zone. He also discovers xeno-liths of metasediments
- Roger Hart analyses on rock types recognised by Stepto for rubidium-strontium and uranium-thorium-lead isotopic compositions. This helped date the rock formations and thus connect various rock formations to a single origin.
- Peter Lilly's and Carol Simpson's research both dealt with rock deformations in the outer part of the Vredefort Dome.
Lilly proposed that an impact generated shock event affected the Vredefort rocks and that two distinct deformations could be identified - based on evidence of recrystallisation of lamellar microdefor-mation features of quartz.
Simpson's research identified a breccia (a fault gouge) that was formed along a fault plane thought to be related to the Vredefort deformation event.
- Jacques Martini confirmed the presence of coesite which was discovered as a mineral in kimberlite- this supported the impact hypothesis.
- The International Conference on Catastrophes of July 1987 took place in Parys which aimed at discussing the origins of the Vredefort Dome in light of all the mounting evidence up until then.
- Herbert Henkel & Uwe Reimold pronounced that the entire Witwatersrand basin represented the remnant of the Vredefort impact structure.

Text: Reimold, 2005: 50-51
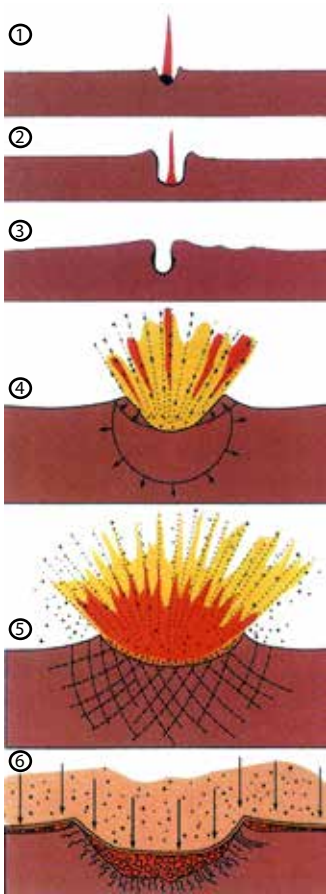
< LEFT FIG.:
Schematic illustration of the stages of a formation of an impact crater.

STAGES:
1- Touch down of the projectile.
2 & 3- The projectile penetrates into the crust
4- The shock wave & rarefraction wave
5- Ejected material is distributed
6- Final crater comprising of fragmented rock and melt.
Source: Reimold:2005: 88.

RIGHT FIG.:>
Schematic illustration of the stages of growth of a complex impact crater resulting from an exploded projectile.

STAGES:
a- The projectile explodes and the crater grows. Melt rock forms and fills the crater.
b- The crater continues to grow, material is ejected and shock compression affects surround rock.
c- The central uplift is collapsed and forms an elevated area in the centre of the crater. The crater wall becomes unstable & collapses into the crater, therefore causing furthe growth of the crater.
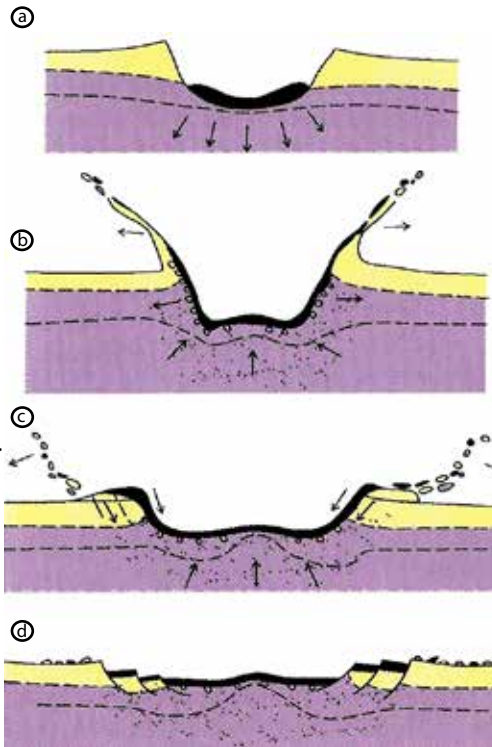
d- A cross section representinng how a large complex impact structure, such as the Vredefort Structure, would have appeared after the end of the crater formation.
The collapsed central uplift is prominent, as well as the terraces at the inner rim. The dark layer indicates the faulted crater fill consisting of impact-melt rock and other impact breccias (suevite & lithic breccia).
Source: Reimold, 2005: 89.
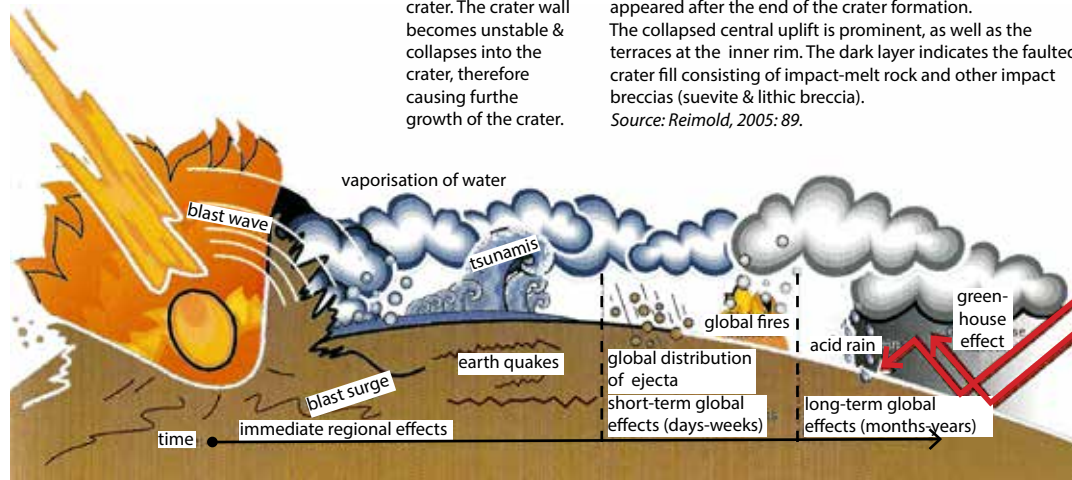
^ ABOVE FIG.:
A diagram of the catastrophic effects of a large impact event.
Source: Reimold, 2005: 225.

Vredefort Fact File

This large catastrophic event was of such a large magnitude that is producedd some amazing results, they are as follows:

AGE:
2023 million years, Vredefort is the oldest known meteor impact structure in the world.

ORIGINAL CRATER DIAMETRE:
250-300 km, Vredefort is one of the three largest meteor impact structures known on Earth.

DEPTH:
The escavated transient crater would have been up to 50 km deep, but it quickly collapsed.

EXCAVATED VOLUME:
70 000 km³

ENERGY RELEASED UPON PROJECTILE EXPLOSION:
100 million megatons of TNT (1 megaton= 1 million tons).

TOTAL DURATION OF FINAL CRATER GROWTH:
2-4minutes.

TOTAL DURATION OF FINAL CRATER GROWTH:
4-15minutes.

SIZE OF THE PROJECTILE:
5-15 km

SEISMIC EVENTS CAUSED BY THE IMPACT:
14 on the Richter Scale.
The event was 100 000 more devestating than the worst earthquake in recorded history, which hit China in 1976.

DISTRIBUTION OF THE EJECTA:
350-500 km from the crater.

ENVIRONMENTAL EFFECTS:
- Blasting off of some of the atmosphere.
- Post-impact earthquakes.
- Landsides & perhaps volcanism in other parts of the world.
- Rain made of hot & molten ejecta.
- Dust injected into the upper atmosphere and even higher, which resulted in global cooling.
- Production of acid rain.

^ ABOVE FIG.:
The landscape of the Vereeniging Dome.
Source: Google Earth, 2016. Photo was taken on Langrand Road, Sonland Park, Vereeniging.

Introduction

Besides the Vredefort Dome, a number of basement highs are known from around the Archaean basement within the Witwatersrand basin. The Vereeniging Dome is one of them and it has a connection to Vredefort due to the several charactericstic structural features which are small replicas to those found in the outer marginal zone of the Vredefort Dome. The brachystructures of the outer marginal zone of the Vredefort dome whose origins were caused by a horizontal compression between two diverging zones of imbricate structures thus partly by rotational stresses.

The Vereeniging Dome has a diameter 11 km, its north-western and northern sectors are marked by ridges and outcrops of Timeball Hill quartzite, and the outline of its marginal zone is rougly semicular. The most conspicuous landmarks are the Langerand, Wolwekop and Jakobskop hills. The small hill of Vaalkop on Vlakfontein 26m is formed by chert breccia and white quartzite of the Dolomite series.

Connections to the Vredefort Dome:

In the C.I.P.W classification, most of the rocks of the Vereeniging Dome fall into the order 3 Vaalare, rang 4, and subrang 3 and their composition approaches the subrangs Cookose and Auvergnose. Into the same subrangs also falls similar types of basic rocks of bushveld age occuring in the Losberg area and in the Vredefort Dome. The Vereeniging Dome's updoming and intrusions is demonstrated by the transverse fault on Vlakfontein 26.

^ ABOVE FIG.:
Aerial view of the Vereeniging Dome.
Source: Google Earth, 2016.
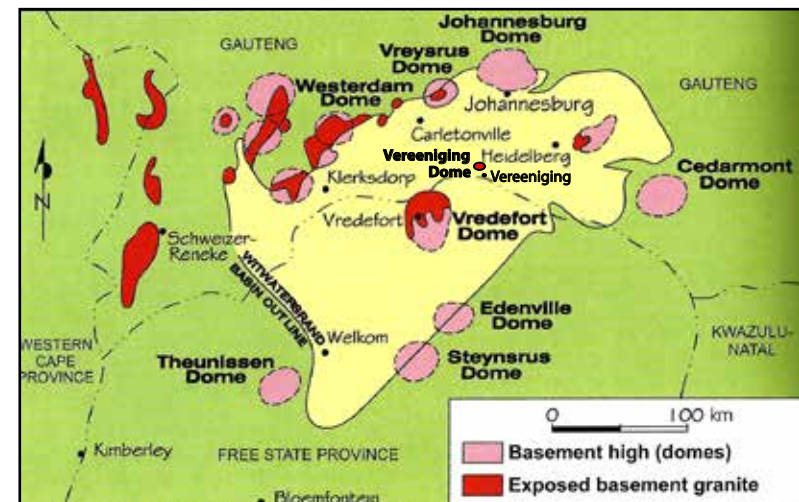
^ ABOVE FIG.:
Vredefort Dome suite structures in the Archaean basement in the Witwatersrand basin.
Source: Reimold, 2005: 130.
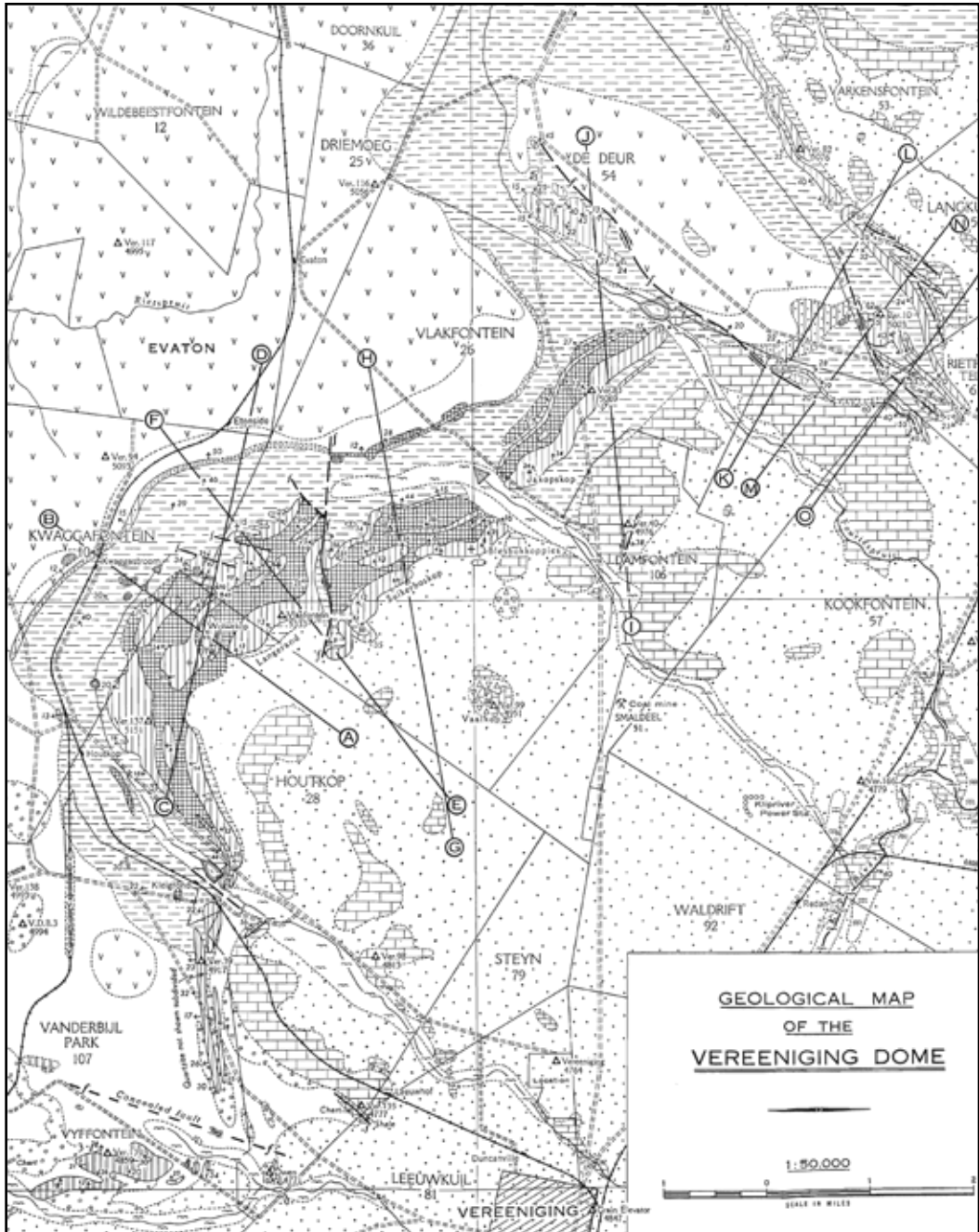
^ ABOVE FIG.:
A geological map of the Vereeniging Dome.
Source: Geological Survey Office, Pretoria. 1953.
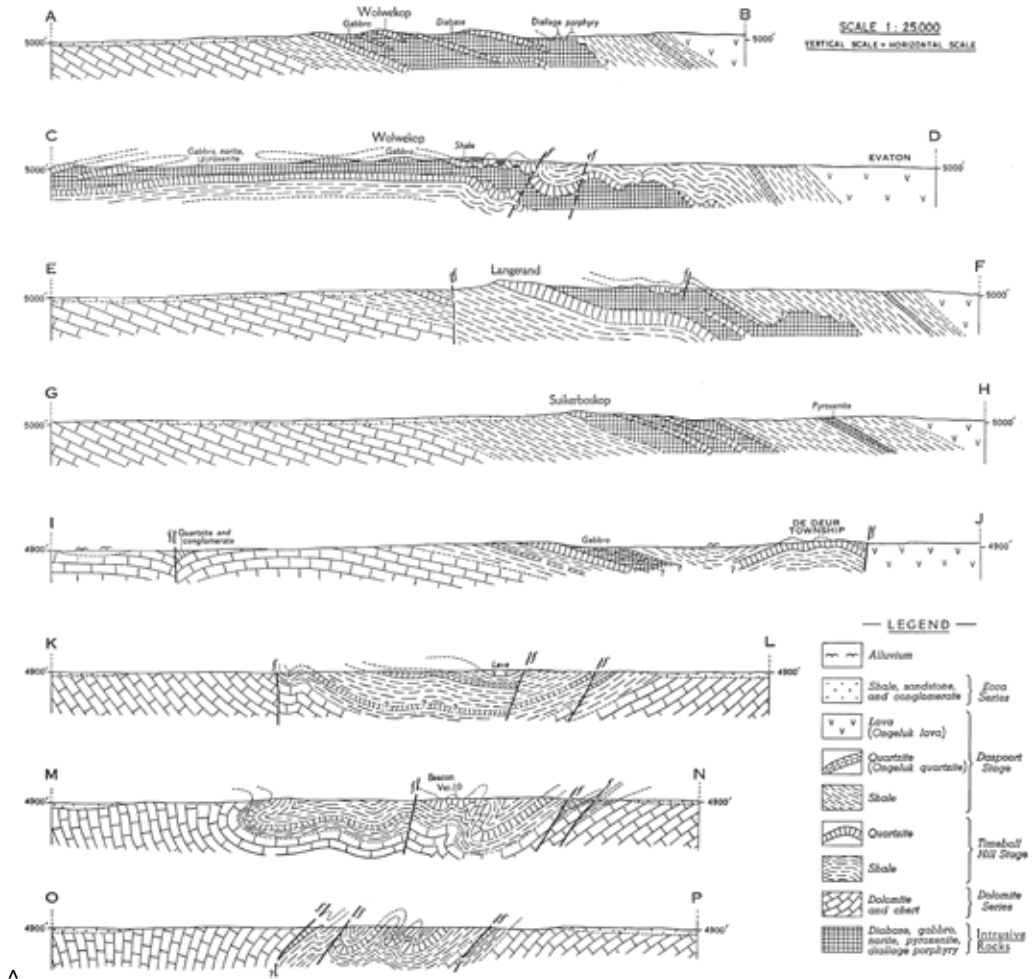
ABOVE FIG.:
Profiles through the marginal zone of the Vereeniging Dome.
Source: Geological Survey Office, Pretoria. 1953.

VEREENIGING DOME LEGEND:
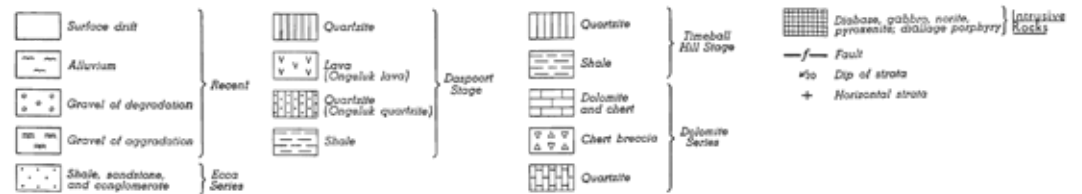
1958
The Post Office designed by the Department of Public Works

1958
The Municipal offices and council chambers designed by Gordon Leith and Vennote.
refer to page 212

Vereeniging CDB
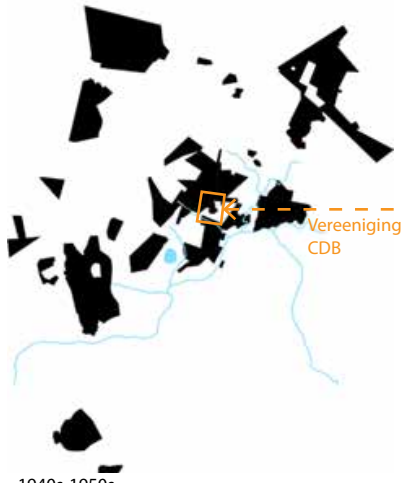
1940s-1950s
drawn after PJ Prinsloo
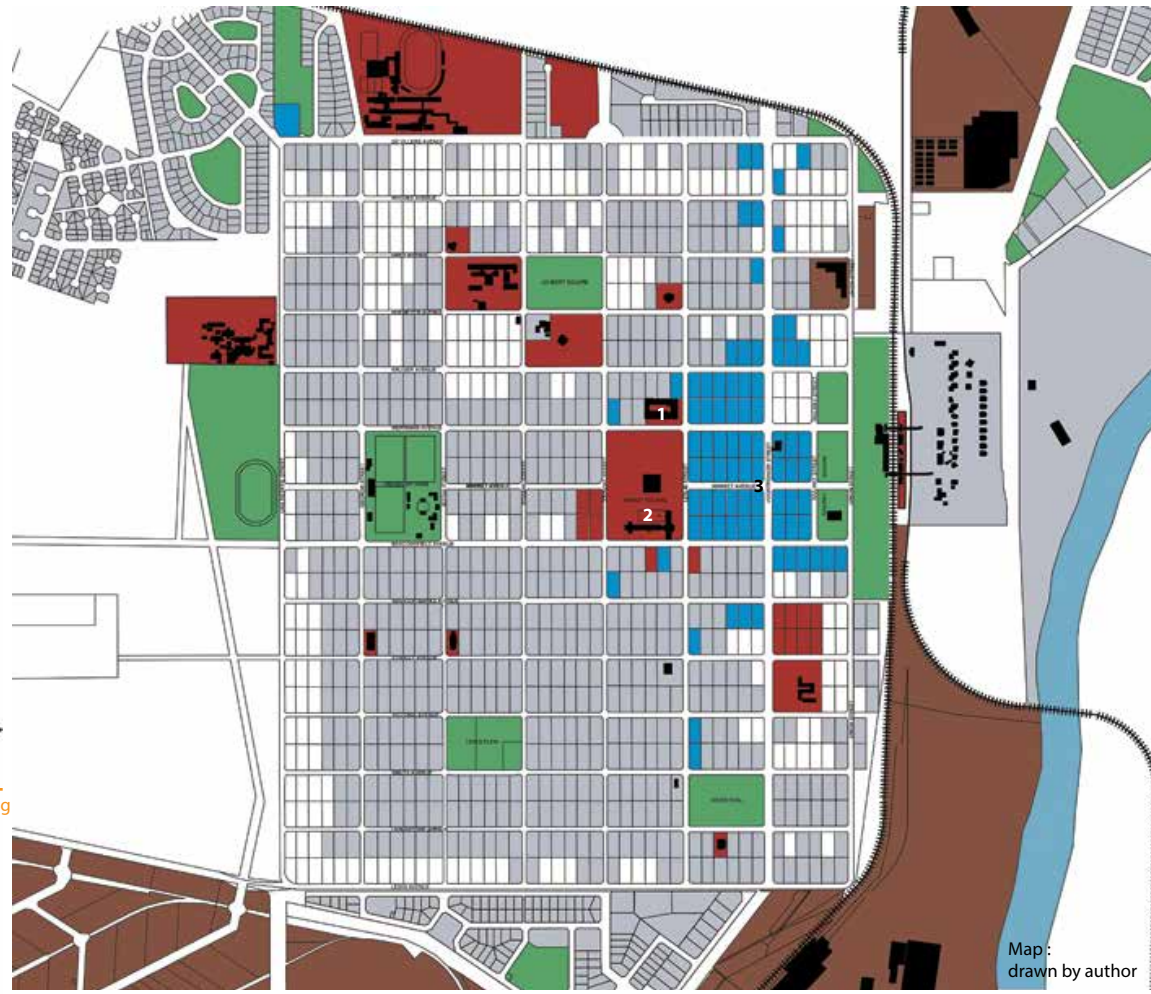
1950
Market Avenue leading towards the Town Hall

Apartheid Laws of the 1950s:

(return to the 1922 Stallard principle)
1950: Population Registration Act classified South Africans into different race groups.

1950: Group Areas Act reserved residential areas for specific race groups.

1950: Suppression of Communism Act enabled government to suppress opposition using a very loose definition of communism.

1951: Bantu Authorities Act provided the basis for making black people foreigners in white South Africa, and excluded Native representation from parliament.

1952: Abolition of the Passes and Co-ordination of Documents Act extended

1952: Native Services Levy Act imposed monthly taxes on employers of urban Africans.

1953: Bantu Education Act limited the scope of and finance for black education.

1953: Reservation of Separate Amenities Act legalised the provision of unequal facilities for different races.

1956: Separate Representation of Voters Act removed 'coloured' people from voters' roll

1957: Native Amendment Act introduced compulsory segregation in churches, entertainment, buses and sport.

1959: Promotion of Bantu Self-Government Act created the legal framework for 'separate states', like the Transkei, for black South Africans.

Map :
drawn by author

public space   institutional   industrial   residential   commercial

0 80 160 240 320 400m   N

1945
Anglo American takes over two firms, SA Townships & Lewis & Marks, therefore inheriting all their assets

Practising architectural firms in Vereeniging:
- Burg, Lodge & Botha
- Heiman & Eliasov
- Humphreys & Gilham
- D. De Wet Groenwald
- Gordon Leith & Vennote
source: www.artefacts.co.za

1886-1965
George Esselmont Gordon Leith, designed several buildings in and around Vereeniging such as: The Peacehaven Church and probably other churches, The Vereeniging Municiple offices and the Vanderbijlpark hospital.
www.artefacts.co.za :source

1887-1948
Dr. Hendrik van der Bijl
The founder of ESCOM (later ESKOM) & ISCOR. He was the founding Chairman of ISCOR and the industrial city Vanderbijlpark is named after him.

1952
Vereeniging train station is upgraded with a new station, terminals & bridge crossings

1951
Taaibos Power Plant is built

1955
Evaton bus boycott

1958
Defiance Campaign against the Bantu Education Act

1940

1959

colonial period   apartheid

WW II

1946
Juliet Anne Prowse moves to Vereeniging from India & attends Selbourne Primary School

1947
Lawrence John Gabriel Bridges (SA singer) is born in Viljoensdrift

1948
The National Party wins the national election against the United Party

1949
Vanderbijlpark is proclaimed

1951
Leon Schuster (Actor, comedian, filmaker & singer) is born in Vereeniging

1958
Municiple offices and council chambers are built, designed by Gordon Leith and Vennote

Top Location is demolished (refer to page 213) and black residences are forcibly moved to Sharpeville, Indians are moved to Roshnee, coloureds to Rust ter Vaal & the Highveld Power Plant is built

All photos: Vaal Teknorama Archives

1959
Demolition of Top Location.
Photo: Yusif Gathoo

1960s-1970s
drawn after PJ Prinsloo

Vereeniging CDB

1960
A view of the corner of Voortrekker and Market Avenue.
Note the Indian Shop District on the bottom left.

Indiër-trek:
dalk hof toe

1979
A news article from the Vaalweekblad covering the court
order for the forced removals of the Indian Shop keepers
from the Indian district on the corner of Market Avenue
and Voortrekker Steet. They were to be relocated to the
Indian Plaza on the Southern edge of town, which had not
been built yet.

Map :
drawn by author

🟩 public space   🟥 instituitional   🟫 industrial   ⬜ residential   🟦 commercial   Ⓝ   0 80 160 240 320 400m

1960 | Sharpeville Massacre kills 69 people

Juliet Prowse
& Elvis Presley

1977
Potchefstroom
University
offers full
time courses
in Vanderjilpark

1979

apartheid

1961
Hollywood actress
Juliet Anne Prowse
visits Vereeniging

1963
Potchefstroom University
offers courses for cost
accountancy in
Vanderjilpark

1965
Sebokeng Township
is established
near Vanderbjilpark

1966
Vaal Triangle College for
Advanced Technical Education
is opened to 189 students
(later to become VUT,
Vaal University of Technology)

1969
F.W. de Klerk is elected to the
SA parliment as a member
of Vereeniging

1976
Vereeniging Civic Centre is
opened and designed by
architects: Eyvind Finsen,
Guy Andrews and Crawford

A court order is made
to evict Indian shop
keepers from the centre
of Vereeniging to make way
for the construction of
the Markpark Mall
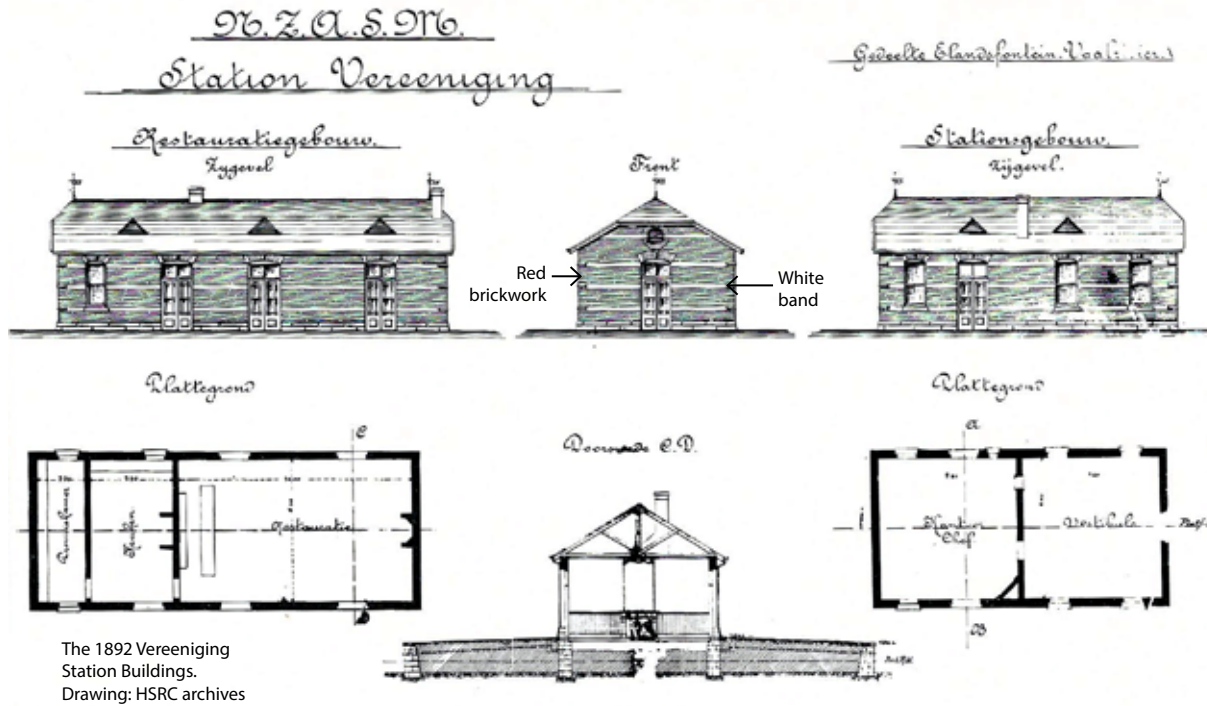
The 1892 Vereeniging Station Buildings. Drawing: HSRC archives

A photo of President FW Reitz and President Paul Kruger meeting each other on the 21/5/1892 on the occasion of the opening of the temporary bridge across the Vaal River, Vereeniging. (Vaal Teknorama Archives)

A photo of the Vereeniging Station in 1904. (Vaal Teknorama Archives)

A photo of the Vereeniging Station goods shed (rebuilt after the original was burnt down in 1900) and shortly before the demolition of 1953 (Vaal Teknorama Archives)

A photo of the Vereeniging Station in the 1960s. The building was completed in 1952, other upgrades to the terminal and pedestrian bridges across the rail were also constructed. (Vaal Teknorama Archives)
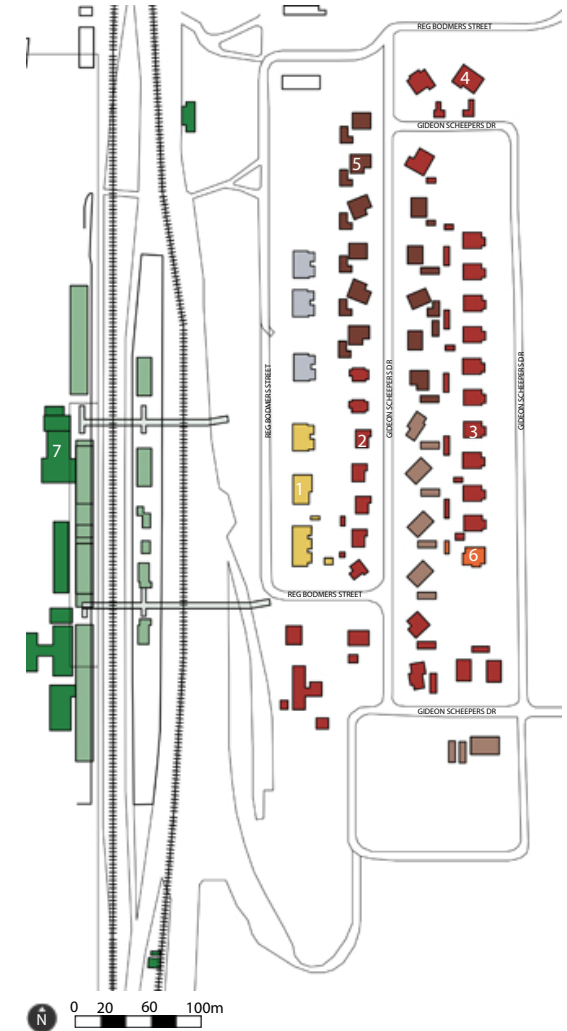
SITE PLAN OF THE STATION PRECINCT
SCALE 1:5000

LEGEND:

- 1894 ruins
- 1984 NZASM row housing
- 1920s SAR&H housing
- 1930s SAR&H housing
- 1940s-1950s SAR&H housing
- late 1950s SAR&H housing
- Vereeniging Train Station
- Rail terminals
- Pedestrian concourse Bridges

The Vereeniging Rail Station Precinct History

The NZASM Southern Line:

By the time the amended concession was approved by the Volksraad in 1890, the NZASM had already been conducting some preliminary surveys for connections between Pretoria and the Witwatersrand. These were constituted into a final route that was decided upon stretching from the Transvaal capital in a south easterly direction to Elandsfontein on the Rand Tram. From Elandsfontein the line would run on a Southerly direction along the Klip Valley to Vereeniging (De Jong,1988: 180-181).

The Southern Railway line from Vereeniging to Johannesburg and Pretoria via Elandsfontein, constituted a direct link between the wealth of the gold fields and the Cape harbours. It was the striving of the South African British Colonies (Cape and Natal) to reach the Witwatersrand. The line was also an economically and politically important weapon for both President Paul Kruger and Cecil Rhodes in the struggle of the

former imperial interests of the latter (De Jong, 1988: 159).

The Vereeniging Station:

Vereeniging was a station of great importance because of the number of coal mines in the immediate vicinity and for the border station part of the Southern terminus of the rail line. The Town is an example of the impact of rail on urban development. Although coal had been mined for ten years prior to the arrival of NZASM in 1892, the location of the station led to the establishment of the town. The station's location was directly related to the North-South direction of the line. The town's historic market square, now constitutional square and a municipal precinct, is axially aligned to the position of the station (De Jong, 1988: 169-170). In terms of urban planning, the station is an axial and refer

ence point to the rest of the town and its grid is typical of small town colonial expansion.

The 1892 station, demolished and replaced by the current station built in 1952- the date is derived from the bronze plaque on the existing station, was a typical NZASM station typology that consisted of an island platform with tracks on either side and three buildings on it: two red brick buildings and a goods shed of corrugated iron.
Of the two red brick buildings one was a restaurant that had a kitchen and food storage room and the second was a combined ticket office and waiting room (De Jong, 1988: 170) There was also a small news paper kiosk to the southern end of the island terminal. To the west of the station was the Railway Square, which today is partly Markpark Mall and parking lots (Refer to pages 79 & 85).

1894 - NZASM row housing, this preserved example is similar to ones found in Germiston & Boksburg.
Photo: authors own

1938 - Type P100C built for white labours.
Photo: authors own
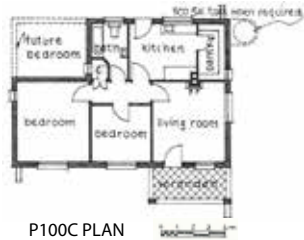
1935 - Type P95A for station Foremen, guards, gangers, pumpers, firemen & shunters.
Photo: authors own
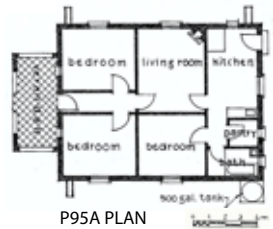
1937 - Type P1001 for senior 1 & 2 Grade station masters.
Photo: authors own

1952 - Type P1038 for newly weds or small families, probably white labourers.
Photo: authors own

NZASM row housing, Boksburg.
(NJ Clarke, 2013).

1920 - Type P53 dwelling, this example is also found in Pretoria of which many were built in the early 1920s.
Photo: authors own

P100C PLAN

P95A PLAN

P1001 PLAN

P1038 PLAN

FRONT ELEVATION

FRONT ELEVATION

FRONT ELEVATION

SIDE ELEVATION

SIDE ELEVATION

SIDE ELEVATION

P53 PLAN

Railway Housing:

The Southern line was also provided with gangers cottages erected at stations and at intervals along the line. The ones in Vereeniging were constructed from brick and corrugated iron and also included an out-house, of which eight houses and three gangers cottages were built. Only three of the semi-detached row houses still exist, with another two in ruins. These houses were only constructed along the Southern line and Rand Tram and deviated from the standard elsewhere. The semi-detached row houses have a front and back veranda, pitched roof and their dividing walls extend past their roof surface (De Jong, 1988: 171).

Railway housing assistance in the early years of the Union was continued in the same ad hoc fashion as before. War conditions after 1914 severely curtailed the housing activities of the South African Railways. After the war and influenza epidemic of 1918, public concern about the insanitary living conditions of poor whites in the Union's urban slums, led to the acceptance by the state of an obligation to house the South African urban poor (Wasserfall, 1989: 233-242). An intriguing aspect of the railway housing after 1937 was the attempt by the railways to eliminate the association of railwayfolk, then predominately Afrikaans speakers living on the wrong sides of the tracks in towns and residency became restricted to married railway workers. The 'Railway Camp Complex' manifested itself in the early years of the union and where possible were merged into or became indistinguishable from the good quarter of the town. Additionally there was an effort for 'value for money' in the architecture of the housing typologies. A variation in the architectural features were developed which avoided redundant, bogus and grotesque styles. A variety of elevations were designed that evolved naturally and simply from the plan. The housing complexes were also landscaped with gardens and residence were inducted into the art of gardening. The initial social housing ideas stemmed from the 1918 Tudor Walters report on the provision of working class housing in England, Wales and Scotland (Wasserfall, 1989: 261).

Drawings: Drawn by Jaco Wasserfall after SA&H & SATS archives
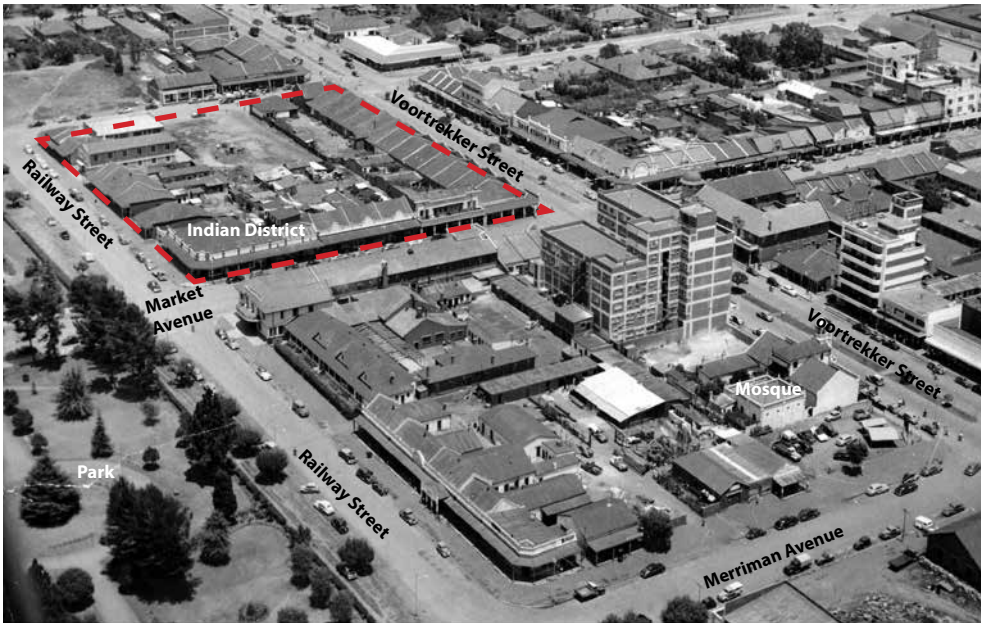
circa 1952
An aerial over looking the Indian owned shops
Photo: Vaal Teknorama
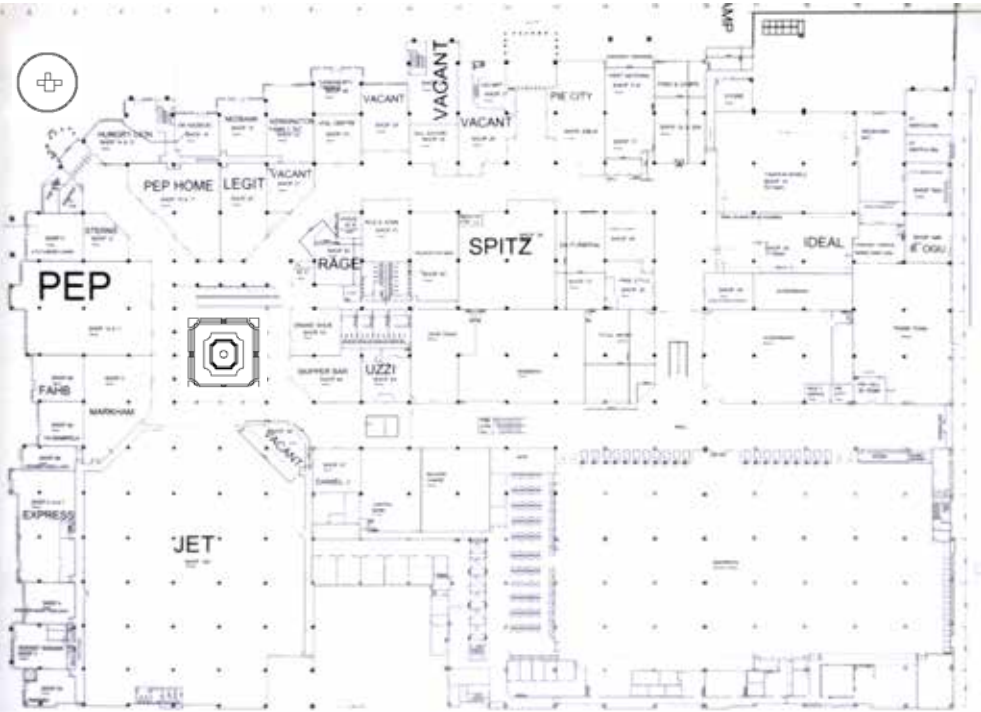
A shop layout plan of Markpark Mall
Source: Visitors directory photographed on site, author's own.

Circa 1980
Notably drawn on the shop window are messages informing the public of the move and as well as the emotions, which is captured by the sad stick figure.

Circa 1980
These are the last know photographs of the Indian district just after shopkeepers were forced to move and near the final eviction deadline

Above photos: Yusif Gathoo

Above photos: author's own

Circa 1982
The construction of the Markpark Mall completely altered the area. The Mall mimics the street but is completely inverted. There is no street interface along Union Street, Beaconsfield Avenue and Voortrekker Street except for the demarcated entrances. A clumsy ramp stretches along Union Street linking the ground floor to the Mall's roof parking. The Mall is Strategically positioned for trade as it is across the road from the train station and taxi rank (a vital transport and activity node for the region).

Remembering the Indian District:

1979
A news article from the Vaalweekblad covering the court order for the forced removals of the Indian Shop keepers from the Indian district on the corner of Market Avenue and Voortrekker Steet. They were to be relocated to the Indian Plaza on the Southern edge of town, which had not been built yet. Reasons for the forced removals by council at the time was that the Indian District was plagued and a fire hazard, essentially labeling it a slum. Forced removals in South Africa by now had become routine in urban redevelopment leaving the real reason bare, which was to move the Indian shopkeepers out of the centre of town and to its periphery in the south.

Article: Vaalweekblad Archives

Site plan of Markpark Mall.
Drawing: author's own

1980s
drawn after PJ Prinsloo

1990s-Present
drawn after PJ Prinsloo

Vereeniging
CDB

Map :
drawn by author

| public space | instituitional | industrial | residential | commercial |

0 80 160 240 320 400m

N
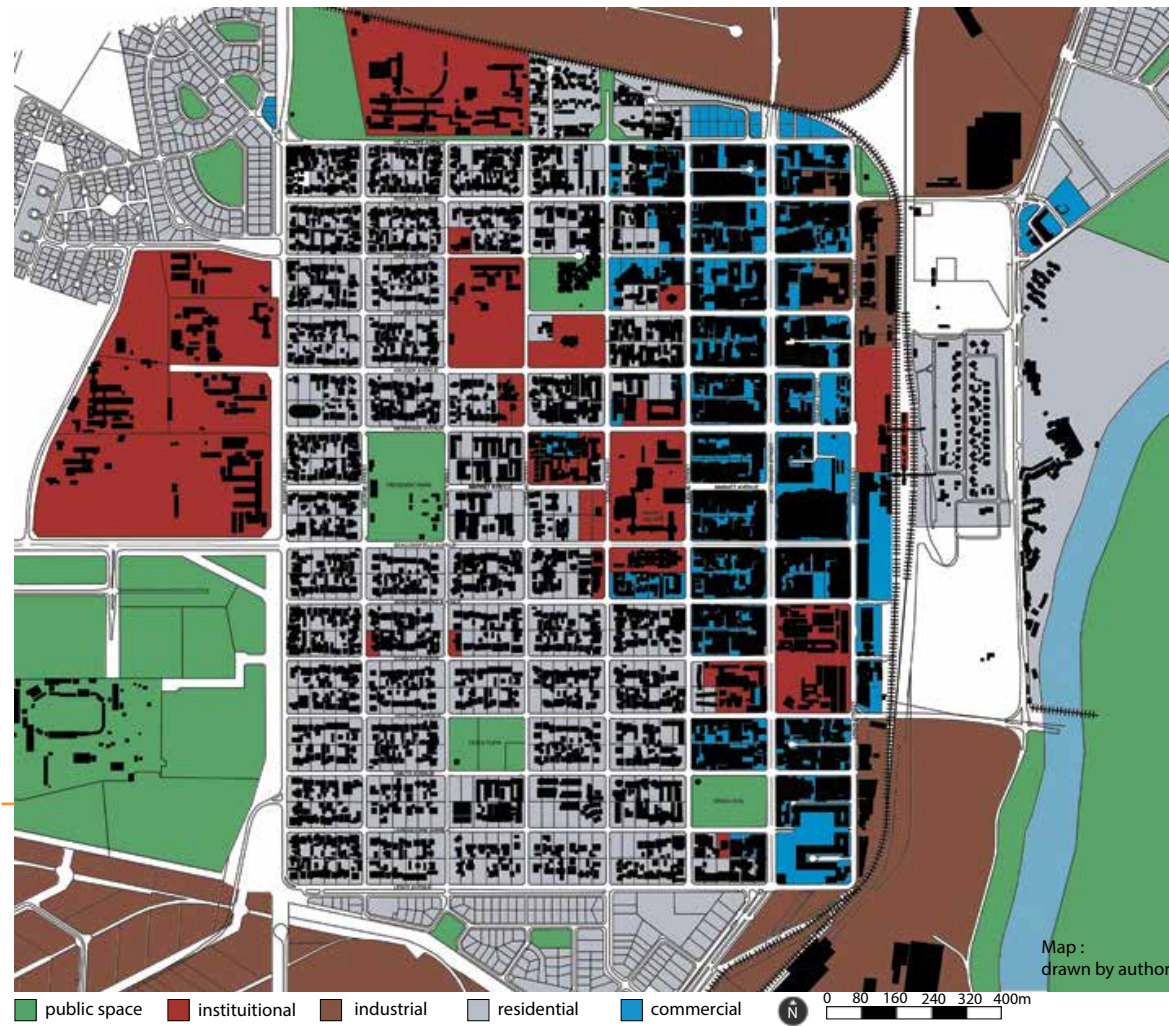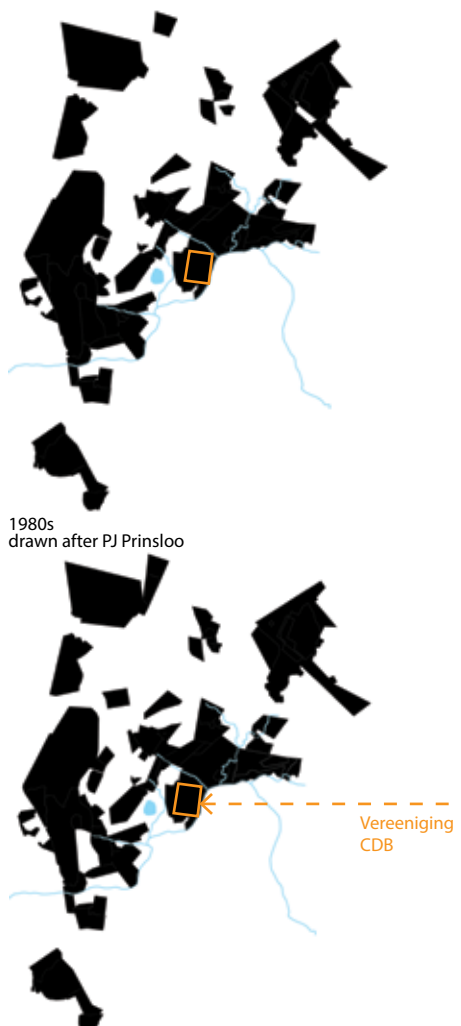
2016
Corner of Market Avenue and Voortrekker Street.
Markpark Mall is on the left
Photo: Google Earth

1992
Vaal Teknorama Musuem

1996
President Nelson Mandela signs the SA constitution in
Sharpeville

1980

1981
The Helicopters (a SA pop rock band)
is formed in Vereeniging

1983
Potchefstroom University
establishes the Vaal
Triangle Campus in
Vanderbijlpark

1982
Markpark
Mall is
built

1992
Nelson Mandela &
Cyril Ramaphosa
visit Boipatong
due to the Massacre

1996
President Nelson Mandela
signs the SA constitution
into law in Sharpeville,
and renames Vereeniging's
Market Square to
Constitution Square

2001
The Sharpeville
Memorial is opened by
Nelson Mandela

2011
Sharpeville Human
Rights Precinct is built
and designed by Anton
Comrie, James French
& Greeninc Landscape
Architecture

2002
VUT Chappel located on the
Vaal University of Technology
campus in Vanderbijlpark was
designed by Comrie & Wilkinson
and received an award of merit
from GIFA in 2005

2016

apartheid

democracy

1992
Vaal Teknorama
Museum is
built

1994
ANC is elected
in SA's first
democratic
elections

1995

FIG. 134:
A VIEW OF THE VEREENIGING TAXI
RANK FROM THE MERRIMAN BUILDING.
Hundreds of mini-bus taxis gather on the eastern
end of the city next to the Vereeniging Train Station.
Photo: author's own

3.2

MOVEMENT

ANALYSIS

FIG. 135:
A map of public transport routes in Vereeniging.
Drawing: author's own
Routes are sourced from: DITP 2008-2013 Sedibeng DIstrict Munciplaity
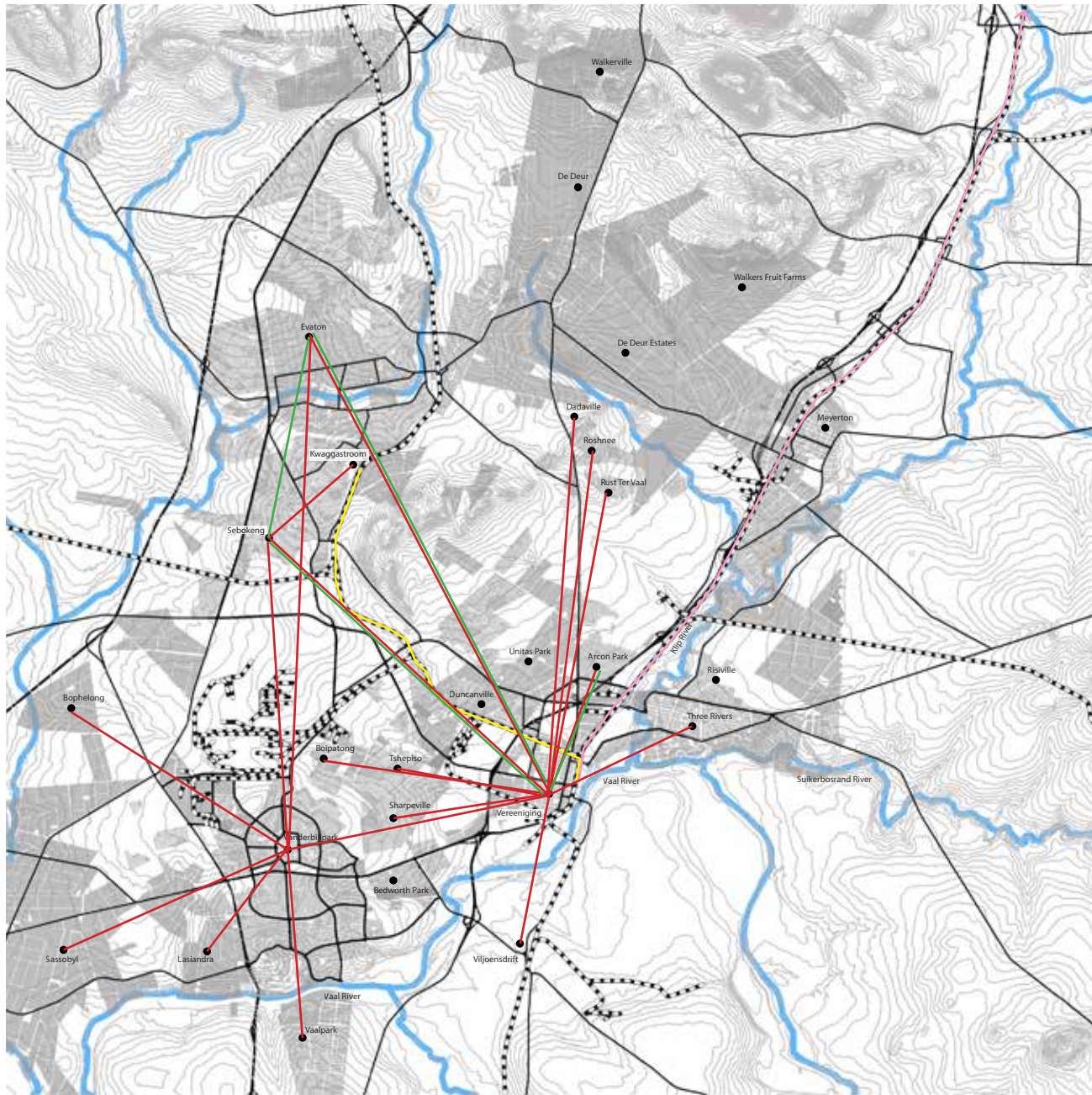
—— Roads

- - - - Rail

—— Rivers

Bus route:
This bus route opperates between Evaton, Sebokeng, Vereeniging and Arcon Park. Seven buses opperate on this route and make 365 trips a month.

