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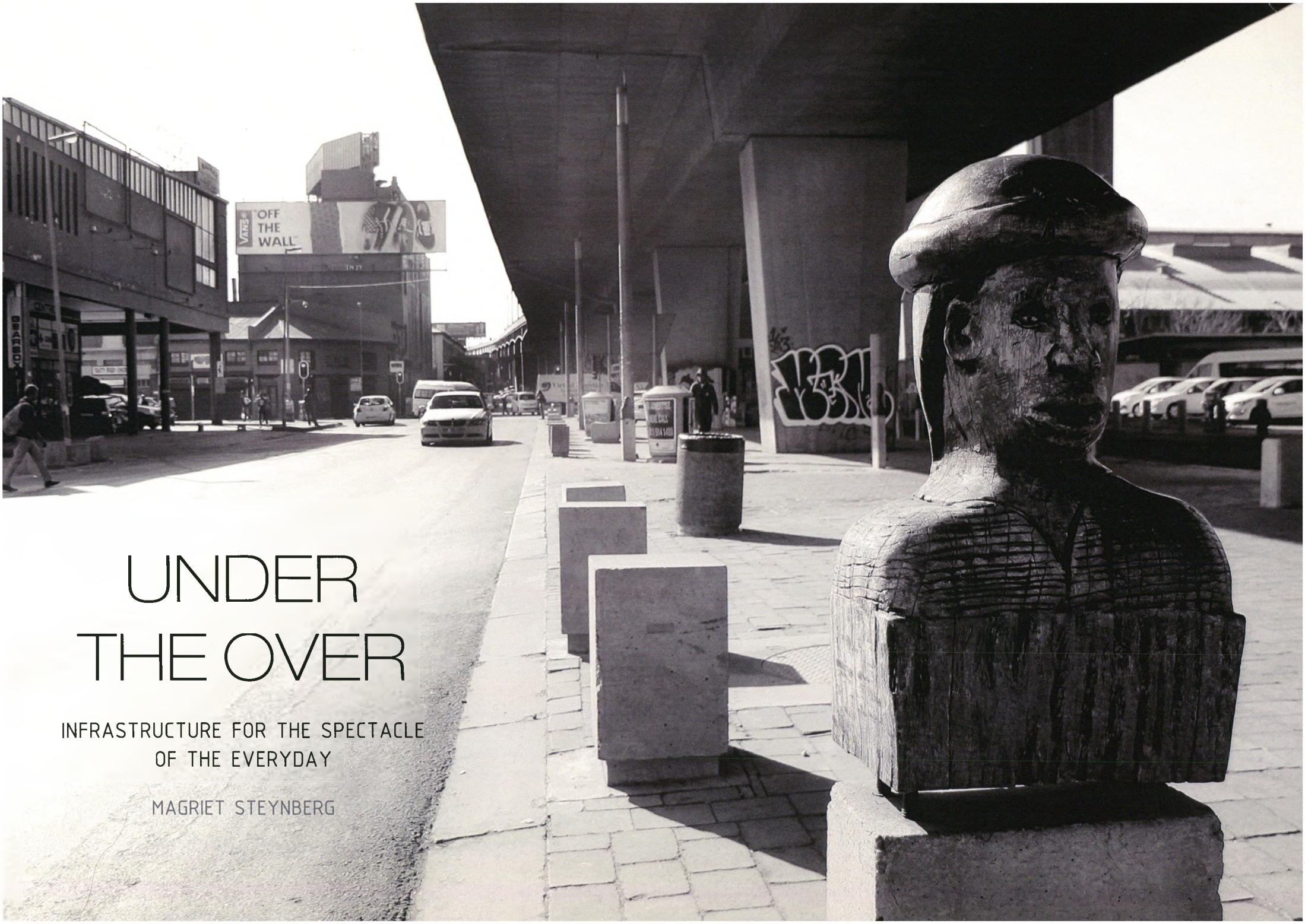

UNDER THE OVER

INFRASTRUCTURE FOR THE SPECTACLE OF THE EVERYDAY

MAGRIET STEYNBERG

ABSTRACT

"Thresholds are often the most dynamic places in ecosystems. The cusp, both spatially and temporally, is the zone of maximum activity, exchange, hybridization and instability." (Kullmann, 2012) Threshold spaces, previously abandoned or unoccupied, have been infiltrated by various communities - the homeless occupy the undersides of bridges, traders fill pavements and foreign and rural migrants live in derelict buildings. People have created, through their bodies, areas of communication, encounter, and areas of commoning, through which the public 'square' or 'park' in Johannesburg can be reimagined, neither as public space nor as non-place, but rather as common space.

It is here that architecture can engage with both the city and its user, space and experience. It is within public space, that architecture can both enhance and celebrate the spectacle everyday. This project investigates all of these aspects within the city of Johannesburg and more specifically along the threshold of the M1 Underpass (Henry Nxumalo Street), focusing on the Newtown Precinct. Programmatically a promenade and market is used to experience this spectacle.

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DECLARATION

I, Magriet Steynberg, 814285, am a student registered for the course Master of Architecture [Professional] in the year 2015. I hereby declare the following:

I am aware that plagiarism [the use of someone else's work without permission and/or 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. For this purpose, I have referred to the Graduate School of Engineering and the Built Environment style guide. 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.

This document is submitted in partial fulfilment for the degree: Master of Architecture [Professional] at the University of the Witwatersrand,Johannesburg, South Africa, in the year 2015.



GLOSSARY

THRESHOLD
A region marking a boundary, a transitional interval beyond which some new action or different state of affairs is likely to begin or occur: (Oxford Online Dictionary, 2015)

NON-PLACE
Marc Augé, an anthropologist, invented the term "non-place" to refer to in-between spaces of transience that do not hold enough connotation or importance to be regarded as 'places'. (Auge, 1995)

LOOSE SPACE
This looseness of space is not the same as universal space, where theoretically within a space, anything can happen but more often than not, nothing happened. (Franck & Stevens, 2007)

TERRAIN VAGUE
The dual concept of a plot of land defined by indeterminacy is the key to understanding of terrain vague, which has both a spatial as well as a social connection - defined by what it is, but that being specifically defined by how the space is used. As de Sola Morales mentions, these become "spaces as internal to the city yet external to its everyday use. In apparently forgotten places, the memory of the past seems to predominate over the present. (de Sola-Morales ,2007)

INFRASTRUCTURE
Infrastructures are the systems that enable circulation of goods, knowledge, meaning, people, and power. These systems become forces that shape society. They are also flexible, being used in unofficial ways to alternate ends. (Lockrem & Lugo, 2014)

LINEAR INFRASTRUCTURE
Infrastructure progressing from one stage to another in a single series of steps; sequential. (Kullman, 2012)
SPECTACLE
A public performance or display or a a visually striking performance or display. (Oxford Online Dictionary, 2015)

THEATRE
A building or outdoor area in which plays and other dramatic performances are given. (Oxford Online Dictionary, 2015)

SUTURE
Something that provides an adequate tension for wound closure without excessive dead space but loose enough to prevent blockade. (Kullman, 2012)

ARCADE
A pedestrian thoroughfare,. The transitional nature of the arcade owes not only to the movement of people, but also to the architecture of the exterior that is drawn into the enclosed space. The arcade focusses on the pedestrian experience therefor brings forth a progressive, pedestrian infrastructure. (Benjamin, 2002).

FLANEUR
A person who walks the streets of his city – he is a "person who walks the city in order to experience it."

A combination of interior and exterior space, the street of the arcade "becomes a dwelling for the flâneur; he is as much at home among the façades of houses as a citizen is in his four walls." (Benjamin, 2002).

01

IN-BETWEEN

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"ORDINARY, EVERYDAY LIVES, WHICH WERE EXCLUDED FROM THE CITY BY WESTERN URBAN MANAGEMENT PRACTICES, TOWN PLANNING CODES OR BY THE LEGAL AND ADMINISTRATIVE APPARATUS OF APARTHEID, HAVE BROUGHT DISTANT GEOGRAPHICAL, SOCIAL AND CULTURAL WORLDS INTO CONTACT." (BREMNER, 2005)

INTRODUCTION



Fig 1.1. Representation of the place of non-place - M1 Underpass (Author, 2015)

1. INTRODUCTION

1.1. THE PLACE OF NON-PLACE

The thesis was born from the interest in thresholds/in-between spaces in the city. Spaces, previously abandoned or unoccupied, have been infiltrated by various communities - the homeless occupy the undersides of bridges, traders fill pavements and foreign and rural migrants live in derelict buildings. People have created, through their bodies, areas of communication, encounter, and areas of commoning, through which the public 'square' or 'park' in Johannesburg can be reimagined, neither as public space nor as non-place, but rather as common space.

Threshold spaces can also create barriers in the city. One piece of infrastructure which has created a barrier is the M1 highway. The M1 motorway constructed above Goch Street (now Henry Nxumalo Street) has, according to the areas heritage assessment, "artificially divided the area since the 1960's (Brink, 2008). I propose that there is thus an opportunity to activate this in-between space in the city. Through my urban intervention I propose that the M1 underpass becomes a suture, connecting east and west and a catalyst for activity. The main focus will be the section of the underpass adjacent to the Newtown Cultural precinct.

To understand these threshold/in-between spaces happening along edges of streets I look to the use of infrastructure and public space in the city. From the writings examined it is apparent that the workings and networks of infrastructure gives an opportunity to revise how public spaces are really used in the City of Johannesburg and to understand how new networks and interactions, previously overlooked can be included in the analysis of the inner city.

From the investigation of the inner city it is evident that for many inhabitants, interactions in physical space is concrete reality. Street traders, public performers and many others still rely on physical exchange in physical space to make an income. This tends to happen less in the large open 'traditional' public spaces such as Mary Fitzgerald square or the Library Gardens, and more in formal/informal market spaces and just generally on the streets. In areas like Newtown where a large part of the precinct is allocated to open public space this tends to be problematic. Jane Jacobs states "People do not use city space just because it is there" she continues to say "In cities, liveliness and variety attract more liveliness; deadness and monotony repel life". (Jacobs, 1961)

Fig 1.2. Johannesburg inner city with the relevant context highlighted.





The success of public space is dependent on the programming of its edge or threshold. Through identifying the value of the urban performances which have become overlooked within the city, architecture can respond to and celebrate these activities. By exposing the everyday workings of the city, this thesis provides the potential for a suturing intervention along Henry Nxumalo Street, linking and exposing the incoherent urban environment by creating a promenade where the surface is programmed and inhabited. The spectacle of the everyday is exposed through the activation of the public realm throughout the promenade.

The site of 2 Central Place in Newtown place will be the main focus of my design. Currently it the represents the in-between in two ways. The first being in-between development, the sub-structure as basement parking has already been built but the proposed superstructure has not as yet. It is also situated in-between 1 Central Place, Newtown Park and the creative clusters, Bassline and Dance Factory. The newly proposed promenade is situated to the west of the site which links it to the larger urban framework. This site thus has the potential to activate public space in the precinct and to act as a catalyst not only to the east but also to the west of the highway.

Fig 1.3. Illustration showing site context of 2 Central place (Author, 20 15)



Fig 1.4. Photograph showing the context of the M1 Underpass (Author, 2015)



Fig 1.5. Photograph showing the context of the M1 Underpass in the proximity of 2 Central Place (Author, 2015)

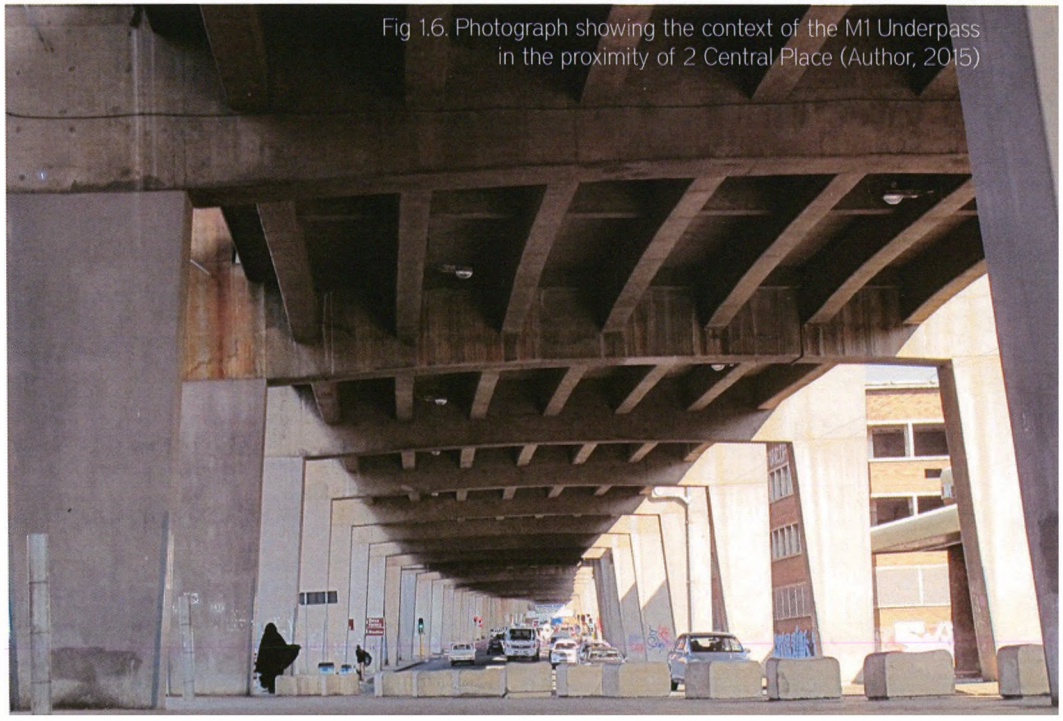


Fig 1.6. Photograph showing the context of the M1 Underpass in the proximity of 2 Central Place (Author, 2015)

1.2. INTENDED PROGRAMME

The programme of a market becomes the medium by which the spectacle of the everyday is viewed and celebrated. Informal urban street markets involve kinetic flows of bodies, emotions, goods, sounds, temperatures, smells, finance, psychologies, ideas, discourses, fauna, flora, waste.

The concept of the rhizome from the work of Deleuze and Guattari (1987) best describes an informal urban street market. Unlike the arboreal model of the tree, the rhizome is an ever-changing multiple and decentralized process of human and nonhuman relationships that generates nodes, offshoots, clusters, and links that are always in a state of reconfiguration based on the given conditions of possibility. The architecture therefore needs to allow for these situations.

Markets are places not only for the purpose of daily shopping but are aimed at creating a place of entertainment, social interaction for the masses. Markets attract not only shoppers but artists, dancers, and create a vibrant destination point within the city centre. By increasing pedestrian friendly routes and concentrating activity along the proposed promenade spine along Henry Nxumalo the programme acts as connective tissue linking the creative clusters in Newtown.

The programme will include platform for the opportunist (artist, performer, vendor, musician, skateboarder etc.) to craft new spatial and temporal landscapes. Accordingly, an inhabited surface is proposed which encloses a series of private and public spaces. The urban surface will nurture new symbiotic relationship between fragmented structures, spaces and programs (static and temporary) and will activate public space in Newtown.



Fig 1.7. Photograph of active public market places in the city (Author, 2015)

Fig 1.8. to Fig 1.10. Street vendors in the context of Johanneburg inner city (Author, 2015)







1.3. PROBLEM STATEMENT

1.3.1. URBAN PROBLEM: FEAR ALLOCATED OF PUBLIC SPACE

Johannesburg's inner city has a number of sanctioned public spaces which were originally "created as the place where strangers are most likely to meet" (Gaule, 2005) but paradoxically, under the historic backdrop of surveillance, distrust, and fear of public assembly across the country, public space remains suspect, contested, and unwelcoming to the victims of apartheid. At the same time, the upper class, who once spent their daily lives in the CBD, are now terrified to return even with maximum security and the promise to remove any 'threatening bodies' from public space (Gershon, 2015).



Fig 1.11. Photograph of Mary Fitzgerald square being used primary as a parking lot (Author, 2015)







However, dealings in physical space is still a huge reality for many inner city inhabitants. Physical exchange in physical space is still needed to make an income. This exchange has a tendency to happen less in allocated public spaces such as squares or parks and is more inclined to happen in formal/informal market spaces and along the streets of the city. In areas like Newtown where a large part of the precinct is allocated to open public space this is likely to be problematic.

Fig 1.13. to Fig 1.14. Photograph of active street corner on Bree and Sauer (Author, 2015)

"Visitor numbers are not quite at the levels some venues need to become viable, and there is still not high energy footfall in the public space to create atmosphere and a buzz." (Shand, 2010)

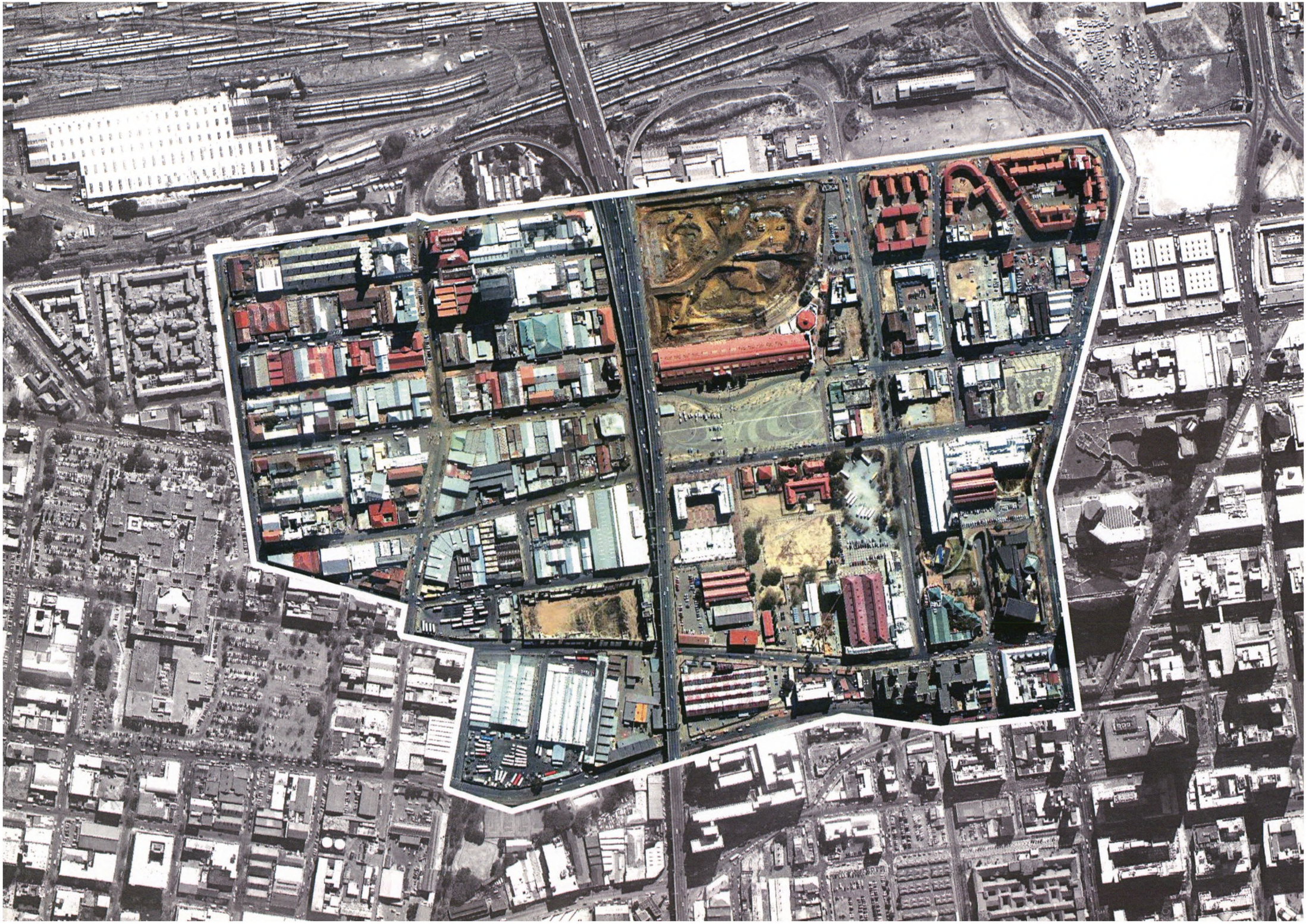
1.3.2. SITE PROBLEM: NEWTOWN'S CULTURAL ENCLAVES

In Newtown there is strong enclaving of creative industries. The buildings housing these industries have a strong sense of location and heritage with adequate infrastructure but "visitor numbers are not quite at the levels some venues need to become viable, and there is still not high energy footfall in the public space to create atmosphere and a buzz." (Shand, 2010)

The pronblem is thus the underuse of public space in the precinct. The square is large, imposing and ultimately quite hostile except for major events of 10 000 or more. It is not a space designed for people to relax on a bench under the shade of a tree. Its sheer scale prevents intimate moments, lunchtime concerts, or other impromptu performances. The park is a place for people to walk through rather than a space that invites a picnic, or a place to sit and pause (there are no benches). The contours all but prevent a game of soccer or cricket and there are no play areas for children.

The successful spaces in the precinct are thus the creative clusters. But these clusters can only be experienced when in their immediate vicinity. The spaces in-between are not places to linger and experience but rather are just a means to get to a destination.

Fig 1.15. Image showing the context of Newtown Cultural Precinct (Author, 2015)



"Public space is the city's medium for communication with itself, with the new and unknown, with the history and with the contradictions and conflicts that arise from all those. Public space is urban planning's moderator in a city of free players." (Christ, 2000)

1.4. INTENTIONS

1.4.1. URBAN INTENTION: UTILISE FOUND PUBLIC SPACE

Geographically Newtown straddles the M1/M2 highways which have made great advances in connectivity and freedom of access in the city of Johannesburg. Highways both connect cities and divide cities, and it is this contradiction that makes the highway so significant in our present and future intentions for our cities. As traffic has steadily increased, and city has become more and more sliced and divided in the second half of the twentieth century, the highway has become a recent target for rethinking.

The aim of this thesis is thus to uncover ways in infrastructure can become athreshold and a visible as a platform for the practice of everyday life rather than creating a barrier of unused space. I propose that sites effected by linear infrastructure may also be understood as fortuitous seams that offer "found" land in apparently built-out urban areas, Rather than conceive of infrastructural "non-places" as difficult, I will be receptive to the fragmentary, undervalued and environmentally problematic nature of these spaces and potential urban space where architecture and infrastructure can coincide.

Threshold spaces are spaces marked by experiences of social liminality as those spaces do not simply circumscribe a defined area of use, but rather offer a passage from one area to another, they are spaces with a strong power to institute comparisons, to encourage new relations between people (Franck & Stevens, 2007), to make differences communicate.

This thesis will endeavour to discover the potentialities of unblocked urban thresholds, which often have the form of abandoned, deadened spaces, unused, and the emergence of a counter-dominant spatiality. It will also explore how at these thresholds, as areas of liminality, people may possibly find ways to negotiate their differences and to explore possible new forms of common life. The proposed interventions along the underpass of the M1 highway threshold will act as sutures connecting east and west and will create moments along Henry Nxumalo street that activate public space.

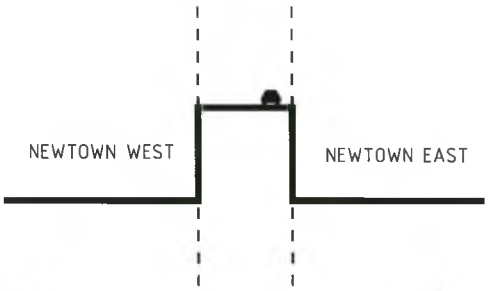
1.4.2. SITE INTENTION: MARKET AS CATALYST

One of the moments along Henry Nxumalo Street will be a public market. This will be the main focus of my design. Public markets provide the opportunity to create "an inviting, safe, and lively space that attracts a wide range of people an effective place where people can become the heart and soul of a community, its common ground, a place where people interact easily, and a setting in which other community activities take place" (Spitzer & Baum, 1995). Newtown thus needs a regular, large, inviting and inclusive market to help breathe life into its public space.

My intervention will lend from active trading spaces in the city and also endeavor to create active edges that encroach on these existing allocated public spaces. The site intervention will act as catalyst, activating in-between space in Newtown and contributing to a more cohesive and pedestrain friendly precinct.

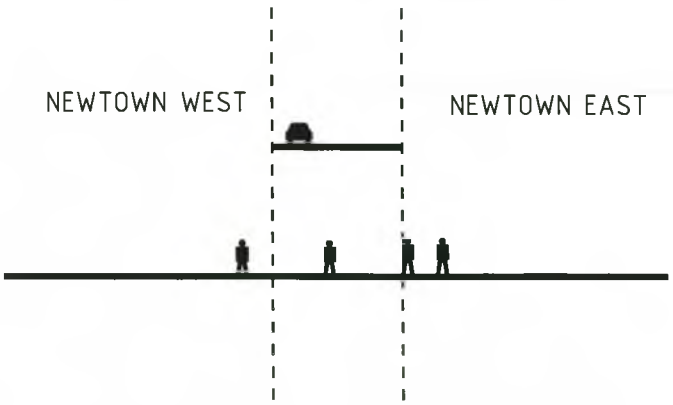
Figure 1.15. Figure concept (Author, 2015)

UNDERPASS AS DEVIDER



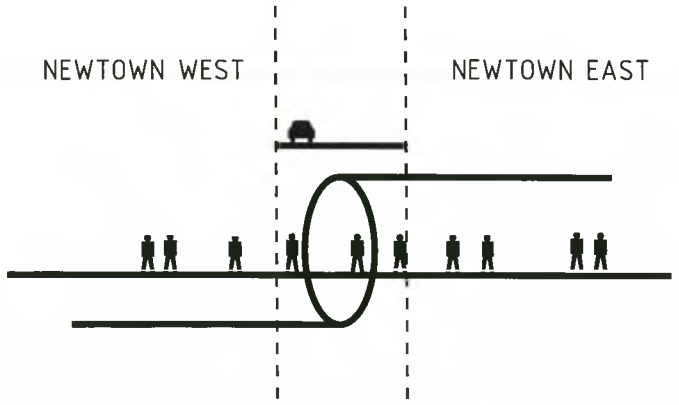
CURRENT AND PAST

UNDERPASS AS SUTURE



URBAN INTERVENTION

UNDERPASS AS CATALYST



BUIDLING INTERVENTION

POTENTIAL

THE CONCEPT

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THEORETICAL INVESTIGATION

2. THEORETICAL INVESTIGATION

In this chapter I will investigate the theory of the in-between in terms of urban space. The in-between has been conceptualised under various names including "non-space" (Augé, 19995), "loose space" (Franck and Stevens), "terrain vague" (de Sola-Morales ,2007) and "in-between" (Bremner, 2005). Currently Johannesburg is in limbo between an occidental post-colonial city and a "World Class African City" (Wilson & Gooden, 2015). Many theorists have written about the potential of shifting the emphasis of the public has shifted to the street interface. The chapter explores these new forms of mutated public space manifesting within the city, through defining a typology of a public market.

2.1. IN-BETWEEN

2.1.1. WESTERN IN-BETWEEN

Marc Augé, an anthropologist, invented the term "non-place" to refer to spaces of transience that do not hold enough connotation or importance to be regarded as 'places'. Modern lifestyle and with it, the importance placed on mobility, communication and consumerism may be seen as the reason for people nowadays spending more and more of their time in these 'non-places'. Examples of 'non-places' include: highways, airports, supermarkets and hotel rooms. Augé attributes his theory to the concept of 'super-modernity' (Augé, 1995).

With 'super-modernity' excluding activities like working, people have more leisure time and people starts to devote more optional activities, which are urban recreations. Jan Gehl believes that re-orienting city design towards the pedestrian and cyclist would improve the quality of urban life. Large parks are like suburbs and sprawls, isolated and discourages human activities as it insert too much space between individuals and uses. Thus, smaller pocket public spaces scattered around are easier to access and manage. In addition to a hierarchy of public space is also essential. Krier (1980) identifies the need for a hierarchy of public space (Fig. 2.1). In Johannesburg, the scale ranges from commemorative historical squares, to open green space and pedestrian arcades.

Franck and Stevens speak about "loose space" and categorise it in around four themes: appropriation, tension, resistance, and discovery. 'Appropriation' describes how ordinary people produce space through the pursuit of their own unique desires and needs. 'Liminal' and 'threshold' spaces are offered to reveal ways that formal spatial and temporal boundaries are regularly transgressed in the lived spaces of everyday life. They also acknowledge how 'tension' comes with the 'loosening' of space and inevitably leads to processes of contentious negotiation. 'Resistance' works to illuminate practices that subvert dominating forces of urban redevelopment. It engages with both Benjamin's 'porosity' and Foucault's 'heterotopias' to show how marginalised inhabitants fight to retain their unique spatial-cultural practices and identities. 'Discovery' moves into sites at the margins of urban development, taking readers on a ramble through 'ruined space' and the wilderness spaces of abandoned industrial sites, both of which point to sites of unacknowledged use value. This idea goes hand in hand with more flexible and fluid regulations to allow for temporary appropriations of spaces awaiting formal redevelopment. (Franck & Stevens, 2007)

"This looseness of space is not the same as universal space, where theoretically within a space, anything can happen - but more often than not, nothing happened." (Franck & Stevens, 2007) The looseness of space or in-between space rather calls for a programmable urban surface, which responds to the everyday identity of space, allowing for adaptation, development and growth.



Fig 2.1. Urban spatial hierarchy of public space. (Krier, L. 1980)



2.1.2. AFRICAN IN-BETWEEN

After Apartheid the racial prejudices are still embedded in the 'market forces' which are re-centering it. New practices have fixed memory and desire in old certainties. "In between these fixed encampments of desire and paranoia - the shopping centres, security suburbs, walled estates, office parks and the sealed capsules in which people move between them - lie ambiguous and ill-defined public spaces whose very fluidity and a-territoriality is providing opportunity for other practices to emerge." (Bremner, 2005)

These spaces - streets, roads, parks, highways - released from the strictures of apartheid are becoming spaces where new livelihood are being made and new experiences of the city lived. Individuals or groups are trying out and inventing new social or economic roles for themselves, trying to make the city work for them. Some of these are brutal and terrifying - car hijackings and cash in transit heists turn roads and traffic intersections into places of violent contestation. Others make visible the highly complex networks of small scale, informal, fluid social and economic associations and dependencies upon which an increasing number peoples' lives depend. (Bremner, 2005)

Under awnings or trees small tables are set up and women sell cigarettes, sweets, fresh produce etc. to passers-by, and at the same time they engage in gossip, child care, or a game of cards. Church groups perceptibly occupy inner city parks on Sundays and wedding photography creates another micro-industry. None of these activities rely only on fixed infrastructure, fixed investment fixed locales for their survival. Space is claimed for a while and, if necessary, the inhabitant moves on. There is a fine balance between stasis - staying in one place for long enough to be recognised, and mobility - the ability to pack up and move on, between necessity and contingency, between structure and event,. This constructs peoples' relationship to the urban landscape.

Fig 2.2. Photograph showing the "African in-between" (Author, 2015)

These activities and others like them are transforming the city, remaking it, reinterpreting its found landscapes in new ways. "Ordinary, everyday lives and practices of people excluded from the city by western urban management practices, town planning codes, the legal and administrative systems of apartheid or market forces, are, through their presence, transforming it into an increasingly complex multiplicity of overlapping and intersecting social, cultural and economic transactions." (Bremner, 2005)

It is in the tracing and mapping of these and in the narration of their intersections that new, provisional images of the future and new conceptions of a different politics are emerging and where there is an opportunity for architects to learn from.



Fig 2.3. Image showing African In-between in the context of Lagos (Koolhaas, 2005)

2.2. INFRASTRUCTURE

Stephen Graham and Simon Marvin argued in their book 'Splintering Urbanism' that "the social sciences had not taken urban infrastructure seriously enough as an object of study" (Graham & Marvin, 2001). They claimed that the "unbundling" of previously integrating infrastructures was "reshaping urban landscapes, senses of time and space, networks of connectivity, and the possibilities for social interactions between the poor and the wealthy" (Gastrow, et al., 2015).

They stated that new forms of segregation, increase of enclaving and the divestment of private and state funds from traditional public spaces have become broadly accepted as the predominant trends of contemporary urbanism. This is evident in Johannesburg with the rise of gated communities and the move of Johannesburg's CBD to the north. There is also rethinking of the everyday workings and possibilities of infrastructure by scholars such as De Boeck (2006) and Simone (2004) have which have "stimulated a literature on the African city that moves beyond Afropessimist accounts, and takes seriously the economic, political, aesthetic, and emotional worlds comprising the networks, relations, and associations of the contemporary metropolis". (Gastrow, et al., 2015).

The rethinking of infrastructure and its relationships to key issues in planning and design has therefore opened up wider possibilities for comparisons between African cities and their counterparts in other countries. Enclaving takes place not only in Johannesburg but in São Paulo and Los Angeles. "The privatisation of historically public services such as electricity and water are processes that can be tracked on global scale. However, even as infrastructure might act as a touchstone for comparison, the different histories of various cities highlight the distinctive genealogies of thinking about urbanism located in diverse parts of the world. The seeming universality of "infrastructure" calls attention to the discrepancies and lack of interaction between many traditions of urban scholarship that would be of enormous benefit to one another." (Gastrow, et al., 2015)

I decided to look to Lagos and Kinshasha to understand the potential of infrastructure (or lack thereof) in an African post-colonial city. Brian Larkin writes in The Politics and Poetics of Infrastructure that "Infrastructures are matter that enable the movement of other matter. Their peculiar ontology lies in the facts that they are things and also the relation between things. As things they are present to the senses, yet they are also displaced in the focus on the matter they move around." He continues to say, "Yet the duality of infrastructures indicates that when they operate systemically they cannot be theorized in terms of the object alone. What distinguishes infrastructures from technologies is that they are objects that create the grounds on which other objects operate, and when they do so they operate as systems." (Larkin, 2013)

From theses writings it is therefore evident that looking to the workings and networks that infrastructure (or the lack thereof) gives an opportunity to revise how public spaces are really used in the City of Johannesburg and to understand how new networks, previously overlooked can be included in the analysis of the inner city.

"Infrastructures are matter that enable the movement of other matter. Their peculiar ontology lies in the facts that they are things and also the relation between things. As things they are present to the senses, yet they are also displaced in the focus on the matter they move around."(Larkin, 2013)

2.2.1. THE LANGUAGE OF INFRASTRUCTURE

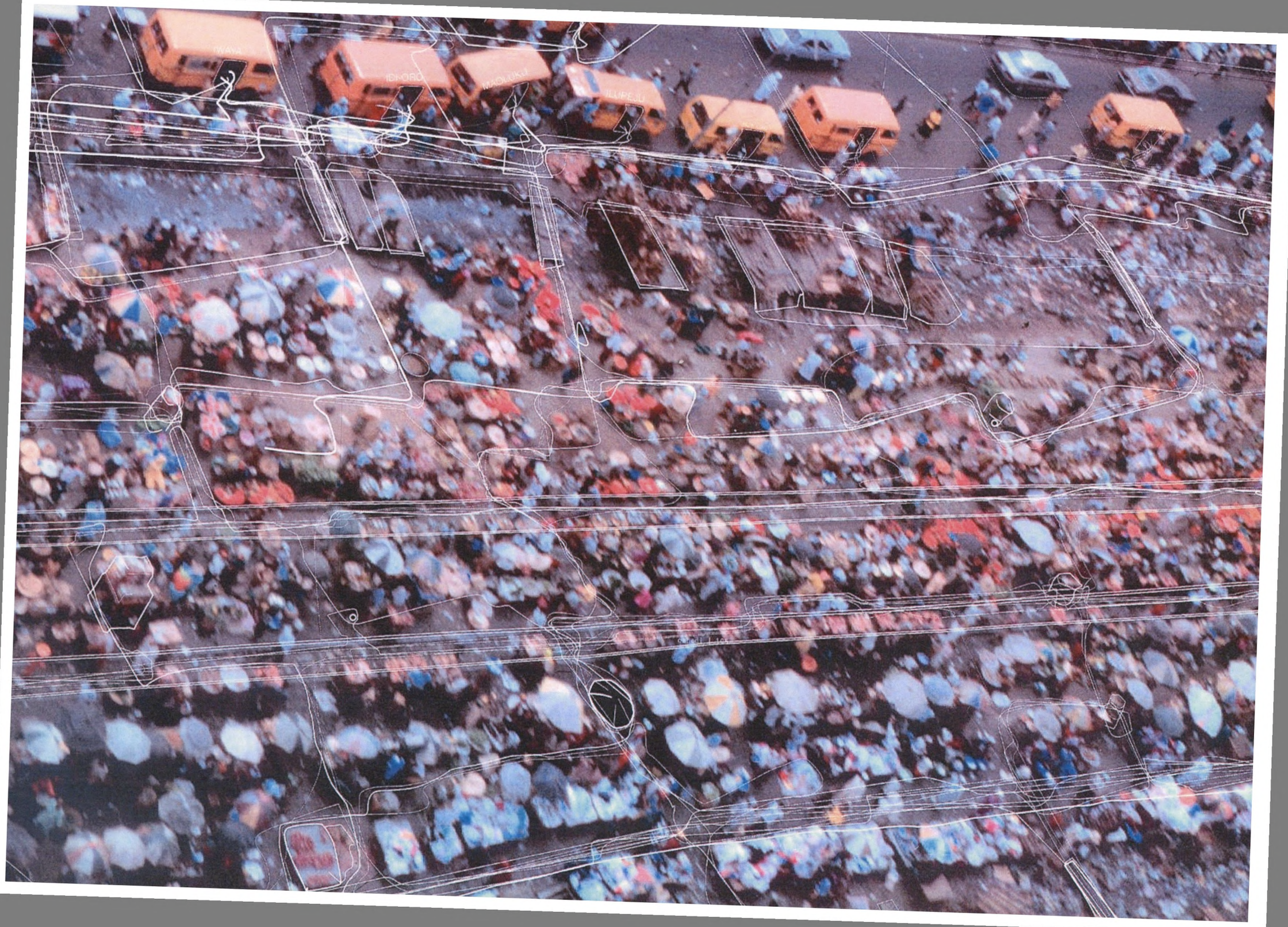
Firstly I just want to acknowledge that it is trying to separate an analysis of infrastructures from our belief that, by "promoting circulation, infrastructures bring about change, and through change they enact progress, and through progress we gain freedom" (Larkin, 2013). For example a road's technical function is to transport vehicles from one place to another, promoting movement and realizing the enlightenment goal of society and economy as a space of unimpeded circulation.

De Boeck writes about Kinshasha which is full of disconnected fragments, echoes and reminders of a modernity that exists as form but no longer has the original content that initially went with it. The fragments are now embedded in other temporalities and rhythms in completely different layers of social networks and infrastructure. (De Boeck, 2014) "The world of everyday experience is not simply the physical or visible world, but one imbued with historical, social, and cultural meaning which is, critically, mapped onto and experienced through spatial patterns, or, perhaps more accurately, through habitation patterns. Everyday space is not experienced neutrally; it is experienced as inhabited, with all that that entails." (Dourish & Bell, 2007) Calls to prayer, service times, traffic flows, regions and neighbourhoods, are all infrastructures that shape a person's experience by making it meaningful in different ways, and which in turn are shaped and configured in support of patterns of social practice. In all of these domains there are dynamic and complex and interplays between the social actors who inhabit those spaces and physical dimensions of space and, however temporarily. This is an important way to understand the city for certain geographic communities.

"The existence and persistence of the land and the landscape are inextricably bound up with the people and their cultural practices. More significantly, this relationship means that the landscape is not simply a physical topology, but also a cultural and historical one." (Dourish & Bell, 2007) This specific set of cultural arrangements explains the view of space as layering of infrastructures, invisible structurings or `background' that reinforce the ordinary experience and everyday action. The very organization of space, its occupancy, its use navigation, etc. is experienced through a variety of cultural `lenses' which give it significance and meaning.

Every day spaces are therefore not simply spaces for meeting and working, but spaces for reading, waiting, for loitering, for loving, for watching for remembering, and more. The pomposity of seamlessness of modern infrastructure is often opposed to the integrally fragmented nature of cultural and social encounters with spaces. This thesis will explore ways to incorporate this seamlessness with fragments to allow for cultural interaction and the celebration of everyday spaces.

Fig 2.4. Image showing Language of Infrastructure (Koolhaas, 2005)





2.3. THE POETICS OF INFRASTRUCTURE

Poetics is a rearranging of the hierarchy of what signification within the speech event is dominant at any moment. Discourse operates on many levels simultaneously, but speech acts release differing meanings in their poetic function than they do in their referential or emotive functions. Aristotelian concept of Aisthesis refers not to the mental appreciation of works of art, but to a bodily reaction to lived reality: "It is a form of cognition, achieved through taste, touch, hearing, seeing, smell," Larkin argues. Aesthetics in this sense is not a representation but an embodied experience governed by the ways infrastructures produce the ambient conditions of everyday life: our sense of temperature, speed, florescence, and the ideas we have associated with these conditions. Infrastructures create a sensing of modernity, a process by which the body, as much as the mind, apprehends what it is to be modern, mutable, and progressive (Larkin, 2008).

With pieces of infrastructure like a highway part of the appeal also lies in spatial atmosphere, part of it also lies in texture and materiality. The quality of the concrete work. Its surface marked by careful shuttering, divided by control joints and pocked with weep holes. Its weathering and patina. All contribute to the unusual spatial qualities of a place semi-enclosed with stupendous mass overhead but with nothing at either side. The scale of these spaces is also novel, the oversized columns, sometimes stretching six or eight storeys up, supporting turning and interweaving strips of traffic.

