Tshwane City Central

Taxi transfer terminal and market.

0.1 Introduction

0.1 Background

In the next hundred years urbanisation of the world population will increase from 60,1% to 80%. Tshwane is no exception to this. By 2025 the city's population is estimated to increase by 30% from 2000 population levels (GTS2000). This steady immigration of rural people to Tshwane has amplified demand on all existing infrastructure services and especially transportation. Be it private vehicle or public transport, people must be able to commute within the city.

During 1995 to 2003 Tshwane had experienced rapid economic growth of 4,6% per annum. This eight year period resulted in an increase in peoples ability to purchase vehicles. Due to the unattractiveness and inconvenience of public transportation, more people bought their own vehicles inevitably leading to greater
congestion on roads. (City of Tshwane, Strategic Public Transport Plan:35)

A lack of vacant urban space and financial resources makes it a near impossibility to continue addressing the congestion problem through the building of more roads. Government's focus will have to shift to developing public transportation as a viable alternative for commuters.

In recent years, facilities for public transport have deteriorated, and funding for operating security and maintenance of existing public transport facilities is difficult. Currently, Tshwane alone uses 30% of the national transportation subsidy (City of Tshwane, Strategic Public Transport Plan:35), thus emphasising the need for facilities to produce enough income to maintain themselves and ensure their future.

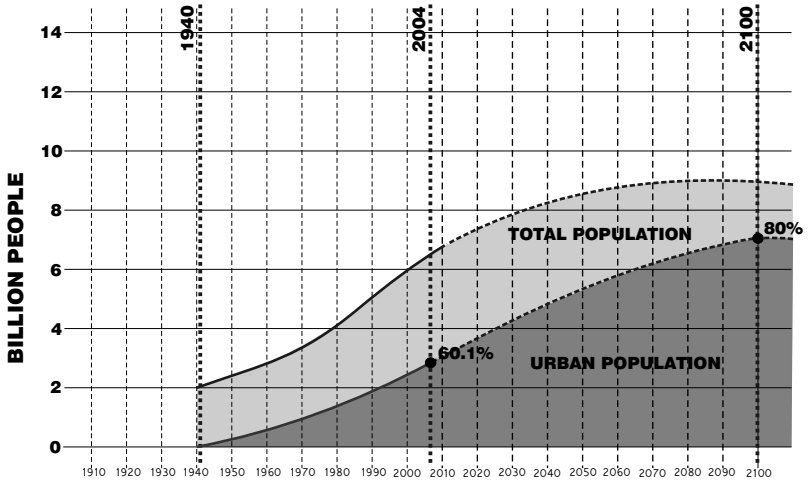
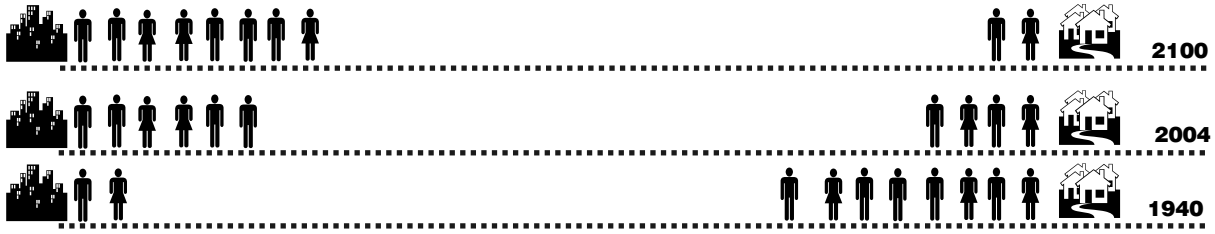


Table 0_01 Urban population projections by the United Nations



0_03 Urban population projection ratio

0.2 Future Developments

New opportunities and developments have recently emerged, aiding the upgrading of the public transportation infrastructure.

Gautrain

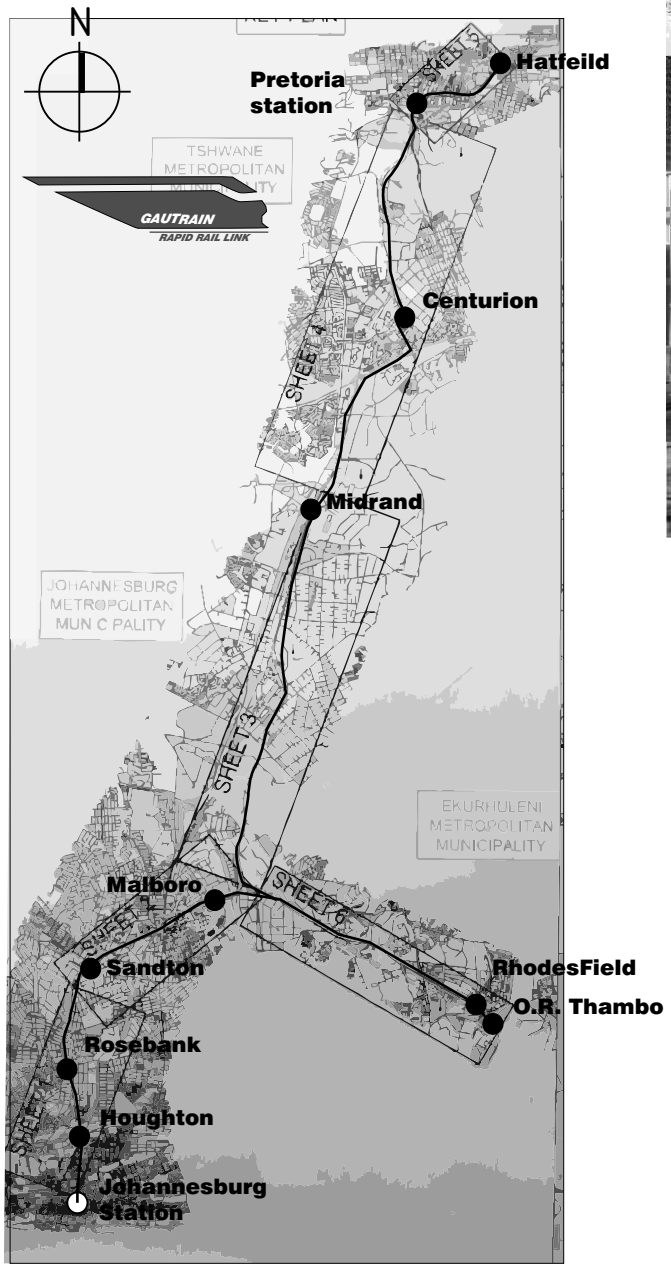
The introduction of the Gautrain will improve the perception of public transport being only for the poor. It is a modern high speed light rail that links O.R Thambo International Airport with various stations in Johannesburg, Midrand, Centurion and Pretoria (*Vide* figure 0_04).

Taxi Recapitalisation Programme

Using a R7,7 billion incentive programme, through which central government intends to modernise the taxi industry by purchasing old taxi's for R50,000 each. This will assist operators in obtaining new vehicles, and removing old unsafe vehicle off the road (www.engineeringnews.co.za).

FIFA World Cup 2010

R3,5 billion has been budgeted for large scale improvements on roads and public transportation systems. The upgrade will accommodate an estimated three million international visitors to South Africa for the football tournament (www.fifaworldcup.co.za).



0_04 Gautrain rapid rail link key map

0_05 Taxi driving

0_06 FIFA world cup logo

0.3 Socio - economic trends

The Tshwane Municipality is in most, if not all, aspects the model Apartheid city, split in two components. The first one is a powerful economic power house, located in the centre. The second component is poor and under-developed peripheral townships, where a deprived workforce dwells. These townships have little job opportunities and even less amenities. (TSDS:02)

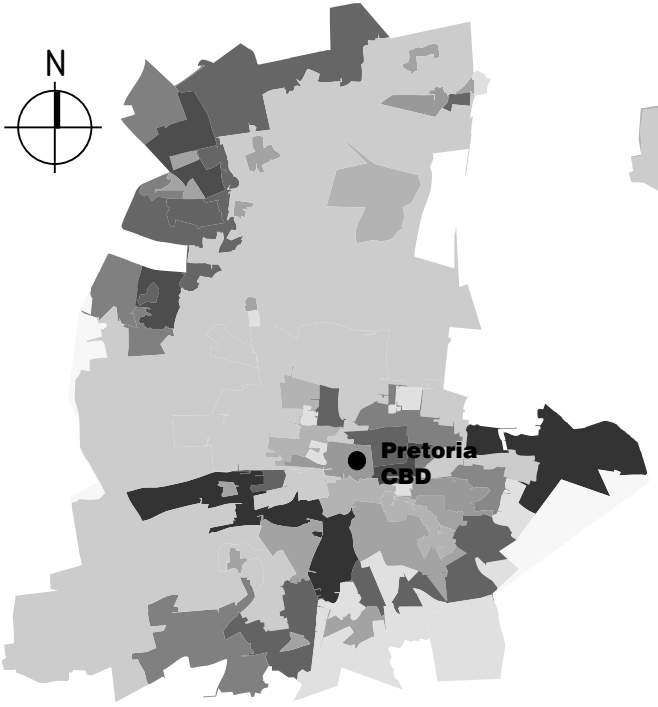
Everyday workers are required to commute into the cities, some even wasting three hours on traveling to work. The unemployed, living in these dissociated townships, are evidently removed from any economic opportunities and are unlikely to find any jobs or even to succeed in casual trading (TSDS:18).

The *Tshwane Spatial Development Strategy: 2010 and Beyond* (TSDS), has identified these economic inequalities. The TSDS states that Tshwane's developments should focus more on the immediate areas around Pretoria, rather than scattered investment following the current socio-political trend.

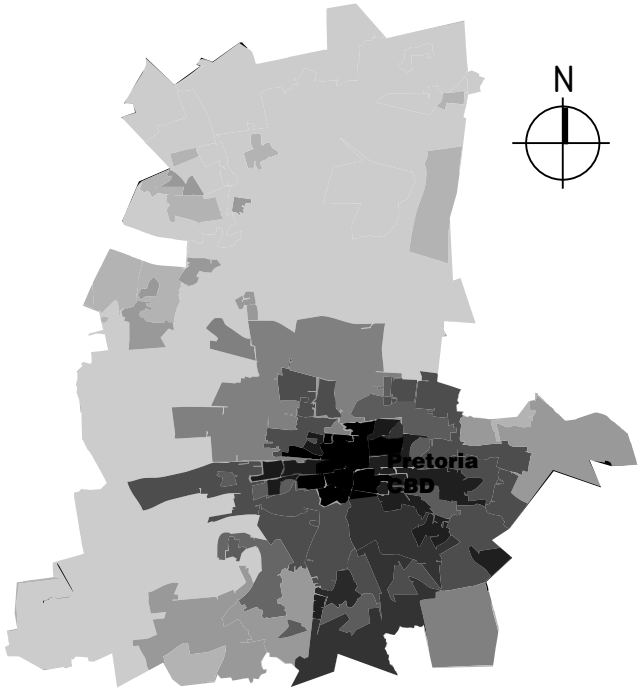
The TSDS argues that splitting investment equally to all the previously disadvantaged sectors will result in only a partial development of these areas. Such approach would hinder economic sustainability and would eventually cost Tshwane more in transportation and unemployment subsidies.

The TSDS strategy aims to restructure the current demographic displacement, (*Vide* figure 0_07) and promote a hypothetical scenario as graphically shown in figure 0_06, assuming no racial separation was imposed.

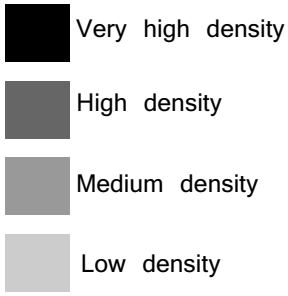
In this scenario, high density residential developments would be intensified within a 10km radius of Pretoria, infrastructure can then be concentrated and travelling distances reduced. The result would be a more sustainable city.



0_07 Current population densities in Tshwane



1_06 Hypothetical population densities of Tshwane if racial segregation had not occurred.



0.4 Dissertation aims and objectives

The aim of this dissertation is to promote public transportation by creating an effective terminal facility accessible to all commuters and creating an identifiable landmark within the city. The facility must have adequate services to support users, such as taxi operators, commuters, tenants, traders and the general city dwellers.

Construction of the terminal will be funded by government's budget allocated to upgrading of public transport. The facility will subsequently generate an income through rent from shops, kiosks, hotels and other commercial activities, allowing the terminal financial sustainability. It must promote safety and convenience to the commuter thereby improving comfort.

The terminal must offer a public transport infrastructure that will be more advantageous than private transportation, eventually encourage medium and high income population sectors to start using public transportation. Sustained flow of passengers will increase economic opportunity to traders.

The methodology for the research of this dissertation will be based on the grounded theory. Factual information will be gathered from similar projects that have been built in recent years and are located around the country.

These terminals have allowed South African culture to adapt itself to these types of interventions. Through a qualitative analysis, This dissertation will reveal findings, concepts and hypotheses, that will form a base for the philosophy and finally the design of an integrated commuter centre.

Project: Taxi terminal
Client: Government
User: Taxi operators
Commuters
Traders

0_09 Informal traders at work

"Picture this: by 2014, South Africa's crime rate will plummet, affirmative action won't exist, townships will become suburbs, and more than 50% of the adult population will own a business". (Guy Lundy: January 2007)

This is the scenario painted by futurists and the country's planners on what South Africa will look like in seven years when voters go to the polls for its fifth democratic general elections.

(Futurists paint a picture of health by 2014, Sunday Times, 28 January 2007)

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Tshwane City Central

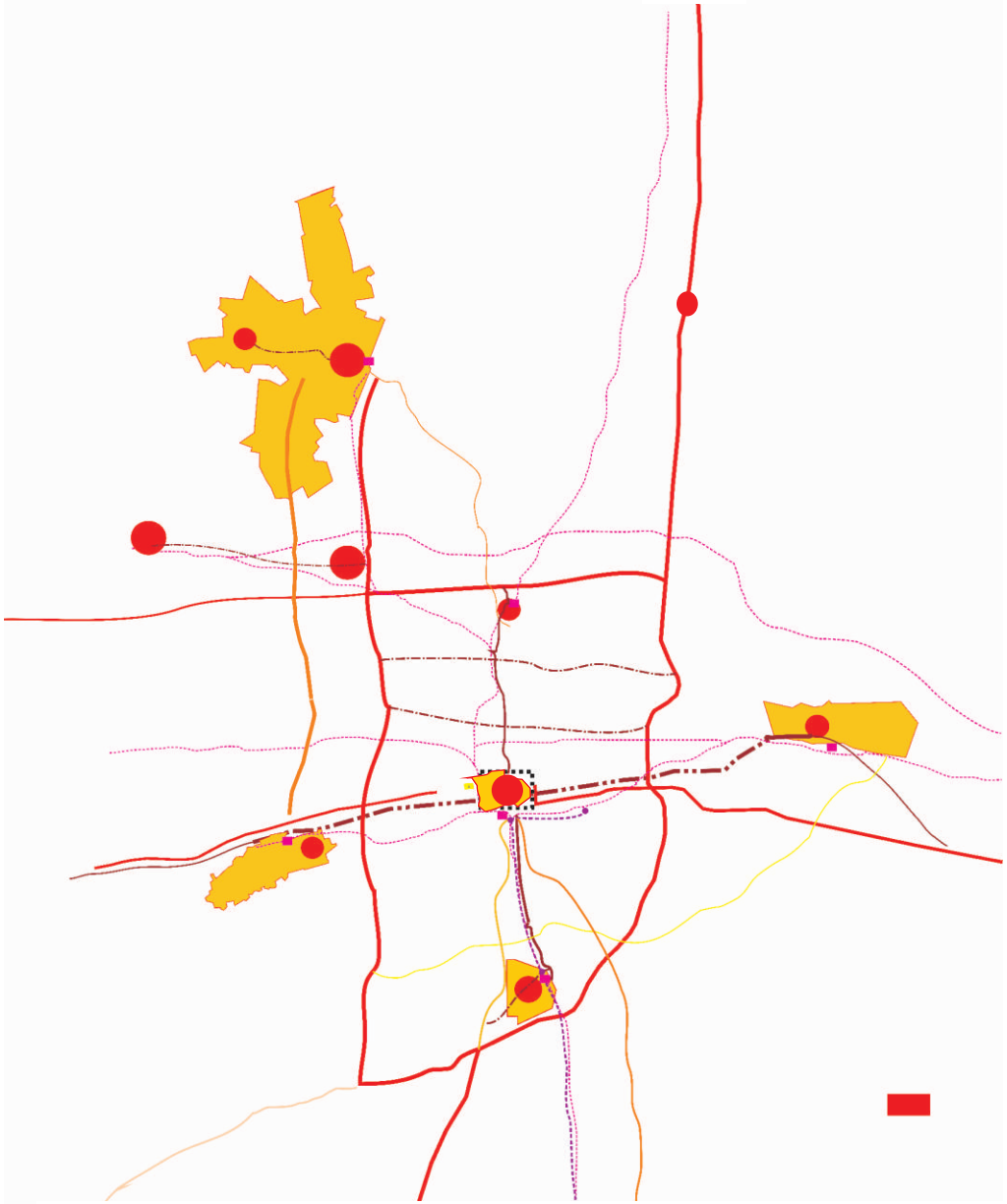
Taxi transfer terminal and market, applying architecture to socio-ecomonic development.

By Jan Ladislav Peska

Submitted in fulfillment of part of the requirements for the Degree of Magister in Architecture (professional) in the faculty of Engineering, Built Environment and Information Technology.

University of Pretoria,
Department of Architecture.

Mentor: Nicholas John Clarke



0_01 Highlighted road system of Tshwane.

Preface

South Africa's growing economy is contributing to an increase in individual wealth allowing for private vehicle ownership, which has resulted in escalating demands for the construction of additional roads. However, a shortage of area and funding is forcing government to increase it's attempts at upgrading public transportation facilities. Thus public transport is strongly viewed as a viable alternative.

Approximately a sixth of public transportation is reliant on the mini-bus taxi industry, therefore formalisation of this mode of transportation is necessary. This can primarily be achieved, through the construction of new facilities, such as junction terminals and other interfaces between commuters and taxis. This will improve customer convenience and enhance the reputation of the industry.

An increased number of commuters will require added conveniences such as retail and food stalls. The newly given opportunity will allow informal traders to capitalise on this escalation. (*Vide* Annexure A).

0_02 The trader.

0.2 Contents

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0.0 Introduction

1.0 Contextual analysis

2.0 Case studies and precedents

3.0 Design development

4.0 Design presentation

List of Tables

Definitions

Tshwane: Greater municipality of Tshwane
Pretoria: Central business district of Tshwane
Taxi: Mini-bus Taxi including operator
Trader: An informal trader or hawker, operating on the street selling goods to pedestrians, for an income.

1.0 Contextual analysis

1.1 Tshwane

Tshwane is located in Gauteng province and includes Pretoria which is the governmental capital of the country. It is essential to create Tshwane as "the African capital city of excellence"
(Tshwane inner city development and regeneration strategy2005:5) (TICP).
The city is seen by many as being a gateway into South Africa and into Africa.

The economic core of the province is shaped by the availability of freeways. Severe funding restraints for road construction and maintenance would have a negative[1] consequence on the growing economy. Public transport is becoming a viable solution to alleviate some of the growing demands for transportation.

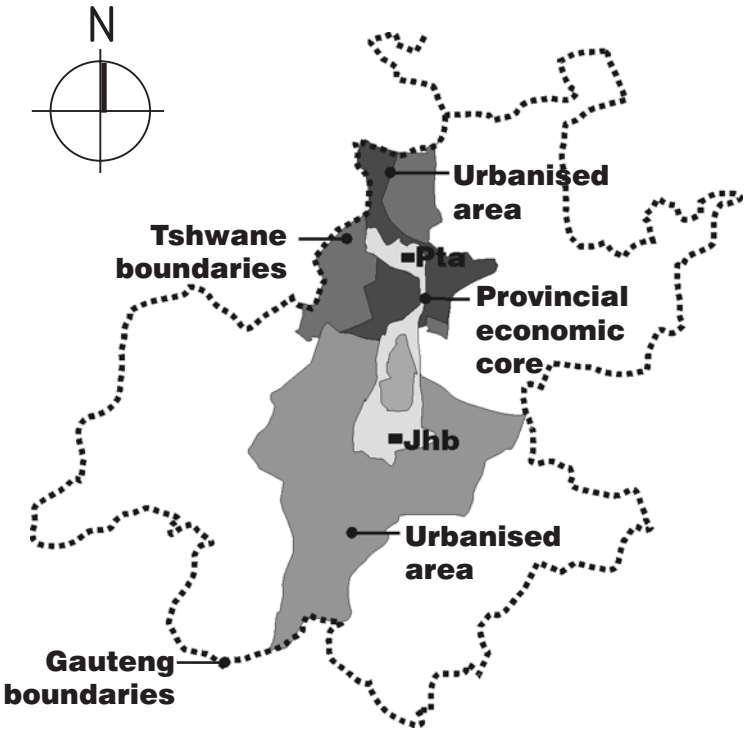
Tshwane is immense and extensively scattered, the municipalities focus is on developing transportation nodes and corridors to strategically connect the city with outlaying locations. This is comparable to what has been implemented in Johannesburg.

Baralink Development Framework (BDF) takes approximately 70% of commuters from Baragwanath, Soweto to Johannesburg's Bree Street Metro mall.
(Digest of South Architecture 2006/2007

The BDF identified two transportation nodes, developed them and by using the existing road system, the BDF strategically linked the distant peripheral township with the city.

Through the analysis of current trends, the Gauteng Transport Study (GTS2000), has indentified how and where from, people are travelling in Tshwane. The GTS2000 has established major transportation nodes for development. Important corridors should be developed on specific routes linking these nodes which are designated roadways and facilities to public transportation.

The Strategic Transportation Plan, or Strategy, has identified transfers as being one of the challenges to public transport. The shortage of integration from different public transport services is causing the system to be ineffective (City of Tshwane, Strategic Public Transport Plan:51).



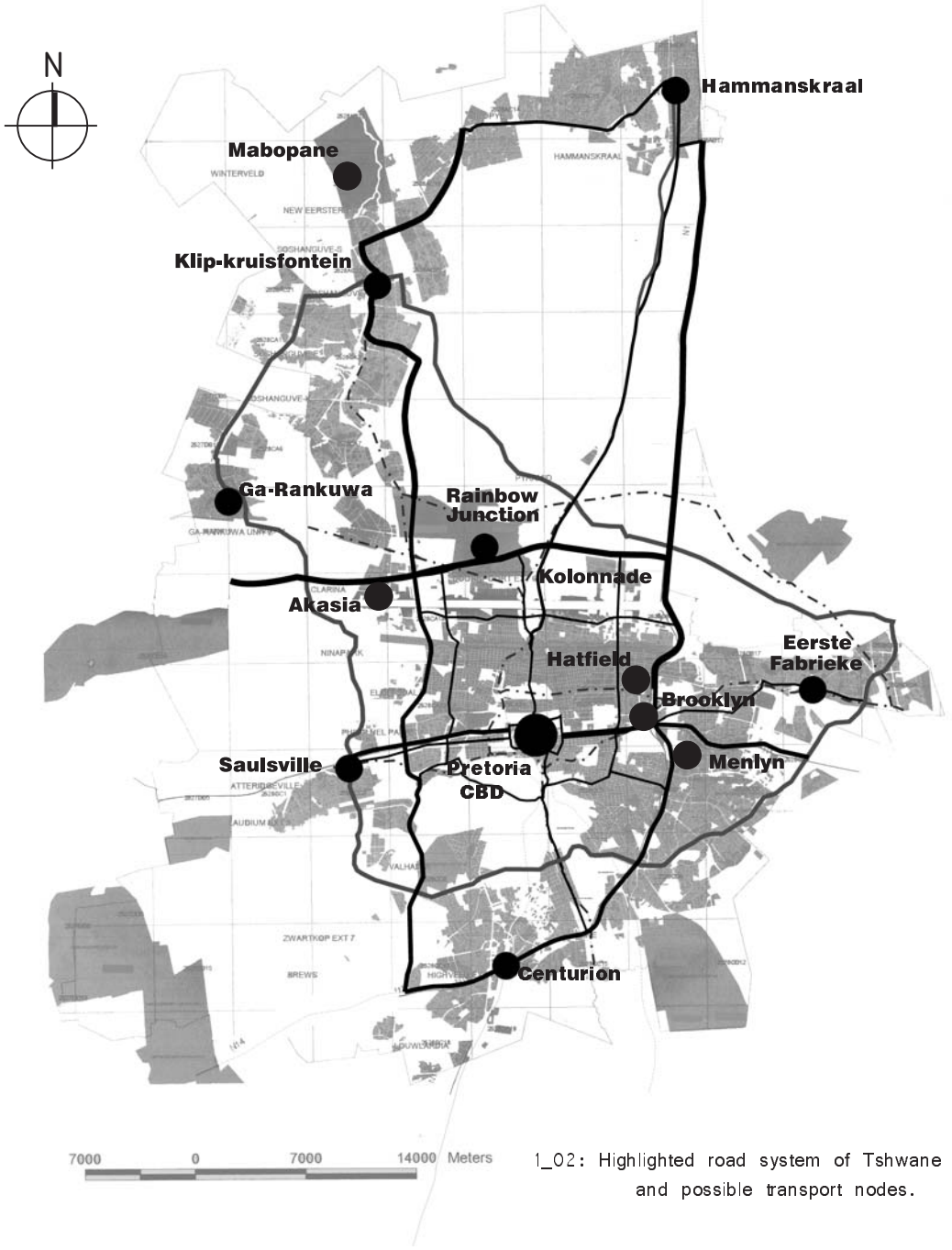
1_01 Gauteng economic corridor

1. Over 80% of provincial roads have passed their design life. Road management system shows that over 100km of roads need to be reconstructed each year and only 22km of this is being replaced.
(City of Tshwane, Strategic Public Transport Plan:35)

Transfers are not seen to be a positive influence on public transport due to the fact that changing from mode to mode involves time and effort. Only if the change is beneficial, either by costing less, greater speed and convenience, then transferring is acceptable to the commuter.

One of the requirements for a successful public transportation network is that it is as complete as possible and reduces the number of transfers. In order to do so the network must achieve maximum coverage. More interaction is required by stakeholders before the public transport network can be initiated.

As the proposal stands now, it will utilise approximately 24% (2000km) of the total 8700km municipal road network. (City of Tshwane, Strategic Public Transport Plan:41)



1_02: Highlighted road system of Tshwane and possible transport nodes.

1.2 Public transport network criteria

The Strategy has proposed the following network criteria, which will serve as the basic design parameters for this dissertation (*Vide* table 1_01).