Mini-bus taxi route:
283 taxis opperate in Vereeniging and make 566 trips.

NOTE:
A figure of +/- 800 mini-bus taxis operate in the Sebibeng area (DITP 2008-2013 SDM), with only +/- 283 operating in the Vereeniging CBD as per site observations.
Refer to page 95.

Rail:
Vereeniging-Kwaggastroom
17 train sets opperate on this route along 5 stations. 91 trips are made per day on this route.

Rail:
Vereeniging-Elsburg
7 trains opperate on this route along 16 stations. 53 trips are made per day on this route.
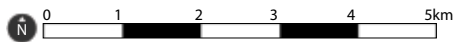
PEOPLE INTERVIEWED

Men & women +60

men & women 40-59

men & women 20-39

Children 6-18

PURPOSE OF TRIPS

Education
Work
Looking for work
Medical
Shopping
Drop someone off/ picking someone up
Going home
Visit friends/ relatives
Worship
Government services
Car- driver
Car- passenger

MODE OF TRANSPORT

Walk
Bicycle
School bus
Bus (other)
Mini-bus taxi
Company transport
Train
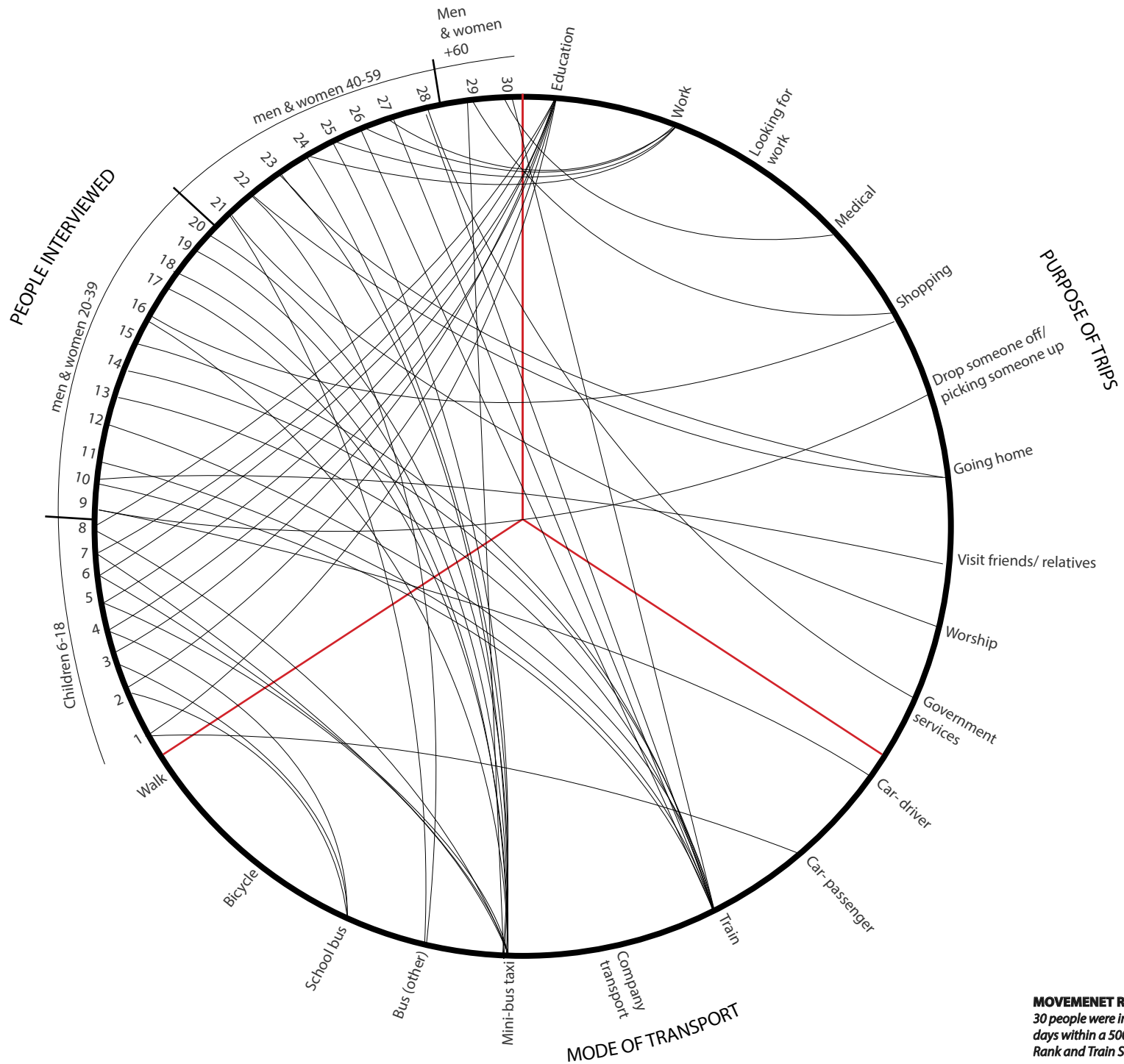
MOVEMENET ROUTE NETWORK DIAGRAM:
30 people were interviewed over the course of two days within a 500m radius of the Vereeniging Taxi Rank and Train Station.

Train Platform 2

Mini-bus Taxi Rank

Main Train Station Entrance

VEREENIGING

ABOVE IMAGE ⓘ
Thousands of pedestrian transverse this potion of the site everyday, it is a desperate link between Rail Plateform 2 and the taxi rank.

going to work:
Duncanville
Industrial zone:

going to work:
Medi Clinic

going to work:
Euro Spar/
AMSA

JHB Taxi
Rank

Local
Taxi Rank

Jhb Bus
Stop

going to
work/
school

MetroRail
Terminal

going to
work:
Riviera
Hotel

Meter
Taxi

Junction Arcade

Markpark Mall

Local Bus Stop

Taxido

Sasolburg
Taxi Rank

going to
college

500m

going to work : AMSA/ Brick & Tile Co./
Powerville/ Randwater

MOVEMENT - NMT

Non Motorized Transport (NMT) with reference to pedestrians and bicycles is available option to meet the basic mobility needs of all social groups in a viable way. Between 40% to 60% of all trips in major cities are made by using NMT (World Bank: Urban Transport Strategy, 2002).

A number of countries are promoting the use of bicycles as a sustainable means of public transport, with the view to create dedicated bicycle lanes.

The SDM Pro-Poor Strategy (2005) noted that although walking and cycling are utilized as major transport modes, they receive no attention in the SDM. The study also noted that walking and cycling account for 47% of all commuter trips. Currently there is no urban transport policy in determining a high quality service that would encourage NMT networks.

It is a common site to witness Metrorail passengers carrying bicycles with them as the embark and disembark a train at the Vereeniging train station. Unlike a taxi, a train can more easily accommodate a passenger and his bicycle. Additionally foldable bicycles are available on the market which are more practical in the urban environment than conventional ones, but they are costly ranging from R9000- R15000. It would be interesting for the state to subsidize the cost of foldable bicycles and to promote local manufacture of them.

LEFT, FIG .
PEDESTRIAN
& NMT
MOVEMENT

KEY

● Local routes taxi rank

● Long distance routes taxi rank

● Bus stop

● Meter taxi

● Metrorail terminal

- - - Metrorail pedestrian traffic

- - - Taxi rank pedestrian traffic

LEFT, FIG .
FOLDABLE
BICYCLE

Train Station

Epol silo
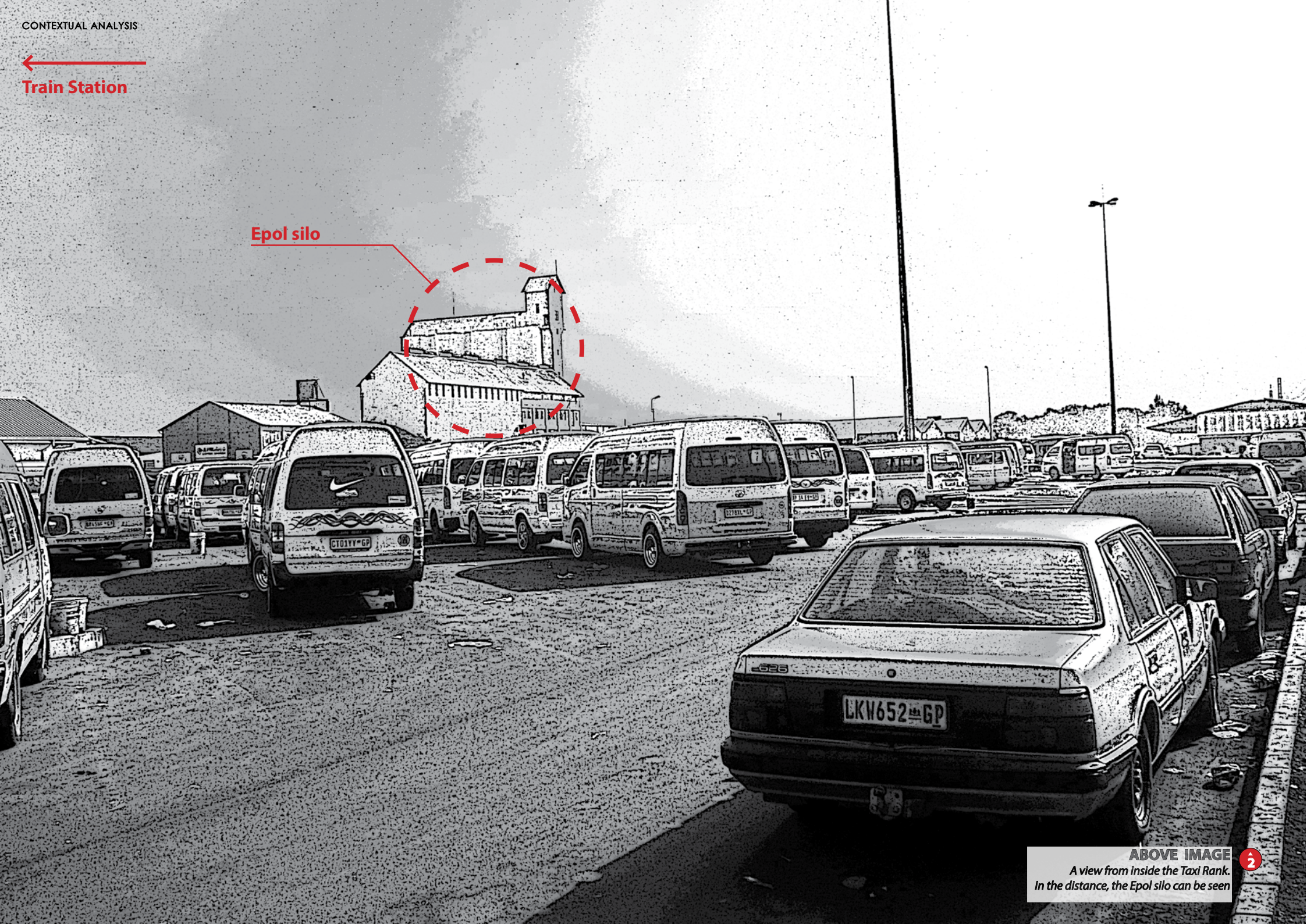
ABOVE IMAGE
A view from inside the Taxi Rank.
In the distance, the Epol silo can be seen

Duncanville,
Arconpark,
waldrift, Roshnee
& Johannesburg

JHB Taxi
Rank

Local
Taxi Rank

Meter
Taxi

Vanderbijlpark,
Sasolburg,
Sharpeville
& Sebokeng

Sasolburg
Taxi Rank

500m radius

0 20 40 60 80 100m

N

MOVEMENT - TAXI

In South Africa the most common type of taxi is the minibus taxi which accommodates between 9-18 people in smaller vehicles and 19-35 people in larger vehicles (Nyathi). They both operate on a shared rider basis, additionally preliminary findings by Lowitt (2006:5) reveal that taxis operate either by picking up passengers up along a predetermined route or from the fixed taxi ranks. The minibus taxi industry dominates South African public transport which accounts for 65% of the current public transport (National Household Travel Survey 2003). This mode of transport caters for low income riders who rely on public transport because they do not privately own motor vehicles.

Public transport interchanges such as taxi ranks constitutes a crucial aspect of the public transport system by enabling travellers to undertake a wide range of trips in a convenient and pleasant manner. There are approximately forty four minibus taxi ranks operating within Sedibeng. Of these forty four, only five are considered formal while the rest are considered informal. Taxi ranks are generally better developed in the major employment nodes such as Vereeniging, Vanderbijlpark, Sebokeng, Meyerton and Heidelberg.
The most active taxi ranks in Sedibeng are: Vereeniging Taxido Junction, Vanderbijlpark Taxi Rank, Bophelong Taxi Rank, Motalepula Taxi Rank (Sebokeng Plaza), Mpumelelo Taxi Rank (Devon), Residentia Station and Stretford Station.

In Vereeniging CBD taxi ranks are split according to local routes and long distance routes into Johannesburg and Sasolburg.
Metered taxis seem to be largely discriminated and are pushed far from the immediate access of the Vereeniging Train Station and are located outside the civic centre. Additionally there are as little as five operating at any given time which contrasts to the number of minibus taxis.

The Taxi Industry in Sedibeng is made up of eighteen Taxi Associations that are affiliated with the Sedibeng Taxi Council and Top Six Vaal.

LEFT, FIG .
TAXI MOVEMENT

KEY

- Local routes
  taxi rank
- Long distance
  routes
  taxi rank
- Meter taxi
- - - Local taxi
  traffic
- - - Long distance
  taxi traffic
- - - Meter taxi
  traffic

Taxi hand signals:

Joburg   Sharpeville

Boipatong   Sasolburg

Arcon Park   Three Rivers

Vereeniging CBD/
Vanderbijlpark CBD

Evaton

ABOVE FIG .
Taxi hand signals.
Source: Site interviews

LEFT FIG .
Nyathi taxi

Ipelegeng Bus

Markpark Mall

BEACONSFIELD AVENUE

ABOVE IMAGE ③
A view of the bus stop outside Markpark Mall on Beaconsfield Avenue

158

Duncanville,
Arconpark,
waldrift, Roshnee
& Johannesburg

Vanderbijlpark ,
Evaton,
Sharpeville
& Sebokeng

500m radius

N

0   20   40   60   80   100m
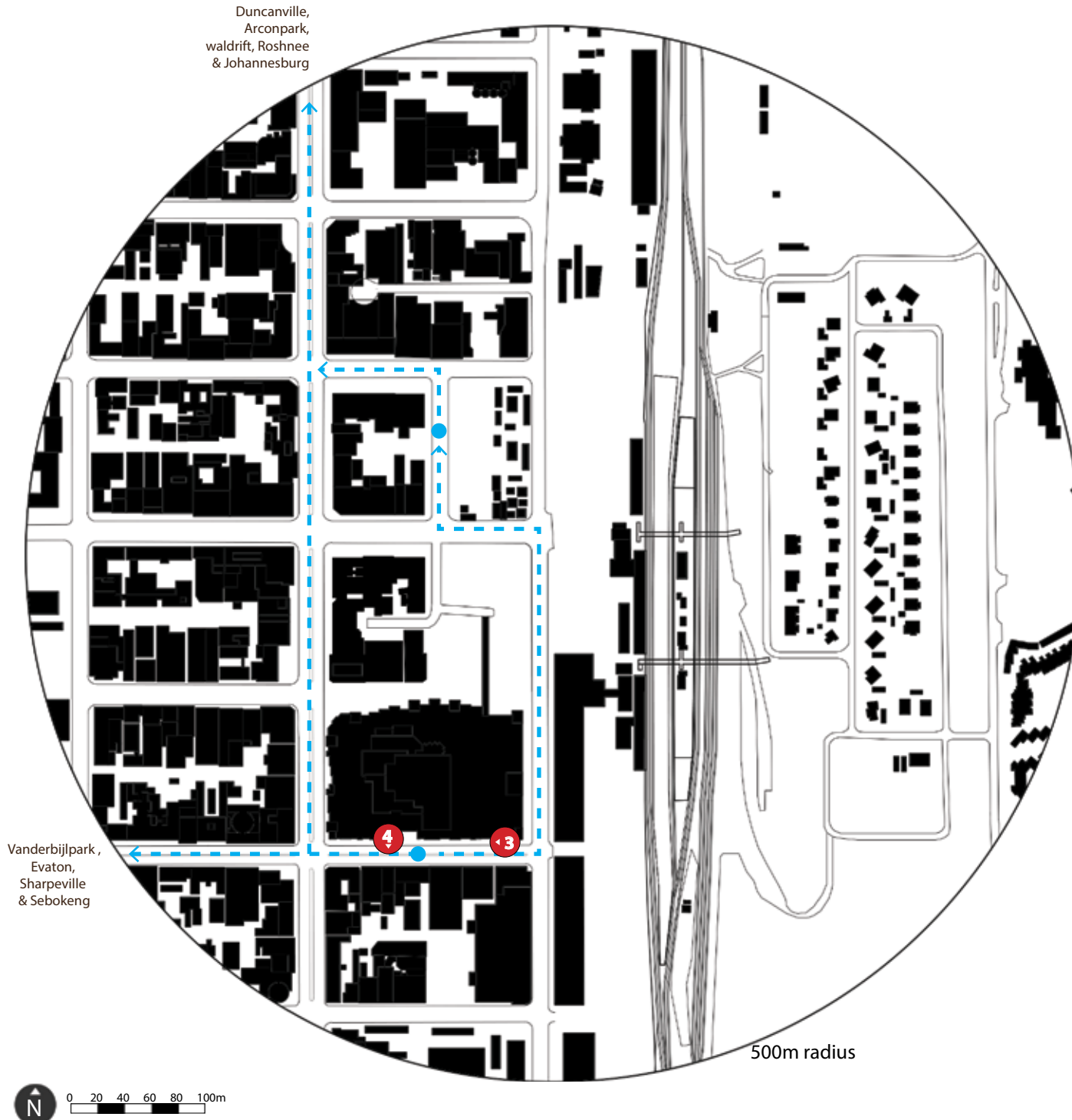
MOVEMENT -BUS

In the past bus services within Sedibeng were operated by a municipal bus company: Vaal Transport Company (VTC) and PUTCO. Since August 1998 the Department of Public Transport, Roads and Works (Gautrans) adopted a policy to encourage operators to become commercially aware. This has resulted in an open tender system to give access to private bus operators.

The bus industry can be classified into three major types of operators in the provision of subsidized transport in south Africa, namely: private bus operator, Municipal-owned bus services and parastatal bus services(Cloete, 2000:4). .

Evidence from the Gauteng Household Survey of 2007 suggests that bus services are available to 75% of households. this emphasizes that buses are strategically the most accessible of the public transport services. Bus operators in Sedibeng include: Comuta Bus Service, Gauteng Coaches, Ipelegeng transport trust and Mgqibelo Bus Operator.
Unlike rail transport, buses are more flexible as their routes may change according to changes and shifts in public usage. They also differ to taxis as they have more frequent stops.

Bus services in Sedibeng are not as utilized as in the past, additionally many bus stops are poorly marked thus causing potential traffic hazards. There are no waiting facilities in the District and therefore raises a considerable concern to provide adequate protection against the elements and general safety. Drawing from available text, there is little known about public bus operation in the District with regards to bus ranks, bus depots , bus routes and their stops.

LEFT, FIG .
BUS MOVEMENT

KEY

● Bus stop

– – Bus traffic

LEFT, FIG .
SHOPRITE BUS PARKED OUTSIDE MARKPARK MALL
Photo: Authors own
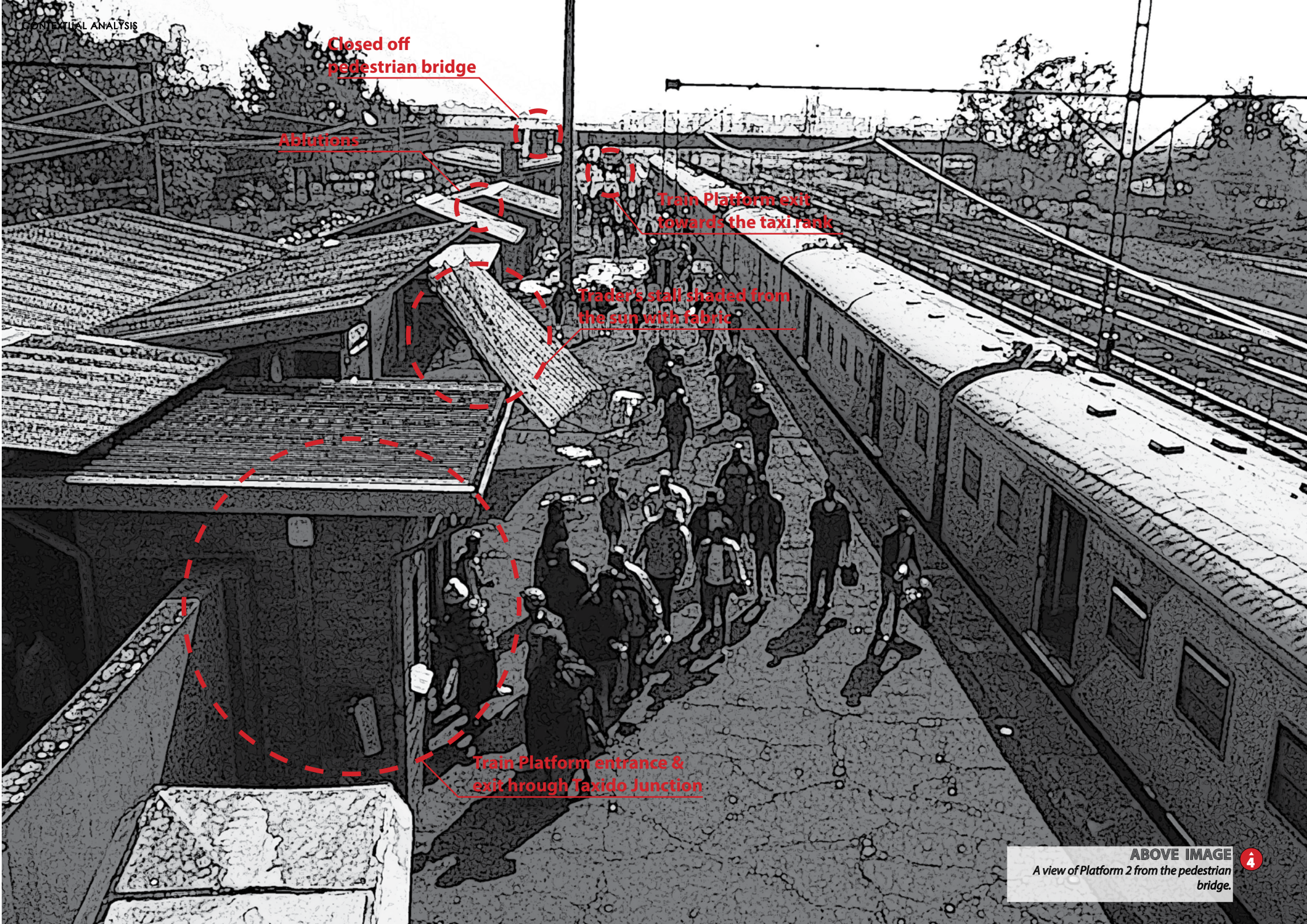
Closed off pedestrian bridge

Ablutions

Train Platform exit towards the taxi rank

Trader's stall shaded from the sun with fabric

Train Platform entrance & exit hrough Tazido Junction

500m radius

0 20 40 60 80 100m

N
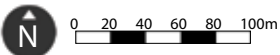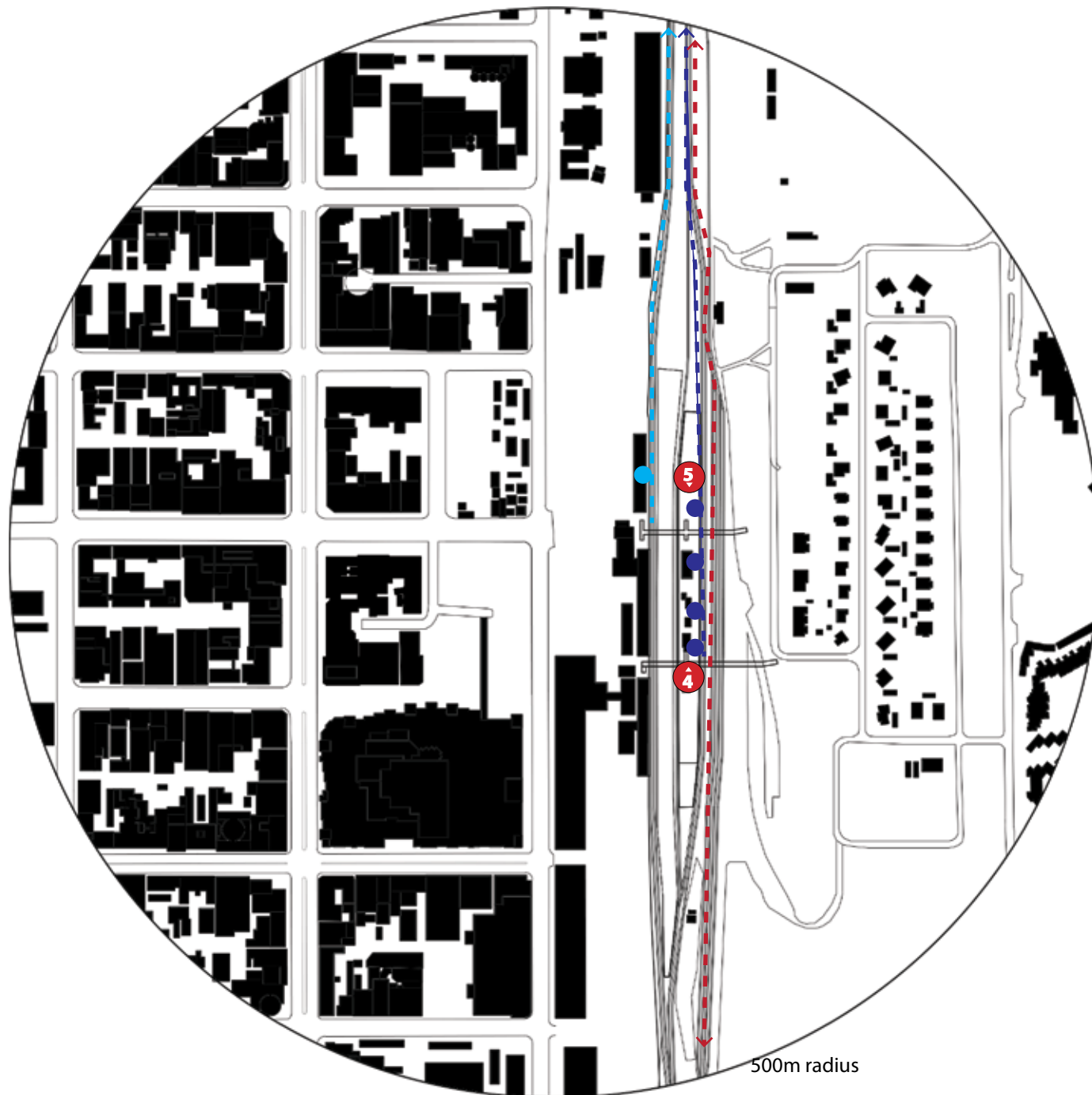
MOVEMENT - RAIL

As a high capacity mode, rail transport has a structuring influence on urban cities. It provides the backbone for the development of residential zones alongside economic and socio-cultural activities into other transport modes. In this way, rail transport perfectly fulfills its role as a leader in integration within a city's transport and urban planning policies.

The rail network in SDM is organized in a hierarchy connecting primarily to the Vereeniging CBD and ASMA steel mills. Townships such as Sharpeville, Sebokeng and Evaton have dedicated rail terminals and fall under a secondary hierarchal connection. In the past bantu workers would board trains directly from the mentioned townships and would be transport to the doorstep of the various factories.

Suburbs previously reserved for whites do not have access to rail, and access is only available from Vereeniging CBD.
Rail is the most important of the transport modes in the district as it operates the economic system, namely: industrial freight transport and coal essential to the Steel Mills and Power Stations

Despite being the cheapest form of transport, Metrorail's services are underutilized. Obvious symptoms experienced in the district are the closure of the west-link rail line, operational delays and unreliable services. About 29% of Sedibeng households have access to train services (Gauteng Household Survey 2007). This indicates that the district should engage to promote the use of rail and ensure a high quality service to improve the quality of life. At present, urban rail services in the district are extremely limited. As a consequence only two CBDs, namely: Vereeniging and Meyerton are served by suburban rail systems. The Gauteng Rail Passenger Transport Status Quo Overview (2001) identified only two rail commuter services operating within the Sedibeng jurisdiction, namely: Germiston- Klipriver- Vereeniging & Vereeniging- Stretford- Johannesburg- George Goch. These services are operated on double lines.

An efficient and accessible rail system in the Sedibeng district is a realistic answer to improving urban mobility, strengthening the it economic core and dramatically effecting the quality of life.

LEFT, FIG .
RAIL MOVEMENT

KEY

● Platform 1

● Platform 2

– – Vereeniging, Stretford, Johannesburg, George Goch Line

– – Germiston, Klipriver, Vereeniging Line

– – National grid

ABOVE, FIG .
VEREENIGING rail platform 2
Photo: Author's own

FIG. 117:
A VIEW OF THE EASTERN PORTION OF MERRIMAN AVENUE OVERLOOKING THE TAXI RANK AND THE TRAIN STATION
This view of the cross road between Merriman Avenue & Voortrekker Road is the intersection between the two most busiest roads in the city.
Photo: author's own
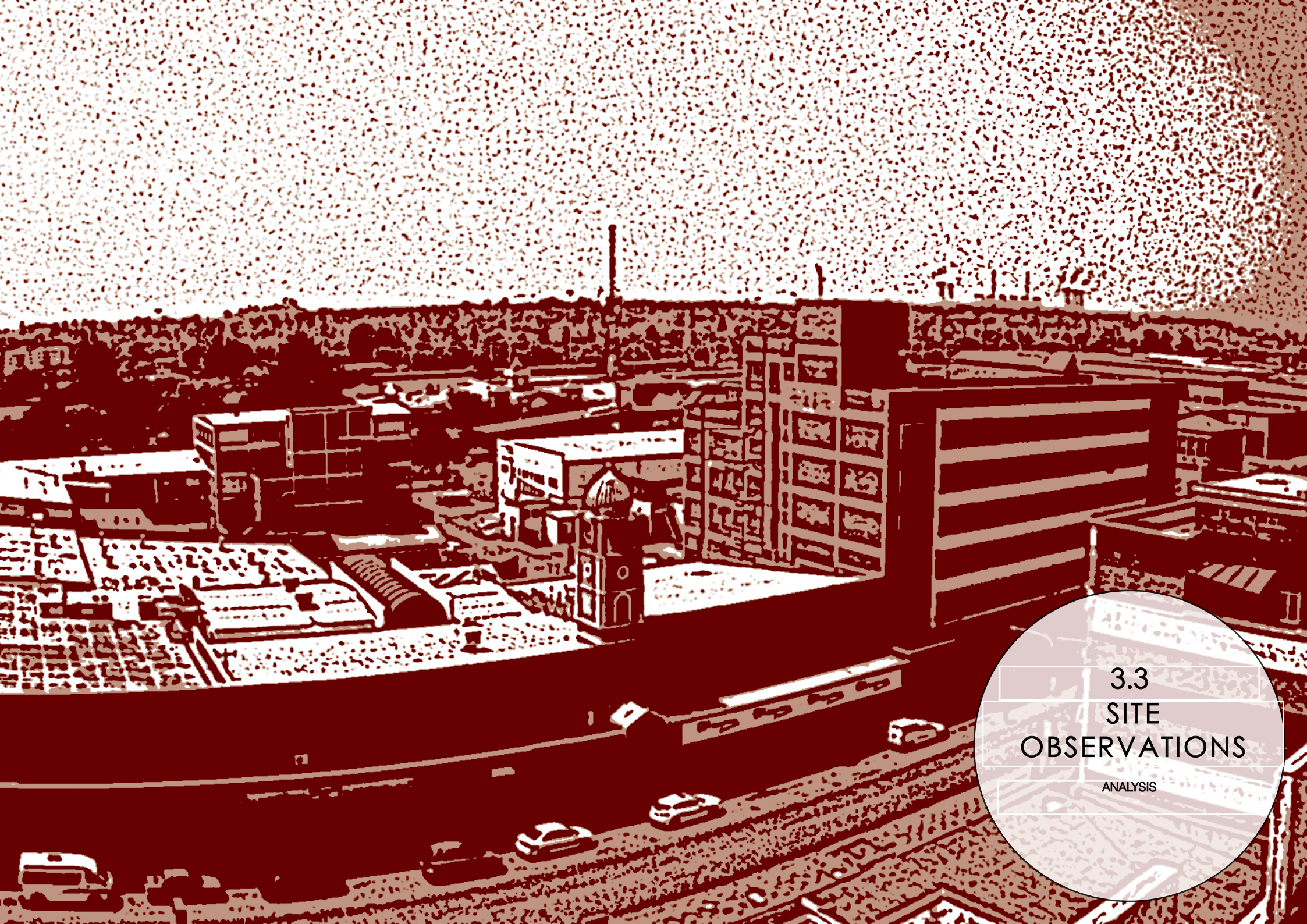
3.3
SITE
OBSERVATIONS

ANALYSIS

ABOVE FIG: ^
Site observation map
Source: author's own

500m radius

N
0   20 40 60 80 100m
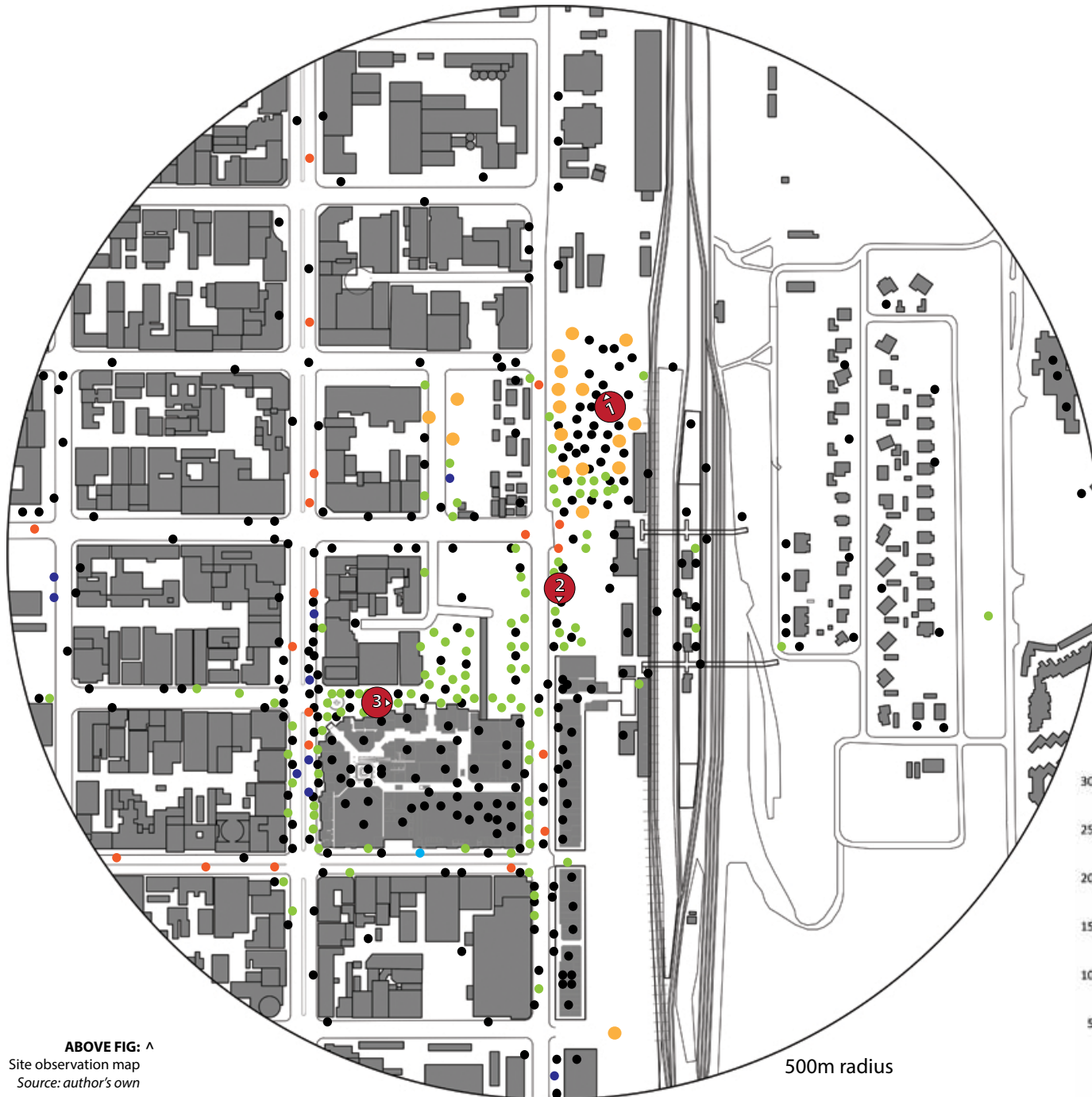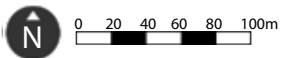
SATURDAY 25 JUNE 12:00

<   **LEFT IMAGES:**
Site photos taken
during site obser-
vations
Photos: author's own

KEY	TOTAL NUMBERS
● Dot index 5 people	1425
● Dot index 2 informal traders	212
● Dot index 2 minibus taxis	216
● Dot index 10 minibus taxis	180
● Dot index meter taxi	6
● bus	1
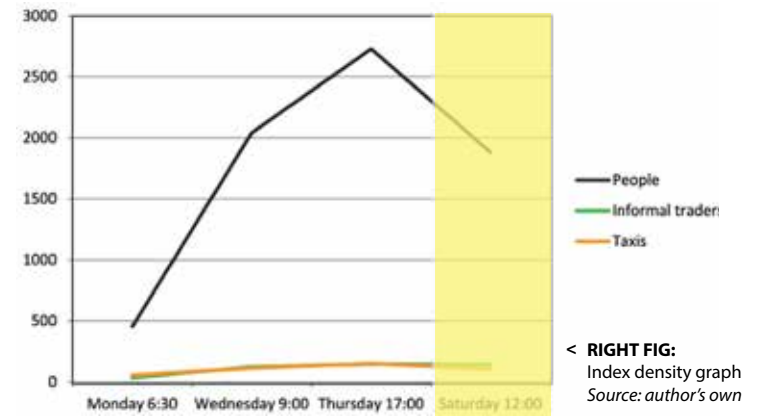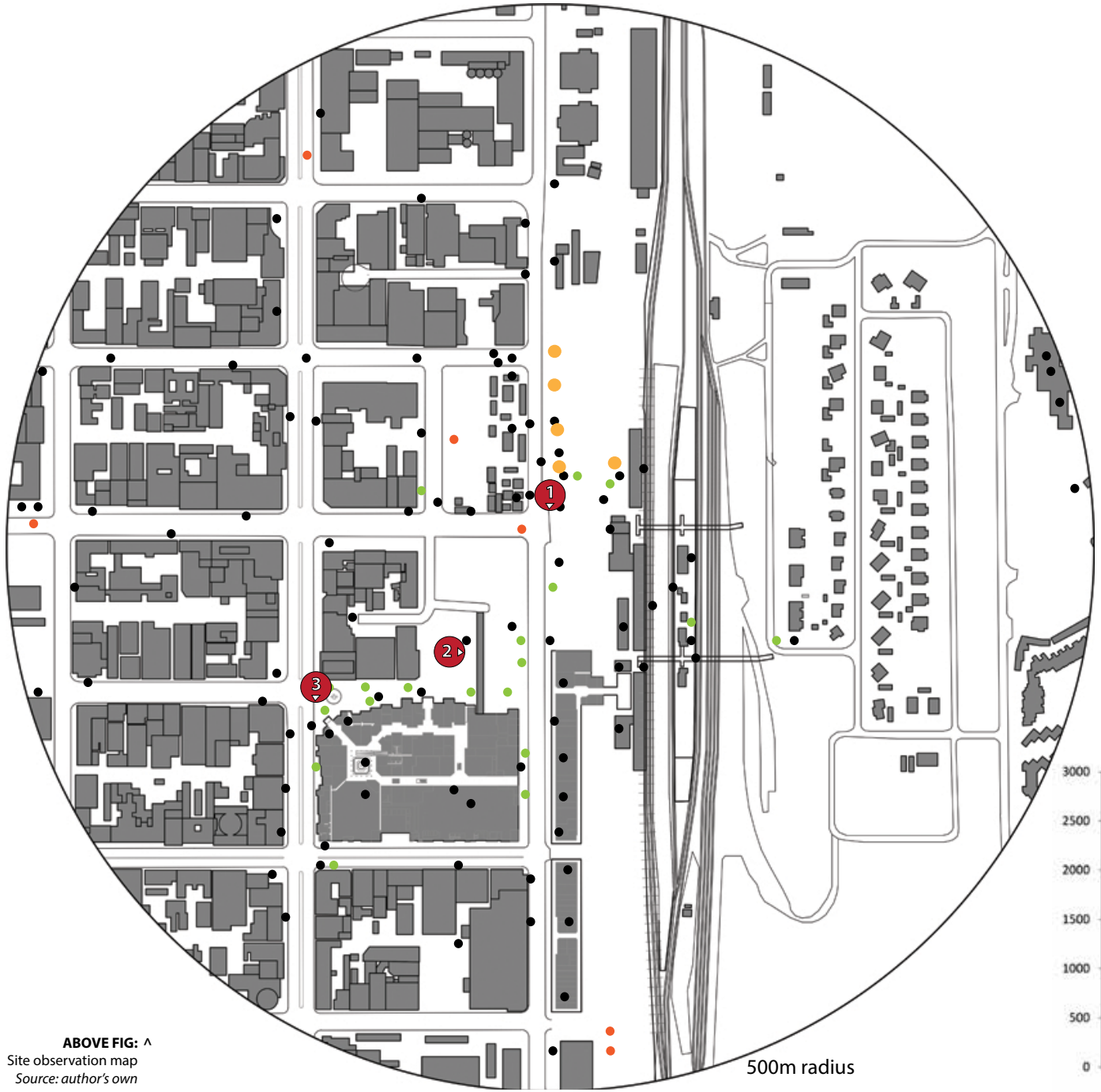
—— People
—— Informal traders
—— Taxis

Monday 6:30   Wednesday 9:00   Thursday 17:00   Saturday 12:00

<   **RIGHT FIG:**
Index density graph
Source: author's own
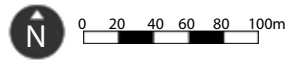
< **LEFT IMAGES:**
Site photos taken during site observations
Photos: author's own

KEY		TOTAL NUMBERS
●	Dot index 5 people	515
●	Dot index 2 informal traders	36
●	Dot index 2 minibus taxis	62
●	Dot index 10 minibus taxis	50
●	Dot index meter taxi	0
●	bus	0

ABOVE FIG: ^
Site observation map
Source: author's own

500m radius

N
0 20 40 60 80 100m

People
Informal trade
Taxis

Monday 6:30   Wednesday 9:00   Thursday 17:00   Saturday 12:00

ABOVE FIG: ^
Site observation map
Source: author's own

500m radius

N
0 20 40 60 80 100m
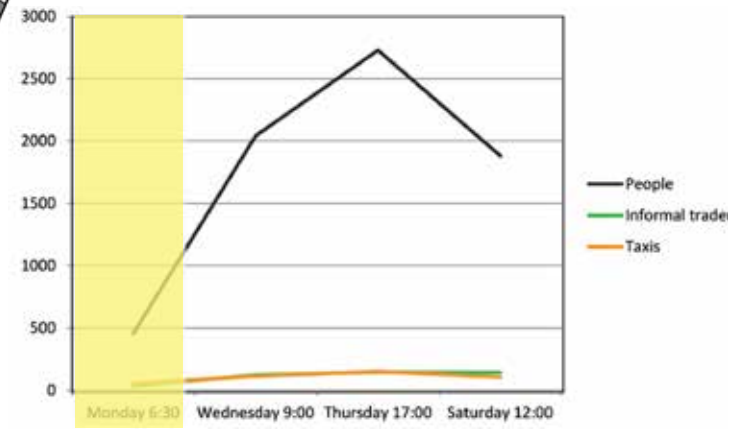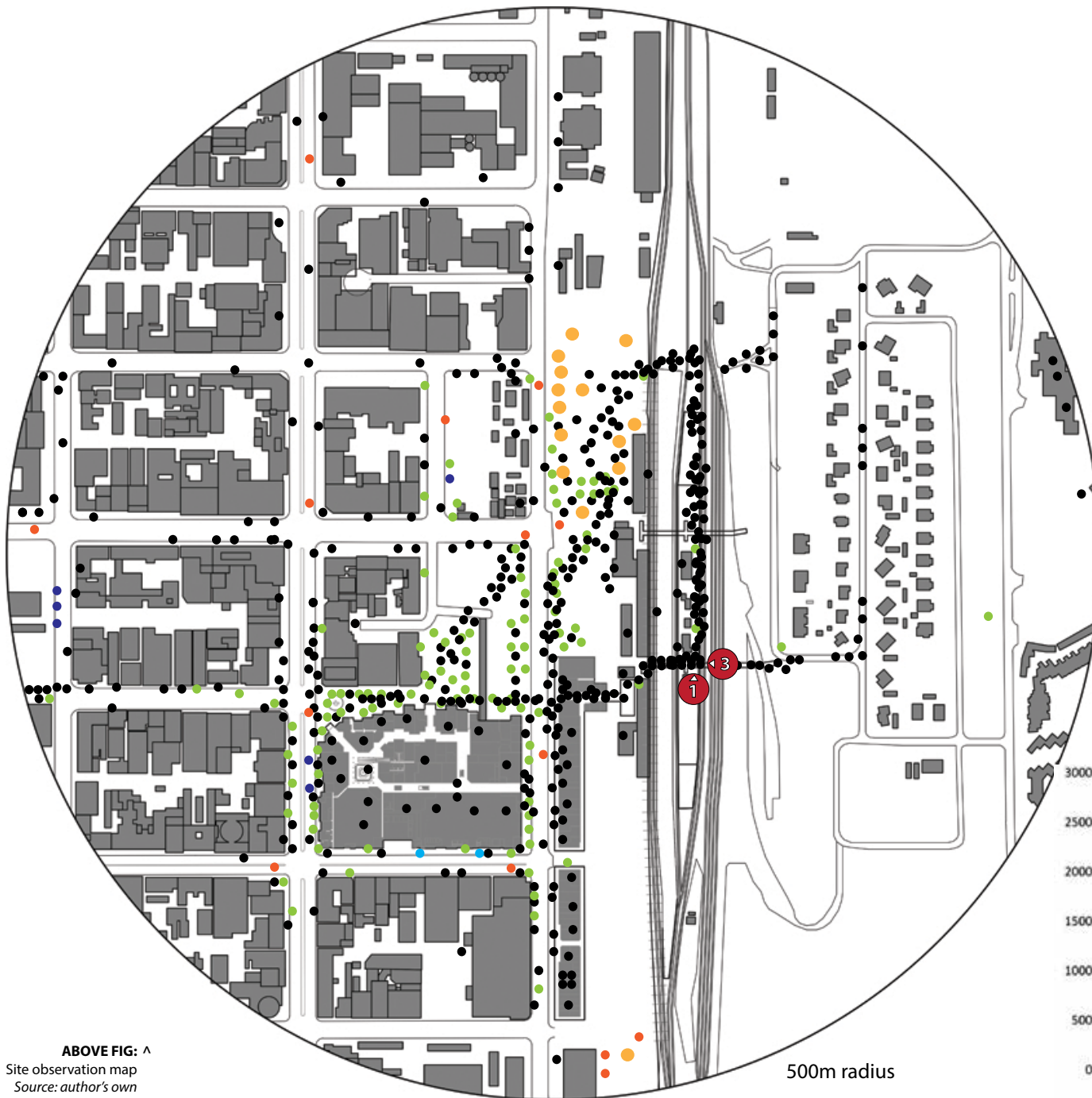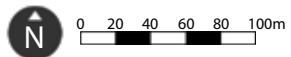
WEDNESDAY 29 JUNE 9:00

< **LEFT IMAGES:**
Site photos taken during site observations
Photos: author's own

KEY		TOTAL NUMBERS
●	Dot index 5 people	1905
●	Dot index 2 informal traders	234
●	Dot index 2 minibus taxis	164
●	Dot index 10 minibus taxis	140
●	Dot index meter taxi	3
●	bus	2
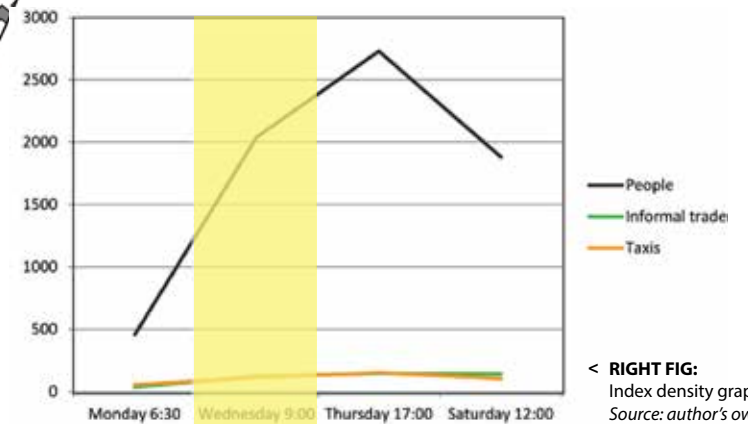
< **RIGHT FIG:**
Index density graph
Source: author's own
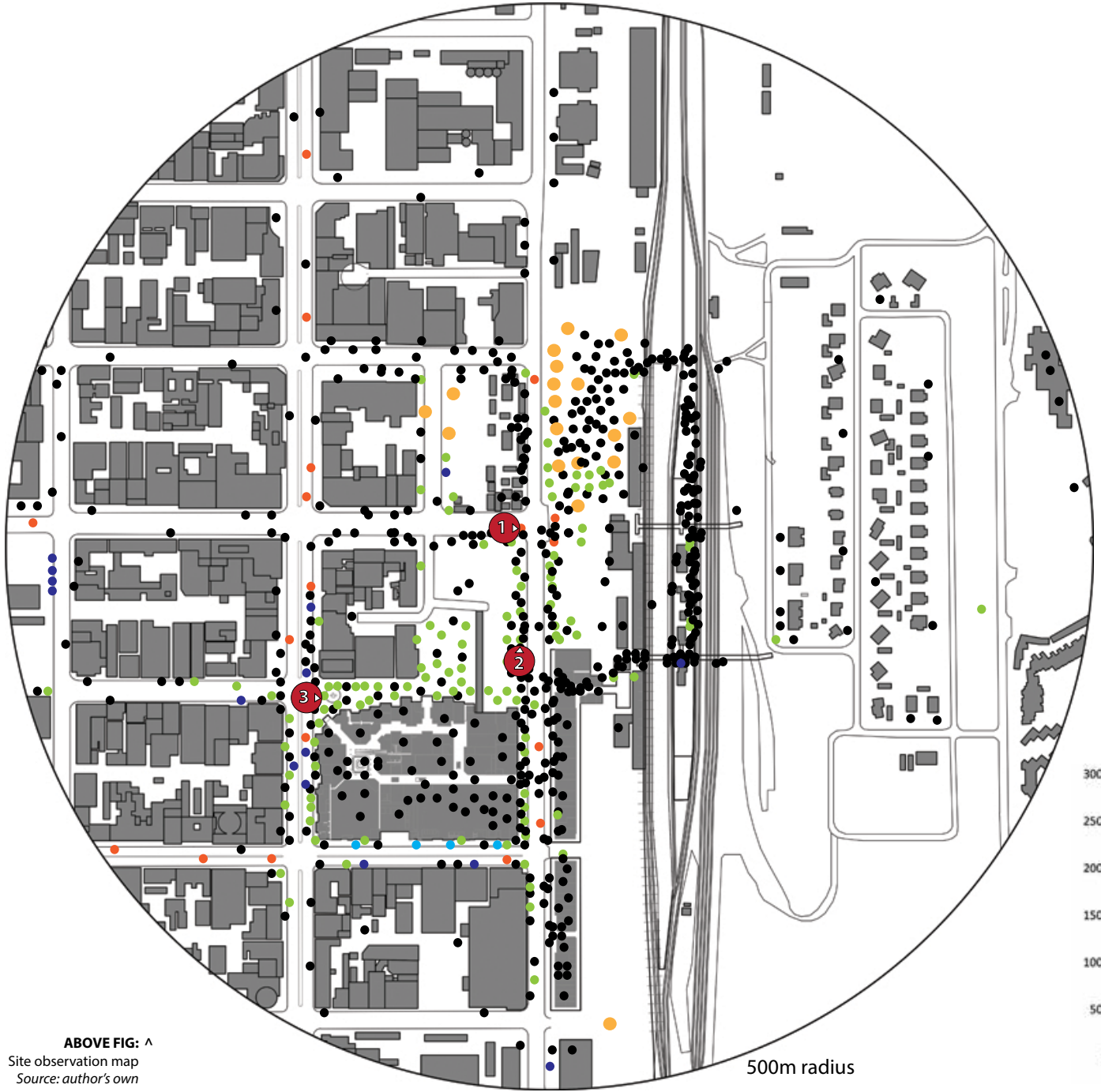
People
Informal trade
Taxis

Monday 6:30   Wednesday 9:00   Thursday 17:00   Saturday 12:00

ABOVE FIG: ^
Site observation map
Source: author's own

500m radius

0 20 40 60 80 100m

N
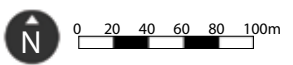
< **LEFT IMAGES:**
Site photos taken
during site obser-
vations
Photos: author's own

KEY		TOTAL NUMBERS
●	Dot index 5 people	2490
●	Dot index 2 informal traders	220
●	Dot index 2 minibus taxis	206
●	Dot index 10 minibus taxis	180
●	Dot index meter taxi	14
●	bus	4

< **RIGHT FIG:**
Index density graph
Source: author's own

— People
— Informal traders
— Taxis

Monday 6:30   Wednesday 9:00   Thursday 17:00   Saturday 12:00
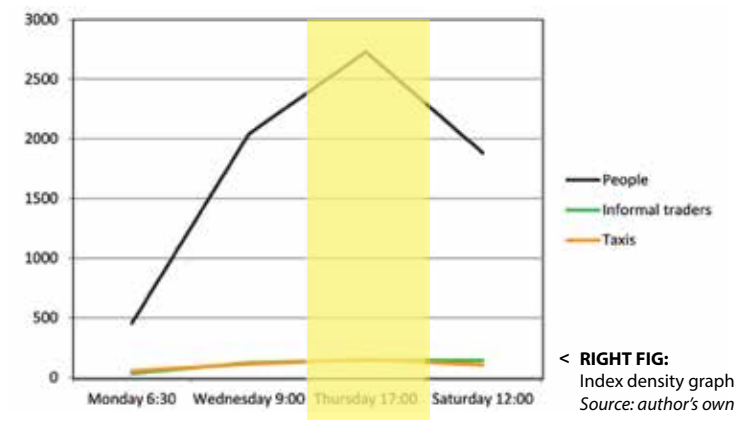
NEW

MARKPARK

City 1

Glamour Magic

iDENTiTY

PLAZA ENTRANCE TO LET VALUE

CASTLE
GRAB A CASTLE LAGER & SCORE

TIPS THE SCALES

WE HAVE MOR

DARLING

House & Home

MANHOOD ENLARGEMENT
PILLS OILS POWDER
079 229 4827

SAFE ABORTION
0736152133

LOVE SPELL /MARRIAGE
MAGIC WALLET GET RICH
063 000 6131

D·A·M

OK

Jonathan

FLAUNT
HAIR & BEAUTY SALON

fashion world

Tip Top

mega SANCE
RELIABLE MUSIC WAREHOUSE

-PEP-

got milk?