Therefore in this thesis I will explore incorporating the beauty of infrastructure with the poetics of infrastructure i.e. that which it is and the potential it has apart from its technical function. With the people and practices that occur in the everyday spaces beneath overpasses, the combination holds the key to their atmospheric and psychological power.

"In the case of infrastructures, the poetic mode means that form is loosened from technical function" (Larkin, 2013).

2.4. CONCLUSION: MULTIPLICITY AND UNEXPECTED NATURE OF INFRASTRUCTURE

The theory shows that simple material infrastructures and technologies create, define, and transform new sites of transportation, new configurations of entangled spatialities, new public spaces of work and relaxation, new itineraries and clusters of relations, new social interactions (Larkin, 2008).

By transforming perceptions of existing infrastructures there is thus an opportunity to activate unused spaces and to use there pockets of land in a series of interventions. Connecting to existing systems and organisations and learning from them is the premise from which I will analyse the context of the thesis. Through using the existing infrastructure of the M1 highway and the underpass along Henry Nxumalo Street I propose a new system of public spaces which will suture a previously uninhabited threshold in the city.

Fig 2.4. Image showing poetics of Infrastructure (Author, 2015)

03

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CONTEXT

3. THE CONTEXT

3.1. MACRO-CONTEXT: JOHANNESBURG INNER CITY

Roland Barthes observed that the city is the place of encounter with the other, it is the place where strangers are most likely to meet (as citated in Gaule, 2005). It is here, in the contemporary Johannesburg that ironically that the intermingling that colonial influences wanted to prevent it most unlikely to occur. Such a meeting is not simply augmented by imperialism but still regulated by its constructs of difference and privilege. "This is most clearly shown in the racial politics of cities and especially in the often startlingly spatial outcomes of segregation or inner city racialisation." (Gaule, 2005)

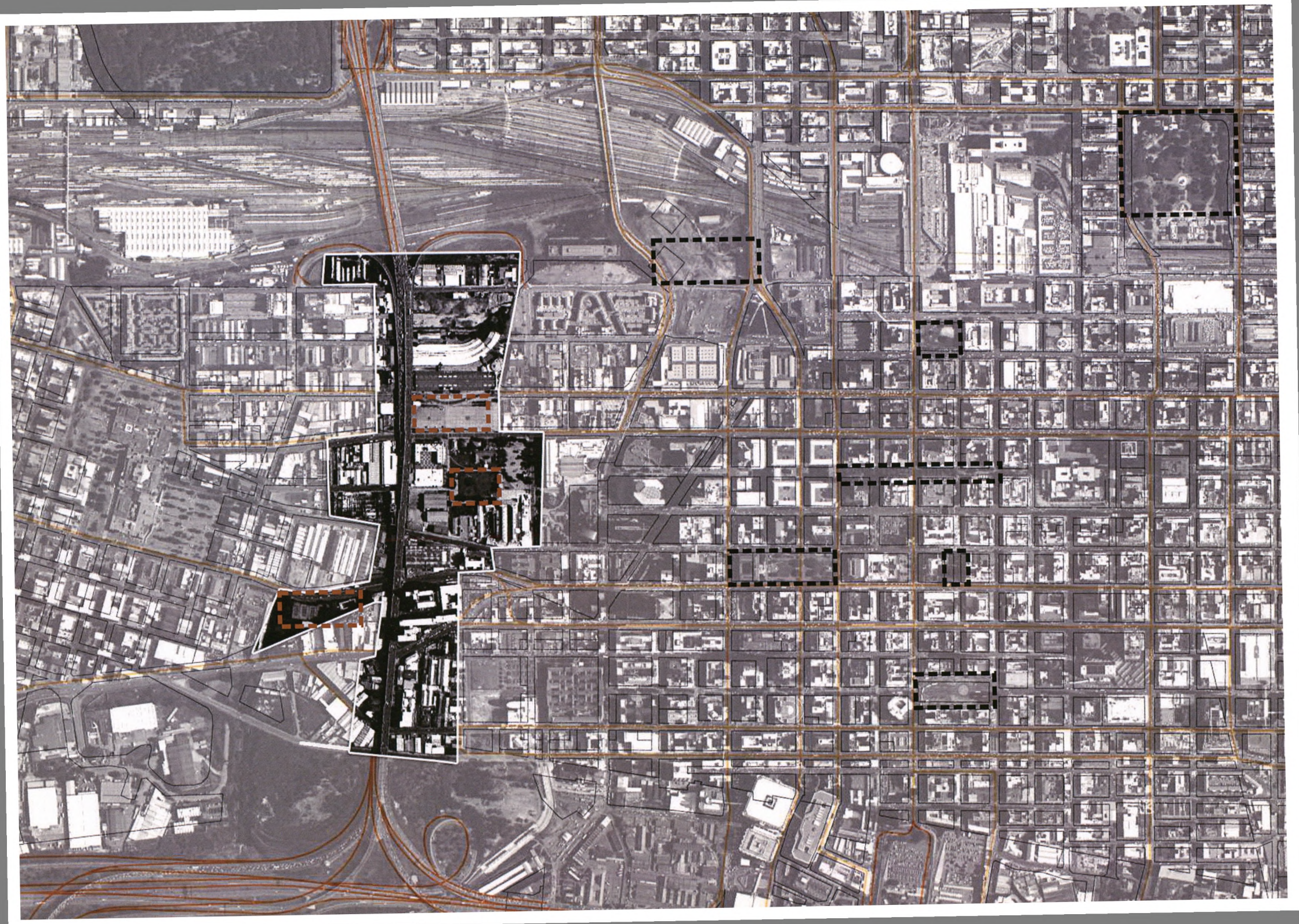
Eurocentric attitudes to modernism and adherence to the styles and values of European modernism tended to dominate South African cities. This often meant Britain and northern Europe's model of public space rather than the Mediterranean which were climatically more similar were used. Thus public space was park rather than piazza, domesticated landscape in the city rather than open meeting or dwelling space in streets or squares along the lines of say, Italy or Spain (Herwitz, 1999).

The effective co-existence of informal and government-sanctioned spaces calls into question the psychological factors at play. While many white South Africans enjoyed the luxuries of the CBD's public spaces under apartheid, black South Africans associated these sites with fear and surveillance. The 1956 Riotous Assembly Act No. 17 prohibited "any outside gathering that the Minister of Justice saw as a threat to public space. It allowed the government to ban any gathering that could cause hostility between black and white people." Therefore, public gatherings were branded as political events punishable by force. The 1994 National Regulation of Gatherings Act, enacted under the post-apartheid government, revoked several laws barring government gathering and protest in public spaces. The act was meant to represent a new democratic South Africa, with a forward-thinking preamble that states, "Every person has the right to assemble with other persons and to express his views on any matter freely in public and to enjoy the protection of the State while doing so."(National Regulation of Gatherings Act, 1994)

The legislation positioned the Metro Police as the most crucial element in maintaining peace at gatherings and demonstrations. Today, the Metro Police enjoy an astonishing degree of independence, which has led to bribery, and exploitation of the vulnerable migrant population living working and in the CBD. (Gershon, 2015) Tensions however emerge when a focus on individual places leads to the transformation of public spaces for all to "common" spaces for only a selected few. "This is especially the case in Post-Apartheid South Africa where the freedom of access to public space is often emotionally loaded. It carries with it a memory of the past and a signification of a possible future." (Gershon, 2015)

Contemporary interventions in the built environment aimed at activating public space is therefore judged against the past. It is with this in mind that I look to active public space in the city (Fig. 3.1) which has shifted from allotted public space to linear markets, street trading (legal or illegal) and in-between spaces close to major transport nodes. The context relevant to thesis (Fig. 3.1) is highlighted and shows its position as threshold space between east and west of the inner city and its proximity to public spaces.

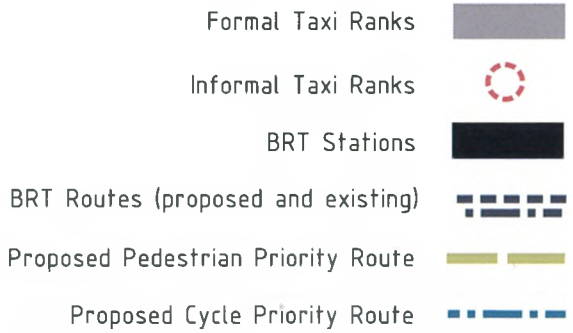
Fig 3.1. Illustration showing allocated public space in the city (Author, 2015)

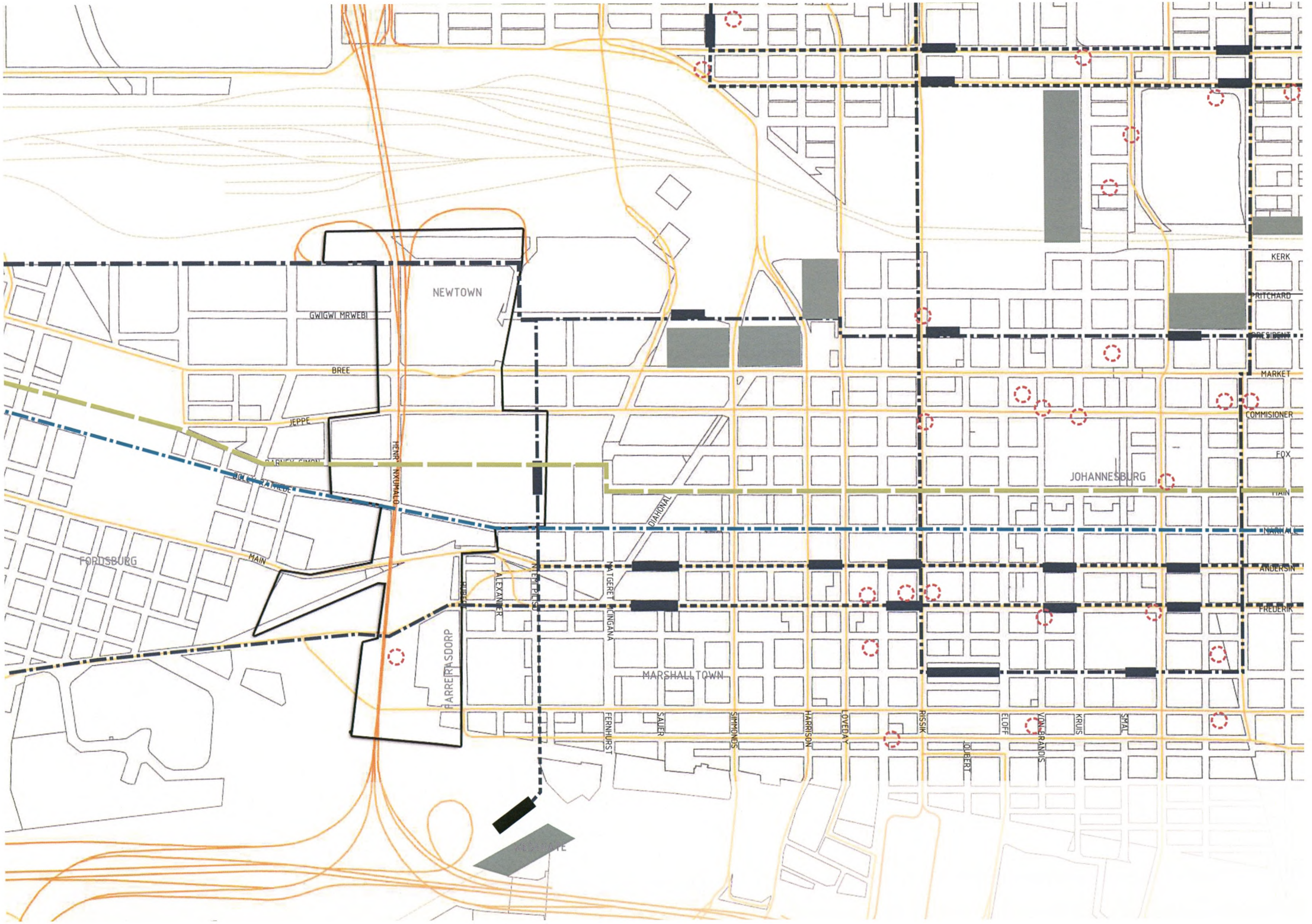


URBAN MAPPING
EXISTING INFRASTRUCTURE

Fig 3.2. Diagram showing in major transport nodes and routes in the inner city (Author, 2015)

This diagram shows major transport nodes and routes in the inner city. Newly proposed BRT routes are to extend to the Western suburbs of the Inner city towards Fordsburg. The diagram shows which routes, new and proposed run through the context of the thesis (highlighted in black). Newly proposed cycle and pedestrian routes run in an east-west direction through the city. (JITTS report, 2010)



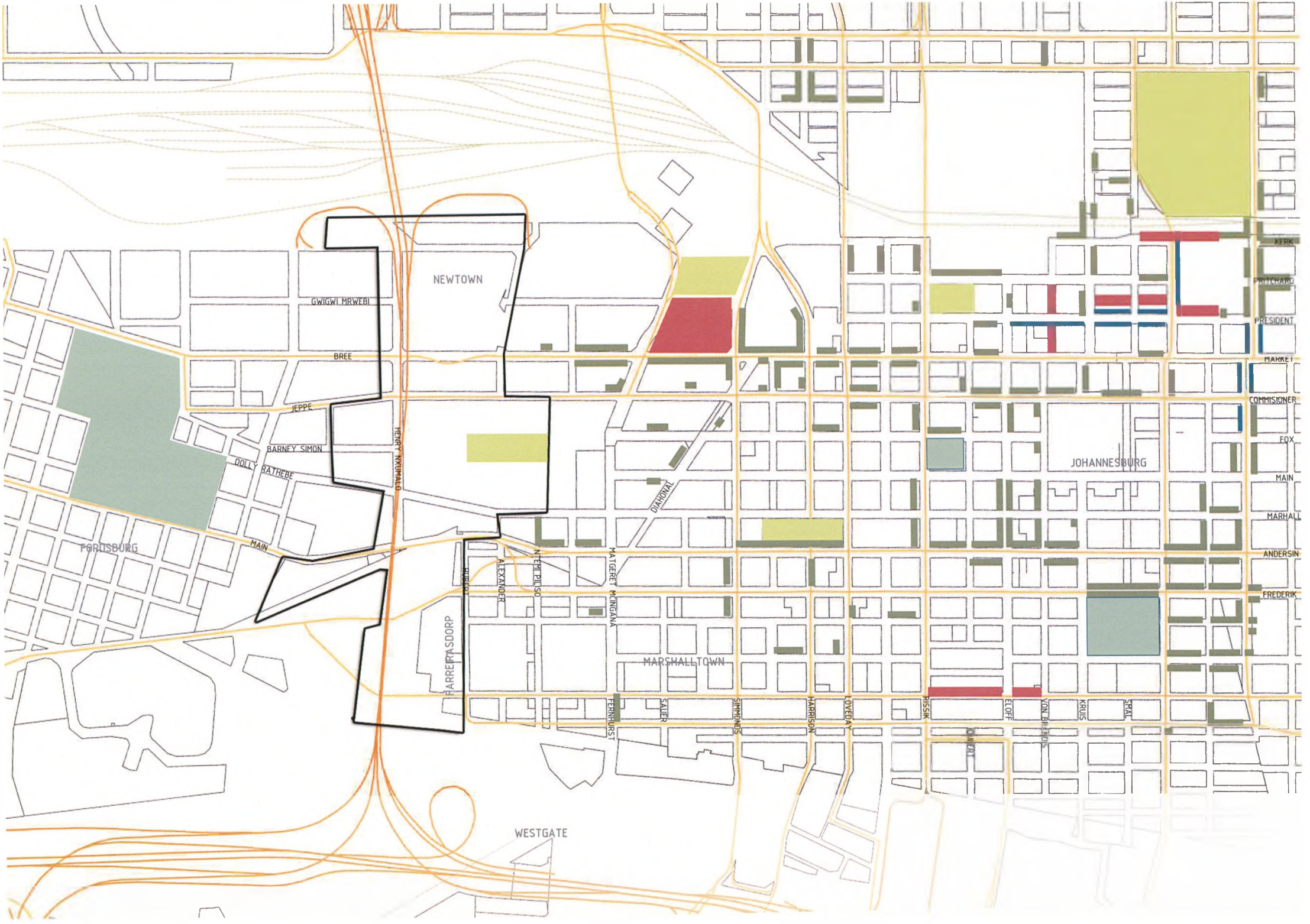

NEWTOWN
GWIGWI MRWEBI
BREE
JEPPE
HENRI NXUMALO
FORDSBURG
MAIN
DIAGONAL
ALEXANDER
HUBERT
NTEMPI SQ
NATGERET MUNGANA
HARRESMITH
MARSHALLTOWN
JOHANNESBURG
KERK
PRITCHARD
PRESIDENT
MARKET
COMMISIONER
FOX
MAIN
ANDERSIN
FREDERIK
FERNHURST
SAUER
SIMMONDS
HARRISON
LOVEDAY
RISSIK
JOUBERT
ELOFF
VON BRANDIS
KRUIS
SMAL

URBAN MAPPING
TRADING SYSTEMS

Fig 3.3. Diagram showing in trading nodes in the inner city (Author, 2015) Fig 3.3. Fig

This diagram depicts current trading nodes in the inner city. These trading nodes are also a good indication of activity in the city. Currently this activity has not extended to the western border of the city. There is thus an opportunity for the activation of the proposed context (highlighted in black) to create a link between east and west of the M1 highway.




NEWTOWN
GWIGWI MRWEBI
BREE
JEPPE
BARNEY SIMON
DOLLY RATHEBE
HENRY NXUMALO
MAIN
FORDSBURG
DIAGONAL
ALEXANDER
MATGERET MCINGANA
HARRISMITH
MARSHALLTOWN
FERNHURST
SAUER
SIMMONDS
HARRISON
LOVEDAY
RISSIK
ELOFF
VON BRANDIS
KRUIS
SPAL
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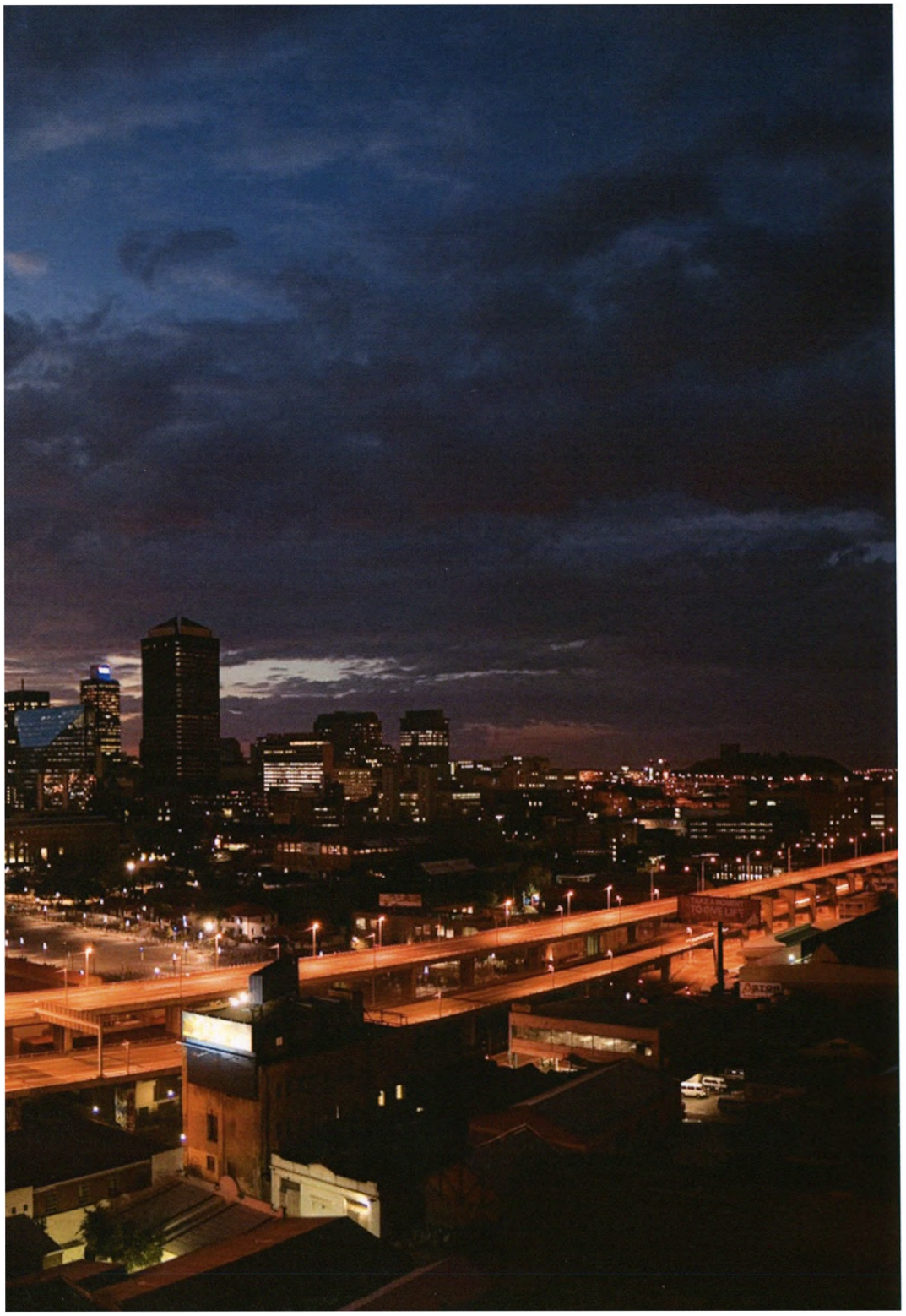


3.2. MICRO-CONTEXT: M1 - M2 UNDERPASS

In 1956 that of the 108 600 motor In 1956 of the 108 600 motor vehicles entering the CBD of Johannesburg during daylight hours almost 47 per cent were headed for places beyond the business area, and 50 per cent with destinations actually in the central business area were headed for the opposite side from which they had entered it. The subsequent plan and future reality was the belt of elevated "high capacity roads" (the M1 and M2 freeways and expressways) together with on and off ramps around the central business area with connections to the radial arterial routes from the suburbs (Beavon, 2001).

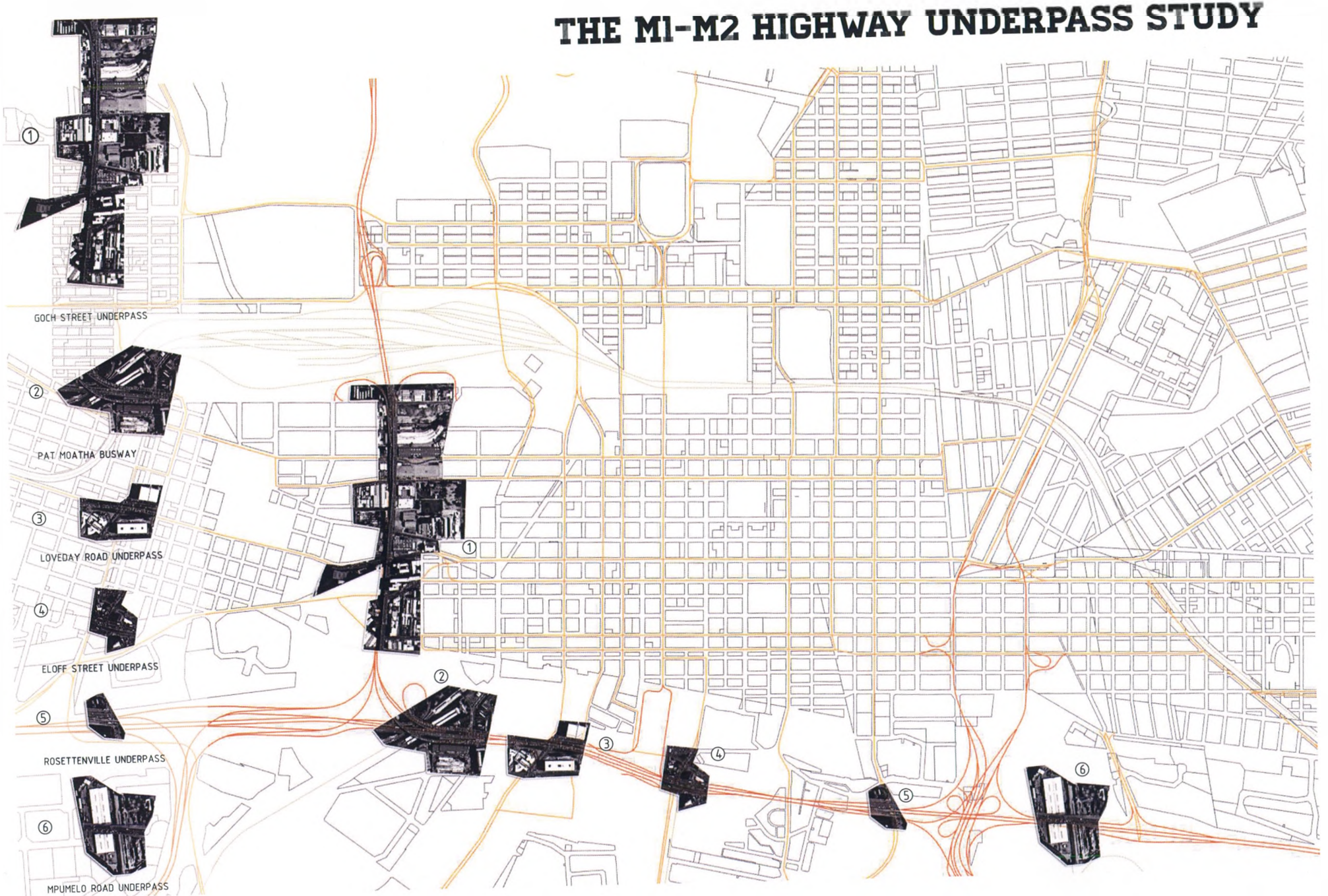
"Notwithstanding the importance of the M1-M2 system in relieving traffic pressure in the downtown other forces were already at work encouraging shops and their shoppers, offices and their clients to decentralize mainly to the northern suburbs. With the continued expansion of the built-up area in the post-war years, and the increasing ownership of private motor cars by white people, it followed that clusters of decentralized shopping and the number of business nodes would increase and expand but it was anticipated that the CBD would not decline." (Beavon, 2001). This piece of infrastructure was thus instrumental in the decline of the inner City.

Today the M1-M2 highway system is one of the busiest freeways in Africa. It experiences extensive traffic congestion and is also the only way many of the city's inhabitants experience the city. It is with this in mind that I contend there is an opportunity for it to be used as a means to invite its users into the city. Through acknowledging that at some times of the day it is almost at a standstill and a pedestal to visually access the city it can be used as a catalyst bringing in people previously reluctant to enter the city.

The underpass on the otherhand is used as an urban canopy, its uses include markets, trading, parking, and generally a space to get cover from the sun. The following pages show an analysis of underpass typogies.

Fig 3.4. Photograph showing M1 In the context of Newtown (Harbour, 2008)
Following pages: Fig 3.5. and Fig 3.5. Diagram showing different conditions of the M1-M2 underpass (Author, 2015)

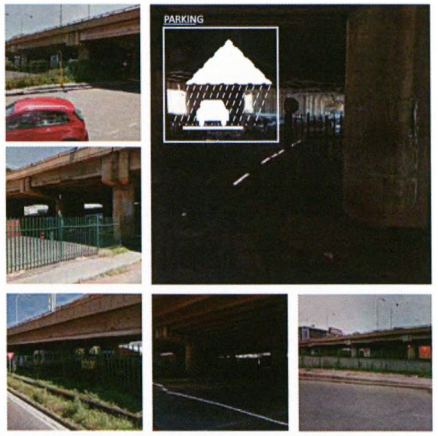
THE M1-M2 HIGHWAY UNDERPASS STUDY





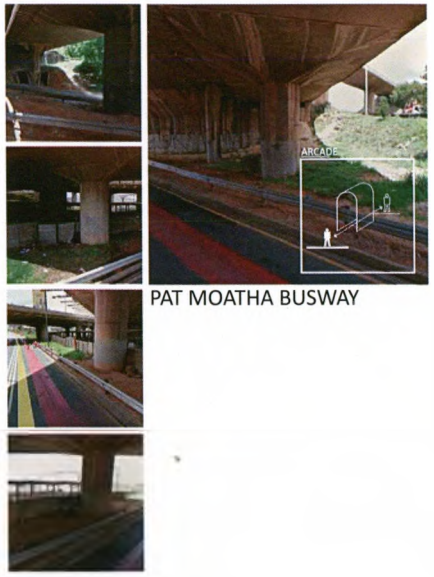
ROSETTENVILLE UNDERPASS

LOVEDAY ROAD UNDERPASS





GOCH STREET UNDERPASS

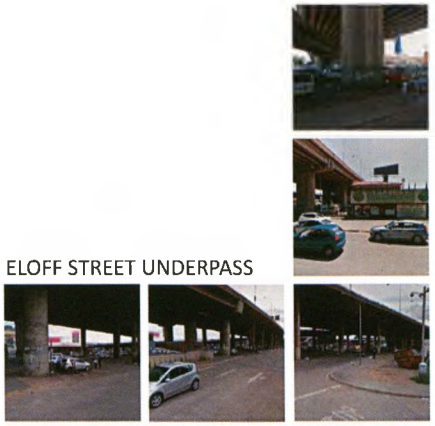


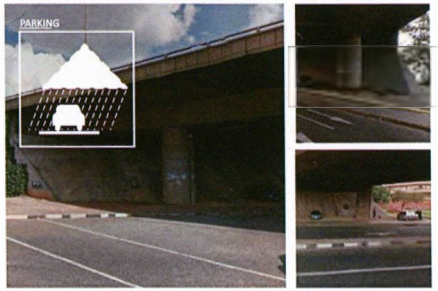
PAT MOATHA BUSWAY



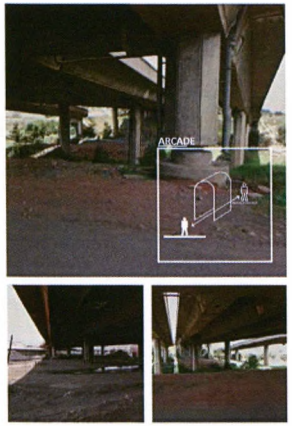
WEST STREET UNDERPASS

ELOFF STREET UNDERPASS





BOOYENS ROAD UNDERPASS



MPUMELO ROAD UNDERPASS

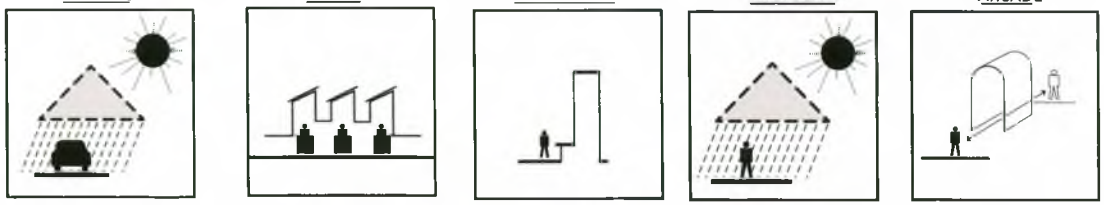
SIMMONS STREET UNDERPASS



USSHER STREET UNDERPASS



UNDERPASS TYPOLOGIES



3.3. SITE-CONTEXT: NEWTOWN'S SPATIAL PALIMPSEST

The suburb of Newtown has gone through multiple reinventions throughout its lifespan. Firstly at the end of the 19th century, Newtown was comprised a cluster of three locations on the western side of the town, occupied Coloureds, Indians and Africans and Whites (Chipkin, 1993). One of the locations, known as 'Brickfields' due to the clay deposits found there, was inhabited mainly by poor Whites. The others 'Kafir Location' and 'Coolie Location' and were set aside for Africans and Indians. In March 1904 the bubonic plague broke out and within months, the city authorities had rezoned it for commercial use and renamed it Newtown, erasing its former life from maps and memory (Chipkin, 1993).

The removal of these three locations was a pivotal moment in the history of city planning and residential segregation in Johannesburg and it represents Newtown's first reinvention. It was the first racialised relocation of its kind (Gaule, 2005) and it provided a model and precedent for all Johannesburg and it was the first major example of a racialised struggle over space. Nearly 100 years later several of the same actors returned to re-engage in a remarkably similar struggle over space.

"The reconstruction of Newtown was reflected in architectural developments that mirrored the social ethos of Johannesburg more generally. It was modern, bold, ambitious and commercial." (Gaule, 2005) By the early 1910s, Newtown had transformed dramatically. Up to the 1940s, Newtown and its environs had been caught up in new struggles over social space. The square outside the Market, originally known as Newtown's old wagon square, and later renamed Mary Fitzgerald Square. The square was also occupied on many Sundays by Black oppositional political parties and Black trade unionists (Shand, 2010).

By the late 1950s the area witnessed the consolidation of apartheid and especially of its lynchpin piece of legislation, the Group Areas Act (Carrim, 1990). In 1956, eight years after the institution of apartheid by the new nationalist government, the Malay Location, which had emerged close to Newtown, was finally designated for White ownership and its original inhabitants were gradually dispatched to new locations such as Eldorado Park and Lenasia. Removals of the occupants took place from 1956 until the 1970s (Carrim, 1990). This expresses Newtown's second state of reinvention.

By the early 1970s, the market was emptied in favour of more expansive premises on the southern outskirts of the city and the power station was no longer in use. This was not localized to Newtown and economic activity more generally was vacating the city centre. Gaule describes this occurrence: "Until 1970, the central business district (CBD) had been the primary location of Johannesburg's main tertiary services, but in common with world-wide trends of decentralisation and suburbanisation, a shift in this pattern began to become apparent. Cocooned from new racial infusions by the economically and socially artificial shell of apartheid and eviscerated by suburban and peri-urban industrial drift. A consequence of this mass exodus to the north led to the 'mothballing' of many of the buildings in the city centre." (Gaule, 2005).

Even though Newtown was in a state of disrepair in the 1970's and 1980's, it was a place

Fig 3.6. - 3.7. Photographs showing Newtown in its continuing state of reinvention (Author 2015)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FedEx


Gauteng
Tourism

of life and activity. Market Theatre (1976), as it is now known, has become renowned for its alternative avantgarde productions and multiracialism during the latter days of apartheid (Shand, 2010). Indeed, it was one of the first areas in Johannesburg during the 1970s and 1980s where racial mixing took place, mimicking in a slightly distorted and middle-class way, Newtown's multiracial beginnings.

The following decades was a period of more planned and formal interventions with government trying to reverse the urban decay of Inner City (Gaule, 2005). Newtown's last state of reinvention has been converting the area into Johannesburg's cultural precinct. Between 2001 and 2003 major physical infrastructure was introduced including the construction of the on and off ramps on Carr Street, the building of the Nelson Mandela Bridge, and the public realm was attempted to be upgraded with a focus on Mary Fitzgerald Square. Niki's Oasis opened in 2000 and Kippies closed in 2004. Between 2002 and 2004 there was investment in cultural organisation infrastructure with the creation of the Bus Factory, the opening of the first phase of Sci-Bono and Bassline as new tenants at the Newtown Music Hall. New management at the Market Theatre was key to rescuing the theatre and turning perceptions of Newtown around (Shand, 2010). The residential component was undertaken by the Johannesburg Housing Company with the building of Brickfields. Between 2003 and 2006, the JDA had as its focus on commercial development but only 1 Central Place materialised. All other proposed developments were delayed. The JDA also moved in to their new offices in the Bus Factory rescuing the cultural tenants already in the space (Shand, 2010).

The latest addition to the precinct is Newtown Junction. The project took two years to complete, with construction starting in October 2012 and reaching completion in 2014. The project seems to be successful in its immediate vicinity but its success has not influenced the rest of the precinct with other businesses (Sophiatown, Gramadoelas etc) vacating the area. The project also has not done much to activate public space in the precinct with Mary Fitzgerald still being used mostly as a parking lot and Newtown Precinct Park as a thoroughfare. The precinct is not as yet a cohesive whole. It is thus still in the process of becoming a successful cultural precinct.

Its history is rich which re-development which has each time erased life out of the precinct. It is in a perpetual state of in-between. With the amount of money that has been invested in the area as Johannesburgs Cultural precinct it is sad that it is not yet flourishing in its entirety. It is yet to be seen if the new developments in the area will bring the area together or create more clusters.

I propose that there has not been enough attention paid in activating the in-between public space in the area and that the buildings have become enclaves instead of thresholds. It is through activating this connective tissue that Newtown will become a vibey, eventful and artistic space that represents a successful cultural precinct.





Fig 3.8. - Fig 3.13. Photographs and diagram showing context of 2 Central Place. (Author, 2015)

3.4. SITE-CONTEXT: NO. 2 CENTRAL PLACE

No. 2 Central Place was aimed to complete the opposing 'U-shape' complementing No.1 Central Place to form an internalised semi-private courtyard. At present, the basement is built up to Ground Level with a vacant derbigum waterproofed deck.

It represents the in-betweeen in time and place being surrounded by many of the cultural clusters and the Newtown Precinct park and the M1 underpass to the west.

It is currently being used for graffiti artist to literally put their name on it through tagging as opposed to the M1 underpass which is used for artworks.

Their is a potential to enclose the semi-private courtyard to break up Newtown's abundance in public space and its position in the precinct also allows for it to become a catalyst for activity of in-between space.











Fig 3.14. Photgraph showing the underutilised Newtown Precinct Park. (Author, 2015)

3.5. VIABILITY

Economic investment has not yet taken place on a scale anticipated in the previous decade of planning for the precinct. Even with the investment made into the Newtown Junction Urban Project it has not as yet carried through the rest of the precinct. Critics that argue that all the money invested in the precinct is not paying off and that it does not have a "critical mass" of arts organisations. According to M. Mbhiza, "There could be more cultural objects, such as markets, theatres, more things to see and do. There is no longer a jazz scene in Newtown which is sad for an area with a reputation for jazz." (Mbhiza, 2013). The proposed market will therefore aim to be a vital component of the creative "critical mass" of Newtown. Investors will be drawn to the area if there are more activities and attractions, which will in turn densify the area.

It is thus with this in mind that I proposed a public market to add to the "critical mass" of Newtown. In order for the market to be successful and able to sustain itself, it is necessary to ensure there are well managed and appropriately planned informal trading areas that respond well to the needs of the informal sector, whilst at the same time enhance the experience of the Inner City. The structure and design of the market will support the environment for the development of micro-retailers. The market will also attract a diversity of target markets and offer a range of goods and services to various income groups. By using the existing and proposed public transport systems, economic development will increase on the routes and stops and places of consumption and food sale will increase. The market is intended to be part of this system, dedicating a section solely to the sale, preparation and consumption of food.

According to the Regional Spatial Development Framework (RSDF, 2011) and the Spatial Development Framework (SDF, 2012) the proposed market needs to subscribe to the vision, planning principles, strategies, policies, and by-laws of the City of Johannesburg. It is essential that its proximity and response also allows the Newtown West Precinct to grow incrementally in a manner that creates a convincing nucleus from the outset. From a business perspective there is an opportunity to reinvent underused and in many instances inexpensive land to create more sustainable typologies or sustainable models for industrial precincts.

The market will benefit from the investment in retail and residential space within the city which is proposed for the precinct. It will be a specialty node and will increase the attraction of the Inner City on a city-wide scale making it a destination for residents and tourists. Although it has is shortcomings, the Newtown Cultural Precinct is testament to the City's determination to maintain heritage. Heritage, which does not come only in the form of built structure, will be revived when a successful market that once existed, reinvents itself within Newtown. The intervention will let the user experience food culture of the city and the informal, formal and periodic traders will share a space that is unique to the city. "New addition to the cultural landscape will increase the cultural offering available in Newtown in the form of theatre, food, dance studios, museums, performance space, retail, office and residential spaces" states Lael Bethlehem, CEO of the JDA (Mbhiza, 2013).

In conclusion to the research analysed, the informal trading sector is a positive activity which contributes to the creation of jobs and the alleviation of poverty. The proposed market aims to provide a well-managed environment in which a positive relationship with the formal sector will be nurtured so that the sectors can operate effectively alongside each other in an environment that fosters sustainable economic growth.