Summary of table 1_01:

- The terminal will cater for more than 6000 passengers therefore the determined classification is primary or principal arterial.
- Dedicated roads , priority roadway or normal two way roads are required
- It must be in close proximity to either a bus terminal or a train station
- Ablutions must be available
- Drop off zones and public parking is required
- Robust walking surfaces and walking distances not exceeding 1000m in rural areas and not exceeding 500m in urban districts.
- Stops at 800m spacing and ten minute interval between pick ups, during peak hours.
- Terminal to have very low gas emissions or high levels of ventilation.

Properties	Strategic importance	Network function	Primary[1]	secondary	tertiary	local
Volume	Passenger volumes in peak hours	> 6000	●			
		3000 to 6000		●		
		500 to 3000			●	
		<500				●
Infrastructure required	Road Facility	Dedicated Roads	●			
		Priority Roadway	●	●		
		Normal 2-way Road	●	●	●	
		Normal 1-way Road		●	●	●
	Passengers boarding	Bus Terminal/station	●			
		Bus Shelter and bay		●	●	
		Bus Bay			●	
		Bus Stop				●
	Ablution facilities	Available	●	●		
		Not available			●	●
	Collection and distribution	Park and Ride/ Kiss and ride	●	●		
		PT feeder	●	●		
		Paved walkways	●	●	●	
		No formal sidewalks				●
Level of service required by passengers	Max. Walking Distance	1 500m	●			
		1 000m		●	●	
		500m				●
	Typical spacing of stops	800m	●			
		600m		●		
		450m		●	●	
		300m				●
	Frequency of service: Peak Period	Every 10 minutes	●			
		Every 20 minutes		●		
		Every 30 minutes			●	
		Every 60 minutes				●
Emissions	Emission Gasses	Very low	●			
		Low		●	●	
		Average			●	●

Table 1_01 Criteria for transportation network

1. Primary-Principal arterial
   Secondary-Local Arterial
   Tertiary-Collector roads
   Local-Access Streets

1.3 Pretoria

Pretoria is the centre of activity for Tshwane. It, as many other cities around South Africa, has had its users changed from medium-high income groups to lower income groups. This has resulted in little to no capital being invested back into the city. Recently large government commissions have been authorised, they include the construction of a new National library, the refurbishment of the Civitas building and the proposed construction of a new Department of Education headquarters.

Pretoria has been based on grid-like planning that has been designed principally on vehicular movement. This grid runs north to south and east to west. Generally roads are one way with 3 or more lanes.

Access into Pretoria is mainly through freeways that connect to a ring road surrounding the core of the CBD.[1] The ring road consists of Boom and Bloed street in the north, D.F. Malan Drive in the west, Skinner Street in the south and Nelson Mandela Drive in the East (*vide* Figure 1_03). This ring road can be considered to be an edge due to the high-speed volumes of traffic using it.

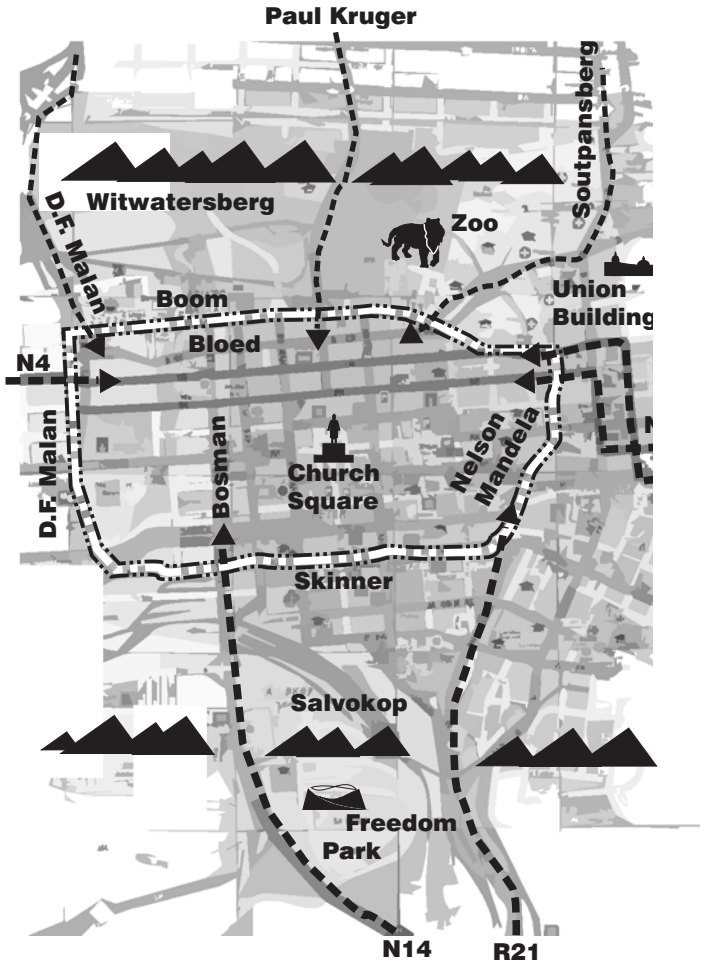
Both public and private Commuters travelling into the city, (*vide* Table 1_02), expect to park or be dropped off close to their final destination.

Private cars will choose to wait for parking, right in front of their destination, causing higher congestion in Pretoria's streets. However public transport commuters do not have that choice, they get dropped off where the bus or taxi stops . Therefore major public transportation nodes remain on the peripheral of the inner city. These nodes act as distribution and collection systems for the rest of Tshwane, serving the public commuter's requirements.

The CBD is located in a valley between the Witwatersberg and Salvokop mountain ranges, running east to west. This causes a major pollution problem in winter months by stopping the seasonal prevailing winds from the south.

Mode	%	People
Minibus Taxi	15,1	30 200
Bus	9,5	19 000
Train	6,5	13 000
Car	33,0	66 000
Walk	33,0	66 000
Other (Bicycle,motorbike,)	2,8	5 600

Table 1_02 Number of people in morning peak traffic



1_03 Inner city movement network

1. Access into Tswane:
South-Two freeways: N1 from Johannesburg; R21 from O.R. Thambo International Airport.
East-N4 freeway from Witbank.
West-N4 freeway from Brits.
Northern-Three provincial routes: north west through D.F. Malan Drive; centrally through Paul Kruger Street; Soutpansberg Road to the north east.

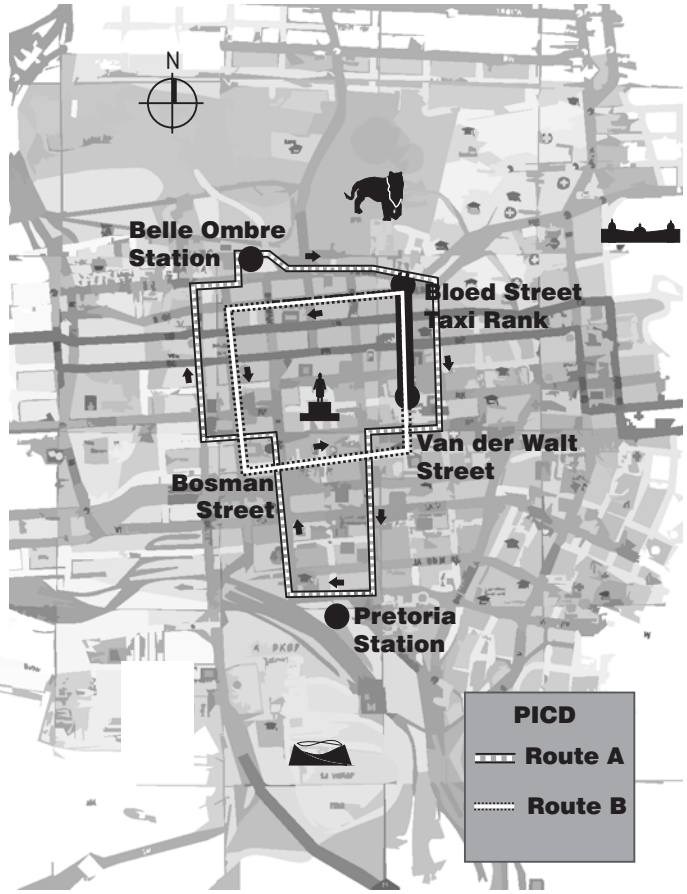
1.4 Proposed Inner City Bus Distribution System (PICD)

In 1996 an investigation revealed that several commuters have to walk more than two kilometres to get to their destination within the city. A few said that they were prepared to pay for a better distribution service. A proposal for a bus distribution system was therefore introduced by the Pretoria Municipality.

The investigation identified three main public transportation nodes: Pretoria railway station, Belle Ombre railway station and Bloed Street Taxi Ranks. The Proposed Inner City Bus Distribution System (PICD) will have two routes, connecting all three of these nodes and delivering commuters closer to their destination within the city.

The distribution system is planned to run every 5 minutes during peak periods of 05:30-08:30 and 15:30-18:30, and reduce to 15 minute intervals in off peak periods. The PICD admitted that there may not be a revenue from this service, as it does not bring a real benefit and is more of a luxury for low income commuters, say they would rather walk then pay for it (vide Annexure A).

The PICD could use part of the proposed site and accomplish one of the public transport network needs which is to connect to a bus terminal.



1_04 Main nodes of transport and commuter movement network.

	Route A	Route B	Total
Route length (km)	7,2	4,0	11,2
No buses required (pk)	6	4	10
Bus costs (cap - annual)	R 2 250 000	R 1 500 000	R 3 750 000
Bus costs (fuel, tyres, maint.)	R 1 350 000	R 1 000 000	R 2 350 000
Total bus costs (per annum)	R 3 600 000	R 2 500 000	R 6 100 000
Drivers required (2 drivers/bus)	12	8	20
Staff Costs (annual)	R 1 600 000	R 1 000 000	R 2 600 000
Total Cost (bus & staff)	R 5 200 000	R 3 500 000	R 8 700 000

Table 1_03: Overall budget for the PICD.

1.5 Activity Spines

The three main public transportation nodes generate a considerable amount of commuter /pedestrian movement that cause vibrant activity spines that move throughout the city (Site investigation 2007.03.22).

These activity spines are lined with butchers, music shops and take-away restaurants. Traders cram into every available niche of pavement, hardly leaving enough room for the flood of pedestrians who are on their way to and from the different terminals.

The most popular of these spines is Van der Walt Street. It links the commercial CBD to the Bloed street taxi rank. Here, informal trading carries on till the evening hours contradicting belief that the city dies as the sun sets.

This spine gives a heightened sense of place that is located on poorly maintained pavements, with garbage and debris blocking kerb inlets. Pavements are narrow and vehicle traffic flow is heavy making it an unsafe and an unfriendly pedestrian environment (*vide* Figure 1_05).

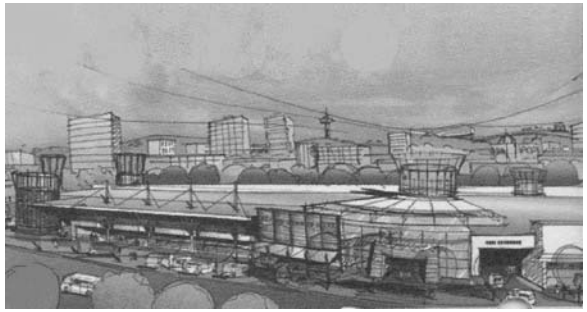
Not all the corridors to the existing terminals are as successful. For example, Belle Ombre station has a retail mall surrounding an old rundown taxi rank. The movement circulates in the mall, commuters leave the station and the activity spine disappears, leaving a deteriorated walkway. Depots and warehouses that form a large parts of the topography around the station are responsible for the inactivity of the spine. The reason for this is that these buildings do not to interact with the public street space.

"People that have grown up in cities and buildings orient themselves to the major features of their structures. Of particular importance are continuous elements rivers, paths, street facades and specific prominent landmarks." (Lang :1987).

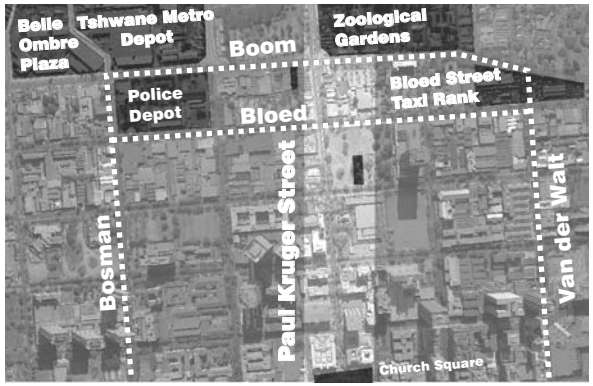
Cognitive Mapping can achieve coherent commuter movement through the city. These activity spines create paths through which people recognise that they are moving towards a terminal.

This dissertation will focus on the inactive sections of the cities fragmented spines, and through an appropriate response to the street, layout will be able to harness its potential and direct commuters to and from their destinations more efficiently.

1_05 Street shot of van der Walt



1_06 Proposed perspective of Bloed Street Mall



1_07 Arial of North CBD

1.6 Pretoria, northern precinct

“ During World War II the zoning of this residential area was changed to accommodate light industrial activities. Several cottages north of the Panagos building were converted to manufacture helmets. Mr Panagos identified this change to be the start of the degeneration of the area.” (Wilson:2007)

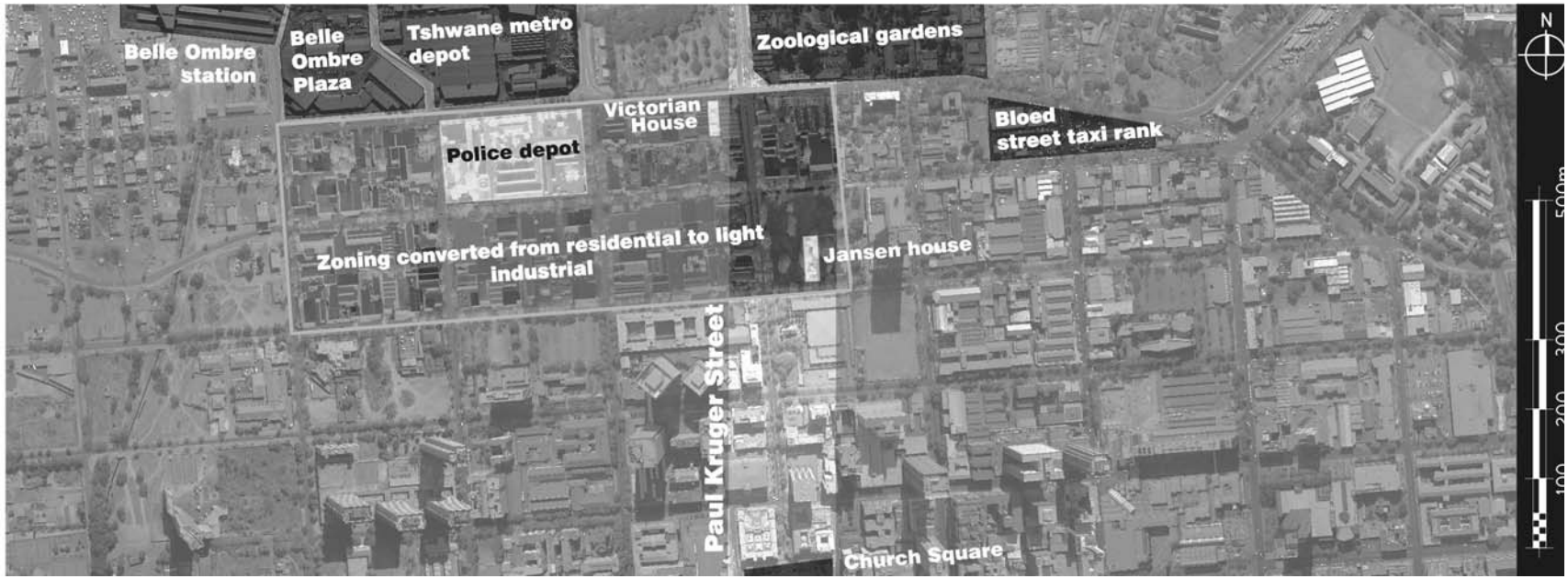
The Northern precinct of Pretoria is a fragmented area, little of the formal residential area remains. The dwellings have been mostly replaced by single storey light industrial buildings.

The area has relatively little activity in comparison to the rest of the city, with the exception of the crowd of commuters going to and from Belle Ombre Station and Bleod Street Taxi Rank.

The precinct is one of the gateways to the city. Paul Kruger Street enters the precinct from the north and carries on through the city till it finds Pretoria Station. This heightens the precinct’s status, as it becomes the first announcement that people are entering the CBD.

The precinct has a ring road that it shares with Pretoria's ring road system. It consists of Vermeulen and Proes in the south; Prinsloo and van der Walt in the East; Bosman and Schubart in the west and Bloed and Boom in the north. The sharing of Bloed and Boom Streets ring road system, allows the precinct to have a high level of accessibility for vehicles.

The image of Pretoria depends on the first impression that this precinct portrays and therefore has to be a priority to initiate an urban renewal.



1_08 Modern day Pretoria, north of Church square

1.7 Proposed urban design frame work

This year, 2007, the M(Prof) Architectural students were assigned an area in Pretoria's northern districts. Members of the class split into groups, depending on their site location they developed a number of urban frameworks, this dissertation being part of two of the urban frameworks: one semi-pedestrianisation of Paul Kruger Street and the other introducing a pedestrian walk called Grand parade, which links Marabastad, in the west with the Bloed Street Taxi Rank in the east.

Paul Kruger Street Framework

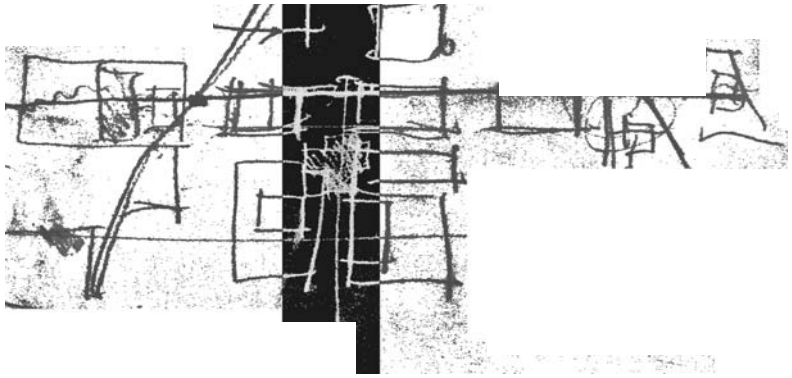
The street currently consists of double lanes running north to south.

Paul Kruger Street is seen to be the Grid initiator of Pretoria, the street is not heavily utilised by vehicles beacuse Church Square diverts traffic around it thus hampering the flow.

The Zoological Gardens and Zoo café are the only attractions to the north of Paul Kruger Street and they do not attract many users during the week. However on the weekends, the area is packed with families visiting the zoo. Many car dealerships and vacant lots line the street on either side, buildings that are left standing are in urgent need of repair. All this add to the perception that the area is unsafe and for that reason, pedestrians do not use the street.

The urban framework is split into two phases: Phase One is to fill the vacant lots with socially beneficial projects that will improve the spatial integration that will create nodes, the nodes linking the area to the city and attract people into the Precinct (Lynch 1960:69).

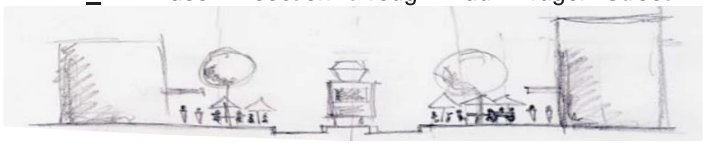
Phase two would involve reducing the street from the 4 lanes to two lanes and a tram line to the centre. the wider pavements will offer tenants and traders the space to cater for the potential increase in number of pedestrians.



1_09 Conceptual sketch for Paul Kruger Street Urban Design Framework

1_10 Current section through Paul Kruger Street.

1_11 Phase 1 section through Paul Kruger Street.



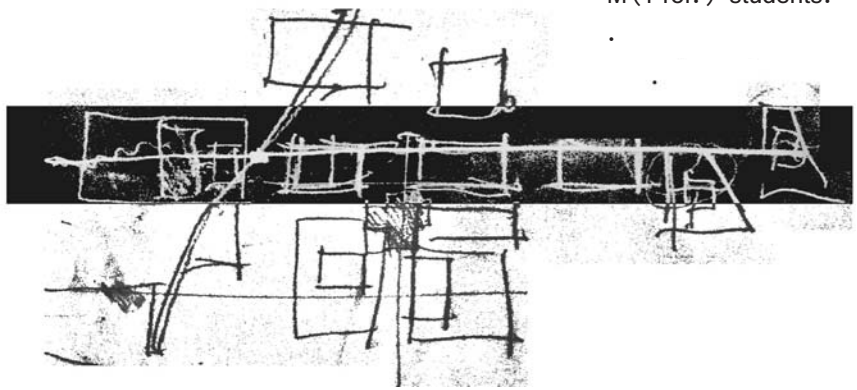
1_12 Phase 2 section through Paul Kruger Street.

Grand Parade Framework

The northern district of Pretoria seems to have a lack of continuity from east to west. There is already a in contrast to axis going north to south that was made along Paul Kruger Street. The streets in the area play an important role in the vehicular movement around the city. Thus the streets cannot afford to become smaller by accommodating a large pavement as would be required for pedestrian movement.

This proposal introduces a pedestrian walk that flows through the centre of the blocks, between Boom Street and Bloed street, beginning in the west in Marabastad and ending by the new Bloed street taxi mall in the east.

The proposal intends to promote urban renewal which will begin from its core leading out, pedestrian moving to create another activity spine, similar to the Church [1] Street mall.



1_13 Conceptual sketch for Grand Parade Urban Design Framework

The proposal is split in two phases:

Phase one: Municipality would begin to purchase properties or negotiate with landowners, convincing them that it will be financially rewarding to them to offer social benefit such as opening the rear of their sites for pedestrians. After all is agreed or acquired, register a right-of-way servitude throughout all the blocks. Dilapidated buildings will have to be demolished and vacant lots will turn into a 10 metre wide paved walkway, fitted with furniture and landscaped throughout.

Phase two : Low to medium density residential buildings, built by the government's housing initiatives, will replace some dilapidated buildings and vacant lots. The private sector will then invest in shops, cafes and hotels along the walk linking various specialised buildings designed by the M(Prof.) students.

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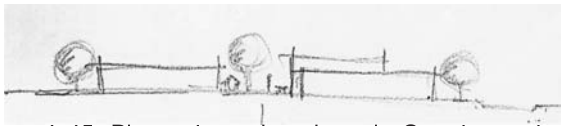
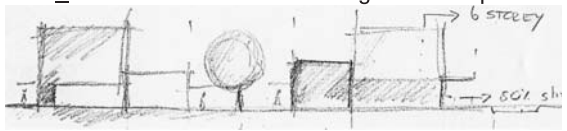
Guidelines and criterias for the development of Grand parade discussed and agreed upon, summerised as follows:

- Unified street furniture, paving design and landscaping is to be used through out the parade. Colour code different blocks to help with orientation.
- No boundary walls are to be built encouraging facades interaction with the street.
- Each building is to contribute positively to urban public open spaces and define a strong edge. Maximum of five storeys, mixed use, buildings with retail at the street level with office on the first floor and residential or office above that, buildings are to have Vernacular architectural language.

1_14 Current section through Grand parade.



1_15 Phase 1 section through Grand parade.



1_16 Phase 2 section through Grand parade.

1.Church street mall was an existing vehicular road, in the centre of town that was pedestrianised and has formed a hub of commericial activity.

1.8 The Site

The proposed site is diagonally opposite Boom Street from the Belle Ombre Plaza, which is a shopping centre that links Belle Ombre Railway Station to Schubart Street. This site was chosen due to its connectivity with the ring road system of the precinct as well as Pretoria's ring road system. The site is located within 1000m walking distance from the railway station and is found to be on the main pedestrian movement patterns of the city (Site observations 22 March 2007).

The majority of the site is currently a Municipal police depot which consists of open parking, used for storage of broken vehicles. The rest of the site is used for retail shops. (*Vide* Figure 1_18)

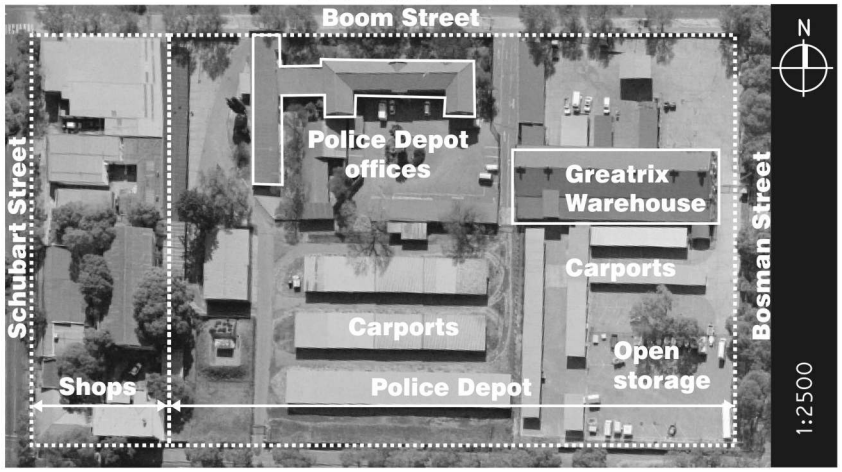
The Police depot does not interact with the streets, causing large vacant sections of pavements devoid of any retail component and therefore few pedestrians use it. The depot prevents any chances of an activity spine forming, surrounded by a repulsive six foot wall with barbed wire fixed to the top.
There is little to no traders found on the three street edges of the depot. This could also be the attributed to the harassment that police officers plague traders with.
(vide Annexure C)

For this reason no traders are to be found along Boom Street due to the entrances to the depot. However, activity does occur on the opposite side of Bloed Street where shop keepers and traders line the streets, with commuter battling through.

Few buildings are sound, however the two main building of the police depot were visually identified as having heritage value. The Black Migrant Registrations Office, currently being used as the Police depots offices and the Greatrex Warehouse, which is still used as a storage warehouse, are both in a good condition.

The retail shops are accompanied by informal traders that line the street edge of the pavement. Both the shops and the traders are dependant on the movement of commuters, to and from Belle Ombre Station. This section of activity is in a poor state, the pavement is a simple, two metre wide strip of uneven concrete flanked by bare red earth. Litter is piled near the streets and there are no amenities available.