Qwiks

TACKLE

YANYS

Gulp!

McDonald's Restaurant
DRIVE-THRU

GAZA

rocks with taste

Groovie chicken

ZOOM

CHASE

J e

SUPER

My Home

WE BUY SWEETS

STATIONERY Xpress

Lucky STORES
Right where you live

Fahb DISCOUNT STORES

UNITED meat & chicken

Shopps

naturel principal

Dis Lekker

Chicken XPRESS

Pritt sheet·street

cre@tivity Tekkie Town

DEBONAIRS PIZZA
EXPRESS

SALE

LEFT FIG
COLLAGE OF STREET
ADVERTISING
Advertising in the urban environment is a dialog between pedestrians and automobile drivers. The dialogue consists of messages meant to entice desire or persuasion into purchasing a service or merchandise. It is a hyper-reality , where things that are faster, stronger and better have superficial preference. This characteristic is a direct link to the culture of modernity in cities.

ABOVE FIG
A VIEW OF THE TRADE PLAZA
INFRONT OF MARKPARK MALL
Thousands of pedestrian transverse this potion of the site everyday, enroute to the Vereeniging Taxi Rank and the Train Station

3.4

TRADE

ANALYSIS

Kruger Avenue

Leslie Street

Voortrekker Road

Merriman Avenue

Railway Street

Union Street

Market Avenue

Markpark Mall

Beaconsfield Avenue

N   0   20   40   60   80   100m
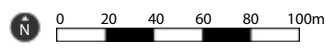
ABOVE FIG:
This map documents the areas explored during the site observations on trade.

RIGHT FIG: >
This map documents the areas explored during the site observations on trade.

A day out in the Town

A shopping excursion in Vereeniging is best experienced on a Friday or Saturday. The mornings are particularly lively and the experience is comparable to a mix of Johannesburg's Fordsburg, Small Street Market, Noort Taxi Rank and Park Station. The most striking first encounters of the city is the share use of colour. Meshed in amongst a hand full of formal advertising by mainstream retailers, there is a splendour of raw hues and advertising from the by-gone 80s. The city's shop fronts radiate collectively a style refered to as retro. This is no coincidence as this commercial hub was at its peak in the 1980s.

Along Union Street ; between the Taxi Rank, Markpark Mall and the Taxido shopping arcade; is the place to be if you feel peckish. During early mornings and lunch time, the street is fill with the aroma of baked pies, grilled Russian sausages and fried potato chips. Within the Taxi rank informal cooking stalls braai chicken, lamb and chops over hot coals. Costa's Kitchen at the Taxido shopping arcade is a fast food restaurant and a great place to relax and watch passer by making their way from the street and into the Train Station. The city like many others caters for various needs including those of the metro-sexual male. Gone are the days where only women took grooming seriously, as the modern metropolitan male brushes up. Fancy a haircut, a shave or pedicure? The Markpark parking lot is at a buzz with men and women being groomed to perfection.

There is a sense of community amongst the informal traders. In the early mornings some will assist each other assembling individual trading stalls and also offer each other coffee in the bitter cold. Like friends they socialize and await the sprawl of the morning rush. The inner city at first seems unwelcoming and dangerous, The general bleak and negative state of the city is partly to blame for this perception, but after physical engagement with the urban context one is richly rewarded - like most encounters.

Kruger Avenue

LeslieStreet

Voortrekker Roaf

Railway Street

Merriman Avenue

Union Street

Market Avenue

Markpark Mall

Beaconsfield Avenue
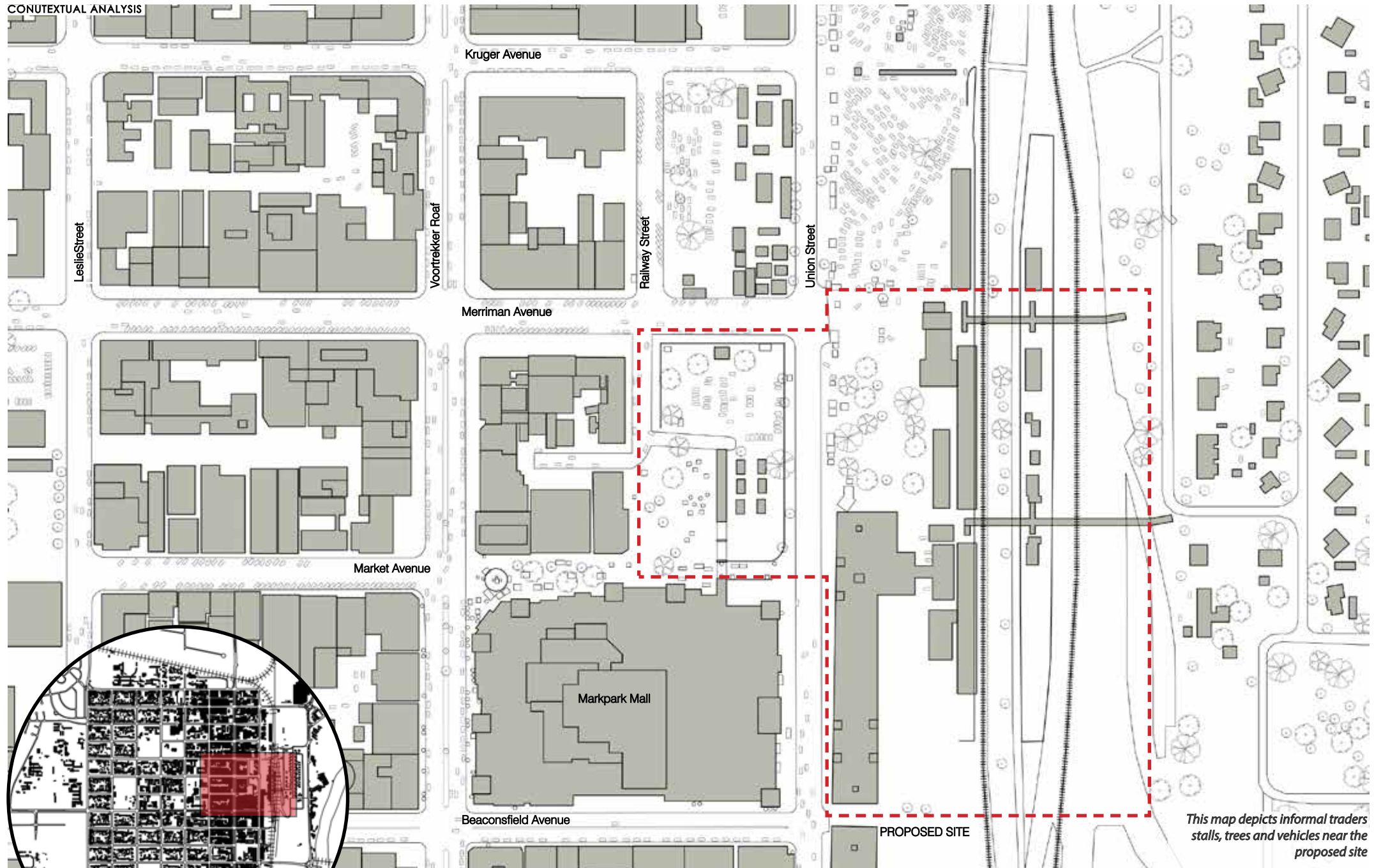
PROPOSED SITE

This map depicts informal traders stalls, trees and vehicles near the proposed site

🔧 Autospares	🔪 Butchery	✚ Clinic
🛍 Bakery	🚿 Car wash	👥 Clothes
🍺 Bar	✝ Church	🎓 College

👔 Dry cleaning	🐷 Financial	🏛 Government
📣 Car dealership	🔫 Funeral parlour	🔫 Gun shop
⚙ Electronics	Furniture	✂ Hair salon

✕ Hardware	⚖ Lawyer	☪ Mosque
🛏 Hotel	🍾 Liquor	🎵 Music warehouse
💎 Jewelry	🛒 Super market	🍸 Night club

PROPOSED SITE

Pawn shop	Printing	Shoe shop
Pharmacy	Property agency	Stationary
Post office	Restaurant	Traditional medicine

Informal bakery · Informal clothes · Informal dvd movies · Informal jewelry · Informal shoes

Informal bags · Informal cooking · Informal food stall · Informal nails · Informal toys

Informal cellphone accessories · Drugs · Informal hats · Informal phone service

ABOVE & FAR LEFT FIG:
The maps documents the types of formal and informal trade that occurs near the proposed site.
Source: author's own.

0 20 40 60 80 100m

A photo of taken under the ramp.

Chairs, tables and traders trolleys are stored in a storage room under the mall's ramp.

A photo of the store room entrance under the ramp.

A photo of a trader setting up his stall.
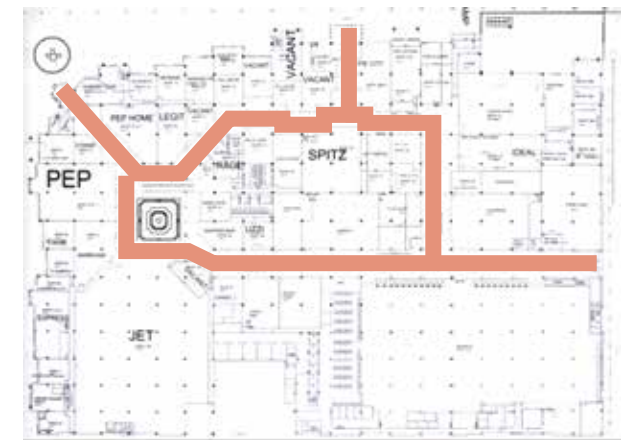
^ **ABOVE FIG:**
A shop layout plan of the Markpark Mall
Source: Photographed on site.

Trade: Informal & Formal

There are two main types of trading activity in Vereeniging that can be distinguished as formal and informal trade. Street front shops and malls fall under the formal trading category as they are permanent in the urban context. Trade stalls and markets in the inner city, particularly around Markpark mall, Train Station and taxi rank all fall under the informal category. They are informal due to their temporary or no-madic behaviour. Informal trade stalls are assembled on thresholds such as street pavements and under street canopies. Urban public space such as parks and parking lots become appropriated into trade markets; such as the Markpark Mall parking lot and the park directly in front of the Main Train station building. There are a variety of goods available between the formal and informal traders in Vereeniging with each targeting a different clientele. Formal trade operates at a higher starting cost than in comparison to infor-mal markets.

The formal trade in is orientated around vehicular movement along Voortrekker Street, Merriman Avenue, Market Avenue, Beaconsfield Avenue and Union Street. Informal trade is more reliant on pedestrians and therefore realise on pedestrian movement routes. The closed off portion of Market Avenue that passes in front of Markpark mall and towards the Train Station, is a popular site for informal traders. The "Market Avenue market" is centrally located in the city. It feeds of a competitive nature alongside its more formal neighbours. The market is able to thrive due to the pedestrian movement through the site during the peak morning and afternoon hours. The pedestrian movement is due to the daily routine of coming to the city and returning home. Within the

^ **ABOVE FIG:**
The pink shaded area depicts where epicentre of the informal mmarket occurs.

^ **ABOVE FIG:**
The photos capture the unpacking of the informal traders market.
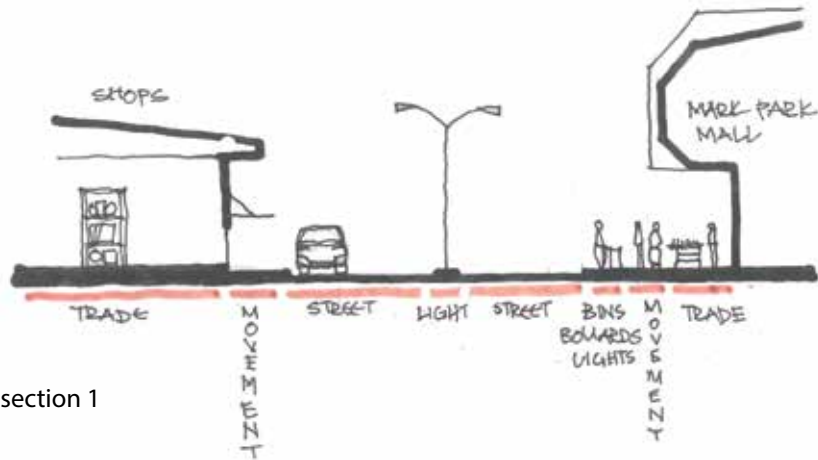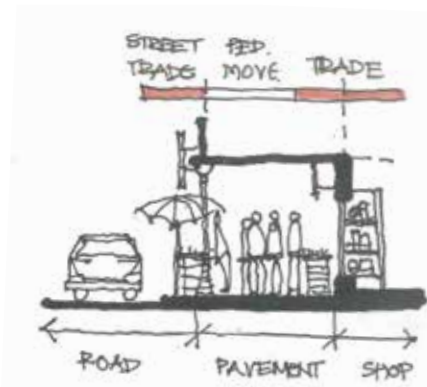
section 1

section 2

light structure in plan

light structure in elevation
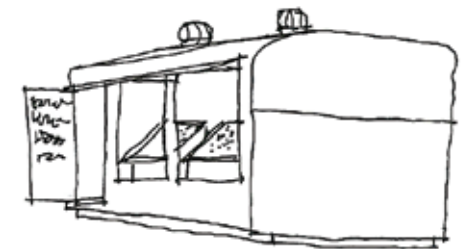
city buses, a taxi rank and a Train Station provide transport for those entering and leaving the inner city. It is important to view this part of the city as a transport node, additionally it is also the commercial hub. It offers an alternative lifeline to the dominant industrial economy.

Social time, can be classified as working hours or family time, conducts the operating hours of both the formal and informal activities. Factory work hours influence the schedules of public transport, such as trains and mini-bus taxis, and therefore the peak hour arrival time and departure time emerges. Therefore traders, whether formal or informal, are also affected by this almanac of day arrival and departure all year round.

The informal traders operating in the Market Avenue market surprisingly follow a strict structure. Each trader requires storage to store their goods overnight. The traders rent storage space from a room located under the Markpark Mall parking ramp or the shipping crate next to it. Furniture such as steel tables and plastic chairs are also made available to the traders. The market begins each morning with the storage staff packing out the furniture and traders' trolleys at 6:00am. Traders collect furniture and their trolleys as they arrive and hastily begin assembling their stalls. The Market comes to an end in the evening near 7:00pm. The taxi rank stays operating until 8:00pm, after which the inner city has emptied out except for a few fast food outlets.

A photo of informal trading spaces along the Markpark mall facade on Union Street.
Photo: author's own

trade on the street
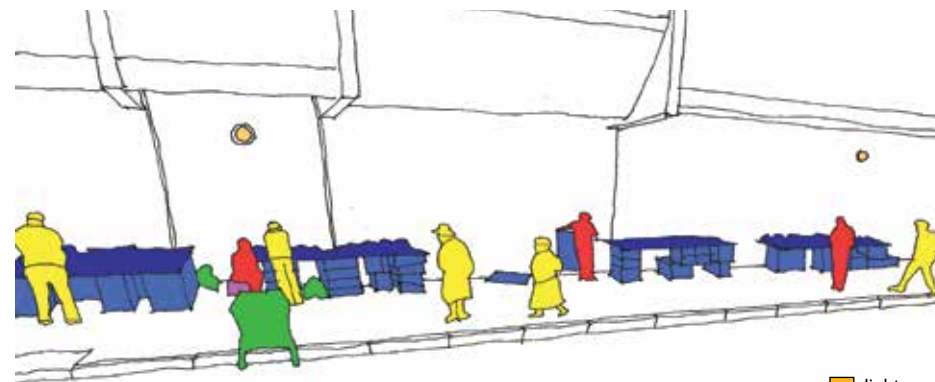
Analytical drawing of informal trading spaces along the Markpark mall facade on Union Street.
Drawing: author's own

- lights
- display structure
- display structure
- seating
- Goods
- Trader
- storage

Semi-perminent trade

Drawings: author's own

CASE STUDIES

SECTION A

SECTION B

SITE PLAN

N

King's Cross & St Pancras Redevelopment, (2012-2016)
architect: John McAslan + Partners
London, England

King's Cross is one of the busiest interchange stations in London. Commuters and tourists alike hurry through, transited from one mode of transport to another and avoided lingering for any length of time. Work on the 7000m² square in front of King's Cross Station began in 2010 as part of the King's Cross & St Pancras Station Redevelopment Programme. John McAslan + Partners were responsible for the restoration of the station's main facade and for the design of the new steel canopy as well as the underground entrance area adjacent to the facade.

Focus primarily rested on providing a space that functioned successfully as a part of the major transport interchange at King's Cross and St. Pancras Stations. Beneath the square is a complex of London's Underground structures that manifest themselves at ground level as entrance stairs. The scheme aims to restore the original integrity of the place and give the square a greater civic importance, comparable to that of other public realm projects in London, such as Trafalgar Square, Leicester Square and Tower Hill.

The square was covered with a large bulky canopy, which served to lead commuters in and out of King's Cross Station and keep them out of adverse weather conditions. Unfortunately the canopy also blocked the view of the majestic facade of King's Cross Station, designed by Lewis Cubitt, depriving the area of its rich historical context. The main section of the square is paved with alternative bands of dark and light granite. The Parallel bands are striking in appearance and conceptually continue the train lines that terminate within the station behind the facade. The generous provision of benches encourages people to pause and engage with the activities of the
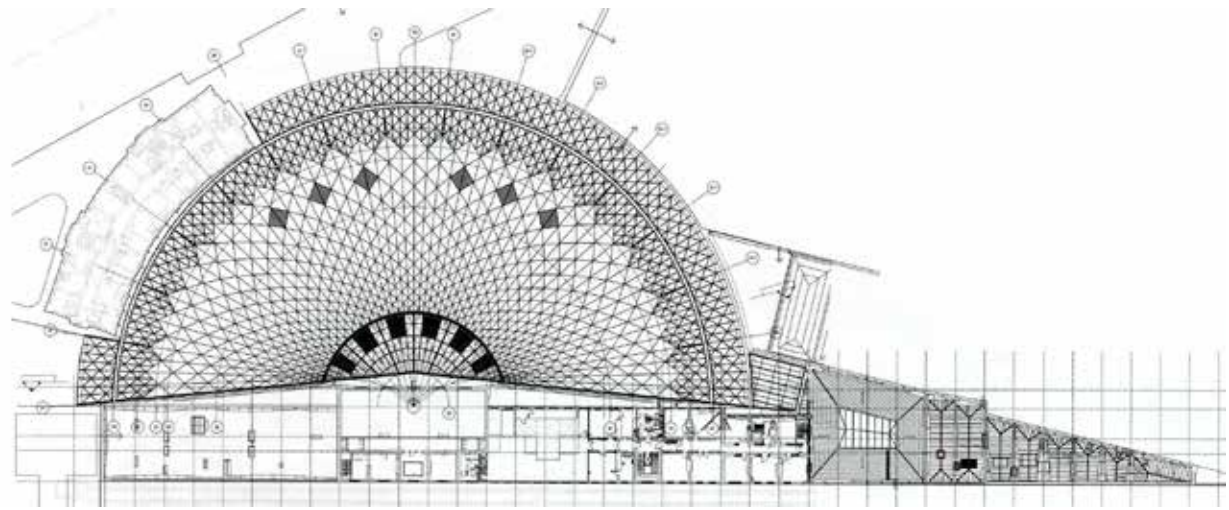
PLAN
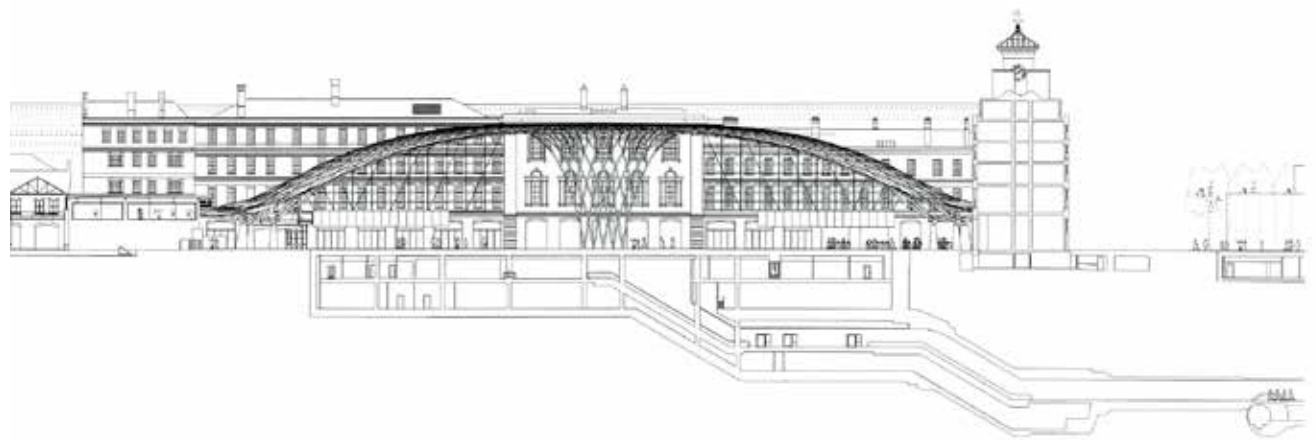
SECTION C
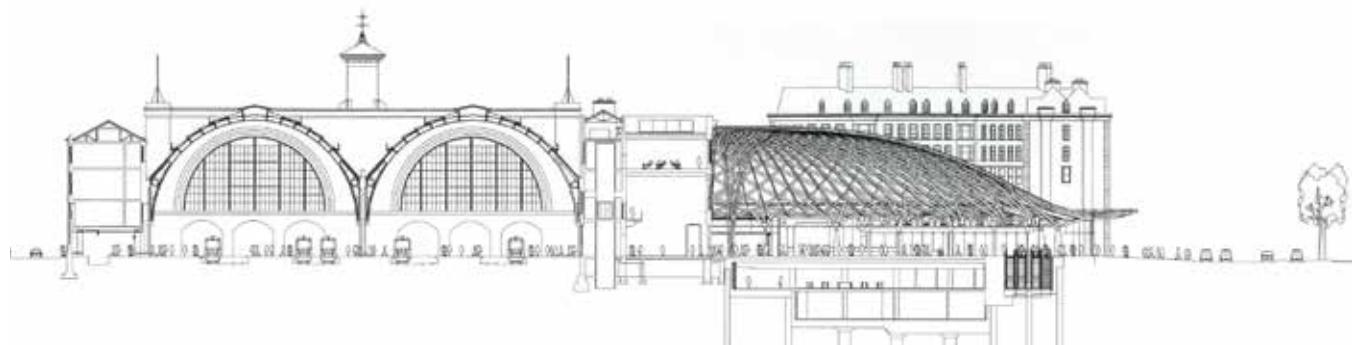
square in a more leisurely manner.

The new square serves to act as an external "arrivals" concourse for the station. The entrance to the station is through the western concourse and the route is emphasised through the use of a "welcome mat" paved in Yorkstone, contrasting with the granite of the main part of the square. Six smaller lighting masts also help to define the edges of the "welcome mat". This strategy is designed to improve the legibility of the square's circulatory logic.

The new square is now an attractive meeting place for everybody to enjoy, and an appropriate gateway to a new revitalised area of London.

SECTION D

GROUND FLOOR PLAN

FIRST FLOOR PLAN
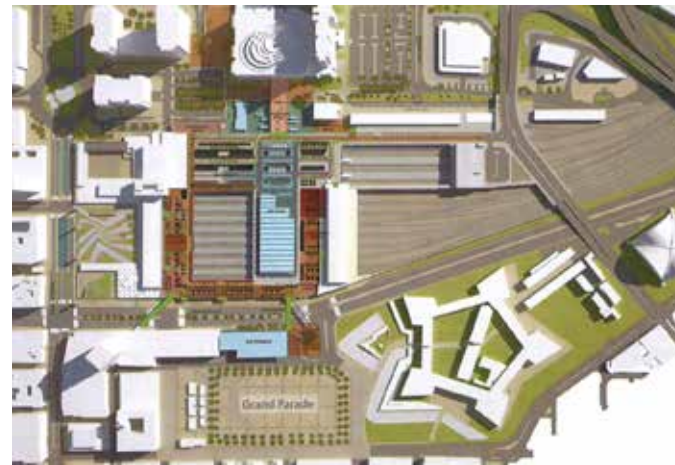
SITE PLAN

N

Cape Town Station, (2010)
architect: Makeka Design Lab Architectes
Cape Town, South Africa

The Cape town station is a public transport hub located in the corner of strand and adderley street in Cape town City centre.

In 2010 a refurbishment of the station was done in order to improve the user experience. The Refurbishments aimed to create a public service that would endure, have relevance that accommodated technological and political shifts.

The design of the station itself was intended to be viewed as a cognitive structure in which peoples identities can be expressed creatively across cultural boundaries. The large public square constructed in front of the station was designed to become the main public space where most interactions would occur. People can engage in a variety of activities from grabbing a bye to eat, socializing or relaxing. The plaza is large enough to accommodate for public events. The retail area that surrounds the square also adds additional value to the

DETAIL SECTION
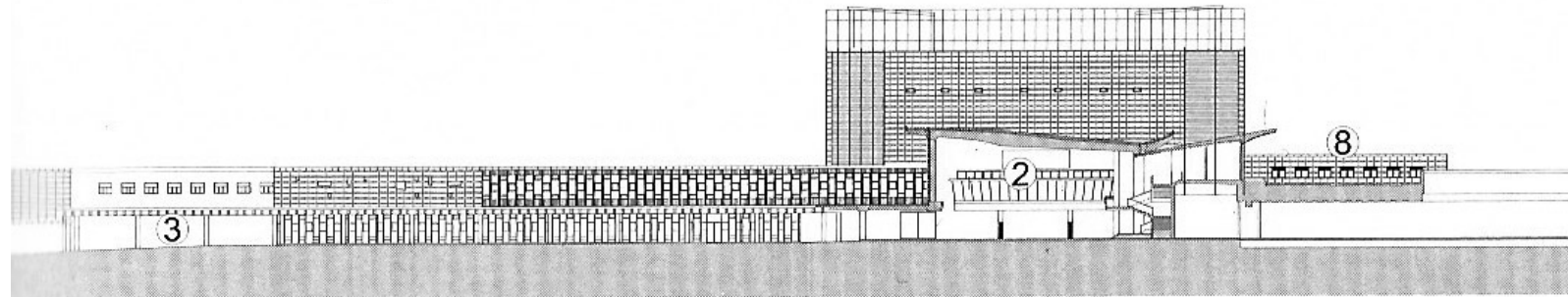
DETAIL SECTION
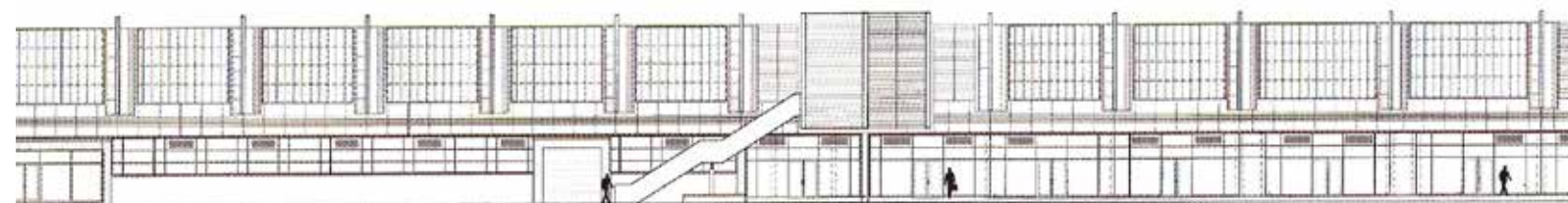
STREET ELEVATION

visitor's experience. The vertical towers placed at the entrance of the square along Adderley Street were designed to announce the station, and to be used for signage and advertising. Communication is seen as an important aspect in the design as this brings people together.
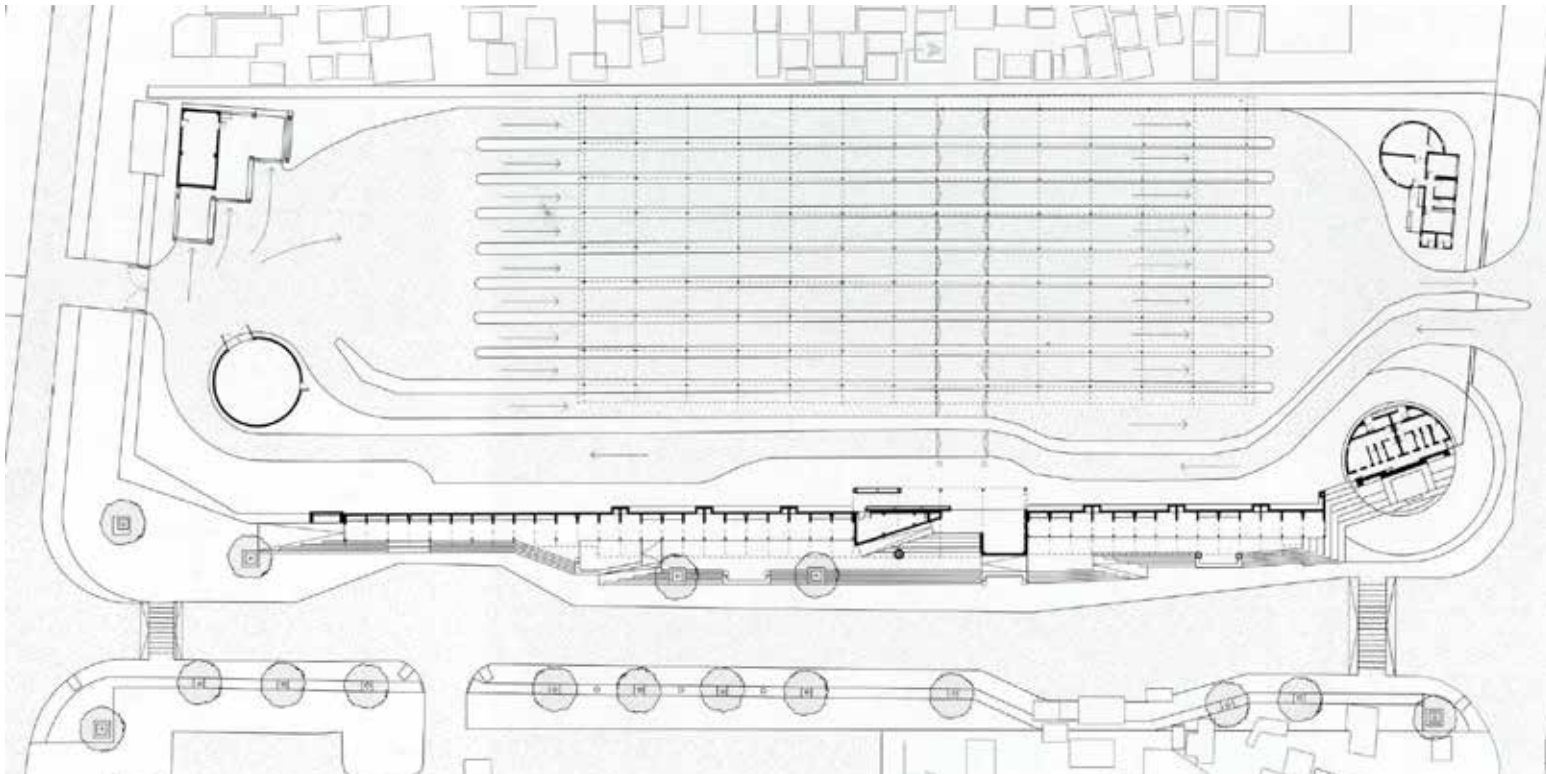
PLAN

SITE PLAN

Diepsloot Taxi Rank No. 2, (2012)
architect: 26'10 South Architects
Johannesburg, South Africa

Diepsloot is located just thirty minutes away from the inner city with numerous amounts of people commuting to the city on a daily bases. The taxi industry is seen to be a harsh industry
due the numerous issues that surround it. With the huge backlog in government services provided in the lower income areas the aim of the design was to provide dignity to the harsh
industry by searching for a people driven process. The bright colours used in the design promotes a vibrant ambience to motivate people using the building. An administration block was included to promote order and assistance to an informal service. The ablution block was included to allow for comfort for waiting patrons. The idea was to allow for people
to feel a sense of place and respect due to the fact that those who use the taxi services come from lower income thresholds.

N

SECTION A

SECTION B

SECTION C

ADMINISTRATION BLOCK DETAIL

ABLUTION BLOCK DETAIL

Photos: Iwan Baan & Prof. Paul Kotze
Text & drawings : Deckler, 2012: 24-25

The Taxi Rank welcomes its visitors and acts as an urban porch offering a sheltered meeting point for socialising, consuming food and refreshments purchased at the market with a view over the settlement. The market structure was initially intended to be constructed out of wood to allow for extensions by traders and residents, as seen in many of the informal shelters found along Diepsloot's main road. Upon the client's request for durability, a steel frame was used. The market opens onto a raise concourse into which seating ledges have been integrated, offering moments of pause where patrons wait for the bus, meet, or take in a quick meal prepared by the food traders.

The existing administration office has been extended with a new meeting space, a car wash and repair workshop has also been introduced to generate additional income. The roof over the taxi queuing aisles has been extended and opened up by means of mono-pitch, factory type roof lights, allowing better light into the spaces below which previously required the lights to be on during the day. The new roofs are sloped at a pitch suitable for solar panels and pro-vision is made for a UPS station to power the taxi rank during the frequent electricity shortages affecting Diepsloot.

Because of the sporadic electriciity supply, fireplaces are provided in the food stalls. The chimney stacks can be boxed out by large billboards, generating additional income towards the managment and main-tenance of the taxi rank.

The Watershed, (2014)
architect: Wolff Architects
Cape Town, South Africa

The architects were commissioned to design a business incubator in an underutilised industrial shed in the V&A Waterfront. Instead of focusing exclusively on the business incubator, the architects proposed a new pedestrian route through the entire shed, connecting the building to the larger pedestrian network of the waterfront.

Arrayed along the pedestrian route at ground floor level are a number of market stalls for emerging craft enterprises, small food outlets and an event space. The upper floor level houses the business incubator with rentable offices, meeting rooms and a conference centre. The upper floor comprises a 50m x 50m steel deck, suspended from the existing overhead gantries. Huge circular openings cut into the steel deck which facilitate visual interaction between the floor levels.

This encourages reciprocity between the small businesses in the markets and the developing businesses in the incubator, thus allowing
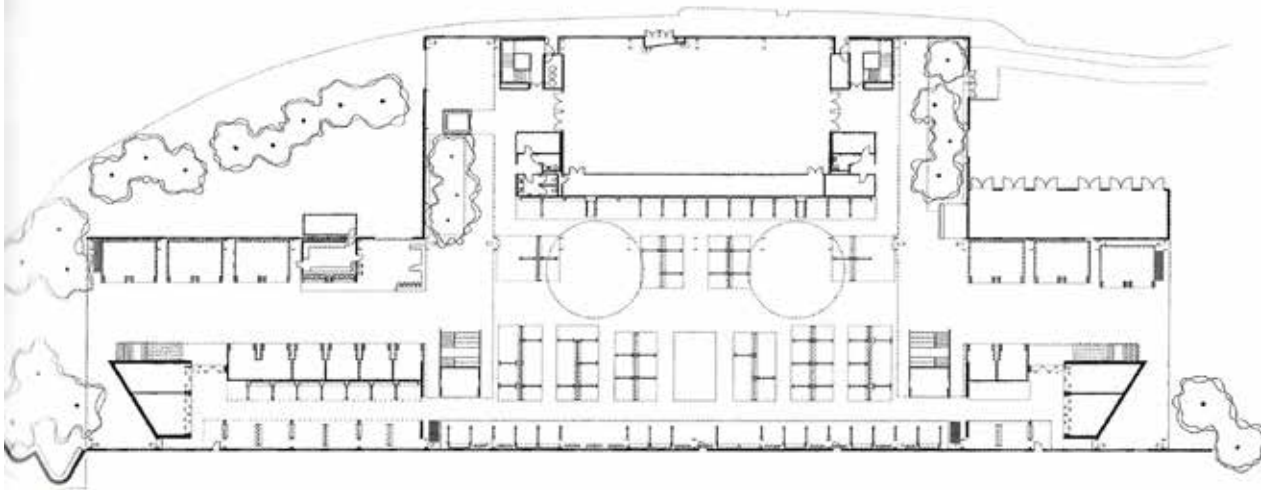
SECOND FLOOR PLAN
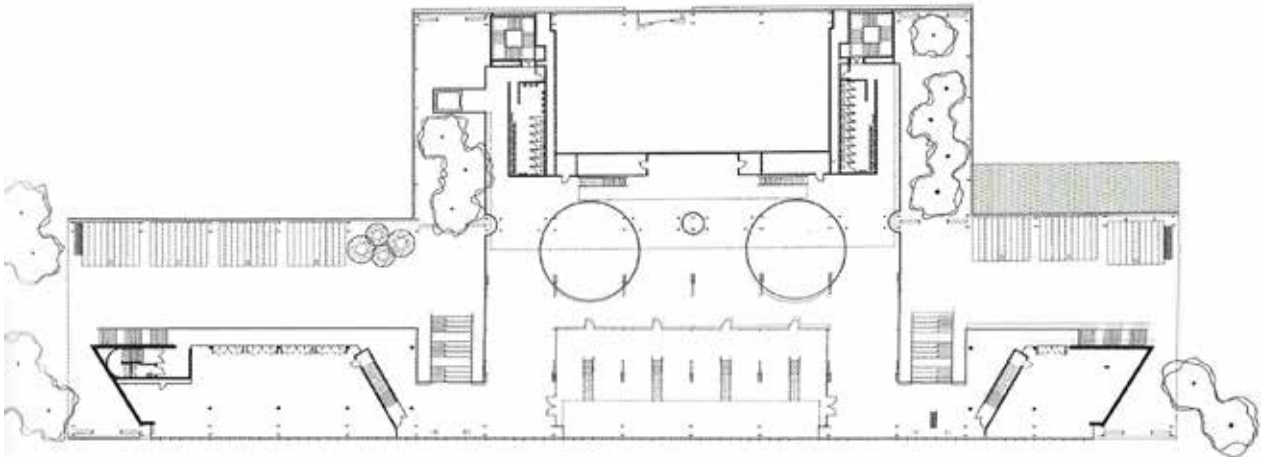
GROUND FLOOR PLAN

SITE PLAN

N

them to watch each other. The business incubator is defined architecturally, not by facades that communicate an appearance, but rather by the suspended floor that has allowed business activity to flourish below. The incubator offers a large free public area to meet and socialise; a large co-working area with hot desks, meeting areas, and dedicated work spaces for teams; fully equipped rooms for meetings, teaching and presentations, catering for groups from two to ninety participants; two spaces for creative sessions; and dedicated offices from 64m² to 330m².

At ground level, the large numbers of pedestrians moving through the building and the popularity of the event space has resulted in a constant flow of people from early in the morning until late at night. This pedestrian flow sets up extremely good commercial opportunities, which benefit many of the micro-businesses located at the ground floor level. This commercial pattern was learnt from studying street based businesses in various urban situations. To keep the focus on the pedestrian route rather than the individual stalls, tenants were encouraged to customise and transform their stalls.

SECTION A

SECTION B

SECTION C

FIG. 135:
Larger agglomerations of traders collect at points where population movement is the greatest.

FIG. 136:
Informal traders attempt to establish themselves at points of highest pedestrian concentration. They form linear markets aligned to the pedestrian flow.
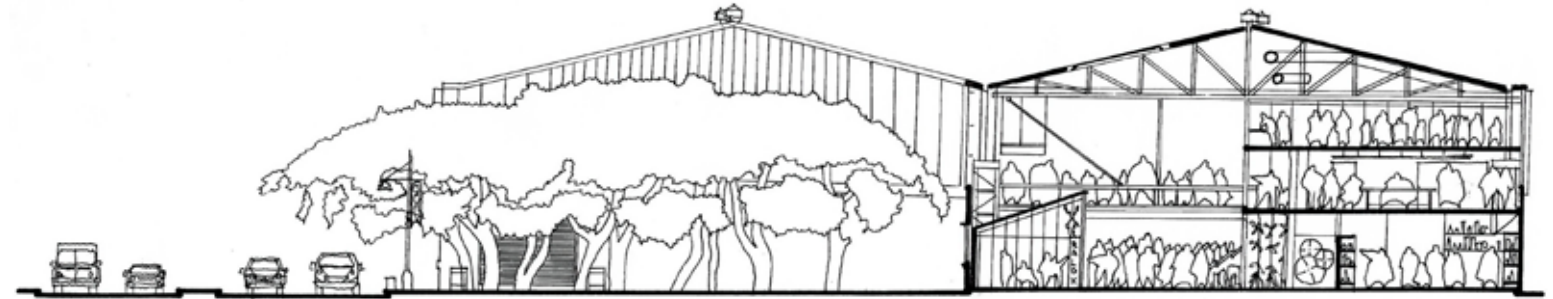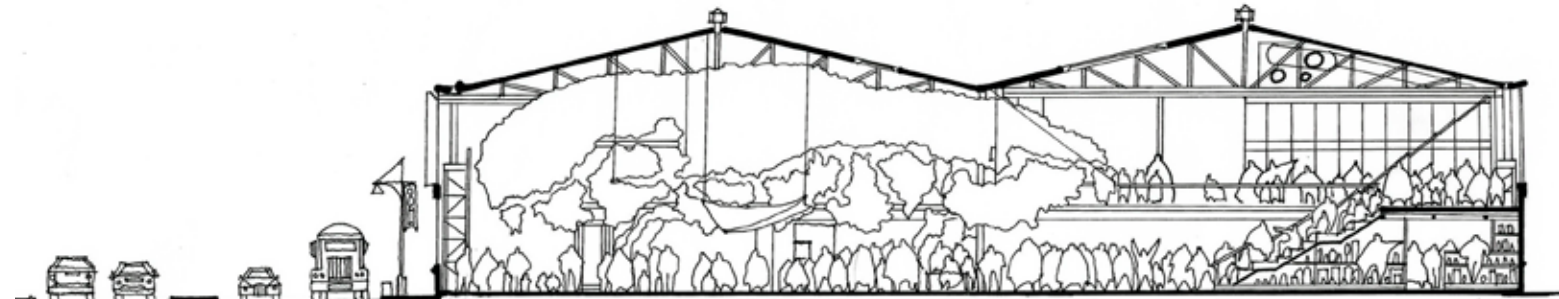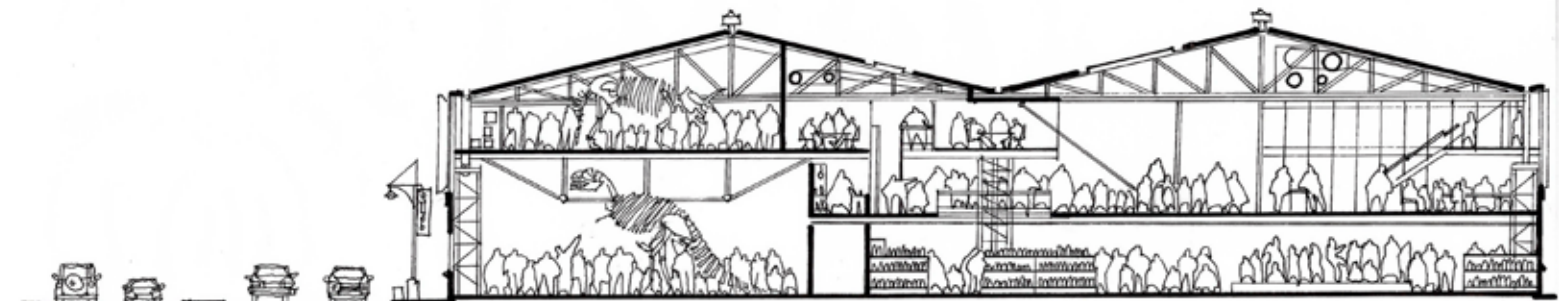
General informal market design guidelines:

- Orientate the market directly towards the major movement flows.

- Create a ariety of specialized zones (fresh produce, cooked food, hair salons, clothes & etc.) helps draw in customers through the entire market.

- Market activities should remain visible as far as possible

- The Design esolution between entrances, exits and circulation space in relation to major movement flows.

- Creation of a sense of security and protection from harassment towards traders.

- Hard and easily cleanable floor surfaces.

- Presence of potable water- this enables regular cleaning of the market, cleaning of individual stalls, allows produce to be washed and provides drinking water.

- Public toilets are essential.

- Provide an alternative to municipal supplied electricity (that may not have a steady service)- coal/wood/ gas for cooking and PV panels/ generators for electricity.

FIG. 137:
Markets should be able to expand and contract, but still remain as a cohesive whole.

FIG. 138:
Uses should be allocated so that they main remain cohesive & continuous as the market expands & contracts.

FIG. 139:
Market size & location can change over the day, depending on the strength and direction of pedestrian flows.

Mixed-use market design guidelines:

- Urban centres make for good locations.

- Market must serve the immediate community's needs, and act as an alternative in relation to comparative buying.

- Needs of customers are best met when a wide range of products are available in close proximity.

- Markets should be accessible primarily to pedestrians.

- Vending of certain goods should be correctly assigned to site locations that the goods are associated with, for example refreshments are popular in recreational spaces.

- Applying specialization zones in the market allows for comparative buying. It is important to low income groups.

- Markets should be multifunctional- manufacturing and selling.

Internal specialization design guidelines:

- Define relationships between compatible and incompatible uses, through defined edges between uses and physical resolution of contact zones.

- Encourage environmental conditions appropriate to the use.

- On site facilities should be as generalized as possible to enable expansion & contraction.

- Preliminary identification of zones help maintain a continuous cohesiveness in
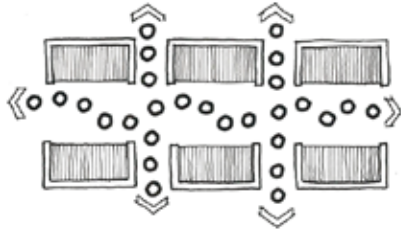
FIG. 140:
Selling runs are too short and customer flows are dissipated & confused.
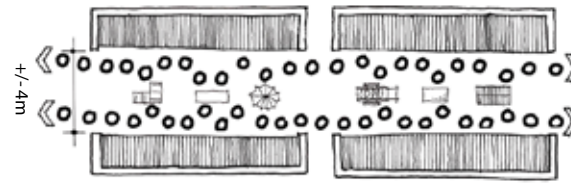
FIG. 141:
Selling runs are too long & customers do not penetrate to centrally located stalls.

FIG. 142:
When circulation channels are too wide, customers concentrate on one edge only.
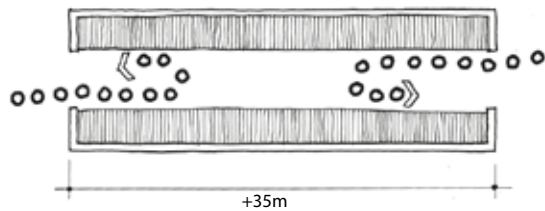
FIG. 143:
A situation where sellers have spontaneously narrowed a wide circulation passage by locating in the centre & dividing it in two.
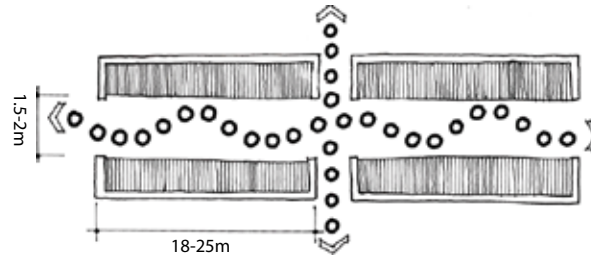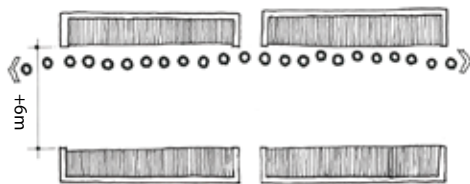
FIG. 144:
A more appropriate circulation channel width.
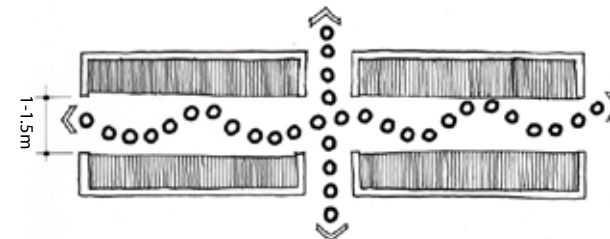
FIG. 145:
A more appropriate length for selling runs.

Selling run length design guidelines:

• Market performance is affected by the length of unbroken runs.

• Optimal length runs of between 18-25m work well.

• Avoid lengths smaller than 10m and larger than 35m.
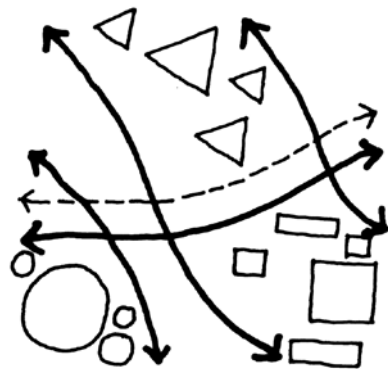
Drawings: Drawn after D. Dewar & V. Watson
Text: Dewar & Watson (1990)

FIG. 146:
SEGREGATION: Implies a separation of functions & groups that differ from one another.
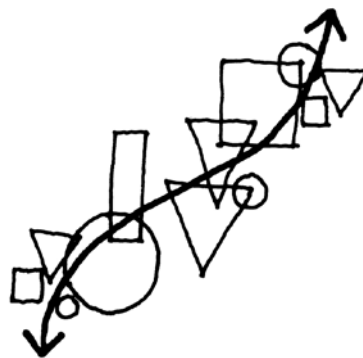
FIG. 147:
INTEGRATION: Implies that various activities and categories of people are permitted to function side by side.
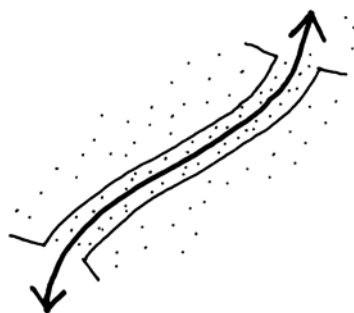
FIG. 148:
REPEL: Implies spaces in a city that are not accessible & thus are designed so that it is difficult to get out or into them, physically & psychologically
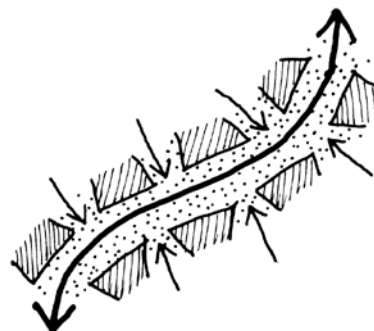
FIG. 149:
INVITE: Implies spaces in a city that are easily accessible & thus encourage people to move from the private to the public enviroment.