04

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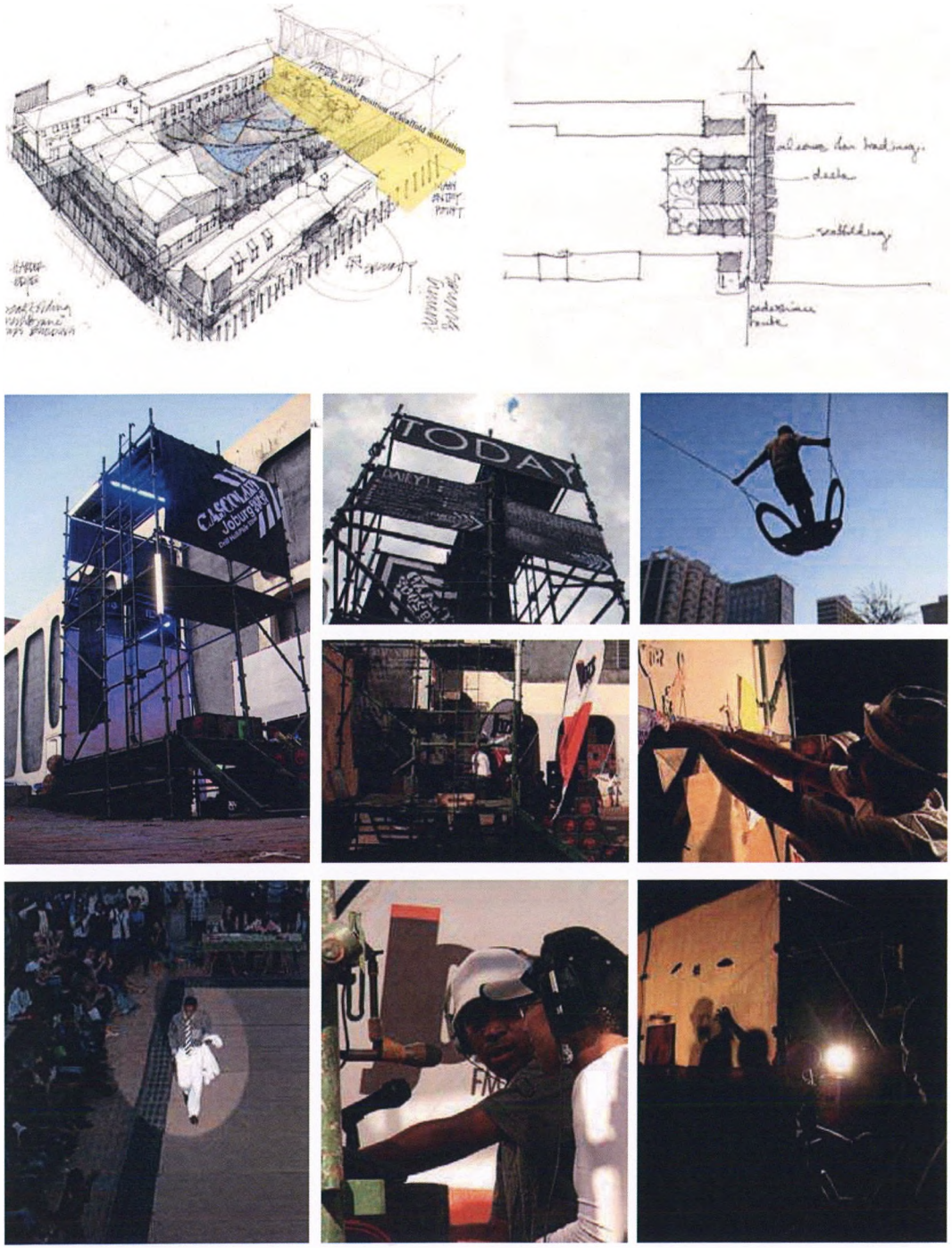
ADAPTABILITY OF PUBLIC SPACE 55
PUBLIC INFRASTRUCTURE 56
LINEAR PUBLIC INFRASTRUCTURE 58

PRECEDENTS



4. PRECEDENTS

4.1. CASCO-LAND BY SHARP CITY

APPROPRIATION OF PUBLIC SPACE

Cascoland is a project that takes artists, architects and designers, and concentrates their collective energy and creativity on public spaces (Cascoland, 2007). The aim of the project is to activate and animate public spaces within the city. In 2007 the project looked at the site of the Drill Hall in Johannesburg, where "... a structure that is not programmed in itself; but has the capacity to catalyze other programs, functions and other interventions, thus animating public space" was proposed for this site (Hofmeyr & Kiratzidis, 2007).

The intervention design by A. Hofmeyr and D. Kiratzidis with SharpCity looked at the everyday activities of the site, while it proposed various possibilities of new activities that can be introduced. This intervention shows the manner in which local public space can be transformed through an unprogrammed architecture. Exposing how public space is appropriated to suit the -needs of its users, function, events and activities accordingly.

Fig 4.1. Casco-land, Sharp City - Appropriation of public space (Hofmeyr & Kiratzidis, 2007)

4.2. PARK(ING) DAY BY REBAR

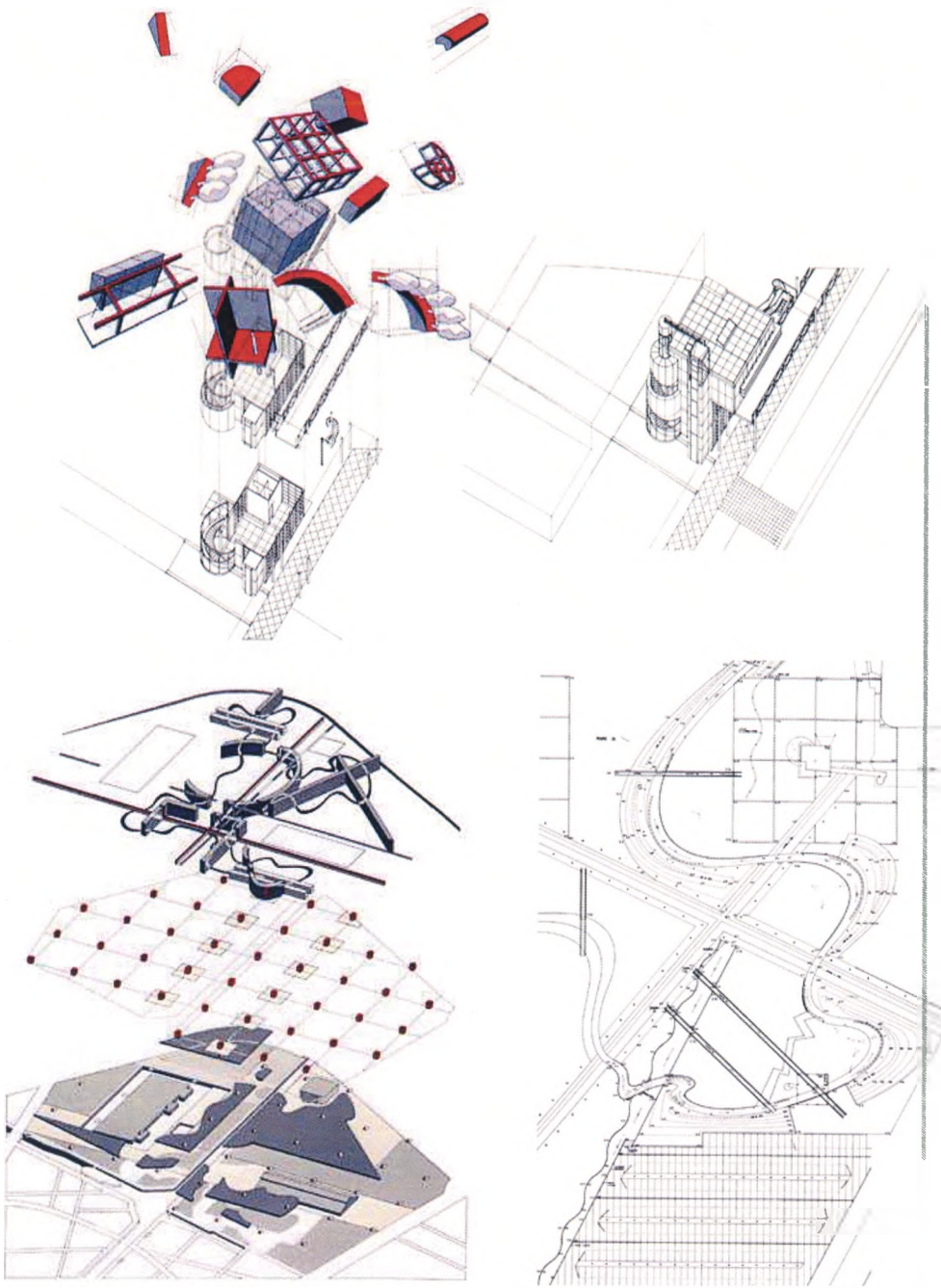
ADAPTABILITY OF PUBLIC SPACE

The projects aim was to provide temporary public open space in a privatized part of the city. "One of the more critical issues facing outdoor urban human habitat is the paucity of space for humans to rest, relax, or just do nothing. For example, more than 70% of San Francisco's downtown outdoor space is dedicated to the private vehicle, while only a fraction of that space is allocated to the public realm" (REBAR, 2005). Parking spaces in the city occupy precious real estate, whereby they are 'rented' out on an hourly basis by feeding the parking meter with coins. The parking spaces are then transformed into a positive form of public space. Park(ing) Day is an initiative that occupies metered parking within the city, turning them into a 'public park' for one day.

It happens annually on the 16 September worldwide where in 2010 more than 800 PARKS where placed in 183 different Cities covering 30 Countries and 6 Continents. The project engages with the adaptability of space. The designed transformation of a 2,5x5,5m parking space is given back to the public realm, providing positive soft spaces within the city - demonstrating the potential of small scale 'everyday urbanisms' responding to the context of the city. The project also shows the adaptability and appropriation of the public realm in both function and space.



Fig 4.2. Park(ing) Day, REBAR - Adaptability of public space (REBAR, 2005)



4.3. PARC DE LA VILLETTE BERNARD TSCHUMI

PUBLIC INFRASTRUCTURE AND PLANNING

Designed on the principle of point, line and surface Parc de la Villette challenges the idea of urban planning and architecture. These points are deconstructed follies, which are planned along a grid that is superimposed on the site and the urban context.

The design of the follies allows for multiple programming of the site, almost becoming infrastructural. Here Tschumi introduces the ideas of "cross-programming, trans-programming and disprogramming, which challenge conventional building typologies. Tschumi's design for Parc de la Villette allows various elements outside the realm of architecture to influence the design. The "park" also follows a deconstructive approach, were the boundaries between architecture, philosophy and literature are blurred. This allowed an approach which is heavily entrenched in meaning. (Tshumi, 2004)

Events were designed instead of defining a form or structure, in that sense Tschumi challenges the idea of a park, and develops the concept of an 'urban park'. Instead of creating a formal language for the 'function' of a park, events and experience of space were the design for the park, which questions the idea of a park typology.

This approach opens the design to criticism of its validity, because the theory followed may not be accepted by all. However the theory also gives the design meaning and justification, it also makes the space more than just architecture.

Fig 4.3. Parc de la Vilette, B. Tschumi - Public infrastructure and planning (tschumi.com)

4.4. MAGNETS
CEDRIC PRICE
PUBLIC INFRASTRUCTURE AND PLANNING

'Magnets' by Cedric Price gives insight into an alternative approach. Magnets proposes a series of short life structures, to be funded by local authorities, which would be used to set up new kinds of public amenity and public movement. According to Price (Hardingham, 2003) these structures would occupy space not usually seen as sites available to the public such as air space above roads, streets, parks, lakes and railways. They are designed to generate new kinds of access, views, sanctuary, safety and delight. They are designed to "overload" underused or misused sites, to make them more delightful and playful (Hardingham, 2003).

This concept opens up the possibilities of architecture, where the building allows itself to do more, better rooted to its context and simultaneously light-hearted. These Two projects show a varying approach, one which is deeply rooted to its site, and another to its theoretical argument. Both these projects can provide lessons in a planning approach for the project, where the site chosen contains the need to be flexible as well as contextual.

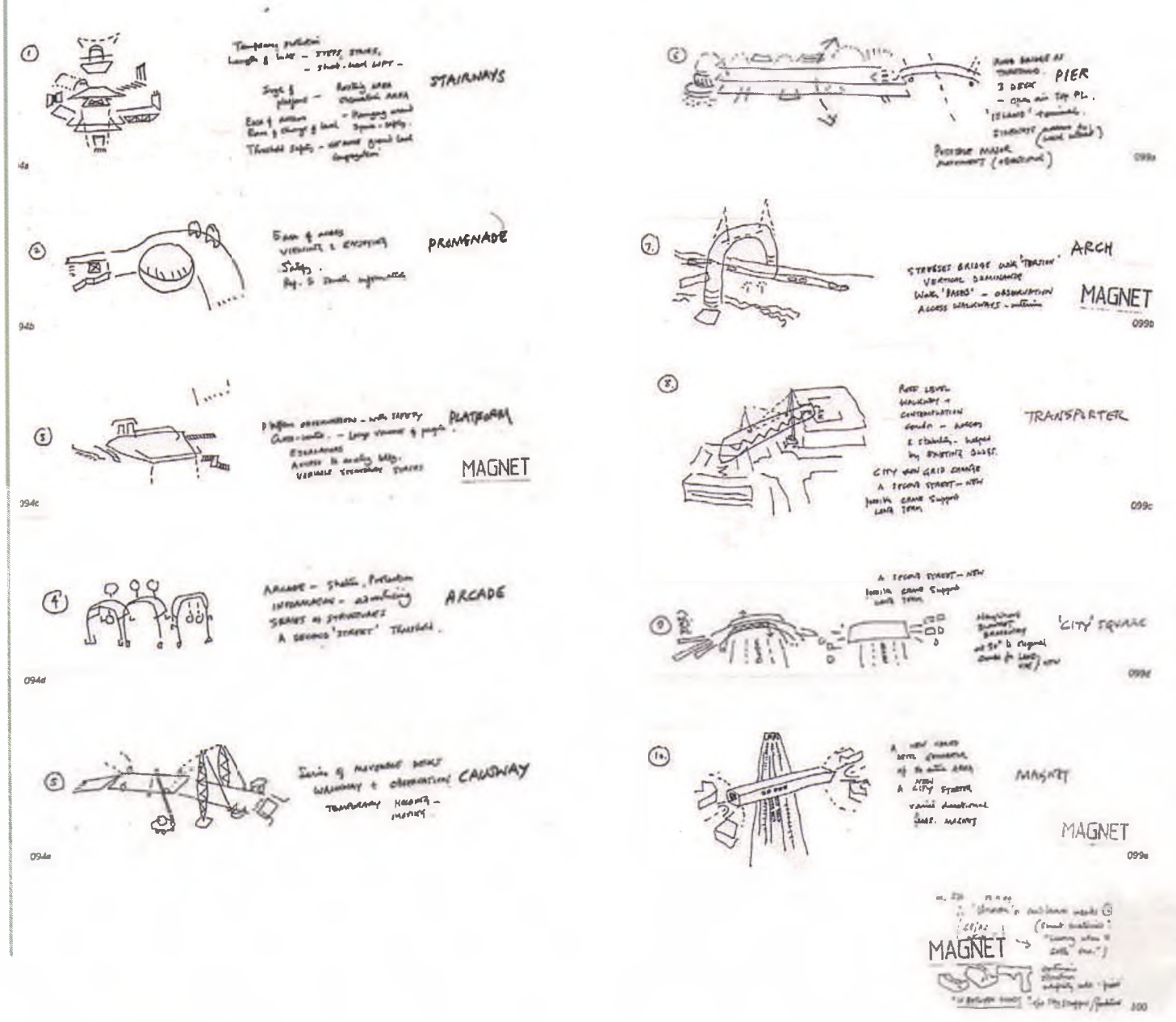


Fig 4.4. Magnets, C. Price public infrastructure and planning (Hardingham, S. 2003)

4.5. LINEAR PUBLIC INFRASTRUCTURE

"Edges are often the most dynamic places in ecosystems. The cusp, both spatially and temporally, is the zone of maximum activity, exchange, hybridization and instability." (Kullmann, 2012) However edges are not restricted to the intersections between ecotones in natural systems. Cultural landscape edges/thresholds such as roads often attract more verdant growth at the edges. This can be seen in the vibrant informal trading spaces in occurring on street edges in Johannesburg inner city. An edge can be evoked in the positive sense of a, threshold, or activity corridor transition and equally, an edge can infer an impermeable boundary, rupture, or linear void in the urban fabric. Currently the M1 highway represents a boundary in the city instead of a threshold.

"Edges have thickness, they exhibit physical width in the real world. Even a single fence line, whether dividing private properties or nation states, spreads a fuzzy apron of influence on either side. Within this interstitial zone, edge becomes thick edge-space, and cities in the post-industrial era are laced with them." (Kullmann, 2012) Edge spaces may be pre-planned into the figure-ground pattern of a city as happened in planning in Johannesburg during the Apartheid era, but are more universally the by-product of an overabundance of cultural processes. These could be active, redundant or dormant transport easements (including railways and freeways), political boundaries, such as municipal edges, or previous divisions and energy infrastructure easements (including high voltage lines and gas pipelines). "With the paradigms of 'connectivity' dominating contemporary urban discourse, edge-spaces are often treated as thin anomalies to be 'stitched up' or 'smoothed over' or in order to alleviate the disjunction. (Kullmann, 2012)

As mentioned in previous chapters concepts ranging from terrain vague (de Sola Morales 1996) to non-space helped to provide new lenses through which to view the 'along-side areas' that had been largely invisible to designers. (de Solà-Morales, 2014). As cities continue to transform from the hard linear type of the industrial era to the soft webbed infrastructure of the information economy, an increasing supply of unused thin spaces will emerge. Pressure to densify will drive designers to make more productive and visual use of the intertwined 'along-side and in-between' spaces. Therefore, current and unused linear infrastructures hold the possibility to present architecture with convincing aesthetic alternatives to the picturesque idea of public space and the opportunity to create a more authentic representation of contemporary conceptions of urbanism, ecology, culture and nature.

The following pages show how linear in-between areas in the urban figure-ground has been appropriated as public space in various cities across the globe through various methods.



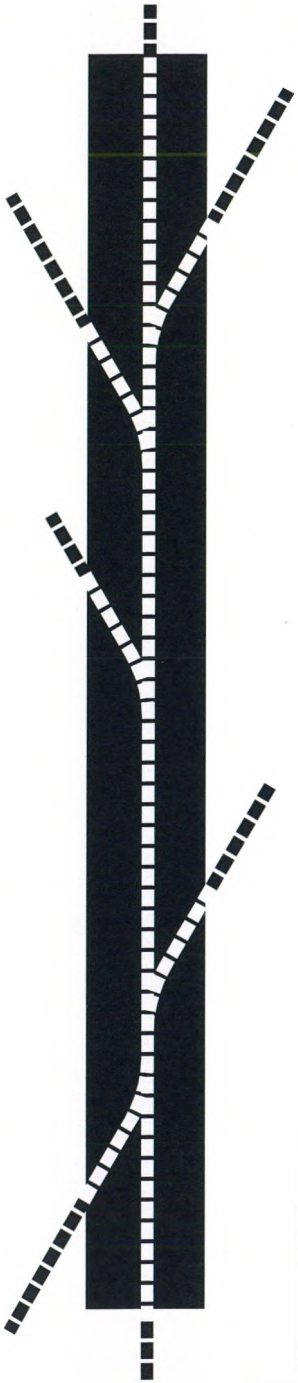
4.5.1. PROGRAMME SINK

As a source for set programmes, the 'programme sink' thin park is filled with accurately defined functional uses. These usually take the form of sports fields or courts.

The traits of a 'programme sink' are that they supply specifically demarcated functional uses. Their programmatic opportunity determined by the dimensions of the site. They have a tendency to form typological monocultures because of pressure for high programmatic yields may literally 'squeeze out' other uses and they can display very systematic design layouts.

Due to the self-contained nature of many programmes it is less influenced by context, and is thus most effective in both high and low density situations and areas of urban blight or transition. The greatest opportunities of this type of park lies in interrogating the set programmes themselves and looking for opportunities where game fields might be hybridized or adapted in the manner of 'street games'. (Kullmann, 2012)

Fig 4.5. Diagram showing program sink infrastructure - Sarah Roosevelt Park (Author 2015)





LA RIVER CANAL,
LOS ANGELES

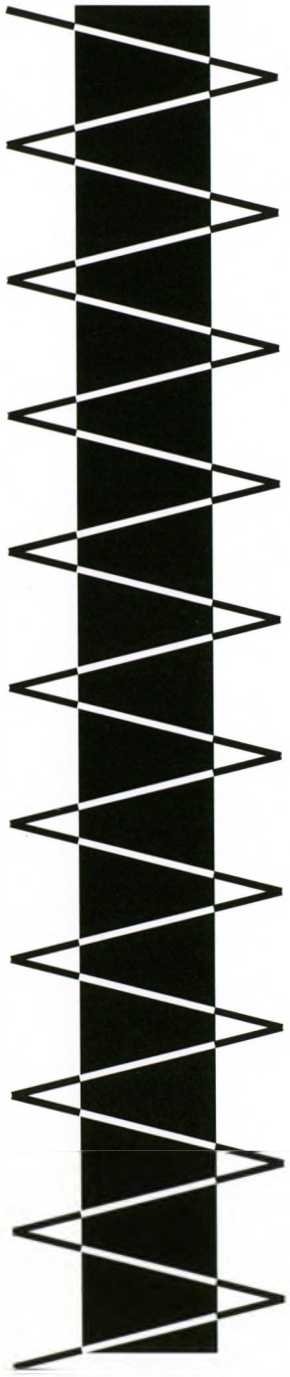
4.5.2. CONDUIT

This type of thin park can be described as a channel for express non-vehicular movement.

It is often the most dominant thin park typology and usually comprises of rails-to-trails and canal tow-path conversions. 'Conduits' are typically associated with river parks and abandoned rail easements. These river and rail easements are often disconnected from the level of regular traffic networks and it is this feature that makes the 'conduit' type thin parks more efficient.

Where these parks are less successful is because journeys along conduits still often lack the goal orientation of the regular street network. This is a by-product of the disconnected and fragmented reality of green networks. The route is determined by old infrastructure alignments and not by the directional intentions of its everyday users. It is conducive in situations where a fragmented conduit park acts like a freeway to nowhere, that design interventions employ tactics to slow elements of the conduit down. (Kullmann, 2012)

Fig 4.6. Diagram showing conduit infrastructure - LA River Canal (Author 2015)



ROSE FITZGERALD
KENNEDY GREENWAY,
BOSTON



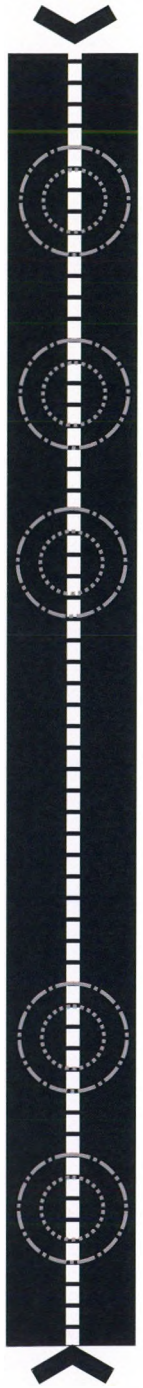
4.5.3. SUTURE

A suture is mainly employed to stitch up an urban rupture which is usually infrastructural in origin. An example of this is the Rose Fitzgerald Kennedy Greenway deck which stitches across the now buried freeway. The freeway originally cut through the historic downtown district of Boston.

The 'suture' thin park is not always the first development choice and may be predetermined by capital and engineering constraints which preclude 'build-out' of adjacent urban form over a rupture or barrier. This type of park is particularly problematic typological terrain, since changing the incisions of modernity suggests a historically familiar but destabilizing role for the discipline of urban architecture. (Kullmann, 2012)

The most effective strategy when dealing with these parks is to strengthen difference rather than attempting to apologetically alleviate the condition. It is thus better in this situation for the park to become a third element that is more honestly representative of the realities of its site rather than a chameleon attempting to mimic each side of its urban context.

Fig 4.7. Diagram showing sutured infrastructure - Rose Fitzgerald Kennedy Greenway (Author 2015)



MAUERPARK,
BERLIN



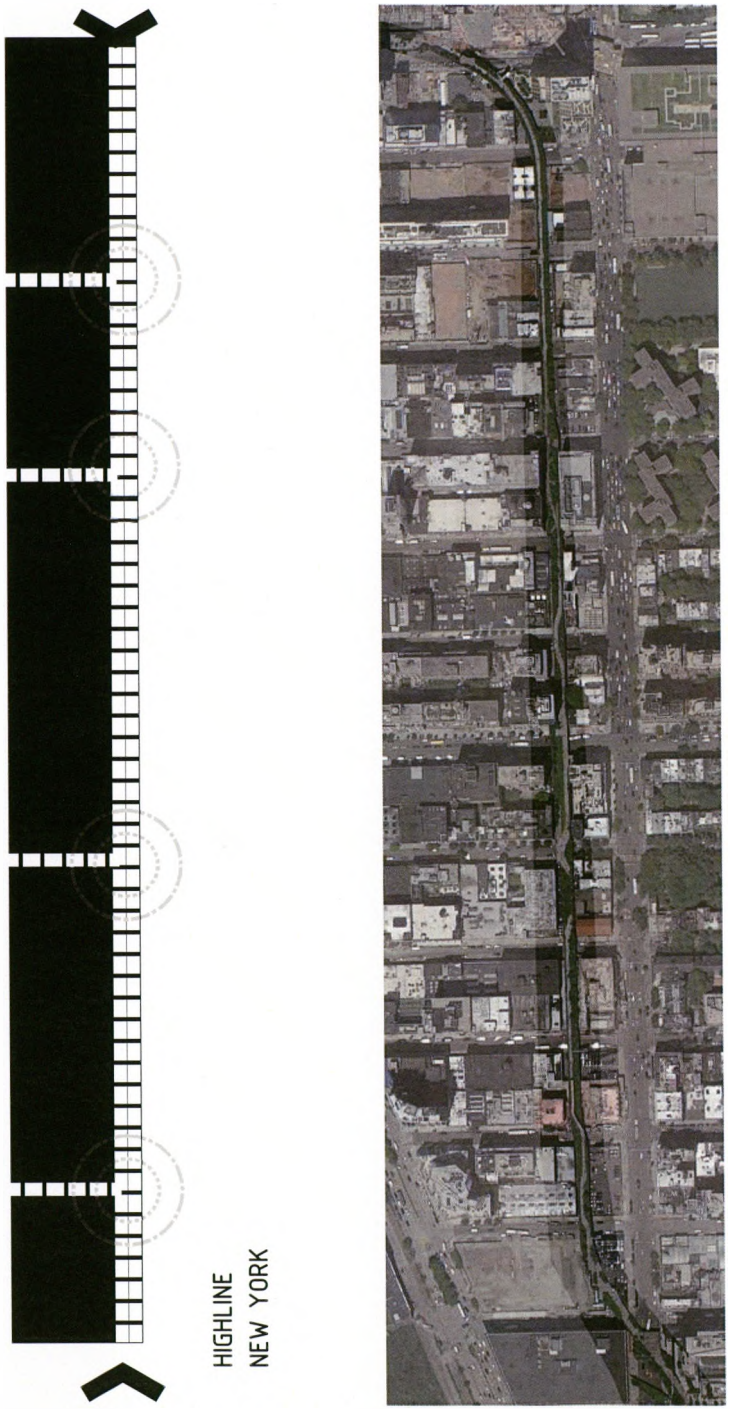
4.5.3. STAGE

This type of thin park can be seen as a chain of events or spectacles, it is typologically a linear 'stage'. Example is Mauerpark is an example of the typical linear stage.

The traits of this park are that the spectacles are usually internalized. The theatrics of this type are programmed and positioned within the boundaries of the site. It has central spine of sequential 'landing sites' that host both unprompted and planned events, compounded within the semi-enclosure of the park.

Contextually, stage type thin parks are most effective and positively supported by the borrowed cultural atmosphere often found in denser urban cores. Much like the 'programme sink' type thin park, the 'stage' also has the ability to produce its own spectacle, which means it can also function in lower density suburban environments. (Kullmann, 2012)

Fig 4.8. Diagram showing stage infrastructure - Mauer Park (Author 2015)



4.5.4. PEDESTAL

The pedestal type thin park is a linear setting for externalized spectacles or panoramas. With its unusual elevation and alignments in the context of the gridiron street life of New York, the High Line is an example of a sequence of pedestals which frame and amplify variegated sightlines into the surrounding urban fabric.

The traits of this thin park are that its 'extrovert' condition places the park in a symbiotic relationship with external landmarks and atmospheres. The pedestal thin parks also employs distinctively Baroque and Picturesque garden and landscape design strategies including 'borrowed landscape', screening, and visual foreshortening between foreground and background. (Kullmann, 2012)

The pedestal typology is less reliant on on urban density than on the topography of the adjacent environment and the elevation or position of the linear park itself. Pedestal type thin parks are more difficult than any of the other typologies to engineer through design strategies if the key topological conditions are not pre-existent.

Fig 4.9. Diagram showing pedestal infrastructure - Highline (Author 2015)



4.5.5. FILTER

The 'filter' thin park can be described as a semi-permeable membrane, which selectively controls through-flow of energy and matter across the small area of the site.

Its traits are that it deflects traffic, it captivates park users, and that it progresses goal oriented cyclists and pedestrians. It is most effective in high density urban contexts where an even and constant supply of stratified flows (of pedestrians, cyclists, traffic) allows the filter to be regulated appropriately.

It is least effective in lower density suburban contexts where less concentrated usage and lower flow volumes make it much harder for the design to be 'fine-tuned' properly. In terms of the designer's approach, constructed and vegetal screening as well as selective use of path and road geometry forms the primary tools. (Kullmann, 2012)

Fig 4.10. Diagram showing filter infrastructure - Panhandle (Author 2015)

4.5.6. LEARNING FROM LINEAR INFRASTRUCTURE

Each linear infrastructural condition has different opportunities. I will be focusing on using the M1 as stage, pedestal and suture.

As a stage the M1 underpass has an opportunity to act as a necklace of events or spectacles along Henry Nxumalo street with a series of public infrastructures which run from Westgate Train terminal to Carr Street. A central spine of sequential 'landing sites' can host both premeditated and spontaneous events. Contextually there is an opportunity for the stage type to be assisted by the borrowed cultural atmosphere often found in denser urban cores. Here it can borrow from the Chinese, Indian and Newtown cultural precincts along the route. As previously covered the 'stage' also has the ability to generate its own spectacle, which means it can also function in lower density suburban in-between these precincts.

Currently for users driving along the M1 it is a setting for externalized spectacles or views which already makes it a pedestal typology. The pedestal is less dependent on urban density than on the topography of the surrounding environment and the position or elevation of the linear park itself. Because of its elevation and its proximity to the city it does act as a setting for externalized spectacles especially during peak times of traffic when drivers on the highway can come to a complete stop. It is also currently used for many inhabitants as the only way to experience the spectacle of the city. There is an opportunity to visually connect to this pedestal in its close proximity and to draw its users to the activities below.

Lastly the M1 underpass can act as suture connecting east and west. Development to the west of Henry Nxumalo has not yet taken place as planned with the proposal of a new residential component in these industrial suburbs. The key is to amplify difference rather than attempting to apologetically diminish it. The proposal is thus not to change the vehicular natural of the underpass but to add to it a pedestrian component with a series a infrastructures along Henry Nxumalo placed in smaller open spaces found along the route. These public infrastructures will be placed on both sides of Henry Nxumalo.

05

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URBAN FRAMEWORK

5. URBAN FRAMEWORK

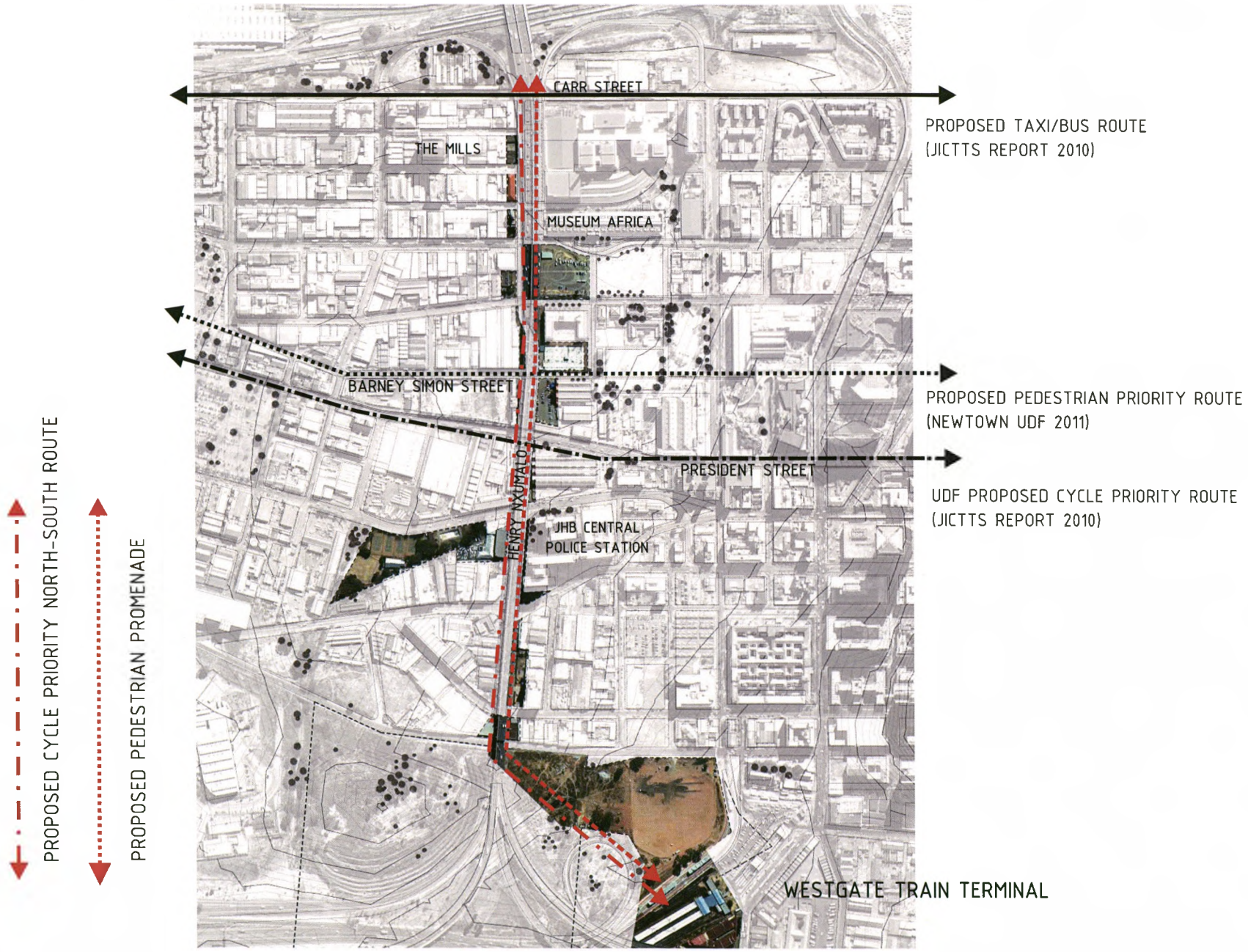
5.1. THE UNDERPASS PROMENADE

The urban framework proposes a promenade along Henry Nxumalo. Learning from linear infrastructure, the promende will house a series of spectacles. The design concept is an amalgamation of the theoretical investigation. The design is a process manifesting from the theoretical premise, discussed in the previous Chapters.

The project investigates the quotidian (or everyday) context of the city. The urban environment is seen to contain both the 'settings' and the 'props' for these everyday activities. The mapping of the public realm reveals the quotidian context of the city a design generator. As a response to the mapping of the context (Henry Nxumalo), a series of public infrastructures are conceptually proposed to respond to each public condition, thereby both celebrating and enhancing the everyday context of the city. Such a response attains Brian Larkin's (2008) 'unexpected nature of infrastructure' whereby a series of small scale public interventions are proposed to activate Henry Nxumalo street.

The promenade will run from Westgate train termainal to Carr Street.

Fig 5.1. Diagram showing proposed pedestrian and cycle promenade. along Henry Nxumumalo Street. (Author, 2015)



CYCLE AND PEDESTRIAL PROMENADE - HENRY NXUMALO STREET

5.2. LINK TO CULTURAL PRECINCTS

There are various cultural precints in close proximity to Henry Nxumalo on the western edge of the city. Thus an opportunity exists for the promenade to act as a spine to access and connect these areas i.e. The focus will be on the section of the spine in the vicinity of Newtown.

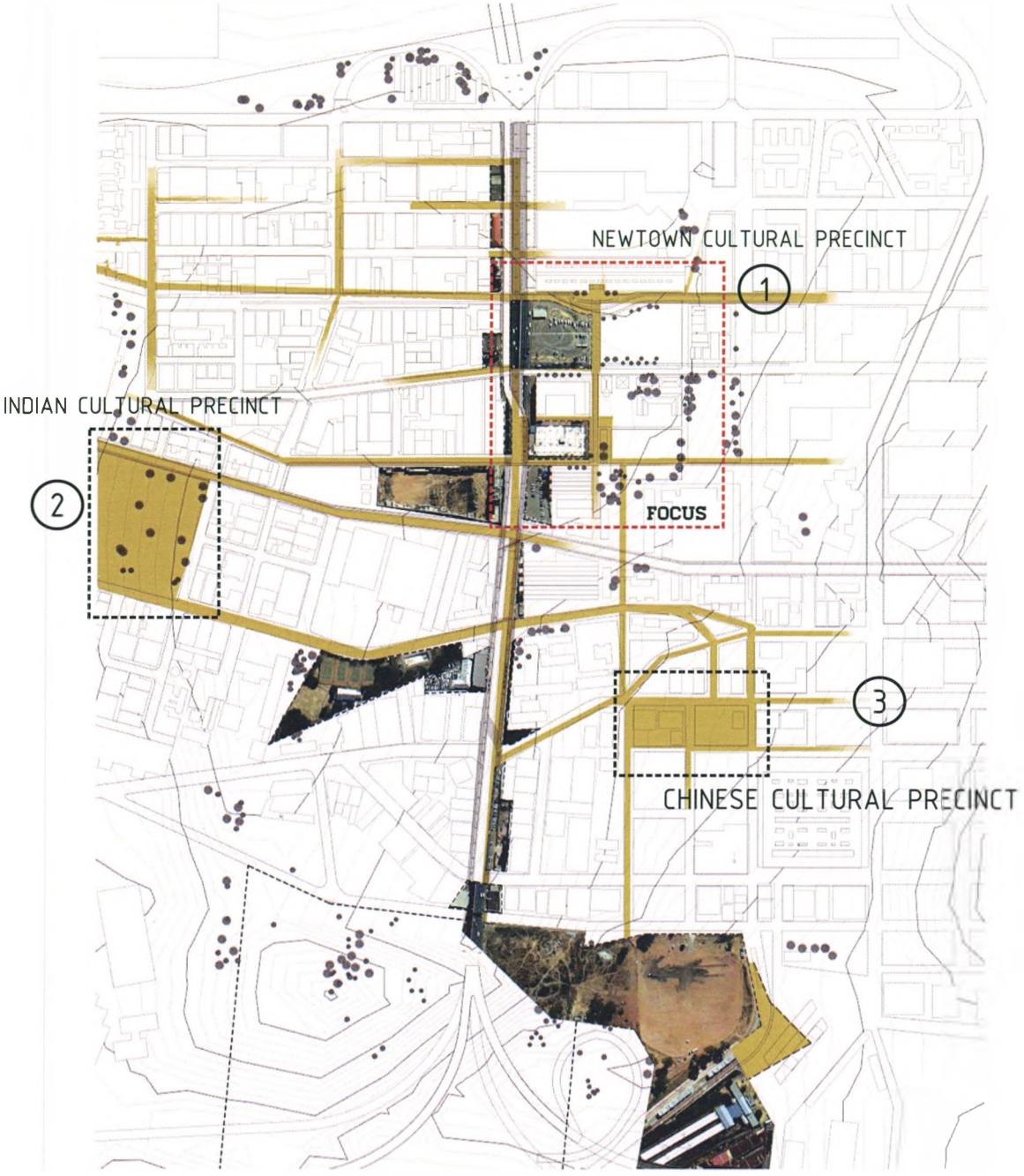


Fig 5.2. Diagram showing link to cultural precincts in proximity of the promenade (Author, 2015)

5.3. ANALYSIS OF PROMENADE

The analysis of Henry Nxumalo is done to attain where there are left over or in-between spaces which can be used to activate the promende.