1_17 Site locality plan



1_18 Site aerial photograph

1.9 Site movement

The road system around the site consists of Boom Street, eastbound, on the north boundary; Bloed Street, westbound, on the south boundary; Schubart Street, south bound, on the west; and Bosman north bound, on the east (vide figure 1_19).

The site is located on the corner of the precinct's ring road and is in-between the northern section of the Pretoria ring road, consisting of Boom and Bloed Street. The traffic flow is heavy on these two roads and pedestrians are at risk when crossing them.

Pedestrian movement is generated by Belle Ombre Railway Station, it moves down Schubart in high volumes, heading towards Vermeulen or Church Streets in the south. At the corner of Schubart and Bloed, some pedestrians turn onto Bloed Street and head east, towards Bosman Street, others carry on south. The movement splits again at the corner of Bosman and Bloed, half move towards the south and half carry on toward Bloed Street taxirank in the east.

Low amount of pedestrian movement is to be found along Boom Street and almost none on Bosman Street, north of Bloed Street. The only street furniture available are street lights and dustbins. The pavements are in a poor condition.

1_19 Pedestrian movement.

1.10 Visual context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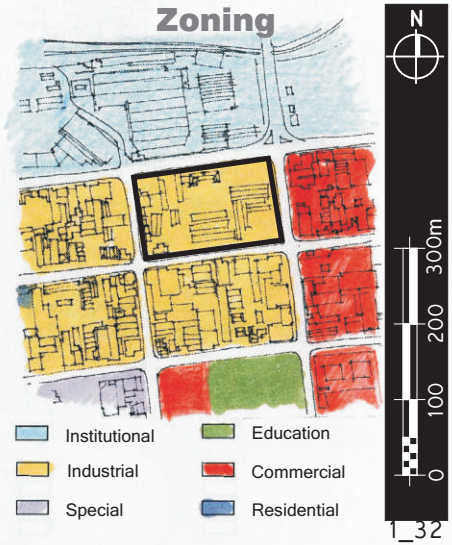
1.11 Visual contextual analysis

Zoning



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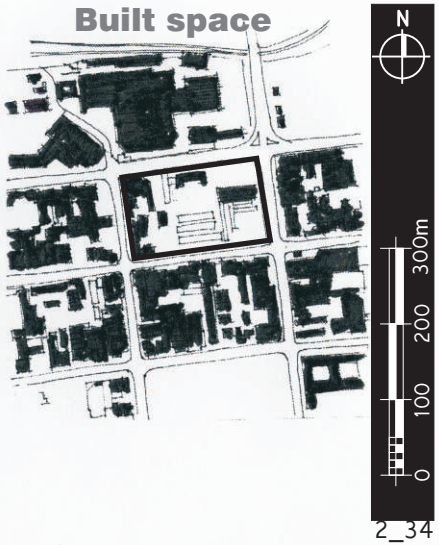
Built space



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Building heights

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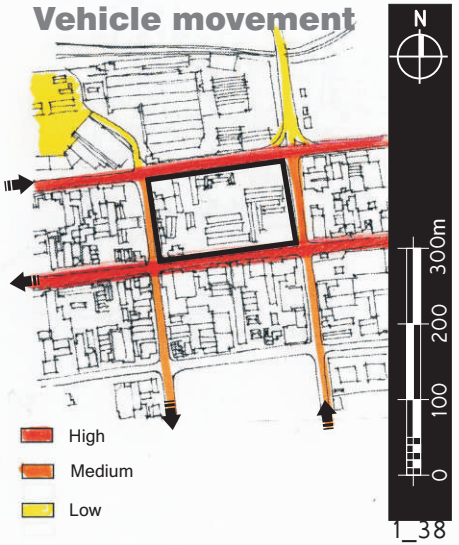
Vehicle movement



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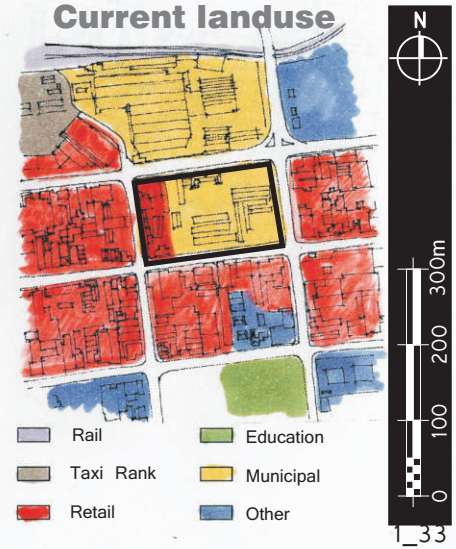
Current landuse



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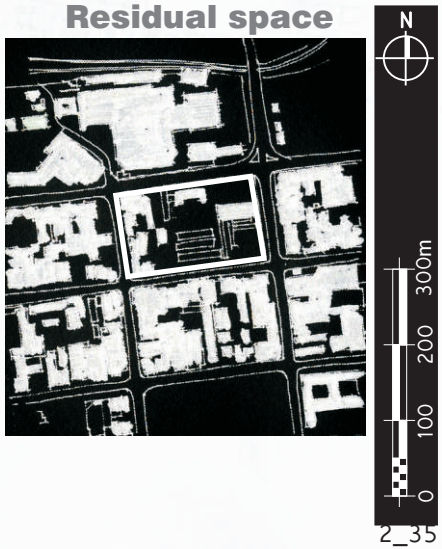
Residual space



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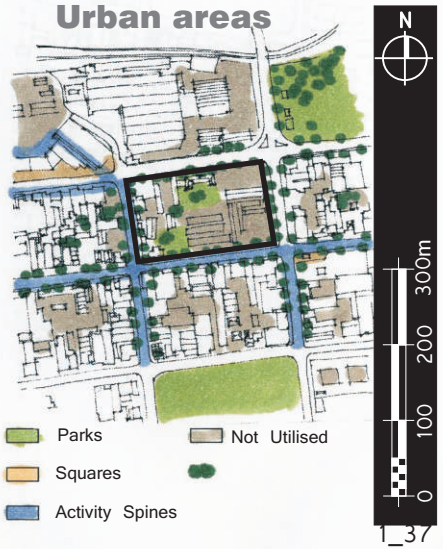
Urban areas



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Pedestrian movement

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1.12 Site climate

The sites climatic conditions are considered in the design in order to achieve environmental comfort for the users.

Climate analysis has also been used to identify potential energy saving techniques such as natural ventilation, solar water heaters or water harvesting.

Temperature

Lowest min.: -5,5 °C ; Average 12,1 °C
Highest max.: 36,3 °C ; Average 24,8 °C

Humidity

Minimum: 57% @ 08h00 – 29% @ 14h00 [September]
Maximum: 75% @ 08h00 – 48% @ 14h00 [March]

Rainfall

An average of 674mm rainfall per year, most of the rainfall during the summer.
(*vide* Table 1_04)
Severe hailstorms have occurred.

Potential water harvesting per square metre:
80% of rainfall equals approximately 520mm can be utilised per annum.
(Crawley:2005:33)

Sun

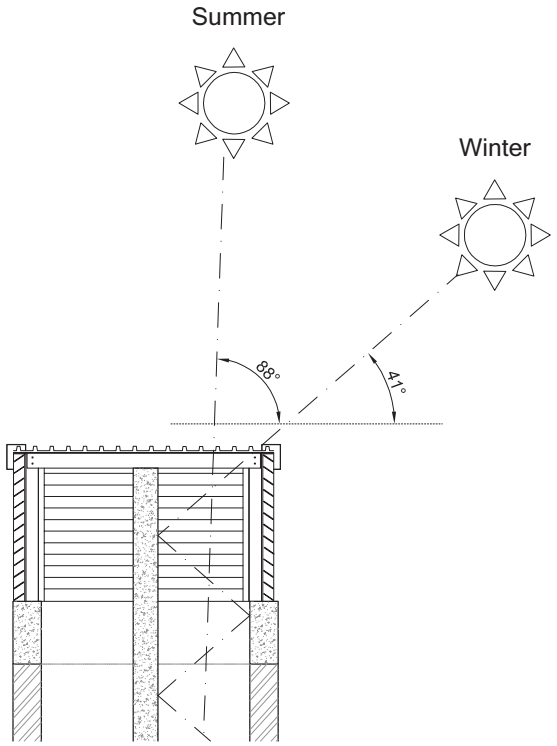
Average 89 giga Watt solar radiation/year
Summer sun angle: 88 ° North latitude.
Winter sun angle: 44 ° North latitude.

Cloud cover

Average 33% of 365 days
Varying from 13% in July to 54% in December

Wind

Prevailing winds are calm, blowing from a East direction, Occasional winter cold snaps bring winds from the south.
Turbulent wind patterns accompany summer thunderstorms. (Meyer Pienaar Tayob 1999: 49; Schulze 1986)



1_40 Sun angles effect on skylight.

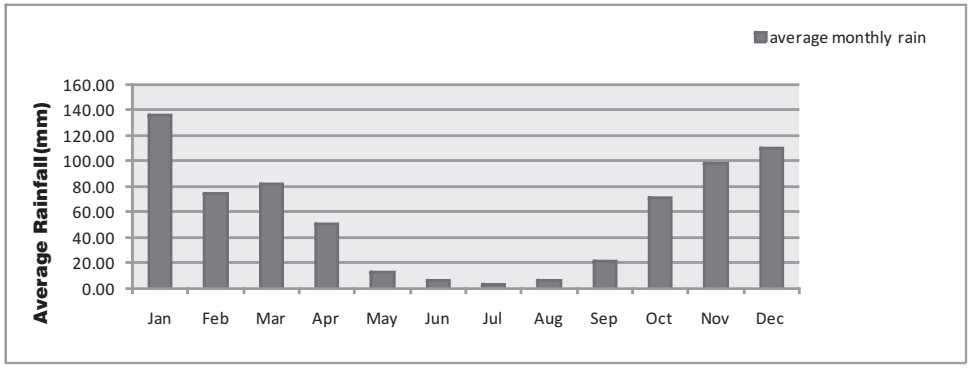


Table 1_04 Average annual rainfall

2.0 Case studies and Precedents

The taxi industry's involvement in South African public transport is as important as any other mode of transportation. It is a private enterprise that has taken over from government's lack of development of this crucial infrastructure. The industry will always exist as long as there is a demand. Government has taken notice of this viable alternative to their current expensive and inefficient systems of buses and trains, as stated before in 0.1.
In Tswane alone government subsidises 30% public transportation. Therefore if government would invest in the industry by building financially sustainable terminals it could curb costs of running other less efficient modes of transport.

The study of current buildings in South Africa is the most suitable way to understand and make informed decisions, regarding the generative design of this new 'building type' and the cultural response to them.

Three buildings were studied, they include: Bree Street Metro Mall in Johannesburg. Baragwanath Public Transport Interchange and Traders Market in Soweto, Gauteng, and Joe Gqabi Transport Terminus in Philippi, Cape Town.

The study was conducted observing the following criteria:

- Interface of user with the mode.
- Circulation and coherency of the user including commuters, taxis and traders. Their input on urban renewal of deteriorated areas.
- Facilities are provided and the frequency at which they are used.
- Safety and security, including storage and day-night functionality.
- Social advantages of free urban spaces and social activities.
- Robustness of materials, durability of installations.

2_01 Bree Street Metro mall

2_03 Joe Gqabi Transport Terminus

2_02 Bara Mall and Market

3.1 Bree Street Metro Mall, Johannesburg

The Bree Street Metro Mall (Bree street) was built on one of the busiest streets in Johannesburg. It was built as a catalyst project of an urban design renewal programme. The two main driving design criteria was the accommodation of over 2000 taxis and the formalisation of some 800 street traders. The building also accommodates 25 buses that serve 35 routes with an estimated 150,000 commuters using the facility daily. (Deckler, Graupner, Rasmuss 2006:61-63)

There are two separate buildings, east and west Bree Street, each approach the interface between commuters and taxis differently.

East Bree Street is the smaller one of the two, it works on a battery system where there is a single row of embarking platforms. this system is simple and allows for a rapid interface between the taxi and commuter.

West Bree Street has a multiple battery system over a wide open floor that is also used as stacking area for awaiting taxis. It is confusing at first, and commuters cut across the stacking areas to get to their destinations. This exposes commuters to speeding taxis and fatal accidents may occur.

In both buildings pedestrian movements utilise the pavement that is lined with stalls and shops, creating an interactive edge with street. Informal traders are accommodated by an pedestrian plaza that also form accesses into the taxi ranks. This guarantees that foot traffic, which could be potential customers, is continuously passing by.

The buildings have enlarged entrance that act as baskets, collecting people (Deckler, et al 2006:63). This sensationalism of the entrance helps communicate the building's functions, for example entrance is here.

The facilities provided by the malls are extremely scarce elsewhere in the urban area. Public toilets are non existent and even simple drinking fountains are insufficient.

New facilities include food courts that are away from the busy streets, provide a quiet, shaded area where anybody can go and rest. Open squares are provided but seem to be not as popular, this could be due to the squares having no functions associated with them.

Traders have a variety of retail area to choose from, a floor stalls with concrete counter being the most basic. Larger cubicles with lockable roller shutter are the intermediate, and fully serviced shops accommodating fast food outlets and hairdressing salons as the most advanced option. Present storage facilities for the smaller stalls are necessary but highly inconvenient.

Traders have to pack up their goods onto trolleys, take the trolleys to a queue that is for the only lift which will take their goods into a narrow storage area that resembles a string of jail cells with two by two metre barred cages. Since there is no surveillance during the night some items could be stolen. Sometimes the lift does not function and traders are forced to take their goods through to their stalls or back to their cages using stairs.

The storage cages are also used in place of communal kitchens as well as poor storage environment. All the other available spaces, in the mall are used to make money not food. Traders are forced to make their meals in these inhospitable cages.

Materials used are robust and good quality.
Face bricks and off-shutter concrete are used for the walls, they require little to no maintenance but as in any city, posters and graffiti plague their vertical faces.
Walkways are paved but are not easily cleaned, and if not well compacted, will cause sagging. Steel is used extensively and in the cages, doors and staircases, the steel is able to withstand the heavy usage.

The mall safety depends on the community that use it. Passive surveillance accounts for most of the security (Kruger, Landman, Liedermann (*S.a.*):33). Security personel are available, but don't become involved unless, a situation call for them.

Eventually at around 6o'clock in the evening, when commuters stop coming, traders pack up and shops close. The mall closes its massive timber doors until the next day when activity returns at around 5 o'clock in the morning.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2.2 Baragwanath Transport Interchange & Traders Market. (Bara Mall)

Baralink development framework to link the busiest transportation nodes in South Africa is between one of them being the Baragwanath Transport Interchange & Traders Market (Bara Mall), the other Bree Street Mall.

Bara Mall is located on a site 1,3 kilometres long and 50 metres wide. The project was divided into three phases (*vide* figure 2_14). At the completion of this project, at the end of 2007, the site will be able to cater for 70 percent of Soweto's commuters, travelling to Johannesburg. It will accommodate 500 street traders with associated amenities such as storage facilities, management offices and support infrastructure.

The 22 Bus Bays as well as 650 taxi holding areas will differentiate the functions along the 1,3 kilometre spine. Focal towers are at the entrances notifying and orientating users to where they are going (Digest of South Architecture 2006/2007(11):044-047).

Unlike the Bree Street, the Bara Mall is a single storey building with a few double storey volumes, and even fewer double storeys. There is little use of the first floor except for some offices used by the building management.

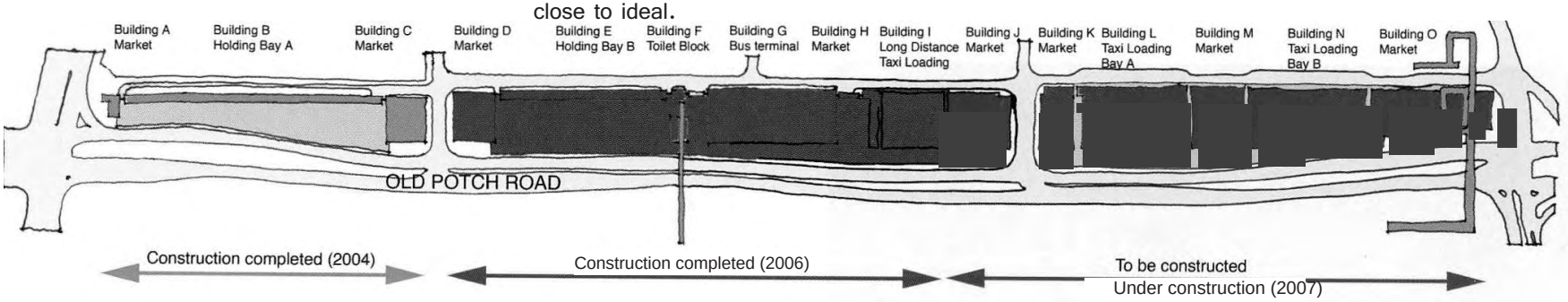
The building is a simple spine like concept with an arcade running the full length of the north side, which in winter will provide welcome sun the commuters. The double volume arcade connects with all six terminals with brakes in-between. Brakes are so called market squares, which invite commuters to a restful space. These spaces are filled with self storing stalls, benches and ablutions. Built area of the arcade is brought down by the introduction of a first floor.

Commuters do not ever have to stray off the arcade because all the terminals are right up against it. The interface is less hectic due to the arcade being on the one side and the terminals being on the other, and therefore close to ideal.

The concrete colonnade is lined with elements that are seats. The seats can be utilised as trading stalls, which offers the concrete features a dual function.

The materials are similar to Bree Street though the flat concrete roof construction has proved to be a waterproofing nightmare (*Vide* Figure 2_27).
Concrete slabs with pavers acting as patterning material are used in the flooring, mosaic tiles are elements bringing a more vibrant atmosphere to the area. Other art work dot the facility, instead of signs. However, people seem not to know their meaning.

Security installations are relatively low and blends into the forms (*Vide* 2_25), this is due more to the concentration of the facilities. Each market square or 'brake' can be sealed off independently, providing less area to protected and patrol.



2_14. Bara Mall phasing plan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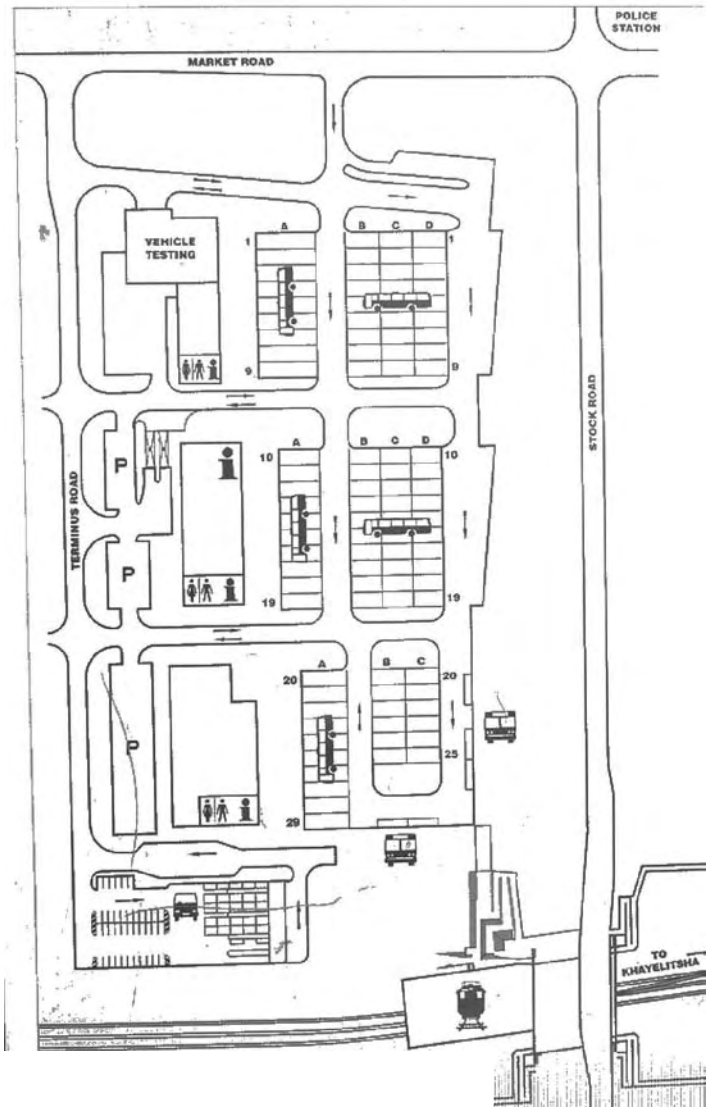
2.3 Joe Gqabi Transport Terminus, Phillppi Cape Town.



2_30 Joe Gqabi terminus key plan

Formally known as the Stock Road Transport Terminus, Joe Gqabi Terminus is primarily a long distance bus terminal with other secondary modes connected to it. The terminus is part of the city of Cape Town's Metropolitan Spatial Development Framework. A site of 40 hectares was developed to join with the new Stock Road Railway station.

The architect's concept was a public spatial framework meaning that buildings, wall and colonnades channelled pedestrians in an open space linking the modes of transportation.(Architecture South Africa, September/ October 2003:26-30)

The site remains mostly empty for most of the year. This is due to its focus on the long distance buses which are only used extensively for two seasons, Christmas and Easter. At those times there is hardly enough room to move, and commuters sleep out in the open.

Other functions do help to keep the facility alive by allowing more local users, these include metro buses, a taxi rank and the railway station, the rail link being the most advantageous.

However the taxi rank has been completely saturated by police, as the satellite police office in the terminus grew into an established station. The taxi rank is simply a carport which offers no social benefits.

Materials are similar to those found in Gauteng. High canopies don't offer any protection from wind driven rain. Expensive high tech car washers and bus washers sit on the west of the building, always broken or being used to wash the terminus' staff's cars.

The buildings architecture allows for shipping containers to be added to the main colonnade when necessary. This has not happened as planned, the containers are placed behind their intended position and have formed a new axis to an low cost housing development to the west.

Generally, the architecture has achieved the intended function, but at unnecessarily high cost.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2.4 Precedents

Nyanga Junction.

Nyanga junction is a pedestrian mall built on a stretch of land that is only 25m wide and stands between a railway and an arterial road. The goal of this building was to bring business opportunities to previously disadvantaged communities by exposing them to an emerging market, such as the ever growing commuter traffic.

The building boasts a high ratio of traders to tenant mix and allows for a competitive framework for retailing.

Neutral finishes and colours shift focus onto shopfronts and trader kiosks which provoke the diverse and sensual appeal, of a typical African market, dominating the entire visual arena (SA Architect (98/Apr):45-50).

2_47 Nyanga junction

Bridge Cinema and Hamilton Square Garage.

The cinema and parking garage is an urban renewal project by Pennsylvania University, converting a dangerous border of the campus to become a gateway. The development took an open parking lot and made it into a parking garage, then built a cinema complex on the site of an old Burger king take-away.

This project proves that an organisation such as a university can become an entrepreneur and at the same time an urban redeveloper, by investing into facilities that can be used by city dwellers and by the academic community.

The right formula of facilities or service will provide a sustainable development by being profitable. in the case of a public transport terminal, a hotel could prove just as successful (Architectural Record (191/8): 95-101).

2_48 The bridge

Millennium Park

Located in the centre of Chicago, this $450 million project was originally required to simply upgrade an unsightly railway ground and some car lots. The park offers both day and night functions with open concert halls and well lit walks.
On the south east corner is the popular Crown fountain by artist Jaume Plensa. It consists of two LED lit towers on either end of a shallow reflective pool with animated images of local citizens.

These towers add a new perspective to attracting and entertaining visitors. The large displays could screen games of the world cup for viewers that cannot afford to attend the games. In between games, the screens could broadcast news or public messages informing the people about the world around them
(Breazley M. 2006: 96-101).

2_49 Crown fountain

Topographical Movement.

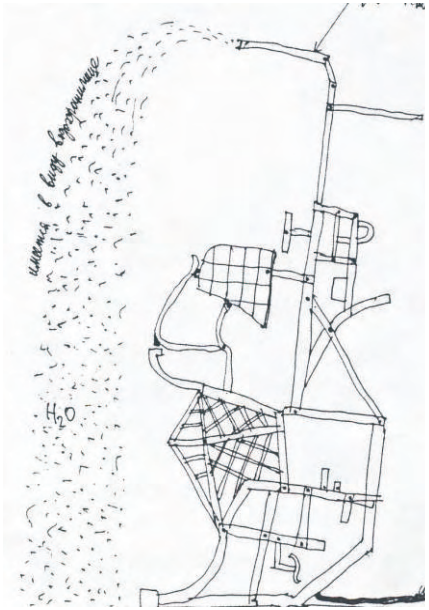
Various projects around the world have experimented with the theory of wayfinding (Passini 1992:53)[1].

Topological movement involves creating sculptures that mimics a cities map, playing on the recognisable and interesting features of a city.

By exaggerating or simplifying parts of the sculpture, the commuter is guided through the city in a personal perspective instead of just road signs through a more personal experience.

Discarded materials are used for a visual connection so that when a person arrives in the particular area, the material of the area will remind him/her of where he/she is the in relation to the map. Then the person may also remember on where he/she needs go next.

This theory will also be convenient for illiterate users. They could understand on how to get where they are going without humiliating inquiry. (AA files(48):39-46)

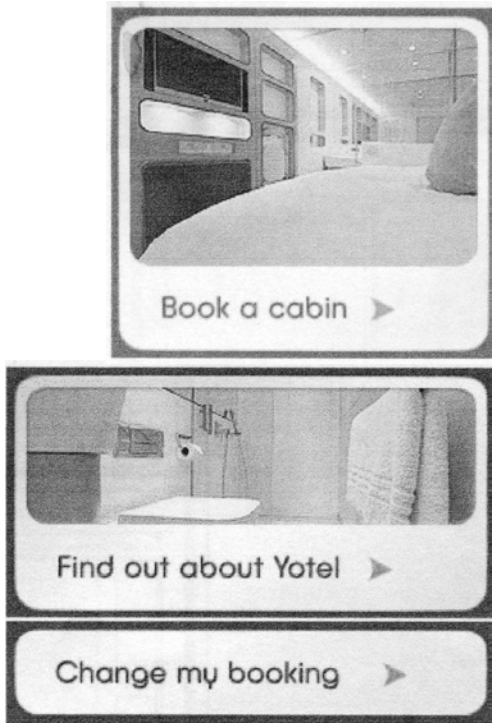


2_50 Plan of 4,5m sculpture of Toglaitti, Russia

2_51 Plan of Toglaitti, Russia

Yotels©

In June 2007, the Yotel chain was introduced to Gatwick Airport in West Sussex. It is a four star hotel that offers luxury 8 and 10m² standard and premium cabins. A commuter waiting for a flight, can go stay the Yotel for a duration of four hours to a full nights stay. These sound proof cabins have en suite bathrooms, a fold-out couch that converts into a bed and a flat screen television. The check in is fully automated (www.Yotel.com).