INHIBITING CONTACT
visual & auditory

PROMOTING CONTACT
visual & auditory
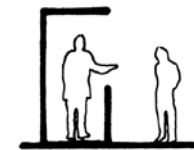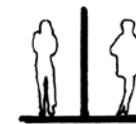
1. Walls

1. No walls
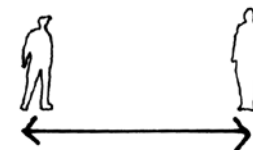
2. Long distances

2. Short distances

3. High speed

3. Low speed
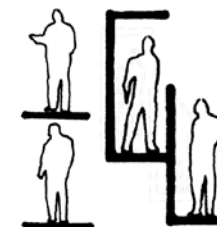
4. Multiple levels

4. One level
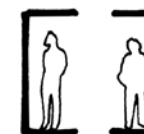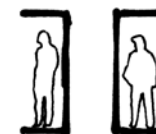
5. Back-to-back orientation

5. Face-to-face orientation

FIG. 150:
Physical arrangement can promote or prevent contact in at least five different ways.

High intensity — Close friendships

Friends

Acquaintances

Chance contacts

Low intensity — Passive contacts (see & hear)

1
isolation

2
medium
contact

3
high
contact

2
medium
contact

1
isolation
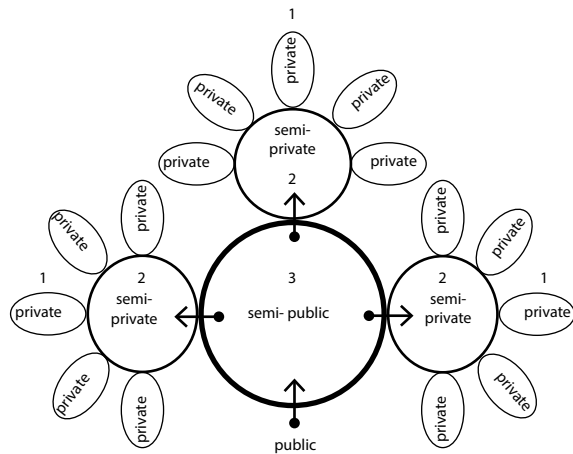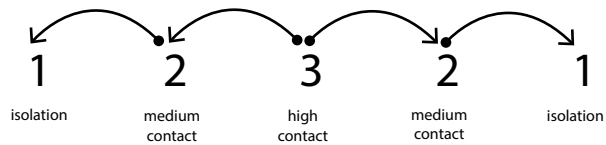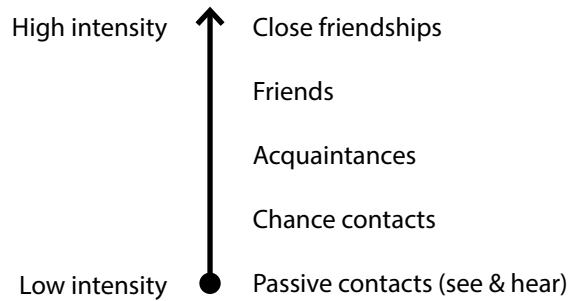
FIG. 151:
Showing a hierarchal structure of organized spaces transitioning from public, semi-public, semi-private and then private. This offers a clear structure to movement and public or private activities.

Quality of the environment

	Poor	Good
Necessary activities (trade, walking to work, etc)	●	●
Optimal activities (requires good weather: sports & festivals)	•	⬤
Resultant activities (social activities)	•	⬤

FIG. 152:
This diagram represents the relationship between the quality of outdoor spaces & the rate of occurrence of outdoor activities.

Public space design guidelines:

• Encourage contact amongst people from low contact (see, hear and smell) to high contact (close friends).

• Plan public space to defuse into the urban fabric through a hierarchal structure.

• Enhance human senses through sight, hearing and smell.

• Define spatial experience through distance: Intimate distance, personal distance, social distance and public distance. This can be achieved through a hierarchal structure.

• Emphasis on assembly through: arrival/waiting and departure/ dispersal.

• Generic spaces of dispersal /assembly.

• Direct pathways and alternatives: fast and slow.

• Public space best works in places where there is an integration of various functions.

Drawings: Drawn after Jan Gehl.
Text: Gehl, 1987.
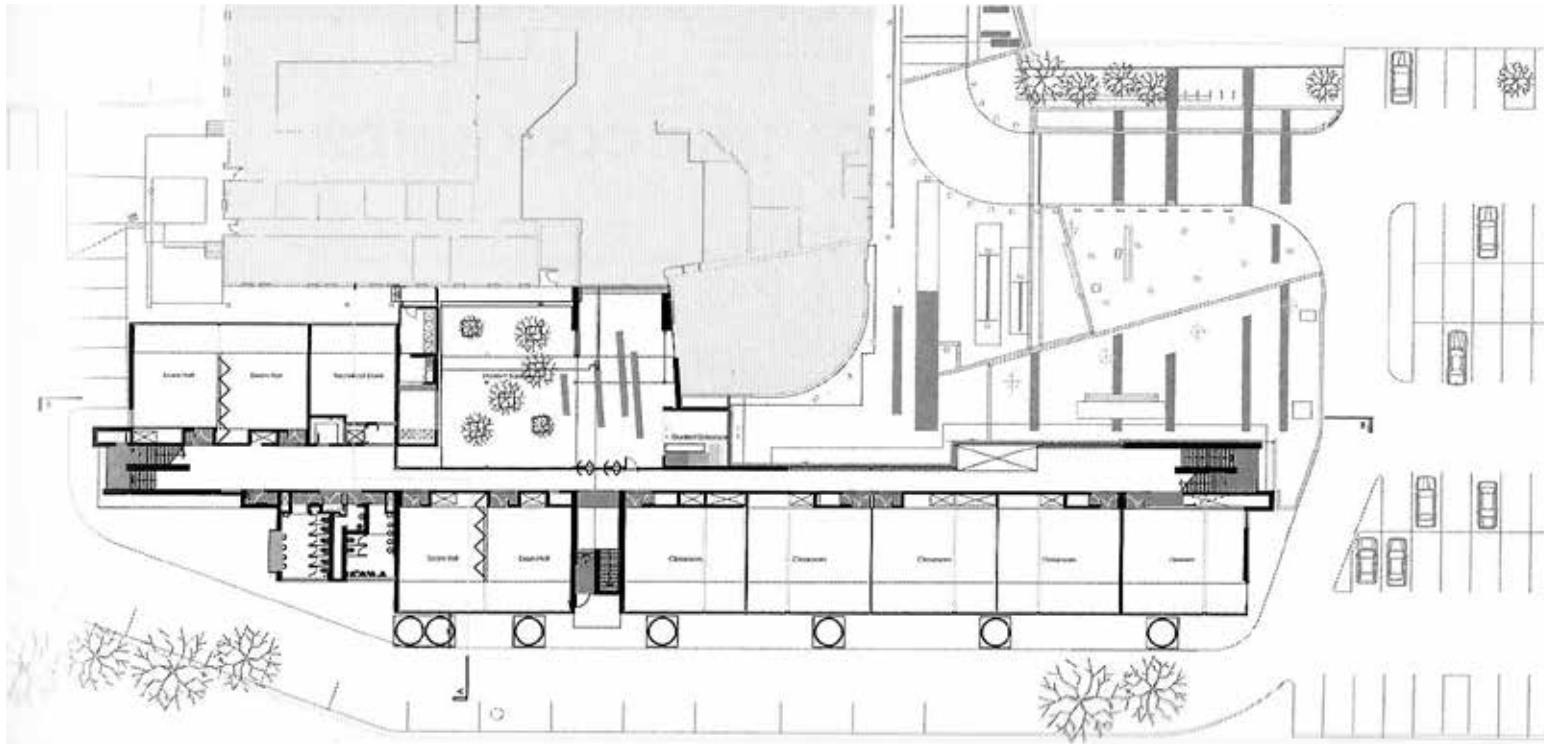
PLAN

SITE PLAN

UNISA Parow Campus, (2012)
Michele Sandilands Architects (MSA)
Cape Town, South Africa

The UNISA Cape Town Campus is situated in Parow in the Northern suburbs. Historically, a distance learning university, this geographically central location provides a wide cross section of the student community with facilities for attending classes, further research, study and examinations.

Located in the light industrial urban context and sandwiched between the Voortrekker Road arterial and the passenger rail lines feeding the Northern extents, the existing facilities consisted of converted office and industrial buildings which have gradually evolved over time to meet changing needs. The increase in student numbers and the increasing burden on the existing facilities had forced UNISA to rent nearby space to temporarily fill the void. The result was a sprawling, disparate campus spread thinly and the decision was made to improve and consolidate the site.

The design brief consisted of several new teaching spaces and ancillary accommodation. Previously the gradual evolution of the natural

site had not catered to the spaces that encouraged students to spend time outside the mandatory. Apart from the study and research components, the experience did not resemble that of a tertiary educational facility, where social interactions form an integral part of student life. Courtyards and landscaped spaces became an integral part of the building's social spaces.

In addition to the social aspects, the provision of the new building elements followed the fundamental approach of a responsible, and environmentally conscience design. Energy conservation, material selection, natural lighting, ventilation, conservation and recycling of natural resources consistently informed the very aspect from inception to detailed design resolution in the following ways: new class rooms were orientated South along the railway bound

ary, expansive double glazing maximized daylight and reduced lighting energy consumption. Window openings along the glazed facade were linked with electronic sensors and remote mechanisms inside the vertical wind towers. This system draws air through the individual teaching spaces and facilitates natural ventilation through most of the academic year. Rainwater harvested in the rainwater harvesting tanks is used to flash toilets. Landscaped rainwater ponds slowly filter down into the subtereanian aquifer, minimising wastage to the municipal drainage.

Whenever possible, materials were sourced locally and exposed in their raw state. Polished concrete floors, polished brick paver floor details, external and internal facebrick wall surfaces, steel and concrete structural elements, timber shutter board ceilings, all chosen in response to the urban environment, but in doing so, reduce secondary applied finishes and decreases the building's long term maintenance costs. Exposed building material junctions required careful and considered detail design, both to

achieve the desired aesthetic, but also in understanding the process of construction which results.

The additional layer of social and environmental consideration have contributed beyond the programmatic requirements, thus transforming the visitor experience for staff and students.

SECTION B

ELEVATION

SECTION A

BUS STATION

light roof
- covered area
- pletty of natural day light
- large span

vehicle entrance

Standard public service bus
- 12 x 2.5 x 3.42m

Aminities
- mens toilets
- ladies toilets

Concourse
- wifi
- seating
- waiting area

vehicle exit

Entrance
- security
- survellance

Ticket office & luggage
- reception
- office
- store room

MINI-BUS TAXI RANK

light roof
- covered area
- pletty of natural day light
- large span

Aminities
- mens toilets
- ladies toilets

vehicle entrance

office

Concourse
- seating
- waiting area

food court
- seating area

Pedestrian entrance

Mini-bus taxi
- 4.57 x 1.65 x 2.37m

vehicle exit

TRAIN STATION

light roof
- covered area
- pletty of natural day light
- large span

Platform
- wifi
- seating
- waiting area
- 0.915m high

Aminities
- mens toilets
- ladies toilets

shop:
- food & drink
- clothes
- news papers & magazines

Entrance:
- security
- survellance

5M2A Train:
- Motor coach:
  18.564 x 2.819 x 3.675m
  110 standing & 43 seated
- Trailer coach (4-14 in a set):
  18.380 x 2.820 x 3.660m,
  149 standing & 52 seated
- 5800/5080/4300 feeder height clearances
- 6000m clearance height under structures

Rail tracks:
- ccs min 4.75m
- ccs max 6m
- concrete sleeper width 2.4m

Control room:
- Communications room
- Data processing
- Battery room
- Foreman's & signal managers office

TRADE MARKET

warehouse roof
- large span

High ceiling
- 4.5m

modular stalls
- 3 x 3m

Large floor area

Entrance

INNER CITY COLLEGE

PC labs
Seminar rooms
Circulation
offices
Library
Auditorium
Aminities
- mens toilets
- ladies toilets

IT office
Board room

Entrance
Gallery

SQUARE

seating
- variety

Shelter
Greenery
Path
Court

COMBINED PROGRAMME

Each figure is a study based on the cased studies discussed.
They sum up the key components that make each building.
These lessons are then combined together into building better suited for its context.

This is an attempt to better realise the buildings programme.
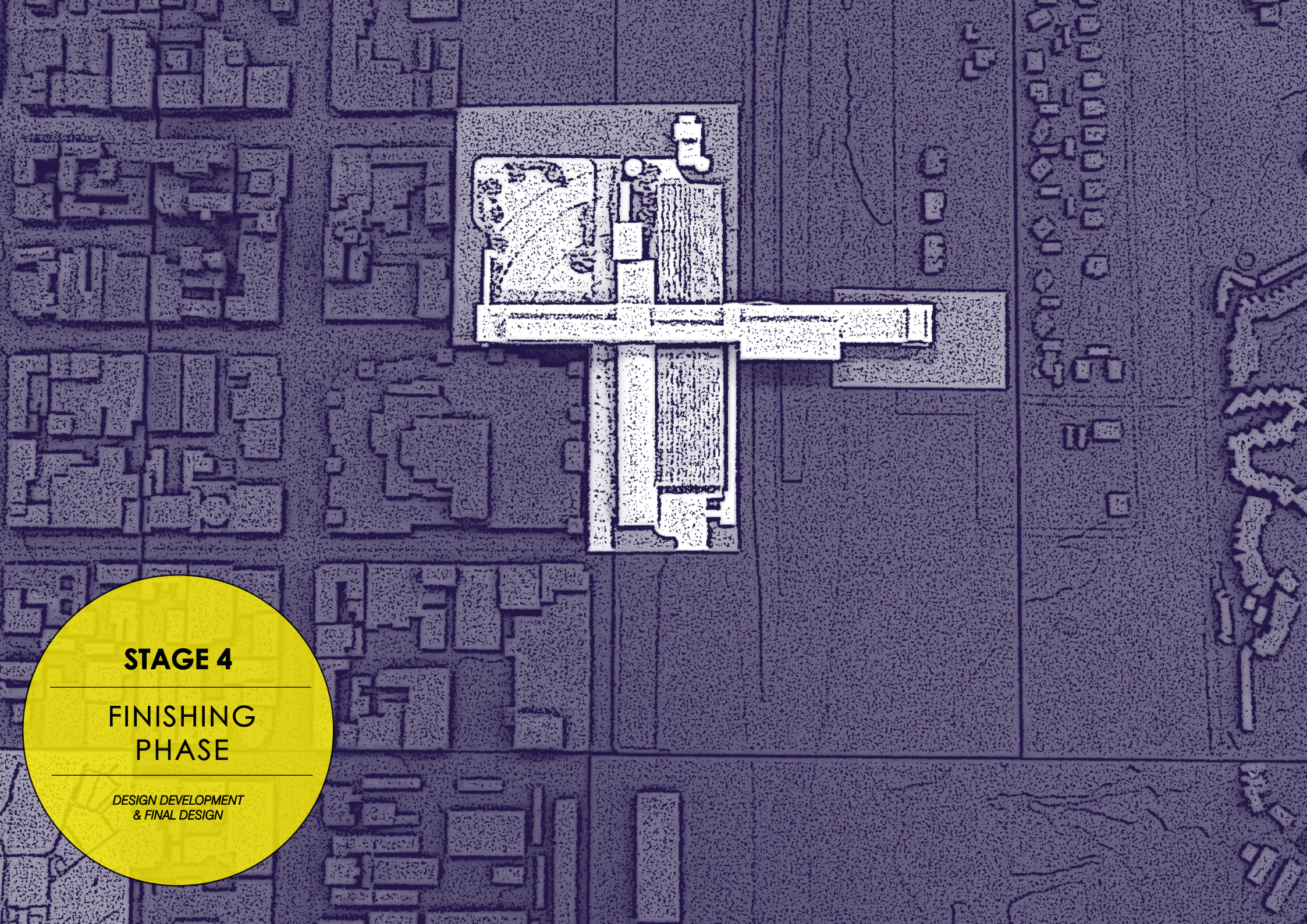
STAGE 4

FINISHING
PHASE

*DESIGN DEVELOPMENT
& FINAL DESIGN*

INTERATIONSTAGE 4:

- detailing & refining from ideas
  obtained from stage 3.

INTERATIONSTAGE 1:

- establishing boundaries
- movement routes both
  pedestrian and vehicular.
- noting important access points
  and axes.
- emphasis on pedestrian
  movement & access.

INTERATIONSTAGE 5:

- combining ideas from stages 3
  & 4
- Using the concept of the
  building becoming a bridge or
  urban connector and mediator
  between different scales and
  zones.

DESIGN PROCESS
Through, sketching, theory,
case study and model building.

INTERATIONSTAGE 3:

- first design attempt
- establish importance of a
  public square as a mechanism
  for assembly and dispersal.
- establishing the important of a
  public square in creating a
  sense of place.

**INTERATIONSTAGE S STAGES
7 & 8:**

- establishing the design
  narrative and working it
  throughout the design.
- addressing recommendation
  from all stages.
- placing emphasis on social
  engagement spaces

**FINAL DESIGN
DRAWINGS**

INTERATIONSTAGE 2:

- programme develop
  ment from case studies
- massing exploration

INTERATIONSTAGE 6:

- designing the structure

ABOVE FIG.
DESIGN PROCESS DIAGRAM
The diagram highlights the 8 stages
of the design process and explains
each ones importance

DESIGN PROCESS

INTERATION STAGES 1-2

INTERATION STAGES 1-2

INTERATION STAGES 1-2

INTERATION STAGES 3-5

INTERATION STAGE 6

INTERATION STAGES 7-8

Summary

Through out the design process there were eight stages. Each stage contributed to an understand or iteration that eventually computed to the final design.

The massing models to the left express the development of the design process. The complexity and refining of the design is visible through the iteration stages, with stages ones and two being the most simple.

LEFT FIGS.
BUILDING MASS ITERATION STAGES
These models explore the building mass as it changes and progresses through the design process.

Taxi Rank

Train Station

Island Platform 2

Taxido Junction

Platform 1

0 10 20 30 40 50m
N
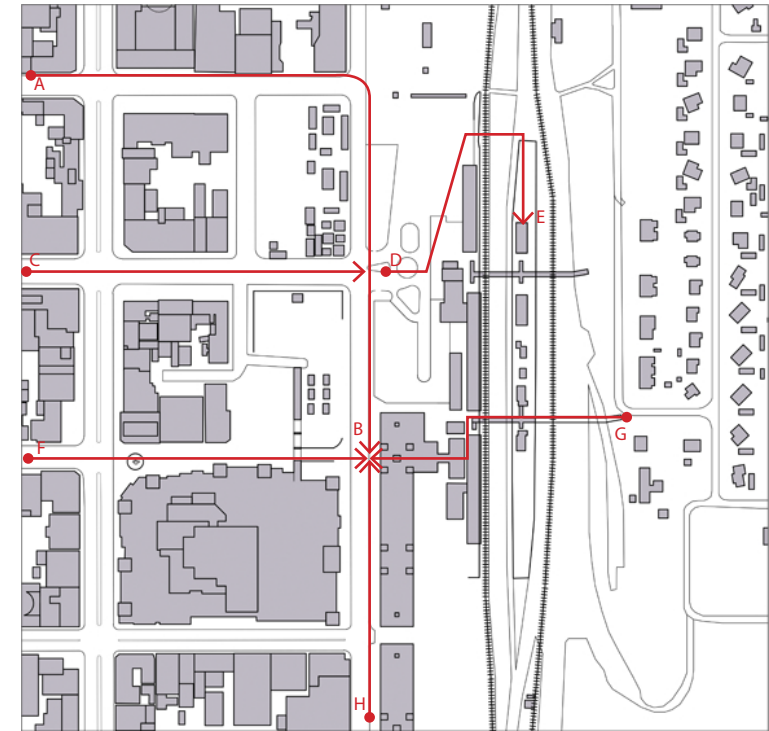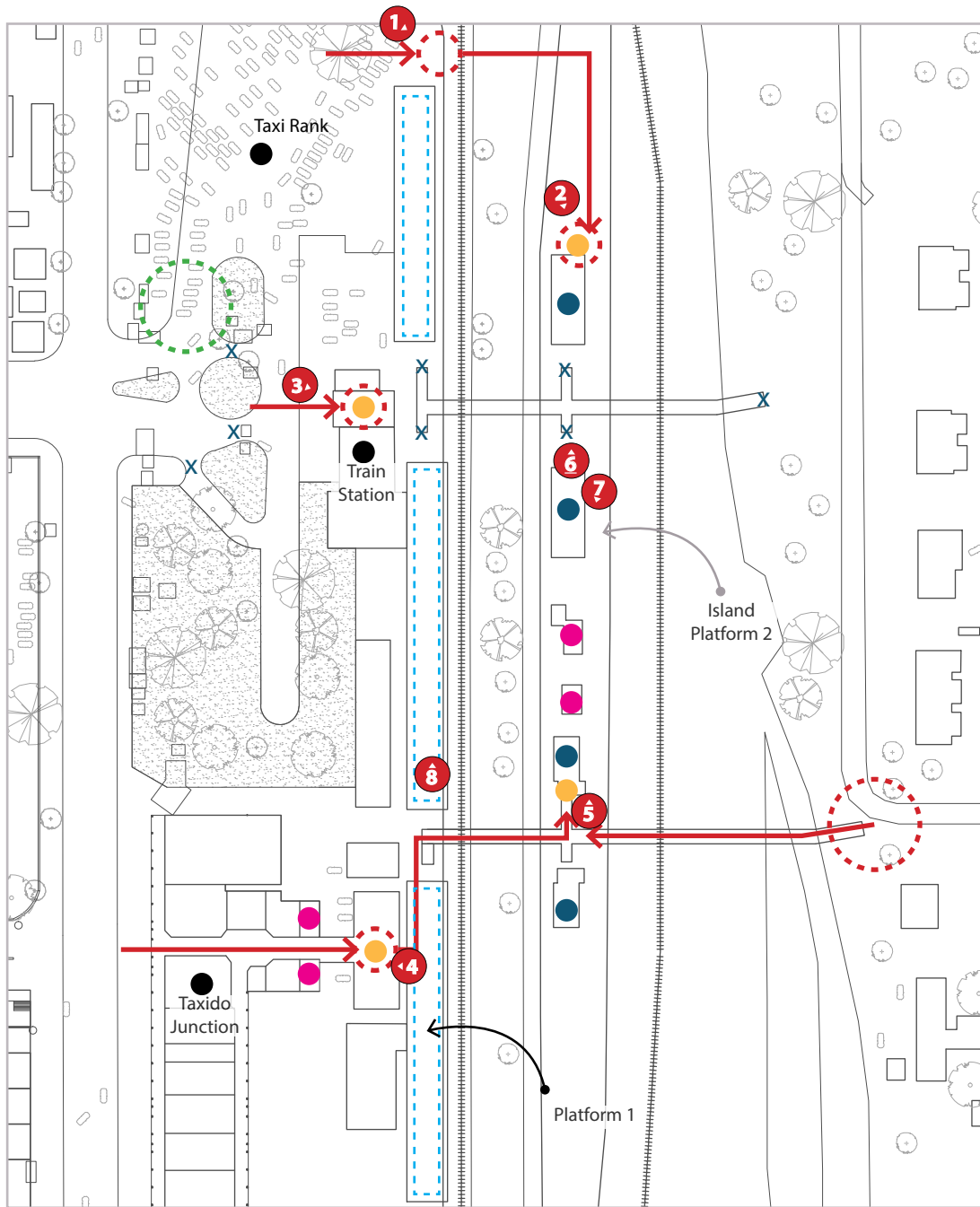
AH - Pedestrian route towards Taxi Rank and Train Station
DE - Pedestrian route from Taxi Rank to Platform No. 2
FB - Pedestrian route of Civic Centre through informal market to Train
B - Train Station entrance/ assembly/ waiting/ dispersal
D - Taxi Rank and Train Station entrance/ assembly/ waiting/ dispersal

N 0 20 40 60 80 100m

^ FIG.
PEDESTRIAN MOVEMENT SUMMARY
As discussed movement in the Train Station
can be improved. There is restricted move-
ment leading to the Platforms and generally
across the site from East to West. The Train Sta-
tion is poorly integrated due to this factor. The
Taxi Rank is also affect by the poor planning as
it is also part of the movement on site.

Legend:

● Ablution   ● Storage

● Waiting space   X Closed off routes

● Ticket sales   ⬭ Unused waiting spaces

⬭ Entrance/ exit
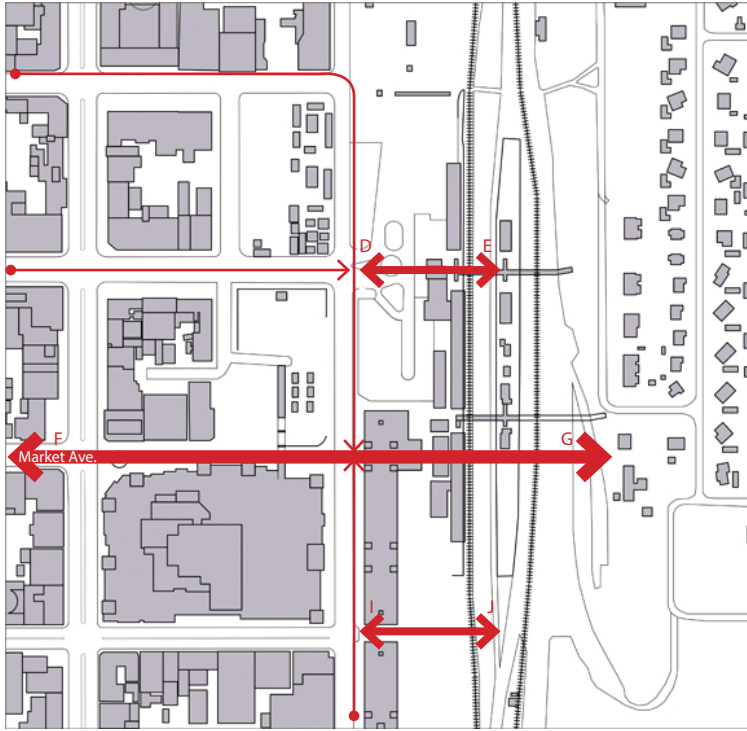
FG - Primary Pedestrian route
DE - Secondary Pedestrian route
IJ - Secondary Pedestrian route

^ **FIG.**
INCREASING
THOROUGHFARE
This realisation of the building will introduce a hierarchal movement of primary and secondary entrances. The primary entrance is aligned with the city's figure ground. The main approach will occur from Market Avenue, which is linked to the Civic Centre, and will act as a pedestrian street. This link will be carried through the entire site so that the building is integrated in a East- West direction. Trade can be intensified along the movement routes.
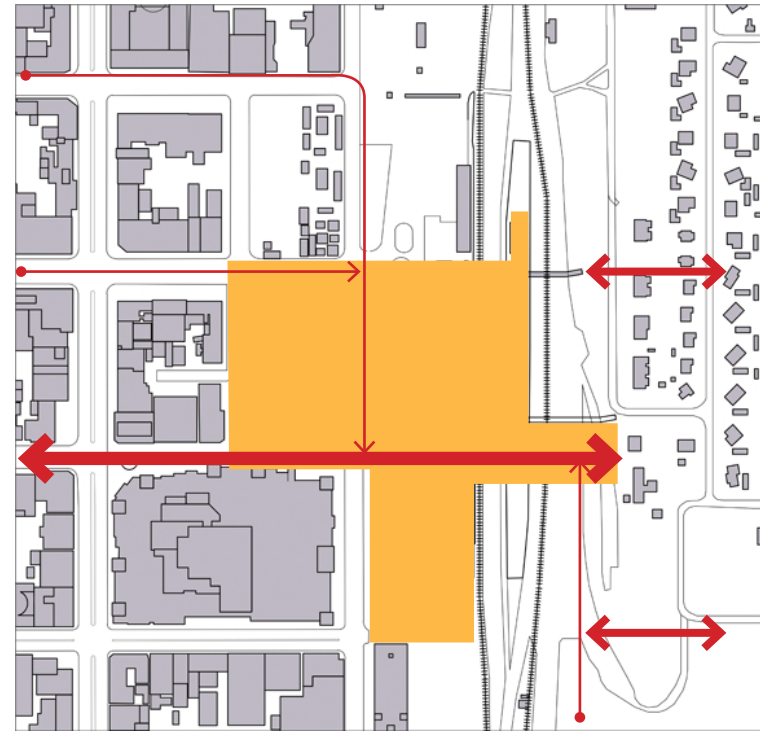
^ **FIG.**
BUILDING
FOOTPRINT
This realisation creates a singular building mass, rather than the segregated segments on the existing site - which is one of the factors that creates confusion on where to enter the station.

Iteration 1

Movent and access on site needed to be explored first, therefore severall sketches were drawn that help layout building footprint boundaries, highlight important access points and axes.

The existing movement and access on site is used as a starting point. The purpose becomes about improving upon the site radically.
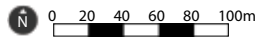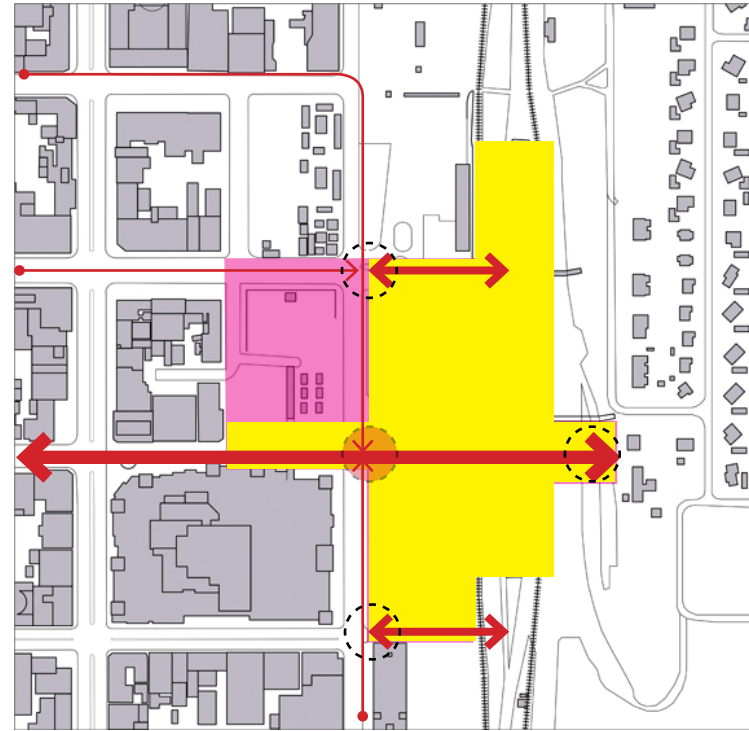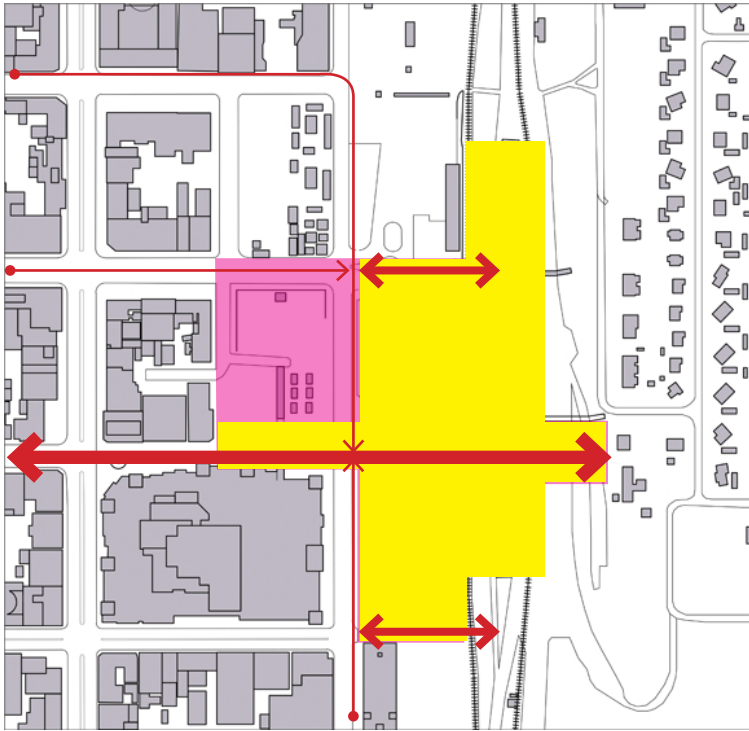
**^ FIG.
INTEGRATING
A PUBLIC
SQUARE**
This realisation is based on the
necessity for a place of assembly/
waiting or dispersal between
the building and the city. It is
based on the "guidelines for
public space" discussed on page
124-125.

**^ FIG.
POINTS
OF
ENTRY**
Entrances are defined along
where the building footprint
intersects the main pedestrian
movements.
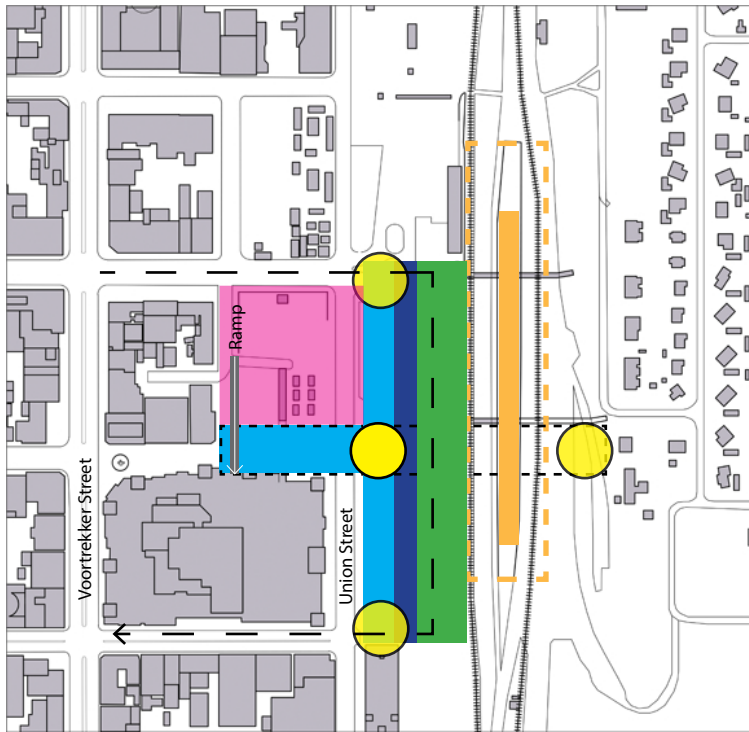
^ **FIG.
PROGRAMME
& VEHICLE
MOVEMENT**
The diagram shows the arrangement of the programme on the site. Trade has been placed along the major movement routes. Vehicle movement has been organized to avoid the bottle-neck effect- it is possible to close off part of Union Street to do achieve this as it is not a street that experiences heavy traffic like Voortrekker Street.
The roof parking ramp has been moved to accommodate the square and open up the site.

TAXI

MARKET

MARKET

TAXI

MARKET
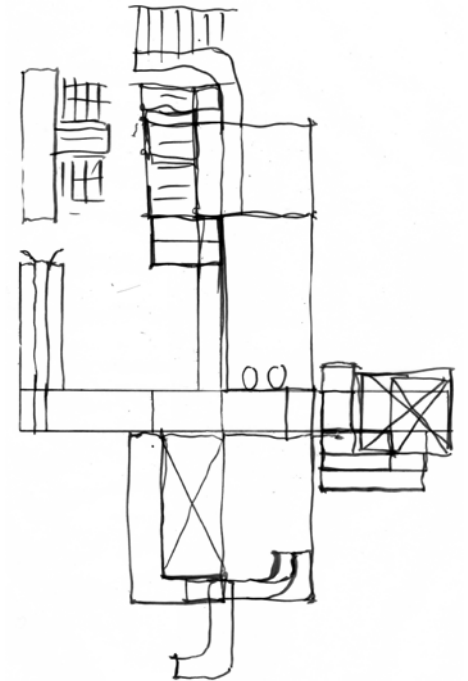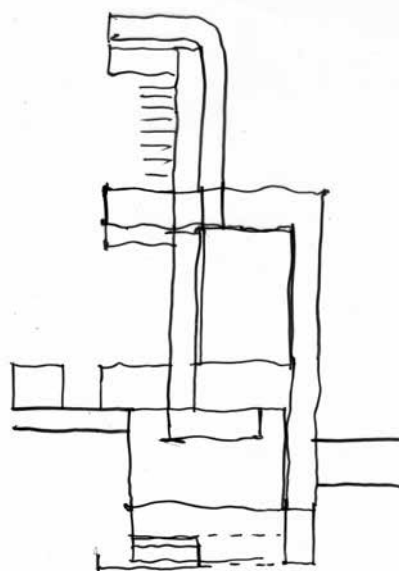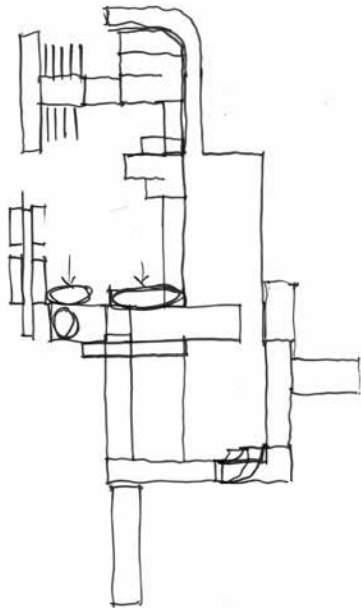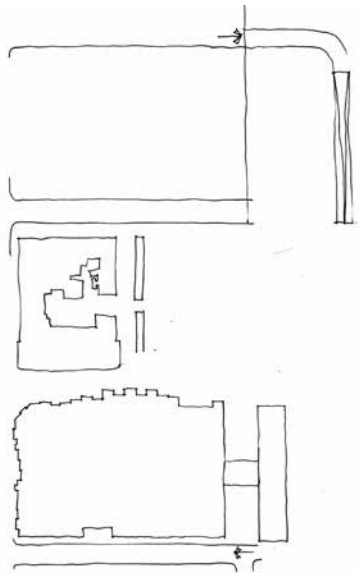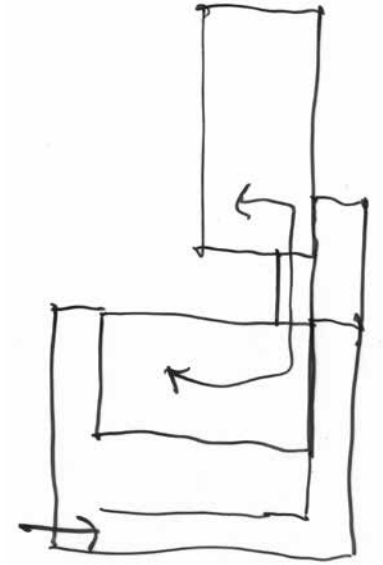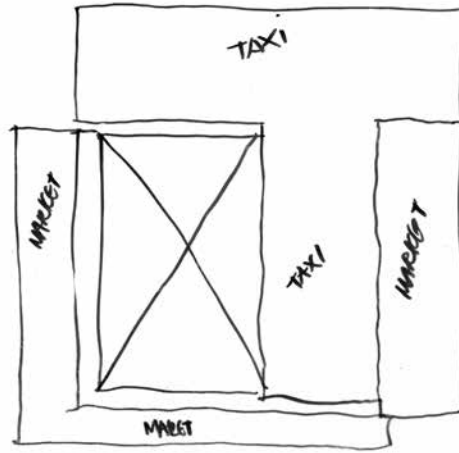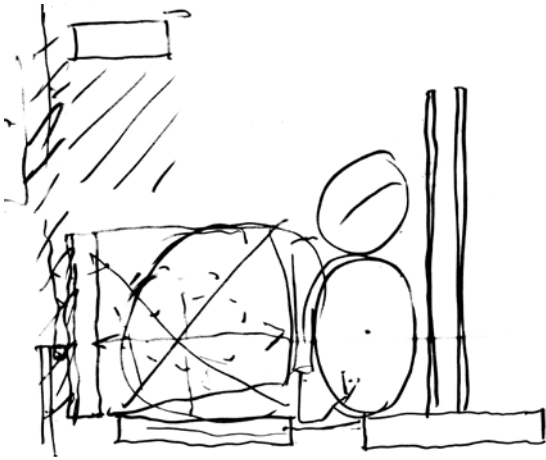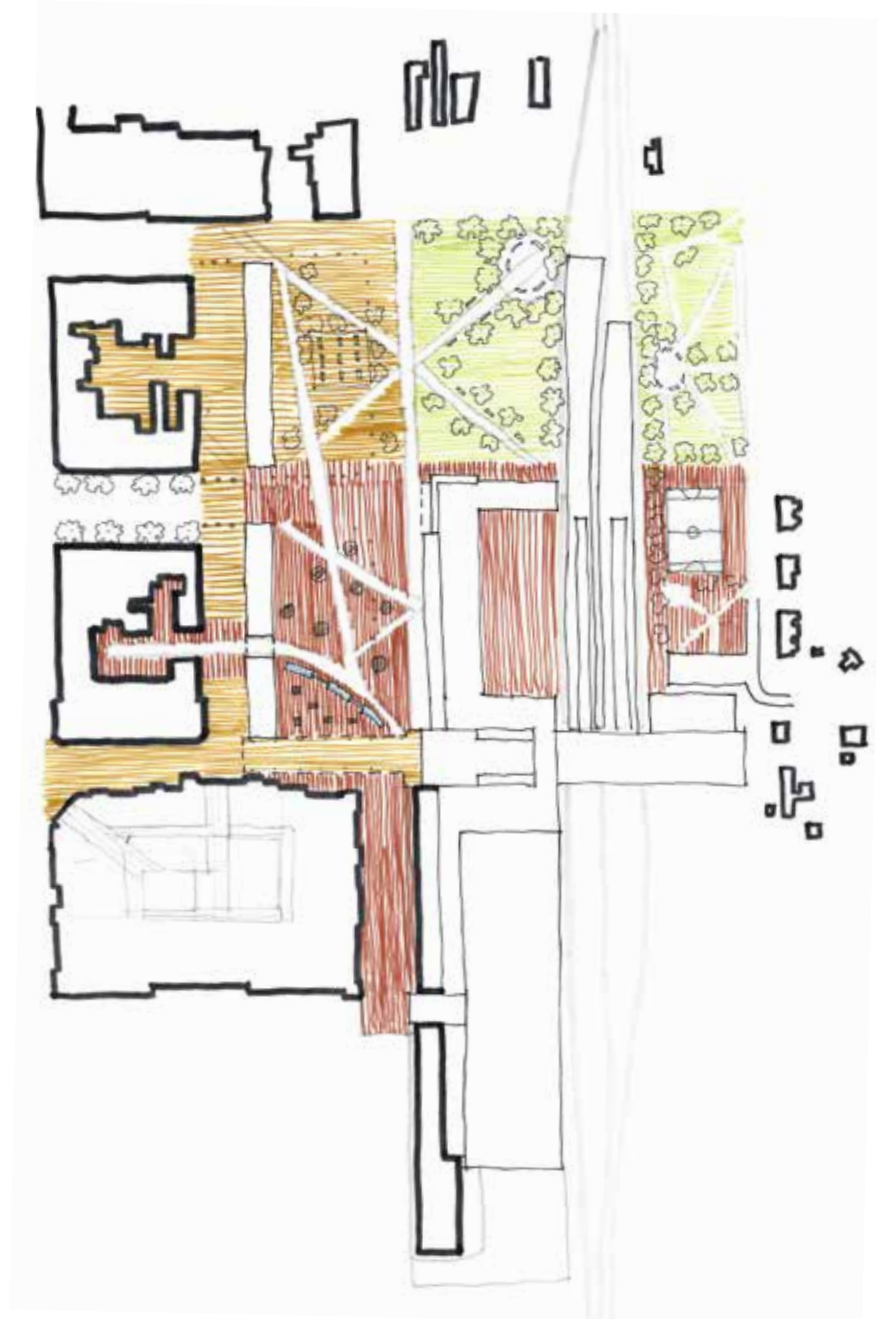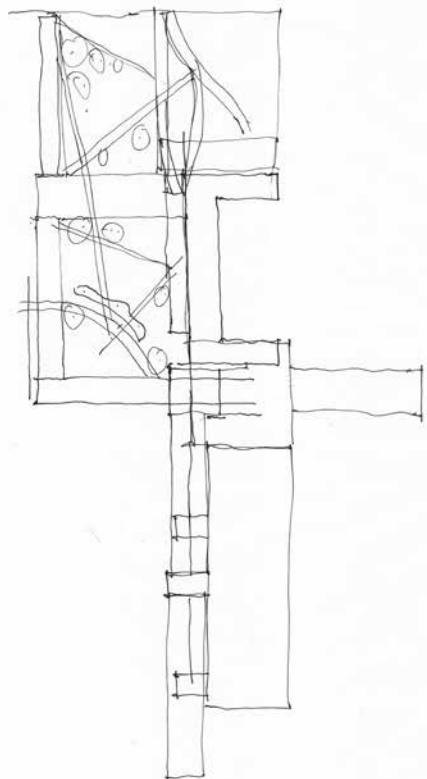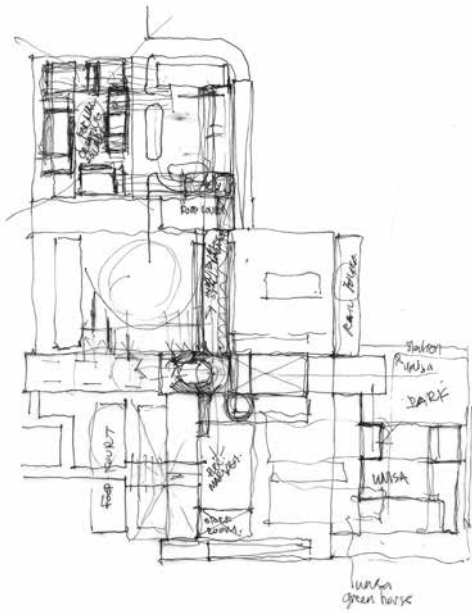
Iteration 2

This Initial stage roughly sets out the building mass and introduces a public square. The idea for a public square came out from the cases studies. The case studies identified a typology with each case study. The train stations in the case studies chapter both have public squares which act as assembly and dispersal points. Therefore that idea of dispersal and assembly seemed to work well .

By introducing a square it strengthened the urban dialog between the proposed building and its surrounding urban environment.
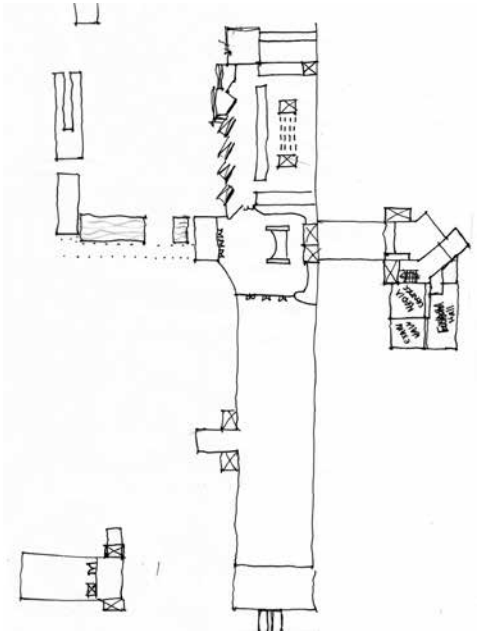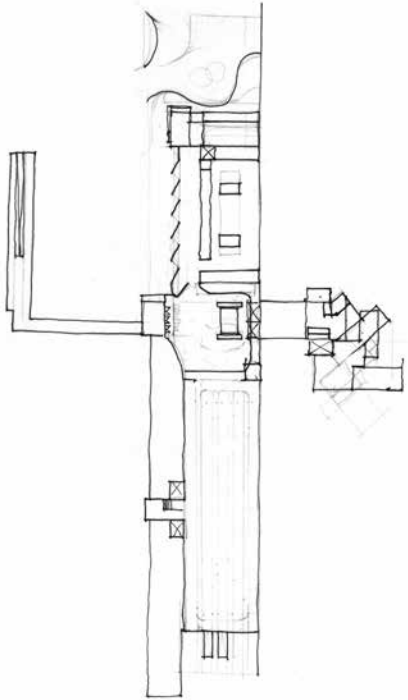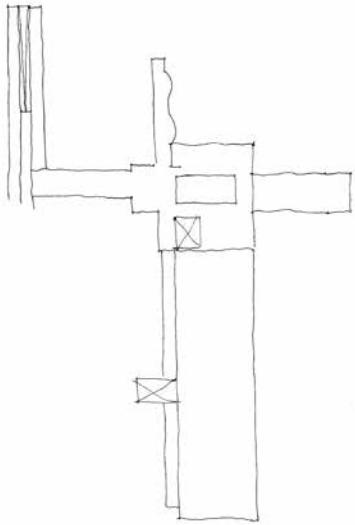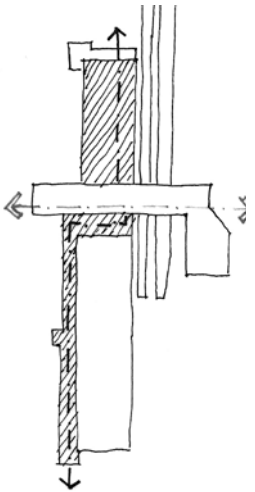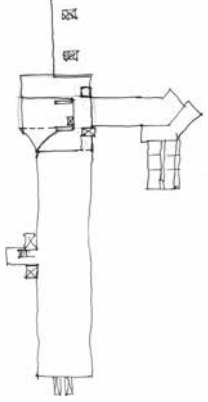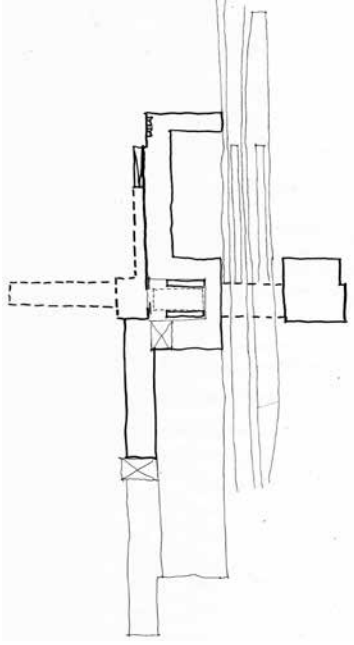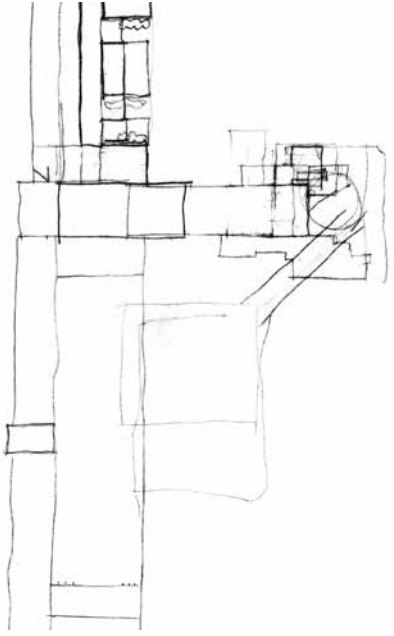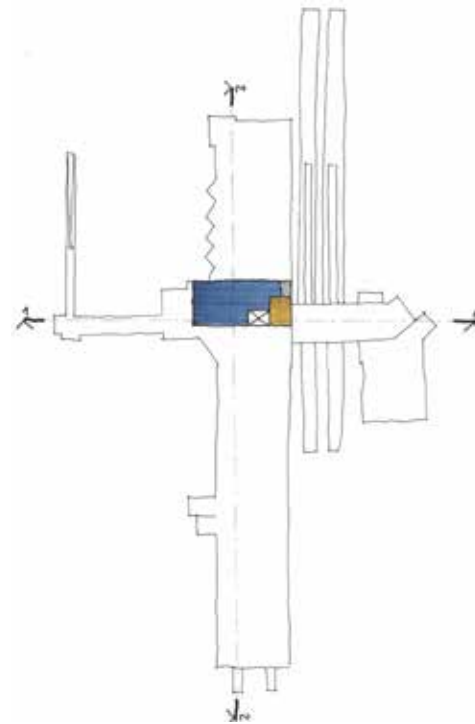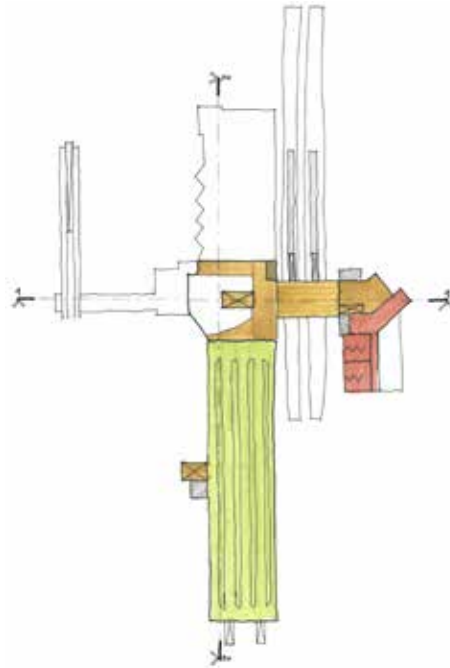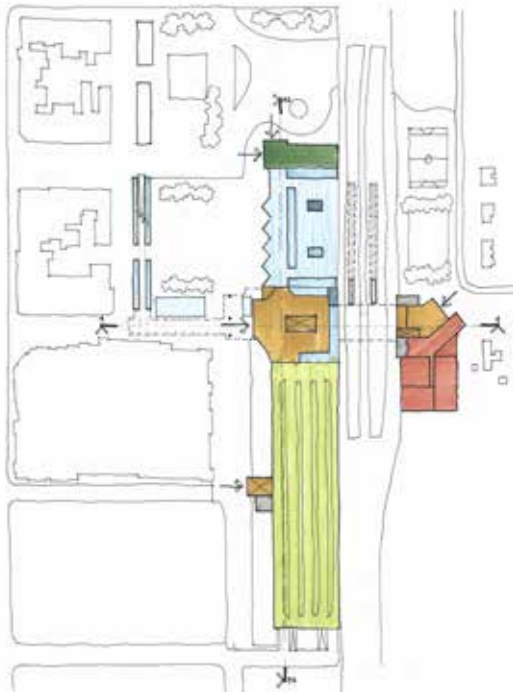
Iteration 3

This iteration responded to recommendations from a review panel, which were:

- Move the transport interchange closer the the main entrance.
- Spread out the trade along the movement routes.
- Make the college larger
- Use a roof to cover the rails and train platforms

The following was realized:

- the school should be moved to the west part of the site and become the "bridge" in the building.
- The roof covering the taxi rank is too monolithic. Need to design an alternating pattern.
- Entrance on the western does not work well
- extend the roof over the southern part of the rail and platform.