Fig 5.3. Diagram showing spatial structure of Henry Nxumalo (Author, 2015)

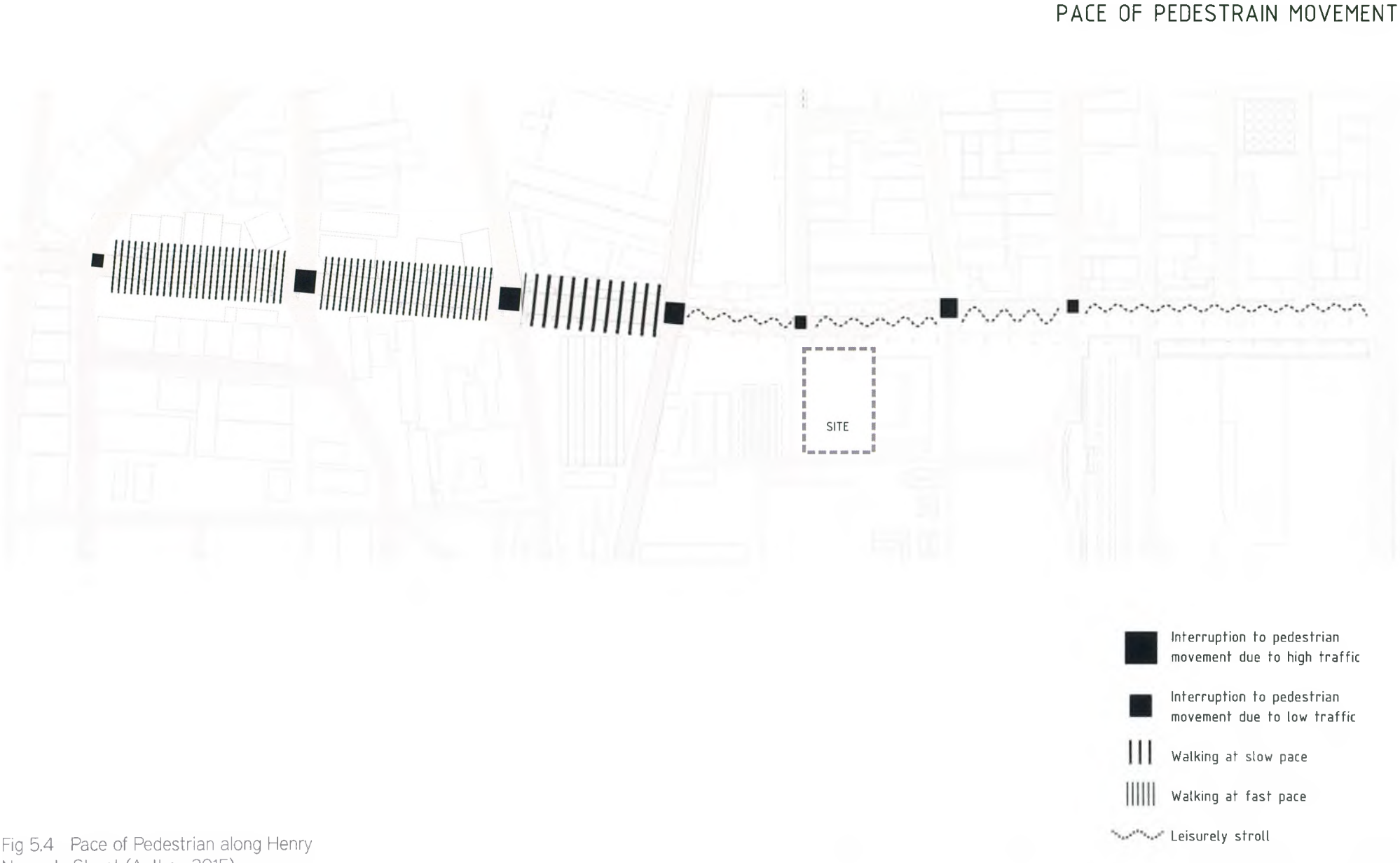


Fig 5.4 Pace of Pedestrian along Henry Nxumalo Street (Author, 2015)



Fig 5.5. Edge conditions along Henry Nxumalo



Fig 5.6. Green Spaces along Henry Nxumalo

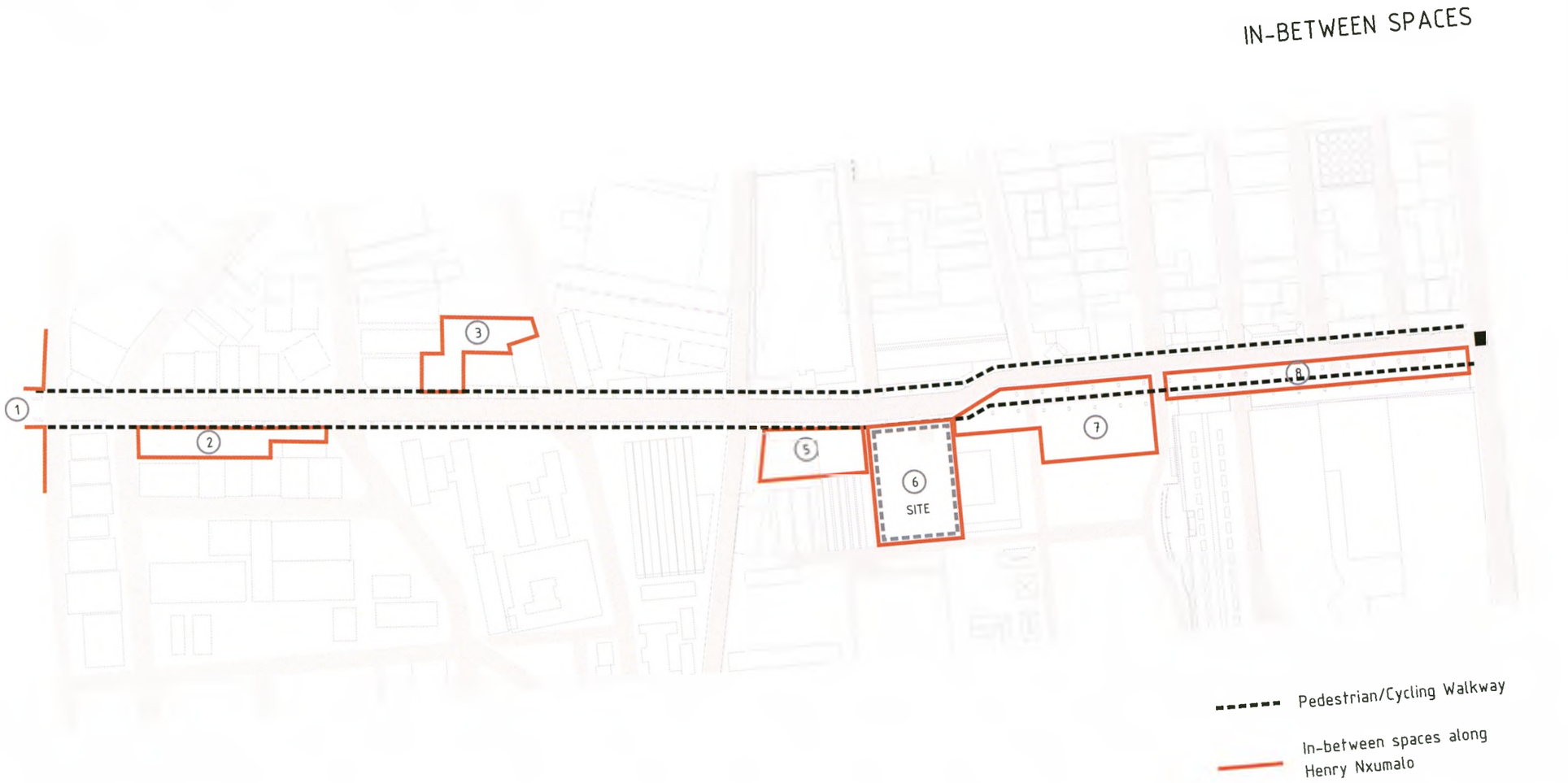


Fig 5.7. In-between along Henry Nxumalo

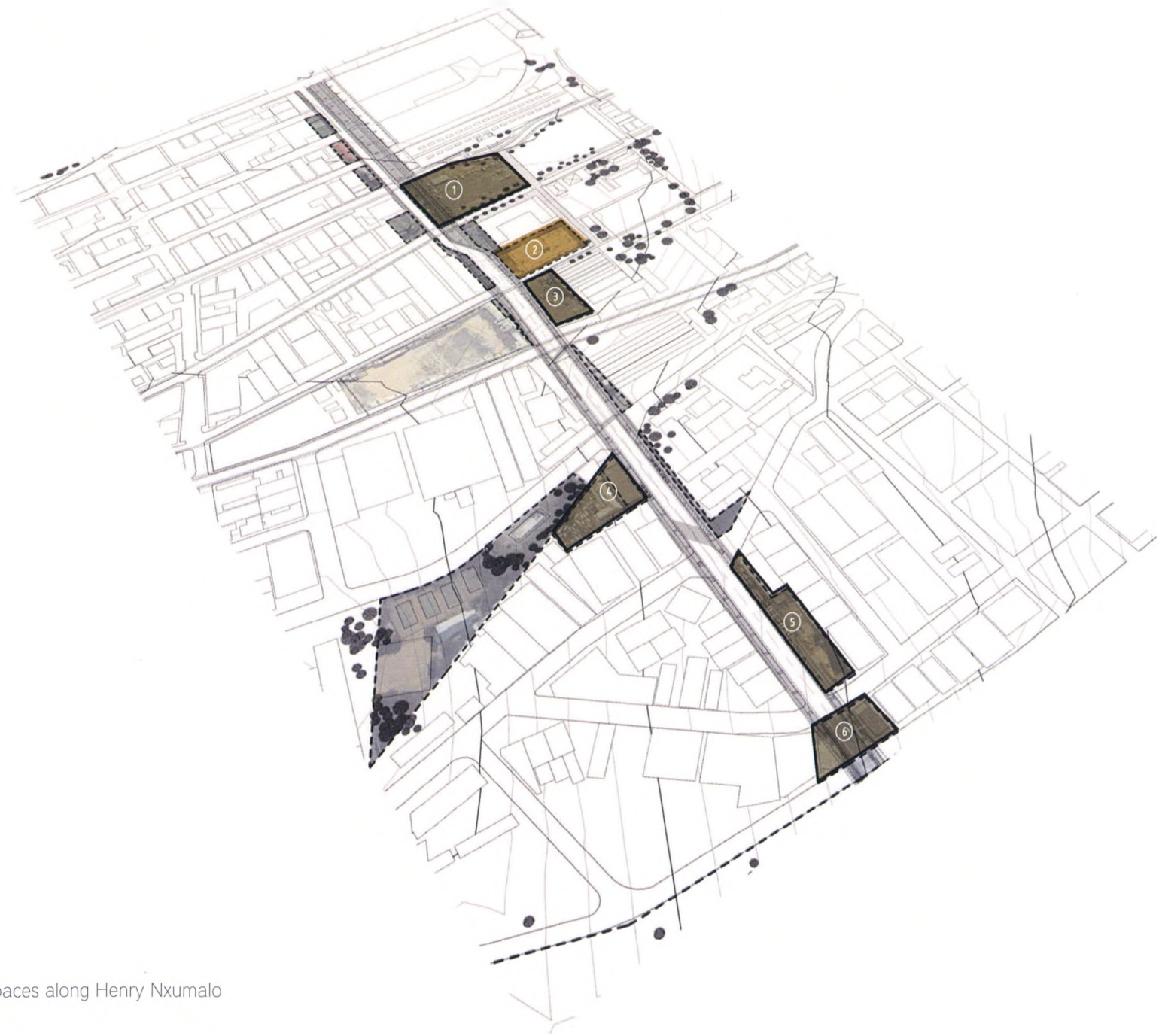


Fig 5.8. In-between spaces along Henry Nxumalo

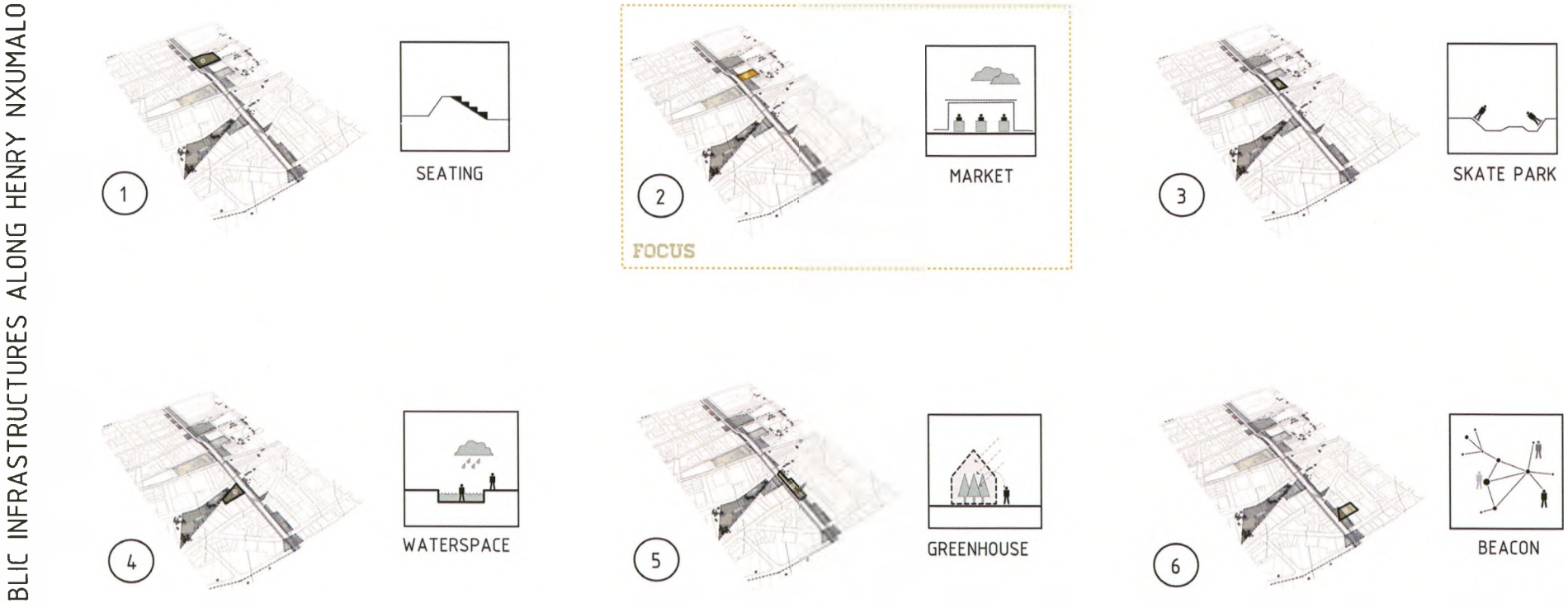


Fig 5.9. Public Infrastructures in in-between spaces along Henry Nxumalo

5.4. THE UNDERPASS AS ARCADE

Essentially a pedestrian thoroughfare, the transitional nature of the arcade owes not only to the movement of people, but also to the architecture of the exterior that is drawn into the enclosed space. The arcade focusses on the pedestrian experience therefore brings forth a progressive, pedestrian infrastructure. It is the architecture of the flâneur, who walks the streets of his city – he is a "person who walks the city in order to experience it."(Benjamin, 2002)

A combination of interior and exterior space, the street of the arcade "becomes a dwelling for the flâneur; he is as much at home among the façades of houses as a citizen is in his four walls." Thus, the flâneur inhabits an ambiguous mélange of indoor and outdoor realms, where to him the shiny, enamelled signs of businesses are at least as good a wall ornament as an oil painting is to a bourgeois in his salon (Benjamin, 2002).

The dual interior-exterior spatiality of the arcades imbues the flâneur with a paradoxical nature: he is able to both read and makes sense of the city as an urban spectator (enjoying a degree of intellectual distance), while at the same time being completely immersed in the present realities of the city. He is both spectator and inhabitant, player and observer, narrator and character (Benjamin, 2002).

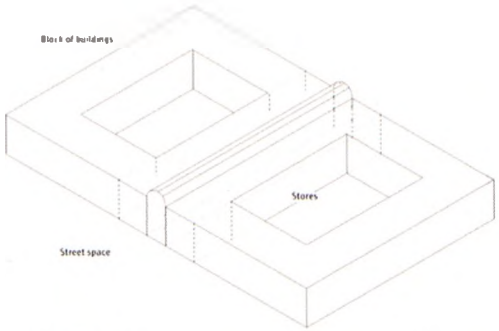
Scenes are played out in all aspects of life. Sometimes they are quick interactions on the street corner, and sometimes they are elaborate performances in opera houses. They occur in the most mundane places, and the most dramatized. Interactions can occur in a variety of ways. There is person to person interaction where people are engaged face to face with no mediator. Then there is the machine to person interaction. Transactions and interactions are filtered through the machine. There are also third party observers that bear witness to unscripted events from afar. They can be sitting and watching the activities of a street or watching people move from place to place. A fourth variation is the observer to a scripted event. The observer's reactions are determined through how the scripted event is staged.

This quotidian context is one which is full of complexity, spontaneity and possibility. It is here that architecture can engage with both the city and its user, space and experience and conventional architectural typologies. It is within public space, that architecture can both enhance and celebrate the everyday. The urban programme will explore the creation of different types of scenes, everyday and staged. A multitude of different spectacles along Henry Nxumalo will create a platform for the everyday. The focus will be on a public market in the vicinity of Newtown.

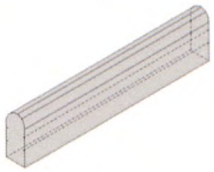
The following images show conceptual representation of the underpass as arcade and the opportunity to celebrate the spectacle of the quotidian.

THE PROMENADE AS ARCADE

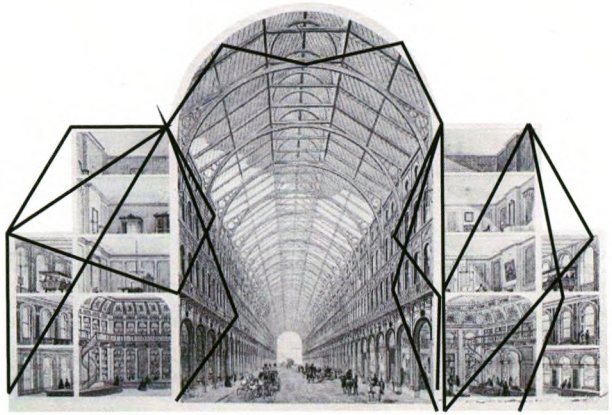
INVISIBLE THEATRE (THRESHOLDS/SPACES OF INTERSECTION)

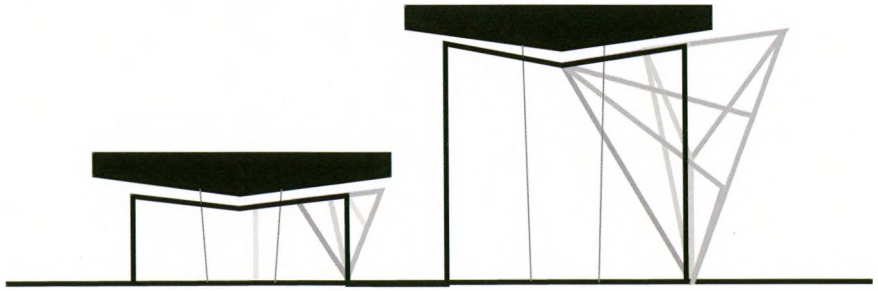


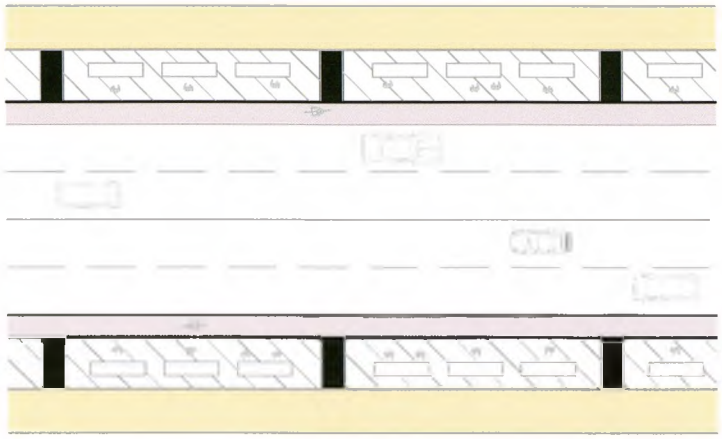
SPACE DELIMITATIONS

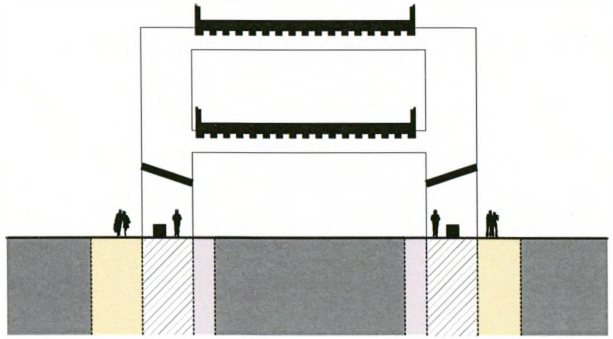


BODY OF THRESHOLD SPACE









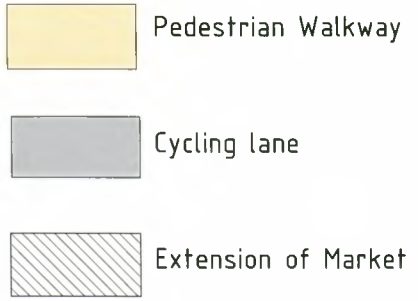
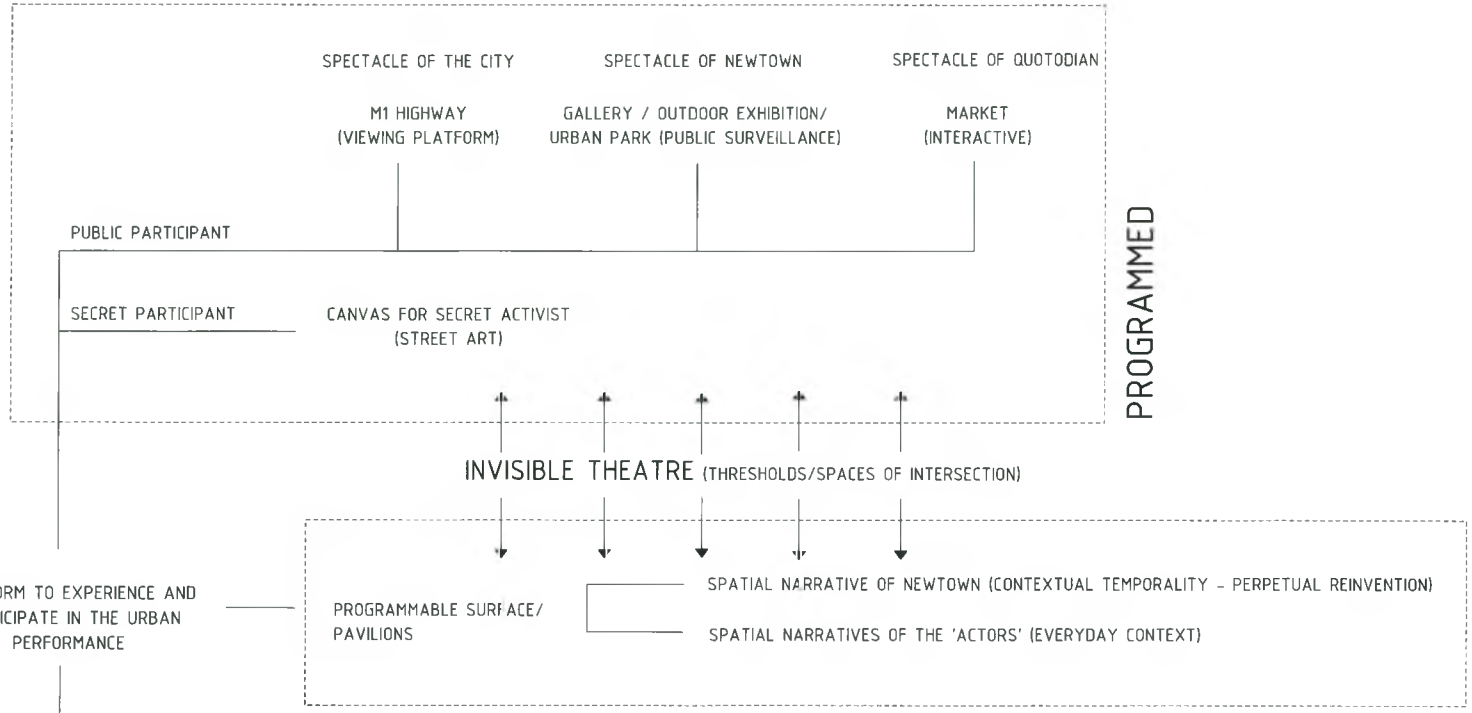


Fig 5.10. Conceptual diagram showing the underpass promenade as arcade (adaptation of Boettger, 2015)
Fig 5.11. Diagram showing the urban framework



"AN UNUSUAL OR UNEXPECTED EVENT THAT ATTRACTS ATTENTION, INTEREST, OR DISAPPROVAL"
OR
"A PUBLIC EVENT OR SHOW THAT IS EXCITING TO WATCH" - CAMBRIDGE DICTIONARY

THE SPECTACLE

EVERYDAY EVENT TO EVERYDAY SPECTACLE

NEW TYPOLOGY PUBLIC SPACE

- SPONTANEOUS PUBLIC ACTIVITY
- VARIOUS TEMPORAL URBAN PERFORMANCES
- INVISIBLE ARCHITECTURE (MULTIPLICITY AND UNEXPECTED NATURE OF INFRASTRUCTURE)

LEARNING FROM INFRASTRUCTURE

"THE PROPERTY LINE, ORIGINALLY A CONCEPTUAL AND ABSTRACT LEGAL DIVISION DESIGNED TO DIVIDE, ENCLOSE AND EXCLUDE, HAS MATERIALIZED INTO A VERTICAL WALL, WHOSE SURFACE HAS BECOME AN ATTRACTOR FOR USE, CONTAMINATION, AND THE ESTABLISHMENT OF NEW ECONOMIES. THE WALL HAS COME TO BE TAKEN FOR GRANTED AS AN INFRASTRUCTURE THAT SUPPORTS AND SERVES A HOST OF ECONOMIES AND SMALL-SCALE INDUSTRIES". MUTATIONS - KOOLHAAS (2005)

URBAN PROGRAMME



Fig 5.12. Diagram showing progamme rationale along promenade
Fig 5.13. Conceptual representation of spectacles along Henry Nxumalo



Fig 5.14. Conceptual representation of spectacles along Henry Nxumalo



Fig 5.15. Conceptual representation of spectacles along Henry Nxumalo

06

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PROGRAMME

6. PROGRAMME

6.1. THE UNDERPASS MARKET

The decline of Newtown's successful flea market on Mary Fitzgerald Square in the nineties left a gaping hole in the life and soul of Newtown and I would argue that without a market or similar activity, the public space in Newtown will remain alienating. In Public Markets and Community Revitalisation it is suggested that "public markets are needed today because they can effectively address some of the vexing problems of our cities: the need to reinvigorate urban shopping districts and make inviting and safe public spaces; the need to support small-scale economic activity and confront the problems of street vending; the need to provide fresh, high-quality produce to inner-city residents; and the need to protect open space" (Spitzer & Baum, 1995).

Public markets provide the opportunity to create "an inviting, safe, and lively space that attracts a wide range of people an effective place where people mix and can become the heart and soul of a community, its common ground, a place where people interact easily, and a setting in which other community activities take place" (Spitzer & Baum, 1995).

Newtown needs a regular, large, inviting and inclusive market to help breathe life into its public space. This chapter will explore programme, by understanding how formal and informal markets are run in the city of Johannesburg.

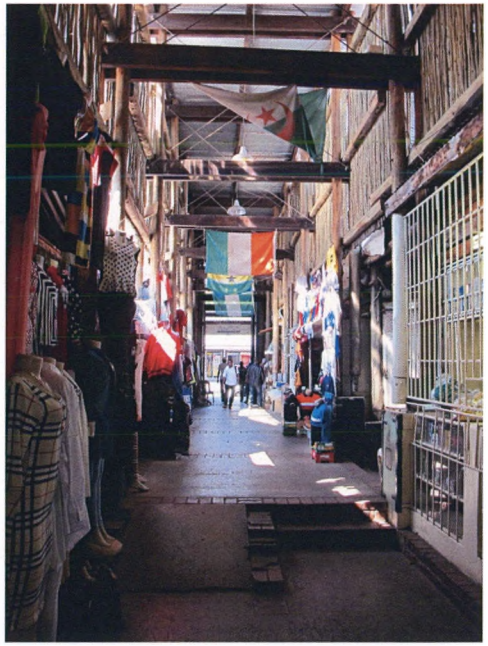
This chapter will investigate current markets and trading typologies in Johannesburg (informal and formal).

Fig 6.1. Conceptual representation of spectacles along Henry Nxumalo (Author)


Parking
DIRECT
SMART APPLE


YEOVILLE MARKET & TAXI RANK
A Celebration of African Diversity
Linking people and places
Joburg






LEMON TWIST

Opposite page: Fig 6.2 to Fig. 6.5. Photographs showing interior and exterior of Yeoville market (Author, 2015)

6.2. CASE STUDIES:
6.2.1. YEOVILLE MARKET

Yeoville, Johannesburg, South Africa

Yeoville Rockey Street Market is a formal trading place for informal traders on the corner of Bedford and Rockey Streets. Rockey/Raleigh Street is the hub of cosmopolitan Yeoville where the suburbs hotspots, shops, formal and informal traing and recreation areas are located. The market, 89% occupied with renting spaces available at costs as low as R2.75, has a clothing section as well as a food section with fruits and vegetables. Most of the traders adhere to the City Health by-laws enforced by environmental officers and health inspectors. (Grootboom, 2010)

This project was initiated approximately twelve years ago. In this project, it was important to provide storage facilities for the traders. The project housed the informal traders under a shed Structure with demarcations on the floor that indicated the rental parcels on which traders could operate. Sub-businesses were created to absorb the traders whose businesses were no longer feasible due to the housing of many traders under one roof.

These sub-businesses included deliveries and running of public ablution facilities. This project was seen as a failure by the designers for there was little 'control' or system over the day-to-day operation of the facility. (Grootboom, 2010)

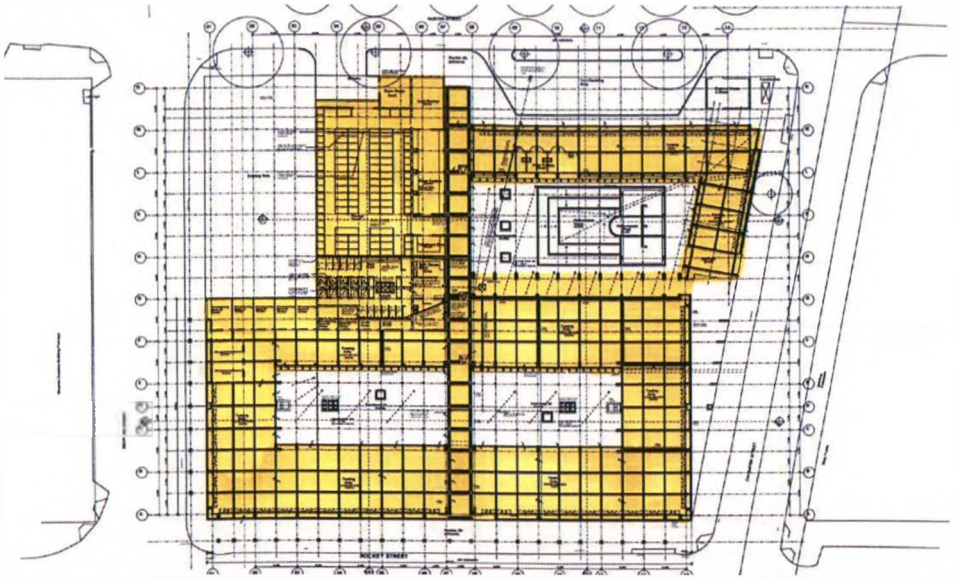
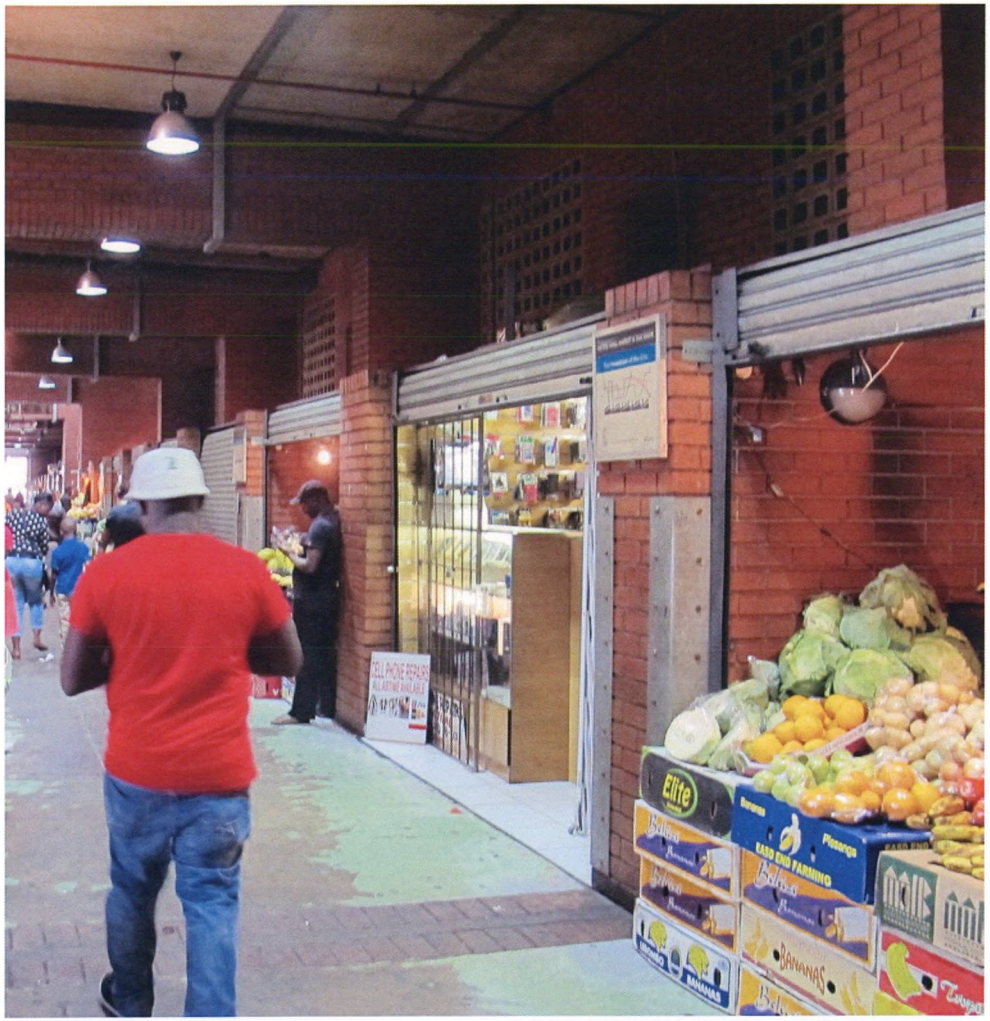




Fig 6.6. Plan of Yeoville Market (Grootboom, 2010)
Fig 6.7. Photograph of Southern Facade of Yeoville market (Author, 2015)


Elite
BANANAS


Nwa Hasani's Kitche
Mabor
Assume the Amazing









Opposite page: Fig 6.8. to Fig 6.12. Photographs swhowing interior of Metro Mall Market (Author, 2015)

6.2.2. METRO MALL TRANSPORT FACILITY AND TRADERS MARKET

Newtown, Johannesburg, South Africa

Metro Mall occupies a site of twelve hectares along Bree Street, one of the busiest streets in the Johannesburg inner city. The 3 000m² Mall and taxi depot designed by Urban Solutions has an integrated transport facility for 30 000 vehicles and operates over 3 levels, with facilities including formal retail shops, food court, and over 600 informal trader stalls. Inside the building, commuters have a wide variety of stalls from which to make their purchasers, with music blaring from each, enhancing the atmosphere. (Grootboom, 2010)

The main drivers of this project were the formalisation of the street trading community and the provision of a permanent home for taxis in the city. One hundred and fifty thousand commuters use the facility daily. It provides 800 trader stalls and retail shops (Deckler, Graupner & Rasmuss, 2006). Formal retail stores are provided along Bree Street whilst commuter traffic is forced through internal street fronts past trading facilities to access taxi loading areas.

There is a wide variety of trading spaces that cater for different trader needs. These include: floor space stalls with concrete counters large roller shutter cubicles fully-serviced destination outlets that house hairdressing salons and food outlets. The food on offer in the food hall, located on the second level, is traditional local cuisine and is a well frequented space with cultural flexibility.

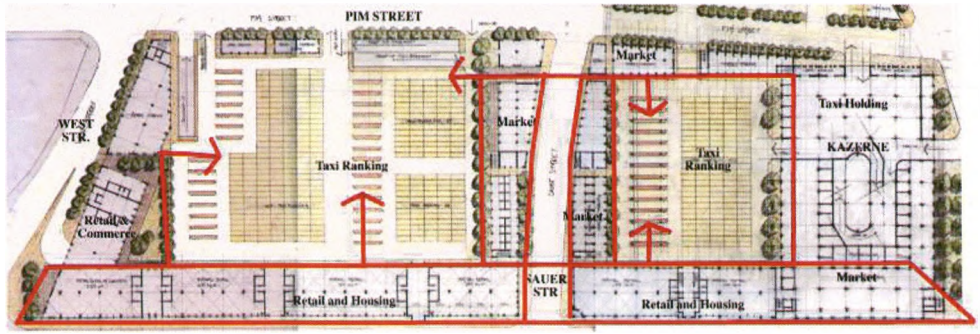
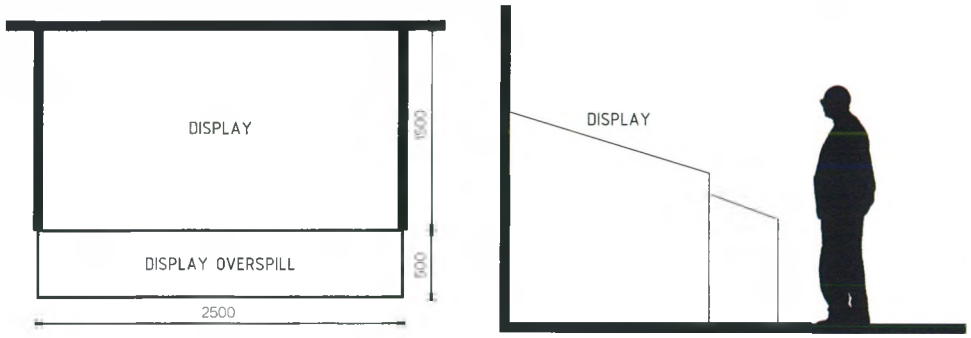


Fig 6.13. Photograph of internal street Metro Mall Market (Author, 2015)
Fig 6.14. Ground Plan of Metro Mall (Grootboom, 2010)

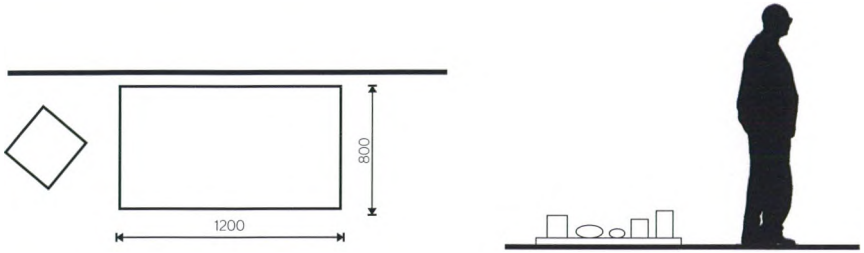
TRADING TYPOLOGIES



SHUTTER STALL
2 X 2.5m FLOOR SPACE (METRO-MALL)



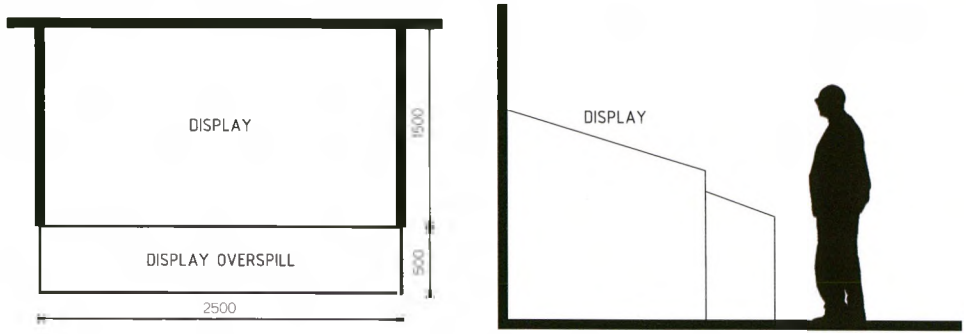
SHUTTER STALL
4 X 2.5m FLOOR SPACE (YEOVILLE MARKET)



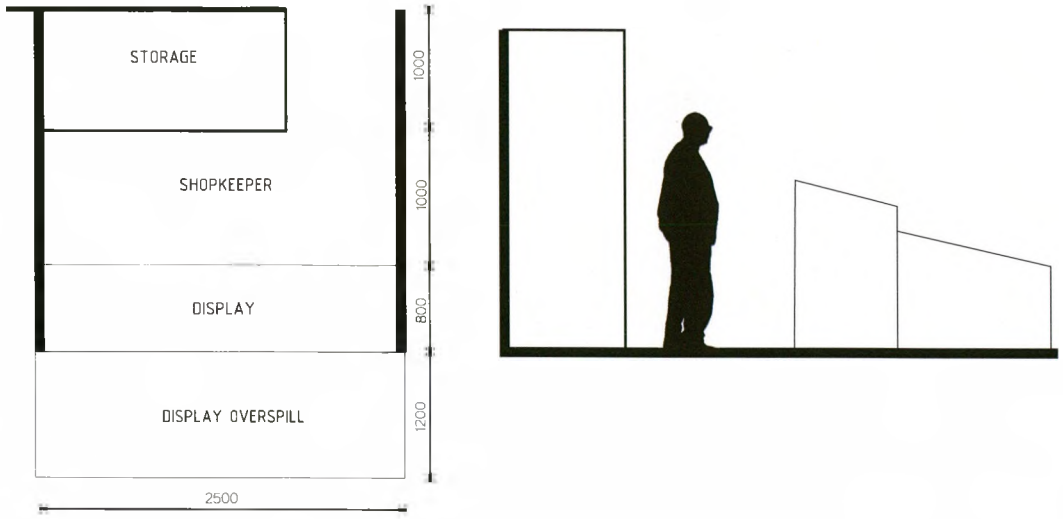
INFORMAL TRADE
1.2 X 0.8m FLOOR SPACE (NEXT TO YEOVILLE MARKET)

Fig 6.15. Diagrams showing dimensions of trading spaces (Author, 2015)

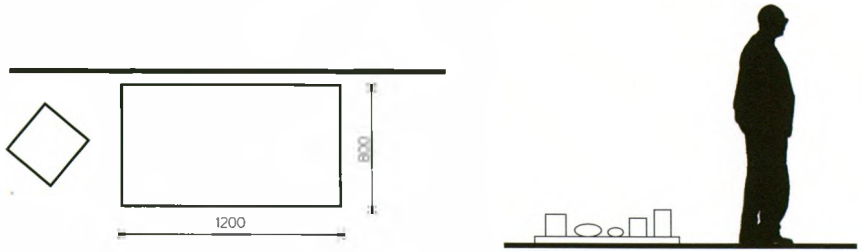
TRADING TYPOLOGIES



SHUTTER STALL
2 X 2.5m FLOOR SPACE (METRO-MALL)



SHUTTER STALL
4 X 2.5m FLOOR SPACE (YEOVILLE MARKET)



INFORMAL TRADE
1.2 X 0.8m FLOOR SPACE (NEXT TO YEOVILLE MARKET)

Fig 6.16. Diagrams showing dimensions of trading spaces (Author, 2015)

6.3. TRADING TYPOLOGIES

Research and analysis of the trading systems within the Inner City provided me with evidence of froms of effective trade and elements and characteristics that each trading typology would require in order to trade efficiently. In essence the Underpass Market needs to incorporate the various trading typologies. These different types of trading will need adequate space and services and the market should be flexible to their needs.