2_52 Tabs from web.

1. Togliatti, Russia (2000). A 4,5m sculpture was constructed of the Togliatti city map, local materials and water was used to symbolise the city and the Volga river respectively.
Grand union canal, London east end (2002). Alexander Flourensky, assisted by a group of students, constructed a three dimensional model of their movement through the city.

Design criteria

Interface of user and mode

The single platform battery system has been found to be the safest, most effective and understandable, and should therefore be used.

The more platforms will lead to more commuters being serviced by more taxis which results in a faster service to commuters.

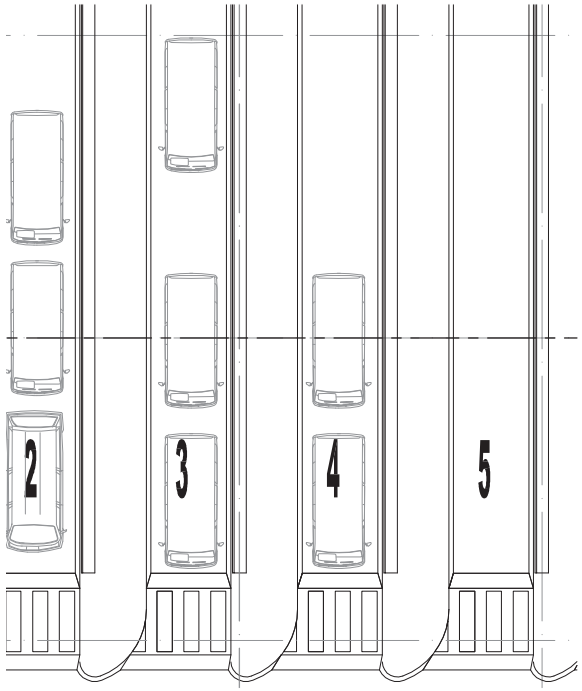
A single point at the end of the platform is to be used for embarkment or disembarkment, thereby first come first serve system will be achieved by both taxis and commuters. The rest of the platform should be used for awaiting commuters.

Robust seating should be provided on the platform for the waiting commuters.

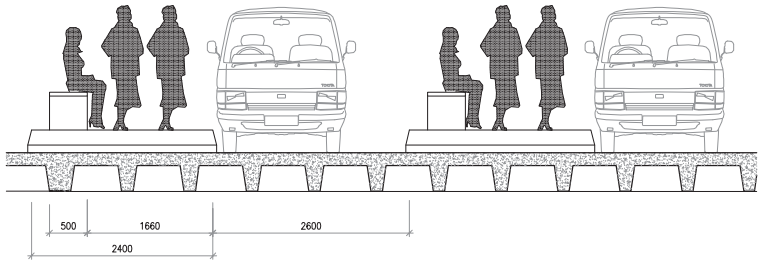
Platform should be raised to create a barrier for vehicles and a threshold for commuters, thereby removing the commuter off the road and keeping the taxi away from the platform.

Platforms are required to be wide enough for seating and a duel pedestrian walkway, to accommodate both embarking and disembarking commuters that may be there at the same time.

Trading should be prohibited on the platforms due to congestion at peak hours, as it would put pedestrian lives at jeopardy.



3_01 Battery platform system plan.
Scale 1:250



3_02 Elevation of battery platform system.
Scale 1:100

Circulation

Traffic must be channeled through a single entrance and exit to avoid weaving by Taxis. (vide figure 3_03)

Space needs to be provided before taxi entrance from street to allow for stacking vehicles prior to entering the terminal, in order that taxis do not obstruct the cities road system and cause congestion.

Both commuter and taxi need to move freely, any interaction would mean delay by either party.

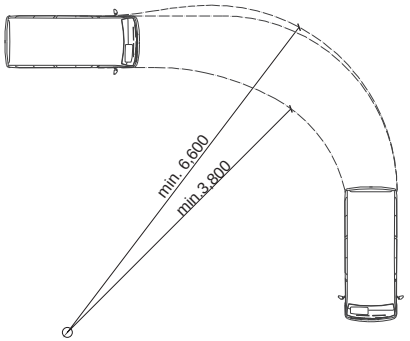
Double lanes for taxis are to be avoided, one way traffic only, for safety and clarity of taxi movement. Taxis would move into oncoming traffic if it means getting ahead of a queue. (Peska, P. 2007)

Sufficient space in corridors to be allowed for increase in commuter volumes, to avoid congestion.

Sufficient turning circle and road width for taxis must be planned for correct function of the building.

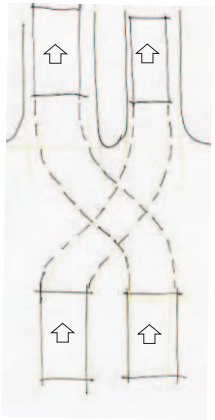
Design should be a single queue movement in holding areas to promote First come first serve basis for taxi holding areas.

Disabled people to have full access into all facilities. Floor height variations to be avoided, access ramp of no more that a 1:12 metre fall are acceptable.

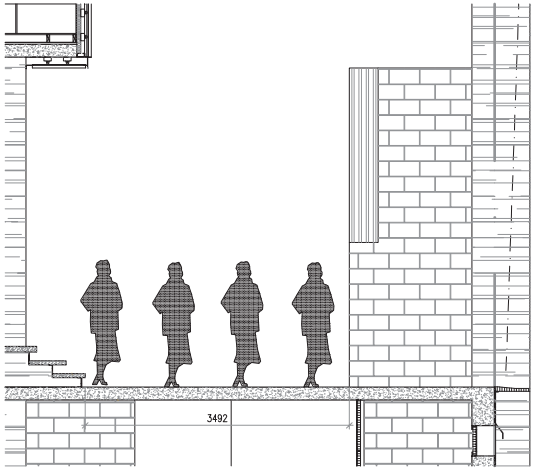


Min. turning circle =
3,8m internal
6,6m external
(Grobbelaar:1992)

3_04 Taxi turning circle.
Scale 1:250



3_03 Taxi weaving



3_05 Section through 4 breast walkway.
Scale 1:100

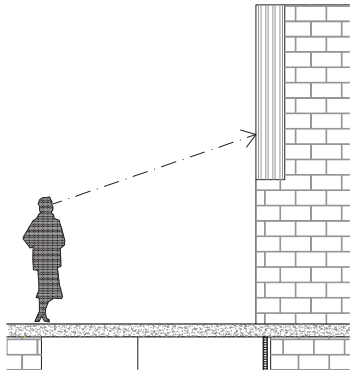
Coherency

The Building must notify users automatically as much as possible without signs, and if signage is used, it must be simple and comprehensive even with illiterate users.

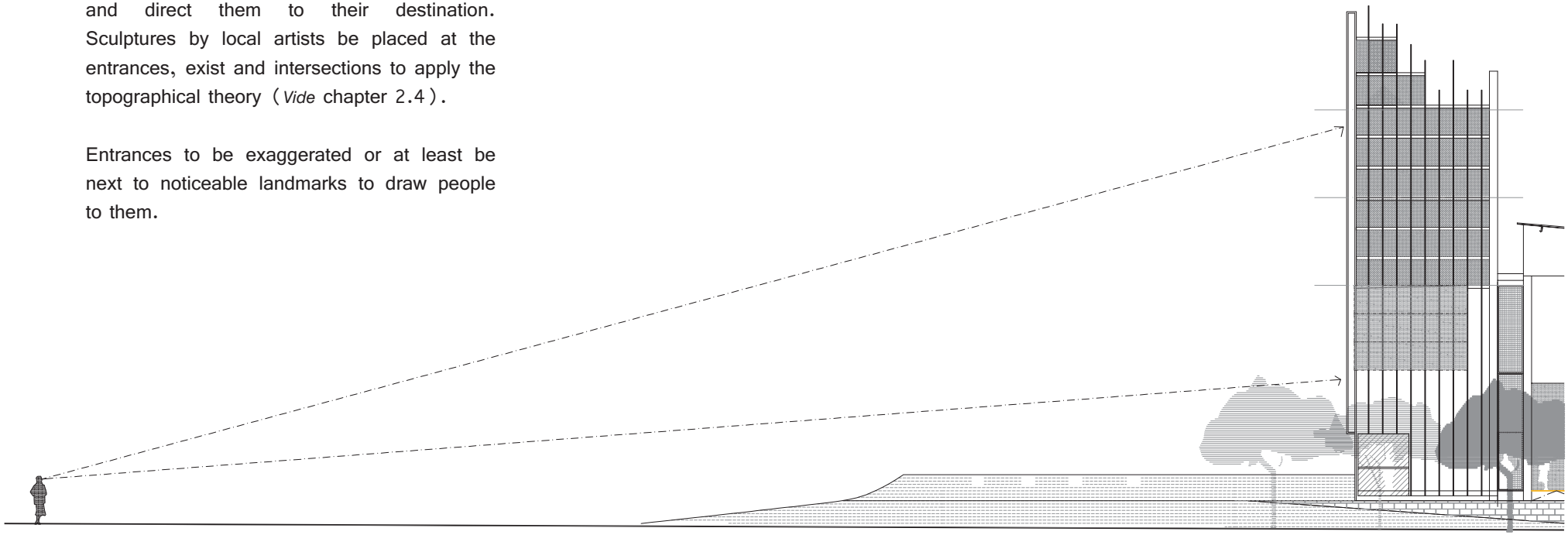
Different landmarks inform the users on where they are. These could consist of colour coding lights and signs, and applying different functions along the site.

The building is to inform users about the city and direct them to their destination. Sculptures by local artists be placed at the entrances, exist and intersections to apply the topographical theory (*Vide* chapter 2.4).

Entrances to be exaggerated or at least be next to noticeable landmarks to draw people to them.



3_06 Visual landmark. Scale 1:100



3_07 Visual landmark tower. Scale 1:200

Ability to generate activity

It is necessary to activate streets with adjacent parks, squares with shops, seating and traders stalls to improve the social image of urban areas.

Lighting is essential at night, all routes are to be illuminated including those going into the city. " By deliberately not providing lighting along a specific route, pedestrians could be directed away from potentially dangerous routes along safer, illuminated routes" (Kruger, Landman, Liebermann. *S.a.* :50).

This is similar to the practice found in most university campuses. The green route is a path that is always being patrolled and can be fitted with panic stations, so as to alert security and indicate where one is. Surveillance areas are therefore reduced, and are safe. These routes could be used into the late hours in the evening.

Safety and Security

Lines of sight should be kept clear for passive surveillance to be achieved

The design must support 24 hour functions such as cinemas hotels, shops and satellite police stations, in order to have the building used at night.

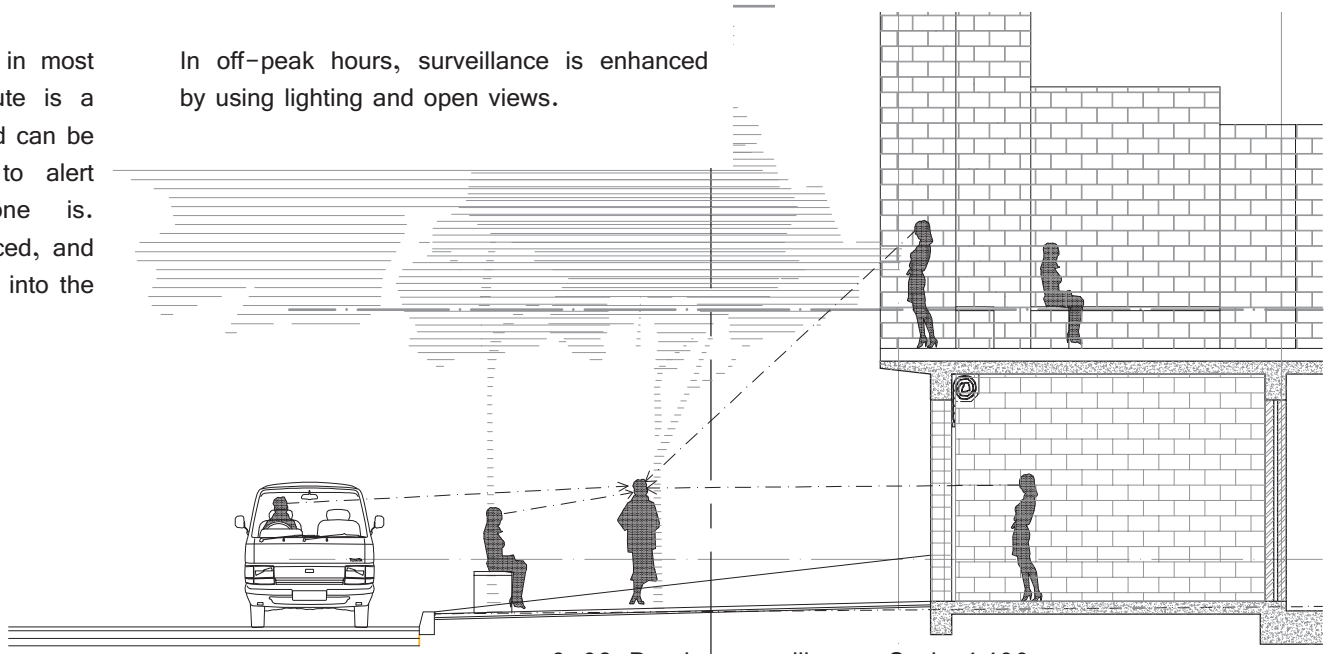
Waiting areas should be in clear sight in order to achieve passive surveillance.
Congestion of commuters is to be avoided to limit opportunities for pick pocketing and mugging.

In off-peak hours, surveillance is enhanced by using lighting and open views.

Specific areas to be demarcated for trading in order to prevent congestion.

A good management and maintenance system to be instated, in order to avoid the terminal from becoming derelict. Derelict buildings are seen as hostile and unwelcoming.

Communal areas must have a sense of being owned, so that they will be used more by a community. (Kruger, *et al*.38-81)



3_08 Passive surveillance. Scale 1:100

Social advantages

Traders to be allowed to trade, exposing them to the economic opportunities which are generated from a Terminal building.

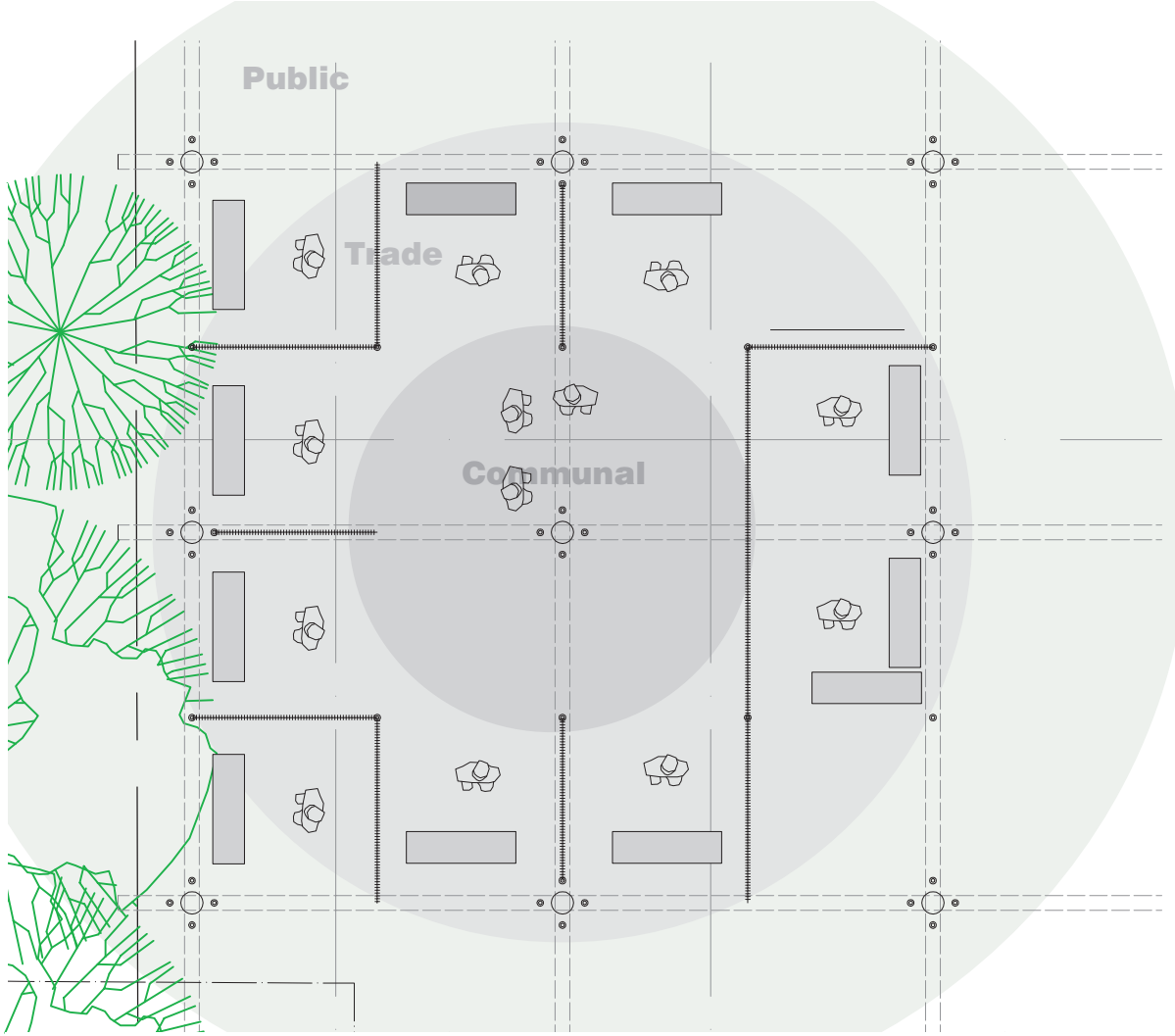
Traders require on site storage so that they do not need to travel far with goods or pay unregulated fees.

A 24 hour activity increases the use of the building and create a safer environment at night

There will be grand stands and large LED screens to entertain and inform users about the terminal and the world around them.

Ablution facilities and drinking fountain are essential.

Minute improvements to large places of rest such as benches and shaded parks, even bath houses and hotels are to be considered.



3_09 Traders communal area Scale 1:100

Materials

Materials and colours are to be as neutral as possible so that shops and traders kiosks dominate the visual arena.

Materials such as concrete, galvanised mild steel, Cor-ten steel, as well as sections to large for galvinising must be primed and painted. Roof sheeting to consist of polycarbonate sheeting alternating with embossed single span mild steel sheeting.

As a cost saving measure, individual shops can be plastered and pained by tenants Ownership will result in responsibility for maintenance and cleanliness

Wall surfaces in the public domain are to be finished with tiles or other surfaces that are easy to clean, in order not be detrimentally affected by graffiti or posters

Internal floor finishes to be tiled or have light tinted granothic finish, so as to avoid a grimy look.

Durable and non slip floors such as concrete slabs and brick pavers are to be used externally. Floor surfacing to change when floor becomes a ramp, or when an area changes function to facilitate a threashold.

Road surfaces are to be constructed of concrete and not asphalt due to chemical properties of petroleum products.

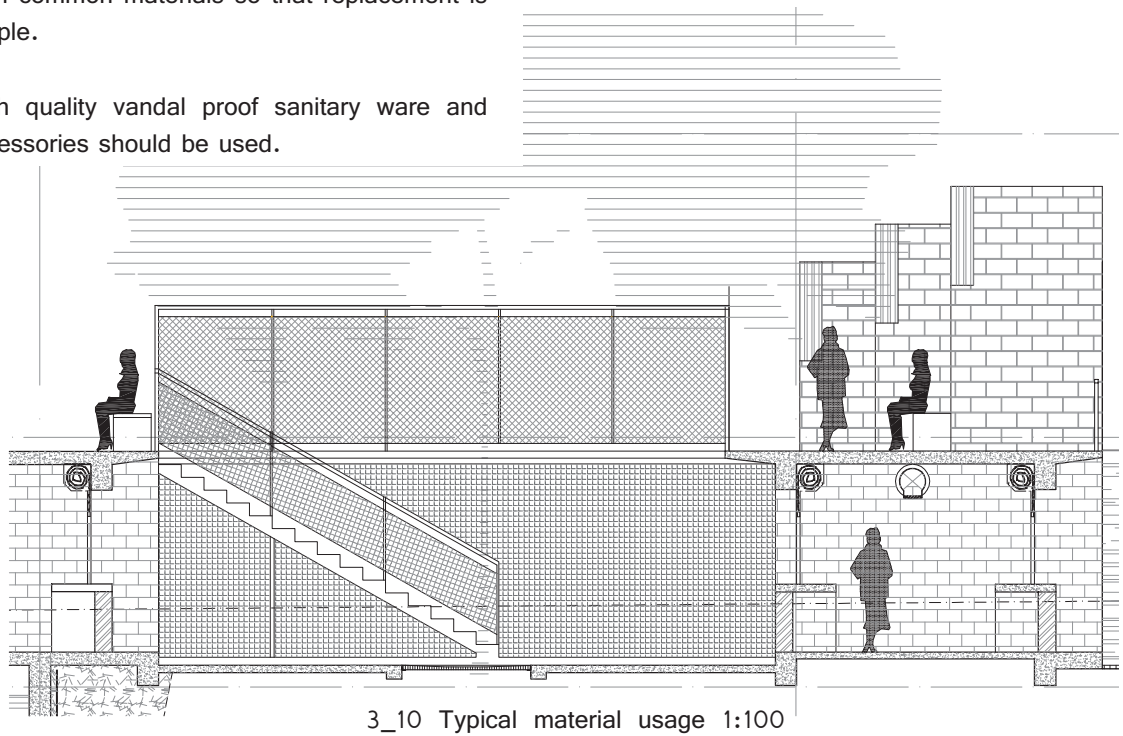
Heavy duty precast concrete barrier kerbings to be used throughout vehicle movement areas.

Light fittings are to be accessible, standard fittings. Light boxes are to be constructed from common materials so that replacement is simple.

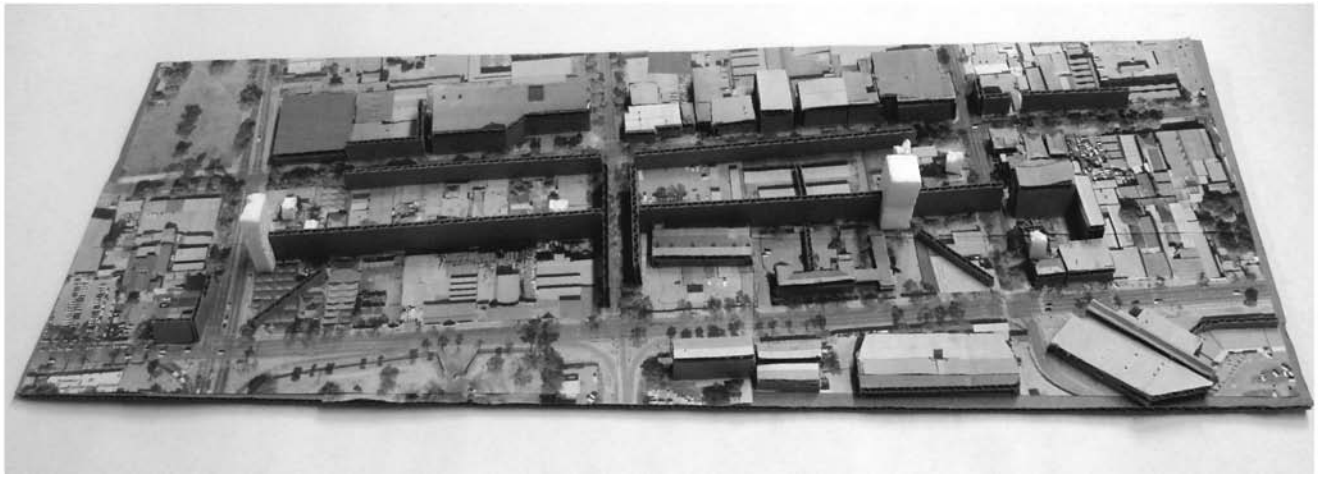
High quality vandal proof sanitary ware and accessories should be used.

Minimal use of glazing at walkways levels to avoid accidental or criminal breakage, shop-fronts to be protected by mild steel roller shutter doors during closed periods.

Pre manufactured Steel fire escapes to be installed on site. Double layered walls on stair wells, Fire resistant glazing internal skin and polycarbonate IBR profile sheeting to be used externally.



3_10 Typical material usage 1:100



3_14 Conceptual model

Concept

"Wayfinding is an activity that, like few others, demand a complete involvement with the environment. Perceptual and cognitive processes are constantly in action when a person sets out to reach a destination. The environment is scrutinised in order to extract information selectively. The information describing the setting is not just passively retained. It is interoperated, structured, and integrated to the already existing body of knowledge. Sometimes information is extrapolated from inconclusive evidence and verified at a later stage. This is particularly true when trying to gain an overall representation of complex layouts. It is important to stress that the environment in this process is just 'seen' but delt with, subjugated, and above all, experienced." (Passini 1992:160).

In this quote, Passini is explaining how a person's experience lead to cognitive mapping or wayfinding, this wayfinding draws images of the route, one follows in their daily lives and are a part everyday a routine.

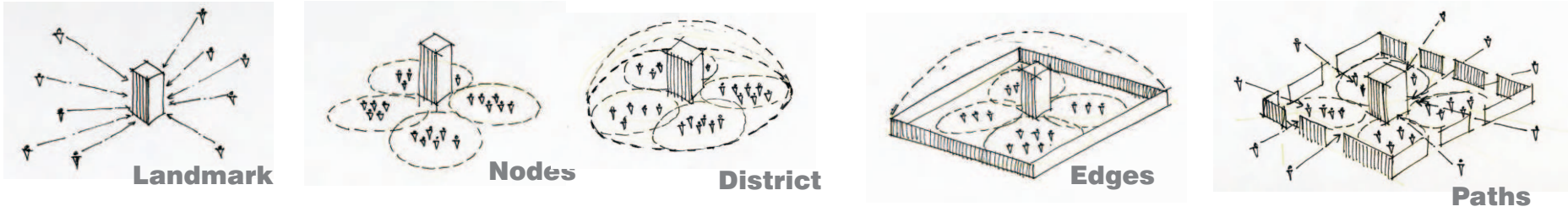
Lynch (1960:46) mentions that city image and its elements can be placed in the following five categories Paths; edges; districts; Nodes and Landmarks. These categories help individuals and communities to create images of their environment, in order to find their way around. Pretoria is a city full of images that people relate to. These images are necessarily appropriate, for a city of excellence.