This stage brought together the first twi iterations where a building slowly emerges. Different programmes of transport, commerical, utilities and instituition have to function together. A unifiying narative at this stage was not discovered yet, therefore the design was not fully convincing.

The 3d perspective however captures a the suggestion of a bridge which is explored further on in the design. The concept of a sense of place is understood and it can be seen in the preliminary persective sketches.
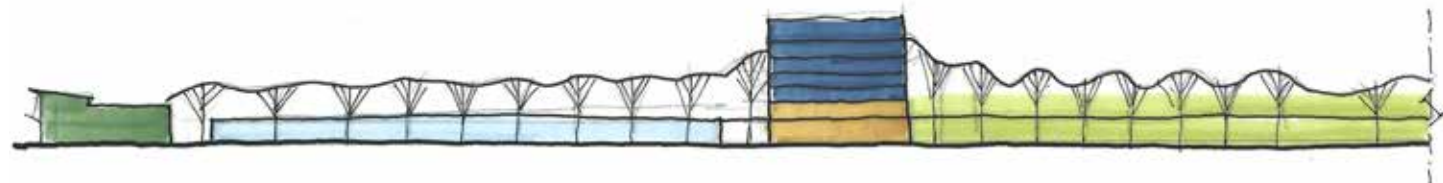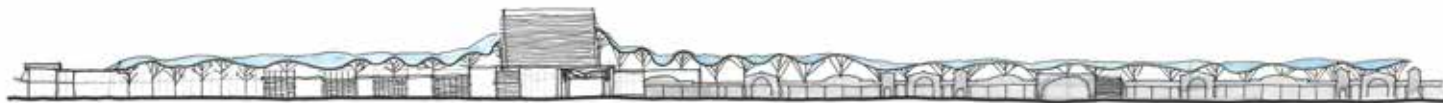
LEFT FIG.
SITE PLAN
This sketch show the building arranged along movenment axes and around a square.

FAR LEFT FIG.
PERSPECTIVE SKETCH
Tis sketch suggests the idea of a bridge which is later used as a key concept for the building.

BOTTOM FIG.
PERSPECTIVE SKETCH
This sketch explores the value that a public square contributes in creating a sense of place.
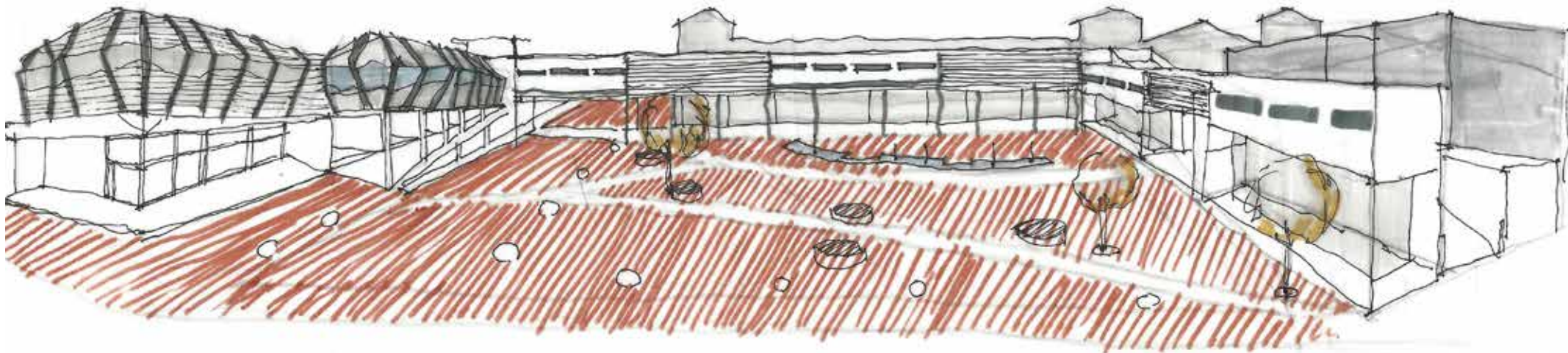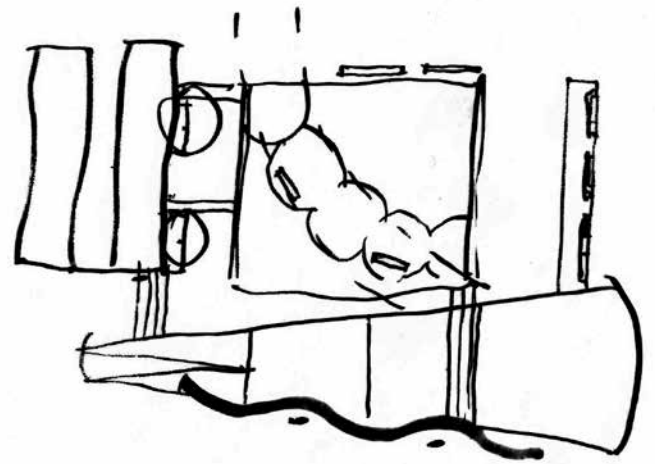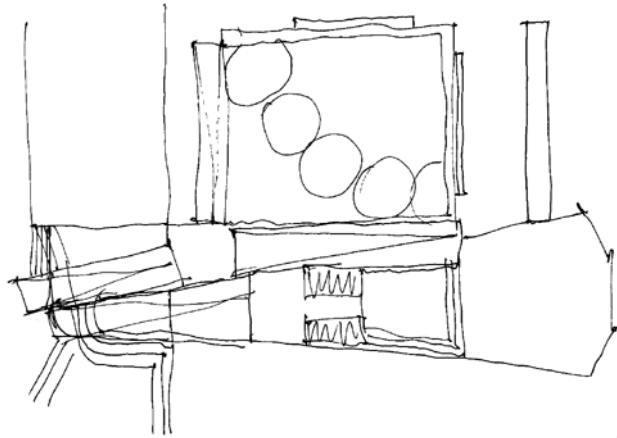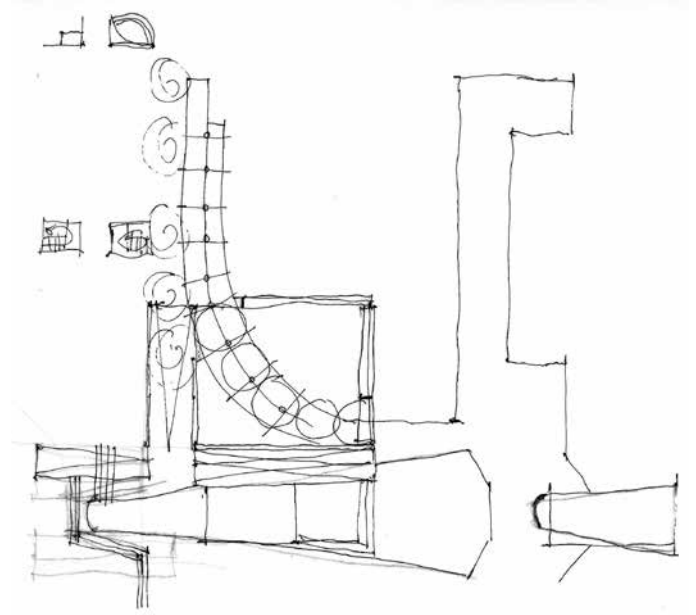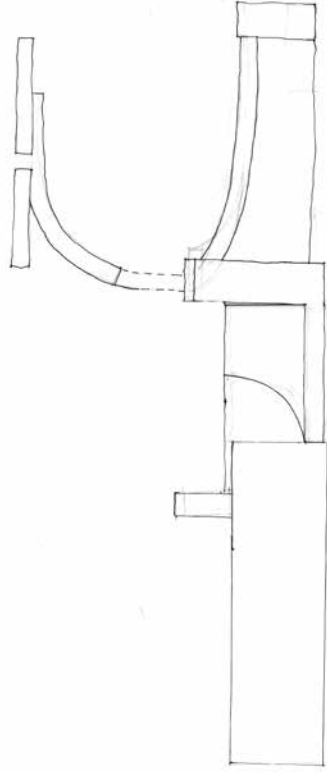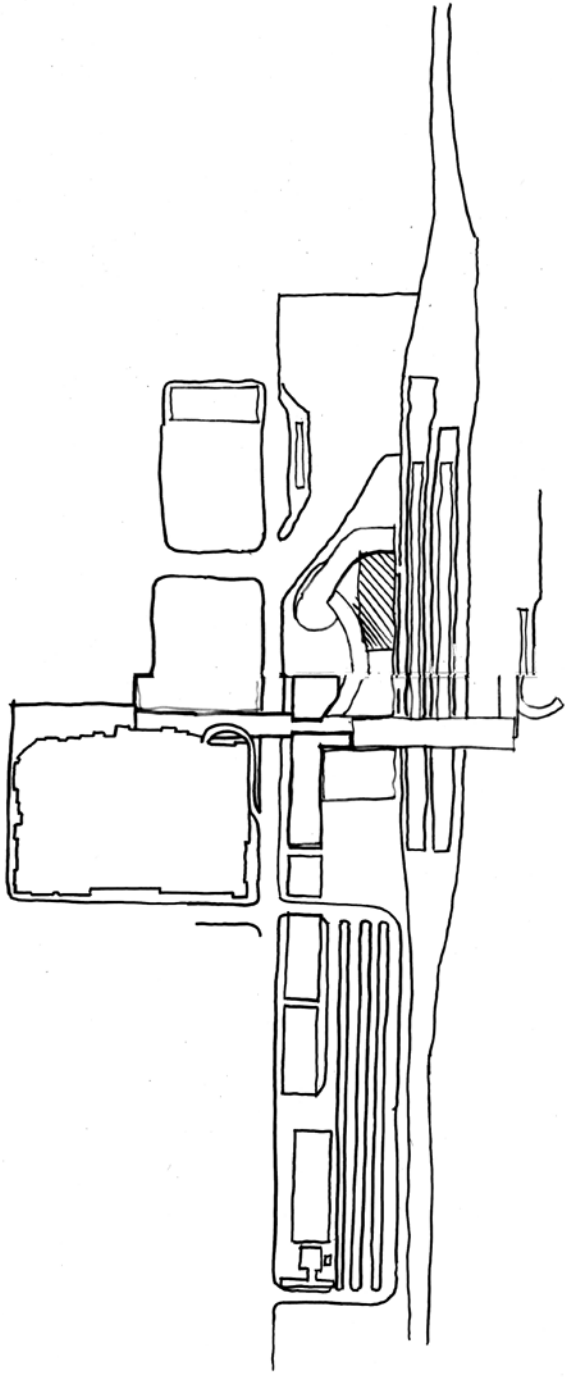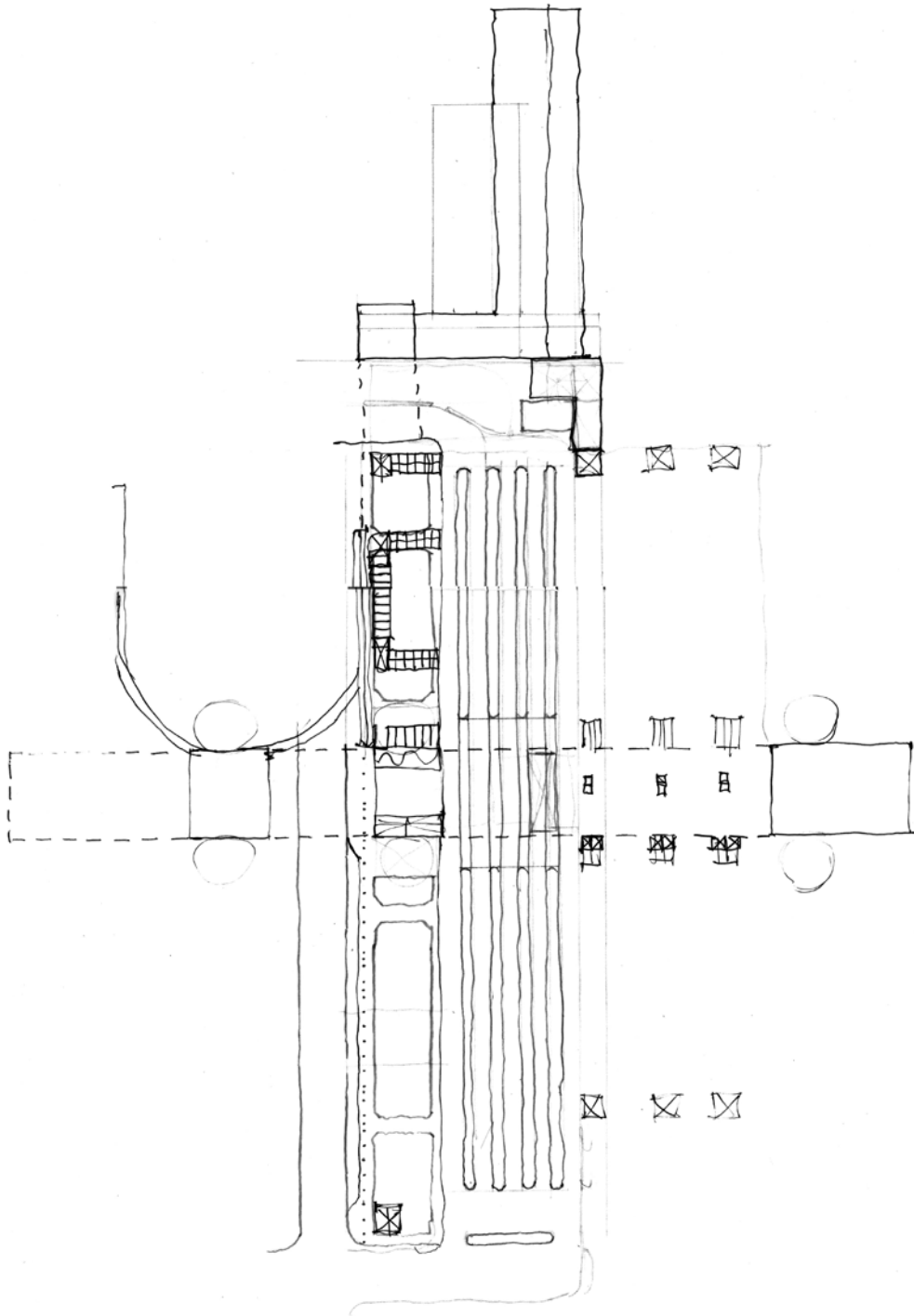
Iteration 4

This stage dealt a great deal with stream linning the public transport access and movement with pedestrian access and movement. This affected the placement of trade, which depends of pedestrian movement. Pedestrian movenment and access was given priority over vehicular movement.

There is a strong resemblence between the sketchs from iteration 1 and the buildings mass placement .

The physical connection between the square and the main entrance was also explored, where various option were investigated.
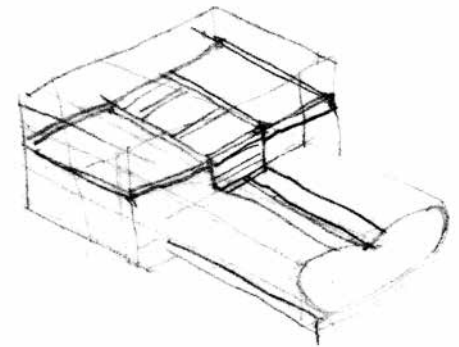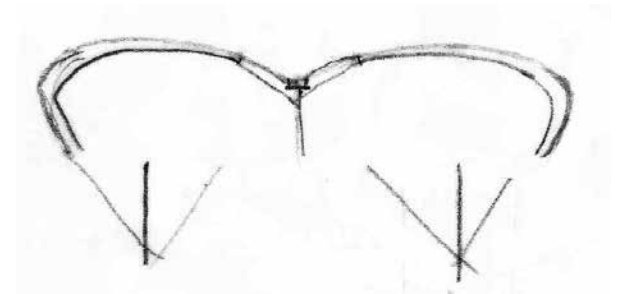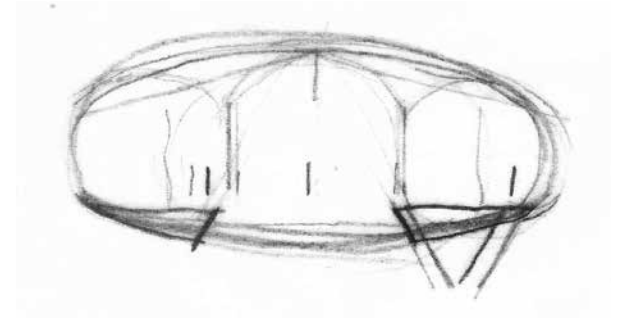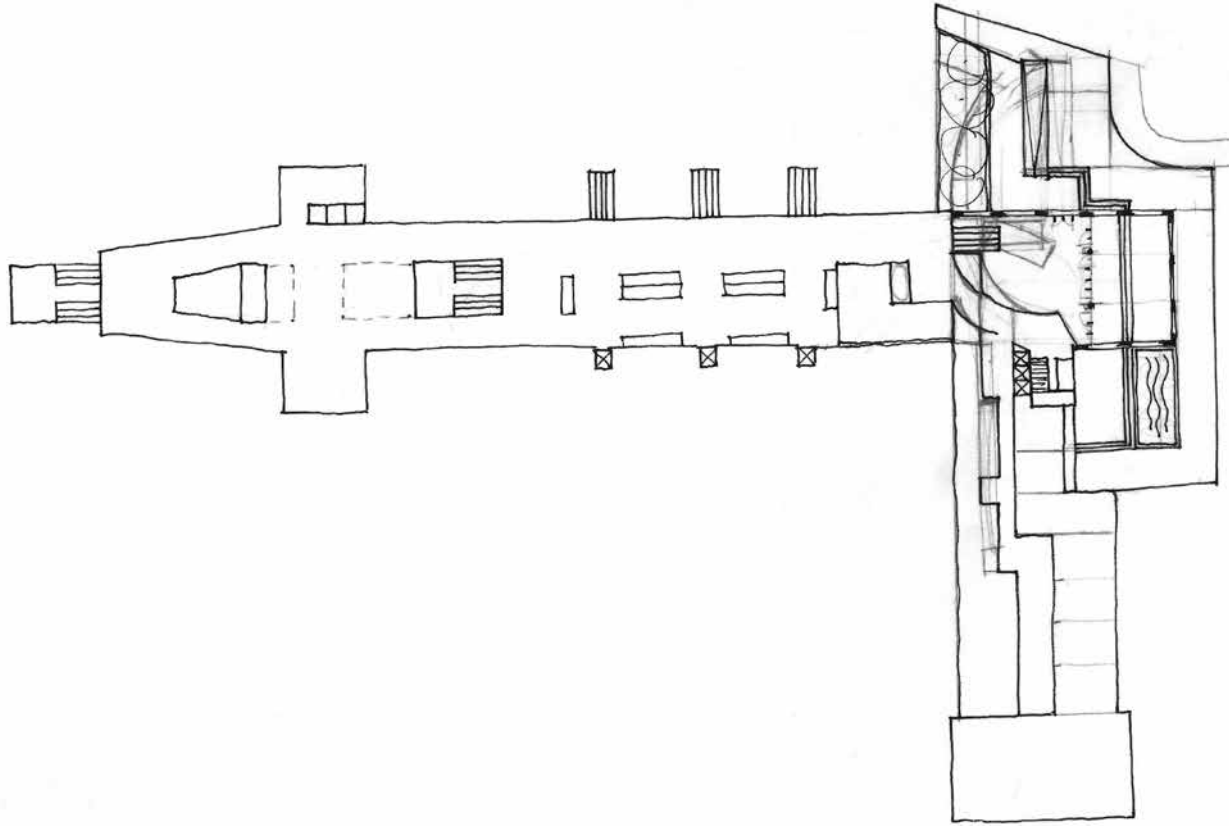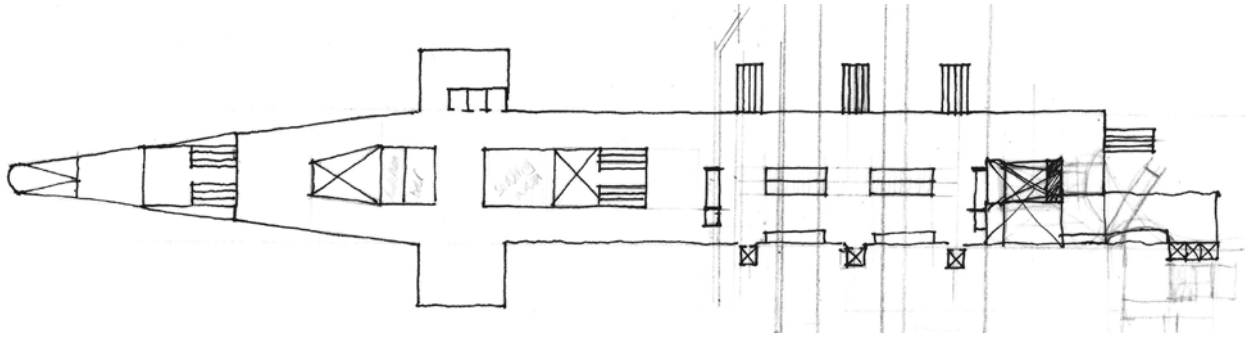
The wedge shape seen in the plan sketches represents a ship. The reference of a ship leads to the notion of water, more specifically the Vaal River.

section A:A

this entrance does not work well

taxi rank roof is too big. Design alternating pattern

extend the roof over rail & platform

the bridge

move the school

A   A

N
0   20   40   60   80   100m

Site plan
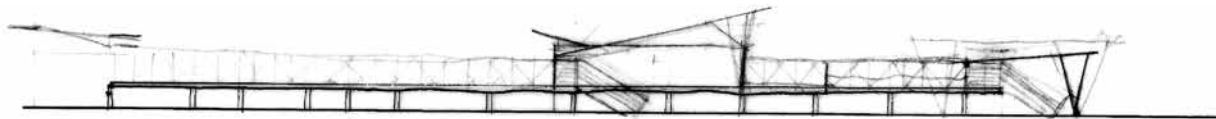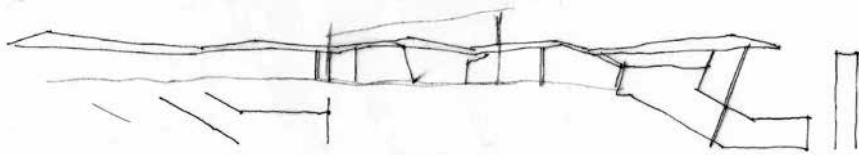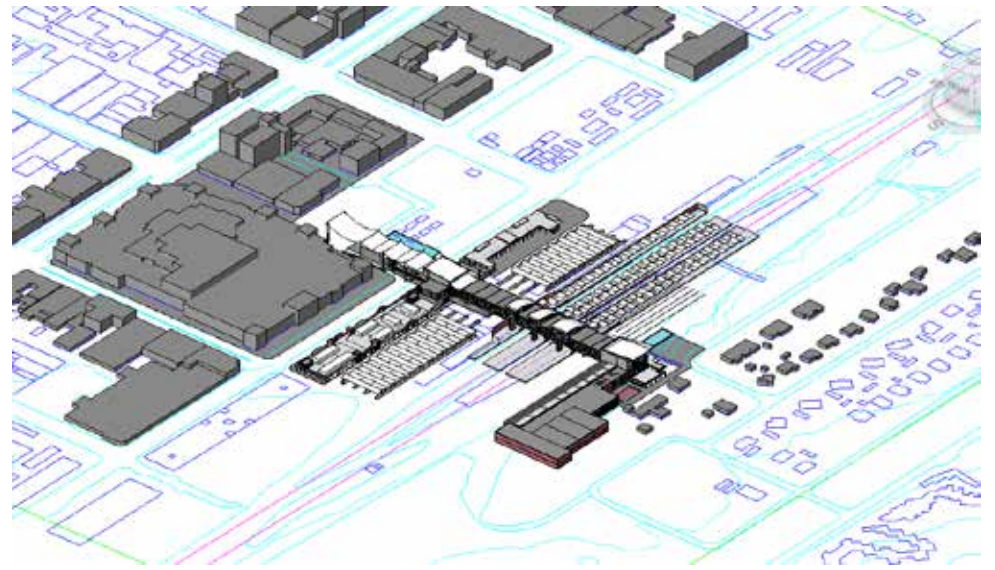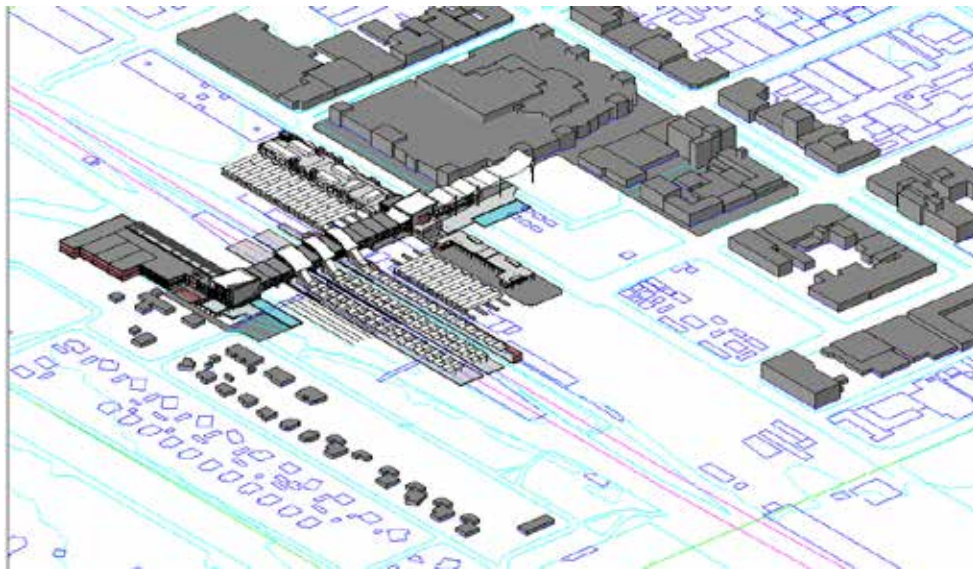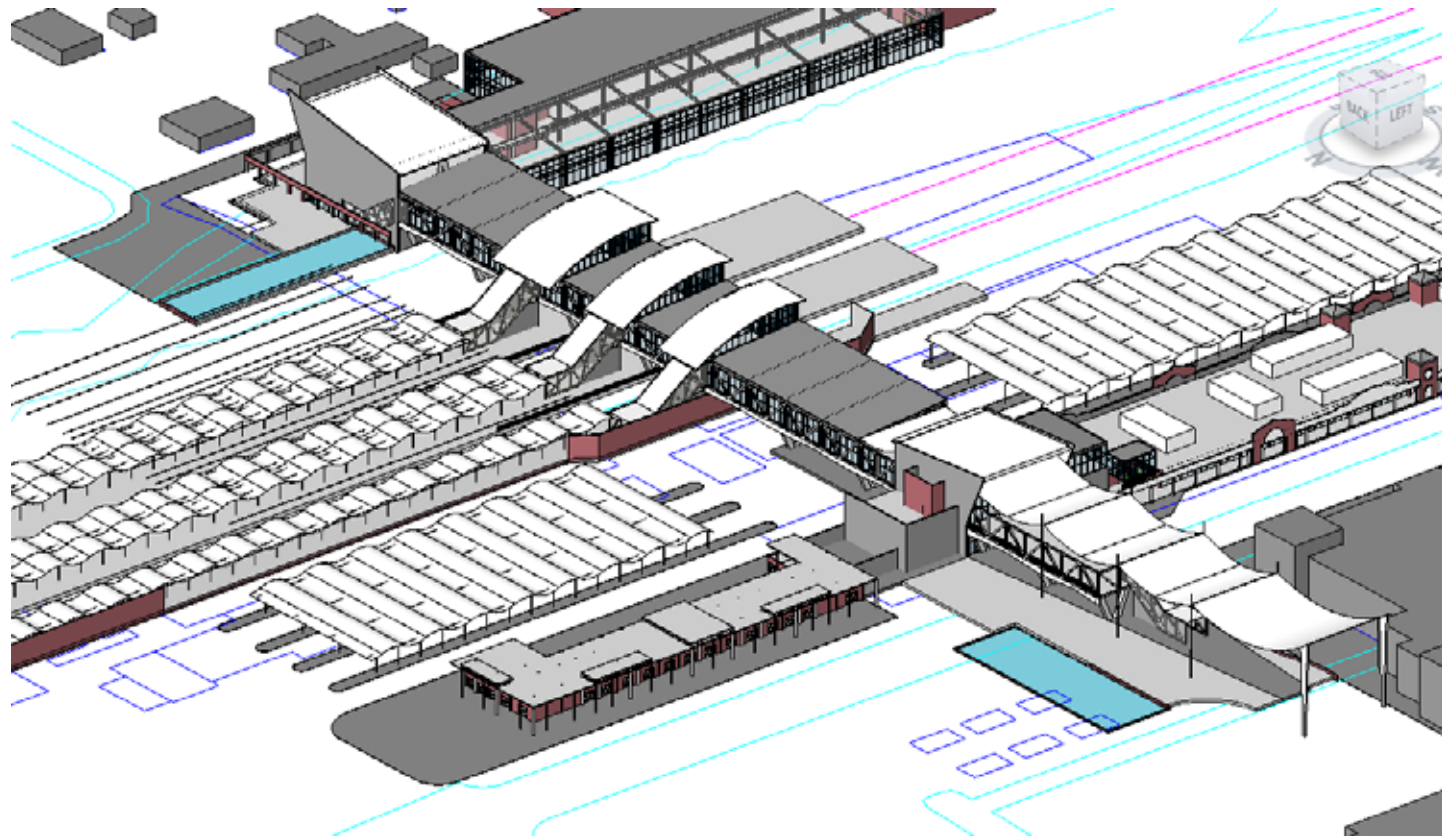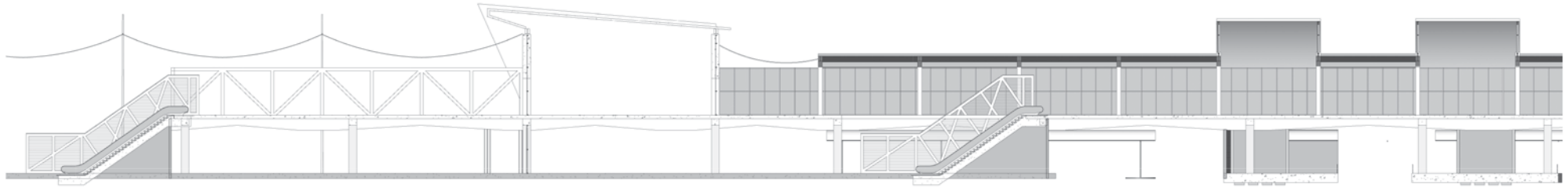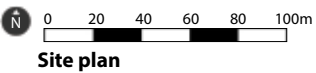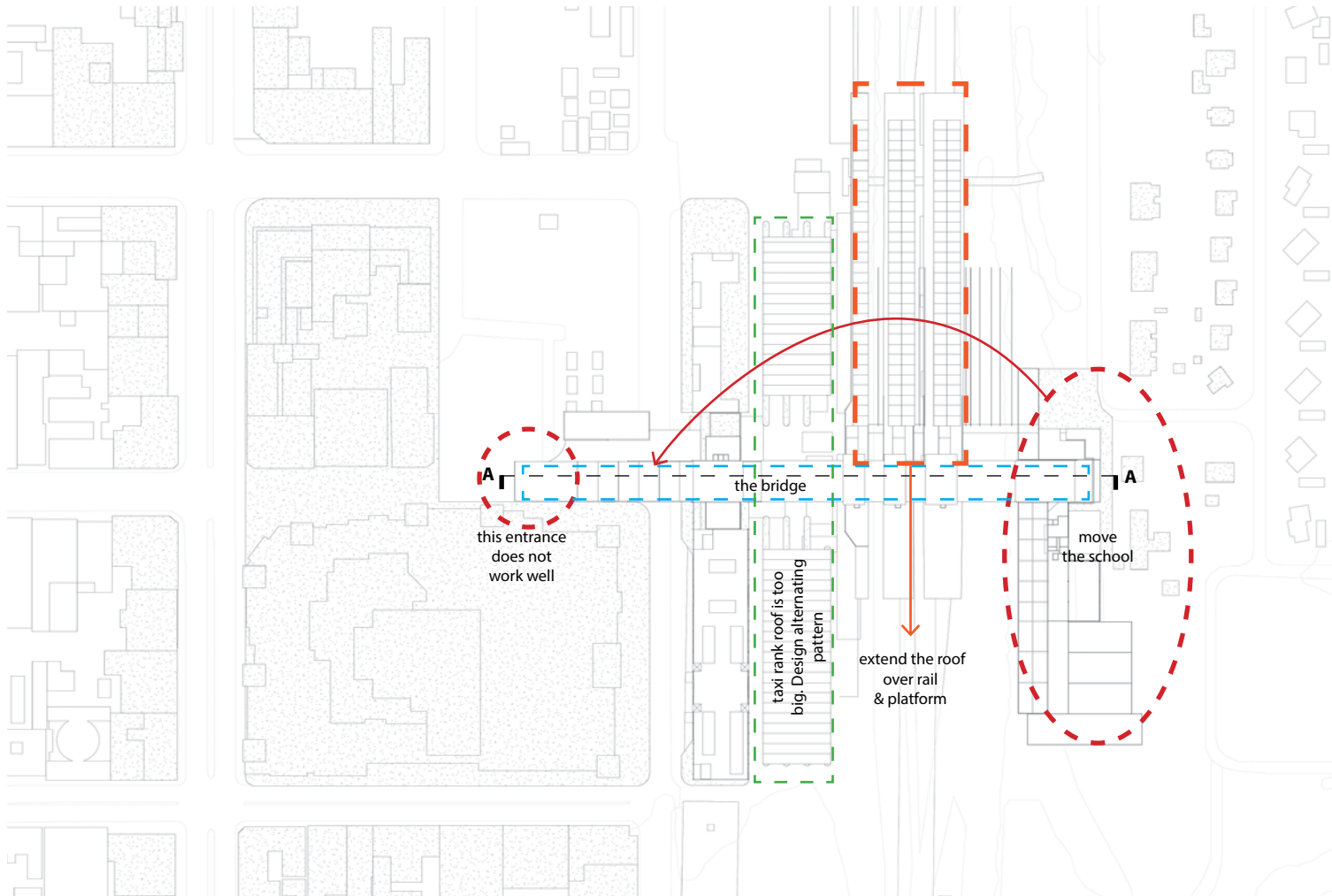
Iteration 5

This submission responded to the issues raised in the previous submission which were:

- Move the transport interchange closer the the main entrance.
- Spread out the trade along the movement routes.
- Make the school larger
- Use a roof to cover the rails and train platforms

the following was realized:

- the school should be moved to the west part of the site and become the "bridge" in the building.
- The roof covering the taxi rank is too monolithic. Need to design an alternating pattern.
- Entrance on the western does not work well
- extend the roof over the southern part of the rail and platform.
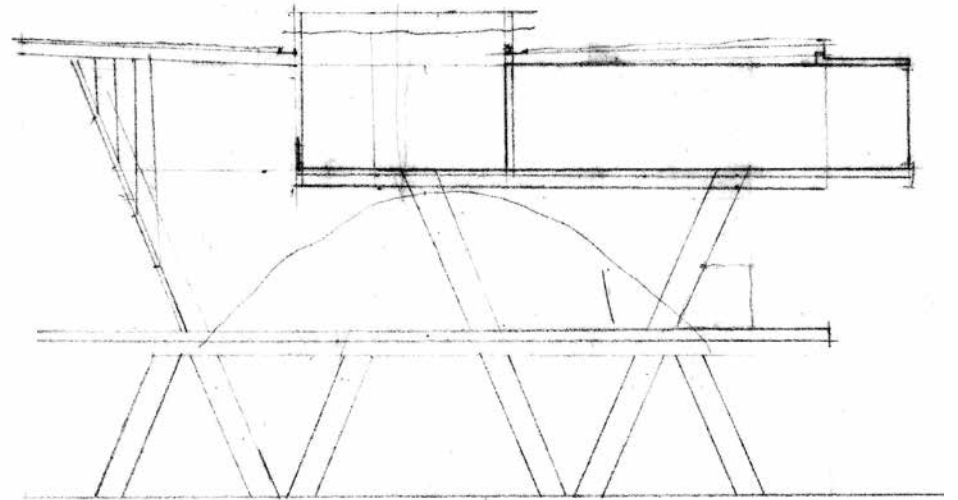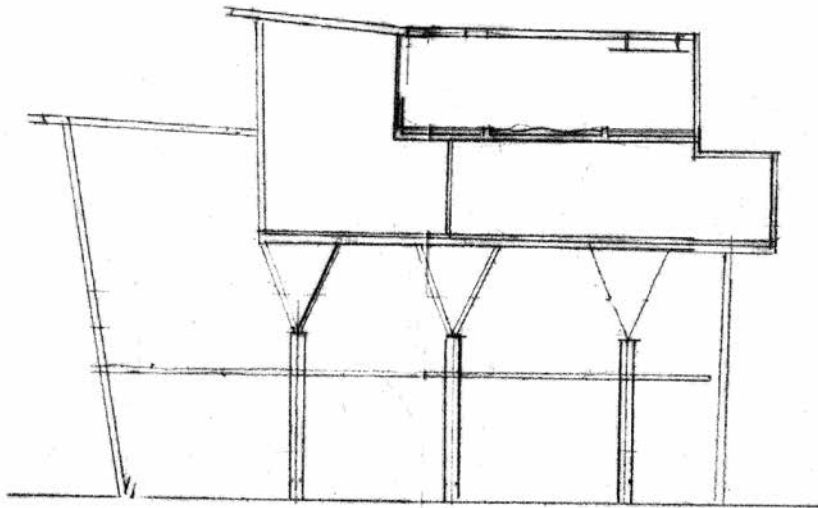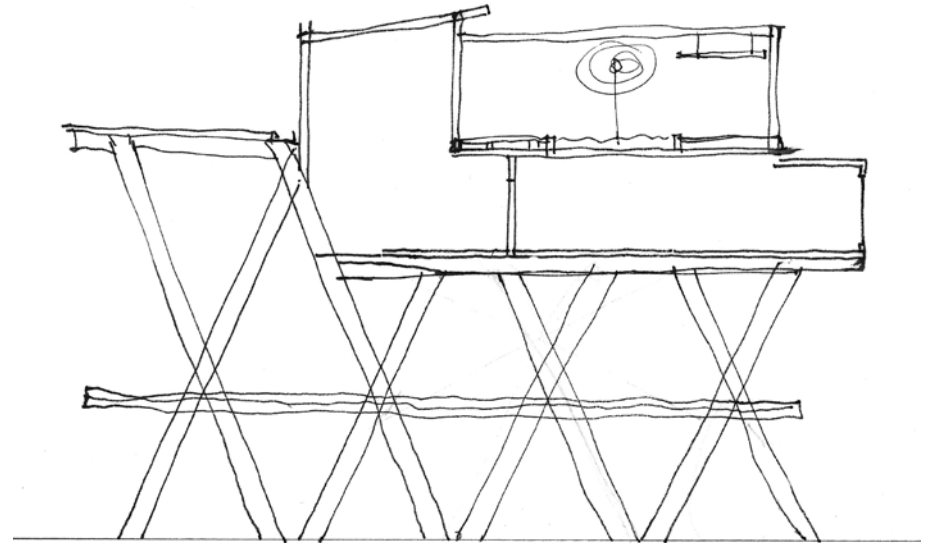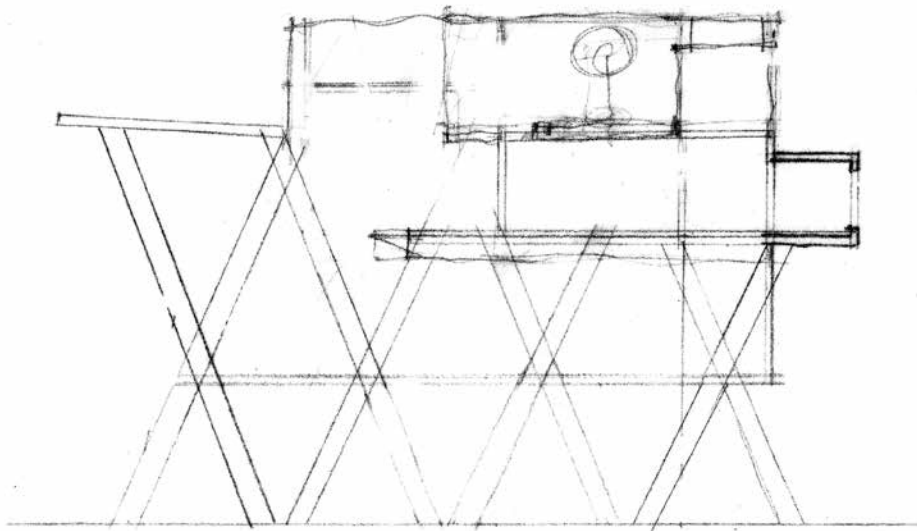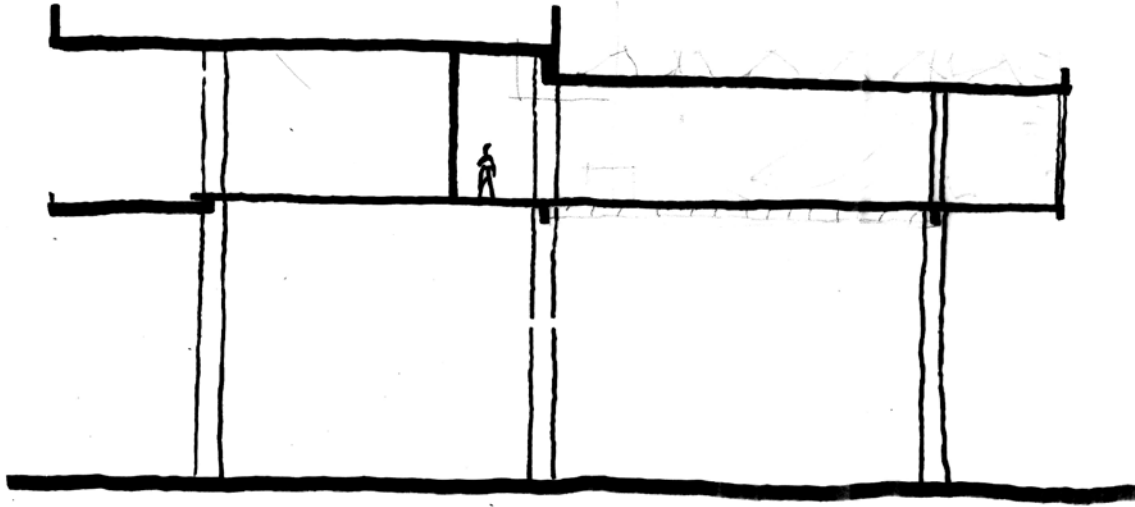
Iteration 6

Having already explored the planning aspect of the design, the structure of the building needed to be designed as well.

The structure was simplified into a rhythm that was captured from the trees that existed on site prior to the 1980s.
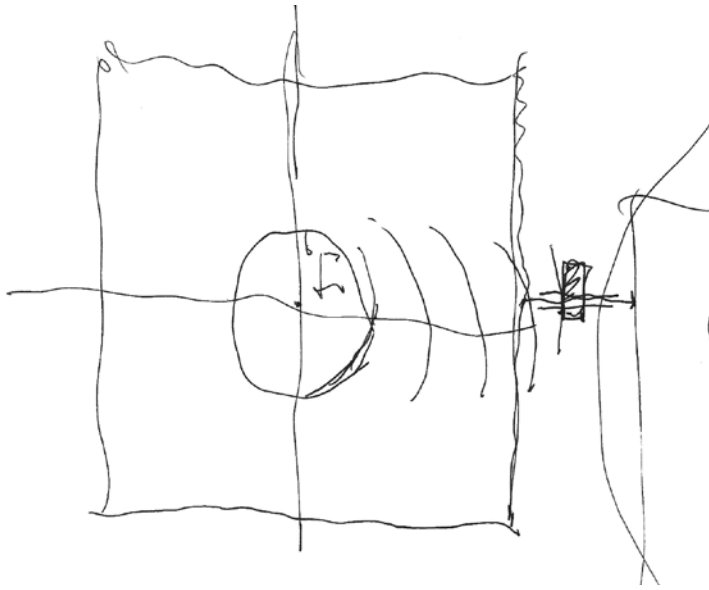
ABOVE FIG.
SHOCK WAVE SKETCH
Using a historical narrative and
applying to the urban design.
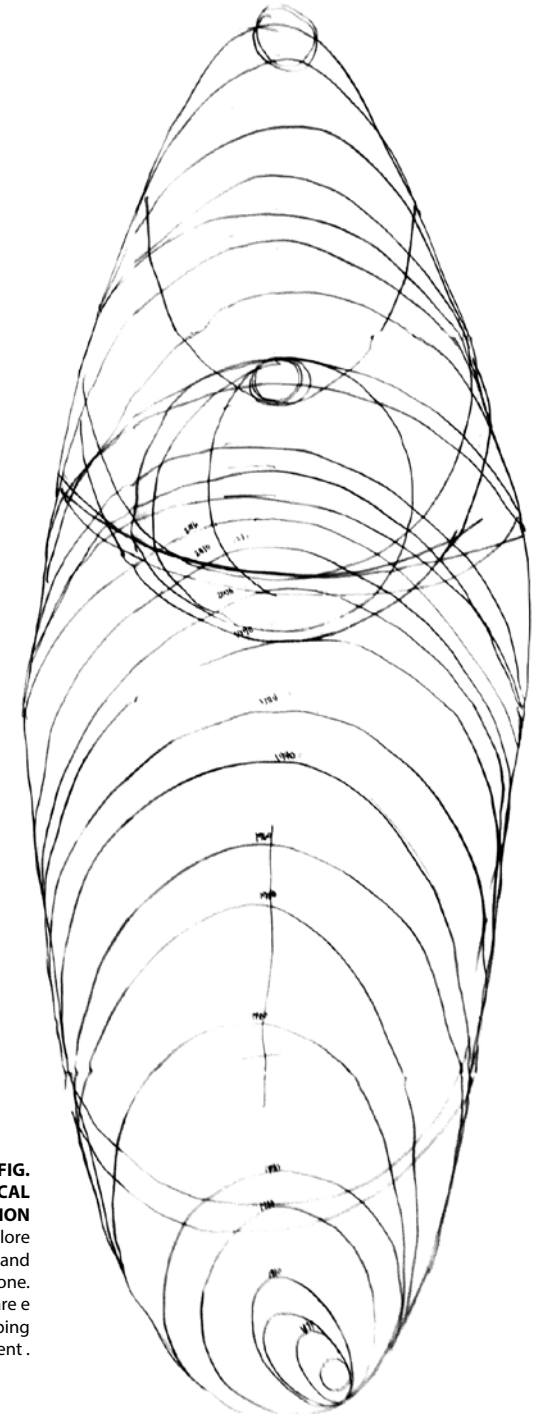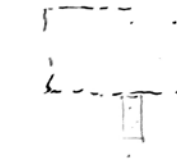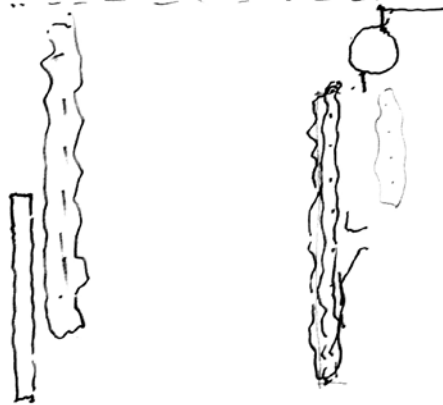
RIGHT FIG.
CIRCULAR & ELIPTICAL
GEOMETRY EXPLORATION
This sketch attempts to explore
combining circles with elipses and
alocating a decade to each one.
The circles and elipses are e
asily grouped together by grouping
them at a single tangent .
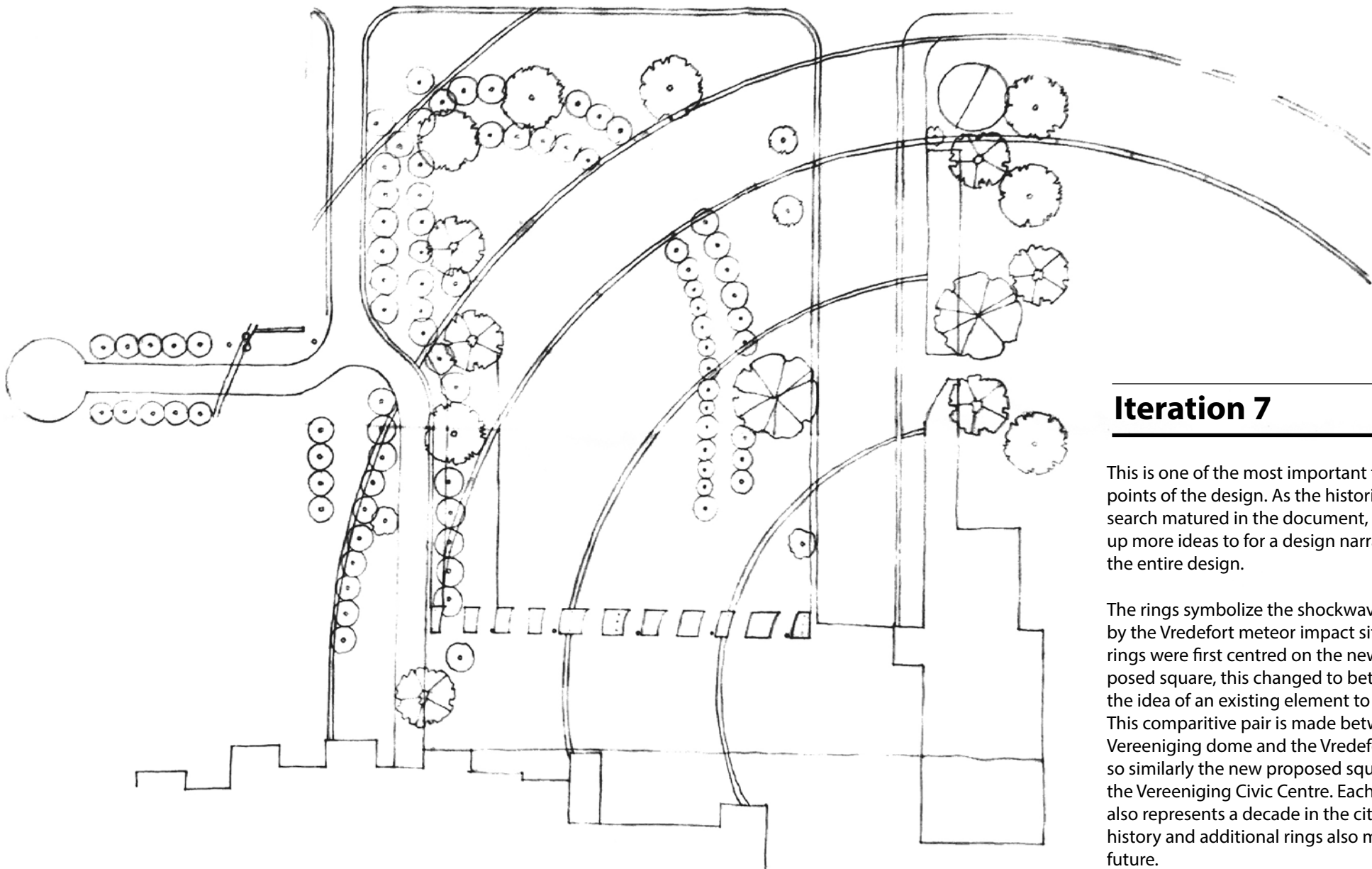
Iteration 7

This is one of the most important turning points of the design. As the historical research matured in the document, it opened up more ideas to for a design narrative for the entire design.