PERIODIC TRADERS
DEMARCATED FLOOR AREA
PROVISION OF RENTABLE STORAGE SPACE

TRADERS
ASSIGNED TABLES
STORAGE FACILITIES
WASHING AREA

FOOD ON THE GO
RENTABLE BRAAI STAND
CLEANING AND PREP AREA

STREET FOOD
PREPARATION AND STORE
COUNTER
SEATING SPACE FOR CLIENTS

SHUTTER STALLS
8 SQ.M SHOPS
LOCKABLE SHUTTERS

DELI/BUTCHERY COUNTERS
PREPARATION STORAGE
COLDROOM
COUNTER SPACE




MASCUS
SHWARMA





6.4. CONCLUSION

In conclusion to the research analysed, the informal trading sector is a positive activity which contributes to the creation of jobs and the alleviation of poverty. The thesis aims to provide a managed environment in which a positive relationship with the formal sector will be nurtured so that the sectors can operate effectively alongside each other in an environment that fosters sustainable economic growth.

Moreover, research has provided guidance in the manner in which the eating and food sales areas in the proposed market need to be designed and managed. All the traders need to adhere to the bylaws of health regulations, controlled by health inspectors. Stalls in which cooking and selling of food occurs need to have access to water, have an adequately clean environment with stainless steel tables for food preparation, good ventilation and lighting, storage facilities and before opening food stalls of any type the trader is required to have a health certificate.

The proposed market will comprise of 2 sections, one will be a fixed space open every day to the public and the other section will comprise of a periodic market which is flexible space capable of becoming whatever is needed over a 24 hour period.

The periodic section of the market will not be enclosed and will be open to the public at all times. Maximising visual connectivity between the inside and out and proposing that the market is versatile in its programme throughout the time of the day will ensure a 24-hour surveillance of the grounds. The Underpass Market will thus have the advantage that it will run on a 24-hour cycle, with periods of delivery, daily and nightly trade enhancing security on site. The market can be reconfigured as to be more flexible which is not prevalent in the other markets analysed.

MARKET

SHUTTER STALLS
8 SQ.M SHOPS
LOCKABLE SHUTTERS RENTED OUT
ON VARIOUS LEASING CONTRACTS

PERIODIC TRADERS
DEMARCATED FLOOR AREA
PROVISION OF RENTABLE STORAGE SPACE

STREET FOOD TRADERS
COOKING AREA
RENTABLE BRAAI STAND
CLEANING + PREP AREA

PERMANENT TRADERS
ASSIGNED TABLES
TABLE STORAGE
STORAGE FACILITIES
WASHING AREA

BUTCHERY/DELI
PREPARATION
STORAGE
COLDROOM
COUNTER SPACE

RESTAURANT
KITCHEN
CHEFS OFFICE
COLDROOM/STORE/PANTRY
BOH

WORKSHOPS/SCHOOL

ARTS + CRAFTS
WORKSHOPS
FIXED DISPLAY

CULINARY SCHOOL
TEACHING KITCHEN
LECTURE ROOMS
COLDROOM/STORE/PANTRY
RECIPE LIBRARY
DINING AREA

HYDROPONIC GARDEN
WATER STORAGE
NUTRIENT TANKS
GROWING ROOMS

ADMINISTRATION

INFORMATION CENTRE
RECEPTION
SECURITY
BRAND RETAIL

MARKET MANAGEMENT
MANAGEMENT OFFICES
ADMIN OFFICES
KITCHENETTE

SCHOOL MANAGEMENT
LECTURES OFFICES
ADMIN OFFICES
KITCHENETTE

SHARED

DINING AREA
FOOD COURT
ROOF GARDEN

SERVICE AREA
BINS + LOADING
REFUSE SORTING
DELIVERY YARD
SERVICE LIFT
STORE (BASEMENT)

Fig 6.17. Diagram showing extended programme

PROGRAMME BREAKDOWN

07

INHABITING INFRASTRUCTURE 100
PROGRAMMING THE URBAN SURFACE 102
CONTEXTUAL RESPONSE 104
MASSING 106
INHABITED CANOPY 110
FOLDABLE CANOPY 114
SHADING DEVICE 115

DESIGN DEVELOPMENT

7. DESIGN DEVELOPMENT

7.1. THE CONCEPT: INHABITING INFRASTRUCTURE

As explored in previous chapters the framework and programme will attempt to activate a threshold in the city that has up to this point acted as a boundary in the city.

The underpass promenade will act as a suture connecting east and west and a stage (and pedestal for those driving on the M1) from which to view the spectacle of the everyday. The highway infrastructure provides a canopy will gives opportunity for various programmes underneath.

The building intervention will be an extention of this canopy and will be a moment in the linear promenade which will act as urban generator. As mentioned in previous chapters the success of public space has much to be owed to the programming of its thresholds. By programming this threshold between the newly proposed promenade and Newtown Precint Park it will act as urban generator activating in-between space in the precinct.

The building will provide infrastructure for a public market. The market will not be enclosed but will be a programmed extention of the urban surface.

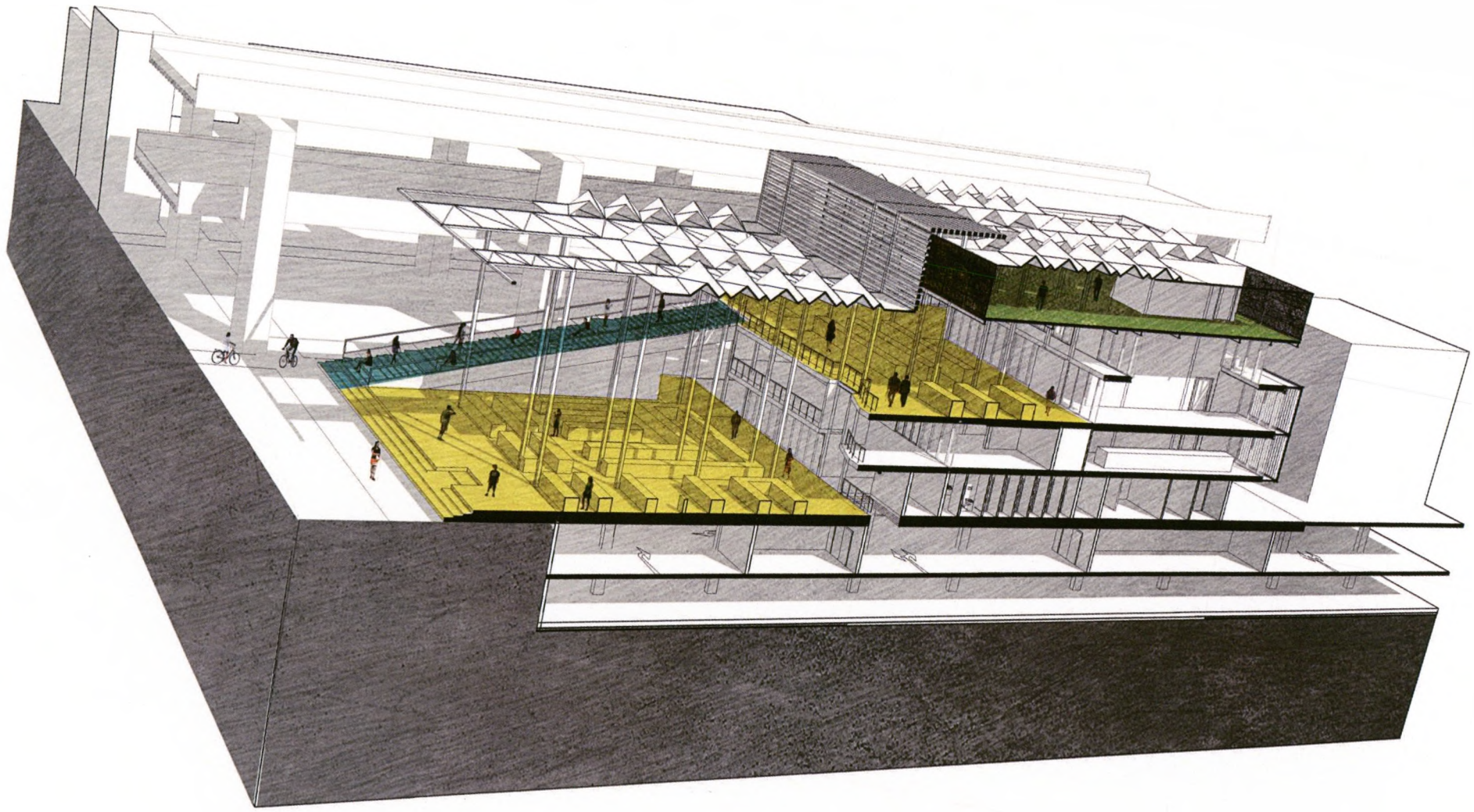
Koolhaas (2005) identifies the mutations of the use of a dividing wall within an African context stating that, "the property line, originally a conceptual and abstract legal division designed to divide, enclose and exclude, has materialized into a vertical wall, whose surface has become an attra tor for use, contamination, and the establishment of new economies. The wall has come to be taken for granted as an infrastructure that supports and serves a host of economies and small-scale industries". (Koolhaas, 2005)

This thus poses the potential of programmable surfaces and infrastructures, where the adaption of architecture can respond to the everyday context of the city.

Cruz & Gage (2009) propose the concept of 'inhabitable interfaces'- which is seen as an extended meaning of 'the wall'. This concept is further explained as, "involving both a mental and physical activity, 'inhabitable' is a condition that is ever transient, and implies the potential act of becoming inhabited. It suggests an embodied experience, which is the interplay between the body's presence, its perceptual practice, and the engagement with the environment around it" (Cruz & Gage, 2009).

The overarching concept is thus that a wall, a floor, a staircase or a roof has the potential to be inhabited and programmed.

Fig 7.1. Diagram showing programmed interfaces. (Author, 2015)



PROGRAMMED URBAN SURFACE - MARKET

PROGRAMMED STAIR - SEATING

PROGRAMMED CANOPY - HYDROPONIC FOOD GARDEN

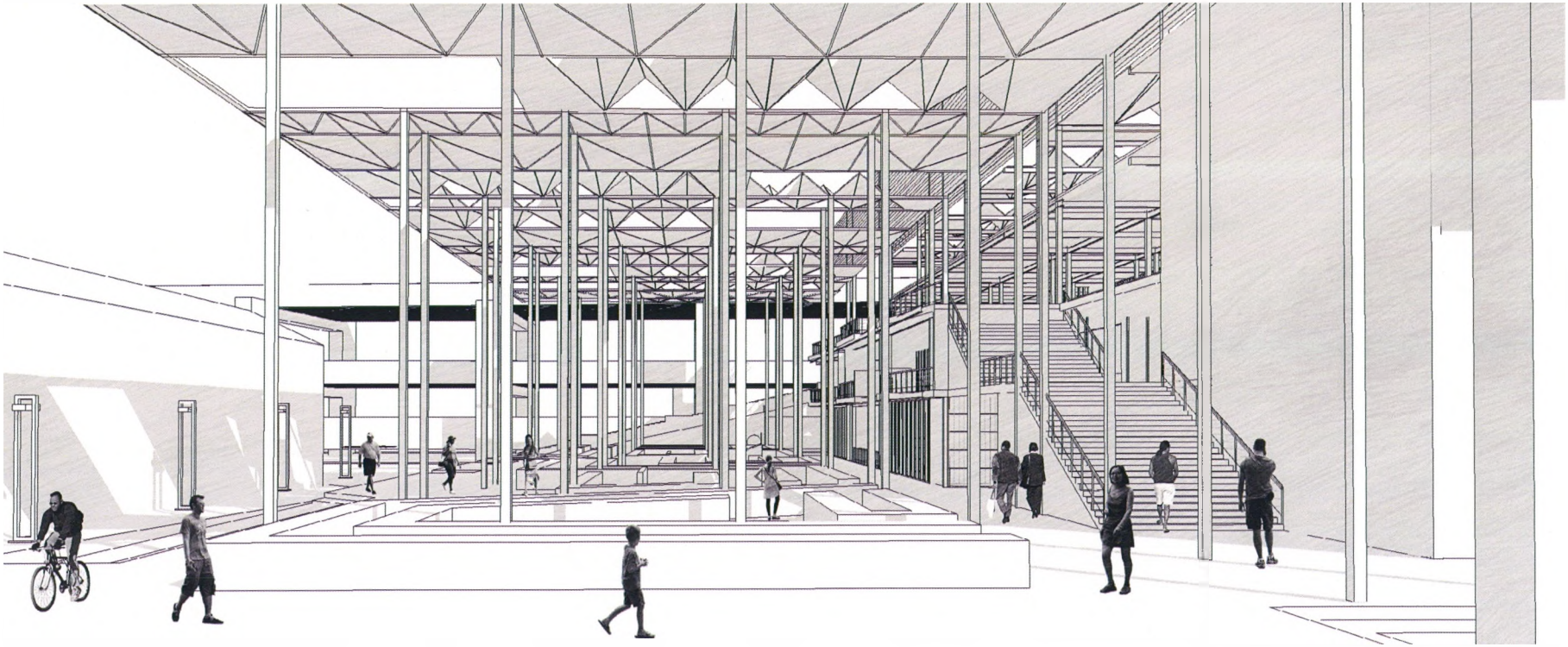


Fig 7.2. Image showing programmed urban surface (Author, 2015)

7.2. PROGRAMMING THE URBAN SURFACE

By programming the urban surface but still allowing for various spatial configurations the market will respond to the spontaneity of the spectacle of the everyday. This will extend to other urban components namely a skate park to the south of the site and to various other public infrastructures proposed along the Henry Nxumalo Promenade. The public market thus forms an extension of the street interface, linking both levels of public and semi-private activity and offering the potential to provide multiple configurations that responds to these varying narratives and events of this spectacle.

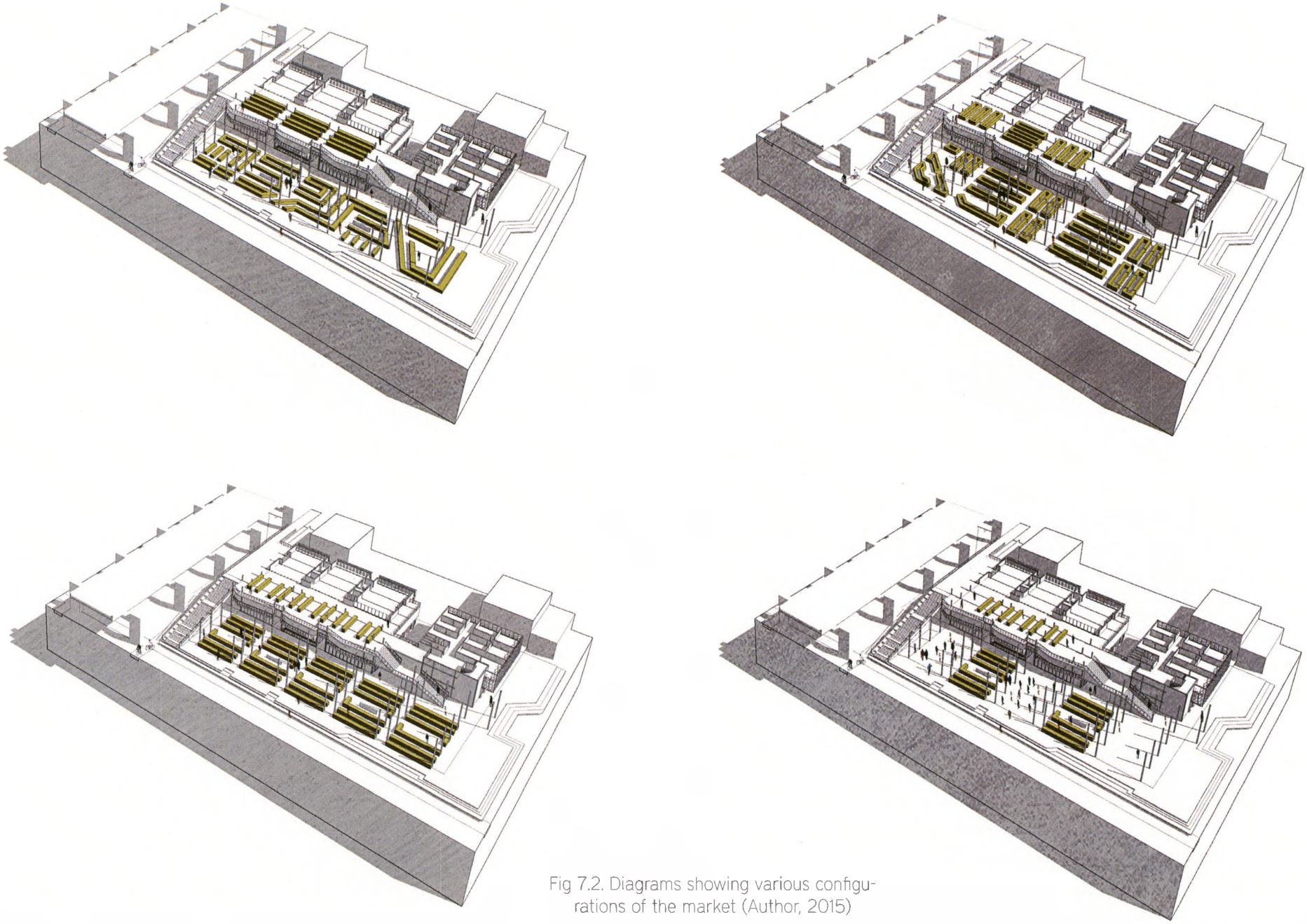


Fig 7.2. Diagrams showing various configurations of the market (Author, 2015)

7.3. CONTEXTUAL RESPONSE

The market major circulation will run in an east-west direction from the new promenade to Newtown Precinct Park. Secondary circulation will respond to the pedestrian route along Barney Simon Street. Lastly there will be a connection to the semi-private courtyard to the south of 1 Central place. The circulation will create internal streets within the market (Fig 7.3).



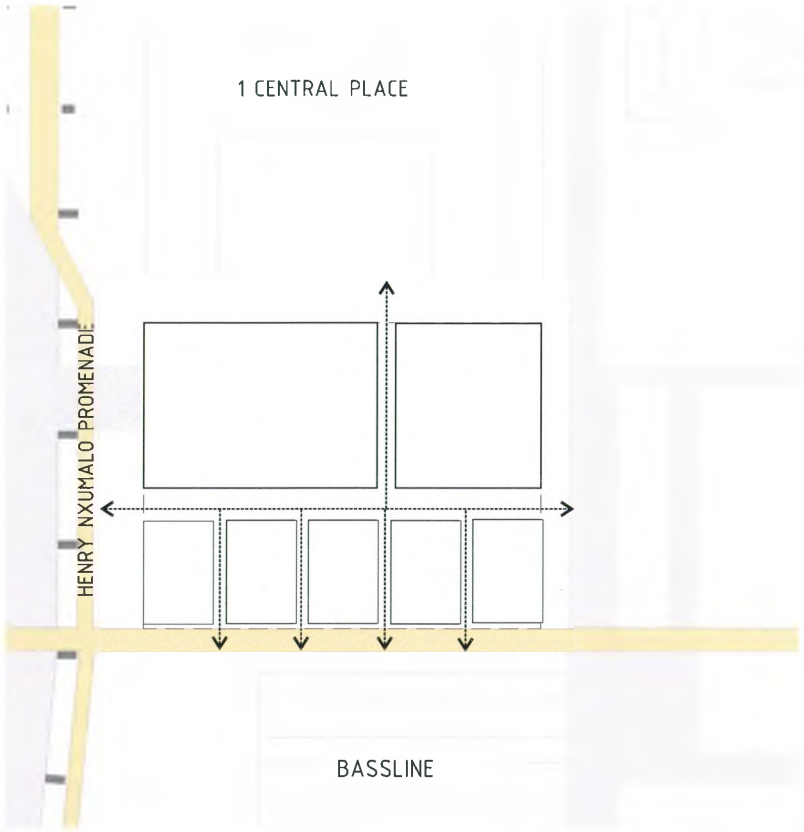
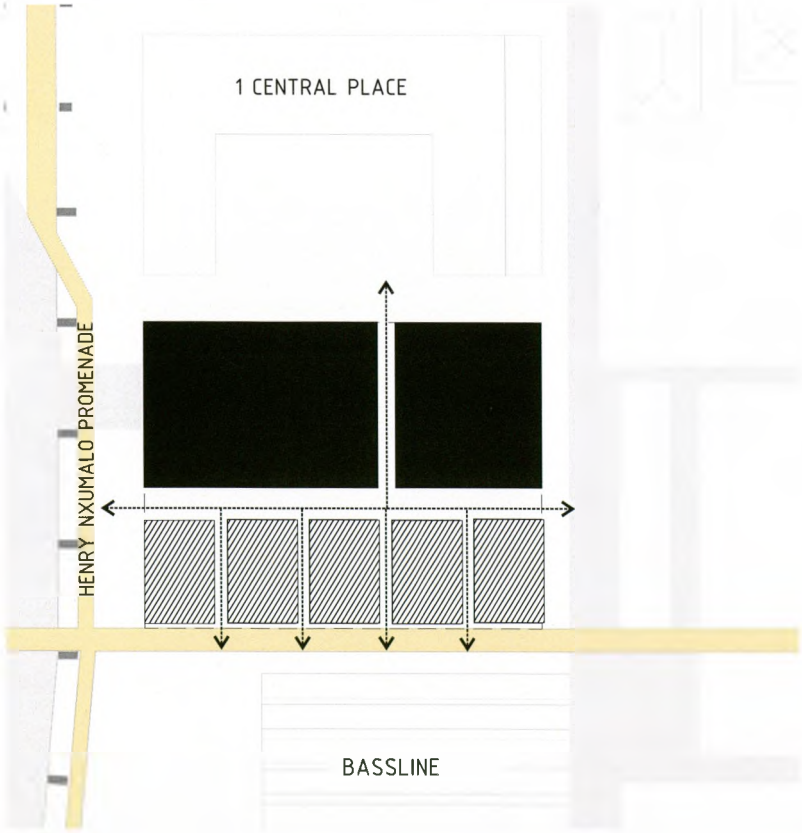


Fig 7.3. Diagrams showing basic circulation on the ground floor (Author, 2015)



Fig 7.4. Diagram showing programmatic concept (Author, 2015)

> The programme and massing will be more static and solid towards the semi-private courtyard of 1 Central Place. Towards the pedestrian route to the south the public market and urban surface will become more fluid and allow for various spatial configurations.



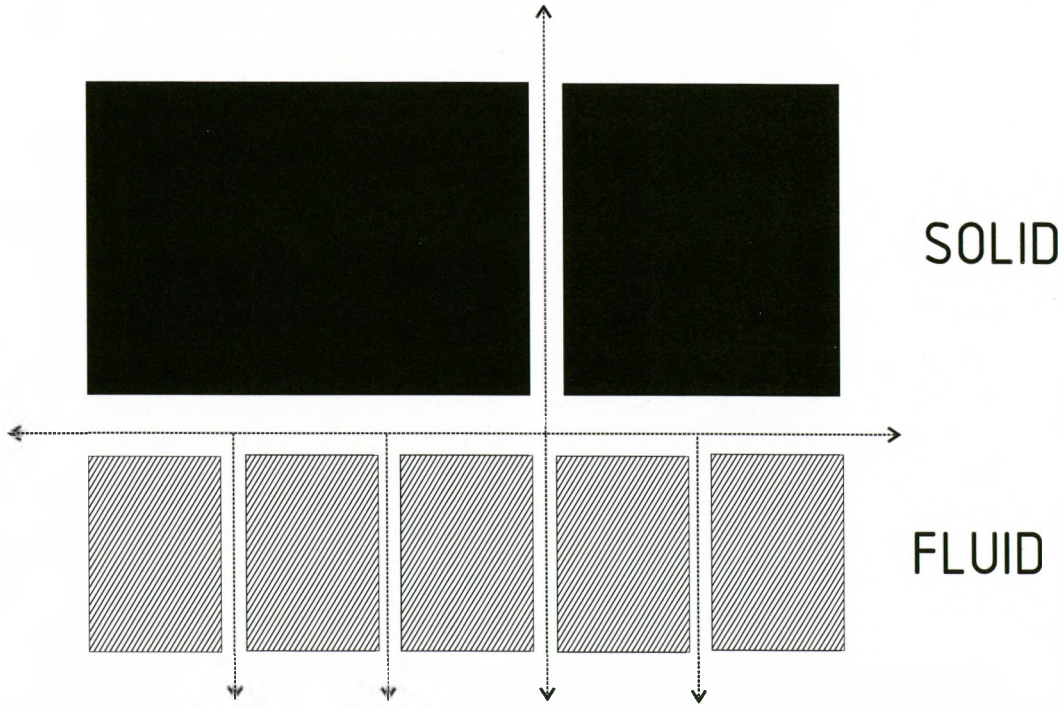
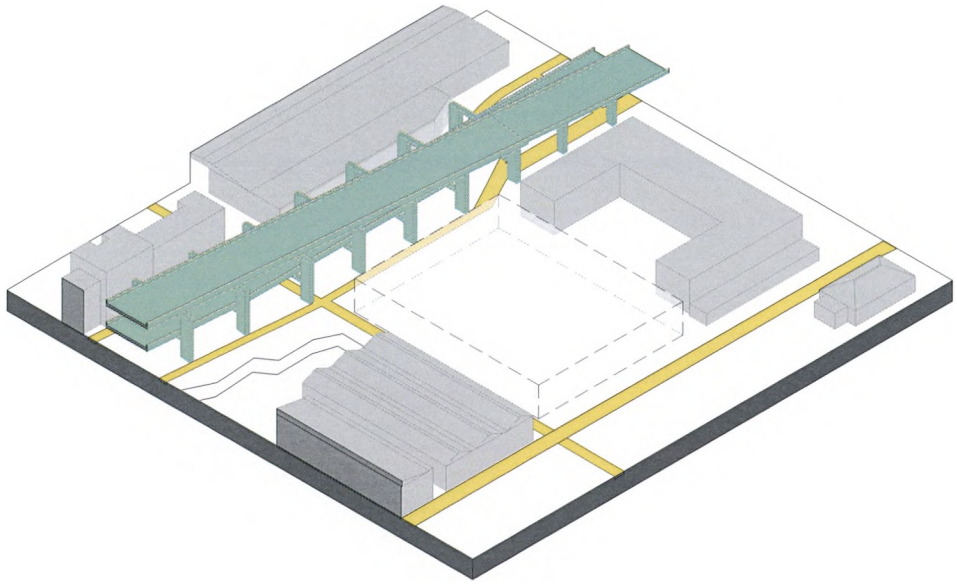


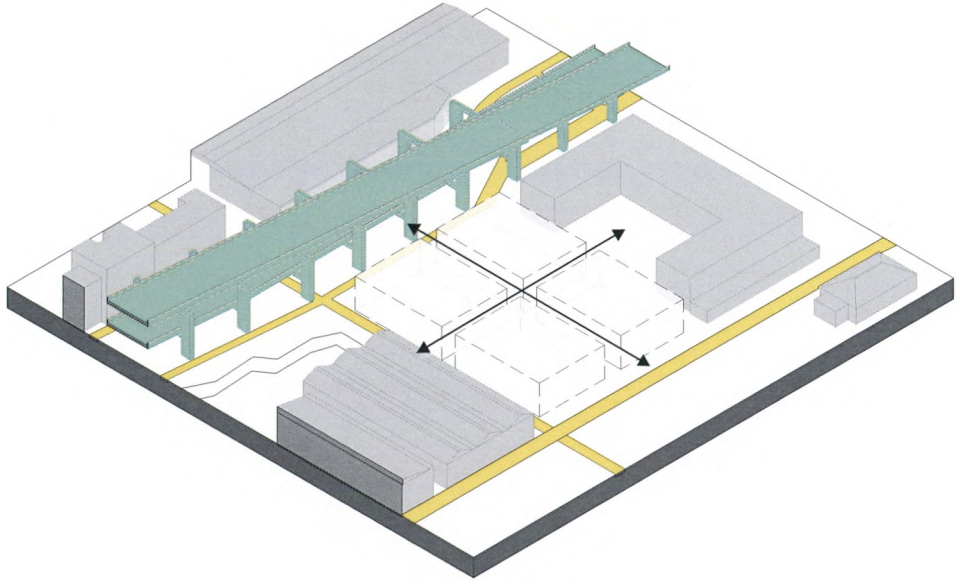
Fig 7.5 to 7.6. Diagrams showing progression of massing (Author, 2015)

Newtown's height restrictions allow to build up to the height of the highway. The existing basement substructure will provide the building footprint and foundation.



MASSING FOOTPRINT

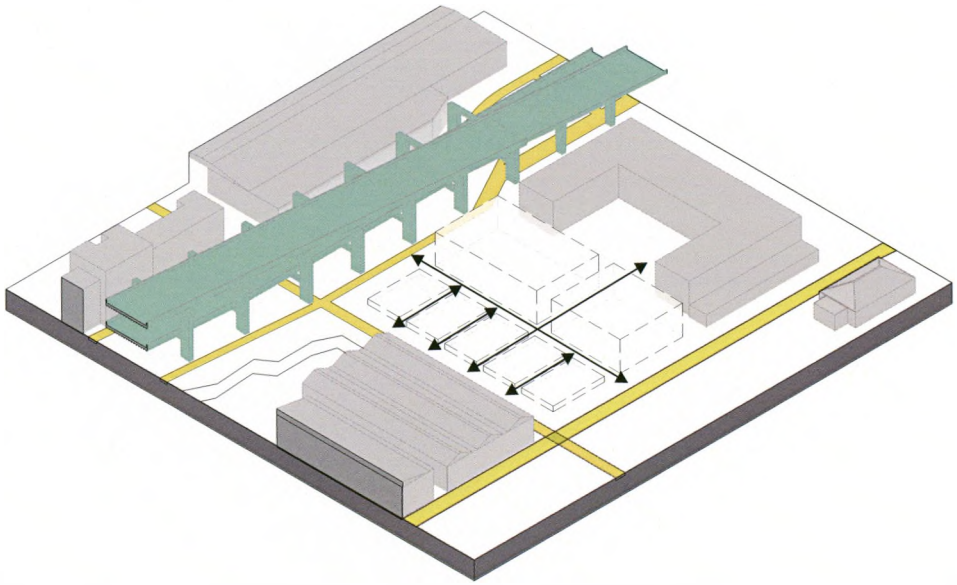
Major circulation will respond to the promenade to the west, pedestrian route to the south and the semi-private courtyard to the North.



LINKS TO PROMENADE, PEDESTRIAN ROUTE AND COURTYARD

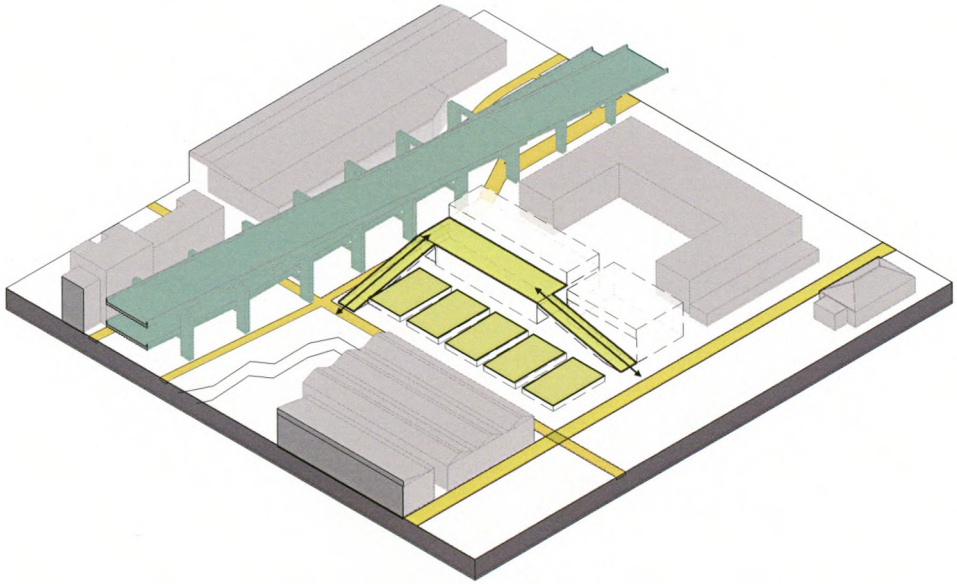
Fig 7.7 to 7.8. Diagrams showing progression of massing (Author, 2015)

The public market will be an extension of the urban surface and will respond primarily to the pedestrian route to the South and the promenade to the west. The massing towards 1 Central Place encloses the semi-private courtyard.



MARKET OPEN TO PEDESTRIAN ROUTE

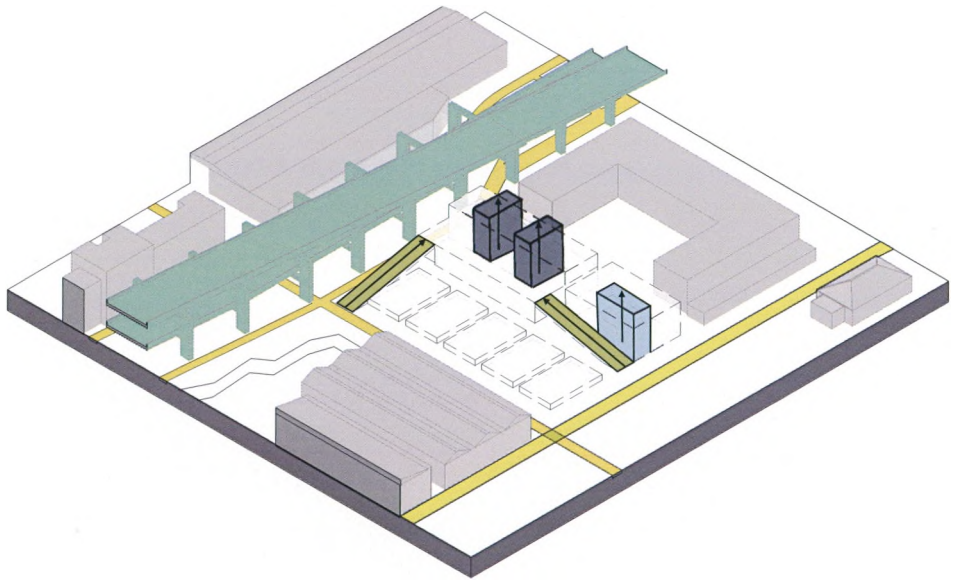
The public market will extend to the 2nd floor as to engage with the highway. It will be visible to cars driving North on the M1.



INHABITABLE STAIRS

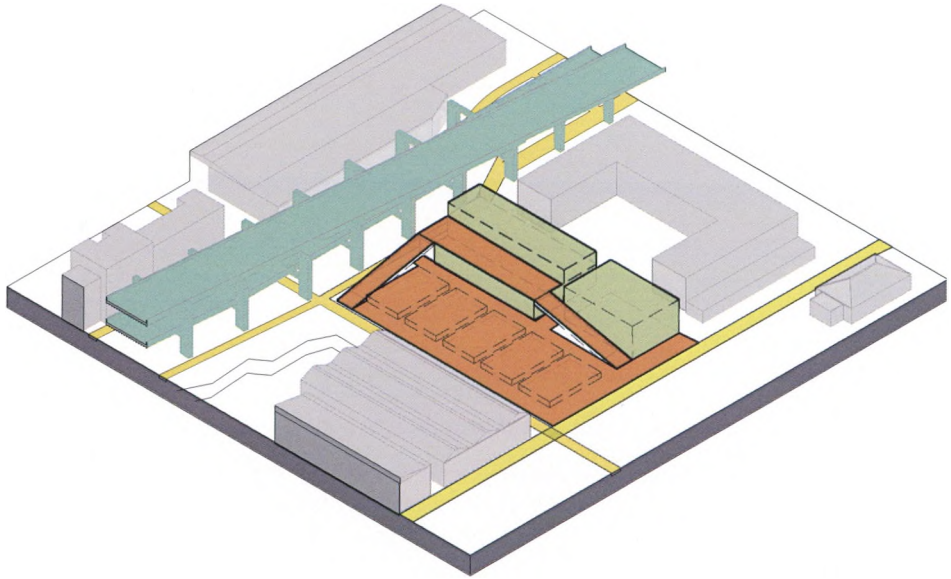
Fig 7.8 to 7.9. Diagrams showing progression of massing (Author, 2015)

The vertical circulation is devided into public and private circulation. The blue shows semi-private and the green public. The semi-private circulation includes service cores that extend to the roof.



VERTICAL CIRCULATION

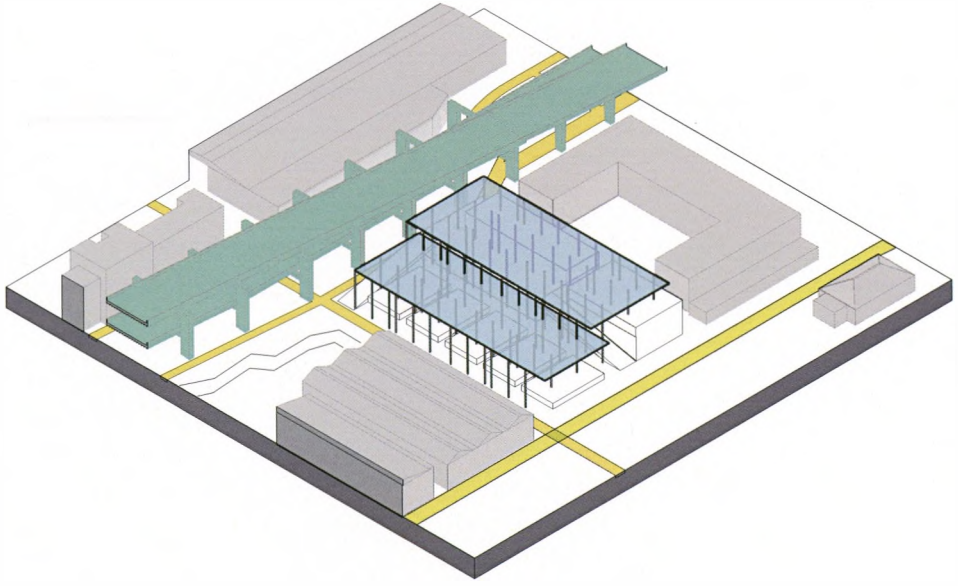
The public market is shown in orange. The green massing will house the semi-private programme.



PUBLIC/PRIVATE

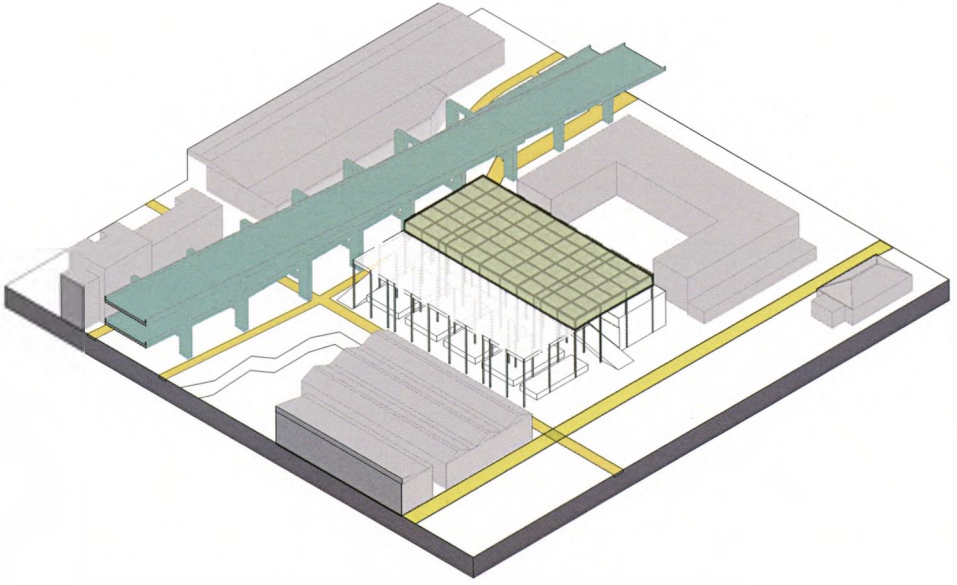
Fig 7.10 to 7.11. Diagrams showing progression of massing (Author, 2015)

The public market will be covered by a canopy. The structure will be a lightweight extension of the highway underpass.