The northern precinct of Pretoria has two of the three most important Public transportation nodes found in the city, Bloed Street Taxi Rank and Belle Ombre Railway station. These two nodes act as a gateway into the city but are in poorly maintained and underdeveloped area. Images such as these are in people's cognitive memory when they think of Pretoria.

This dissertation proposes a taxi terminal that could renew an area the northern precinct and replace some of the unbefitting images that exist in peoples minds.

The terminal will be a Landmark that people can use as a point of reference. The Landmarks can attract people to partake in the functions of nodes, around and represented by the Landmark. These nodes then can define a district and the district can use the existing edges, namely roads, to define itself. These edges are then penetrated by path and a image is born (*Vide* figure 3_11)

The concept uses towers with flashing images that act as focal elements in order to attract people to them and onto the new Grand parade pedestrian route which connects the whole north of the Pretoria. These towers can also function as an information and entertainment node, providing service that is not available to the many city dwellers.



3_11 Graphic concept of the image in the city.

Accommodation schedule.

Commuters

77 583 Household moving into Gauteng
(4 people/household)= 310 332 people.
17% moving to Tshwane = 52 756.
15% use Taxis = 7913 new commuters.

\+ 30 000 existing commuters
/ 4 existing transport nodes in PTA.
= 7500 existing commuters.

\+ 13 000 Train commuters
/ 2 train stations in PTA
= 6 500

Total serviced by Tshwane cental

21 913

ablutions/grandstands/parks/food courts

Table 3_01 Commuter population

Taxi operators

21913/12 Commuters/taxi
=1 826 Taxi/ 2 trips

Taxis require holding daily.

913

@25 routes =36,5 taxis/route
@2 minutes to load a taxi
= 1 hour 21 minutes to empty taxi terminal

Holding areas/carwash/ablutions/kitchens

Table 3_02 Taxi population

Retail

21913/100 Commuters/stall

220 Traders

21913/250 Commuters/shop

88 Tenants
66 Parking Bays

refuse/deliveries

Table 3_03 Retail population

Required Ablutions Male

	Taxi	Commuters	Total
WHB	13	24	37
UR	14	42	56
WC	11	24	35

(Table 7; SABS 0400-1990)

Drinking Fountains / disabled Toilets

Table 3_04 Ablutions-male

Required Ablutions Female

	Taxi	Commuters	Total
WHB	13	24	37
WC	17	46	63

(Table 7; SABS 0400-1990)

Drinking Fountains / disabled Toilets

Table 3_05 Ablutions-female

Yotel©

21913/200 Commuters/Room

110 Rooms

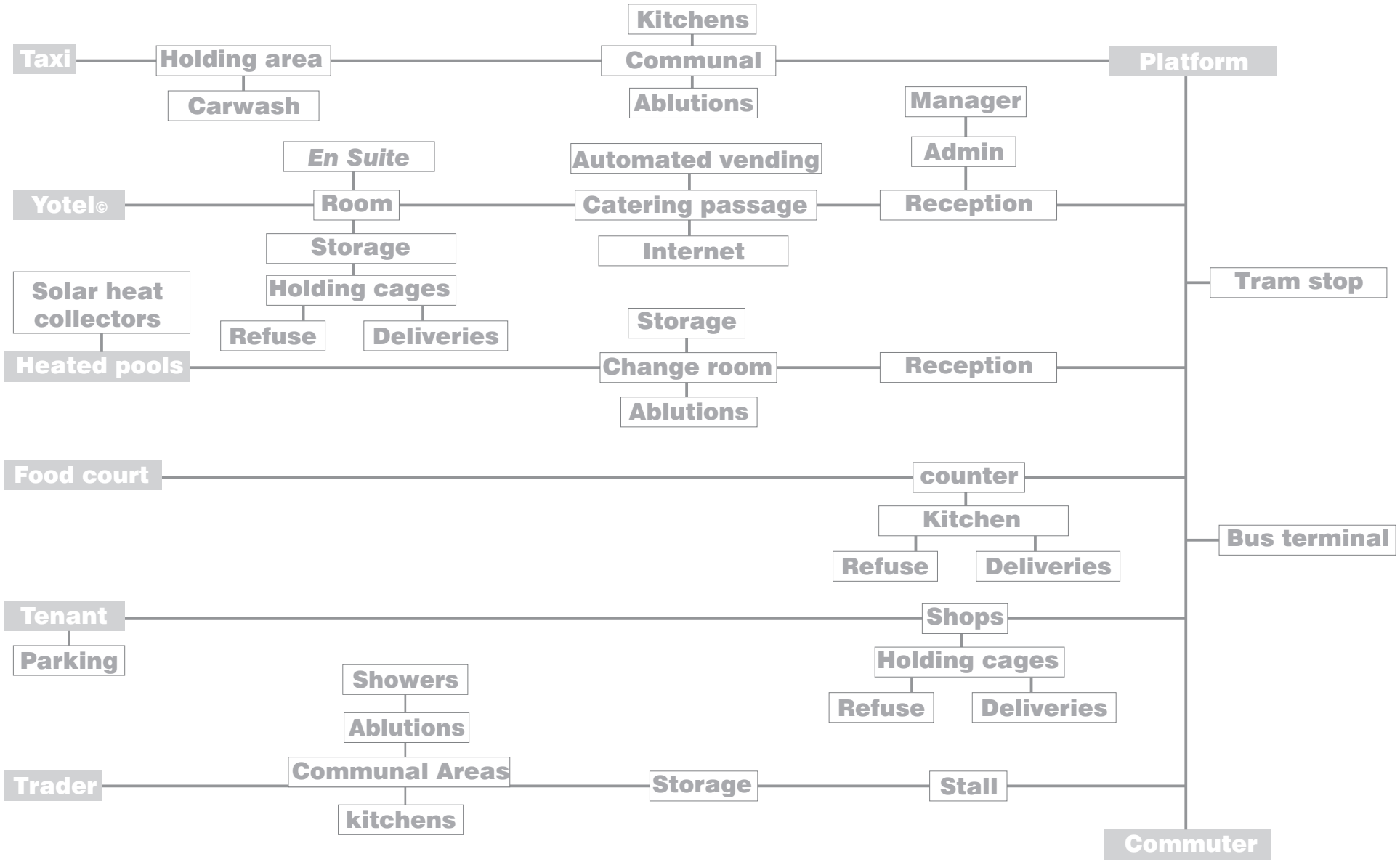
65% occupancy = 72 Guests
10% Staff = 8 Staff

25 Parking Bays

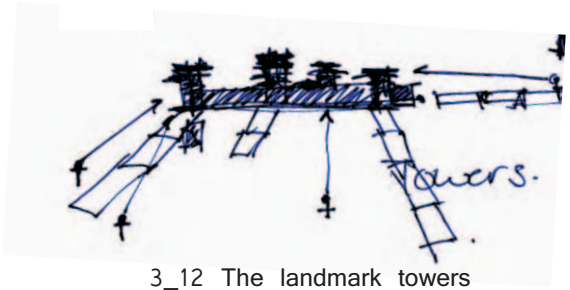
refuse/deliveries/laudry/reception/admin

Table 3_06 Yotel population

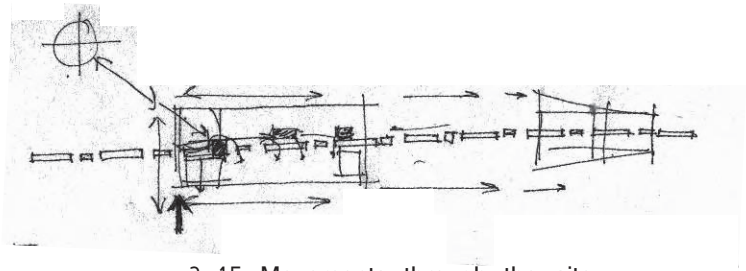
Movement diagram



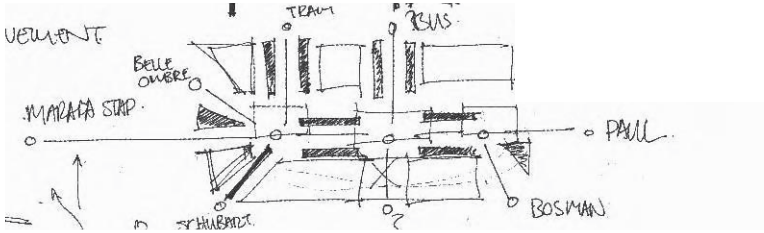
Design generators



3_12 The landmark towers



3_15 Movements through the site



3_16 Activity spines through the site

There are two main nodes of activity which are generated by the transportation terminals, Belle Ombre Railway Station, and Bloed Street Taxi Rank. The proposal is a partial connector of the two, feeding off the existing movement patterns of the precinct.

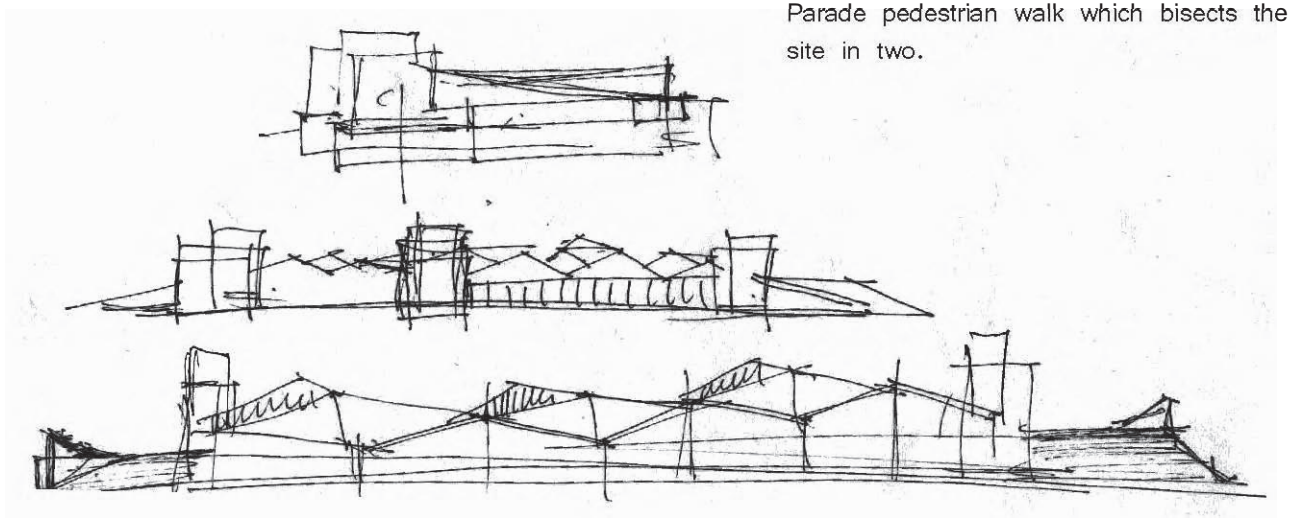
Another generator is the proposed Grand Parade pedestrian walk which bisects the site in two.

The site must accommodate for the alternative transport modes. These are the PICD Bus distribution systemTerminal (*Vide* 1.4) and a tram stop (proposal by C.Dill, fellow M (prof) student).

These connections generate commuter movement and therefore can create activity spines and retail opportunities for tenants and traders.

The site is located in an industrial area. Typographical features are applied to the proposal, with the intention of relating the sites to its context.

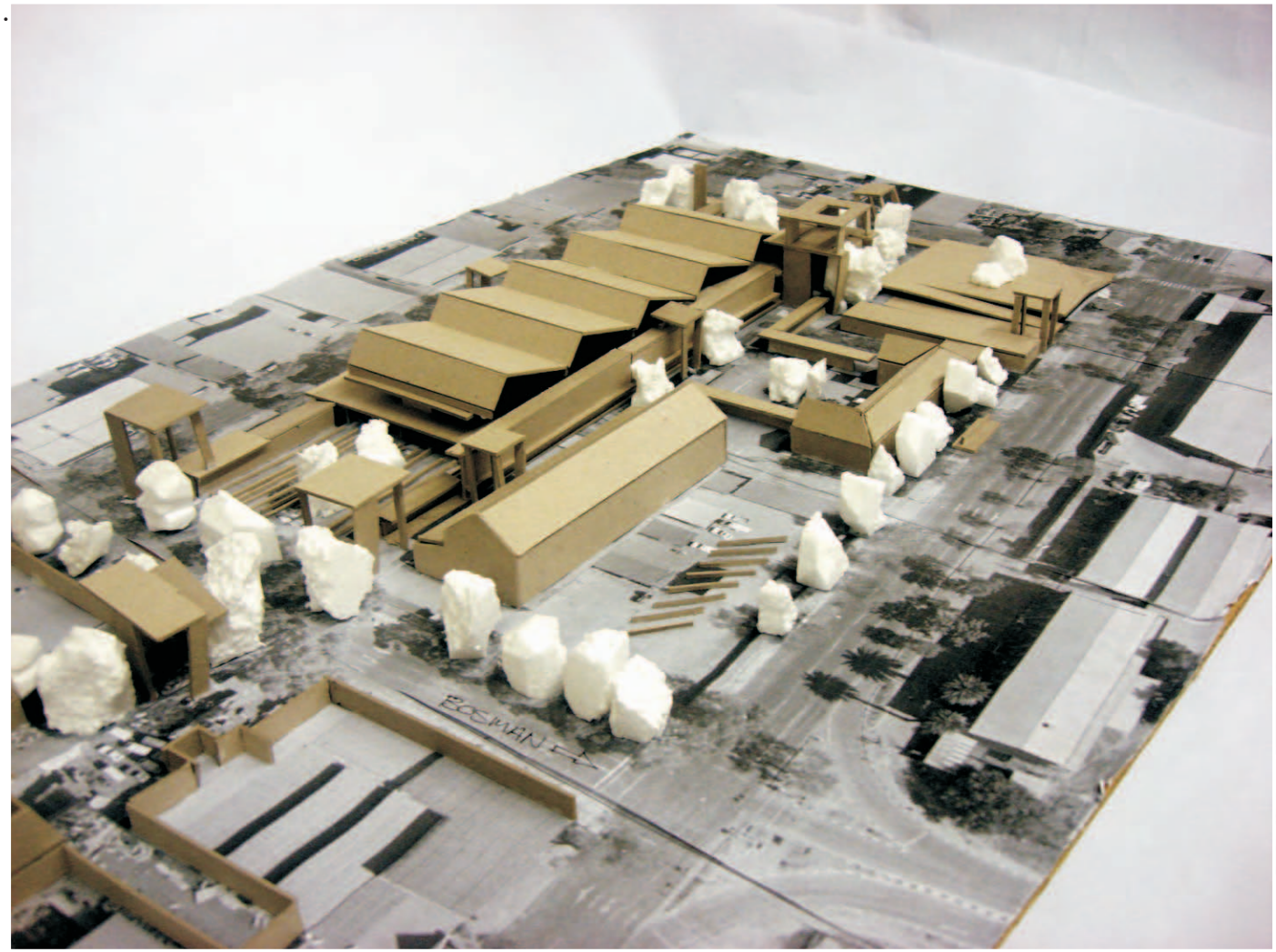
These applications would include a saw-tooth roof and materials which are commonly used in industrial construction.

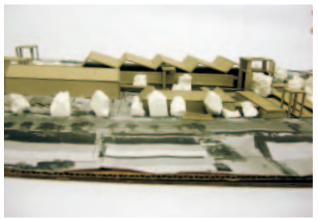


3_13 Preliminary sketch of elevations

Preliminary model

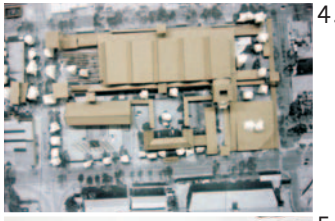
1.



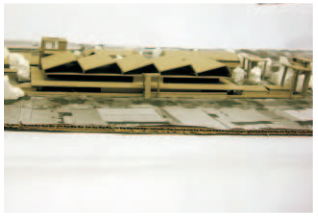


2.

3.



4.



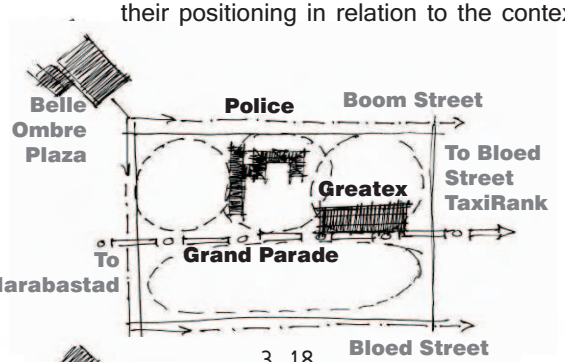
5.

3_17 Preliminary model compilation.

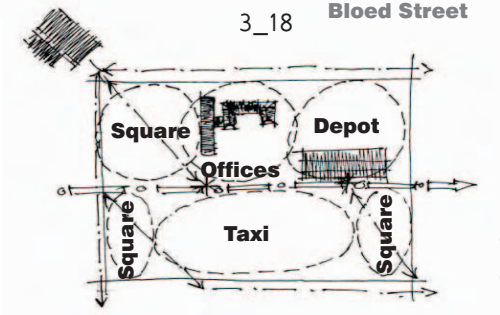
1. North-west view 2.North view 3.East view 4.Plan view 5.South view

Development sketches
Planning

A number of key influences such as movement patterns, proposed parade and the heritage buildings have separated the site into four different sectors. These sectors are able to assume different functions according to their positioning in relation to the context.

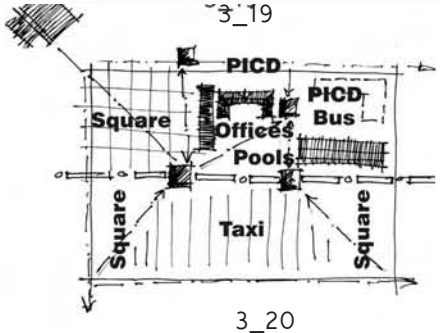


3_18



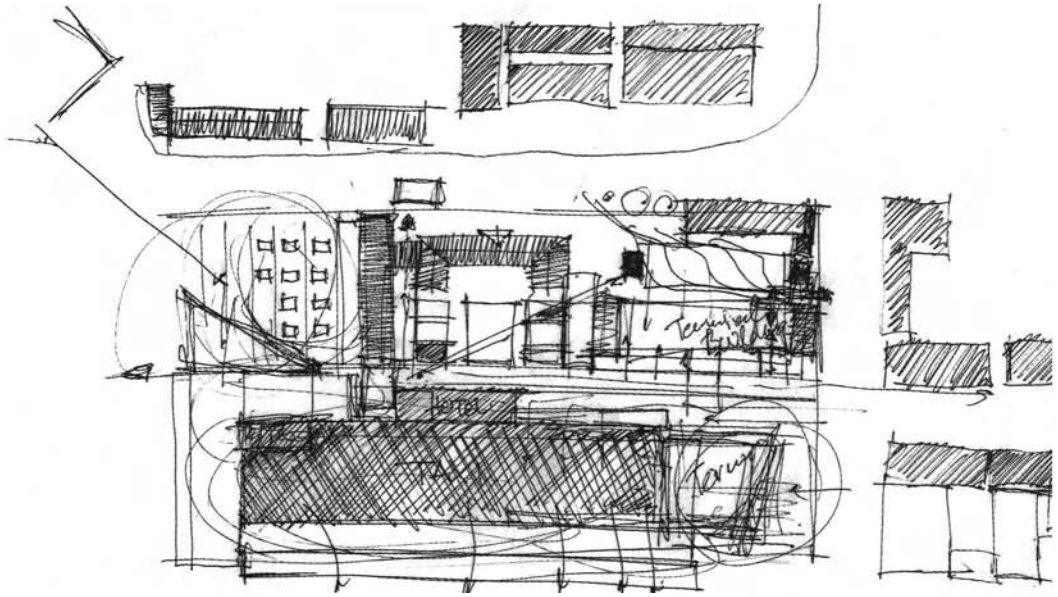
3_19

In response to typical pedestrian movement patterns, squares have been located in the corners, so that people can intersect the site.

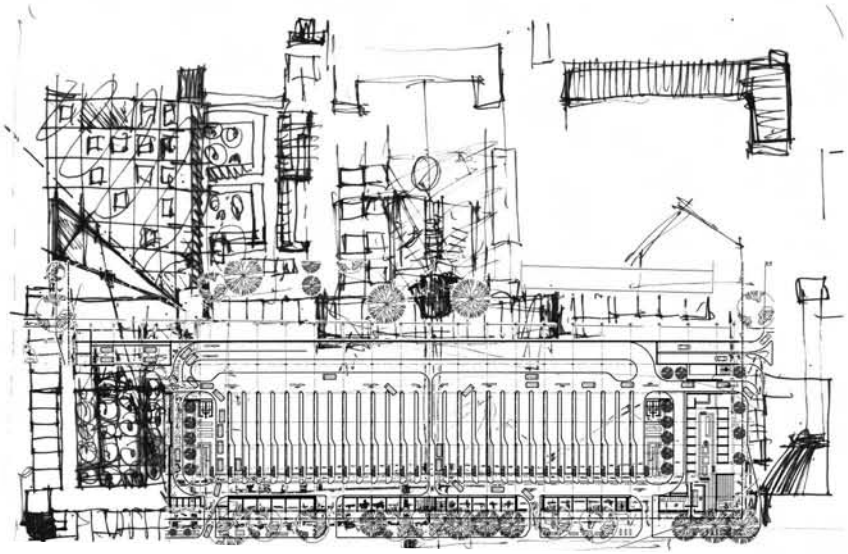


3_20

Furthermore a bus terminal and tram-stop offer two more destinations on the site and therefore more movement corridors can be generated.



3_21 Preliminary site plan sketch



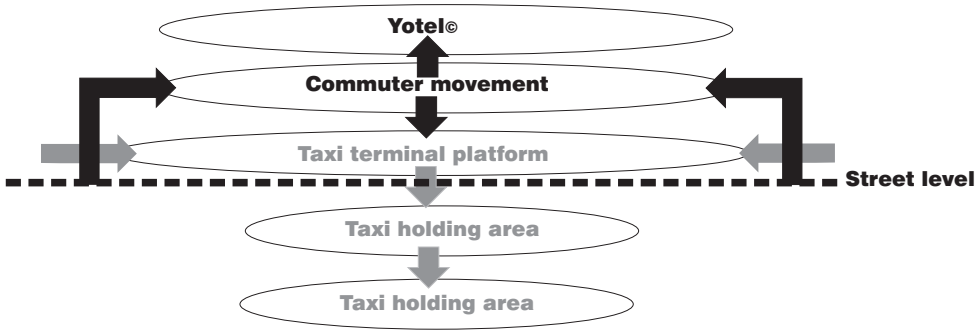
3_22 Detailed preliminary site sketch

Movement

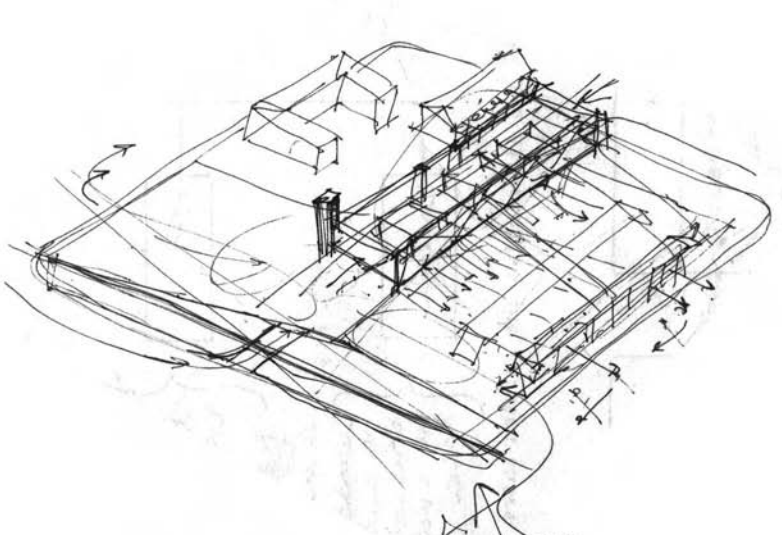
In order to accommodate the fundamental criteria of minimal interaction between taxi's and commuters, the planning became focused towards splitting the levels on which the two movements would operate independently.

A pair of options presented themselves, either have the taxis functioning on the ground level and the commuters moving above, or place the taxis including their holding areas above the movement of the commuters.

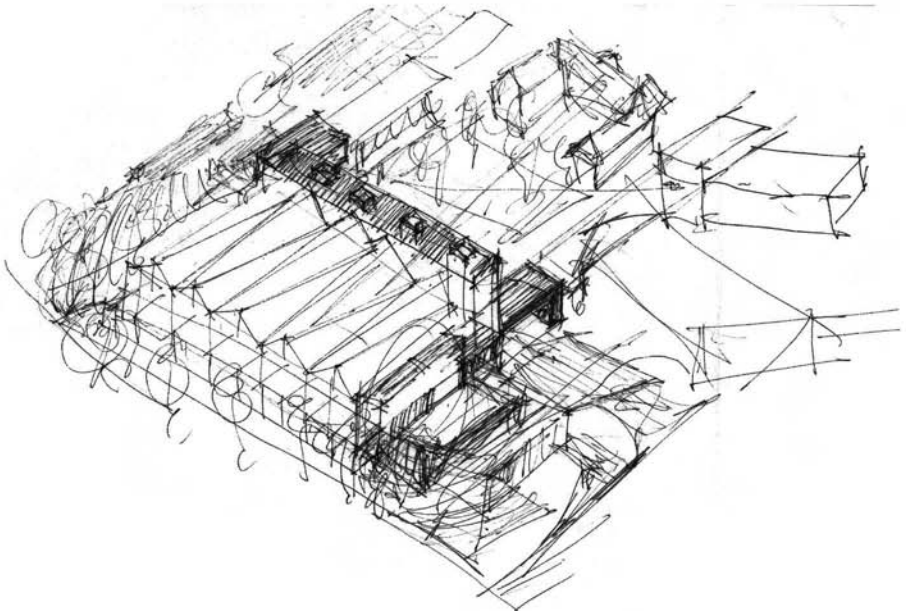
Commuters are the ones being served while the taxis are the service providers. The commuters are the priority and therefore their comfort and speedy transfer are the main considerations.



3_23 Vertical movement of modes.



3_24 Preliminary movement sketch.