The rings symbolize the shockwaves caused by the Vredefort meteor impact site. The rings were first centred on the new proposed square, this changed to better pair the idea of an existing element to its origins. This comparitive pair is made between the Vereeniging dome and the Vredefort dome, so similarly the new proposed square and the Vereeniging Civic Centre. Each ring also represents a decade in the city's urban history and additional rings also mark the future.
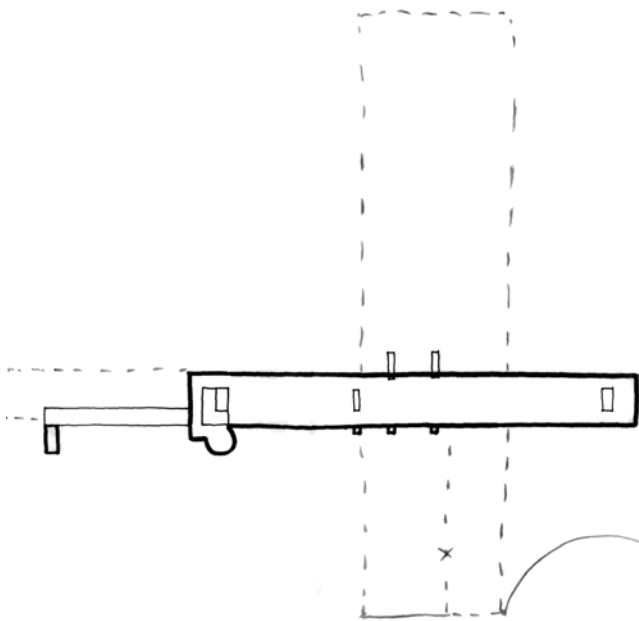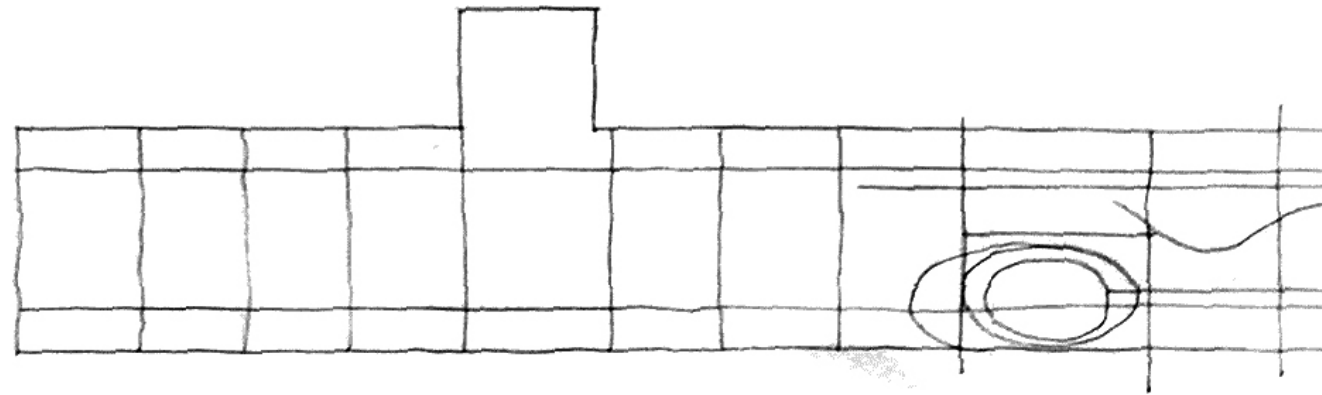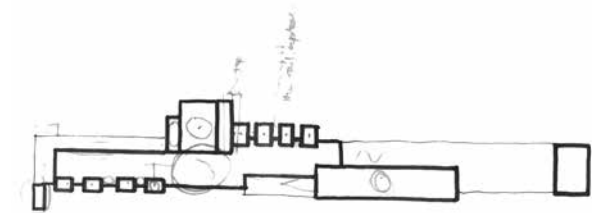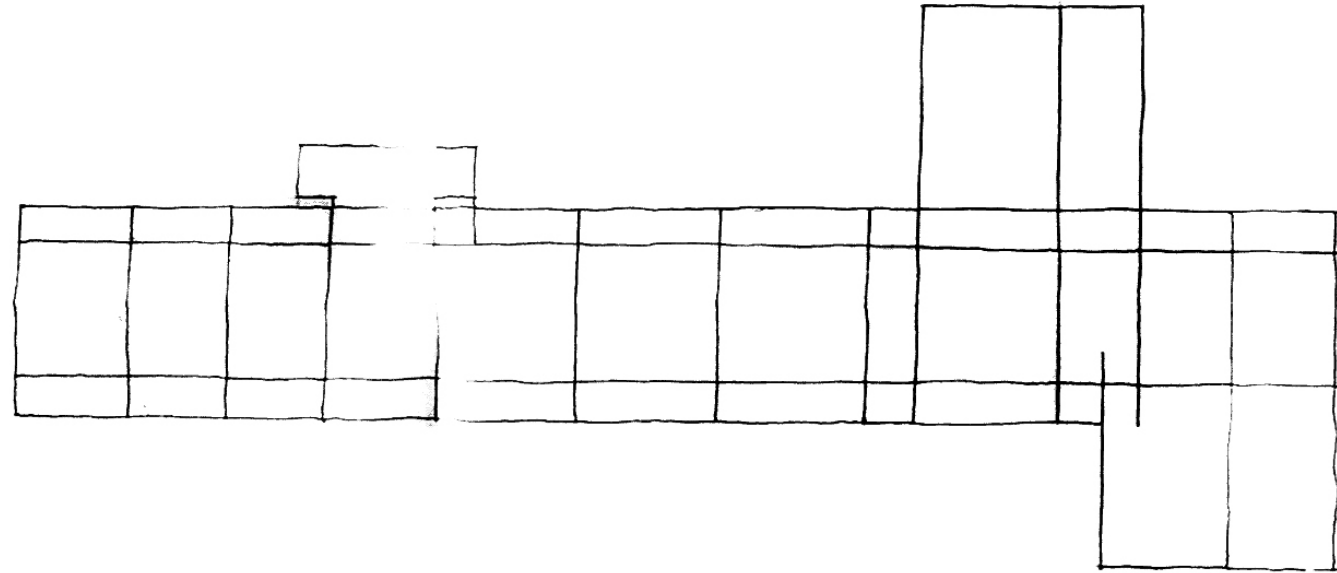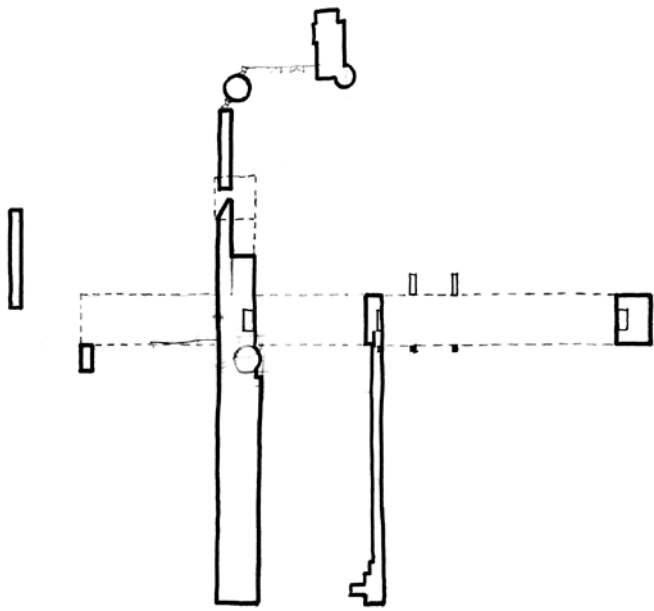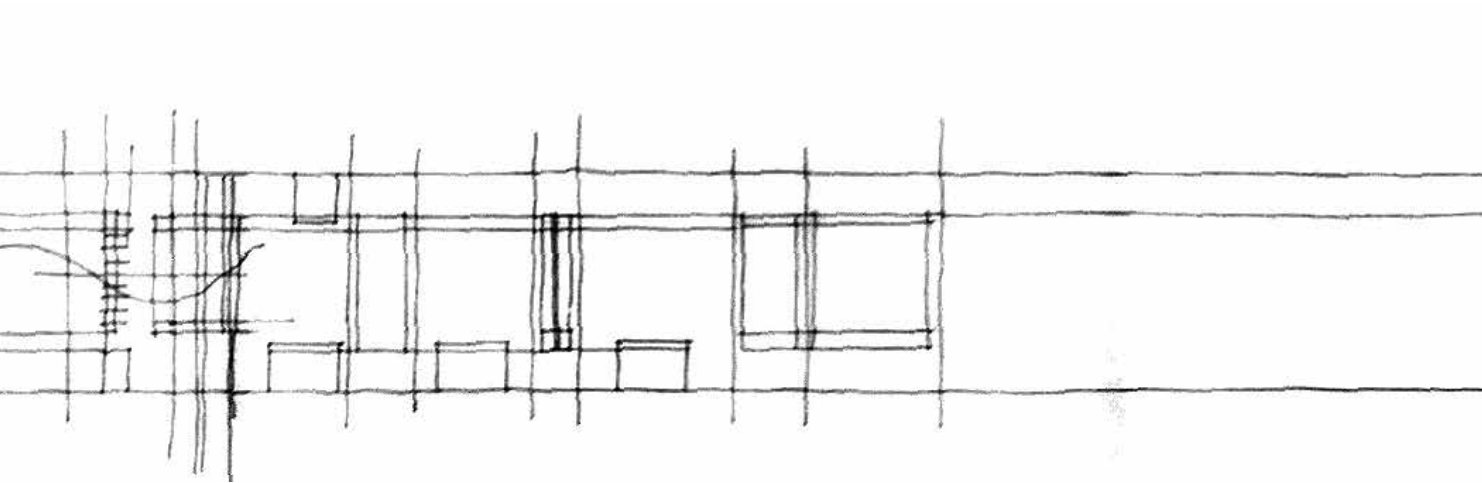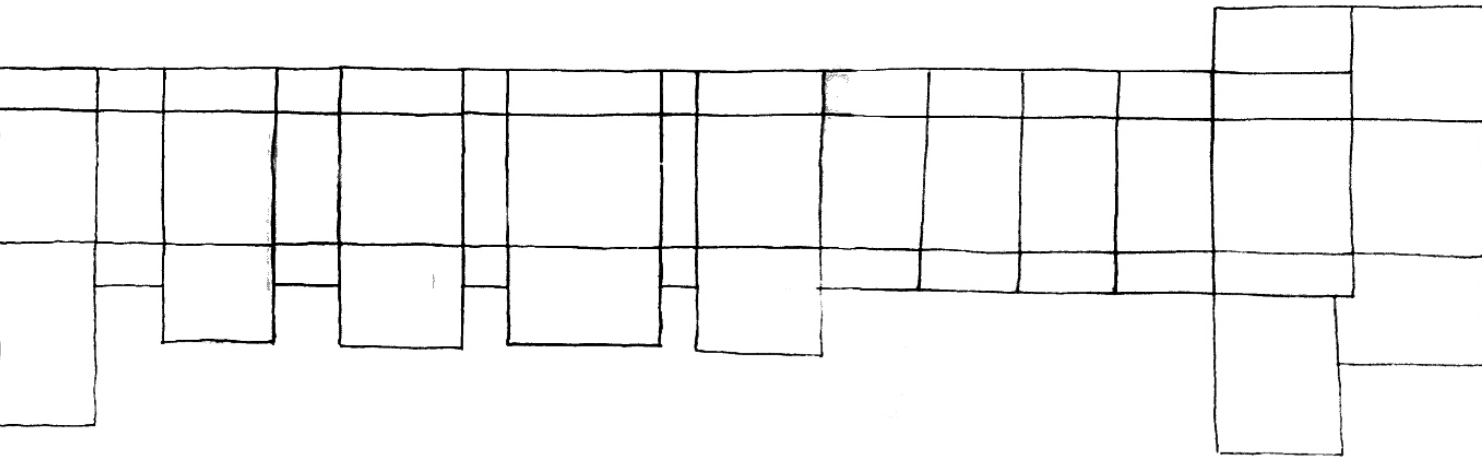
Iteration 8

This portion of sketches refines and details the inner workings of the buildings. It is also notable how the building design has strunk down from its initial conception.

Particular areas received careful attention such as the portions of the building or "bridge" overlooking the square. Therefore a series of detail plan sketches explore this environment.

The functionality of the design was also attended to and therefore the utilitarian aspects of the building were grouped together into a core comprising of vertical circulation, ablutions and storage.

STORE

MENS

DUCT

LADYS

BABY'S CHANGE RM

BABY'S
WC
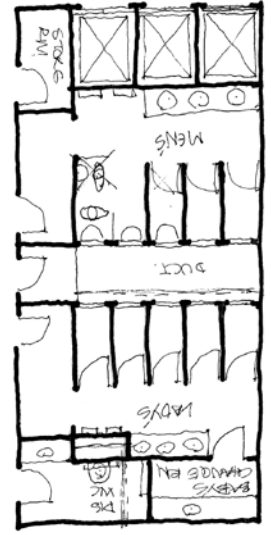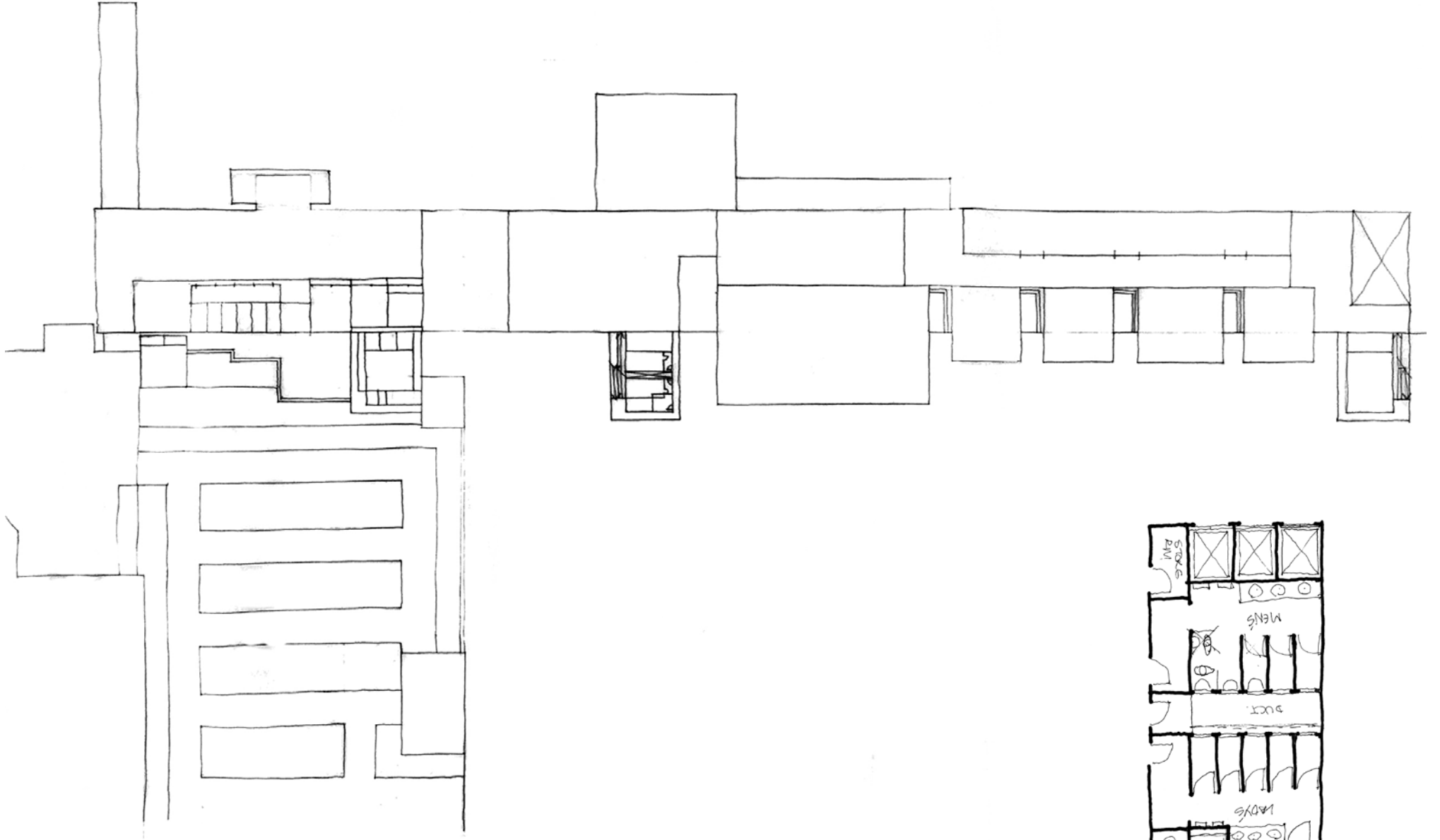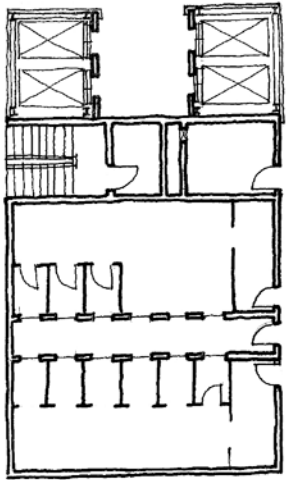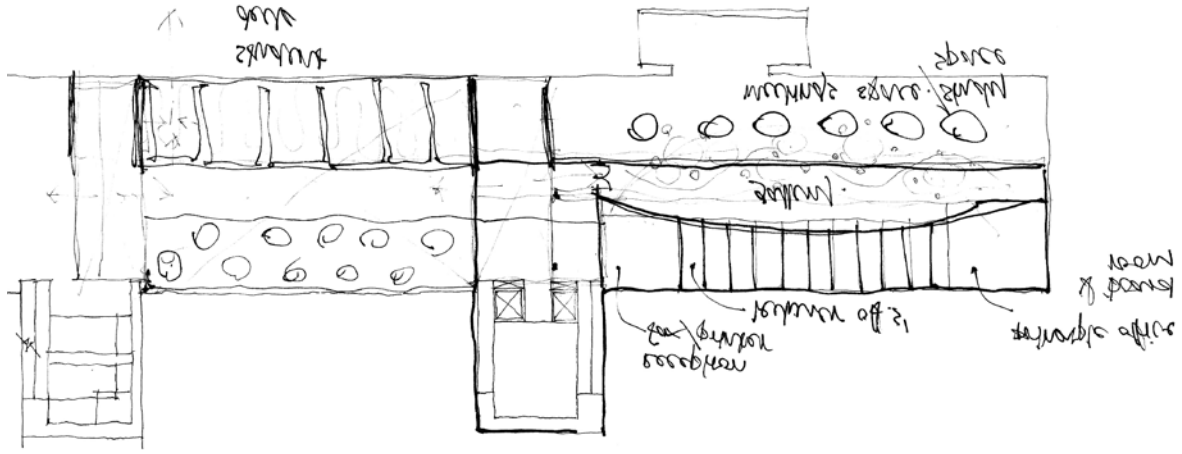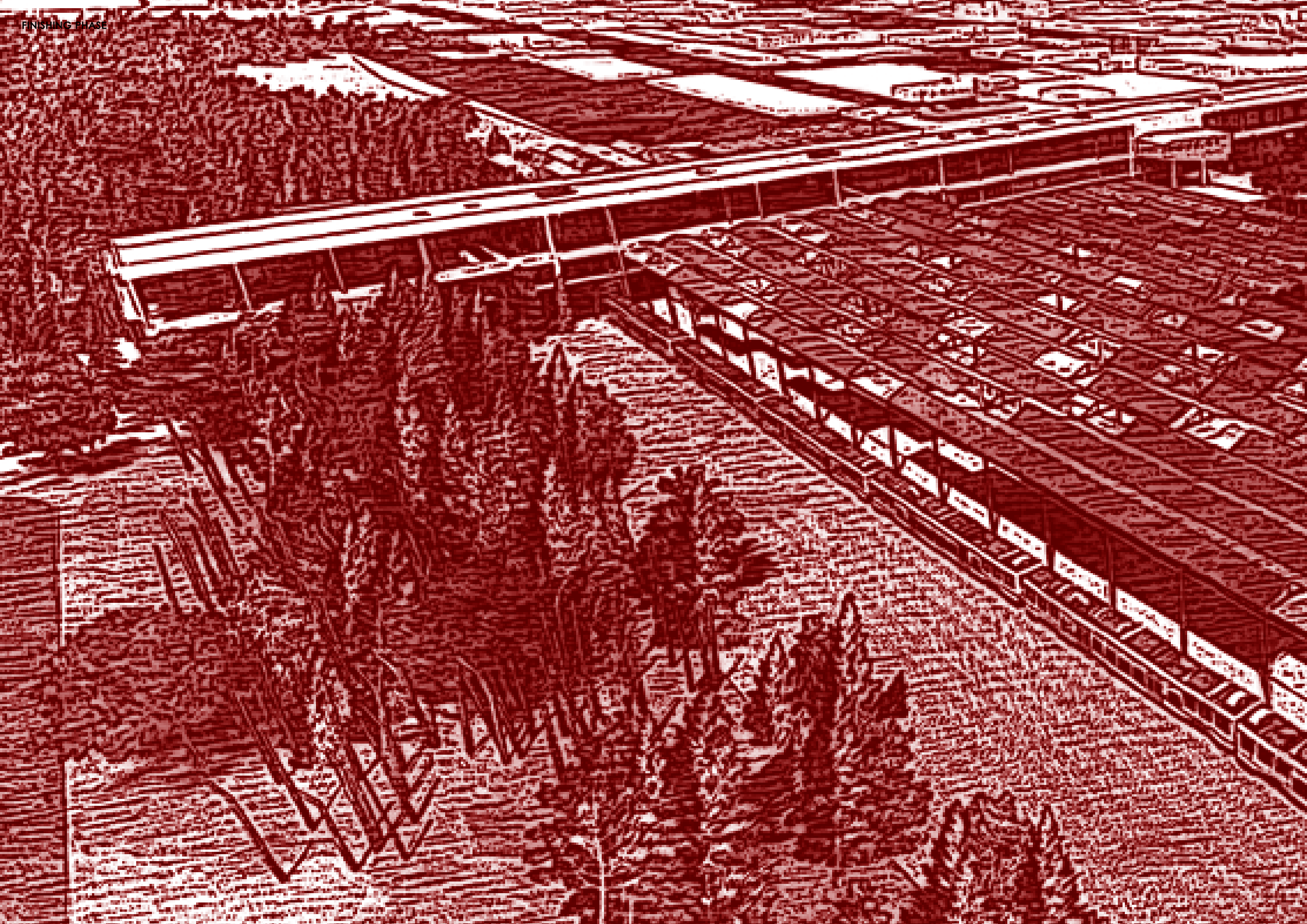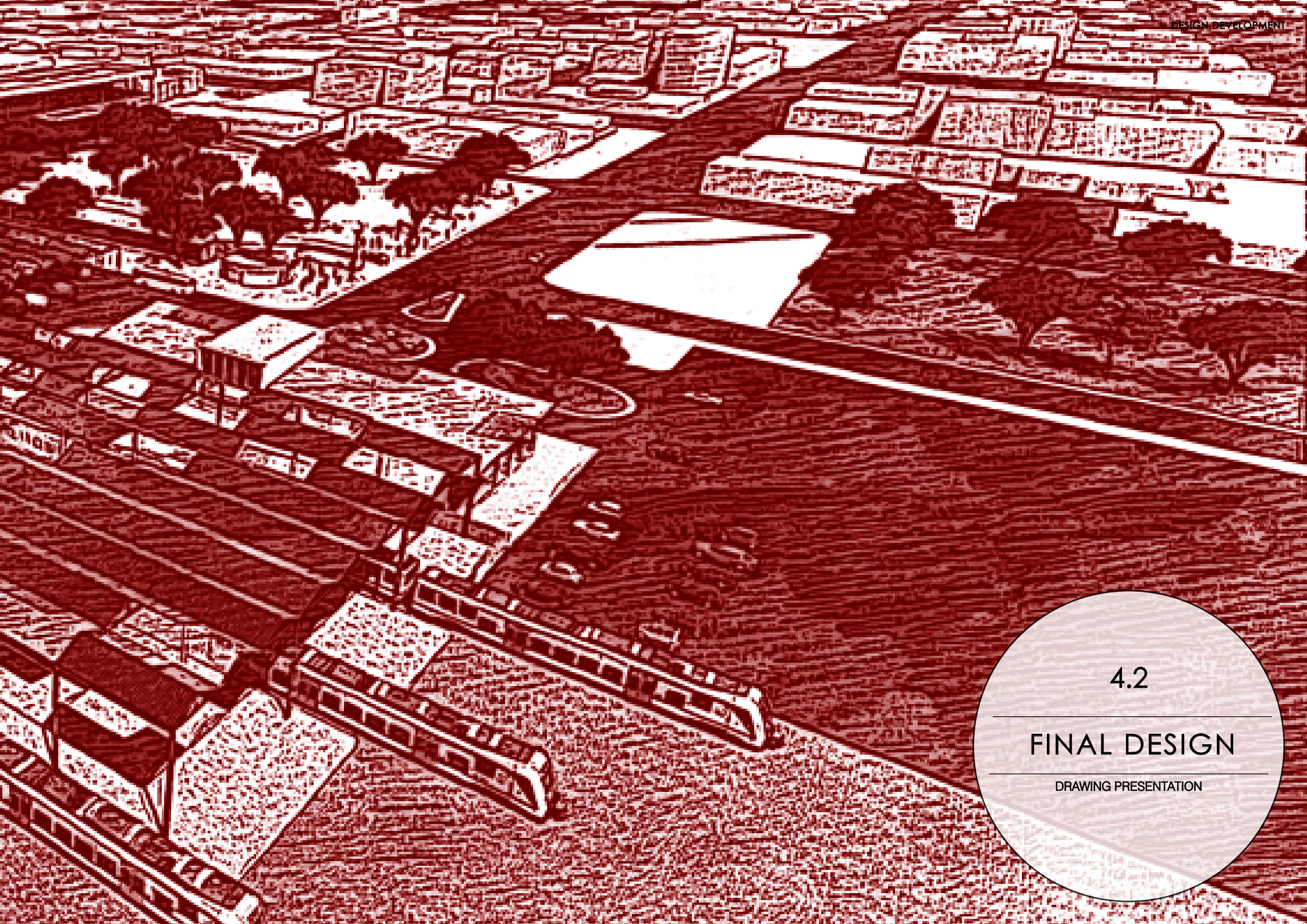
4.2

FINAL DESIGN

DRAWING PRESENTATION

SITE PLAN

SCALE 1:1250

POST OFFICE

STATION PARK

THEATRE

CIVIC CENTRE

LIBRARY

MARKET SQUARE

MARKET STREET

MARKPARK MALL

COURT HOUSE

MARKET
SQUARE

ADMIN

TRAIN PLATFORM 1

TRAIN PLATFORM 2

TRAIN PLATFORM 3

MARKET STREET
FLEE MARKET

MAIN
ENTRANCE

SECURITY

VILLAGE SQUARE
ENTRANCE

EXISTING
BUILDING

MARKPARK
MALL

EXISTING
BUILDING

GROUND FLOOR PLAN

MEZZANINE FLOOR PLAN

BALCONY

LECTURE HALL

BALCONY

BALCONY

BALCONY

MEETING SPACE

BOARD ROOM

RECEPTION

FOYER

STUDENT DECK

FOYER

SEMINAR ROOM 1

SEMINAR ROOM 2

SEMINAR ROOM 3

SEMINAR ROOM 4

LIBRARY

SECOND FLOOR PLAN

TICKET OFFICE

CONCOURSE

PLATFORM 1

PLATFORM 2

PLATFORM 3

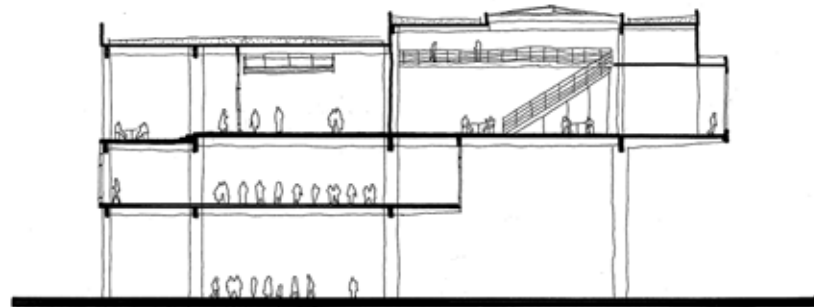CONCOURSE
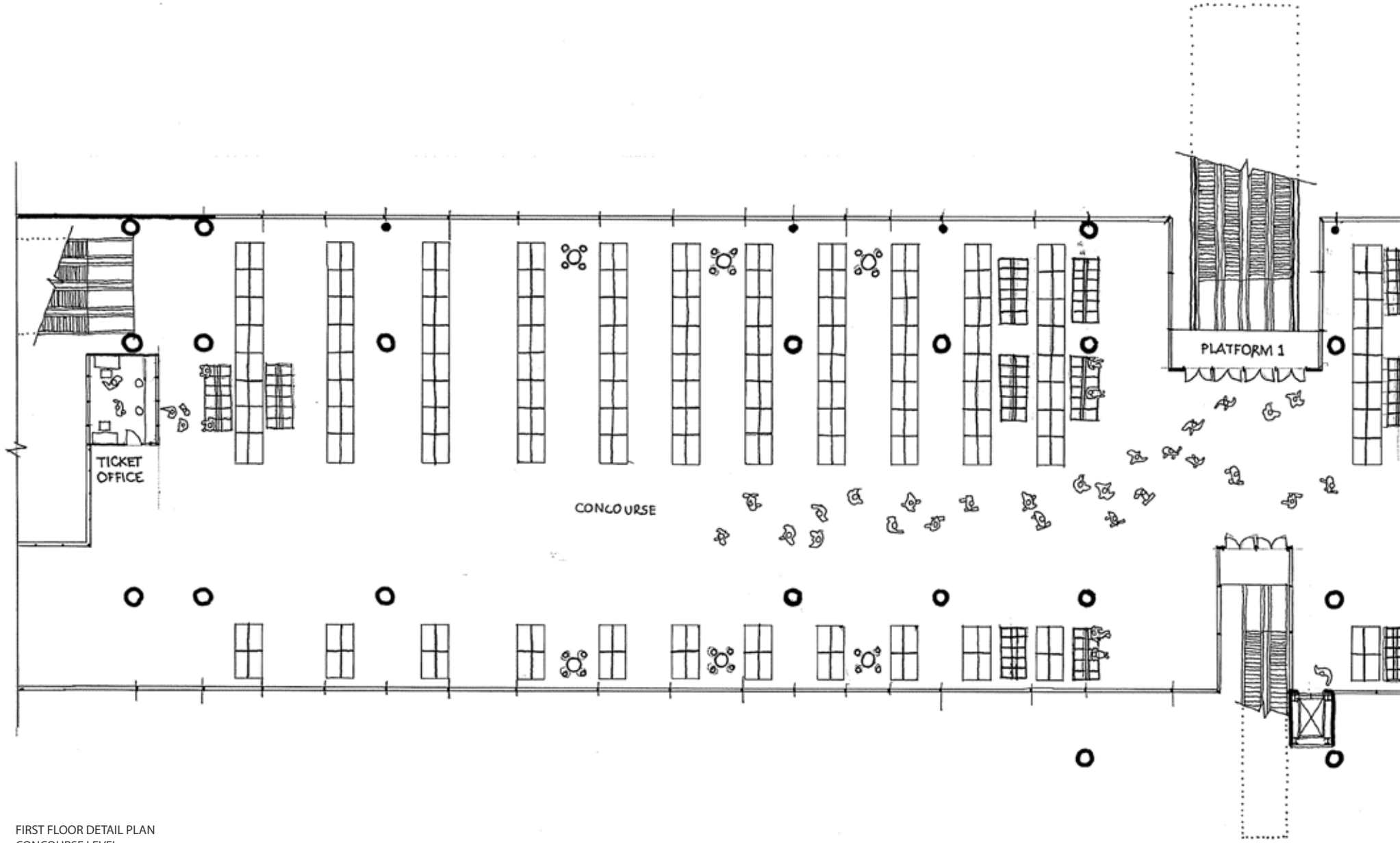
TICKET OFFICE

FIRST FLOOR PLAN

SCALE 1:500
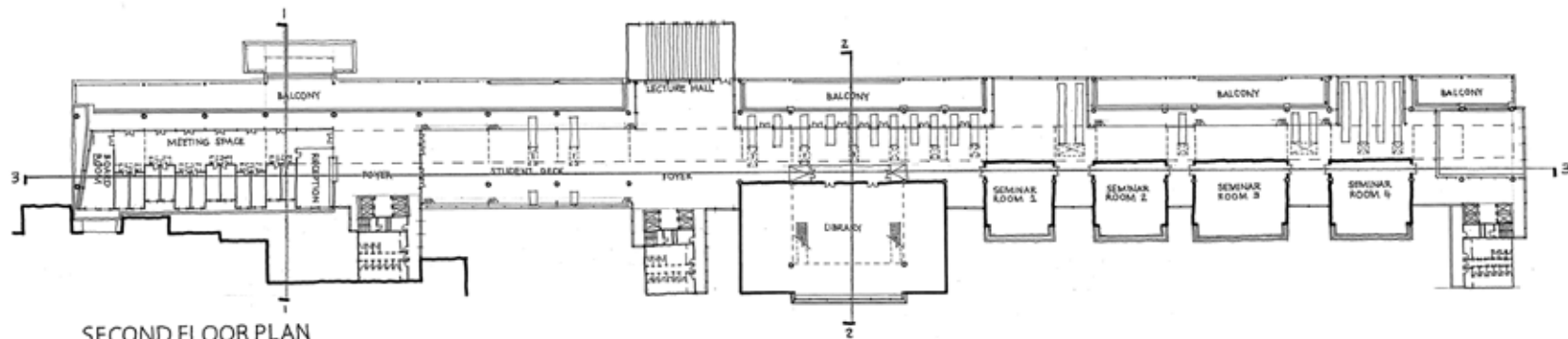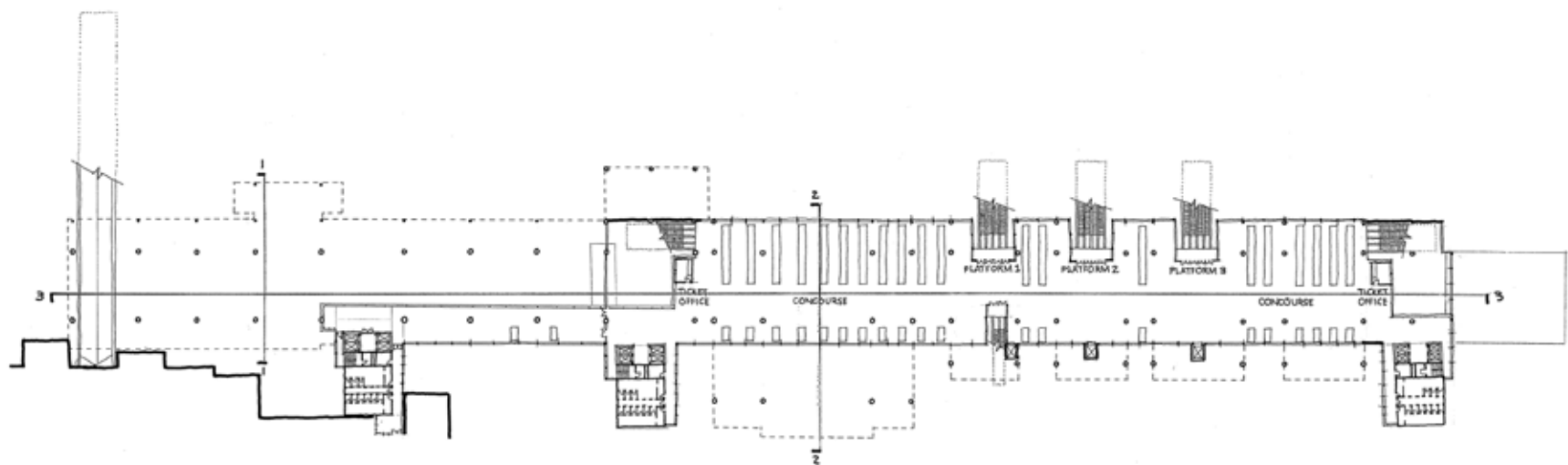
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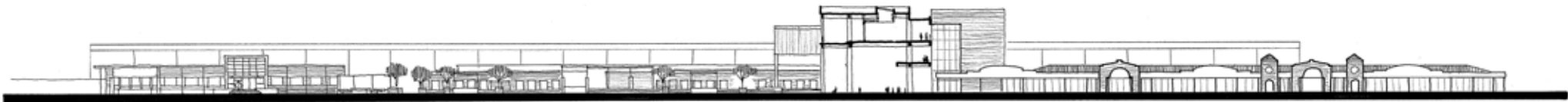
SECTION 5

SECTION 6

SECTION 4
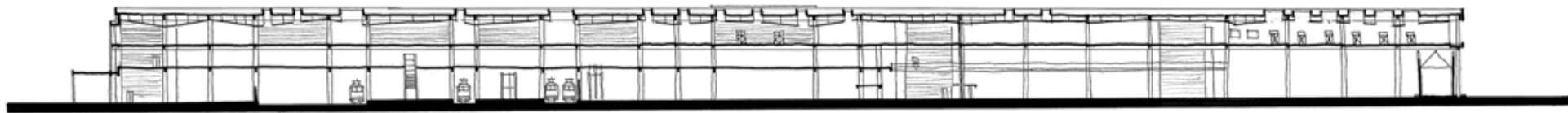
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SECTION 1
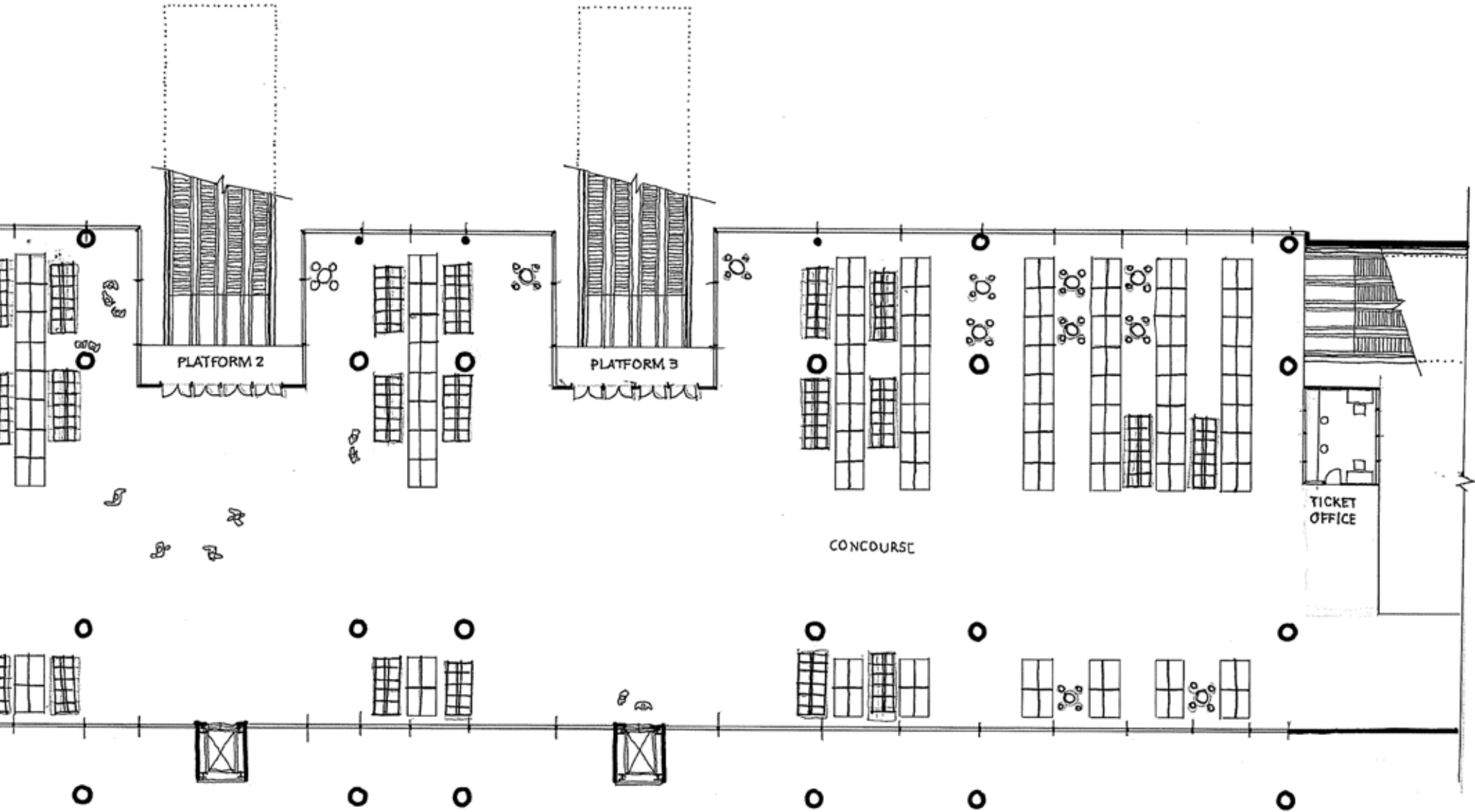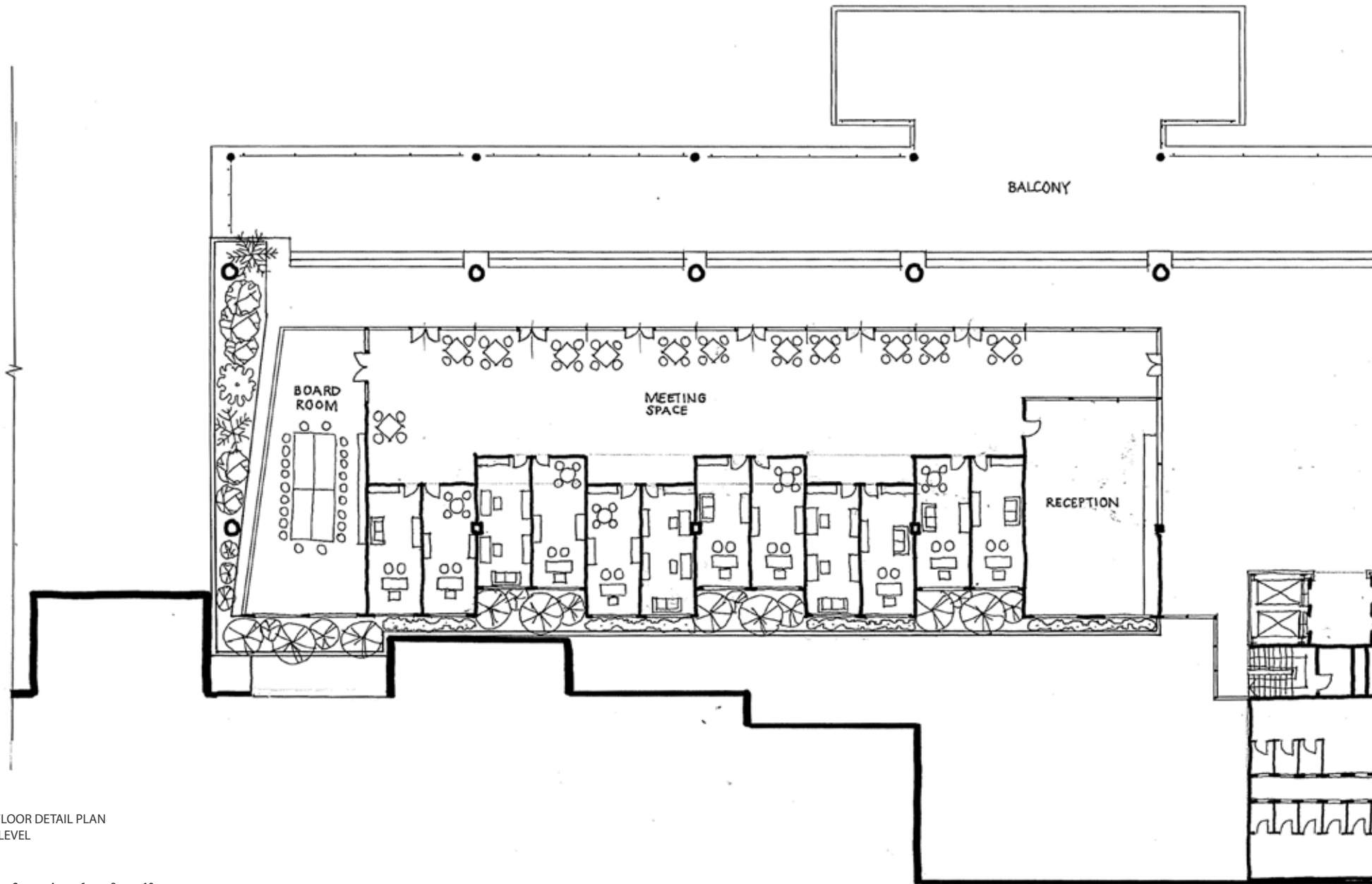
SECTION 2

PLATFORM 1

TICKET
OFFICE
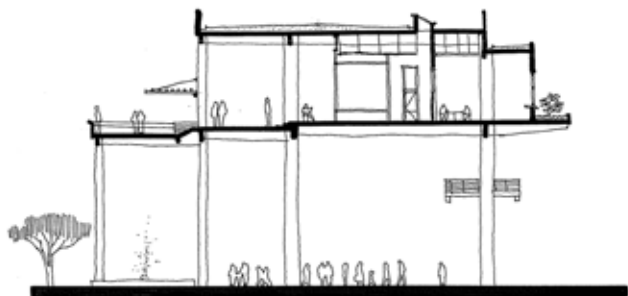
CONCOURSE

FIRST FLOOR DETAIL PLAN
CONCOURSE LEVEL

0 2 4 6 8 10m

N

PLATFORM 2

PLATFORM 3

CONCOURSE

TICKET
OFFICE

BALCONY

BOARD
ROOM

MEETING
SPACE

RECEPTION

SECOND FLOOR DETAIL PLAN
COLLEGE LEVEL

N

0 2 4 6 8 10m

LECTURE
HALL

STUDENT
DECK

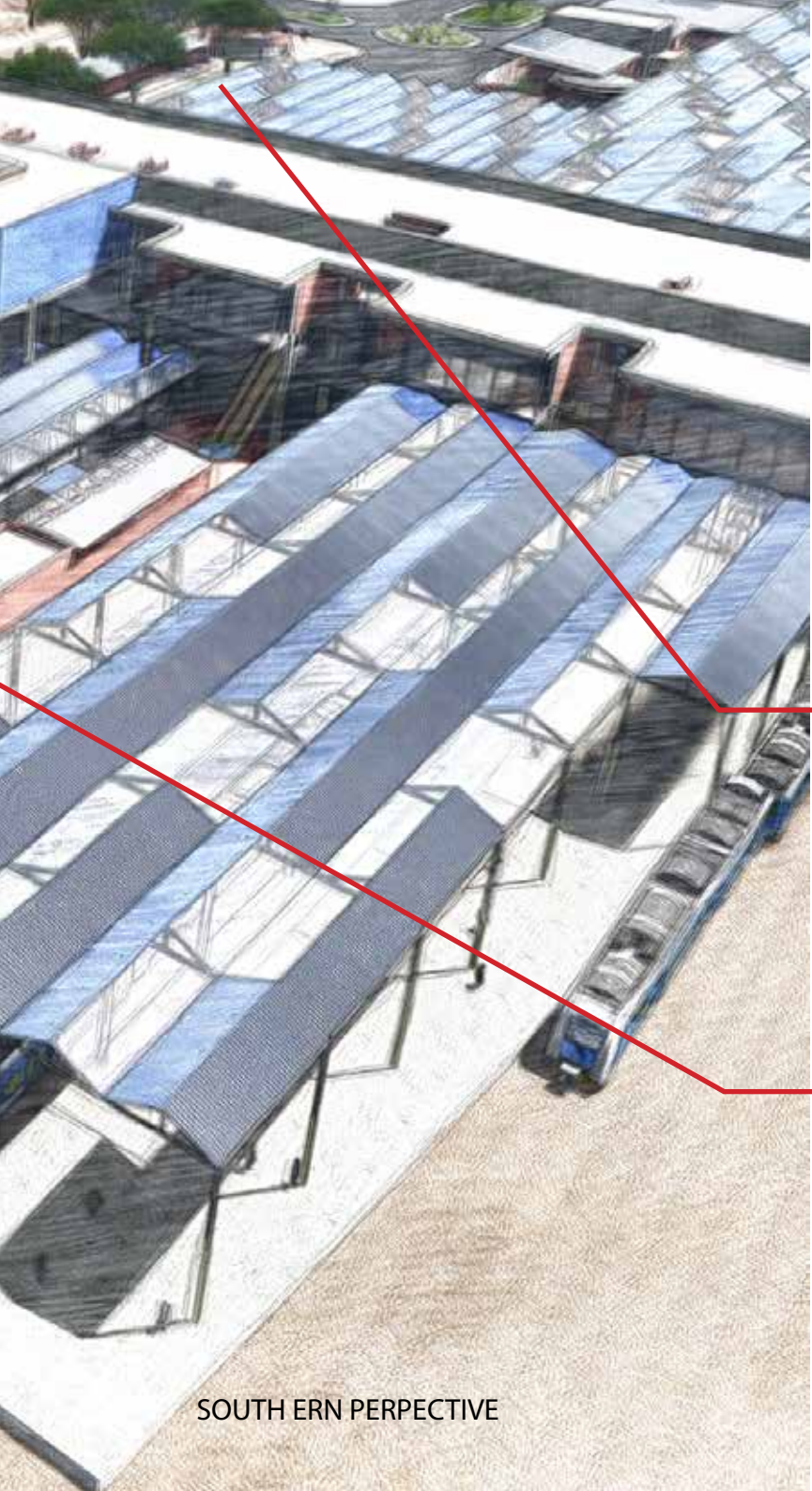STATION ADMINISTATION

STATION AND MARKET SQUARE

MARKET STREET FLEE MARKET

TRAIN PLATFORM

NORTH PERPECTIVE

SOUTH ERN PERPECTIVE

BUS STOP TERMINALS
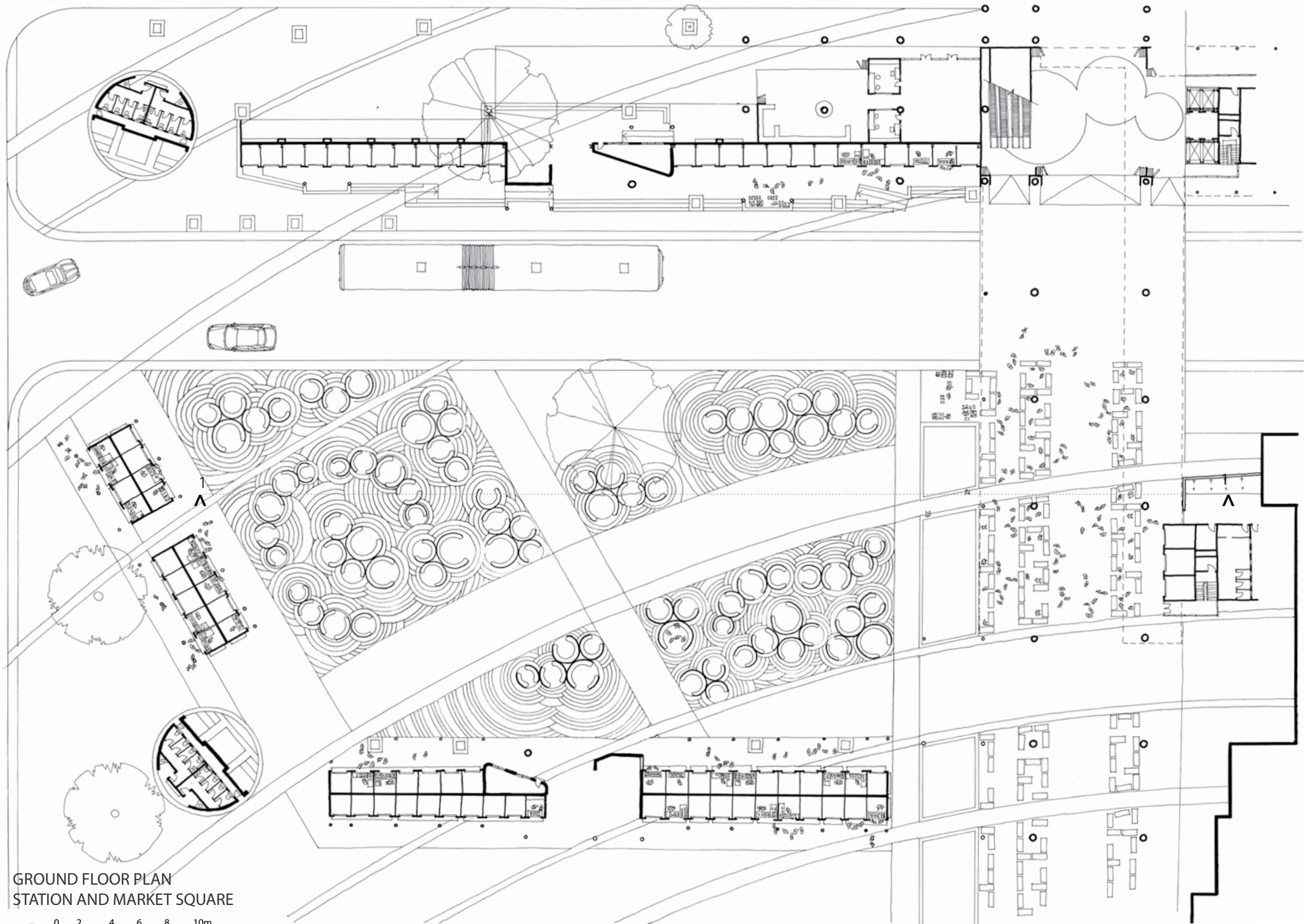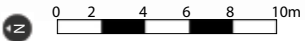