CANOPY - MARKET TYPOLOGY

The Northern section of the canopy will be again be more solid and will be programmed. It will become a living roof, housing a hydroponic food garden.



INHABITED CANOPY - HYDROPONIC GARDEN

7.5. INHABITED CANOPY

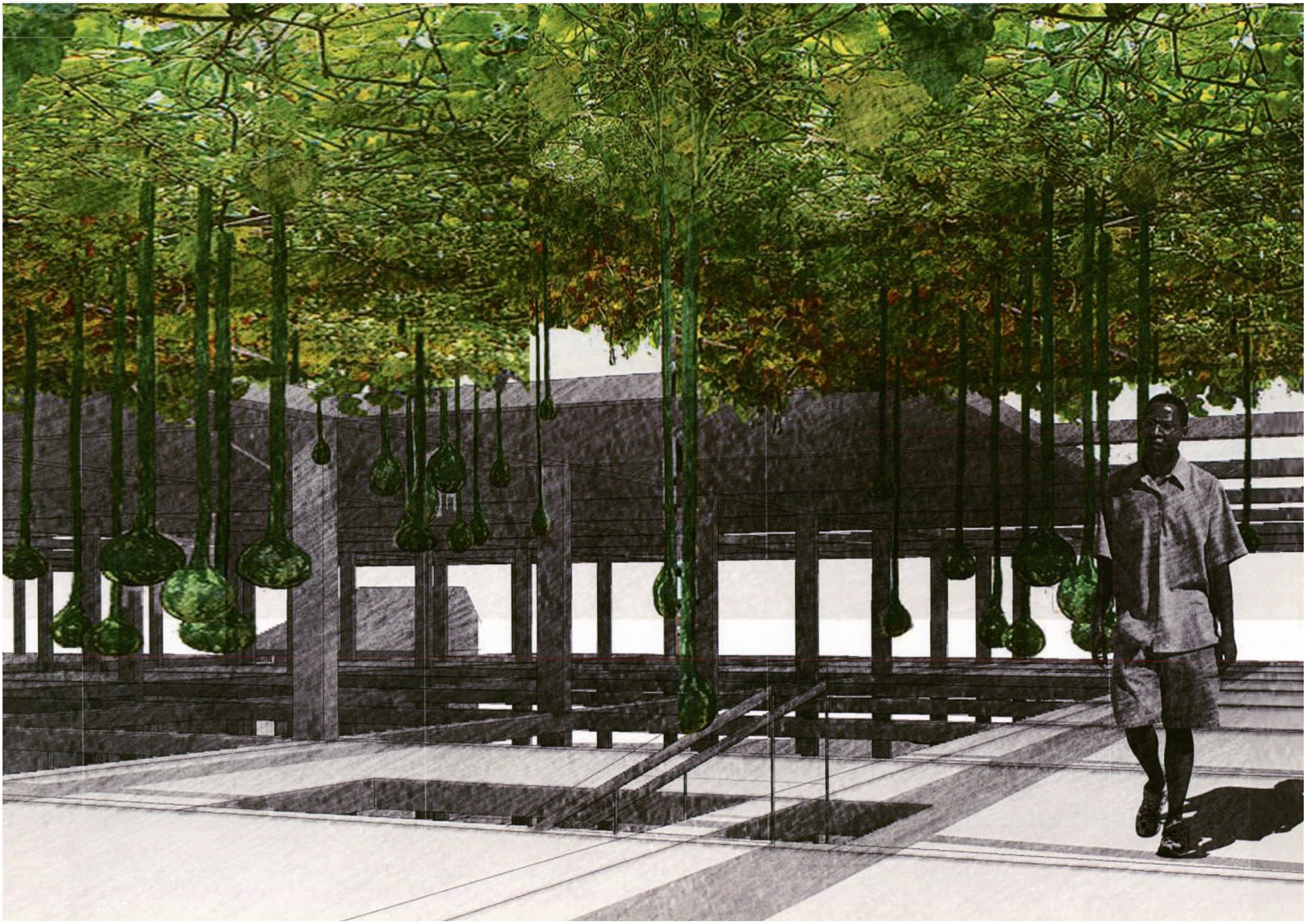
The canopy of the market will further the concept of inhabiting infrastructure. It will be programmed as a hydroponic food garden wihich will facilitate the culinary school.

Indoor commercial or private food production relies primarily on a soil-less agriculture called hydroponics or aeroponics. Hydroponics is a technology to grow crops with their roots suspended or hanging in nutrient-rich water. Today, the term is colloquial for growing plants without the need of soil whatsoever. Today, it is a practical application in thousands of greenhouses worldwide and a large commercial industry (Turner, 2008).

The hydroponic food garden will provide a platform for education and experimentation in alternative crop production strategies.



Fig 7.12. Representation of inhabited canopy



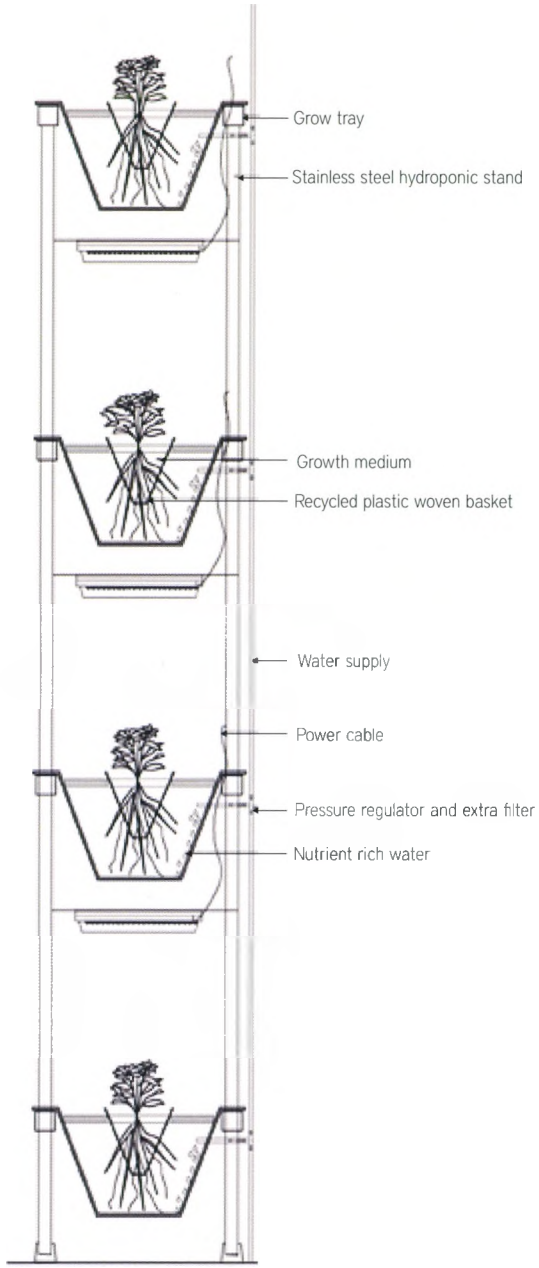
According to Despommier, (2005), the advantages of hydroponic farming include year-round crop production. It eliminates agricultural runoff and significantly reduces the use of fossil fuels (farm machines and transport of crops). Hydroponics also presents the possibility of sustainability for urban centres. It can be used in the conversion of black and gray water to drinking water and can be used to add energy back to the grid via methane generation.

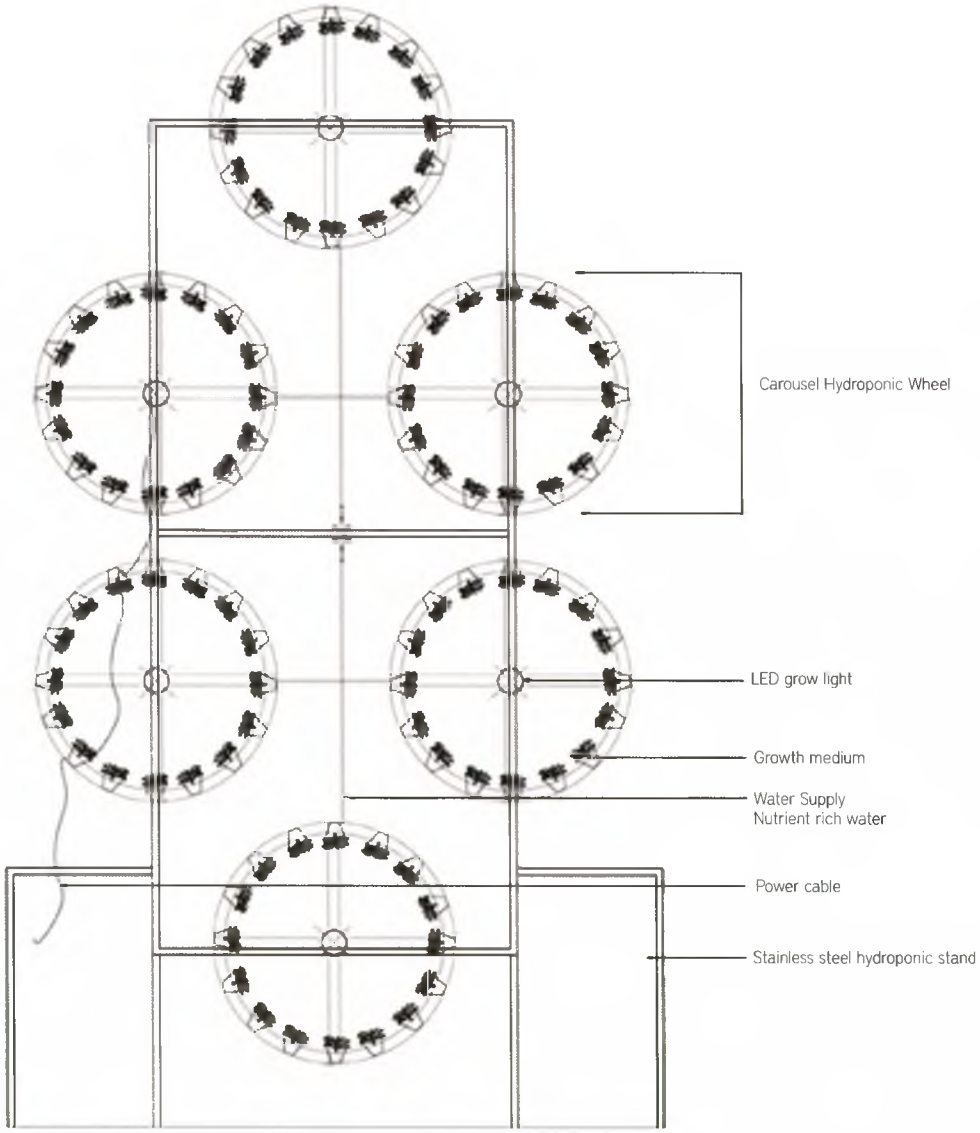
Upon many, a decision was taken to use mainly three ways of hydroponic food production. A short discussion on each follow:

1) Nutrient film technique: This system has a continuous nutrient solution flow, which does away with timers for the submersible pump. This solution is slowly pumped into the grow tray, often or usually a tubular element, which then flows over the plant roots, whereafter the remaining water returns to the reservoir. Typically there is no growing medium, other than air, used in this system. The plant is normally supported in a little basket, and the roots dangle down into the solution.

2) Omega carousel hydroponic systems: This is a system based on hydroponics that consists out of a few rotating cylinders made of stainless steel, that houses about 3 000 plants each. These cylinders rotate around LED light sources, and still get five times more food per watt than conventional farming does.

3) Aquaponics: It is the grouping of aquaculture and the above-mentioned system called hydroponics. Fish and plants are grown simultaneously in one integrated, soil free system, called aquaponics. The waste produced by the fish, provides a source of food for the greenery, and the greenery form a natural water filter for the habitat of the fish. Harmless, fresh, organic fruits and vegetables are produced by the system of aquaponics. (Hydroponics and organics, 2010 & Simplyhydro, 2010)





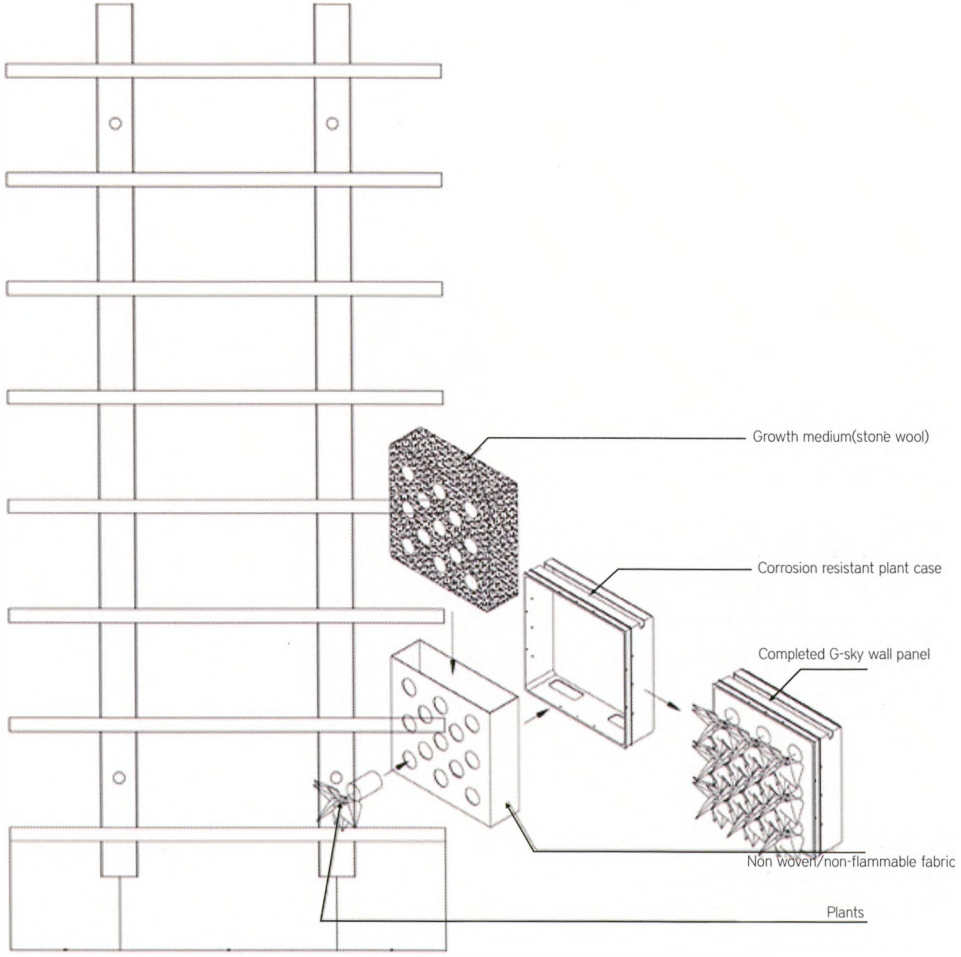


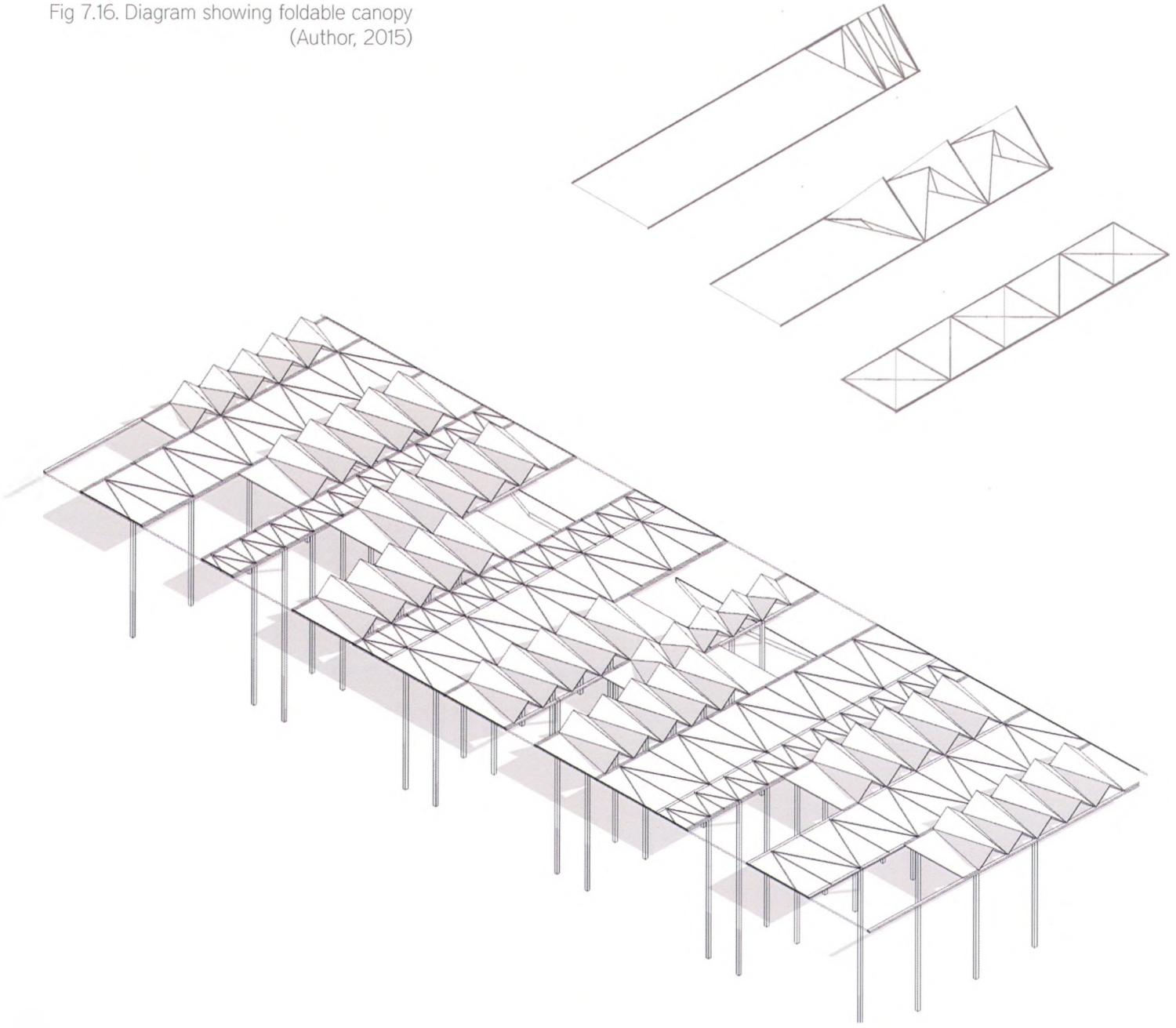
Fig 7.13 Diagram showingNutrient film technique (Author, 2015)
Fig 7.14 Diagram showing Omega carousel hydroponic systems (Author, 2015)
Fig 7.15. Diagram showing Aquaponics (Author, 2015)

7.6. FOLDABLE CANOPY

The market floor os South Facing. Because of this a foldable canopy is needed to allow light to penetrate when needed and to act as cover from rain. The flexibility canopy can configure itself with the market floor as needed. It is therefore a flexible lightweight extention of the highway canopy. The foldable roof will have reflective panels on the south and transparent panels on the hydroponic garden to act as a greenhouse.

The foldable roof consists of right angled isosceles triangles. The triangles are attached to one another via hinges at the hypotenuse side and also attached to a pivot leg which folds in an upward direction. The pivot leg is the same length at the triangles shorter leg. The pivot leg is attached to a rail guide with a pivot point as that the pivot leg can be pivoted upwards. The rail guide travels inside the rail which then actuates the folding mechanism. Due to the kinematic relationship the distance between the rails when the roof is closed is equal to the short side of the triangle and equal to the hypotenuse side when open. Thus the rails must be able to move freely in the lateral direction.

Fig 7.16. Diagram showing foldable canopy
(Author, 2015)



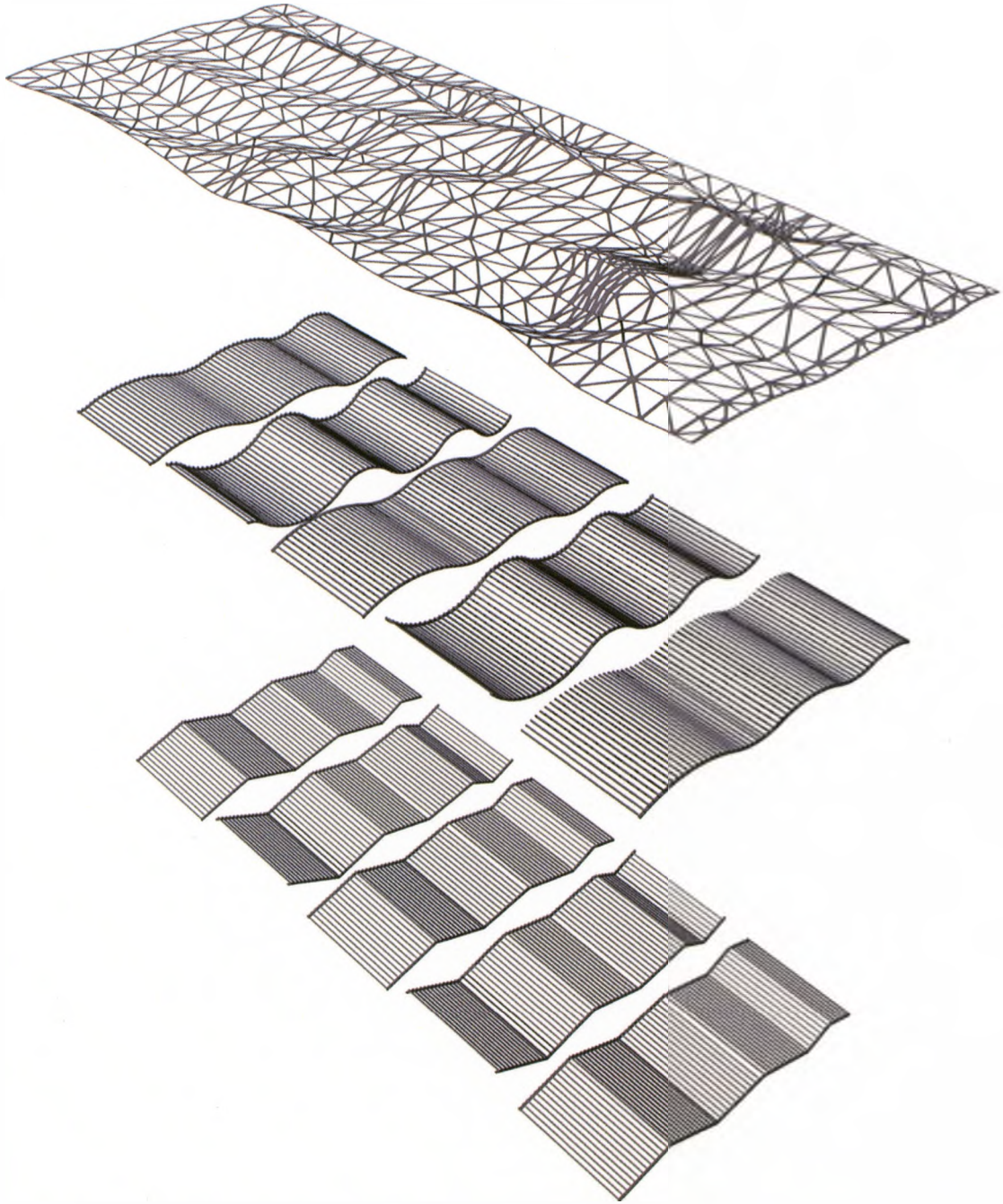


Fig 7.17. Image showing evolution of shading device (Author, 2015)

7.7. SHADING DEVICE

The shading device underneath was derived from mapping the sounds of various markets and creating a parametric mesh. This form was further manipulated to create solar shading and to carry services above the market floor

08

PLANS
SECTIONS
PERSPECTIVES

FINAL DESIGN

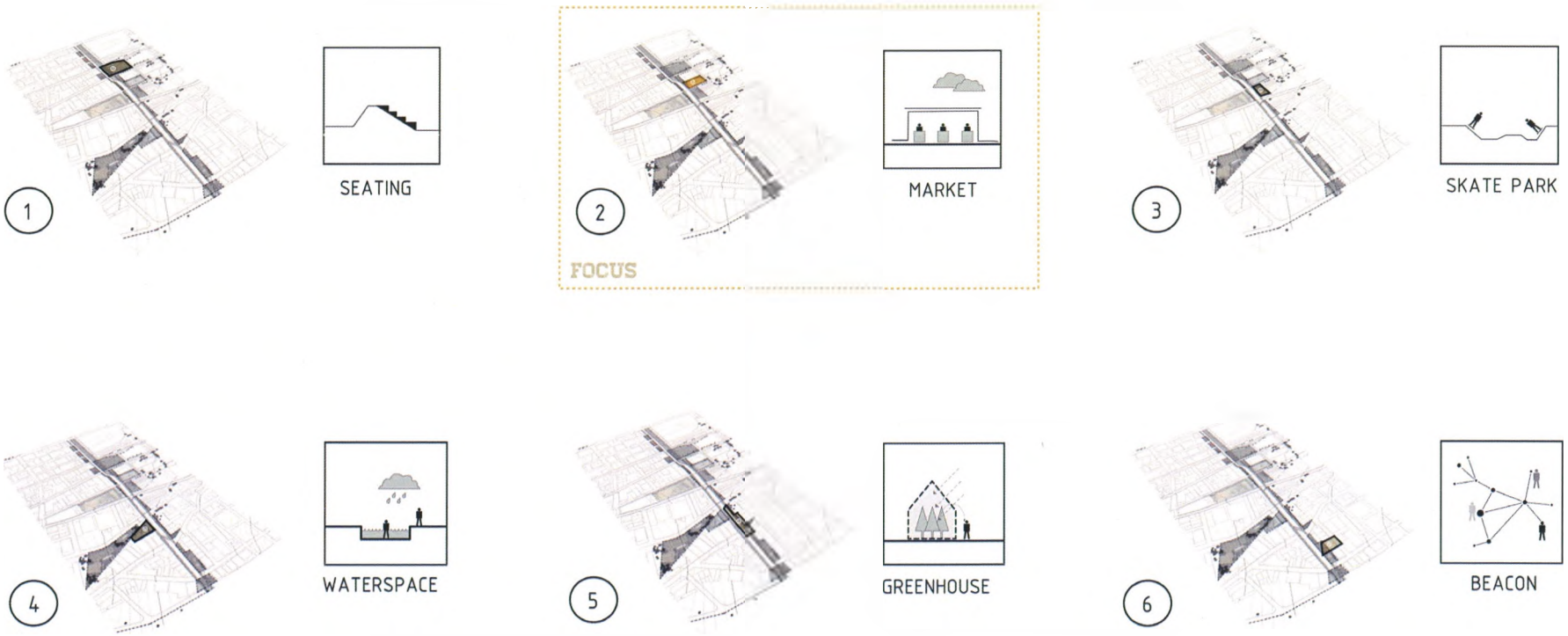
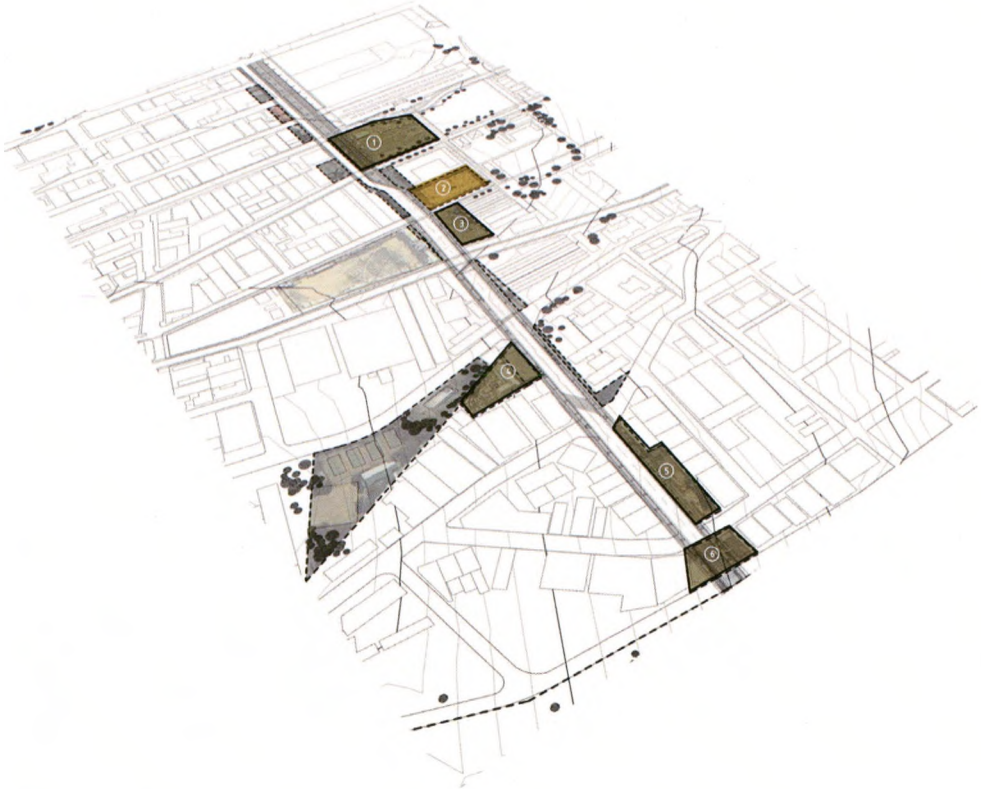


Figure 8.1. Urban Framework (Author 2015)

Figure 8.2. Site Plan (Author 2015)



SITE PLAN

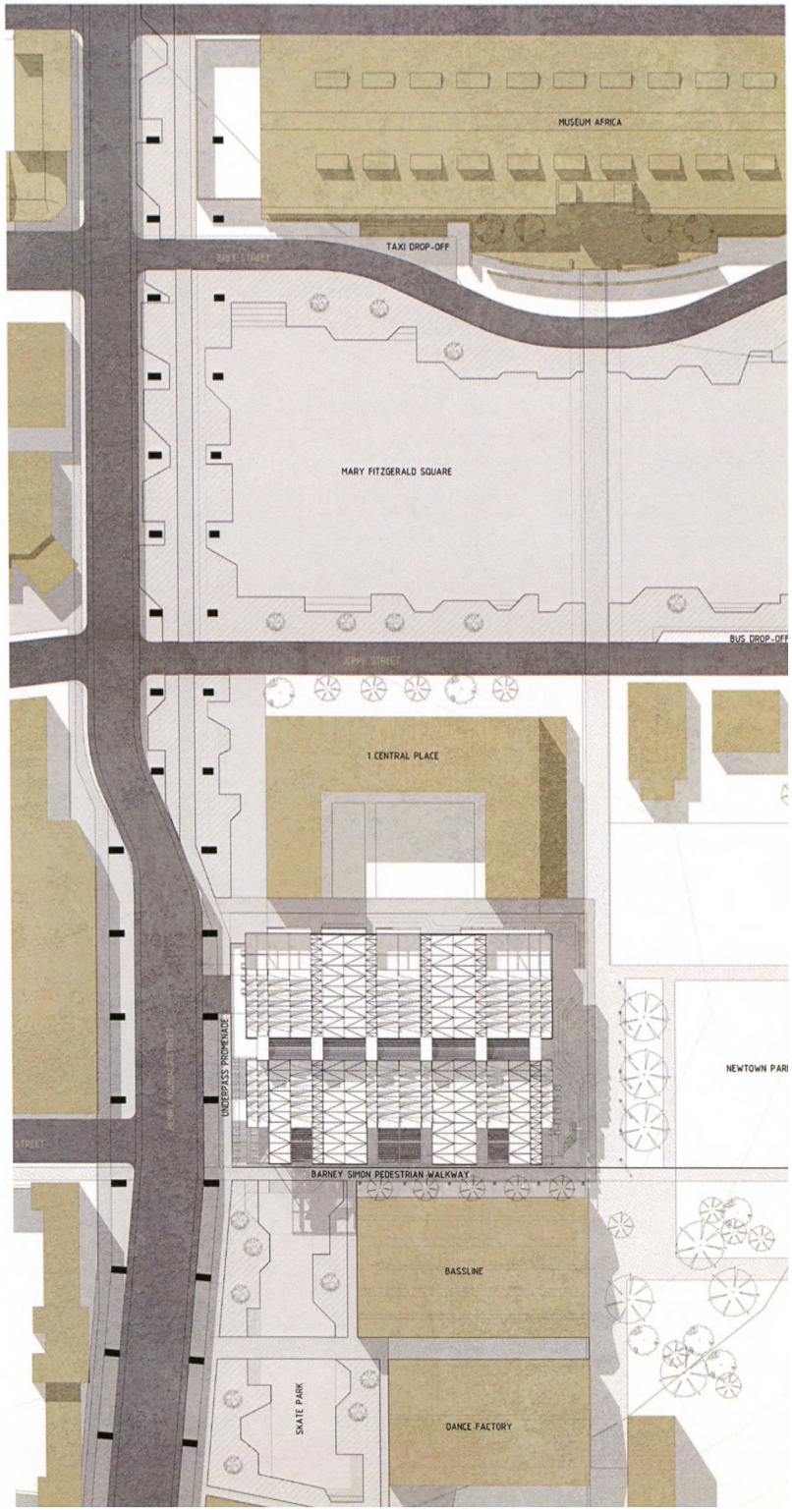
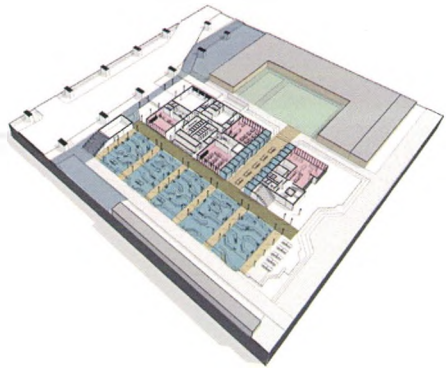


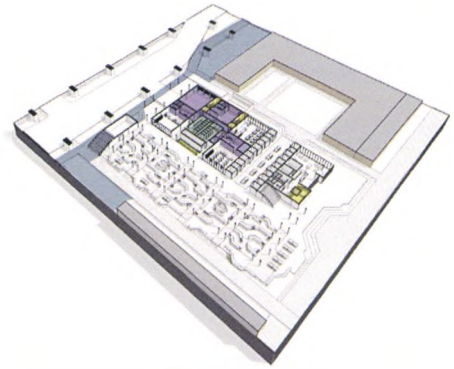
Figure 8.3. Ground Floor Plan (Author 2015)

TRADING AREAS



PUBLIC MARKET
MAIN CIRCULATION
SECONDARY CIRCULATION
SEMI-PUBLIC TRADING
SEMI-PUBLIC COURTYARD
PROMENADE

SERVICE AREAS



SERVICE AREAS
PUBLIC ABLUTIONS
VERTICAL CIRCULATION
PROMENADE

GROUND FLOOR PLAN



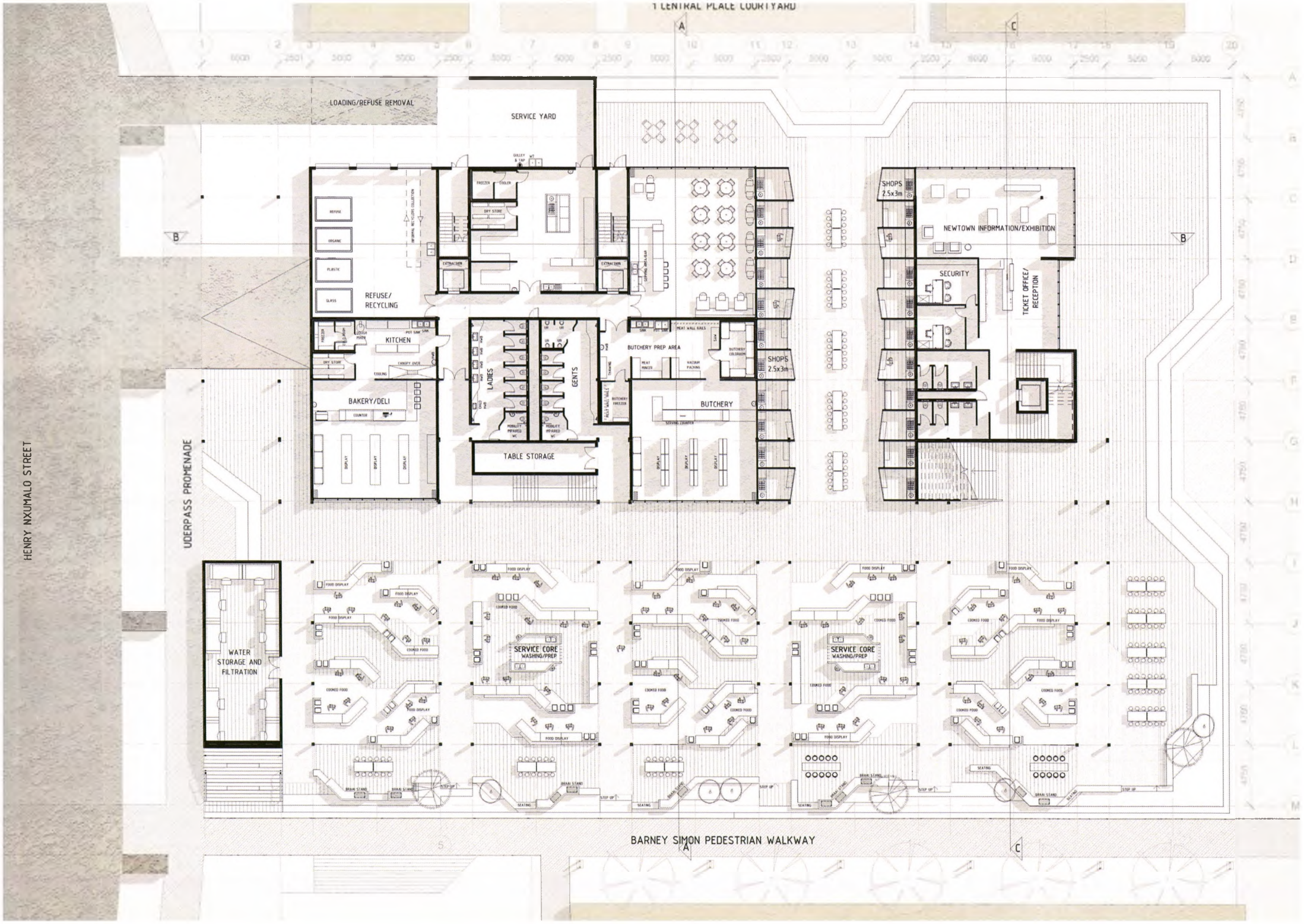
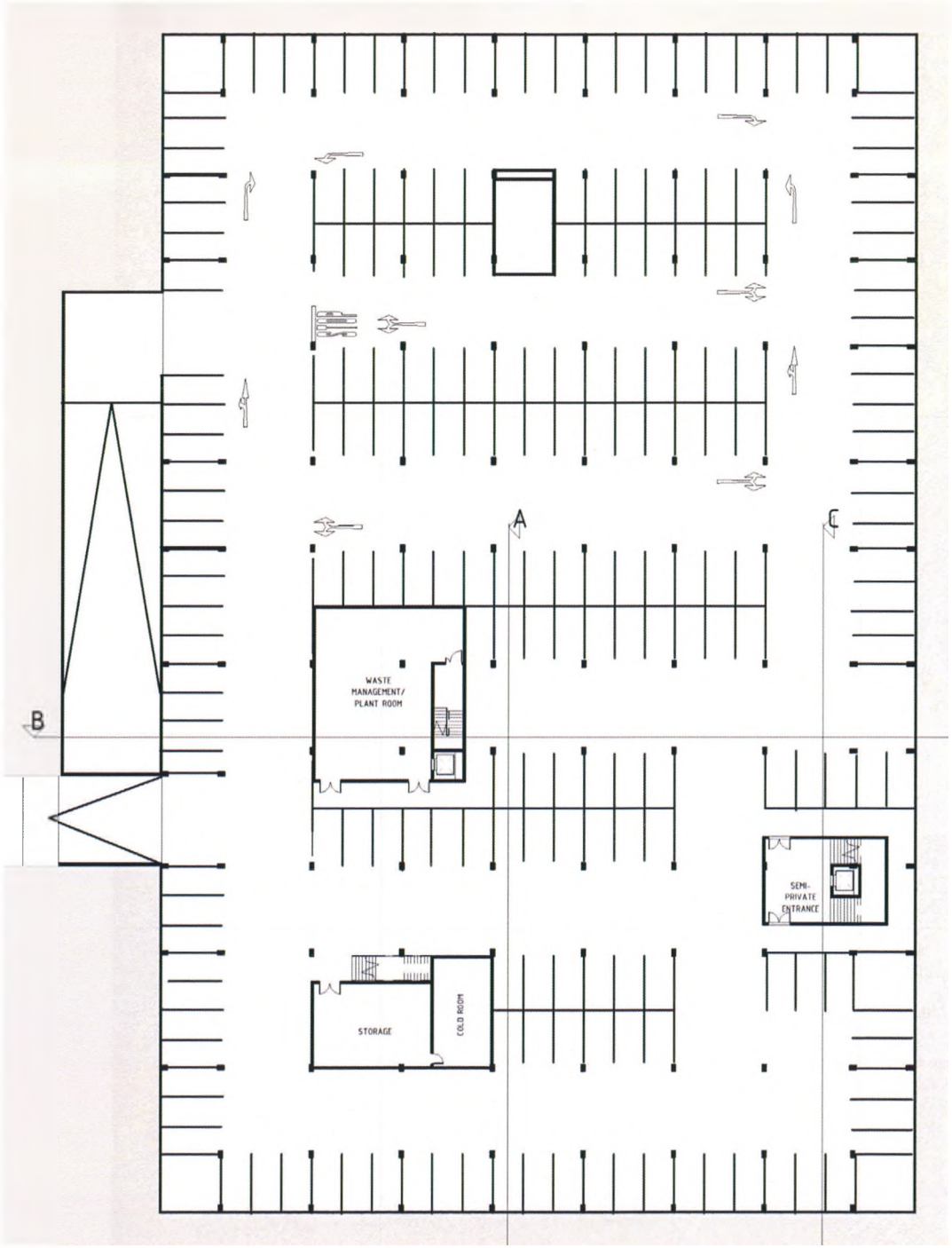