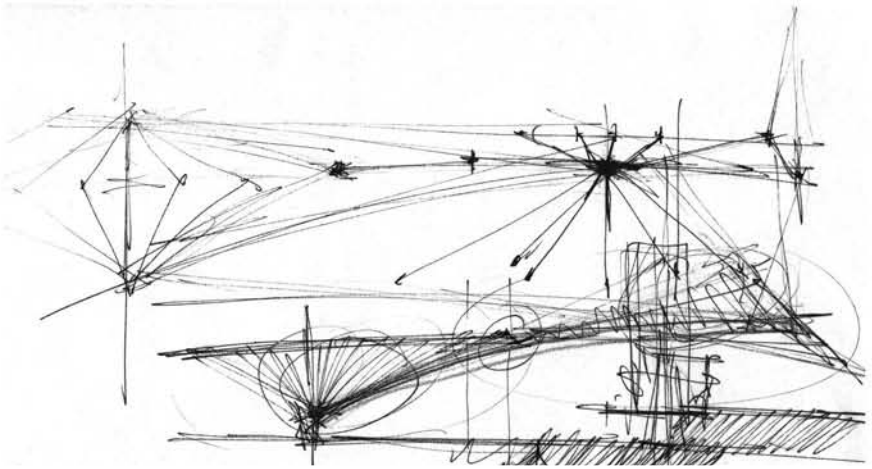


3_25 Preliminary sketch of building form

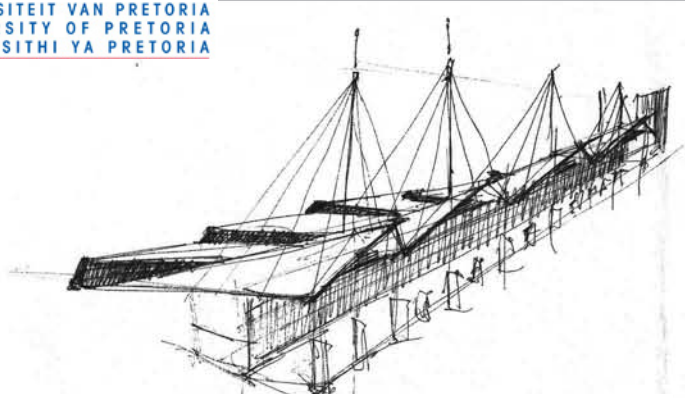
Roof Structure.

The roofing of the proposed structure became a complicated task when all columns were later removed from the terminal area. This change in design was made in order to alleviate constraints posed by construction of the taxi platform below. Removal of the columns also allowed the terminal to become a more grandiose design which will exemplify the importance of public transport.

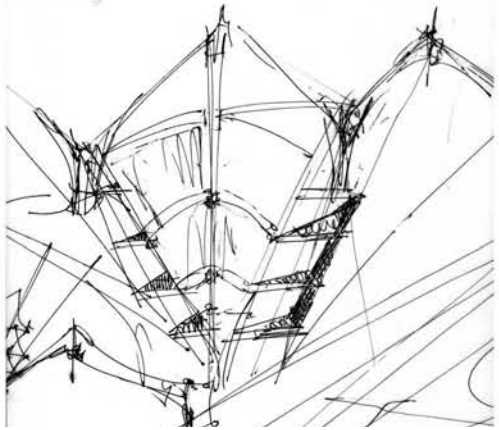
Massive structural beams will span a distance of 45m and will be about 2,25m deep. The roof construction will span 20m in two different configurations: one being a double pitch and the other a mono pitch construction. Both will be connected to the structural beams that will include a gutter.



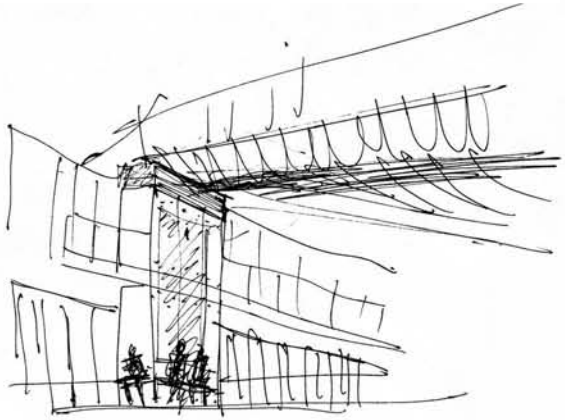
3_27 Preliminary sketch of roof structure



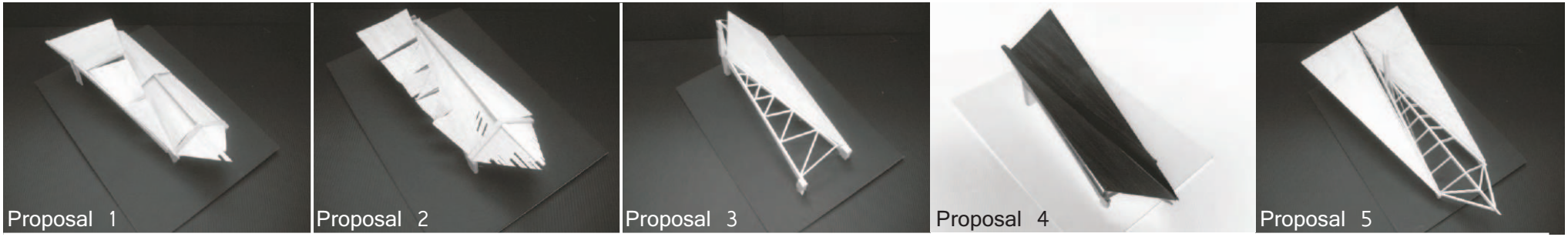
3_28 Suspend roof sketch



3_29 Underside of roof



3_30 Internal design proposal

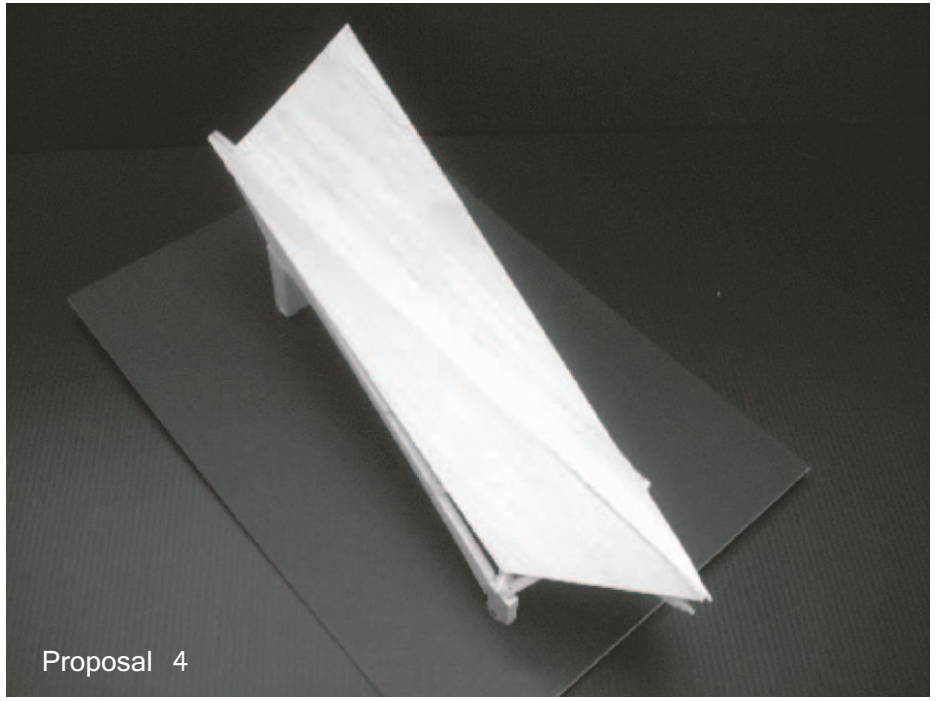


3_31 Roof models compilation.

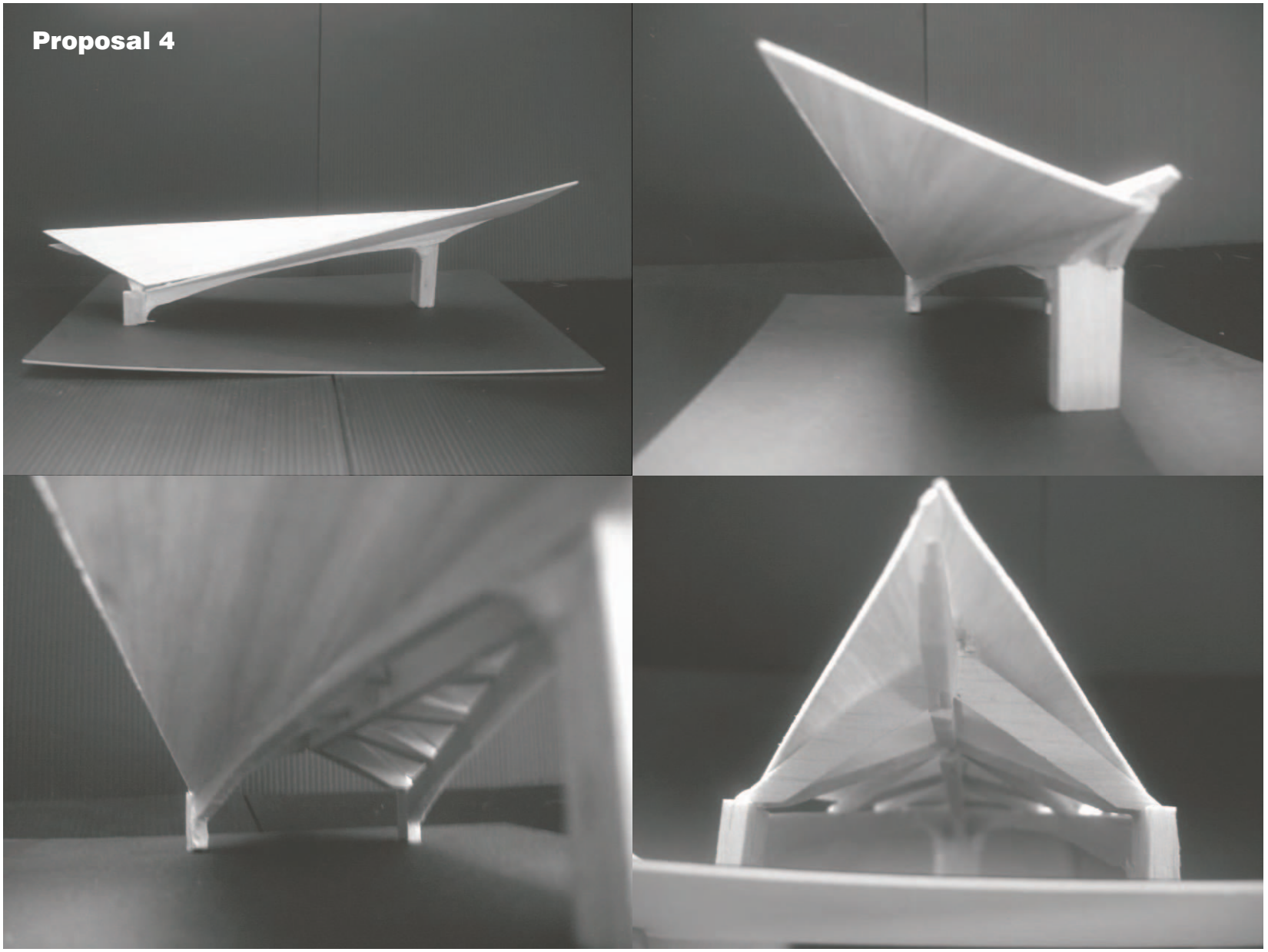
The design ended in the mono pitch section suspended structure and a double pitch structure as a compressive element. (*Vide* proposal 5)

The setback was that this structure was a contradiction to itself. The suspended area would have to be heavy due to wind forces that will act on the roof, tending the roof to lift. One would want it as light as possible so that the cabling system would be less strained. The compressive area, on the other hand, would have to be light when one could weigh it down heavily.

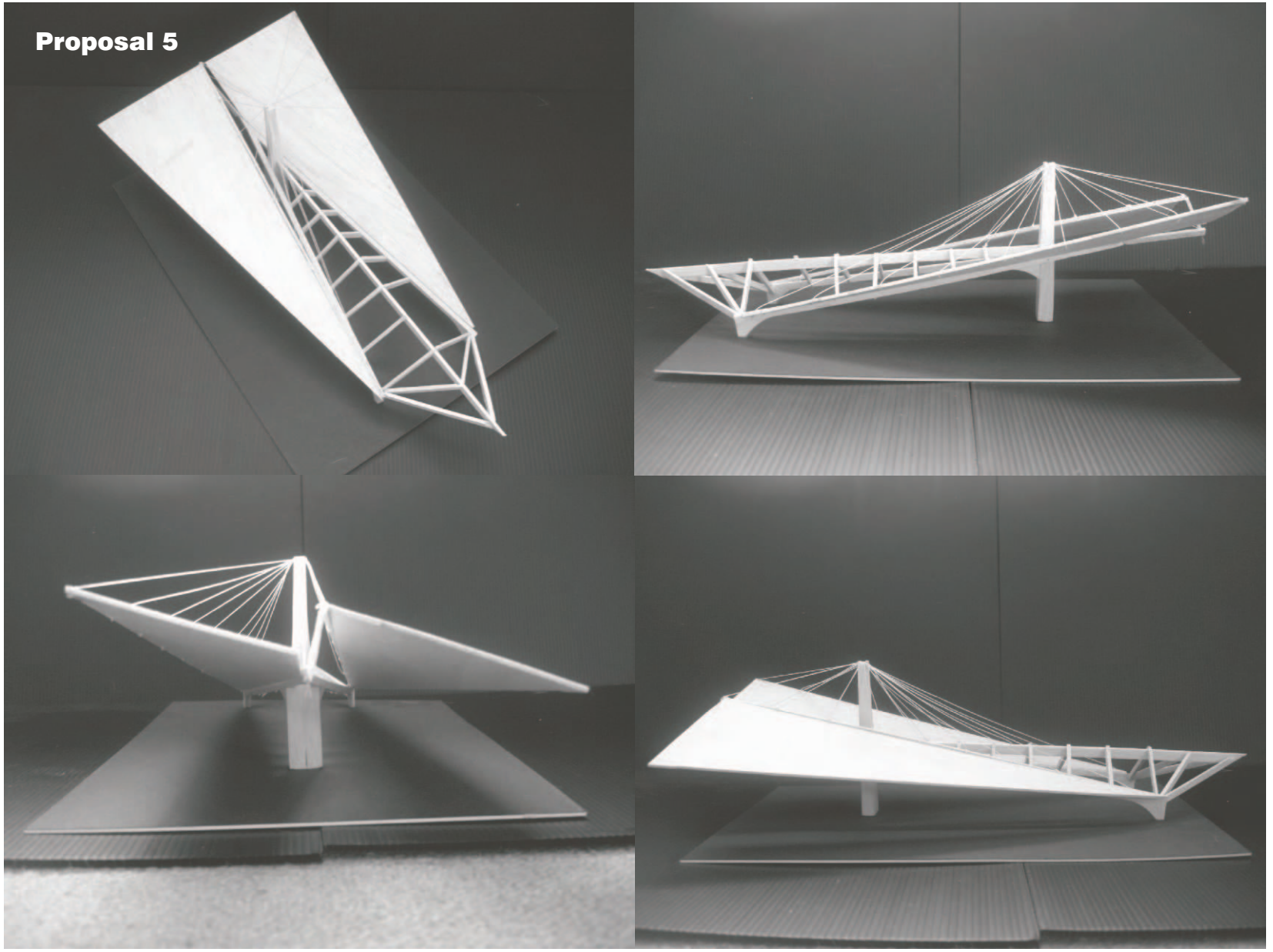
Proposal four was ultimately chosen for the design, however the ventilation system which was implemented with proposal five, was eventually developed.



3_32 Roof model Four



3_33 Roof model Four compilation



3_34 Roof model five compilation

Ventilation

The taxi terminal platform area is naturally ventilated. Two basement floors below are used as car parks and taxi holding areas. The need for these areas to have ventilation is essential due to the fact that vehicles produce toxic carbon monoxide fumes that are unnoticeable to the human sense of smell.

These areas will have to be well ventilated due to the volume of vehicles located inside the basements, it is highly unlikely that natural ventilation can accommodate all the ventilation requirements especially when the facility operates on peak or off-peak periods.

The peak periods occur in the mornings between 06h00 to 09h00 and in the afternoons at 15h00 to 18h00. During these times it can be assumed that all 913 taxis will arrive or leave the terminal. Before and after these hours there is no activity, except for the occasional taxi being driven to the carwash or leaving the premises. Therefore, a hybrid system has been developed to accommodate these fluctuations of fresh air requirements.

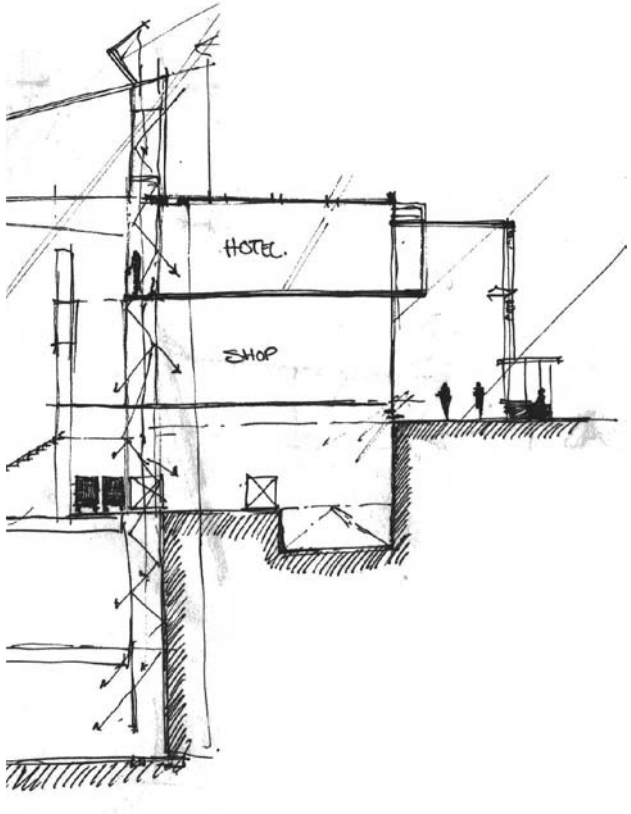
During the off-peak hours the combination of stack towers and tapered towers will naturally ventilate the building. This will occur by means of air convection and the Venturi effect. (*vide* figure 3_37)

Ventilation towers line both north and south peripheral walls of the basements, forming ventilation cavities. The south towers are used for supply of fresh air and the north towers are used for extraction of stale air.

Hassan (1996:15) recommends that to retain pressurisation of a space, it is customary for inlets to deliver 20% more volume flow rate than that of outlets.

A thyristor control switching device will be programmed to trigger inlet fans when concentration of toxic fumes increases. This will then change natural ventilation into a mechanical ventilation system that forces large volumes of air through the building and the required flow rate.

Futhermore these vents will allow for natural light into the basement. Although the distance is too long to be an effective light source, it will never-the-less improve conditions in the event of electrical supply failure (*vide* figure 3_35).



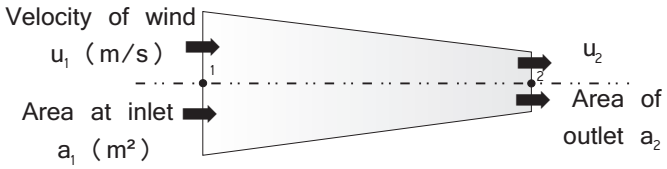
3_35 Vent towers used as light wells

Venturi effect

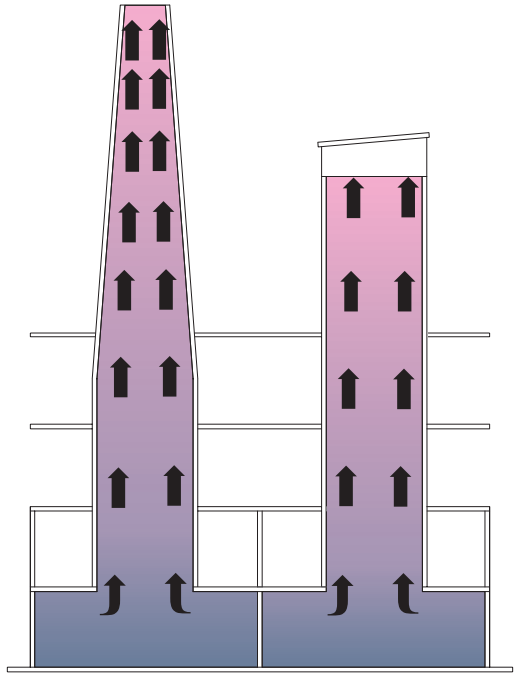
The theory of the venturi effect is: If air at a velocity enters into an inlet of a tapered pipe, the velocity of the air will need to increase to compensate for the loss of area, when exiting out of a smaller outlet. This is because the volume of air entering the pipe is the same as what is expelled. (*Vide* figure 3_36)

$$a_1 \times u_1 = a_2 \times u_2$$

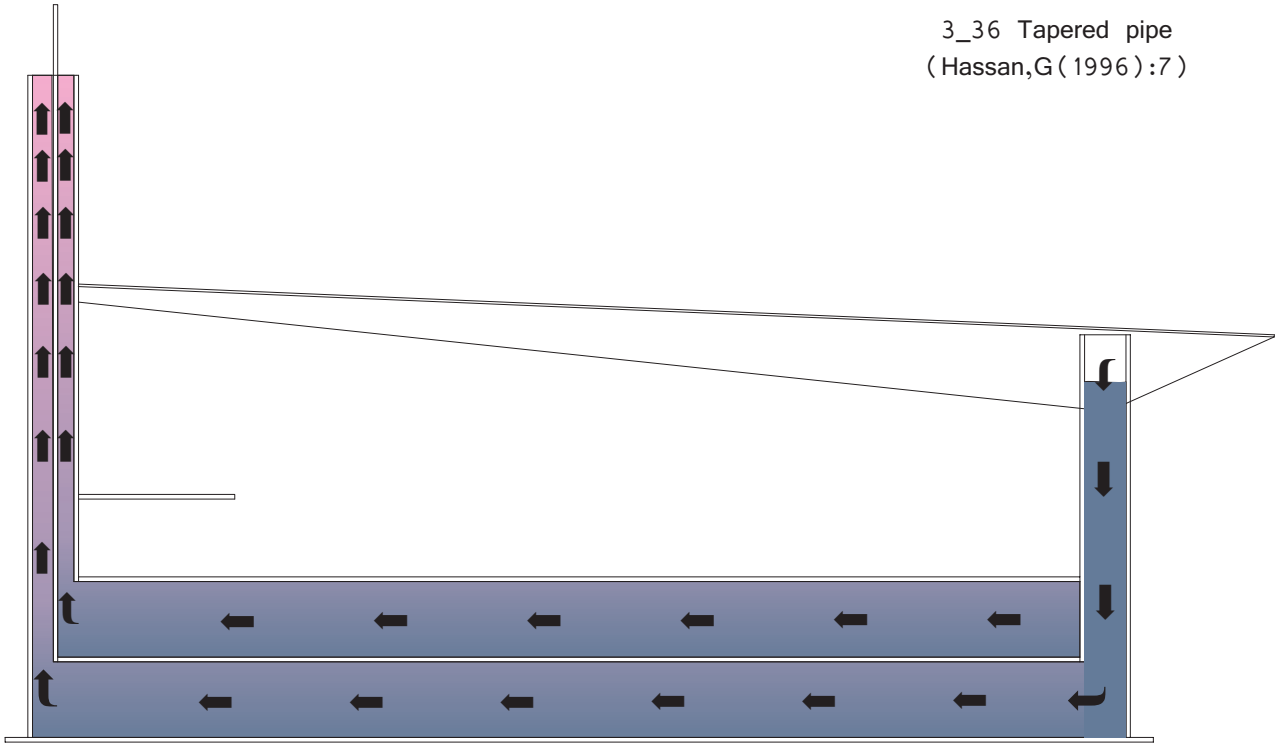
$$u_2 = a_2 \times u_2 / a_1$$



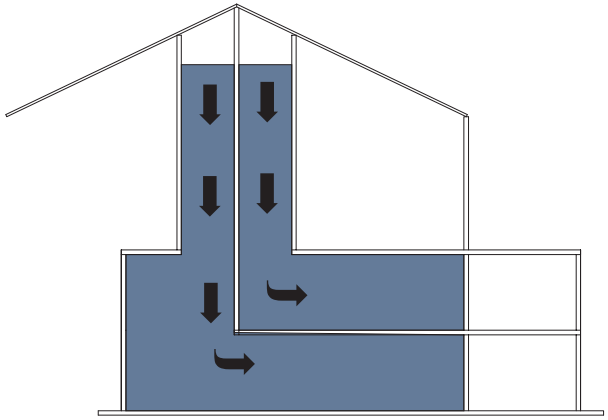
3_36 Tapered pipe
(Hassan,G(1996):7)



3_37 Tapered and stack towers
Intended flow diagram



3_38 Intended cross ventilation diagram



3_39 South inlet tower
intended flow diagram

Ventilation simulation

The experiment was divided into two simulations. The first simulation was to investigate the intended natural ventilation by means of air convection and the venturi effect. The second simulation was to test if mechanical ventilation would appropriately remove a large amount of polluted air.

A scaled perspex model of a single bay, in the design, was constructed to simulate the intended ventilation. In this bay, three towers where built into the model, one was a tapered outlet tower, a straight outlet tower and an inlet tower. Smoke was produced by burning incense and placed inside the model.

In the natural ventilation simulation the following air movement was observed:

The smoke was stagnant inside the model until air was introduced from the inlet tower, simulating mechanical intervention. Thereafter the air moved freely towards the outlet towers and out of the model (*vide* figure 3_41).