TAXI DRIVER MESS HALL AND TERMINALS

STATION & MARKET SQUARE

GROUND FLOOR PLAN
STATION AND MARKET SQUARE

0 2 4 6 8 10m

SECTION 1:1

0   2   4   6   8   10m

SECTION 2:2

0 1 2 3 4 5m
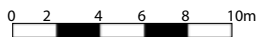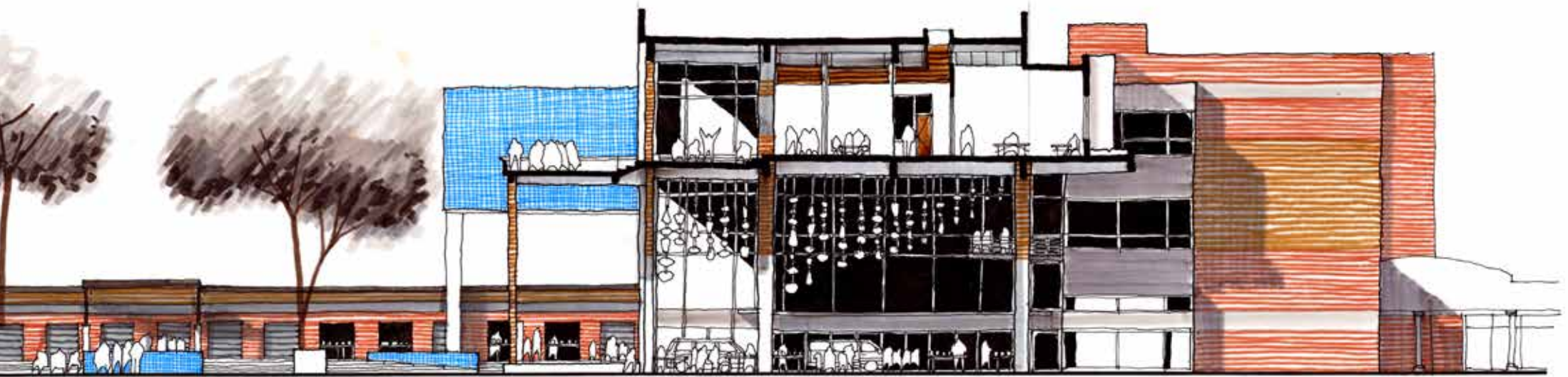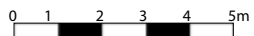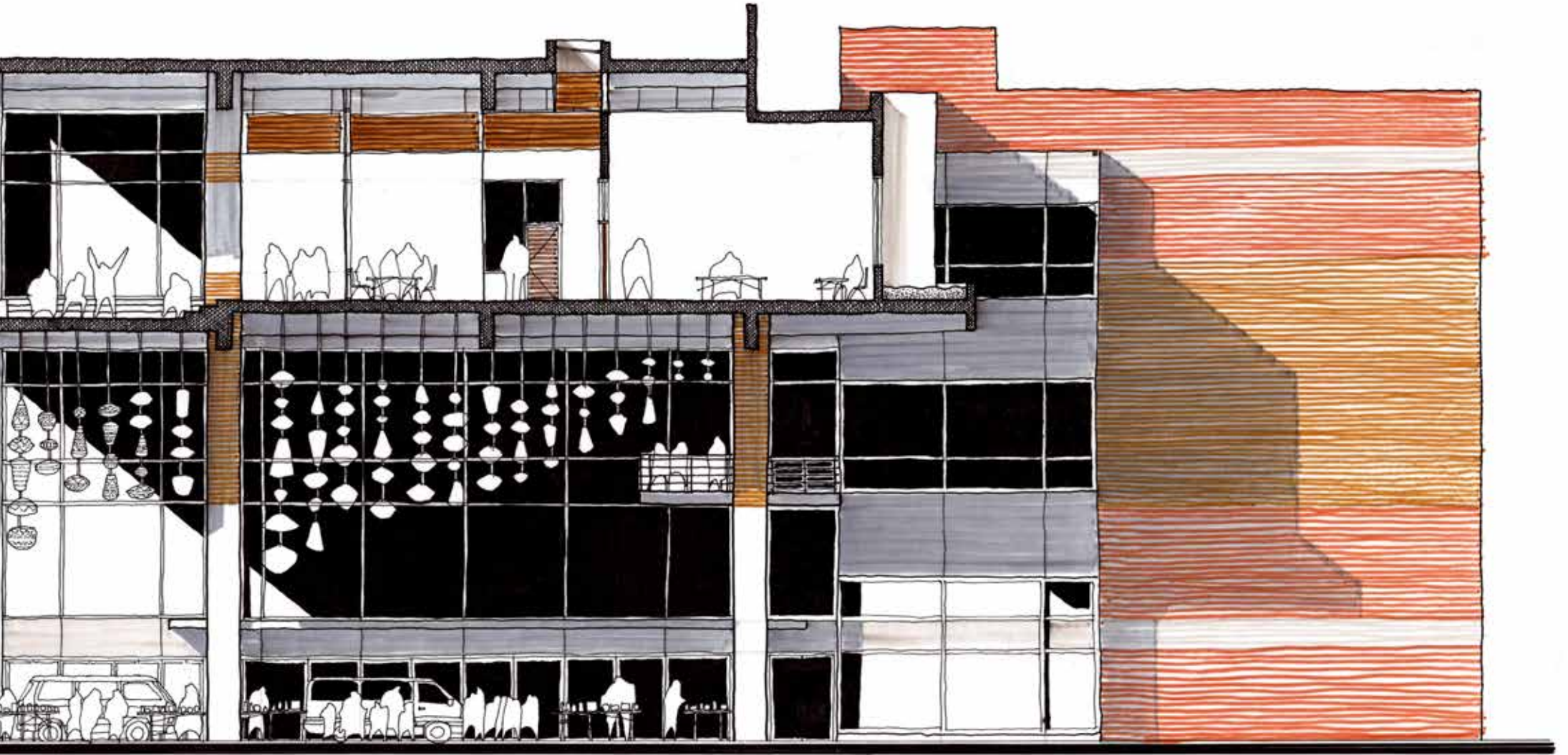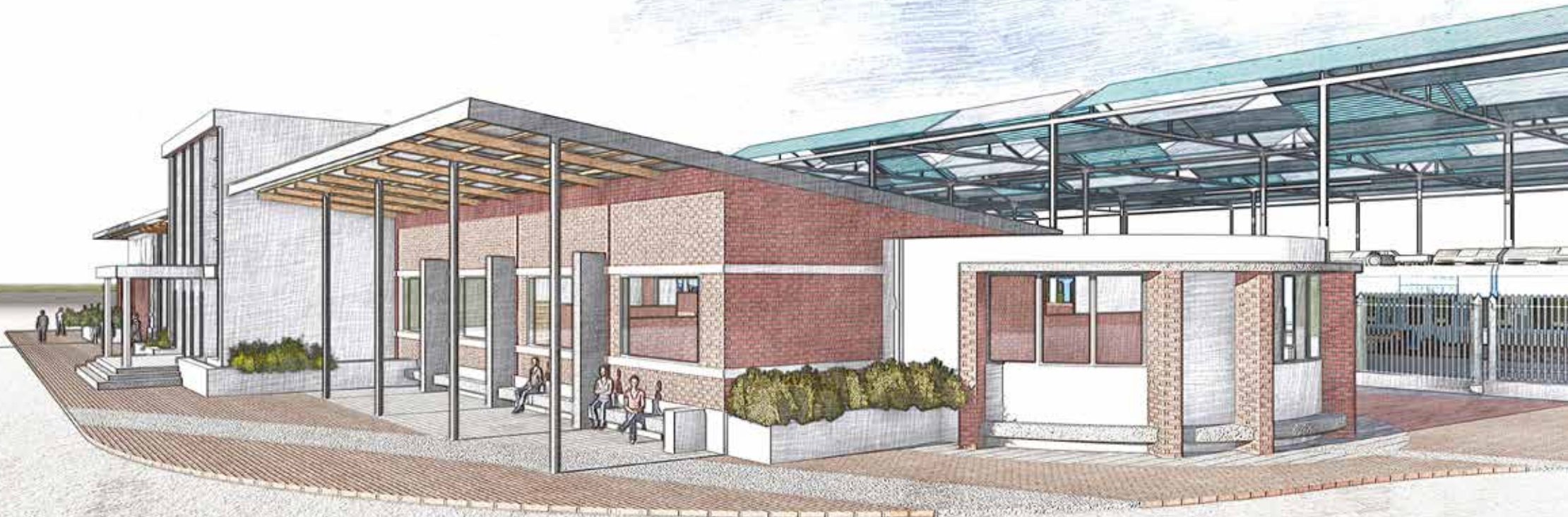
STATION ADMINISTRATION

COURTYARD

KITCHEN

STORE ROOM

STORE ROOM

OPEN PLAN OFFICE

OPEN PLAN OFFICE

FOYER

VERANDA

VERANDA

VERANDA

GROUND FLOOR PLAN

0 1 2 3 4 5m

WESTERN ELEVATION

0 1 2 3 4 5m

SECTION 1:1

0   1   2   3   4   5m

SECTION 2:2

0   1   2   3   4   5m

SOUTH ELEVATION

0   1   2   3   4   5m
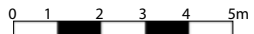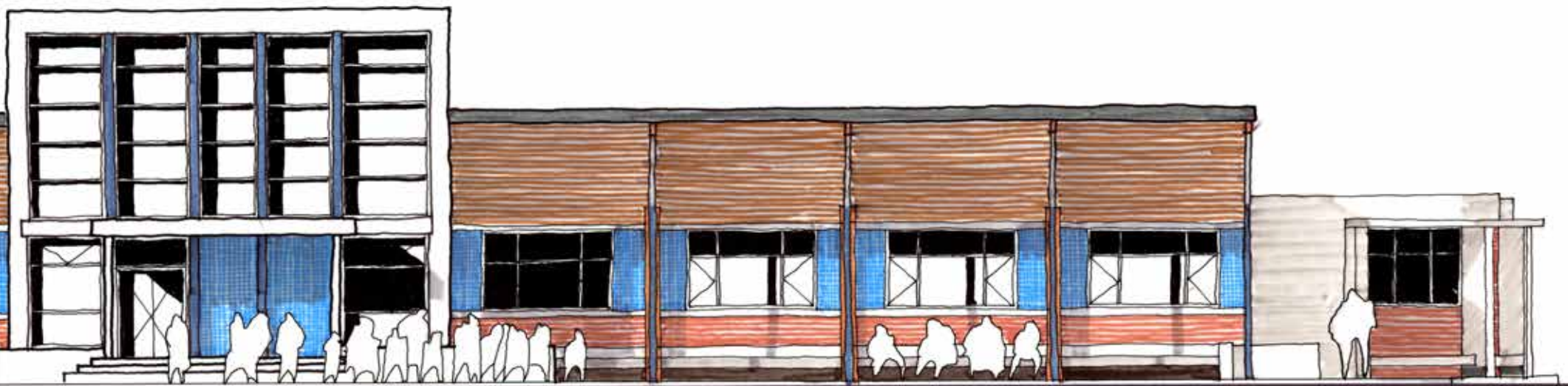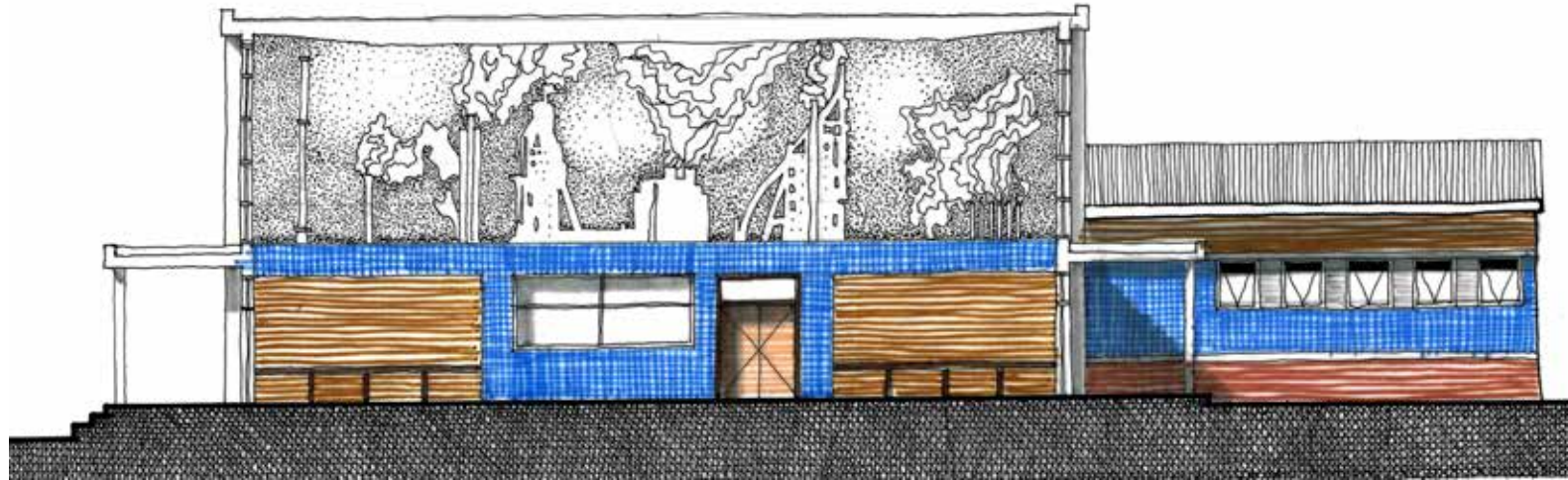
TRAIN TERMINALS

FIRST FLOOR PLAN
CONCOURSE & TRAIN TERMINALS

0 4 8 12 16 20m
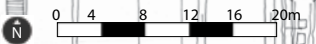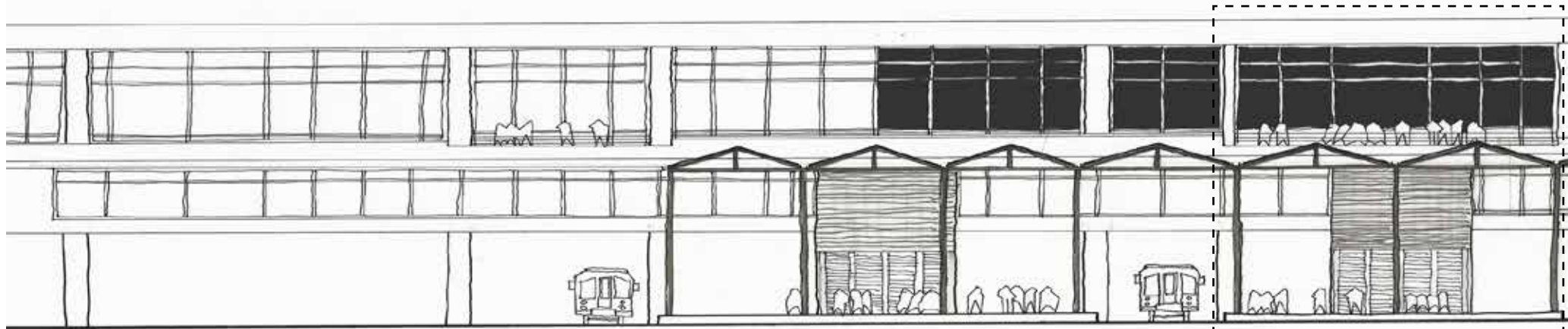
DETAIL ELEVATION

SECTION 1:1

0   2   4   6   8   10m

SECTION 2:2

0   2   4   6   8   10m

DETAIL ELEVATION

0 1 2 3 4 5m
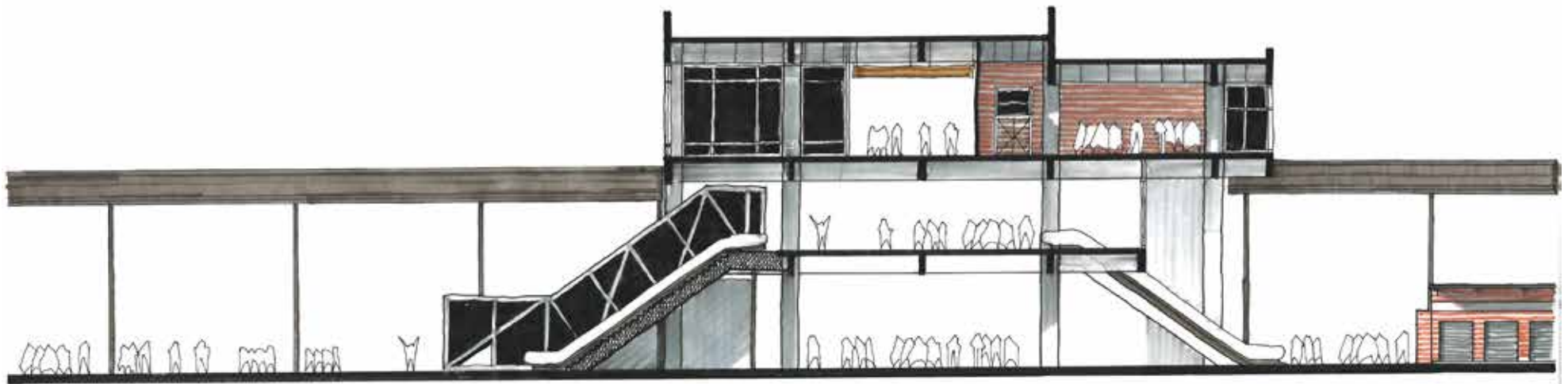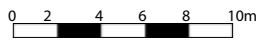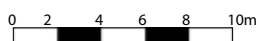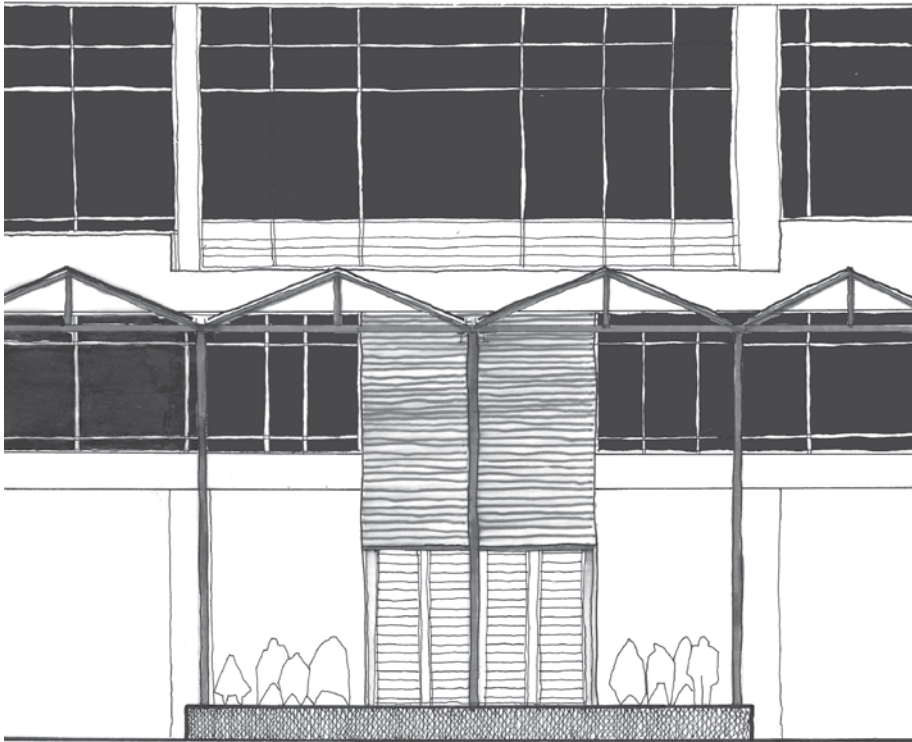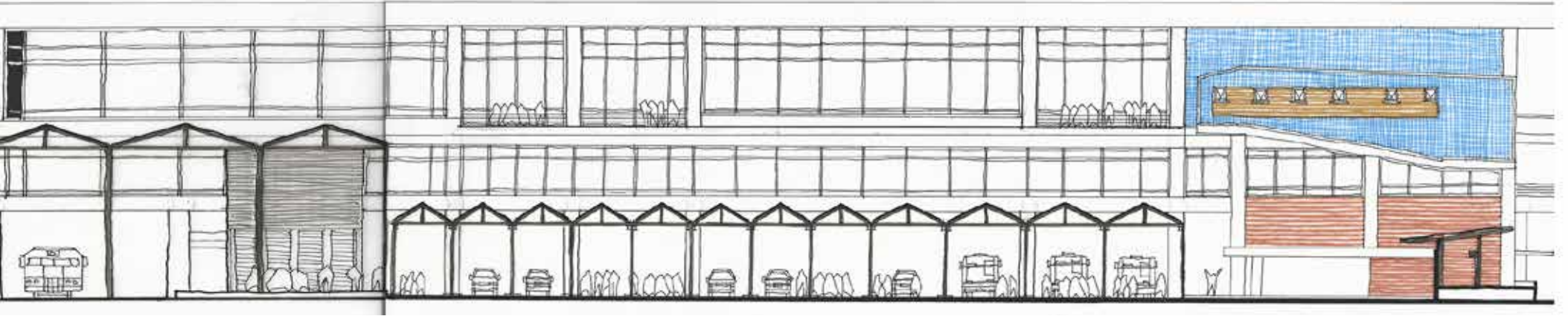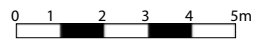
TAXI DRIVER MESS HALL & TERMINALS

union street

existing shops

existing shops

mess hall
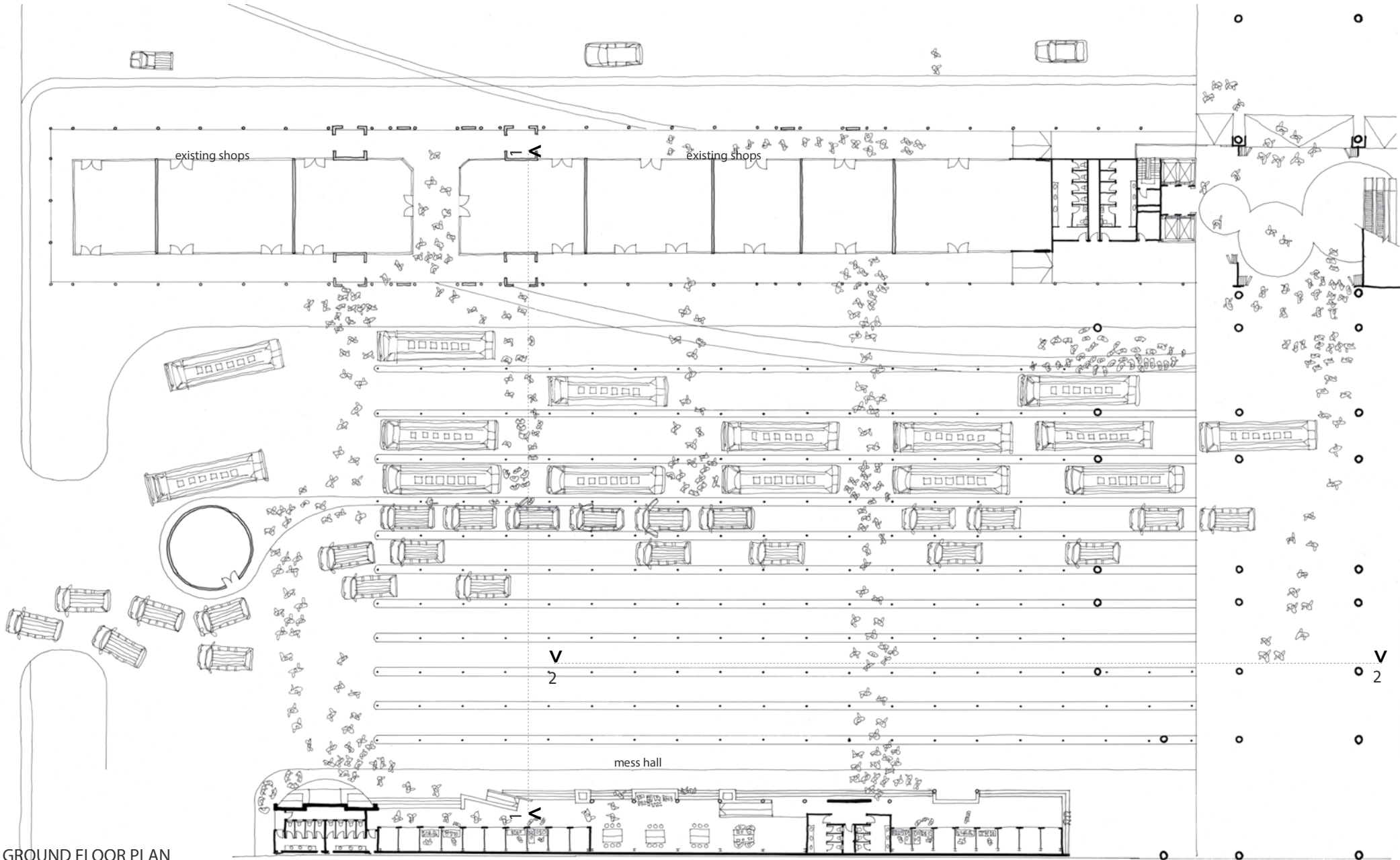
GROUND FLOOR PLAN
TAXI & BUS TERMINALS

N

0   2   4   6   8   10m

SECTION 1:1

0 1 2 3 4 5m

SECTION 2:2

0 1 2 3 4 5m

SECTION 3:3

0 1 2 3 4 5m

HERITAGE STUDY
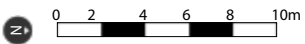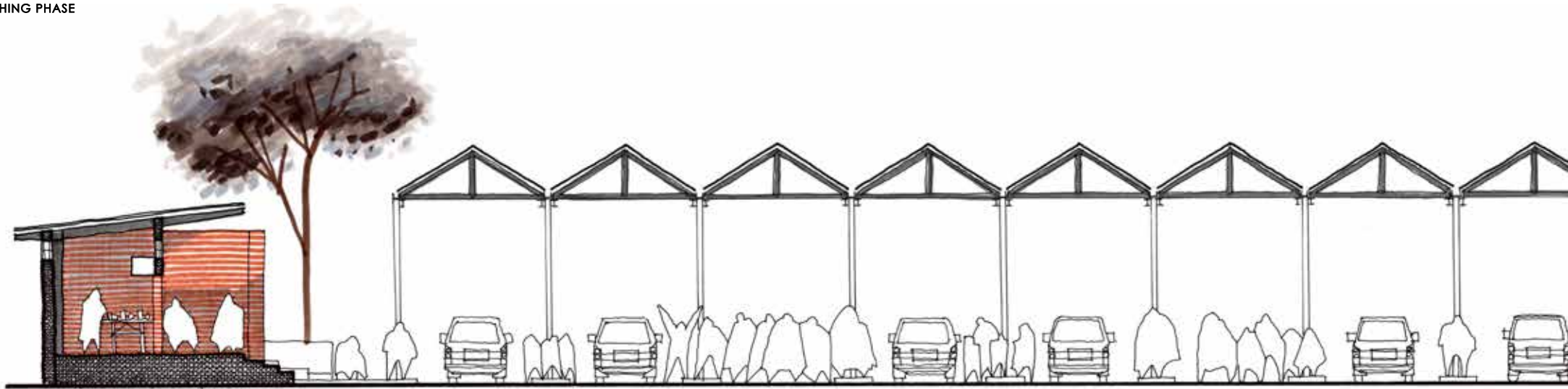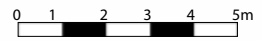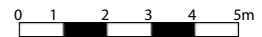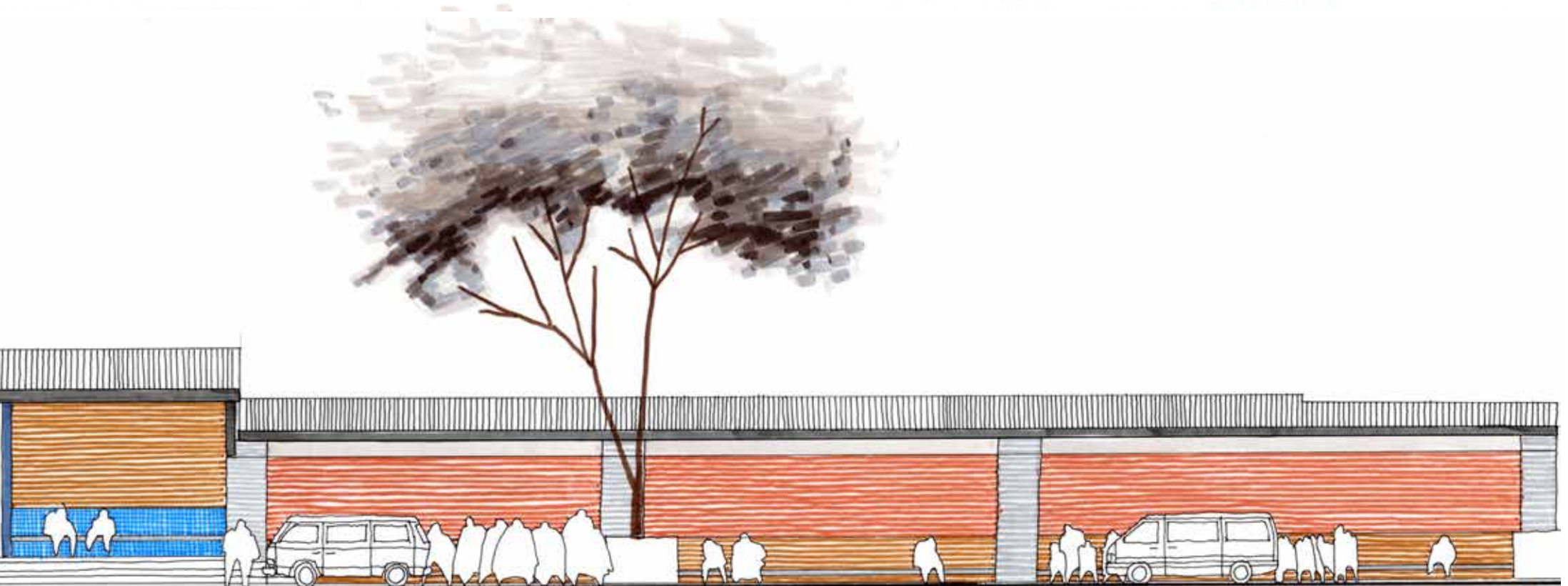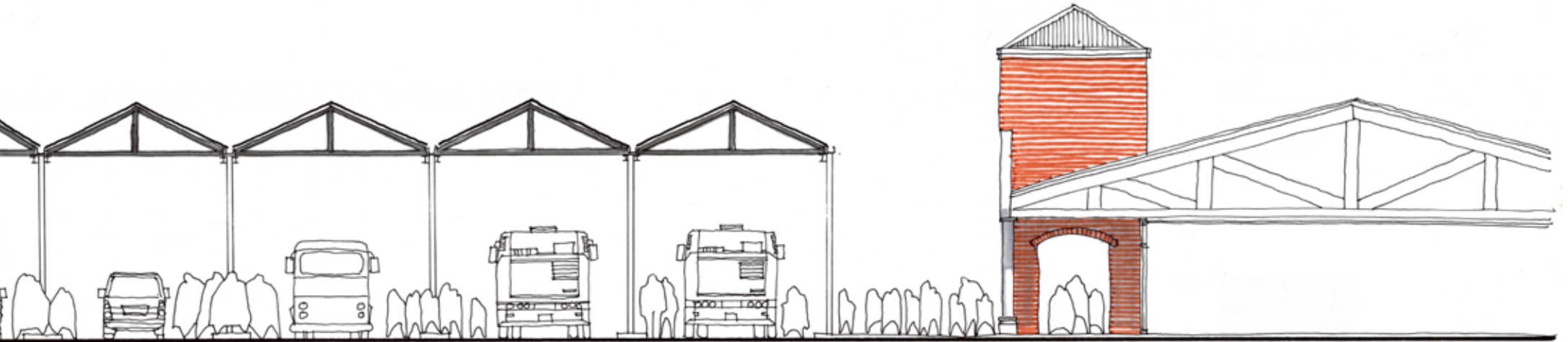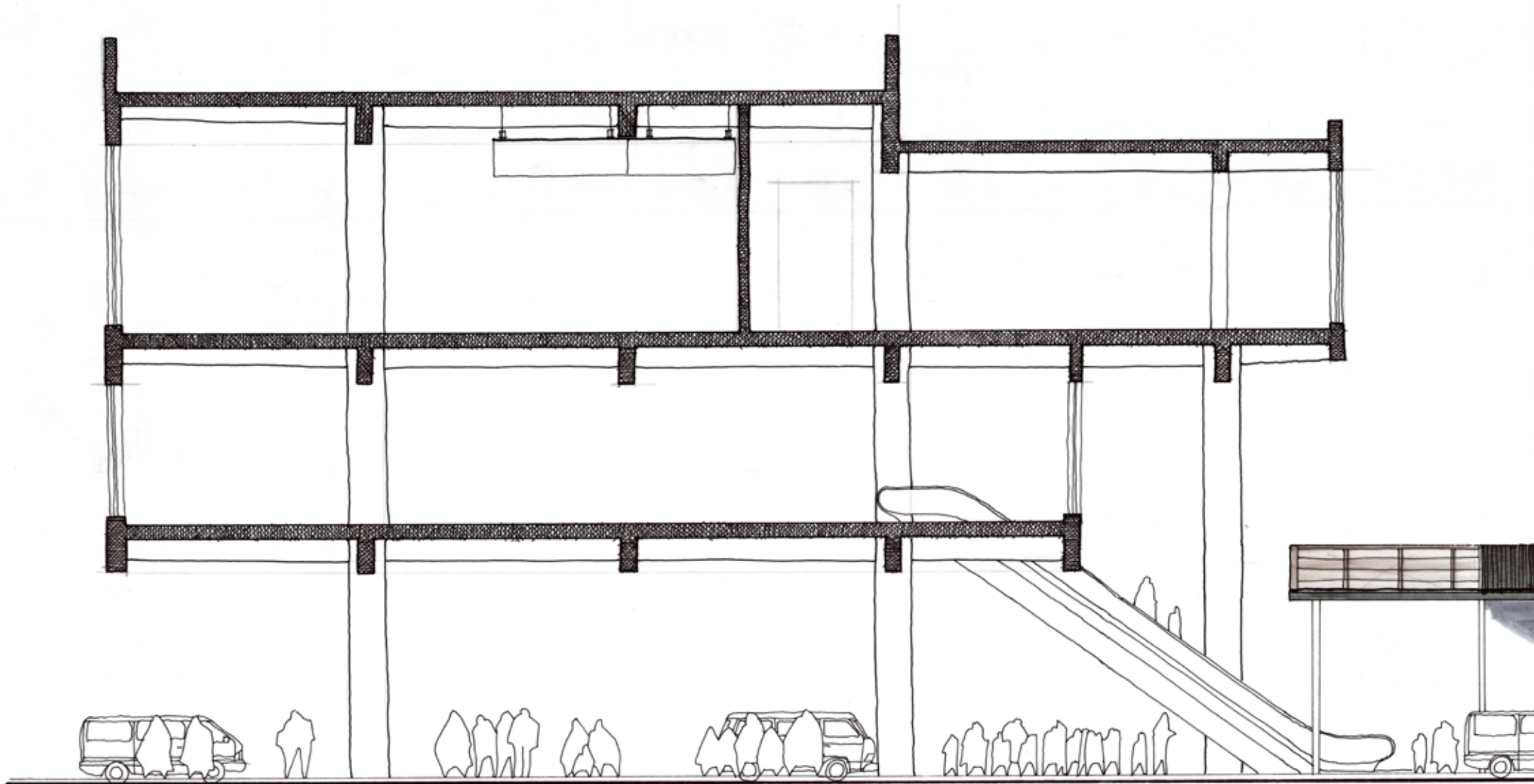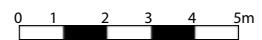
BRIDGE – VEREENIGING
...LAATDRIFT Nº 336 & MACCAW VLEI Nº 121
...NESBURG TO BLOEMFONTEIN.
...DISTRICT – TRANSVAAL PROVINCE.
...DISTRICT – O·F·S PROVINCE.

GENERAL DRAWING
(REVISED SITING)
ELEVATION
SCALE·30 FT TO 1 INCH.

LEFT BANK

CROSS SECTION OF BANK.   CROSS SECTION OF BANK SHOWING PITCHING.
                          SCALE·10 FT TO 1 INCH.

DRAWING Nº 793-R&B
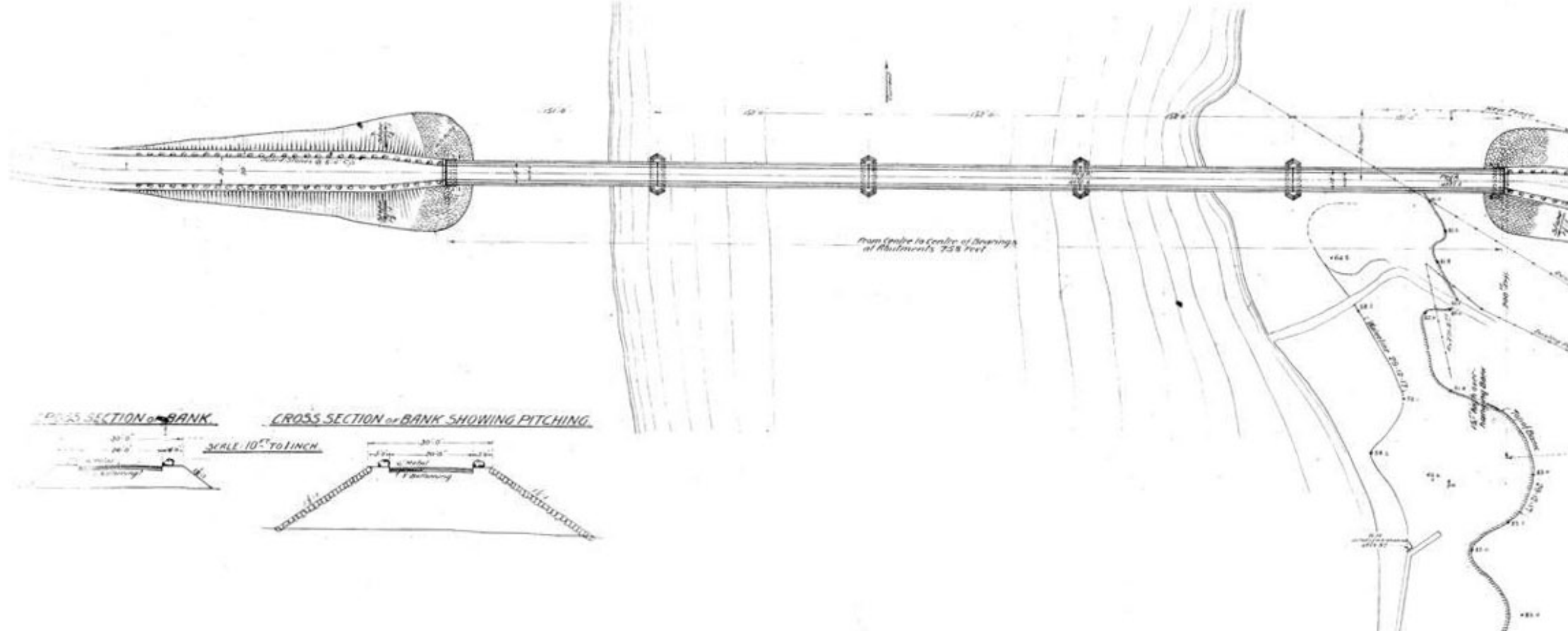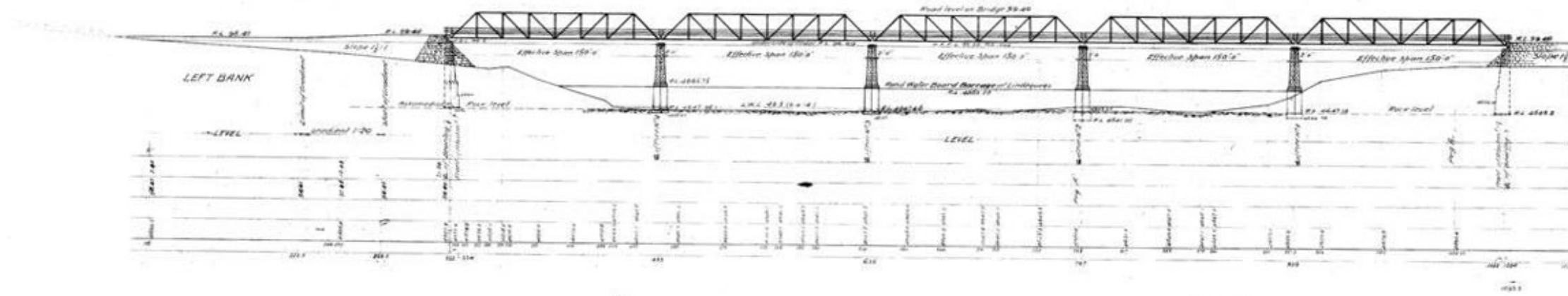
ORIGINS
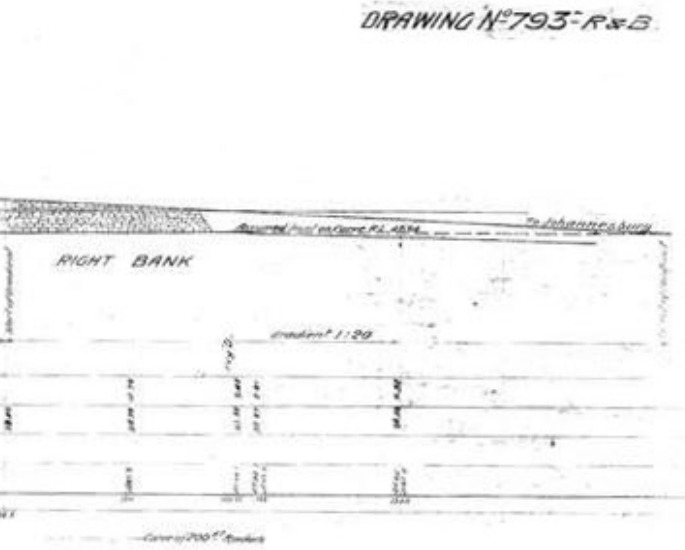
The old NZASM bridge (the largest of the NZASM bridges) across the Vaal River at Vereeniging was in use until 1955, when a new double track girder bridge was built further downstream. The girders on the older bridge were removed, but the abutments and piers were left standing, now carrying a pipeline across the Vaal River (De Jong, 1988: 175).

Photos top & left: Horst Muller
Drawing far left: SA General Surveyor Archives

THE VEREENIGING ESTATES LTD.
GENERAL SURFACE PLAN
FROM
VEREENIGING TOWNSHIP
TO
VILJOEN'S DRIFT STATION

Kenilworth Village Layout, c. 1891
(Drawing: by Jaco Wasserfall after The Building News illustration from 9/1/1891)
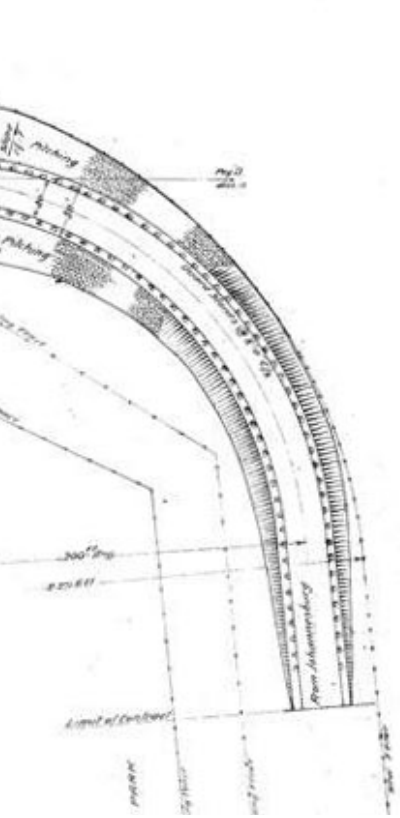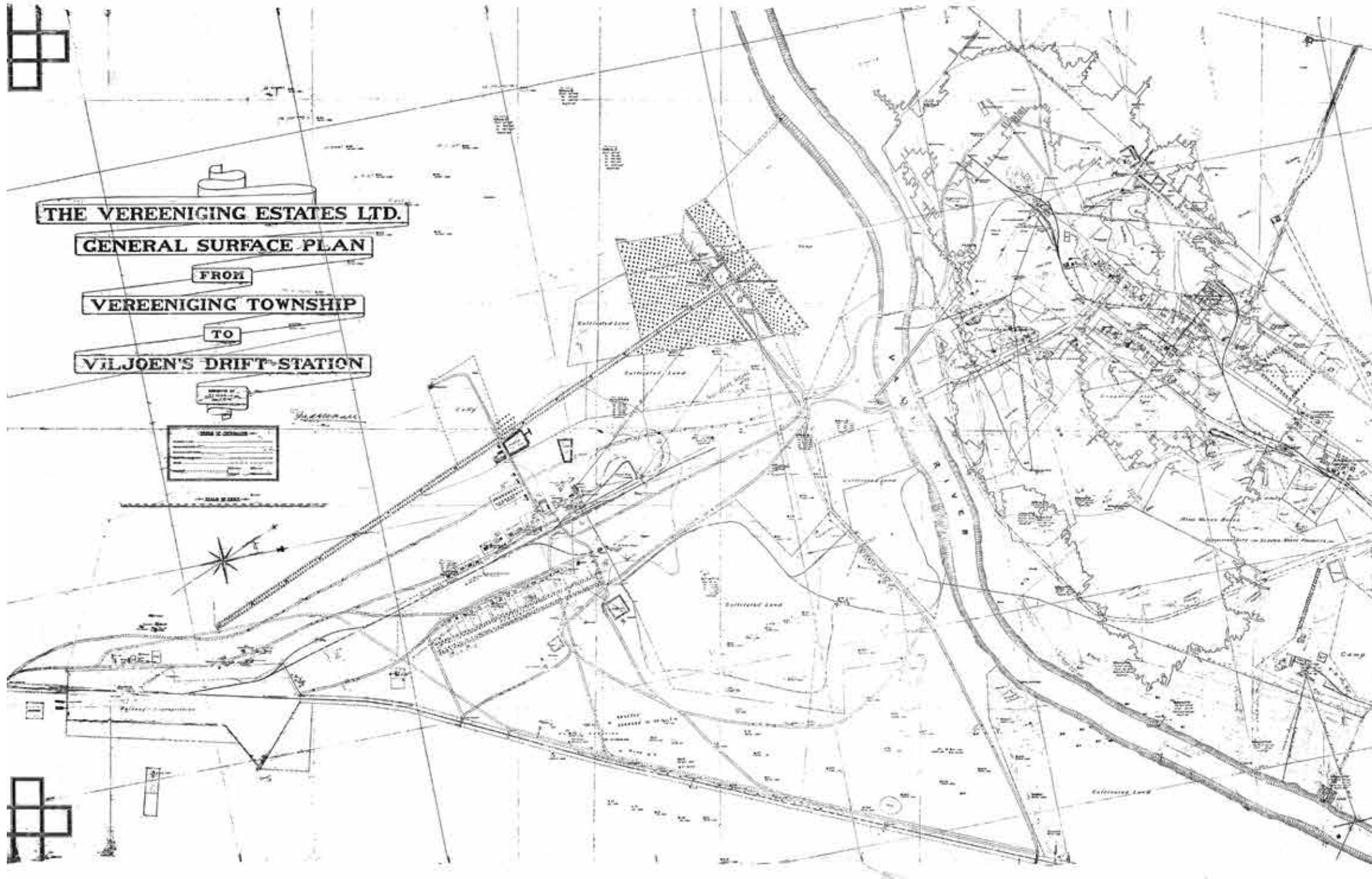
EARLY HOUSING IN VEREENIGING
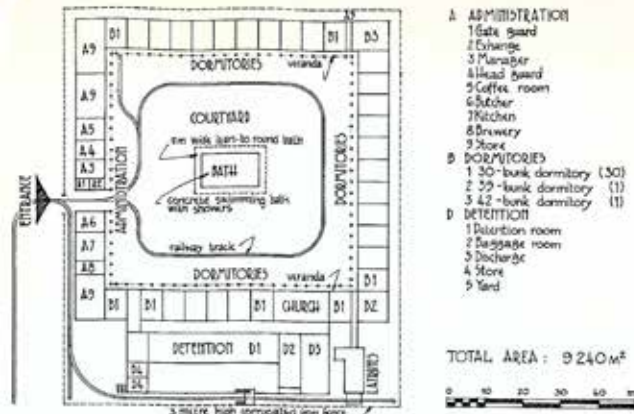
Surface Compound for 981 immates at Premier Mine, c .1903
(Drawing: by Jaco Wasserfall after DBA: BY741)

A timber & corrugated sheet cottage from the Vereeniging Brick & Tile Co. village.
May have been an infirmary.
(Photo: Vaal Teknorama

Mine Manager's house from the Vereeniging Brick & Tile Co. village.
(Photo: Vaal Teknorama Archives)

Vereeniging Estates Limited was a company owned by Samuel Marks who registered the company in 1880. It started as a mining company extracting coal. Marks ambitions for the site was initially to sell coal to Kimberley and eventually start South Africa's first steel mill.

Clay deposits were also discovered (1890 at Bedworthpark) beneath the layers of coal. It was of a practically inexhaustible supply and of the highest quality. The discovery also included deposits of Kaolin used in the manufacture of porcelain. It is also important to note that the clay products manufactured at the Vereeniging Brick & Tile Co. were used in the expansion of NZASM, the Kimberley compounds and worker's villages and the roof tiles of the Union Buildings in Pretoria.

Vereeniging Estates which is the precursor to the township of Vereeniging shared strong characteristics with Kimberley during its mining era: both started more or less at the same time, both consisted of mine compounds (Vereeniging Estate's compounds resembles the Premier mine compound, particularly in its size) and worker's villages. It is not clear who the architect may have been

for the worker's village buildings at Vereeniging Estates, but it may have been Sydney Stent (this is speculative) who also designed the Kenilworth Village in Kimberley. Both Villages share basic similarities in their linear configuration and their program, consisting of: bachelor quarters, married quarters, a hospital/infirmary, a school, shops, stables, recreational grounds/field, club house and police barracks (the social norms of the era are also responsible for the program and not necessarily the architect).

Equally interesting is the supporting infrastructure to support the working population and mining industry: industrial agriculture for food production, blue gum plantations whose timber is used for supporting mine shafts, and Spanish Teak that is used in building construction and furniture. There is also a large number of native locations (probably the labour reserve), this is evidence of segregation long before apartheid and also before the establishment of the Vereeniging township in 1892.

Drawing: Vereeniging Brick & Tile Archives
Date Unknown: Post 1880

Photos top & left: Horst Muller
Drawing far left: SA General Surveyor Archives
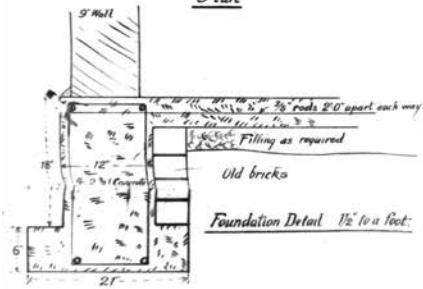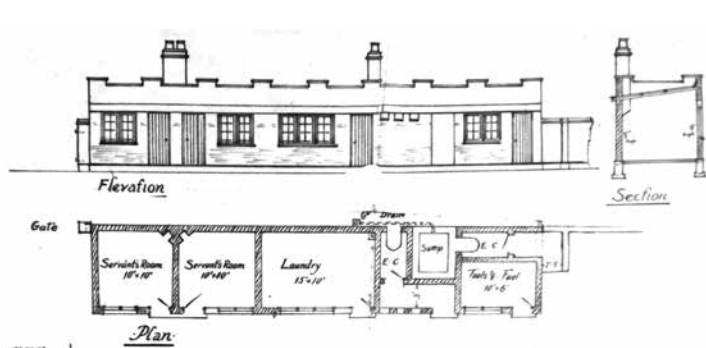
Outbuildings – Mrs V. M. Dick
Scale ⅛' to a foot

Elevation
Section
Gate
Servants Room 18'×10'
Servants Room 18'×10'
Laundry 15'×10'
Tools & Fuel 10'×6'
Plan

9' Wall
Filling as required
Old bricks
Foundation Detail 1½' to a foot

BACK ELEVATION

BED ROOM
BED ROOM
BED ROOM
STUDY
HALL
STOEP
STOEP
BATHROOM
PANTRY
SCULLERY
KITCHEN
PASSAGE
MORNING ROOM
DINING ROOM
STOEP

TENNIS COURT.
742.
741.
712.
GARAGE.
STANLEY AVENUE
LESLIE
BLOCK PLAN · Scale 40' = 1 inch
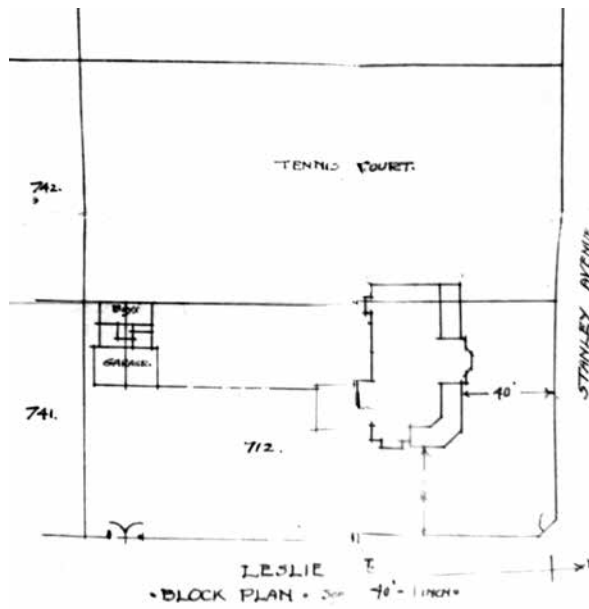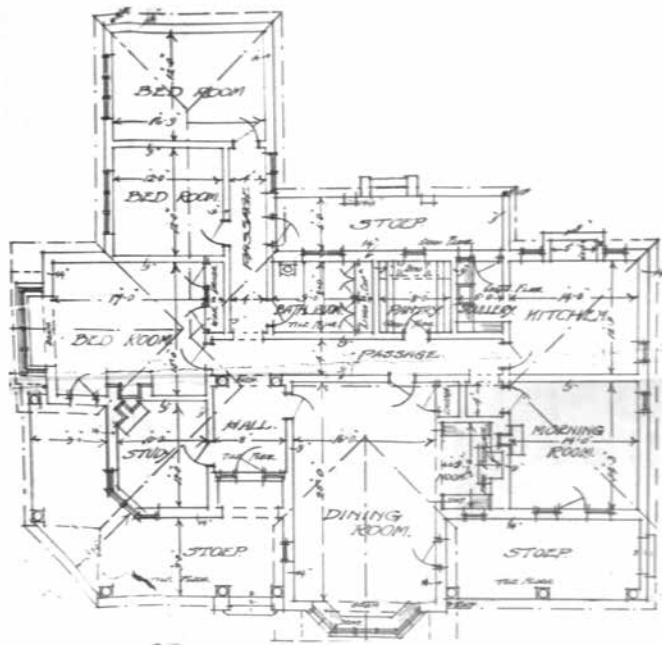
1922
The Dickson House designed
by Percy Rogers Cooke.
Corner Leslie Street & Stanley Avenue.