CENTRAL PLAZA COURTYARD
LOADING/REFUSE REMOVAL
SERVICE YARD
REFUSE/
RECYCLING
KITCHEN
BAKERY/DELI
LADIES
GENTS
TABLE STORAGE
BUTCHERY PREP AREA
BUTCHERY
SHOPS
2.5x3m
SHOPS
2.5x3m
NEWTOWN INFORMATION/EXHIBITION
SECURITY
TICKET OFFICE/
RECEPTION
UDERPASS PROMENADE
HENRY NXUMALO STREET
WATER
STORAGE AND
FILTRATION
SERVICE CORE
WASHING/PREP
SERVICE CORE
WASHING/PREP
BARNEY SIMON PEDESTRIAN WALKWAY

Fig 8.4. Basement Plan (Author 2015)



BASEMENT PLAN



Fig 8.5. Perspective of Public Market (Author 2015)

Fig 8.6. First Floor Plan (Author 2015)

FIRST FLOOR PLAN



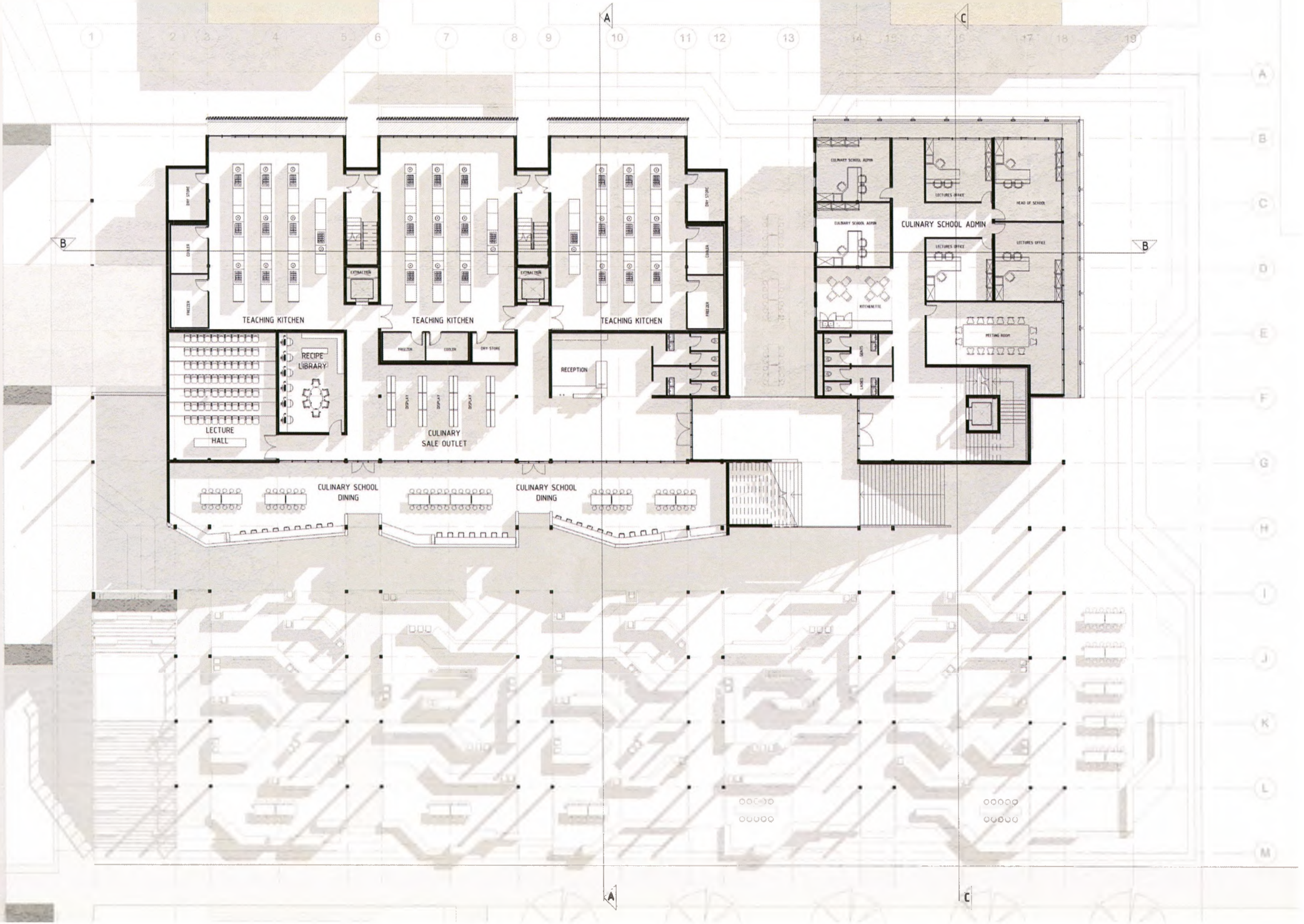

TEACHING KITCHEN
TEACHING KITCHEN
TEACHING KITCHEN
RECIPE LIBRARY
LECTURE HALL
CULINARY SALE OUTLET
RECEPTION
CULINARY SCHOOL DINING
CULINARY SCHOOL DINING
CULINARY SCHOOL ADMIN
LECTURES OFFICE
HEAD OF SCHOOL
MEETING ROOM
A
B
C

Fig 8.7. Elevations (Author 2015)

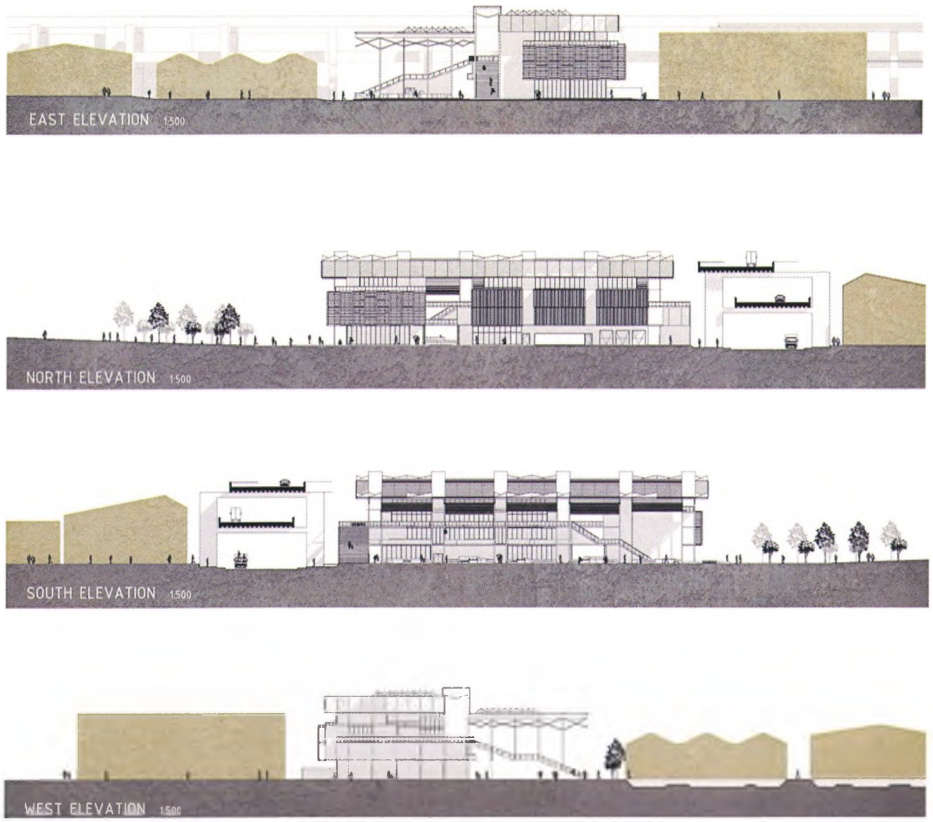




Fig 8.8. View from Newtown Precinct Park (Author 2015)

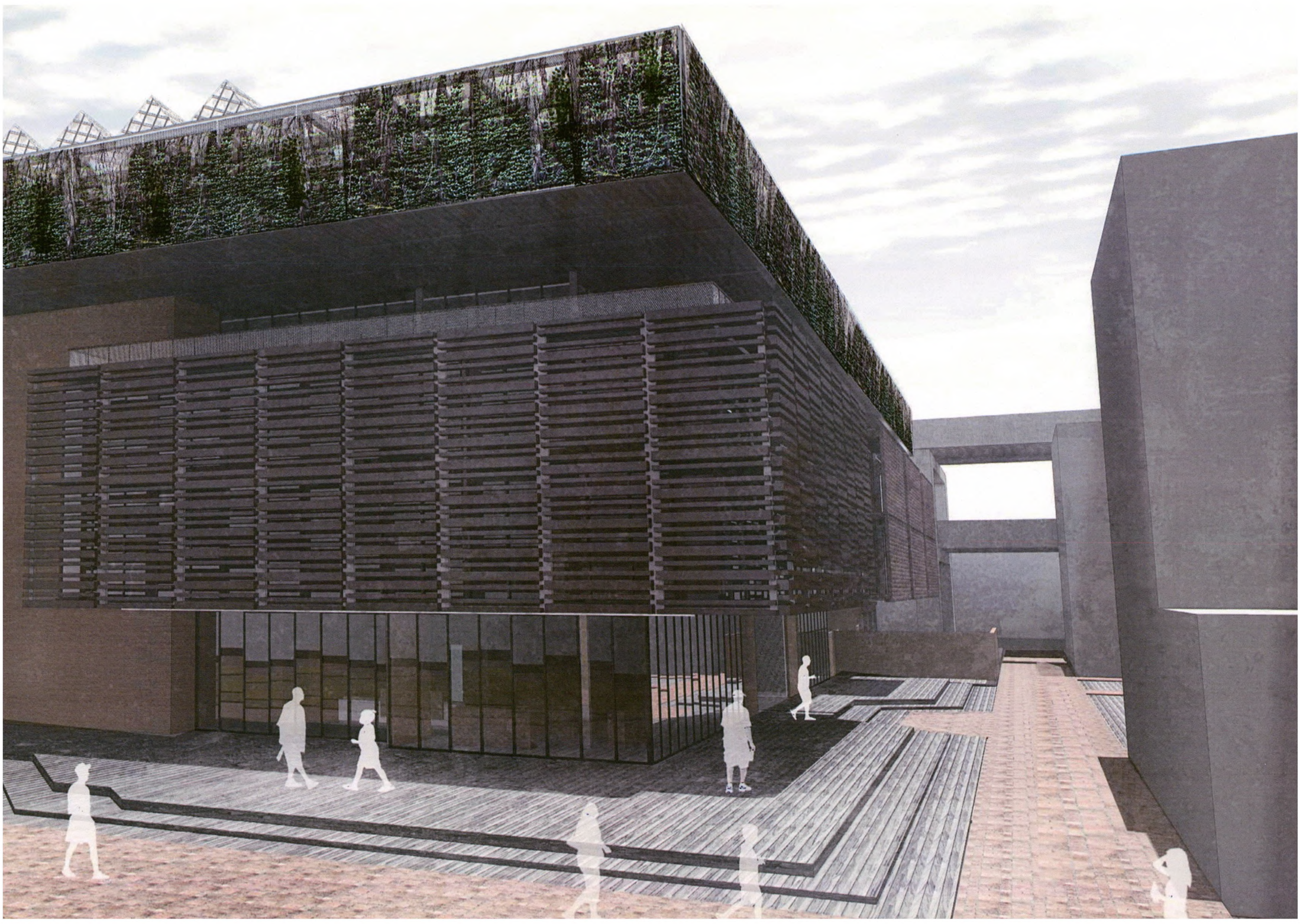
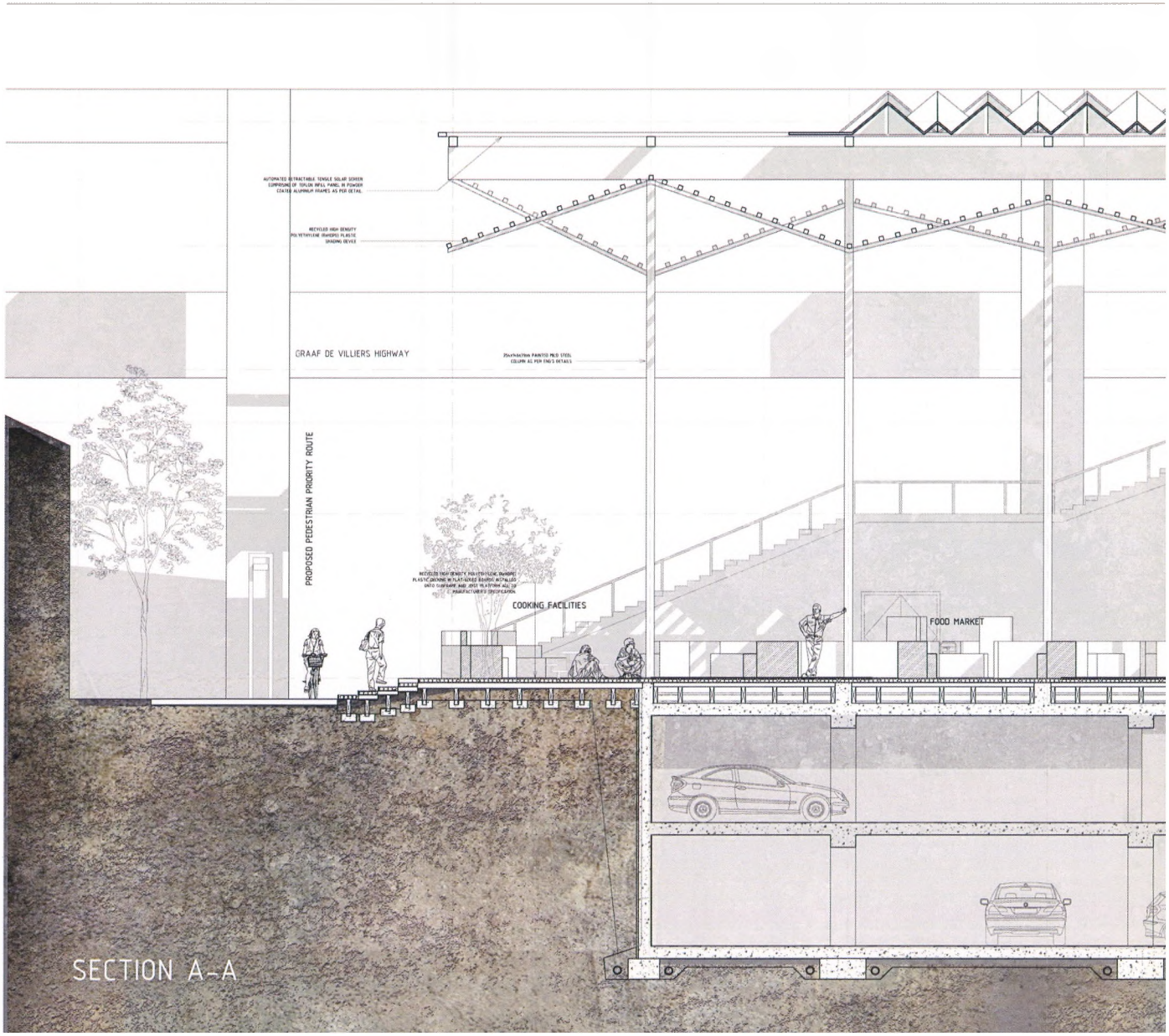
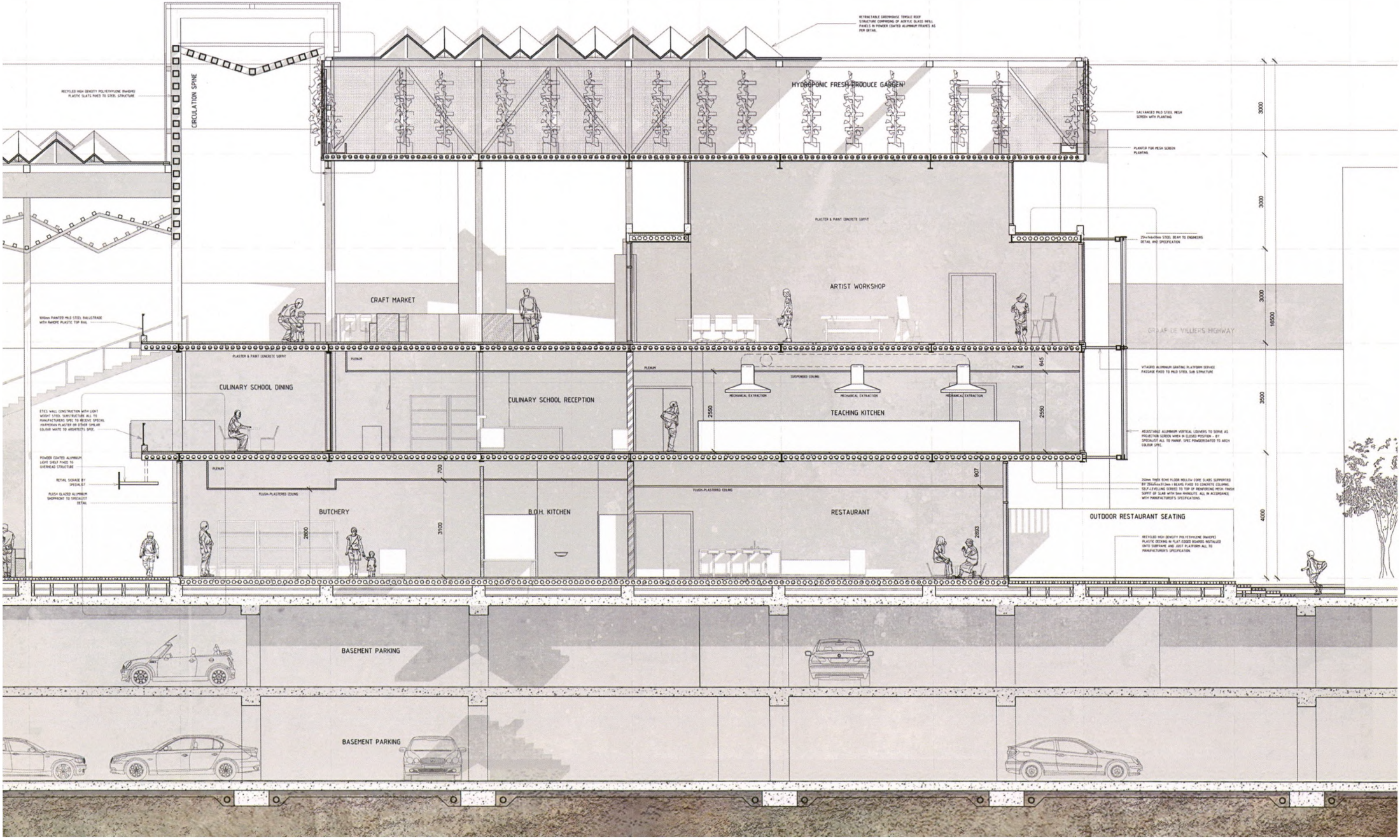


Fig 8.9. Section A-A (Author 2015)




RETRACTABLE GREENHOUSE TENSILE ROOF STRUCTURE COMPRISING OF ACRYLIC GLASS INFILL PANELS IN POWDER COATED ALUMINIUM FRAMES AS PER DETAIL
HYDROPONIC FRESH PRODUCE GARDEN
CIRCULATION SPINE
RECYCLED HIGH DENSITY POLYETHYLENE (RecHDPE) PLASTIC SLATS FIXED TO STEEL STRUCTURE
GALVANIZED MILD STEEL MESH SCREEN WITH PLANTING
PLANTER FOR MESH SCREEN PLANTING
PLASTER & PAINT CONCRETE SOFFIT
254x146x31mm STEEL BEAM TO ENGINEERS DETAIL AND SPECIFICATION
ARTIST WORKSHOP
CRAFT MARKET
DR AF DE VILLIERS HIGHWAY
900mm PAINTED MILD STEEL BALUSTRADE WITH RAWDRE PLASTIC TOP RAIL
PLASTER & PAINT CONCRETE SOFFIT
PLENUM
SUSPENDED CEILING
MECHANICAL EXTRACTION
VITAGRID ALUMINIUM GRATING PLATFORM SERVICE PASSAGE FIXED TO MILD STEEL SUB STRUCTURE
CULINARY SCHOOL DINING
CULINARY SCHOOL RECEPTION
TEACHING KITCHEN
2550
845
ETICS WALL CONSTRUCTION WITH LIGHT WEIGHT STEEL SUBSTRUCTURE ALL TO MANUFACTURERS SPEC TO RECEIVE SPECIAL HAIRPENNY PLASTER OR OTHER SIMILAR COLOUR WHITE TO ARCHITECTS SPEC.
ADJUSTABLE ALUMINIUM VERTICAL LOUVERS, TO SERVE AS PROJECTION SCREEN WHEN IN CLOSED POSITION - BY SPECIALIST ALL TO MANUF. SPEC POWDERCOATED TO ARCH COLOUR SPEC.
POWDER COATED ALUMINIUM LIGHT SHELF FIXED TO OVERHEAD STRUCTURE
RETAIL SIGNAGE BY SPECIALIST
FLUSH GLAZED ALUMINIUM SHOPFRONT TO SPECIALIST DETAIL
FLUSH-PLASTERED CEILING
700
907
250mm THICK ECHO FLOOR HOLLOW CORE SLABS SUPPORTED BY 254x146x31.2mm I BEAMS FIXED TO CONCRETE COLUMNS. SELF-LEVELLING SCREED TO TOP OF REINFORCING MESH. FINISH SOFFIT OF SLAB WITH 5mm RHINOLITE. ALL IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
BUTCHERY
B.O.H. KITCHEN
RESTAURANT
OUTDOOR RESTAURANT SEATING
2800
3100
2853
RECYCLED HIGH DENSITY POLYETHYLENE (RecHDPE) PLASTIC DECKING IN FLAT EDGED BOARDS INSTALLED ONTO SUBFRAME AND JOIST PLATFORM ALL TO MANUFACTURER'S SPECIFICATION.
3000
3000
3000
16500
3500
4000
BASEMENT PARKING
BASEMENT PARKING

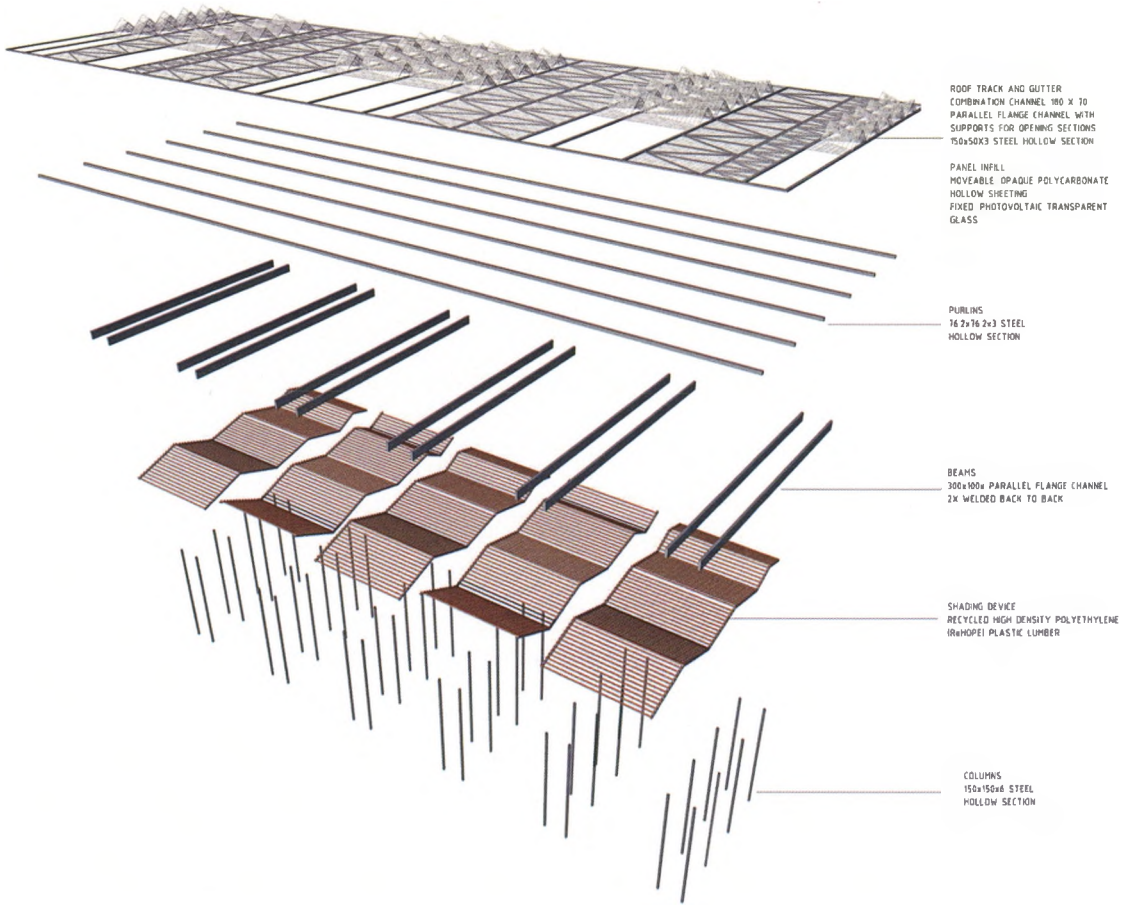
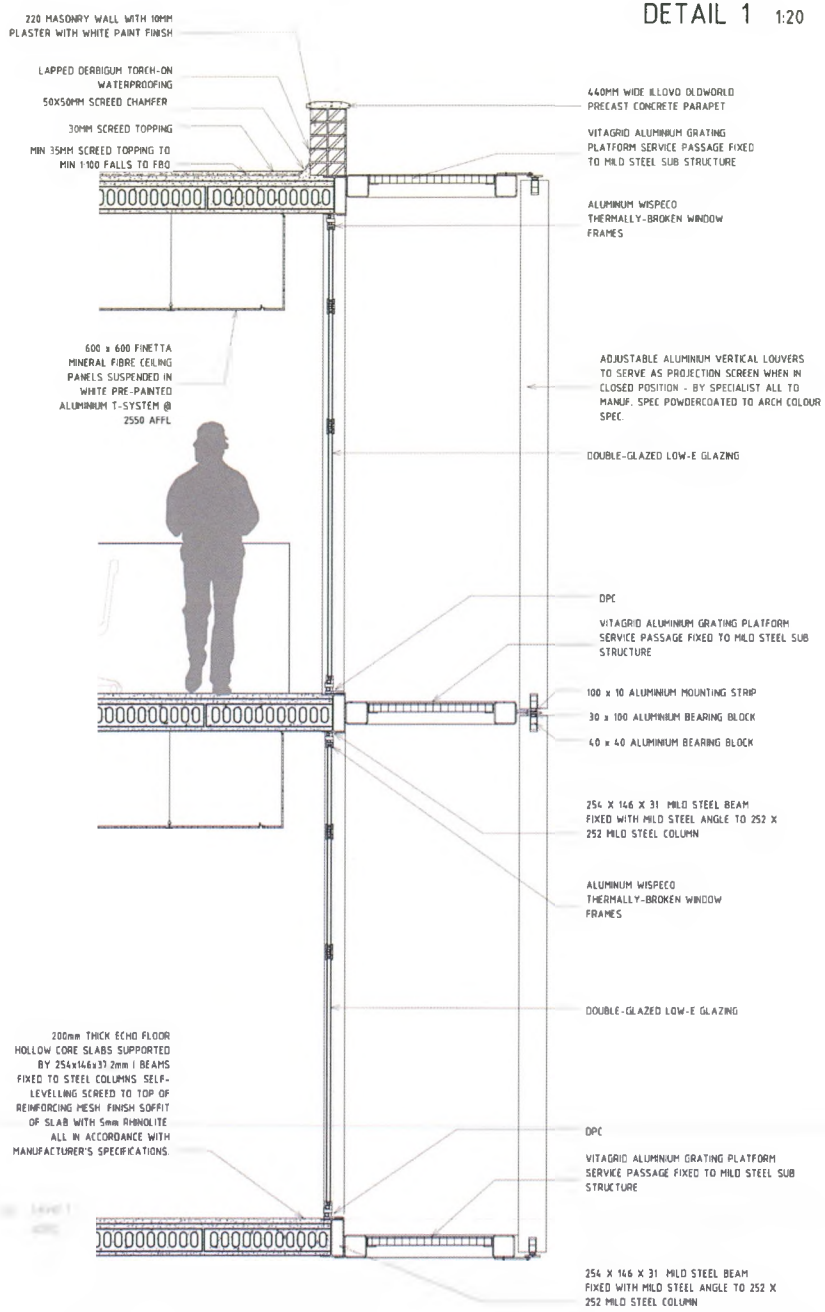
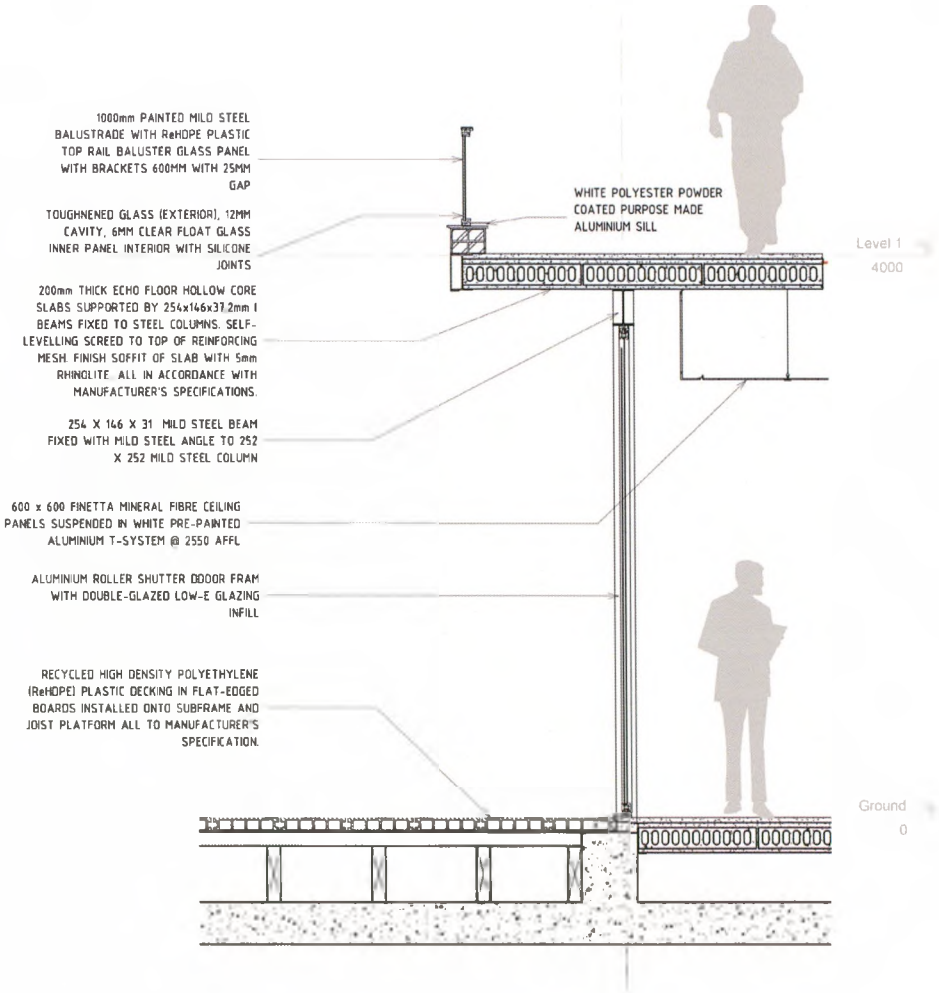
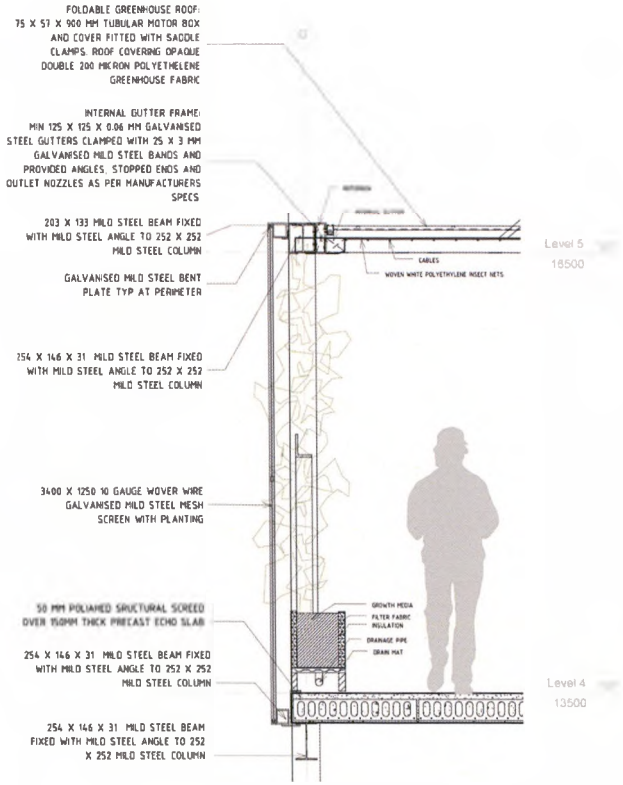


Fig 8.10. Various Details (Author 2015)





DETAIL 2 1:20



DETAIL 3 1:20

Fig 8.11. Second Floor Plan (Author 2015)

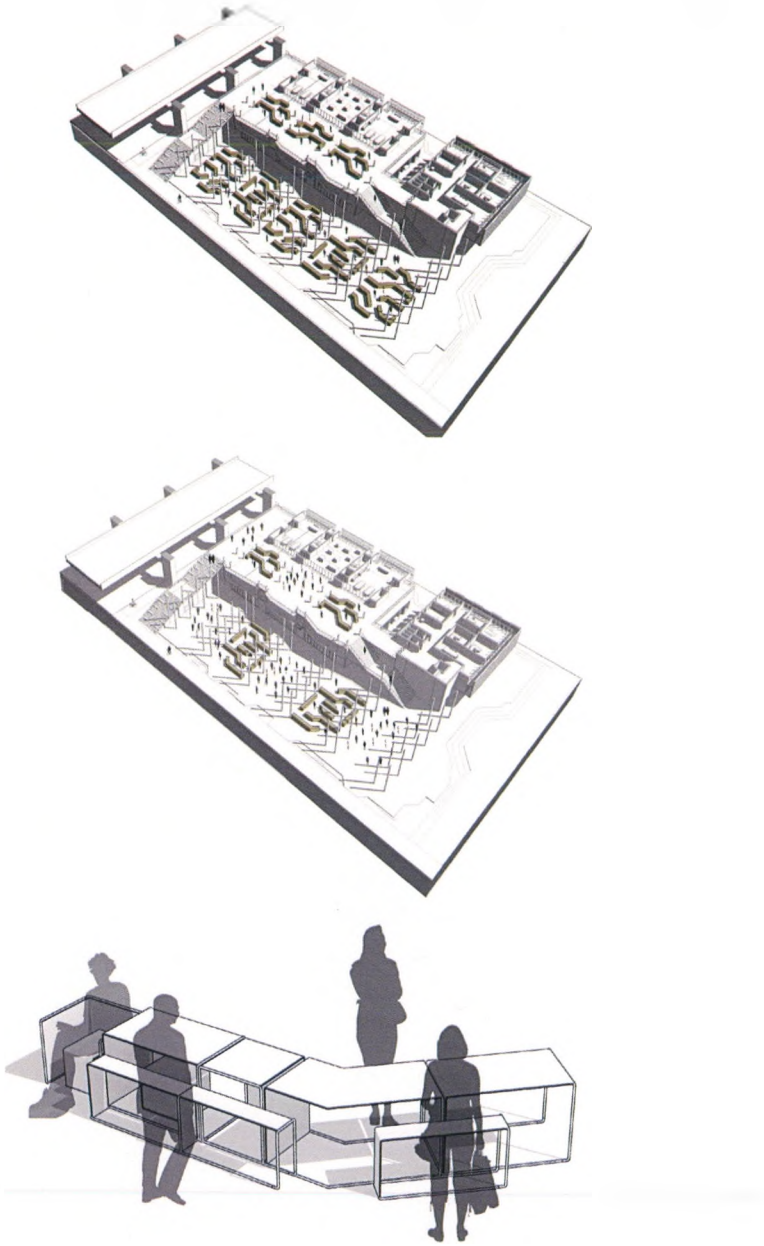


Fig 8.12. Different configurations of market with stackable furniture (Author 2015)

SECOND FLOOR PLAN

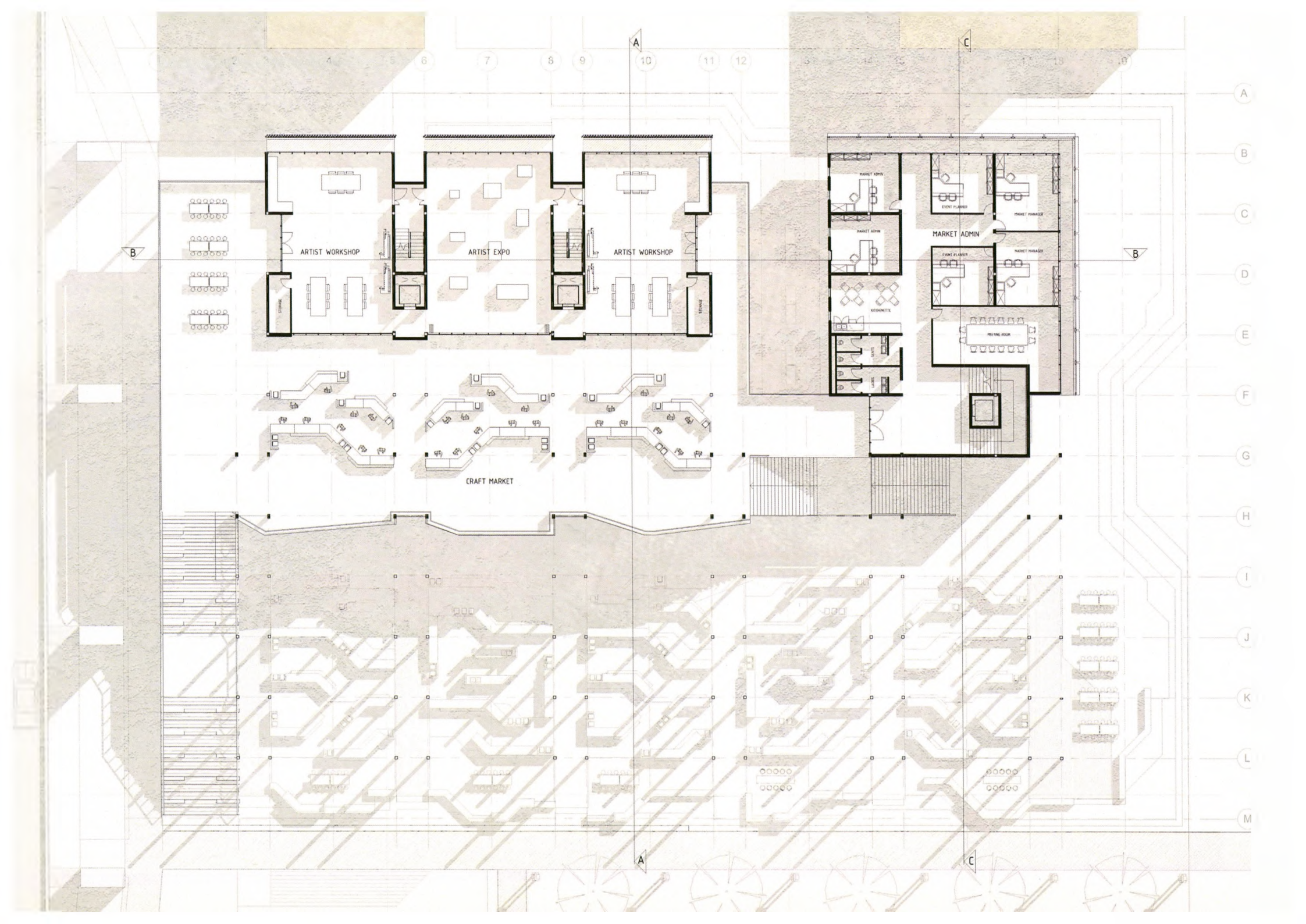
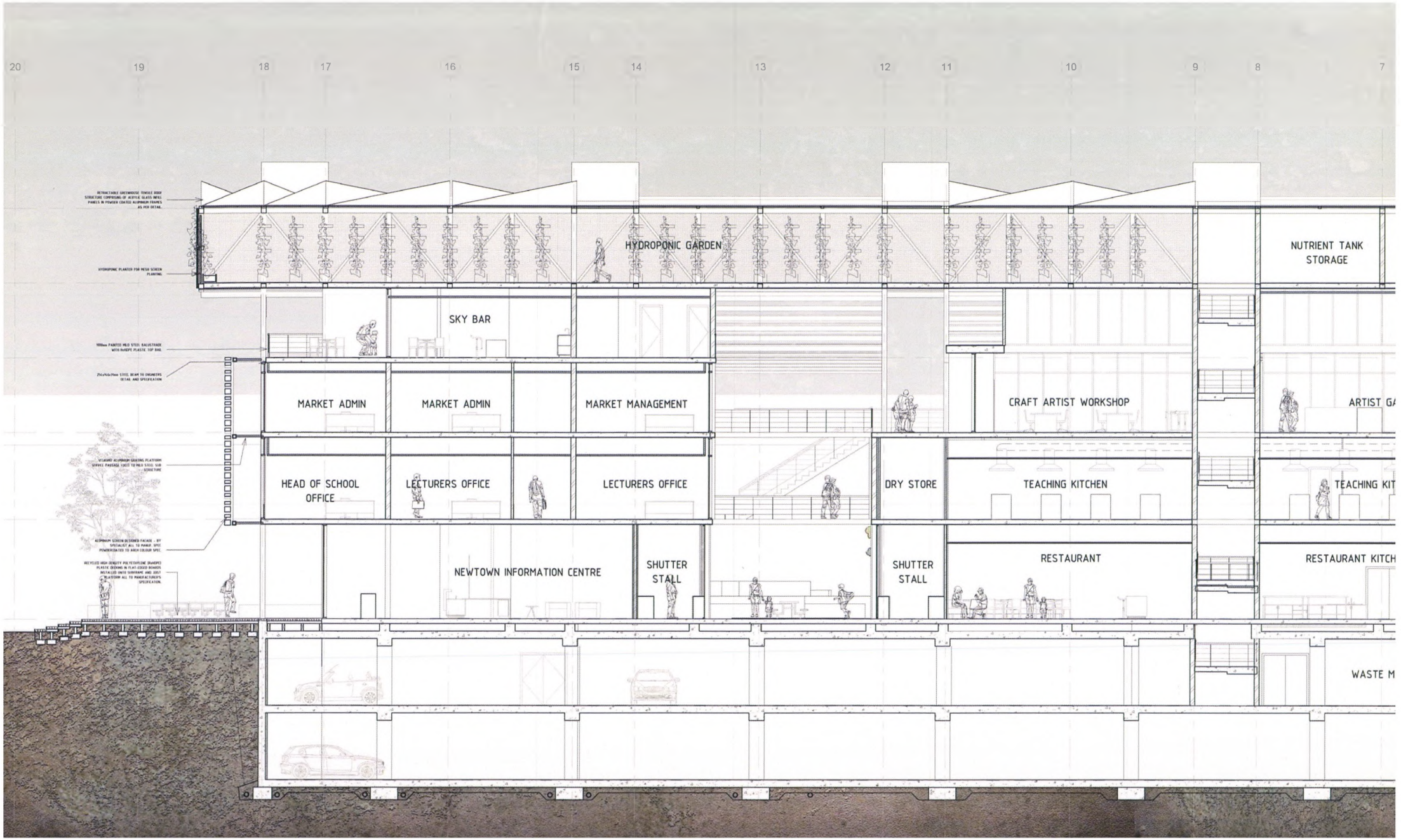