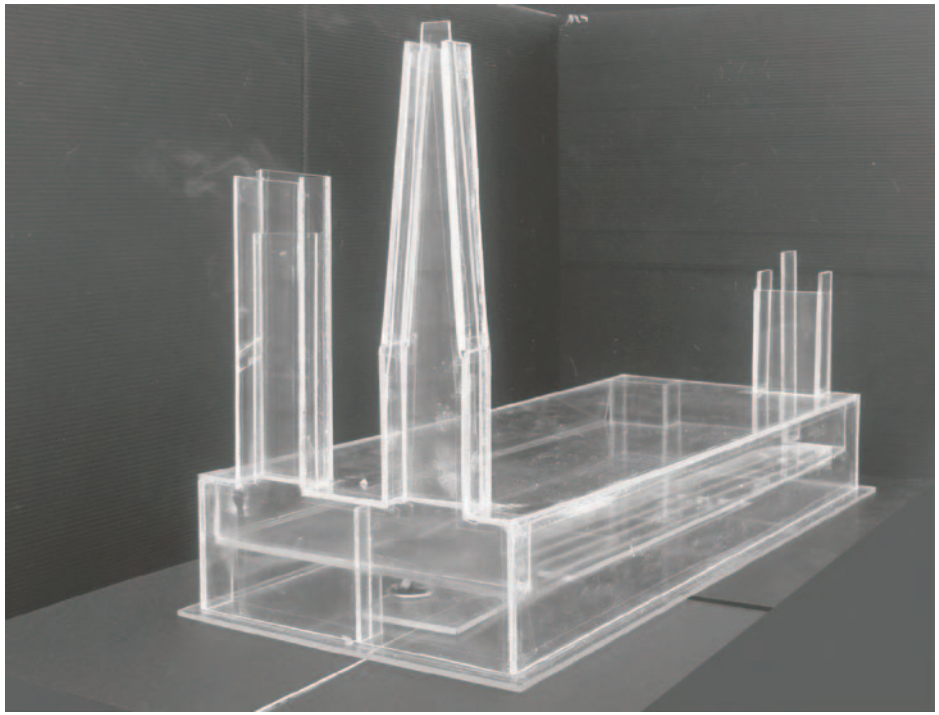
The tapered tower did not perform as intended, a minimal amount of air moved through the tower and it was not observed to be faster than the straight tower. However, the straight outlet tower proved to be more functional as it removed the majority of the smoke.

When air was blown past the outlet towers, to simulate wind on the tower, the velocity of the smoke increased (*vide* figure 3_42). An additional observation was when either of the two outlet towers were closed off the other would not function as effectively as when both were open.

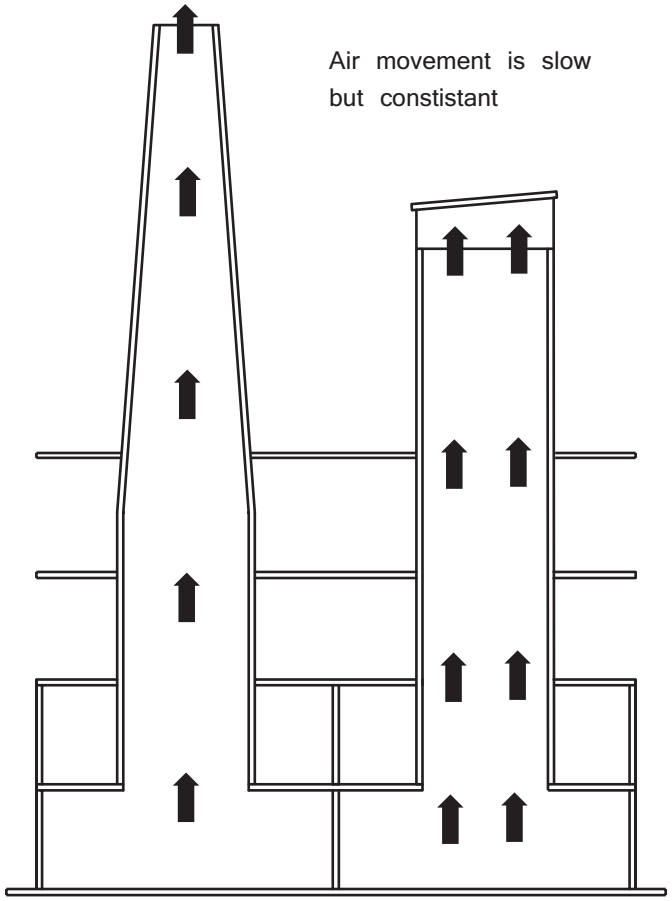
In conclusion, for air convection to occur auxiliary mechanical ventilation is necessary. However, Wind pressure on the outlet towers proves to be more important than air convection.

Therefore it is necessary to expose the towers to prevailing winds.

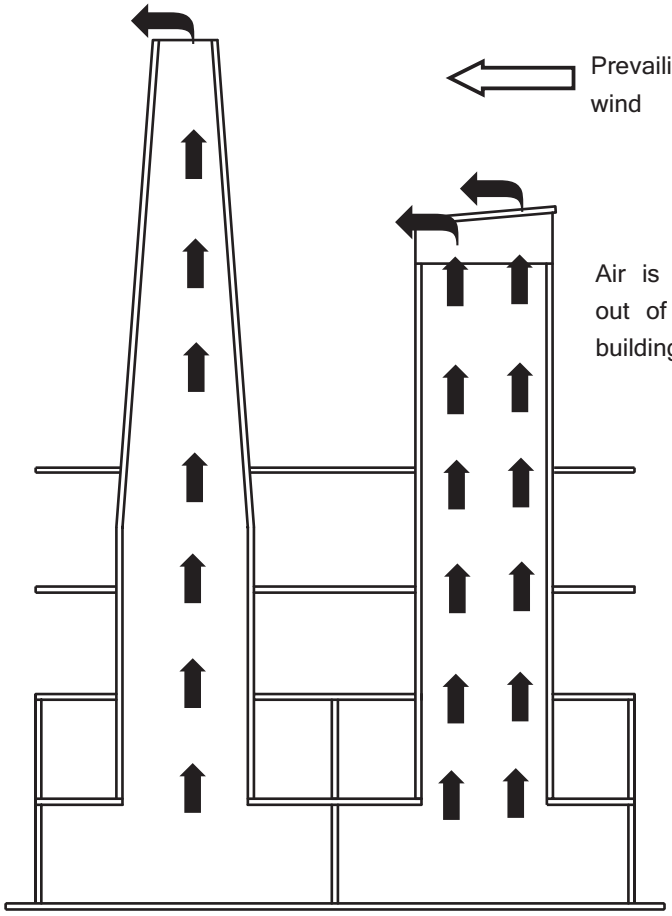
The mechanical ventilation simulation proved to be successful regarding their intended function. Sufficient air was found to be continuously removed as air was mechanically introduced into the inlet tower and expelled out of the two outlet towers. (*vide* figure 3_38).



3_40 Photograph of perspex model



3_41 Air convection flow diagram



3_42 Wind effect on flow diagram

Water harvesting

With the ecological deficit of the world rising it is of paramount importance to re-evaluate the amount of resources used in a building throughout its life.

One of the most important resources is water. It is astounding to find out the amount of water this facility uses on a daily basis. In table 3_03, one can see that the buildings water consumption is about 9,472 litres per day, and 6,972 litres of that can be grey or harvested water, and 2,500 litres will have to be potable water.

To harvest sufficient amount of rain water, the building will have to capture an area of 6,250m² The storage facilities must have a capacity of approximately 840 kilolitres to be able to sustain its grey water requirements throughout the dry winter months (*vide* table 3_02).

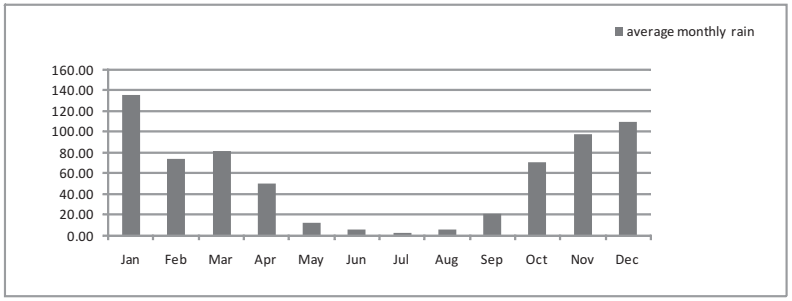


Table 3_01 Rainfall (mm) (Author)
(Http://www.weathersa.co.za/climat/climstats/pretoriastats.jsp)

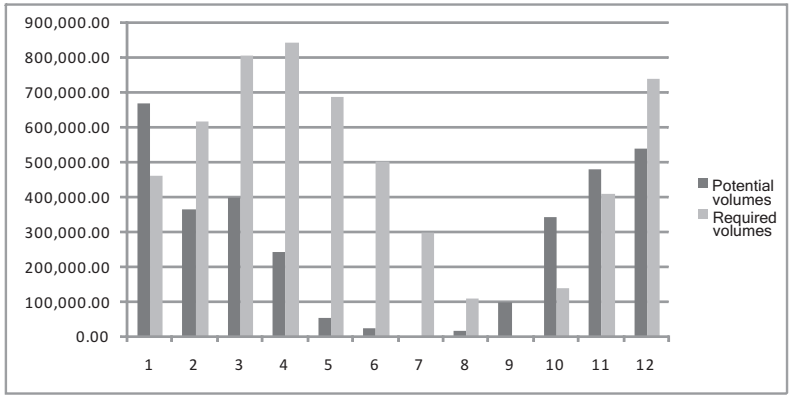


Table 3_02 Water harvesting volumes
(Crowley, B. 2005)

Commuters	21910	As per Table 7; SABS 0400-1990			Water Consumption		
		Males	Females	Total			
WC		4+1+19	20+1+25	70	2450	ltrs/day	Grey water
Urinals		15+1+26	0	42	588	ltrs/day	Grey water
WHB		5+19	8+1+15	48	384	ltrs/day	pottable water
taxi operators	900	As per Table 6; SABS 0400-1990			Water Cosumption		
		Males	Females	Total			
WC		3+8	9+8	28	980	ltrs/day	Grey water
Urinals		6+8	0	14	224	ltrs/day	Grey water
WHB		5+8	5+8	26	208	ltrs/day	pottable water
		Yotel		Total			
WC				78	2730	ltrs/day	Grey water
Shrs				78	468	ltrs/day	pottable water
whb				78	624	ltrs/day	pottable water
Car wash	17				816	ltrs/day	pottable water

total grey water	6972	ltrs/day	209,160 Ltrs/month

total potable water	2500	ltrs/day	75,000 Ltrs/month

Table 3_03 Water volume requirement of the building
(SABS 0400)

Light emitting diode displays

Black and white televisions work by using an electron beam that rapidly moves across the screen, energizing small dots of phosphor. These dots produce visible light.
Colour televisions function in the same way, but instead of a single beam, it contains three separate beams, red, green and blue.

However when the display monitors are placed outdoors the phosphor display cannot compete with the brightness of the sunshine. Different technology must be used to overcome this problem.

Large outdoor displays use light emitting diodes (LED) instead of phosphor layer to create images. LED's are small coloured bulbs that use relatively little power for the light they produce.

LED's are configured in red, green and blue modules which are called pixels. (*vide* figure 3_39) These pixels are arranged in a rectangular grid. The size of the pixels ultimately determines the dimensions of the screen. (*Vide* Table 3_07)

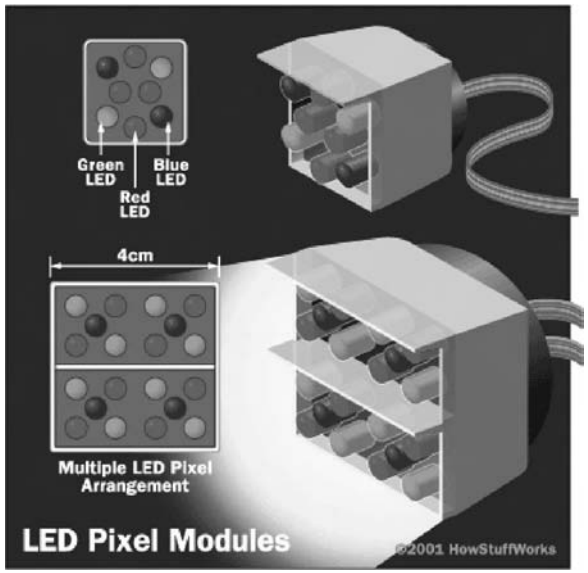
A computer and a large quantity of cabling is required to control the system. The computer receives video signals and decides which LED to switch on for how long and with what intesity. A typical large screen display can use up to 300,000 Watts at full display when large capacity is required.

LED displays have dropped in price and are a regular occurrence in malls and at events, their life span can possibly be as long as 11 years, proving to be a good investment (www.howstuffwork.com.)

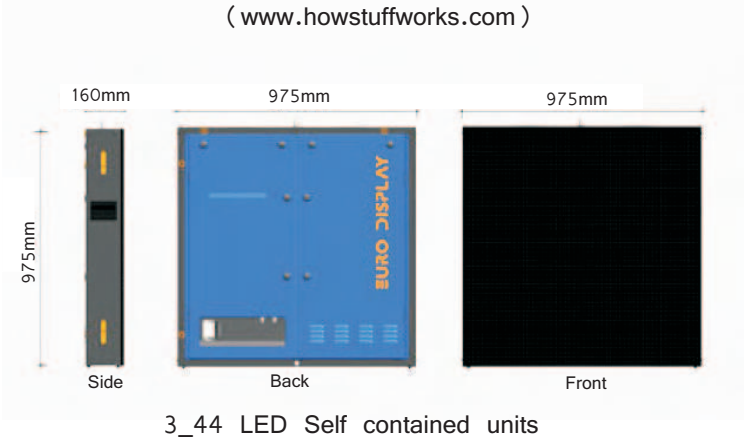
Regarding fixture and structure LED screen can be manufactured into robust aluminium self contained units that are fitted on a lightweight aluminium structure. The modules also help with ease of maintenance, the models can be placed on hinges for accessibility.

LED module size	Screen size (meters)
4 mm	2.56 x 1.92
25 mm	16 x 12
40 mm	25.6 x 19.2

Table 3_07 LED screen sizing
(www.howstuffworks.com)



3_43 LED Pixel modules
(www.howstuffworks.com)



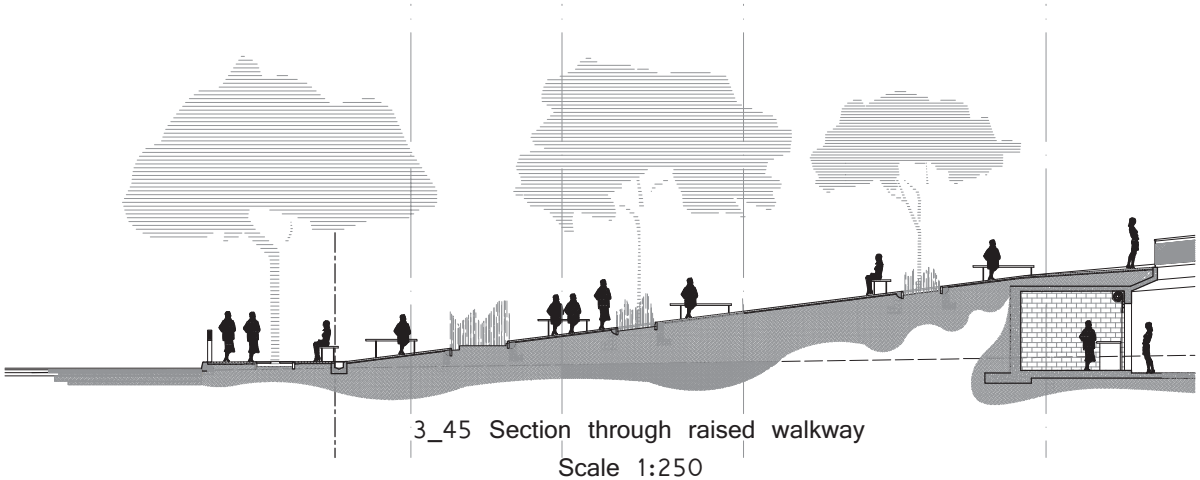
3_44 LED Self contained units
(www.eurodisplay.com)

Raised walkways

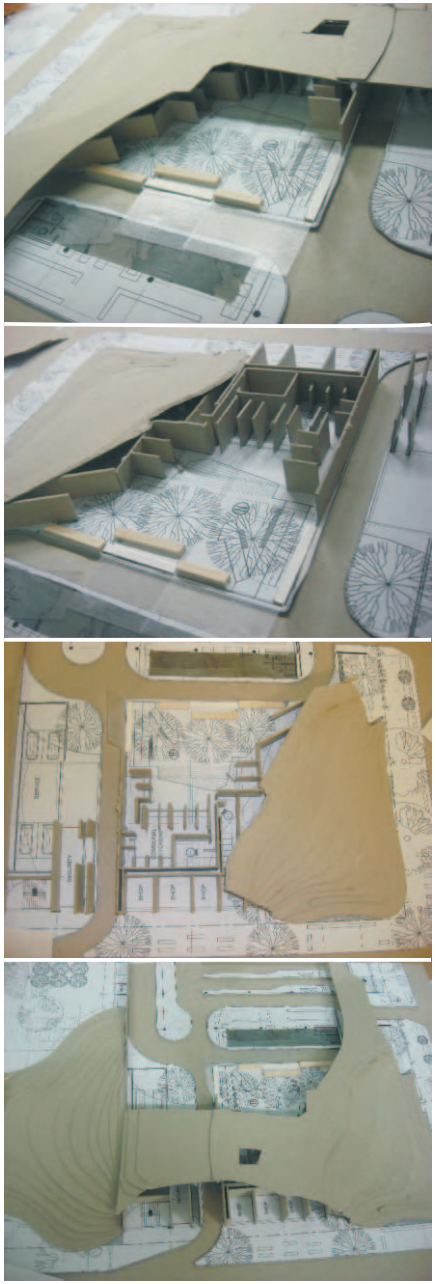
The raised walkways serve as the entrances to the terminal, they gradually ramp up at a gradient of 1 in 12m, allowing easy access for all commuters including disabled people. The walkway links the first floor to the Grand parade pedestrian walk.

The walkways are lined with robust ferro-cement seats that can either be used as seating, or as a bench for trading.

The gradient of the ramp allows for the insertion of a supplementary level beneath the walkways. This level is isolated from the busy pedestrian movements above, allowing a sense of serenity. This space then becomes appropriate for food courts and pause areas.



3_45 Section through raised walkway
Scale 1:250

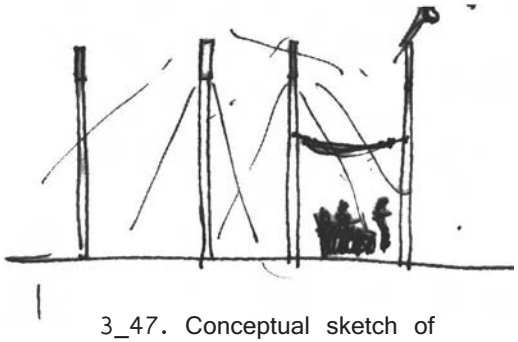


3_46 Compilation of interim model raised walkway

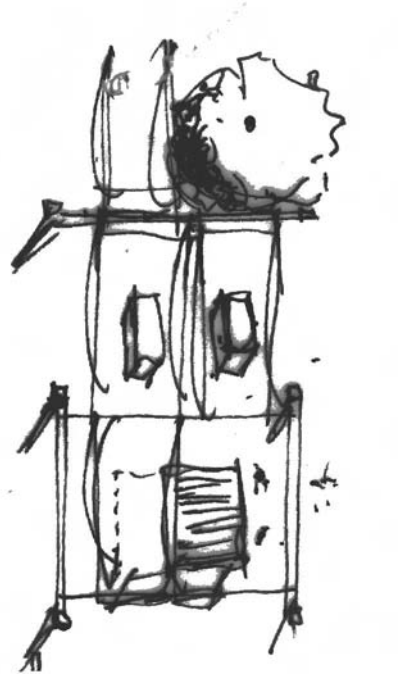
Traders Market

The traders market can be viewed as a plaza introducing commuters to the site. A medley of light posts illuminate the path towards the display towers. One can understand this path as a "melodic" sequence of form, that begins with an introduction which develops into a climax and ends with a conclusion (Lynch.K 1960:99)

The inspiration for shading of the traders market was inspired by Drill hall, in Johannesburg. This late addition to the Drill hall refurbishment project, comprises of a light weight shade netting. It is connected to a tensile steel cable, by means of cable clamps, and stretches some 25 metres across from one post to another.



3_47. Conceptual sketch of shade netting suspended from light posts.



3_48 Conceptual sketch of of shade netting in plan view

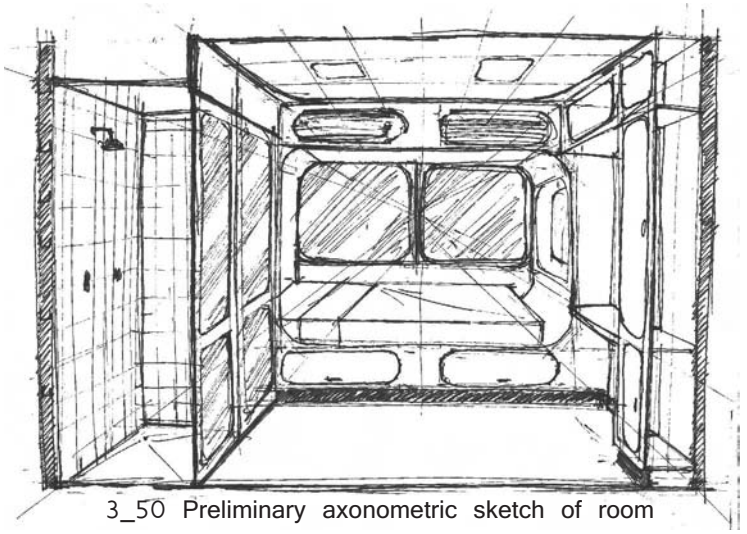
3_49 Drill hall, Johannesburg.
by Michael Hart Architects & Urban Designers.

Yotel

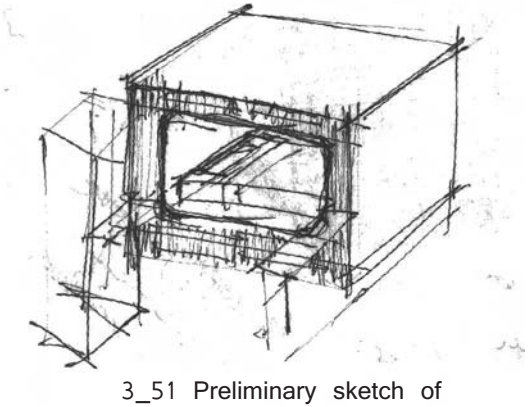
To enforce the space-age branding of the Yotel chain and for the contextual feel of light industrial environment. The rooms materials should be changed from the clinical white formica finish which is currently used, to more natural material feel.

Materials such as anodized aluminium for the doors and vents, cupboards and furniture from laminated timber. The Bed pod as shown in figure 3_51, to be constructed from Galvinised IBR sheeting on timber frame.

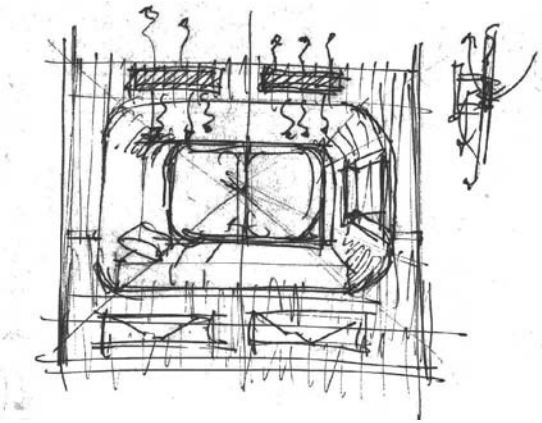
The suggested materials for the rooms are more robust and are less costly for both cleaning and maintenance.



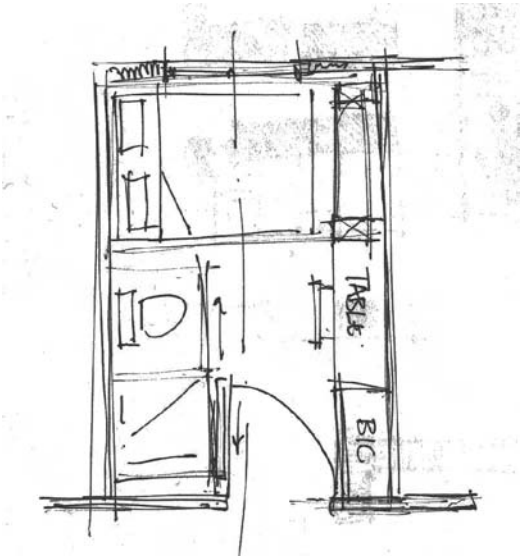
3_50 Preliminary axonometric sketch of room



3_51 Preliminary sketch of bed pod.



3_52 Preliminary axonometric sketch of bed pod.

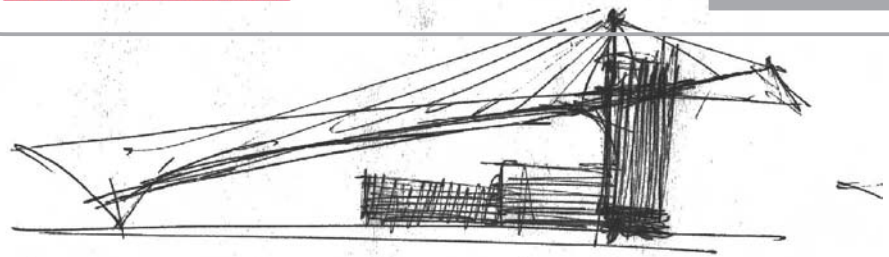


3_53 Preliminary sketch of room plan.

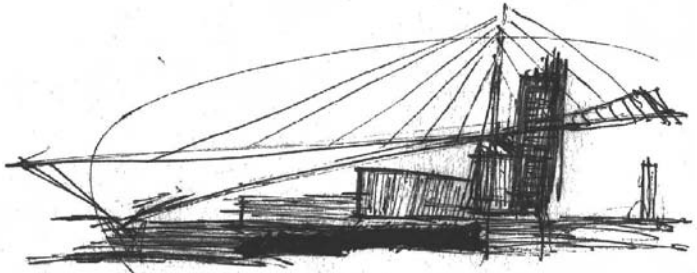
Elevations

The merger of the two roofing systems has resulted in the building presenting interesting but different north and south elevations, while still maitaining the industrial context.