Photos: authors own
Drawings: Emfuleni local council building
plans archives
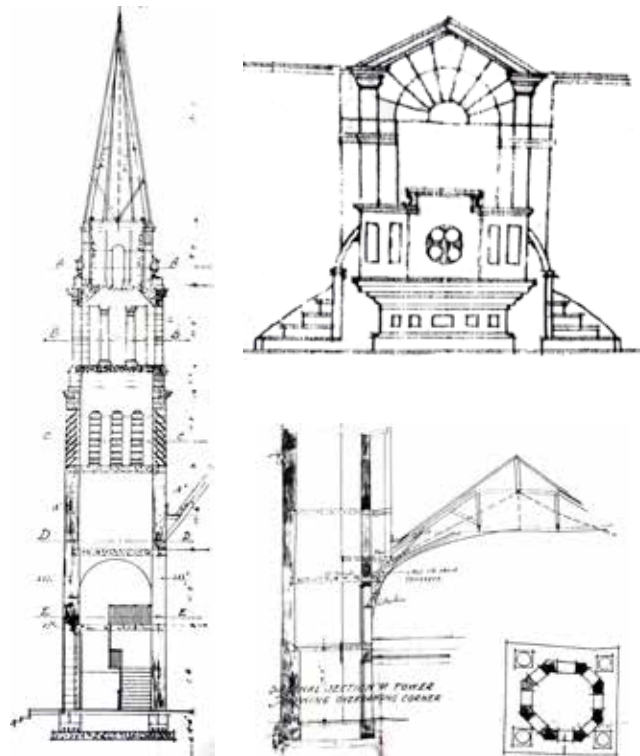
DETAILS
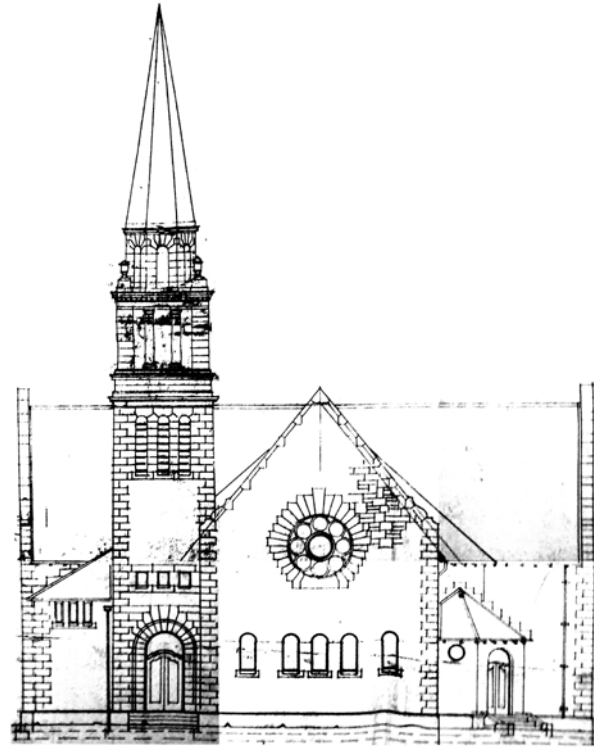
sOUTH ELEVATION
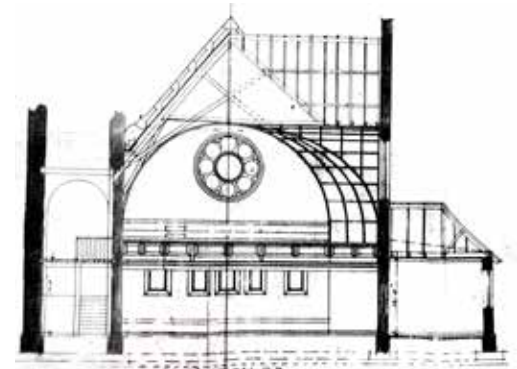
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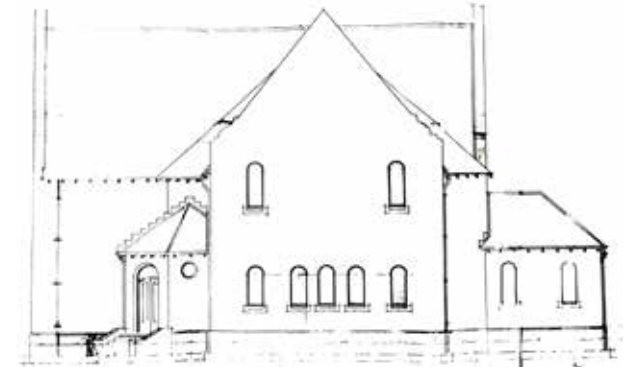
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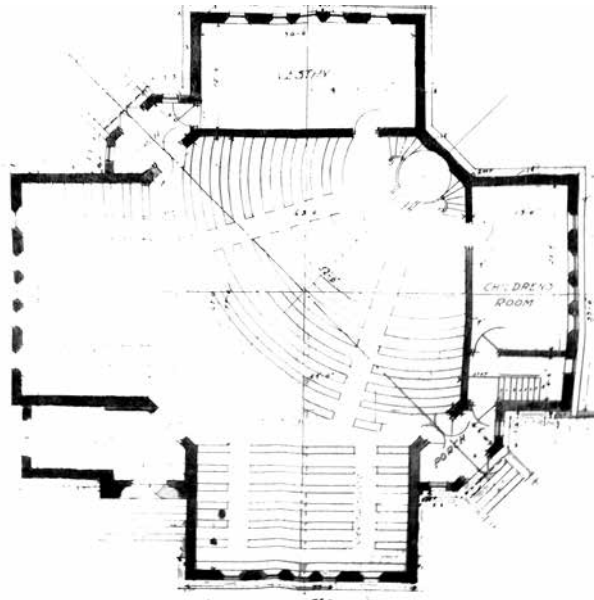
GROUND FLOOR PLAN
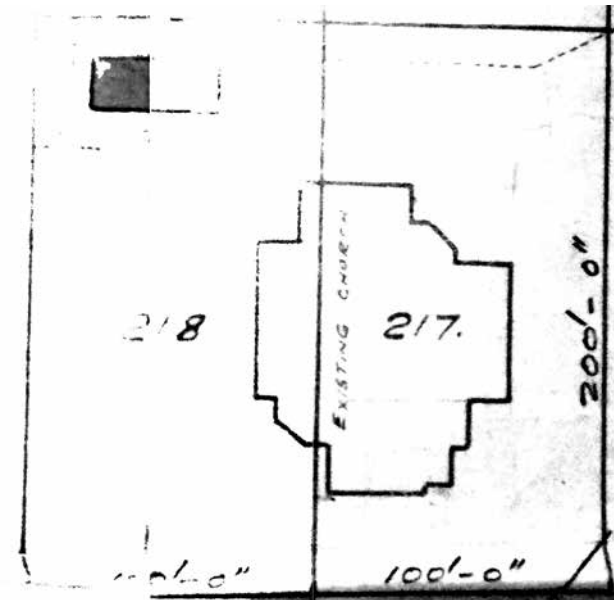
SITE PLAN

Photo: Sarel Freldmann

Photo: author's own

1926
The Vereeniging Klipkerk designed by Gerard
Moerdyk & Wynand Louw
Corner Leslie Street & Hofmeyer Avenue

Drawings:
Emfuleni local council building plans archives.
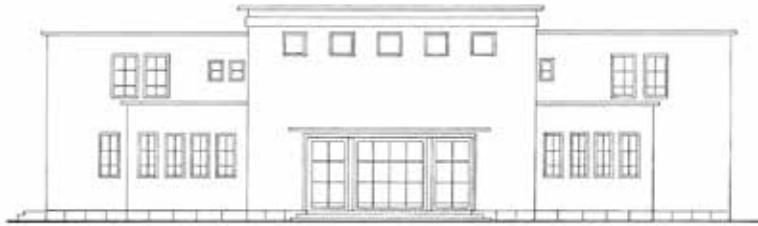
WEST ELEVATION

SOUTH ELEVATION
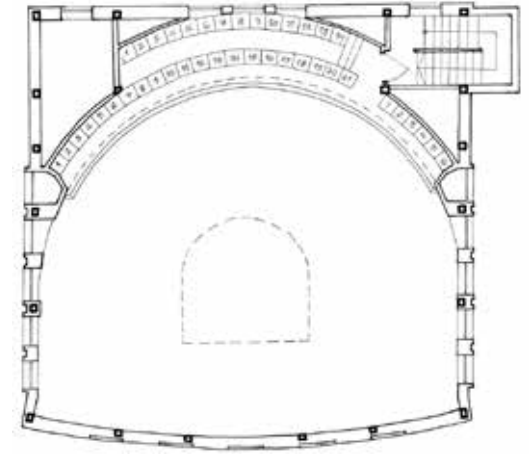
COUNCIL CHAMBERS GALLERY DETAIL PLAN

EAST ELEVATION

SECTION

Gallery

Council Chambers

Lobby

Councilors room

Vestibule

Outer lobby

FIRST FLOOR PLAN

Verandah

Verandah

Male Councilors

Small Committee room

up

Lobby

Waiting room

Large Committee room

Passage

Gents lav

w.c

Lady Councilors

lav

Ladies w.c

Chair store

tea kitchen

Council Chambers

sky light

GROUND FLOOR PLAN

Outer lobby

Lobby

Secretary

Mayors Parlour

Mayoress Parlour

lav w.c

Mayoress Robing room

w.c lav

c.c.

Ladies restroom

Passage

Vestibule

Passage

lav w.c

scullery

Bar

Councilors room

lobby

Bar lav

lobby

Kitchen store

Kitchen

Ladies meeting room

pantry

The Vereeniging Council Chambers
Photo: author's own

1958
Municiple offices and council chambers are built, designed by Gordon Leith and Vennote.
The above drawings are of the Vereeniging Council Chambers.
Corner Joubert Street & Beaconsfield Avenue.

Drawings: Drawn after Leith.
Source: Emfuleni Local Council building plans archives.

A residential street in Top Location

A shop on First Avenue

A semi-detached row house in Top Location

A view looking down First Avenue

Photos: Yusif Gathoo

It is sad to note that the following booklet currently listed at the Wits William Cullen Library has either been miss placed or lost, in either case it would certainly shed more light on the history of Top Location:
- Vereeniging Municipality. (1949). Survey Of Native Families Living In The Duncanville Location, July 1949. Colling & Partner.

Remembering Top Location:

Discrimination was built into the fabric of urban life in Vereeniging from the start. ZAR regulations applied to early Vereeniging had allowed black workers to live in the backyards of 'white' stands but not on the street front. Asians however were allowed to live on the street front but between 1892-1903 were restricted to 24 erven on stands 169-174, 235-240, 241-246 and 319-324. These stands formed the Koelie location in town. In 1903 the Asians were moved north outside of Vereeniging in an area named Asiatic Location which consisted of 100 stands, this was to be the precursor to Top Location. By 1910, the Vereeniging Municipality had made available a commons for black self-housing. This was to be merged with Asiatic Location and consolidated into the formation of Top Location, which was home to 576 people in 1919. More than two thirds of black people in Vereeniging still lived in back-yards and in industrial compounds. Top Location was situated in current day Duncanville. After its demolition, a high school was built on the site and the remainder renamed the Skippie Botha Park. In 1992 the Vaal Teknorama Museum built on the ground of the park. To the far west of the park, remnants of foundations and rubble that were once houses still mark the area (Hallowes et al, 2006: 68).

The lives of the people of Top Location were governed by a set of rules enforced by a 'native' administration under a white superintendent. Residents had to be approved by the superin-tendent and approval was linked to work permits. They had to provide their own dwellings and could sell the buildings (but not the land) only to persons approved by the superintendent. Only married men could lodge with residents before 1935 and they had to get a monthly lodgers' permit. Buckets were used for sanitation and removed three times a week. Water was provided in standpipes. Later, public shower facilities were provided with separate blocks for men and women. There was no drainage system, however,so water ran into neighbouring yards.

The administration, determined by the Black Urban Areas Act, was funded from the 'Native Income Account'. Services and amenities were limited to what could be paid out of this account after the salaries of the superintendent and his black policemen had been met. Its income came from rents, fines and licences and from the administration of work permits. It also earned income from a monopoly on brewing and selling beer and waged war on women who brewed beer to supple-ment their incomes. People thus had to pay for the means by which they were oppressed, a principle that served apartheid well and which endures in the administration of 'cost recovery'. In 1935, a Native Advisory Board (NAB) was established with seven representatives elected by the residents of Top Location. Also in 1935, the municipality decided that the people should be moved from Top Location. It therefore halted all expansion and
improvement in services.

Conditions quickly deteriorated leading to outbreaks of pox, typhus, dysentery and infantile paralysis. This provoked local activism and organising, including by the ANC. The NAB was caught between activists who criticised its violent origins in-effectiveness and white administrators who rebuked even the mildest demands. The representatives finally started a boycott of NAB meetings with the support of the ANC (Hallowes et al, 2006: 68-69)

In an Interview conducted with Yusif Gathoo, a surviving resident of Top Location, recalls the presence of a beer hall, Sunday school, cricket and soccer fields that ocassionally hosted soccer matches with the Portuguese community. Additionally there was a main street upon which shops faced, First Avenue, and which was also the axis which divided Asians and coloured residences from black residences. Notably Yusuf also recalls there being only one Chinese family living in Vereeniging during the 1950s.

1903
Asiatic Location, Vereeniging, SG diagram.
Source: South African SG archives

Reminisce of the border of Asiatic Location

Major street and boarder line axis- First Avenue

Asian and coloureds Residences

Black Residences

water canal

1941
Top Location as depicted on the topographical map.
Source: NGI archives

water canal

1954
Top Location as depicted on the topographical map.
Source: NGI archives

Skippie Botha Park

Vaal Teknorama Museum

Phoenix High School

Johannesburg Road

water canal

2012
Current day site in Duncanville where Top Location existed.
Source: NGI archives

FEASIBILITY STUDY

Feasibility Study

Executive Summary

The purpose of this study is to determine the viability of an integrated public transport interchange and business hub in Vereeniging, as part of a renewal of the city's CBD. The existing local public transport network is under severe stress and relies heavily on the local mini-bus taxi industry which is not fully regulated and therefore puts commuters at risk.

The project is proposed to be sited in Vereeniging and to replace the existing train station and taxi rank. The site is located on Union Street in-between the dense city fabric and a social housing scheme referred to as Government Village. The project is aimed at providing am alternative modal for inner city rejuvenation, thus altering the standard model for a public transport station. The project will utilize more than one mode of transport through interchange, which will bolster commercial trade opportunities. The building will not only be a physical gateway into the city, but will also offer economic opportunities to the less fortunate through a business hub.

The study will help answer the need and relevance of passenger rail, bus and mini-bus taxi services in the area. Additionally the study will also assess the viability of a market to accommodate informal trade and a business hub to empower the disadvantaged local residence. Since the project consists of a wide program involving various state and public entities, they will form a joint venture agreement where each party will contribute to the project. The process of the project's insertion will include community consultation and skills exchange, so that the building itself embodies a process of investment into the local economy of Vereeniging.

Client

Legal Constitution

The interests of the project would fall mainly under the Gauteng Department of Transport (GDoT) and the Sedibeng District Municipality (SDM).

The GDoT is responsible for conducting sector research, formulation legislation and policy to set the strategic direction of subsectors, assigning responsibilities to public entities and other levels of government, regulating through setting norms, standards and monitoring implementation as mandated by the National Transport Policy White Paper of 1996 and the National Land Transport Act of 2009. The project will fall under the jurisdiction of the SDM as mandated by the Local Municipalities Structure Act of 1998, they will also mediate between stakeholders nd provincial government.

Leadership & Decision-Making

The project will be administered in a two-tier system. State owned entities such as PRASA and the Department of Public Works will be assigned into a joint venture agreement by the GDoT, these entities are regulated by the Companies Act 71 of 2008. The SDM will administer the project deliverables while GDoT will monitor the service delievry of the SDM.
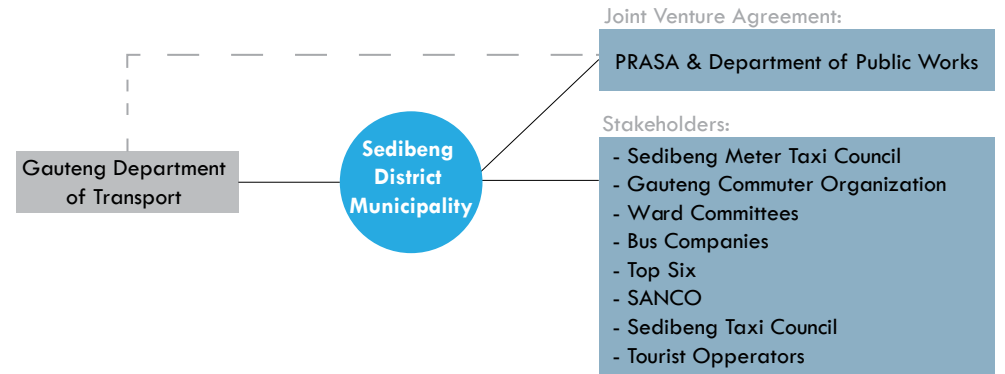
Client & stakeholder relationship diagram

Funding

The SDM will acquire funding for the project from government departments, government grants, donors and stakeholders. After Phase 1 is completed, the stakeholders will be able to recover money spent on the project through operational income on site.

- The Municipal Infrastructure Grant (MIG) is consolidated grant mechanism of various grant programmes that include: local economic development fund, community based public works programme and an urban transport grant. It is aimed at providing all South Africans with a basic level of service over a ten year period as of 2013.

- The Passenger Rail Agency of South Africa (PRASA) is a state owned public entity that generates profit and provides rail and bus services as contained in the Legal Succession Act of South African Transport Services Act of 1989 as amended in November of 2008. Prasa's major

- income streams are operational subsidy (from the Department of Transport), fare revenue (Autopax and PRASA Rail) and rental income (PRASA Cres & PRASA Rail).

- The Development Bank of Southern Africa (DBSA) Is a state owned entity with the purpose of accelerating sustainable socio-economic development. The DBSA has funding available for project preparation in the transport sector.

- The World Bank is a vital source of financial and technical assitance to developing countries. It consists of five organizations one of which, the Internal Bank for Reconstruction and Development (IBRD). The IBRD lends to governments of middle- income and credit worthy low-income countries.

A concept for a building that would encourage the development of local commerce was put forward, and government set up a joint venture between PRASA and the Department of Public Works to initiate the project's inception, implementation and then post-occupancy management under the jurisdiction of the Sedibeng District Municipality.

Phase 2 Funding Strategy Diagram

- **Sedibeng District Municipality**
  - **Government 65%**
    - Municipal infrustructure Grant
    - Development Bank of Sothern Africa
    - Department of Transport
    - Department of Public Works
    - PRASA
  - **Donors 30%**
    - AMSA
    - SANCO
    - World Bank
  - **Stakeholders opperation income after phase 1 5%**

Phase 2 Funding Strategy:

Phase 1 Funding Strategy Diagram

- **Sedibeng District Municipality**
  - **Government 65%**
    - Municipal infrustructure Grant
    - Development Bank of Sothern Africa
    - Department of Transport
    - Department of Public Works
    - PRASA
  - **Donors 30%**
    - AMSA
    - SANCO
    - World Bank
  - **Stakeholders investment 5%**
    - Sedibeng Meter Taxi Council
    - SANTACO
    - TOP SIX
    - Sedibeng Taxi Council
    - Bus Companies
    - Tourist Opperators
    - UNISA

Phase 1 Funding Strategy:

Project

Initiation and Conception

The SDM will aquire funding for the project from governent departments, government grants, donors and stakeholders. After Phase 1 is completed, the stakeholders will be able to recover money spent on the project through opperational income on site.

- Research from town planners and GCRO researchers highlighting the need for expansion of the public transport facilities in Vereeniging. Other research by town planners show the of trade on movement and that markets and movement work better when integrated.

- Recent establishment of various local and international case studies of micro-business funding have shown successful models of markets integrated with movement, and their extrapolated societal benefits in the way of economic disparity issues. These case studies include those of the Diepsloot Taxi Rank (Johannesburg), Maputo Central Market (Mozambique),the Isfahan Bazaar (Iran) and the Strand Street Station (Cape Town). Please see Appendix C.

- A built institution that could house a version of the above-mentioned cases could have a much larger and sustainable impact on a community, since it is created at a specific location and integrated as closely to a specific context as possible, ensuring a better probability for success and resiliency. A built institution could

- also become a tangible marketing, civic and educational tool that could inform and encourage future similar

Sketch indicating abstract brief where the building program integrates trade with movement (vertical axis), and where the building also mediates in-between a residential community and the high dense commercial part of the city (horizontal axis).

Brief Formulation

An open approach for the formulation of the brief is suggested to be made; since the project's prime aim is to benefit the society it would serve. This would encompass input from a variety of sources, including the contextual community, economic professionals, architects , urban planners and contractors.

1. Client
The Sedibeng District Municipality would consolidate aims for the project and devise a basic brief to use as a starting point, based on the information gathered from government urban planners and case studies as previously mentioned.

2. Project Manager
The Sedibeng District Municipality should select a project manager with experience in community liaison and access to a wider range of economy knowledge and labour intensive public works for the immediate and larger context.

Duties of Project Manager in Terms of brief formulation:

- The project manager would perform market research on a general city-wide scale, and identify regions for appropriate and favourable siting; in terms of positioning the project on a fringe which experiences very declined economic disparity in the city. This would be presented to the board of directors for approval. Following research including data capturing as displayed by GCPRO, Vereeniging CBD is selected as a focus region.

- After selecting a specific region for study in Vereeniging, the project manager would then perform local marketing research (through arranged community workshops and research).

- Based on the information gathered from large and local-scale marketing research, a feasibility study would be conducted. This would be based on analyzing quantified results of micro-businesses and households that would potentially benefit from the system, pitted against research into more specialized steel manufacturing economy looking to diversify into informal and localised economies. Would such a platform be viable in this area?

3. Architect, contractors and community

- The PRASA and Department of Pulic Works assigned architect would receive the client's brief and adapt it to spatial practicalities.

- The architect would check the selected site's rights: the site retains a height restriction to eight storeys and depicts mix use zoning including office and retail and housing. The SGD diagram is obtained and shows the sites building boundaries and servitudes. These must be adhered to.
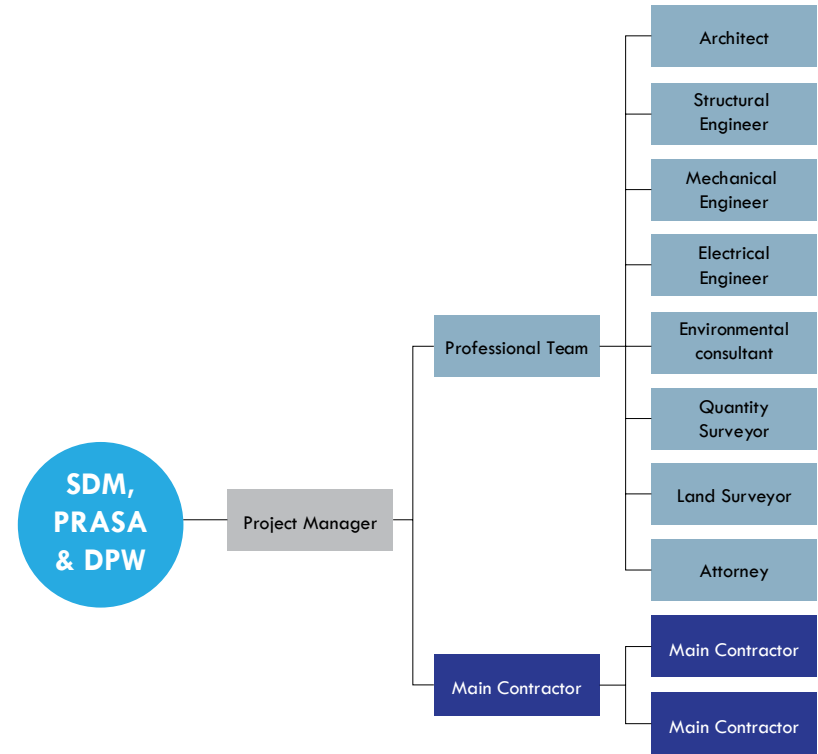
Project team members and hierarchy diagram:

Site Selection

The following factors were informative in the process of site selection for the project:

• Proximity to existing rail network, mini-bus taxi and bus services.

• Proximity to Vereeniging CBD

• A space where the site mediates between high density mixed use and low density residential.

• Good visible connections between the site

• Reasonable zone and site restrictions

• Positioned in an area marked for future regeneration, so this project may form part of its aims.

• Selection of site which displays various spatial issues whereby the introduction of a such a project would have a well-received benefit to the local context's public.

Diagram indicating selected locality of the project, on Union Street; Vereeniging.

Market Investigations

Regarding the previously-mentioned market investigations, that would be necessary informants to the project brief, a
larger context economic analysis of Greater Johannesburg would need to be conducted to identify a favourable site in
terms of supplying a possible markets. Favourable conditions most importantly include proximity to both very high and
low income residential and business areas; as well as evaluation of other favourable site condition occurrences as
mentioned under the 'Site Selection' section of this document. Following the identification of a favourable site, a local
economical, social and environmental impact assessment would need to be conducted:

1. Economical Impact and TransportAssessment.
Market research into the proliferation of required amenities to support and improve the possible success of
micro-business and public transport would be undertaken, so that the built structure would reflect these necessities. In
addition, a mapping of quantity of micro-business that already exist on site will be analysed in terms of permanence,
income, and product sources; and this will inform the viability of inserting further economic stimulation into the area,
and will require re-accommodating these businesses within the building, or if not possible at alternative favourable sites.
The insertion of the building should be extremely sensitive to its economic environment, and this is likely to demand

enlarged scope of works for the architects and designers.

2. Social Impact Assessment.

The marketing survey should identify the political and social concerns of public in the context of the area, and should
ascertain the availability of community-based skills and resources. The project's implementation includes aims of using
small construction enterprise for input, as in conjunction with involvement of higher-tech mass structure involvement. The
research should show what benifits the proposal would have, thus displaying the viability of the project.

3. Environmental Impact assessment:
The existing context should be analysed in terms of service-availability and issues, available water, electrical and
tele-communicative resources and if the local context could benefit from such upgraded access to amenities. An analysis
into access to healthy environments will be regarded, likely identifying that public have little access to outdoor clean
vegetated spaces in the context (Vereeniging), and that office productivity levels in the area are lower than they could
be, given improved interior space design.

Project Design process

As previously discussed, the project is proposed to follow a 'development project' format, since an open approach to
design is favourable to reach the client's and stakeholders aims of serving context and public interests well. This favours
an appointment of a separate project manager, who would control project programming and development of the budget
with the inputs of community and specialist consultants, from a holistic point of view.

It would be necessary to define within the scope of works of the appointed architect to perform community consultation at the inception, design development and implementation stages. The project manager would set up these meetings with community leader and architect, and any relevant contractors or specialists as suggested by the architect. The architect should involve the expertise of professionals, especially mechanical engineers in preparation from the outset of an energy efficient design; to reduce post-occupancy overhead costs and increase rental possibilities. A considerable input will be necessary for efficiency in structure and wet-work service design; which should find extensive methods for building cost-savings; at a smaller cost of more intensive design input. Significant design work will be necessary to be contributed from an information electrical engineer; since the success of the project relies heavily on the quality and efficiency of its information and technological processes; particularly with its connections to a larger national network in terms of transport. The design team therefore would consist of architectural professionals, community representatives, specialist profes

sionals (including mechanical and structural engineer) and the contractor. The project manager would arrange client liaison meetings of the design team with the architect at least at the end of each stage.

It should be noted that the project is proposed in a series of two phases, to allow for manageable pull on design
resources and to stagger funding sum supplication (to make the project more economically viable). The first and second
phases would be conceived together (Stage 1 of the scope of the phases), however each phase would be executed in

succession; so that the first phase is designed and built and handed over, allowing time for operational income; before
the second phase is executed. Please refer to Appendix A for a detailed breakdown. This thus indicates two processes
of design development, with the first phase's performance being informant to the altered development of the second.
The architect's role in the project would be vital in consolidating specialised and community inputs into a physical and
practical entity that can work. The recommendation of the involvement of energy and economic specialists are suggested,
in order to produce a building which is efficient in optimising its market and service to the public, and has reduced
operating costs after implementation. Suggested community involvement will, as previously mentioned, ensure the social sustainability and success of the project, as well as the client's aims.

Construction Procurement and Implementation

A Design and Managed contract path is proposed to be selected, where a two-tiered tendering process will occur, the first for a management component, and second for tender to subcontractors following the development of the design led by the management consultation. This option is selected since the entire scope of the project is likely not to be known up front, since concurrent input from community may alter the brief. Sufficient time is available for lengthened design and implementation time, which may occur. The project is also proposed as implemented in two stages; meaning that scope may change depending on the outcome of the first phase. A design and Management contract is thus favourable as one can go onto site immediately, to work on the basics of Phase One, while significant expected input from community members and specialist consultants take a considerable amount of time. It also would allow for competitive sub-contracting, as subcontractors would be hired when needed, and their services are not necessarily committed at the commencement of the project, by which time costing or quality of subcontractors may have altered.

The design development of the project would include a scope for inclusion of local trades-people and community members with skills who could add to the implementation process of the design. These separate entities would enter into contract and be managed by the main contractor, who would be apportioned a budget and scope for inclusion of such consultants.

The main contractor would also be apportioned a fee to hire a construction-training consultant, to improve the skills of the participatory members of the community, to reach a level of quality workmanship for the required brief. The skill straining would be performed in advance of the proposed building programme; so that participators are prepared atthe time that their skills would be incorporated.

The project manager would be required to ensure that the objectives of the brief are adhered to, in terms of set money and time frames, and that participants are satisfied ultimately. The project manager would need to oversee during implementation that the best produce for the best price is achieved, as well as overspending for product and services does not occur, and the contract um is adhered to; and this is suggested to be achieved through an intensive tracking of activities, time and money spent on site. Communication between contractors , community members, the design team and the client should be kept as thorough and transparent as possible to avoid disputes.

Interpretation

The analysis of the stated financial plan in response to the client's aims is shown to motivate feasibility. Please refer to the Building Cost diagram (Appendix A). Appendix A shows the total project cost for Phase 1 to be R156,564,500; with Phase 2 at R68,950,000. The operational income given by the first

phase allows the capital outset costs of the second phases to be reduced, and therefore possibly more attractive to implement in addition. The project is shown to be economically feasible, and with reduced risks due to phasing. It must be noted that in the event of any extra profits, the funds could go into further advertising for donors and government; or be save to eventually subside future similar projects or future expansion.

Stats sources:

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- Sedibeng District Municipality Interagted Transport Plan 2008-2013
- PRASA Corporate Plan 2015-2018

APPENDIX

Projected Project Cost as of 19 May 2016						
PHASE 1	Quantity	Singular Area	Total	Cost per m²	Total Cost	Section Cost
Administration						
Management Suite	1	50	50	11,500	575,000	
Standard open plan office	1	100	100	10,500	1,050,000	
Meeting Rooms	2	25	50	11,500	575,000	
Kitchen & Staff Lounge	1	50	50	11,500	575,000	
Staff Ablutions	1	75	75	4,500	337,500	
						3,112,500
Public Facilities						
Security	2	50	100	10,000	1,000,000	
Public Toilets	4	75	300	4,500	1,350,000	
Food Court	1	500	500	8,800	4,400,000	
Retail	1	1000	1000	10,500	10,500,000	
Market/Informal trade	1	3000	3000	7,000	21,000,000	
						38,250,000
Transit facilities						
Enquiries & Ticket Office	2	50	100	14,000	1,400,000	
Bus Station & waiting area	1	300	300	60,500	18,150,000	
Multi Storey Taxi Rank	1	10000	10000	5,000	50,000,000	
						69,550,000
Support Facilities						
General Storage	1	100	100	1,500	150,000	
Car Rental Office	1	50	50	10,500	525,000	
Urban Park & Plaza	1	10000	10000	4,000	40,000,000	
Parking	1	1000	1000	4,800	4,800,000	
Waste	1	100	100	4,500	450,000	
						45,652,000
PHASE 1 TOTAL						156,564,500
PHASE 2						
Public Facilities						
Entrance	1	750	750	14,000	10,500,000	
Exhibition	1	300	300	5,000	1,500,000	
Conference Rooms	2	100	200	11,500	2,300,000	
Metropolitan Lounge	1	1000	1000	11,500	11,500,000	
Business Club	1	2000	2000	7,000	14,000,000	
Rentable Offices	1	4000	4000	7,000	28,000,000	
						67,800,000
Transit facilities						
Train Terminal	2	50	100	11,500	1,150,000	
						1,150,000
PHASE 2 TOTAL						68,950,000
Total Building Cost for Phase 1 & 2						225,514,500

Origin \ Destination	City of Johannesburg	City of Tshwane	Ekurhuleni	West Rand	Sedibeng
City of Johannesburg	3 985 785	48 892	131 845	30 047	22 651
City of Tshwane	33 203	1 911 613	9 325		1507
Ekurhuleni	153 842	24 198	2 543 914		9265
West Rand	23 310	1 537	1 686	505 221	422
Sedibeng	17 369	544	6 118	1 046	523 123
From outside Gauteng	38 428	18 284	10 050	2 011	2 011

Daily trip distribution table:

Municipality	Sub-region	Commuter taxi/minibus taxi	Walk all the way	Car	Company transport	Lift club	Bus	Train	Bicycle	Metered taxi	Motorcycle	Other	Grand Total
Sedibeng	Lesedi LM Urban (Heidelberg / Ratanda)	26%	31%	37%	2%	2%	2%	0%	0%	0%	0%	1%	100%
	Lesedi LM Rural	26%	52%	17%	1%	1%	3%	0%	0%	0%	0%	1%	100%
	Midvaal LM Rural East	8%	13%	69%	1%	0%	3%	1%	0%	1%	0%	3%	100%
	Midvaal LM Rural West	22%	57%	4%	0%	2%	8%	3%	1%	0%	0%	3%	100%
	Emfuleni LM Urban (Evaton, VdBP, Vereeniging)	30%	46%	15%	1%	1%	3%	1%	0%	0%	0%	3%	100%
	Emfuleni LM Rural	2%	25%	62%	0%	0%	11%	0%	0%	0%	0%	0%	100%

Mode of travel table:

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IMAGES:

FIG. 1:
EPOL SILO SKETCH
Source: Drawn after Izak de Villers

FIG. 2:
Vereeniging Station, Platform No. 2
Photo: author's own

FIG. 3:
Map of Gauteng
Drawing: author's own

FIG. 4:
Regional map showing Vereeniging
Source: NGI archives

FIG. 5:
Map of the Vereeniging CBD foot print
Drawing: author's own

FIG. 6:
This drawing was part of my initial investigations into Vereeniging. It is a visual narrative of the most commonly used form of transport, the mini-bus taxi. The Taxi journeys from the Sebokeng taxi rank to the Vereeniging Train Station and back again.
The on looker becomes a passenger in the taxi and experiences the taxi ride I took.
Drawing: author's own

FIG. 7:
This collage was made by using images taken in Vereeniging. It is a visual conception of a gateway entry into the city
Source: author's own

FIG. 8:
Research mind map
Source: author's own

FIG. 9:
A VIEW OF THE VEREENIGING TRAIN STATION
This photograph was taken along Union Street
Source: author's own

FIG. 10:
Initiation phase: Theory diagram
Source: author's own

FIG. 11:
Highway intersection in Los Angeles.
Source: www.skolatroubky.com

FIG. 12:
Screen interface/ encounters in the city.
Soure: www.hotelmela.com

FIG. 13:
Screen interface/ encounters in the city.
Source: www.hotelmela.com

FIG. 14:
Vanna Venturi House, 1964
Source: www.dezeen.com

FIG. 15:
Venturi sketch
Source: www.dezeen.com

FIG. 16:
A house on Mareka Street, Sharpeville.
Photo: author's own

FIG. 17:
Elephant on the wall - A house on Umtata Street, Three Rivers.
Vereeniging.
Photo: author's own

FIG. 18:
Neigbours sharing a courtyard in Roshnee.
Photo: author's own, courtesy of Suleman Khata.

FIG. 19:
Buffalo Bill's house interior appears unsuspecting.
Source: www.youtube.com/watch?v=yNeQ-m5aqrHo

FIG. 20:
Buffalo Bill's secret basement/ cellar.
Source: www.youtube.com/watch?v=yNeQ-m5aqrHo

FIG. 21:
Buffalo Bill's house
Source: www.dailymail.co.uk

FIG. 22:
Birds eye view of
Seoul airport.
Photo: unknown author

FIG. 23:
Interior view of the Seoul airport concourse.
Photo: unknown author

FIG. 24:
Airport advertising.
Source: www. projectfireproducts.co.uk

FIG. 25:
A view above Seoul airport concourse.
Photo: unknown author

FIG. 26:
Steel mill in Vereeniging
Photo: authors own

FIG. 27:
VUT Chapel plan.
Drawing: Drawn after Henri Comrie

FIG. 28:
VUT Chapel sketch.
Drawing: Drawn after
Henri Comrie

FIG. 29:
VUT Chapel Hall.
Photo: authors own

FIG. 30:
Vereeniging Jumah Masjid plan
Drawing: author's own

FIG. 31:
Section A:A
Drawing: author's own

FIG. 32:
Vereeniging Jumah Masjid Street elevation
Photo: Google earth

FIG. 33:
Chapel courtyard.
Photo: authors own

FIG. 34:
VUT chapel. Vanderbijlpark.
Photo: authors own

FIG. 35:
Luxor temple.
Drawing: www.temployeternidad.blogspot.com

FIG. 36
Gravel path.
Photo: authors own

FIG. 37:
Entrance.
Photo:
authors own

FIG. 38:
Section through the Chapel
Drawing: authors own

IMAGES

FIG. 39:
Ronchamp windows
Photo: www.inhabitat.com

FIG. 40:
Great Zimbabwe.
Photo: unknown author

FIG. 41:
La Tourette Monastery
Photo: www.architectage.com

FIG. 42:
Christian Basilica
Photo: authors own

FIG. 43:
Chapel tower
Photo: authors own

FIG. 44:
chapel ceiling panels & interior.
Photo: authors own

FIG. 45:
View of the river over the garden wall
Photo: authors own

FIG. 46:
Cloud Gate
Photo: www.sensefunction.blogspot.com

FIG. 47:
Cloud Gate's distorted reflections on its
surface.
Photo: www.craftcouncil.org

FIG. 48:
Plan & section of Could Gate steel structure.
Drawings: Chris Hornzee-Jones

FIG. 49:
Cross section of the human eye.
Drawing: www.passmyexams.co.uk

FIG. 50:
Dancing girls performance for a crowd infront
of the Vereeniging Train Station
Photo: author"s own.

FIG. 51:
A street vendor in on Union Street, Vereeniging.
Photo:
author's
own.

FIG. 52:
The Markpark informal
market Western entrance
Photo: authors own

FIG. 53:
Sketch plan of Union buildings and gardens
Drawing: authors own

FIG. 54:
Protests infront of the union buildings. Date
unknown
Photo: www.bdlive.co.za

FIG. 55:
Site plan of the informal trade outside Markpark Mall
Drawing: author's own, alsp refer to page

FIG. 56:
Salvador Dali walking his giant anteater.
Photo: www.cdn8.openculture.com

FIG. 57:
A VIEW OF THE NORTHERN PORTION OF THE
CITY

This photograph was taken from the roof top
of the
Merriman Building on Merriman Avenue.
Source: author's own

FIG. 58:
Table showing urbanization levels per province in South Africa, 2001.
source: StatsSA report No. 03-04-02, 2006: 23.

FIG. 59:
Table showing South Africa's Historical urbanisation trends from 1904-2001
source: StatsSA report No. 03-04-03, 2006: 22.

FIG. 60:
Table showing the Vereeniging & Vanderbijlpark historical population trend 1904-2016
source: StatsSA & Prinsloo, 1992: 123.

FIG. 61:
Spatial hierarchy of South African cities.
Source: CSIR/SACN typology (2008)

FIG. 62:
Map of the greater urban context around
Vereeniging.
Source: https://www.1map.co.za; http://www.
gcro1.wits.ac.za/gcrogis1 & https://www.
maps.google.com

FIG. 63:
The Garden City Plan by Ebenezer Howard.
Source: Beevers, 1989: 138

FIG. 64:
The Garden City concept sketch of Vereeniging.
Source: Vereeniging Inner City Regeneration
& Business, 2013: 59

FIG. 64:
Layers of the urban structure as by Dewar.
Source: Dewar et al, 2004: 6

FIG. 65:
Layers of Vereeniging's urban structure
Source: author's own

FIG. 66:
Topographical Map of Vereeniging, 2006
source: NGI archives

FIG. 67:
Indicators for public transport in Vereeniging
source: DITP 2008-2013 Sedibeng DIstrict
Munciplaity

FIG. 68 :
Depicts what is defined as anit-space or lost
space in the city (refer to page 52-53). Note
the invasive presence in civic, commerce and
public transport spaces.
Source: author's own

FIG. 69:
Civic Centre parking lot is empty for most of
the year as seen in this photo. Palisade fencing around this precinct further isolates what
should be publically accessible.
Photo: author's own

FIG. 70:
 Markpark Mall roof top parking is isolated
from the rest of the city, which the ramp
being the only access. Walls measure approximately 2.3m high and are impossible to look
over.
Photo: author's own

FIG. 71:
 A view to the southern end of the city a landfill is visible. It is the reminisce from the old
coal mine shafts just behind it. The Southern
reaches of the region and across the Vaal river
are still being mined for coal and clay deposits. Mining has ravaged the landscape and it is
unfit for habitation.
Photo: author's own

FIG. 72:
Markpark Mall parking, mostly tarmac claimed what was called the "Spoorweg Plein" or Railway Square that was formerly a park before 1982. It has recently been reappropriated by Informal traders.
Photo: author's own

FIG. 73:
Note the richer internal environment of Markpark Mall compared to outdoor spaces.
Photo: author's own

FIG. 74:
Car dealerships, second hand and new, are a common presence in Vereeniging. It radically alters the street character. The structures are generic and similar to one another.
Photo: author's own

FIG. 75:
A VIEW OF THE NORTHERN PORTION OF THE CITY
This photograph was taken from the roof top of the
Merriman Building on Merriman Avenue.

FIG. 76:
Building Facade edges & thresholds:
The above drawing illustrates some of the more significant thresholds and facade edges that have good urban street qualities. The diagram also helps to identify those areas where the street quality is poor where it should not be, in the case of the area adjacent the train station and directly in front of it.
Drawing: author's own

FIG. 77:
A street view of facade of the Vereeniging Jumah Masjid.
Photo: author's own

FIG. 78:
Section A:A through the Vereeniging Jumah Masjid.
Drawing: author's own

FIG. 79:
A ground floor plan of the Vereeniging Jumah Masjid.
Drawing: author's own

FIG. 80:
Taxido Junction Street Facade, Section B:B
Drawing: author's own

FIG. 81:
Section C:C through Taxido Junction
Drawing: author's own

FIG. 82:
A Western view down the informal Market outside Markpark Mall.
Photo: author's own

FIG. 83:
Photos of the pedestrian street through the informal Market, on what use to be Market Avenue. Note the width of the pedestrian street that comfortably accommodates informal traders, trees, furniture and circulation.
Photo: author's own

FIG. 84 & 85:
Drawings depicting the threshold quality in the Taxido Junction Arcade on Union Street. Note the wide pavement in the drawing above that allows for informal trade, dense pedestrian traffic and for shop goods to be displayed. The veranda depicted in the drawing on the right protects pedestrian from the sun.
Drawing: author's own

FIG. 86:
This drawing illustrates spaces that define the city.
Drawing: author's own.

FIG. 87:
Markkpark parking lot opposite the Train Station.
Photo: author's own

FIG. 88:
A car dealership on Union Street opposite the Vereeniging Train station.
Photo: author's own

FIG. 89:
Park in front of the Vereeniging Train Station.
Photo: author's own

FIG.90 :
Constitution Square & Civic Centre.
Photo: author's own

FIG.90/1 :
Constitution Square & Civic Centre.
Photo: author's own

FIG. 90/2:
Note the fence around the public lawns in the background.
Photo: author's own
Refer to pg 124-125 for guidelines on public space

FIG. 91:
The Vereeniging Train Station & Taxi Rank on a Sunday.
Photo: author's own

FIG. 92:
The Vereeniging Train Station & Taxi Rank on a Friday afternoon.
Photo: author's own

FIG. 93:
Ocupational movement diagram of the Vereeniging Train Station.
Drawing: author's own

FIG. 94:
Platform No. 2 link into the Taxi Rank.
Photo: author's own

FIG. 95:
Platform No. 2 entrance.
Photo: author's own

FIG. 96:
Main Train Station entrance.
Photo: author's own

FIG. 97:
Entrance from Taxido Junction & ticket office.
Photo: author's own

FIG. 98:
Cash ticket sale on Platform 2.
Photo: author's own

FIG. 99:
Closed-off pedestrian bridge.
Photo: author's own

FIG. 100:
Waiting space on Platform No. 2
Photo: author's own

FIG. 101:
Unused waiting space on Platform No. 1
Photo: author's own

FIG. 102:
A map of the hard elements in the urban landscape. This would include core districts, that are the primary elements, and that are also treated as permanent features in the urban landscape.
Drawing: author's own

FIG. 103:
Maps the soft elements in the urban land-scape. This includes things more connected to nature such as parks and trees.
Drawing: author's own

FIG. 104:
A map of the relationship between advertis-ing and the vehicle.
Drawing: author's own

FIG. 105:
The McDonalds drive-thru on the corner of Voortrekker Street and
Rhodes Avenue.
Source: Google earth

FIG.106 : Photo taken showing street signage from the drivers perspective along Voortrek-ker Street.
Source: Google earth

FIG. 107:
A panorama overlooking the Dadabah's sign on Voortrekker Street.
Photo: author's own

FIG. 108:
Photo taken on the corner of Union Street and Beaconsfield Avenue.
Photo: author's own

FIG. 109:
A Duagram of urban design theories
source: Trancik, 1986: 98

FIG. 110:
Vereeniging figure ground diagram
Drawing: author's own

FIG. 111:
Vereeniging contextual map
Source:ttp://www.gcro1.wits.ac.za/gcrogis1

FIG. 112:
Linkage theory diagrams
source: Trancik, 1986: 98

FIG. 113:
Vereeniging figure link theory diagram.
Drawing: author's own

FIG. 114:
Place theory diagrams.
source: Trancik, 1986: 98

FIG. 115:
Vereeniging place theory diagrams.
Drawing: author's own

FIG. 117:
A VIEW OF THE EASTERN PORTION OF MERRIMAN AVENUE OVERLOOKING THE TAXI RANK AND THE TRAIN STATION
This view of the cross road between Mer-riman Avenue & Voortrekker Road is the intersection between the two most busiest roads in the city.
Photo: author's own

FIG. 118:
Vereeniging urban footprint map
Photo: author's own

FIG. 119:
A navigating panorama of the eastern portion of Vereeniging.
Photo: author's own

FIG. 120:
A navigating panorama of the western por-tion of Vereeniging.
Photo: author's own

FIG. 121:
Vereeniging context map
Drawing: author's own

FIG. 122:
Street traders at the Markpark Mall parking lot.
Photo: author's own

FIG. 123:
Street traders outside Markpark Mall along Voortrekker Street.
Photo: author's own

FIG. 124:
Street traders on Union Street along Mark-park Mall.
Photo: author's own

FIG. 125:
The Taxido Junction Arcade, corner of Union Street & Beaconsfield Avenue.
Photo: author's own

FIG. 126:
Vereeniging Train Station
Photo: author's own

FIG. 127:
Metrorail train approaching platform No. 2
Photo: author's own

FIG. 128:
View of Platform No. 2
Photo: author's own

FIG. 128:
Closed off pedestrian bridge
Photo: author's own

FIG. 129:
Ticket sales on Platform No. 2
Photo: author's own

FIG. 130:
Informal traders in the Vereeniging Taxi Rank.
Photo: author's own

FIG. 131:
Informal traders in the Vereeniging Taxi Rank.
Photo: author's own

FIG. 133:
A VIEW OF THE CORNER OF MARKET AVENUE & VOORTREKKER ROAD
Vereeniging's heritage is hidden from its residences , only keen eyes can spot the city's relics that still survive.
Photo: author's own

FIG. 134:
A VIEW OF THE VEREENIGING TAXI RANK FROM THE MERRIMAN BUILDING.
Hundreds of mini-bus taxis gather on the eastern end of the city next to the Vereenig-ing Train Station.
Photo: author's own

FIG. 135:
A map of public transport routes in Vereenig-ing.
Drawing: author's own
Routes are sourced from: DITP 2008-2013
Sedibeng DIstrict Munciplaity

FIG. 135:
Larger agglomerations of traders collect at points where pollution movement is greatest.
Drawings: Drawn after D. Dewar & V. Watson

FIG. 136:
Informal traders attempt to establish them-selves at points of highest pedestrian concen-tration. They form linear markets aligned to the pedestrian flow.
Drawings: Drawn after D. Dewar & V. Watson

FIG. 137:
Markets should be able to expand & contract & still remain as a cohesive whole.
Drawings: Drawn after D. Dewar & V. Watson

FIG. 138:
Uses should be allocated so that they main remain cohesive & continuous as the market expands & contracts.
Drawings: Drawn after D. Dewar & V. Watson

FIG. 139:
Market size & location can change over the day, depending on the strength& direction of pedestrian flows.

FIG. 140:
Selling runs are too short and customer flows are dissipated & confused.
Drawings: Drawn after D. Dewar & V. Watson

FIG. 141:
Selling runs are too long & customers do not penetrate to centrally located stalls.
Drawings: Drawn after D. Dewar & V. Watson

FIG. 142:
When circulation channels are too wide, customers concentrate on one edge only.
Drawings: Drawn after D. Dewar & V. Watson

FIG. 143:
A situation where sellers have spontaneously narrowed a wide circulation passage by locating in the centre & dividing it in two.
Drawings: Drawn after D. Dewar & V. Watson

FIG. 144:
A more appropriate circulation channel width.
Drawings: Drawn after D. Dewar & V. Watson

FIG. 145:
A more appropriate length for selling runs.
Drawings: Drawn after D. Dewar & V. Watson

FIG. 146:
SEGREGATION: Implies a separation of functions & groups that differ from one another.
Drawings: Drawn after Jan Gehl.

FIG. 147:
INTEGRATION: Implies that various activities and categories of people are permitted to function side by side.
Drawings: Drawn after Jan Gehl.

FIG. 148:
REPEL: Implies spaces in a city that are are not accessible & thus are designed so that it is difficult to get out or into them, physically & psychologically
Drawings: Drawn after Jan Gehl.

FIG. 149:
INVITE: Implies spaces in a city that are easily accessible & thus encourage people to move from the private to the public enviroment.
Drawings: Drawn after Jan Gehl.

FIG. 150:
Physical arrangement can promote or prevent contact in at least five different ways.
Drawings: Drawn after Jan Gehl.

FIG. 151:
Showing a hierarchal structure of organized spaces transitioning from
public, semi-public, semi-private and then private. This offers a clear structure to movement and public or private activities.
Drawings: Drawn after Jan Gehl.

FIG. 152:
This diagram represents the relationship between the quality of outdoor spaces & the rate of occurrence of outdoor activities.
Drawings: Drawn after Jan Gehl.