ARTIST WORKSHOP
ARTIST EXPO
ARTIST WORKSHOP
STORAGE
STORAGE
CRAFT MARKET
MARKET ADMIN
EVENT PLANNER
MARKET MANAGER
MARKET ADMIN
MARKET ADMIN
EVENT PLANNER
MARKET MANAGER
KITCHENETTE
MEETING ROOM
LAUNDRY
LABEL
A
B
C
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
A
B
C
D
E
F
G
H
I
J
K
L
M



Fig 8.13. View of Market from skate park (Author 2015)



Fig 8.14. Section B-B (Author 2015)



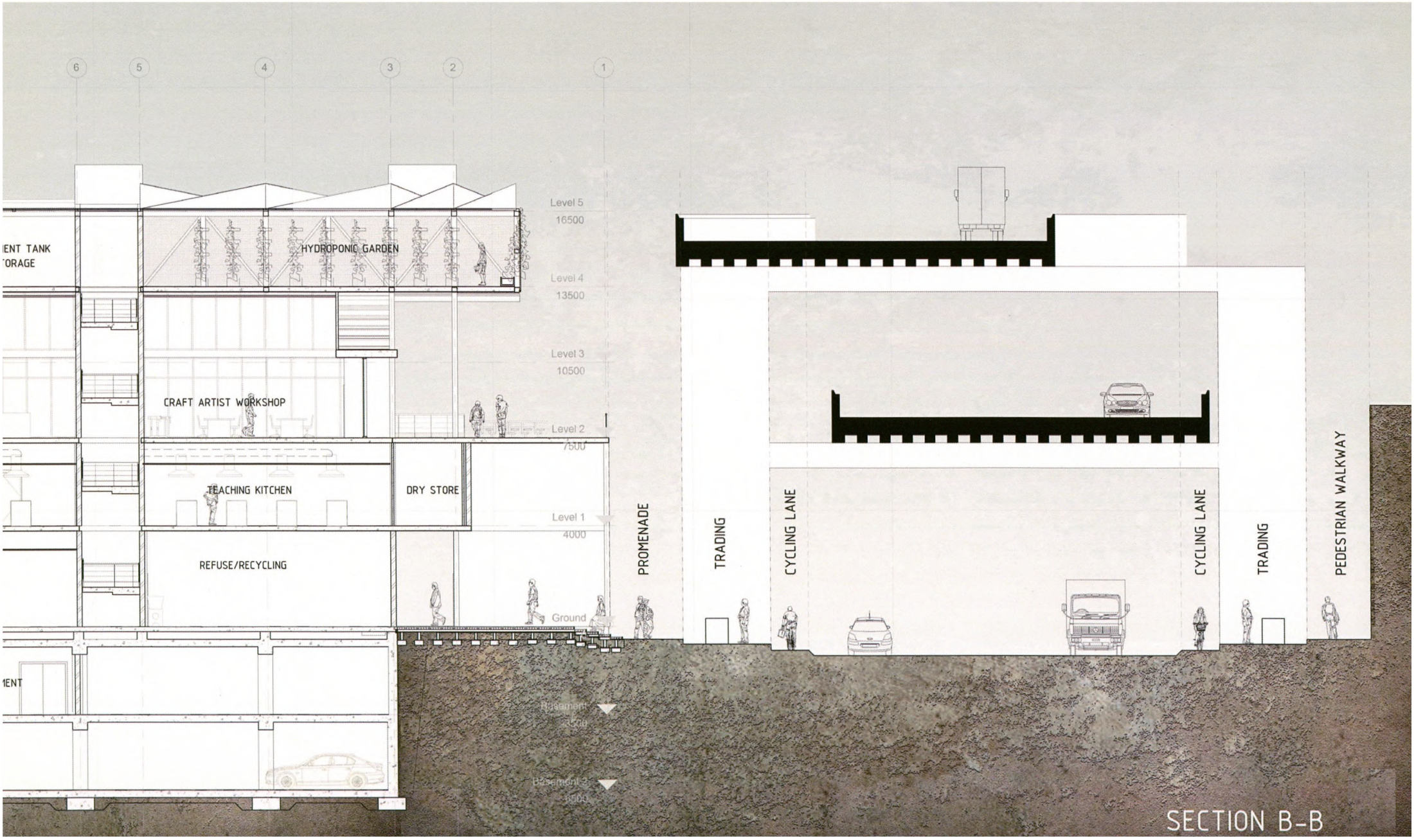

6
5
4
3
2
1
ENT TANK
TORAGE
HYDROPONIC GARDEN
Level 5
16500
Level 4
13500
Level 3
10500
CRAFT ARTIST WORKSHOP
Level 2
7500
TEACHING KITCHEN
DRY STORE
Level 1
4000
REFUSE/RECYCLING
Ground
MENT
Basement 1
-3500
Basement 2
-8000
PROMENADE
TRADING
CYCLING LANE
CYCLING LANE
TRADING
PEDESTRIAN WALKWAY
SECTION B-B

Fig 8.15. Third Floor Plan (Author 2015)



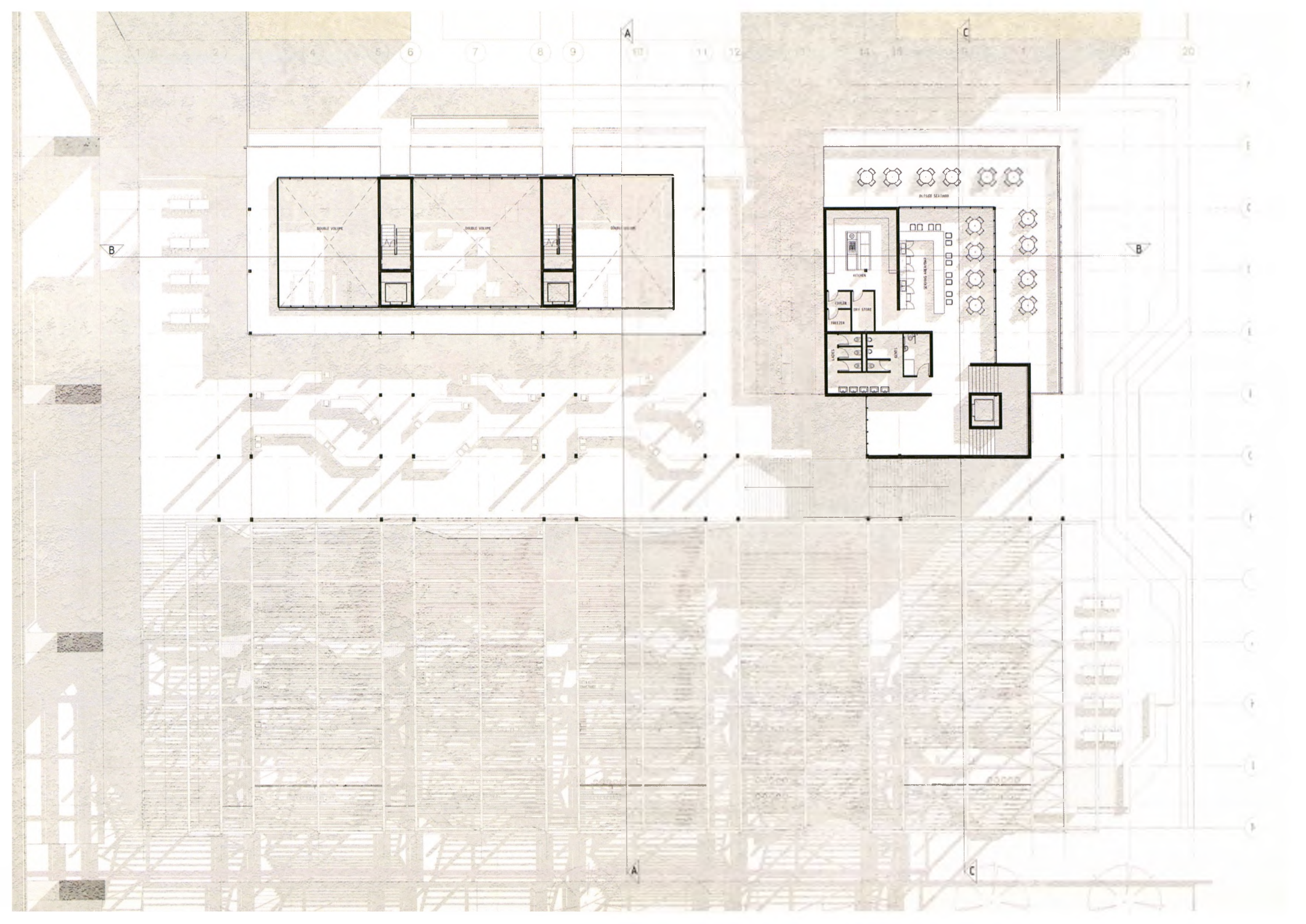
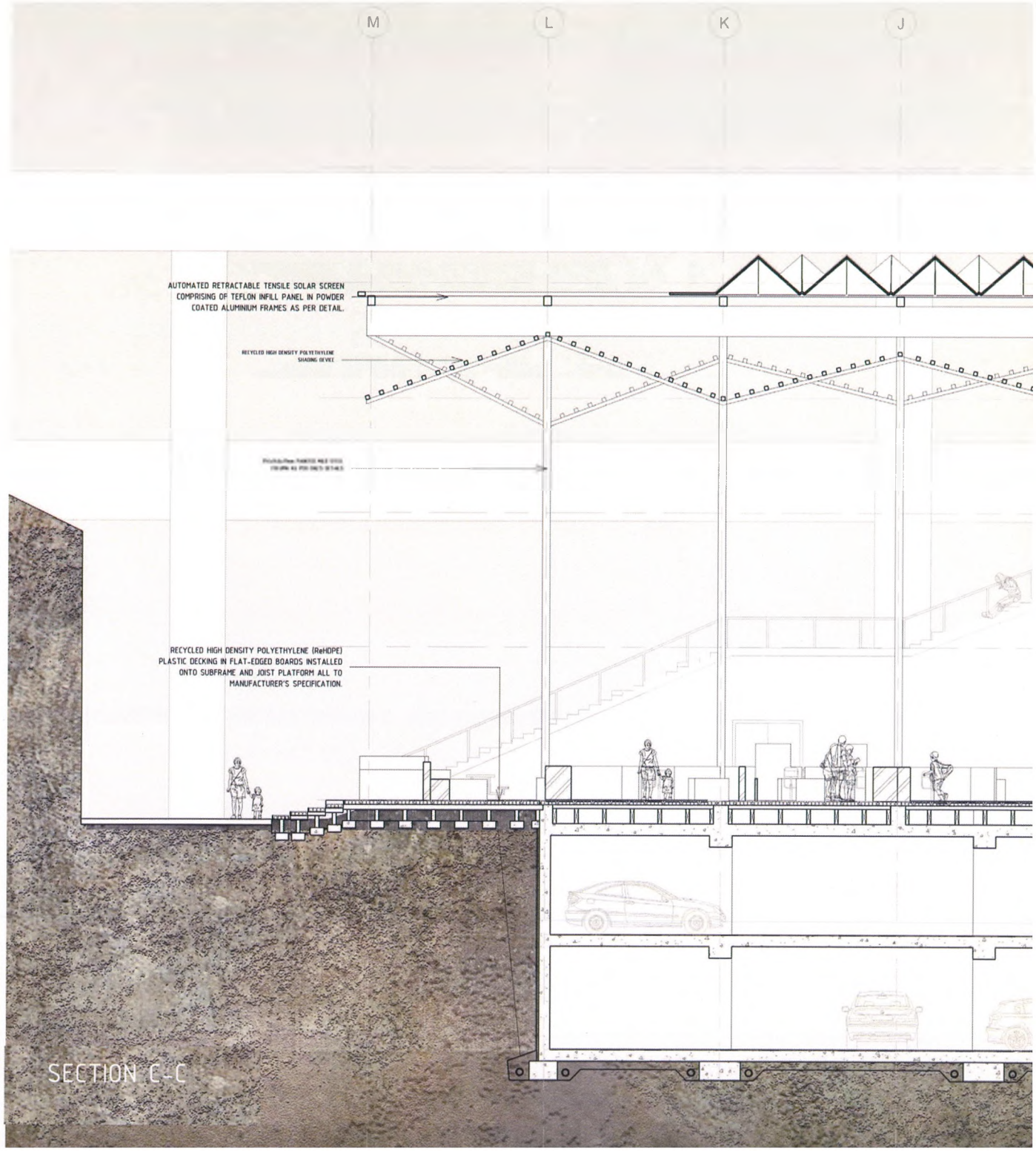
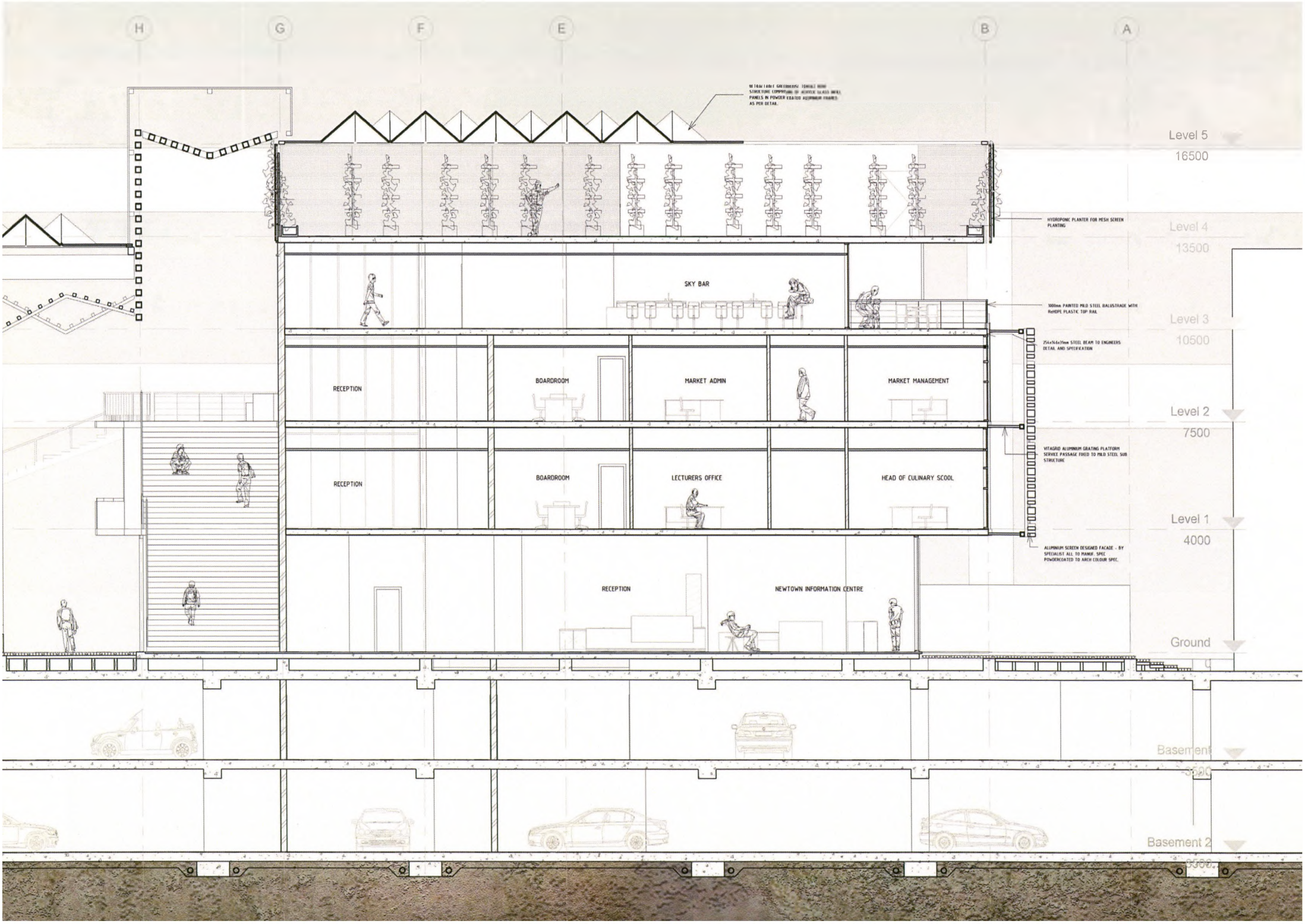

A
C
B
B
A
C
DOUBLE VOLUME
DOUBLE VOLUME
DOUBLE VOLUME
OUTSIDE SEATING
KITCHEN
SERVING AREA/BAR
COOLER
FREEZER
DRY STORE
LADIES
GENTS

Fig 8.16. Section C-C (Author 2015)




H
G
F
E
B
A
Level 5
16500
Level 4
13500
Level 3
10500
Level 2
7500
Level 1
4000
Ground
Basement
Basement 2
HYDROPONIC PLANTER FOR MESH SCREEN PLANTING
1000mm PAINTED MILD STEEL BALUSTRAGE WITH RedHDPE PLASTIC TOP RAIL
254x146x31mm STEEL BEAM TO ENGINEERS DETAIL AND SPECIFICATION
VITAGRID ALUMINUM GRATING PLATFORM SERVICE PASSAGE FIXED TO MILD STEEL SUB STRUCTURE
ALUMINUM SCREEN DESIGNED FACADE - BY SPECIALIST ALL TO MANUF. SPEC POWDERCOATED TO ARCH COLOUR SPEC.
SKY BAR
RECEPTION
BOARDROOM
MARKET ADMIN
MARKET MANAGEMENT
RECEPTION
BOARDROOM
LECTURERS OFFICE
HEAD OF CULINARY SCOOL
RECEPTION
NEWTOWN INFORMATION CENTRE

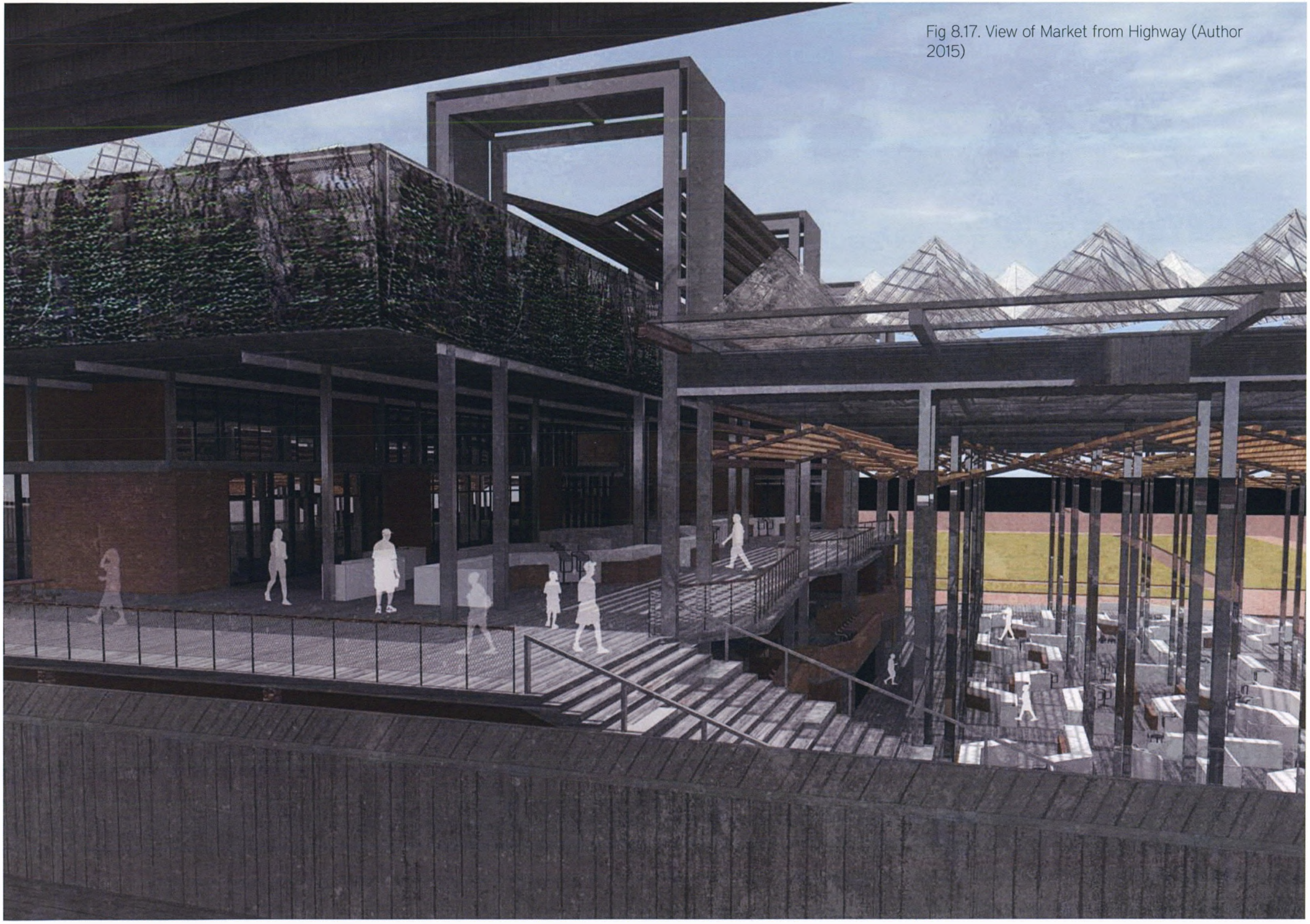


Fig 8.17. View of Market from Highway (Author 2015)

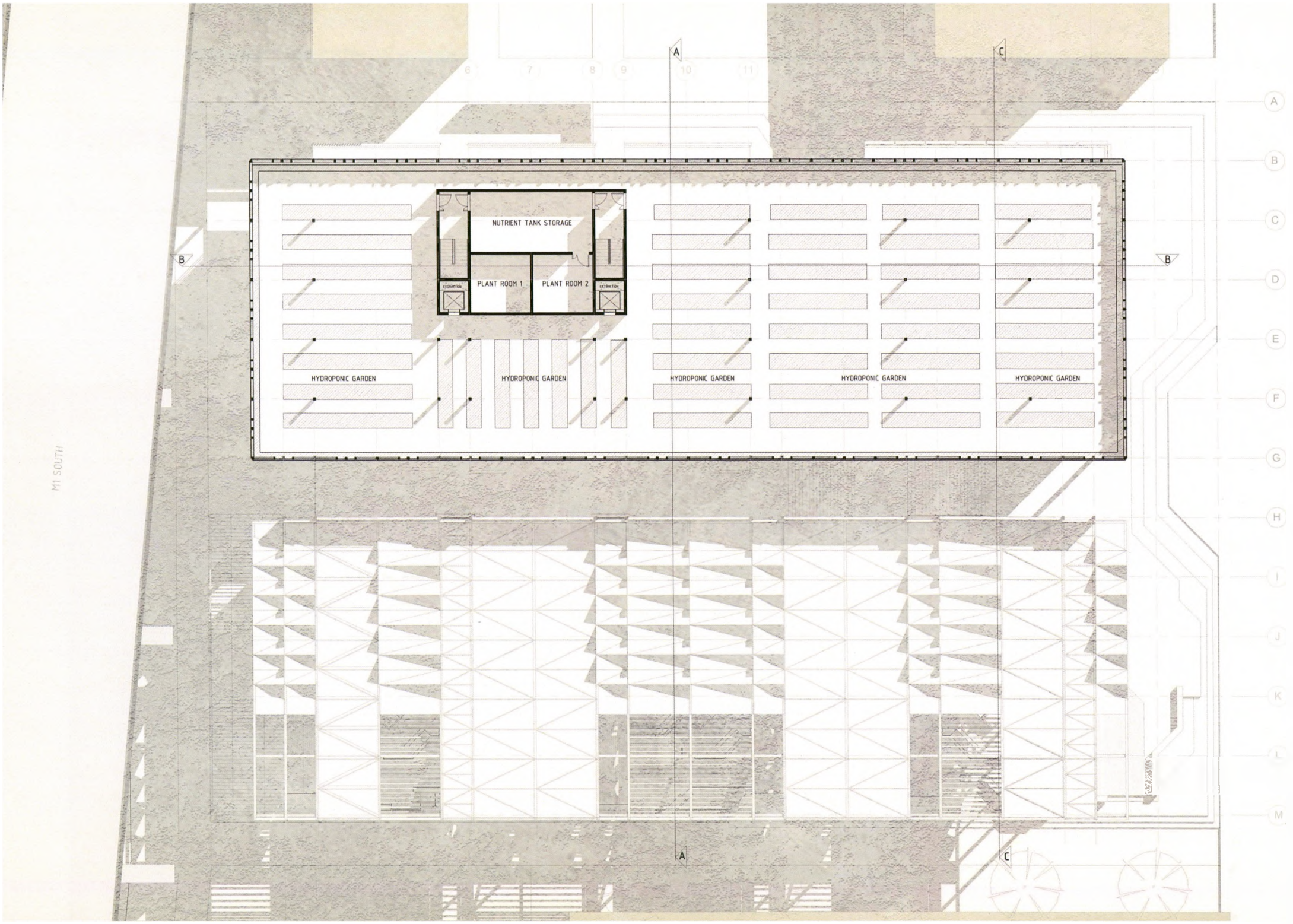


Fig 8.18. View of Market from 1 Central PLace Courtyard (Author 2015)

ROOF CANOPY PLAN



Fig 8.19. Roof Canopy Plan (Author 2015)


NUTRIENT TANK STORAGE
PLANT ROOM 1
PLANT ROOM 2
EXTRACTION
EXTRACTION
HYDROPONIC GARDEN
HYDROPONIC GARDEN
HYDROPONIC GARDEN
HYDROPONIC GARDEN
HYDROPONIC GARDEN
A
C
B
B
A
C
M1 SOUTH

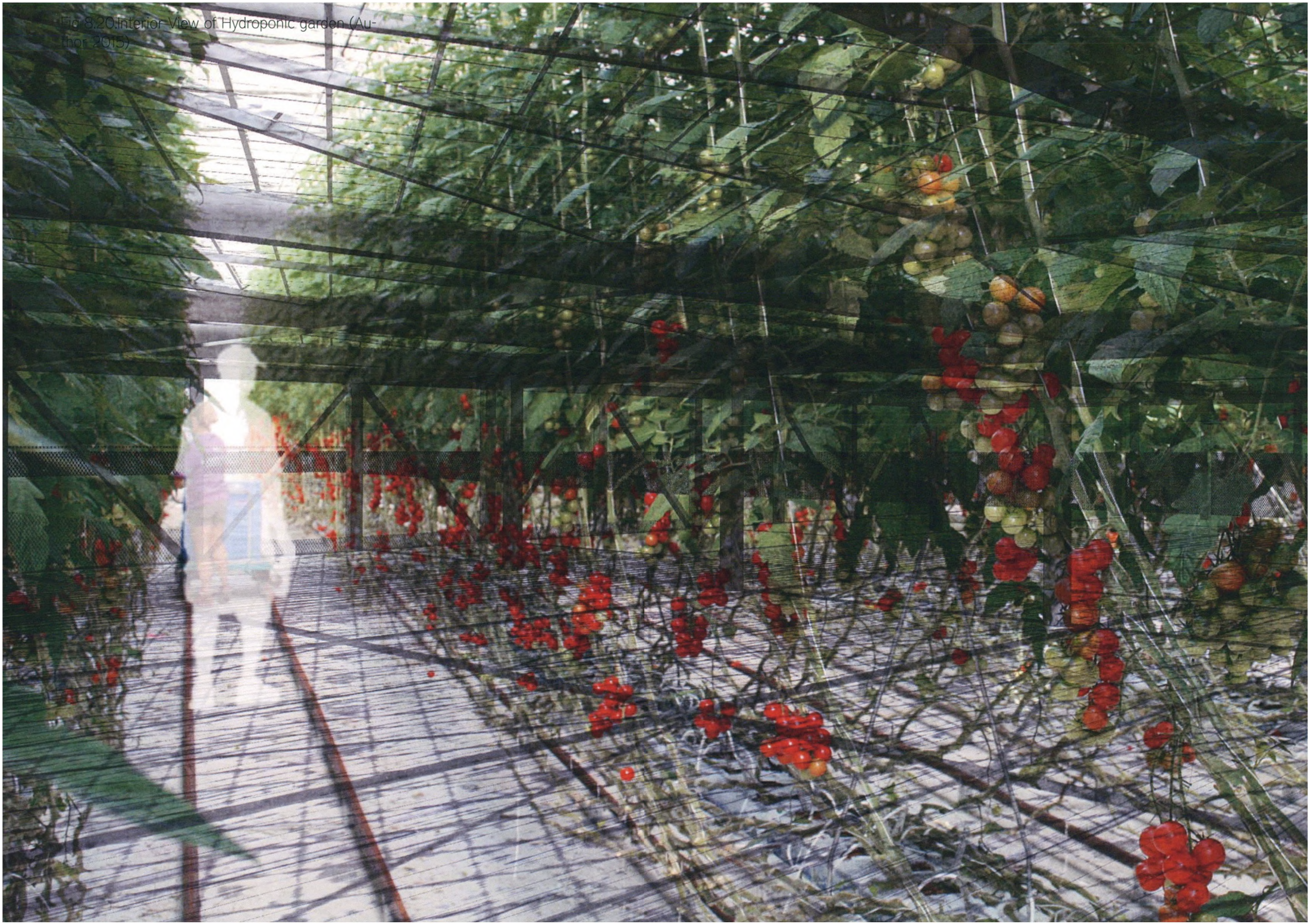
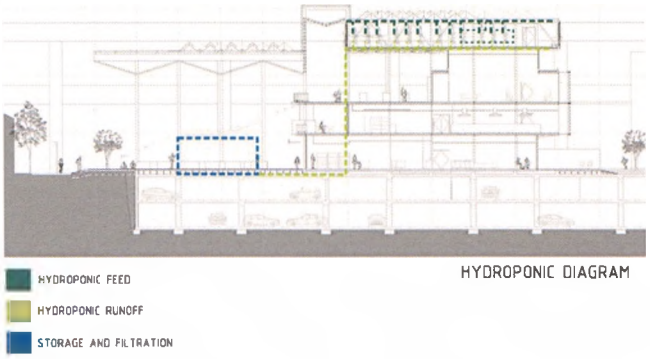
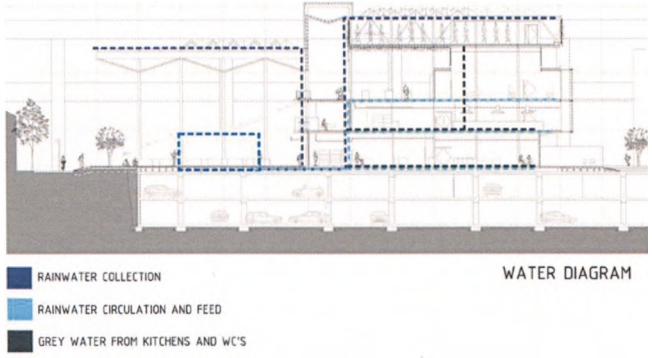


Fig 8.20:Interior View of Hydroponic garden (Author 2015)





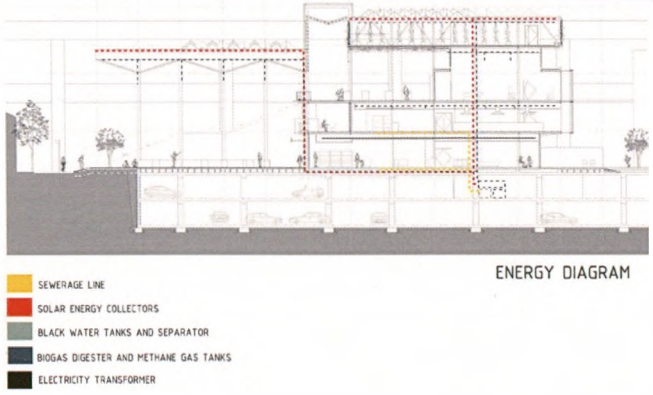


Fig 8.21. Diagrams of Sustainable Systems (Author 2015)

GREEN STRATEGIES

RAINWATER COLLECTION:

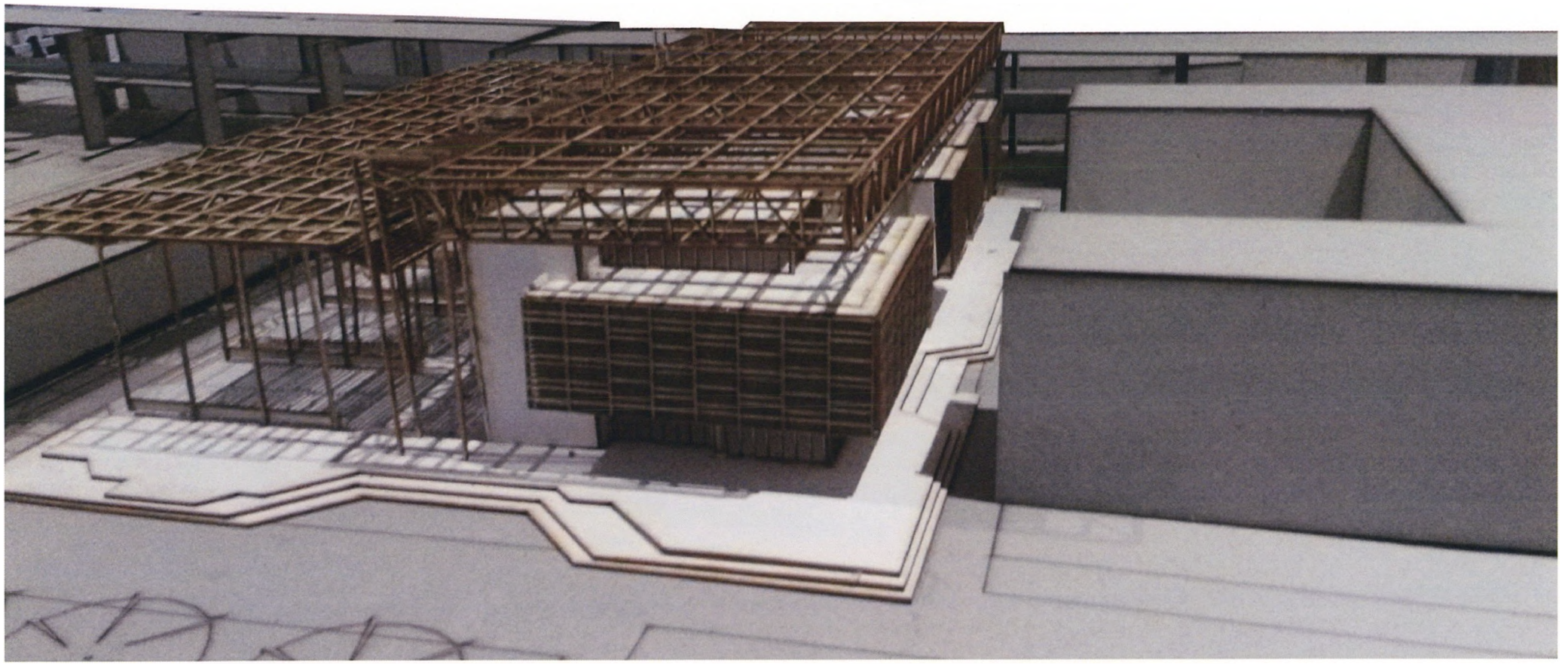
Rainwater harvesting is mainly used for potable water, as this is a clean and nutrient-rich source of water, which can also be used for irrigation of hydroponics.

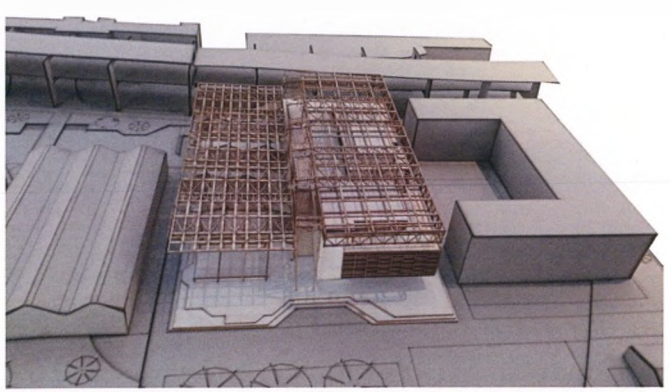
GREY AND BLACK WATER CLEANING SYSTEM:

Grey water can be stored in cisterns to be used in non-potablewater provision systems within the building and on-site. Black water (from toilets) is treated withan anaerobic reactorand methane gets excluded from the system and put into the energy cycle. Partly filtered water is then put through a system with an anoxic reactor. Hereafter the water is filtered through a system with aerobic reactors and deposited into an aquaculture tank. This water can then be partly used to feed the hydroponic systems, and the rest filtered even further by being purified in a clarifier. Materials that reside are then deposited into the anaerobic treatment system.

ENERGY USE AND PRODUCTION - ALTERNATIVE SUPPLEMENTAL ENERGY:

Anaerobic digestion technology (methane digester) can assist in reducing the discharge of greenhouse gasses. The essential element of an anaerobic biogas plant is the enclosed container, called the digester, which is an airtight tank filled with organic waste, emptied of processed slurry with a way of catching up the produced methane gas, which is then pumped into the energy cycle to produce biogas. Added to the production of biogas, solar power will be harvested by means of Power Glass™ (glass laminated with a transparent, thin-film polymer photovoltaic layer). Solar panels collect solar energy or radiation from the sun and dynamically convert that energy to electricity.





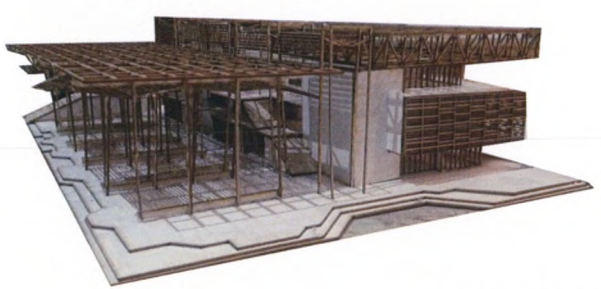


Fig 8.22. - 8.27. Photos of Final Model (Author 2015)

09

REFERENCES 152
LIST OF FIGURES 154

REFERENCES

9. REFERENCES

9.1. REFERENCES

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