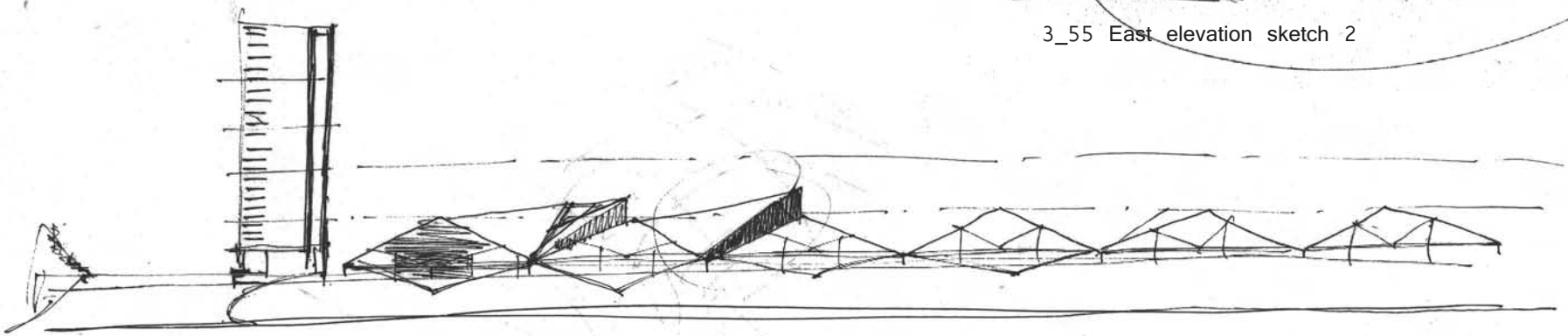
The ventilation towers would resemble smoke stacks and work on the same principle.



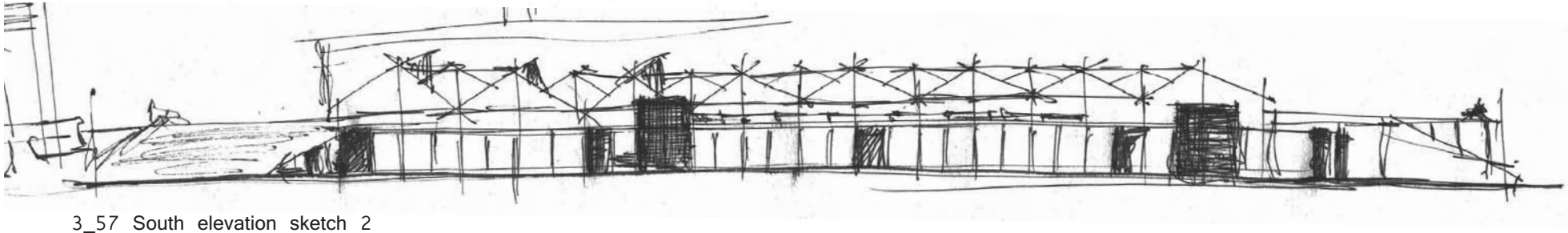
3_54 East elevation sketch 1



3_55 East elevation sketch 2

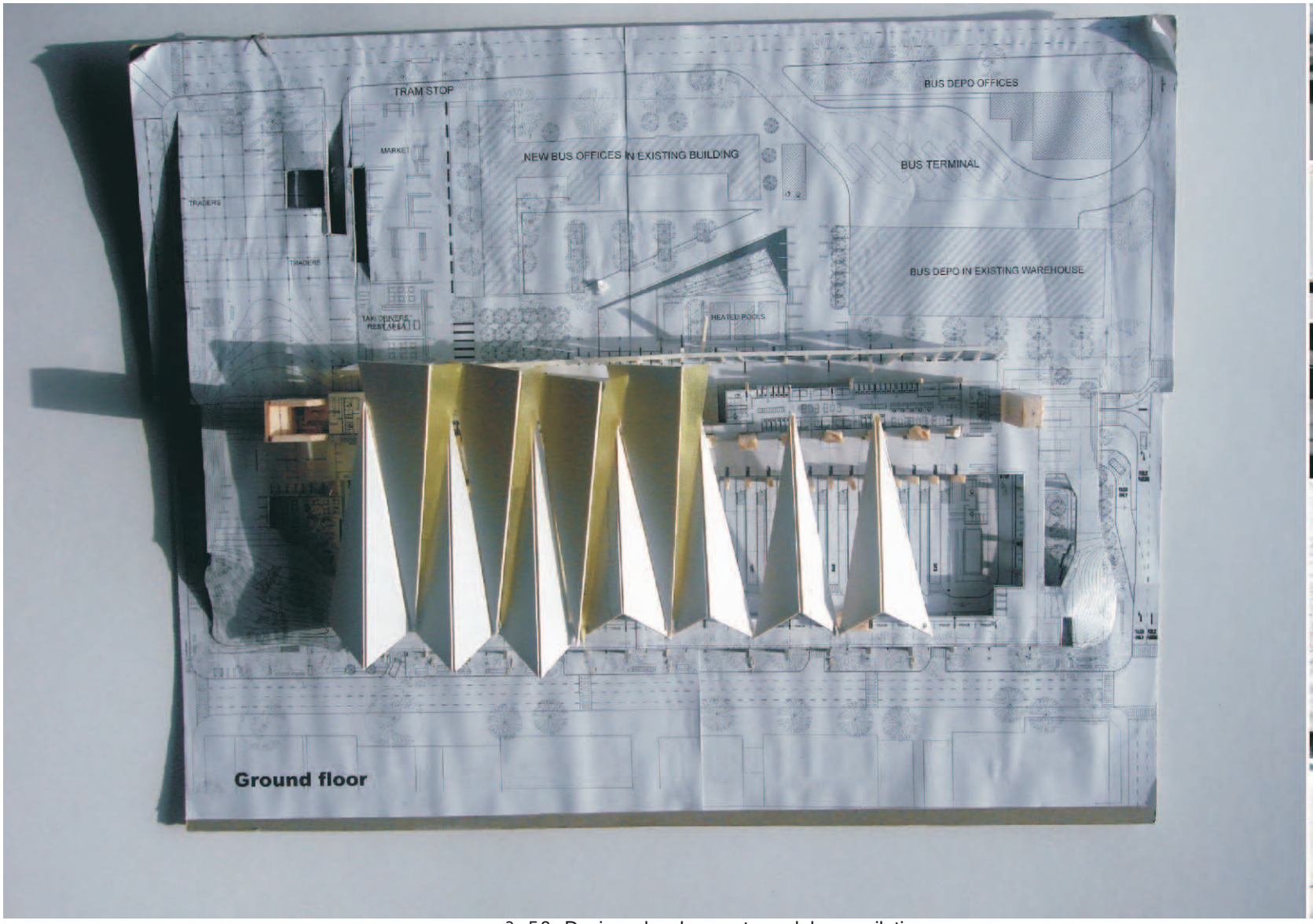


3_56 South elevation sketch 1



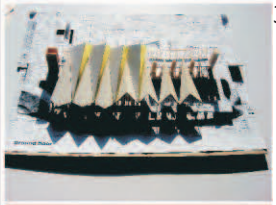
3_57 South elevation sketch 2

1.



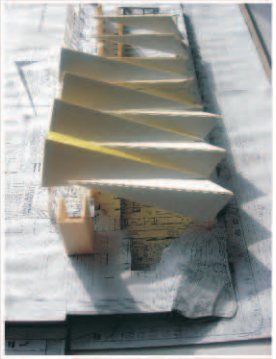
2.

3.



4.

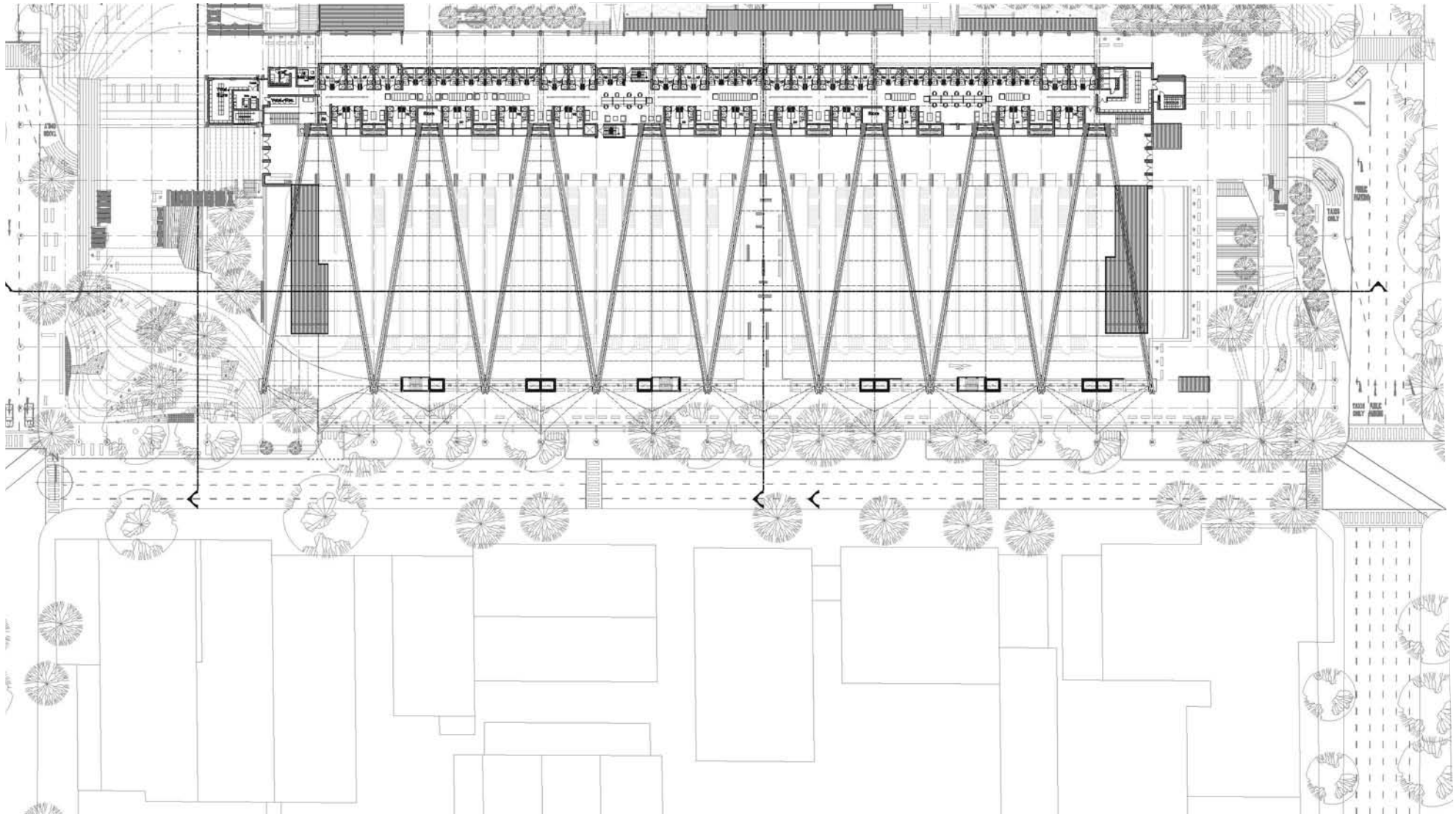
5.



6.

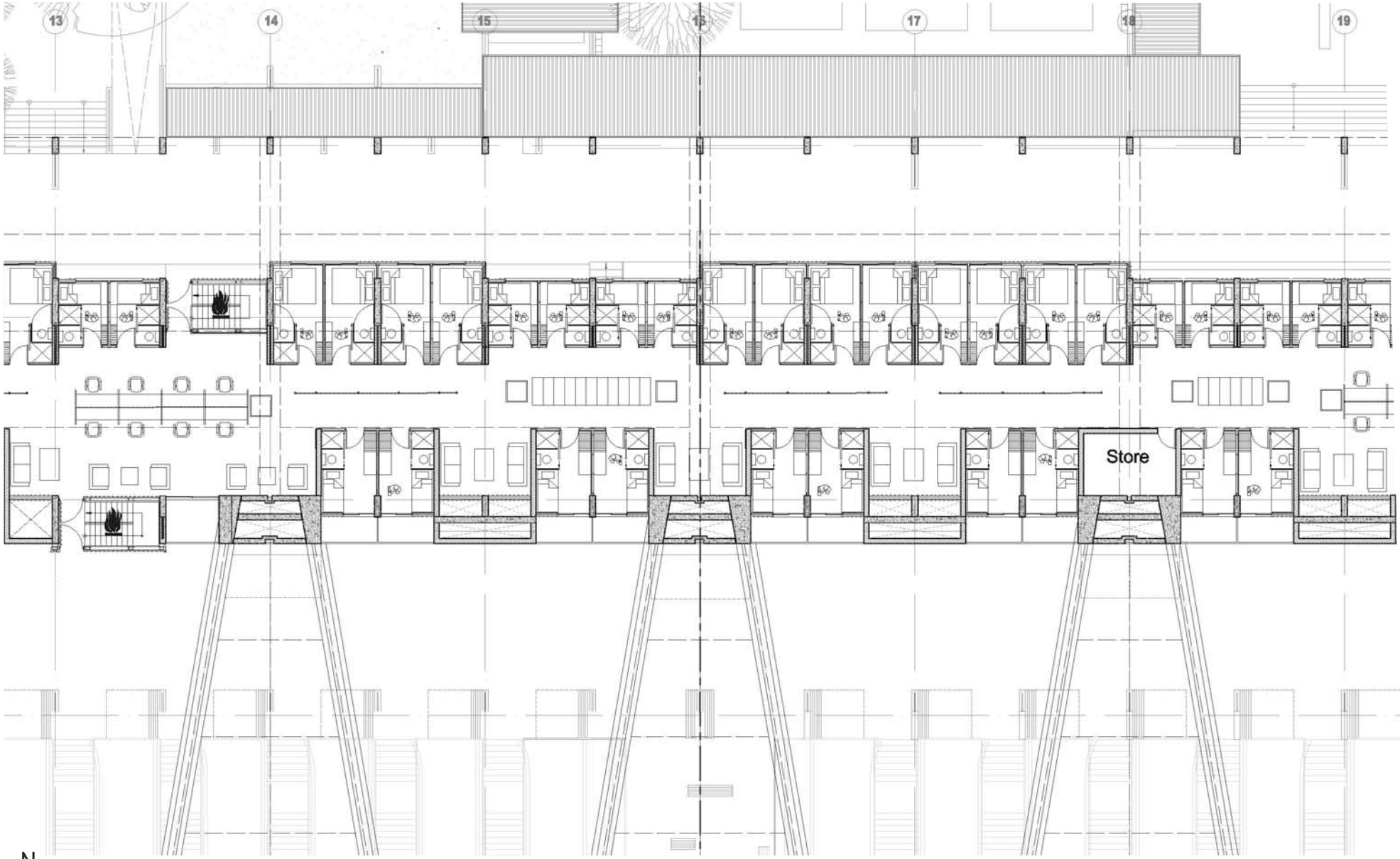
3_58 Design development model compilation.

1. plan view (summer, morning) 2.South view (winter, mid day) 3.South view (winter, morning) 4.West view (winter, morning) 5.West view (winter, morning) 6.North view (winter, morning)



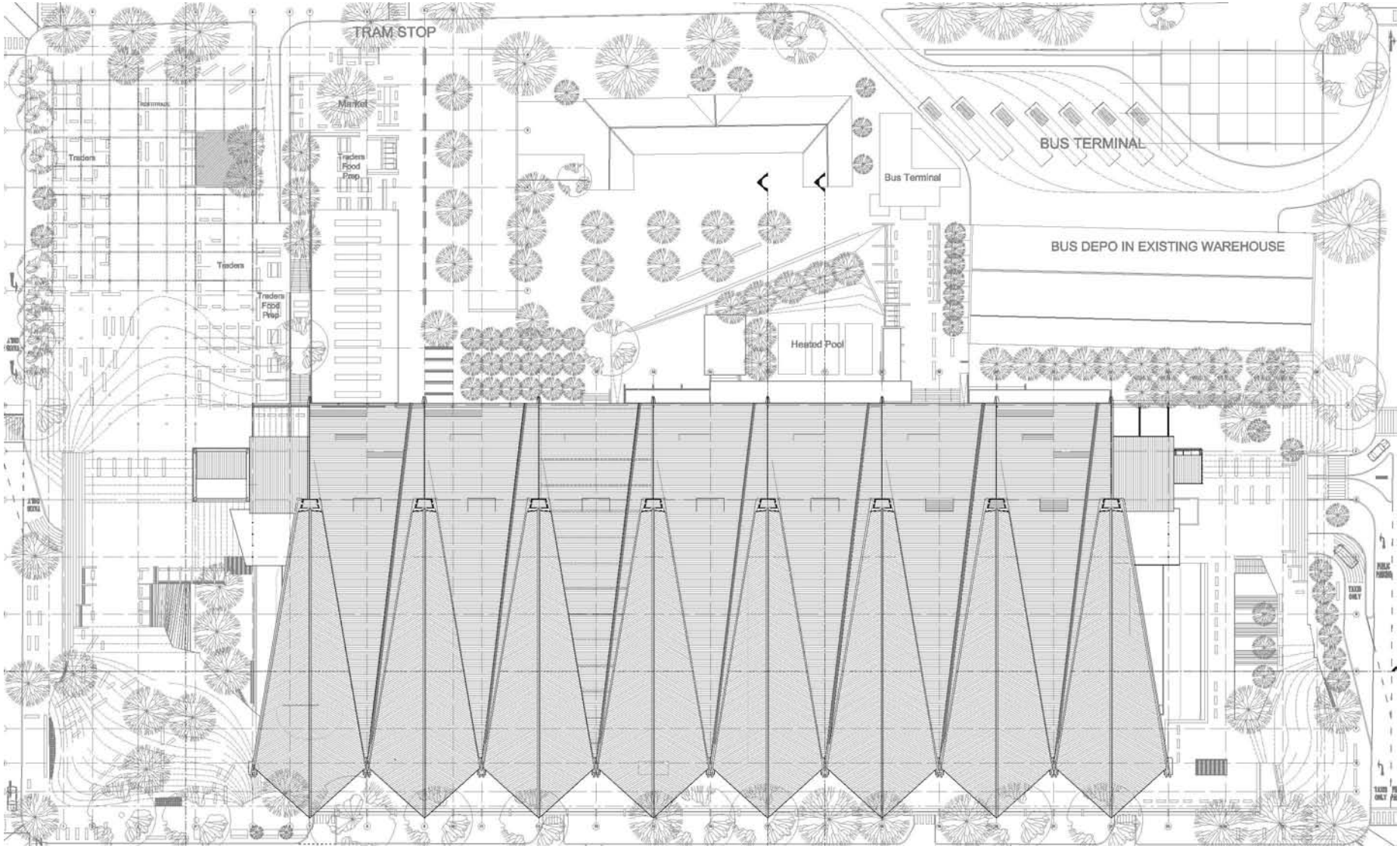
N

Second floor plan
Scale 1:1000



N

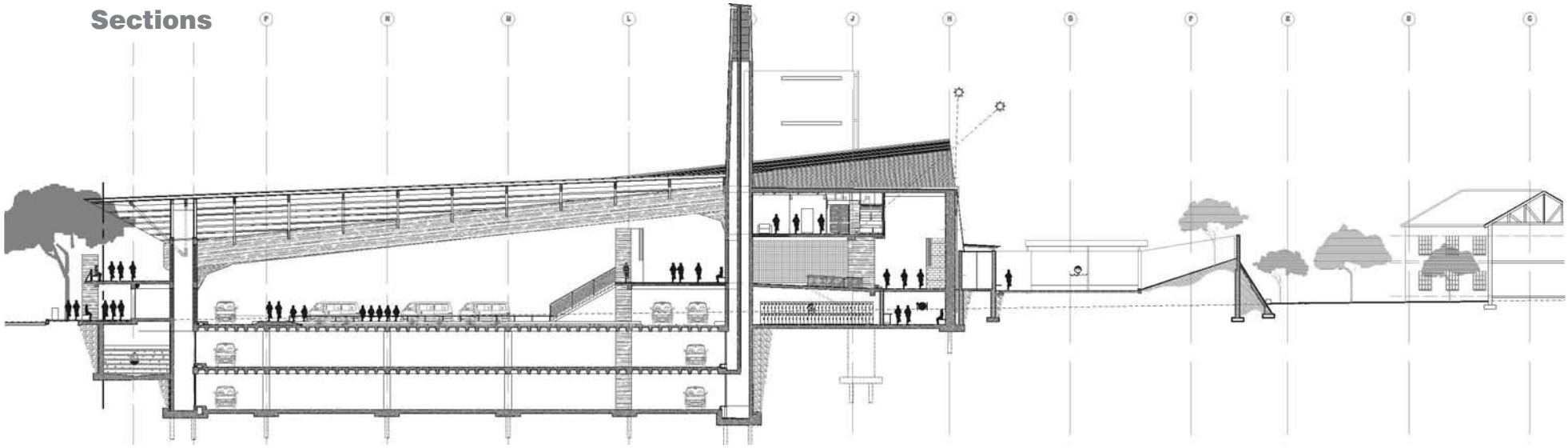
Second floor plan - Yotel layout
Scale 1:250



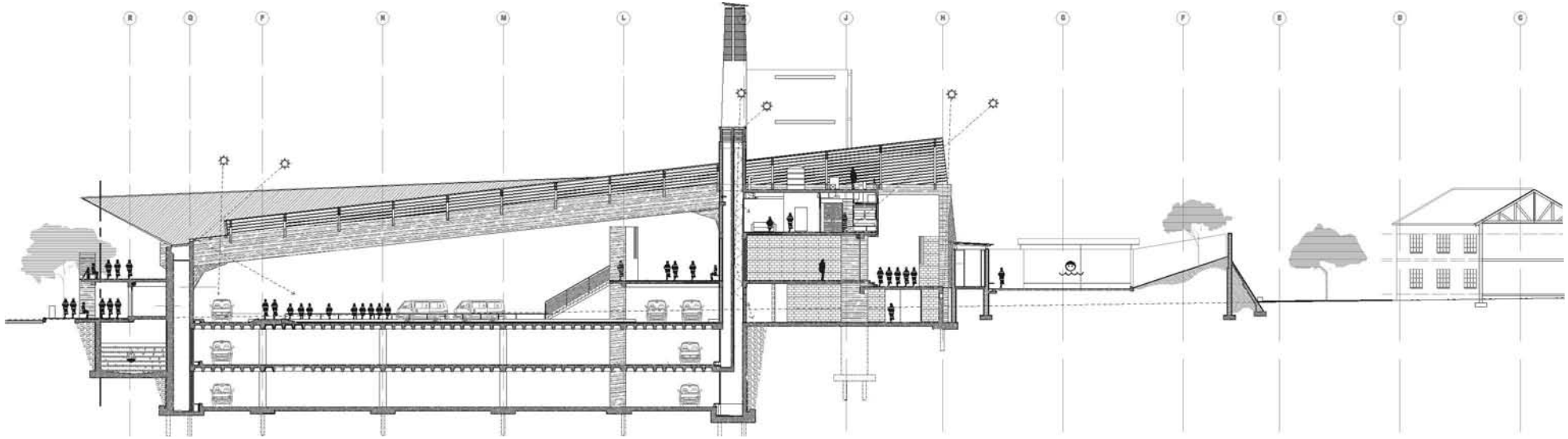
N

Roof plan
Scale 1:1000

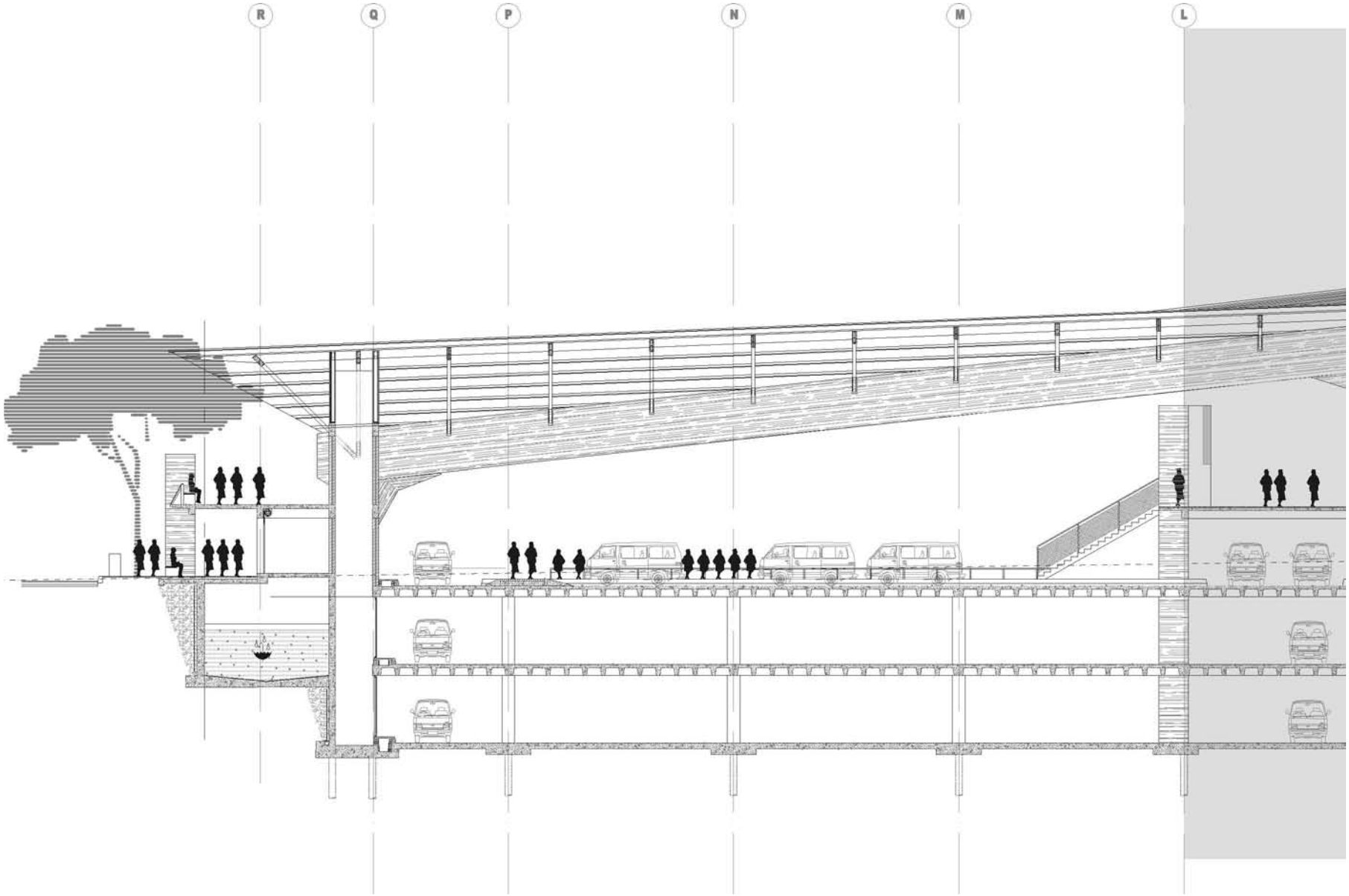
Sections



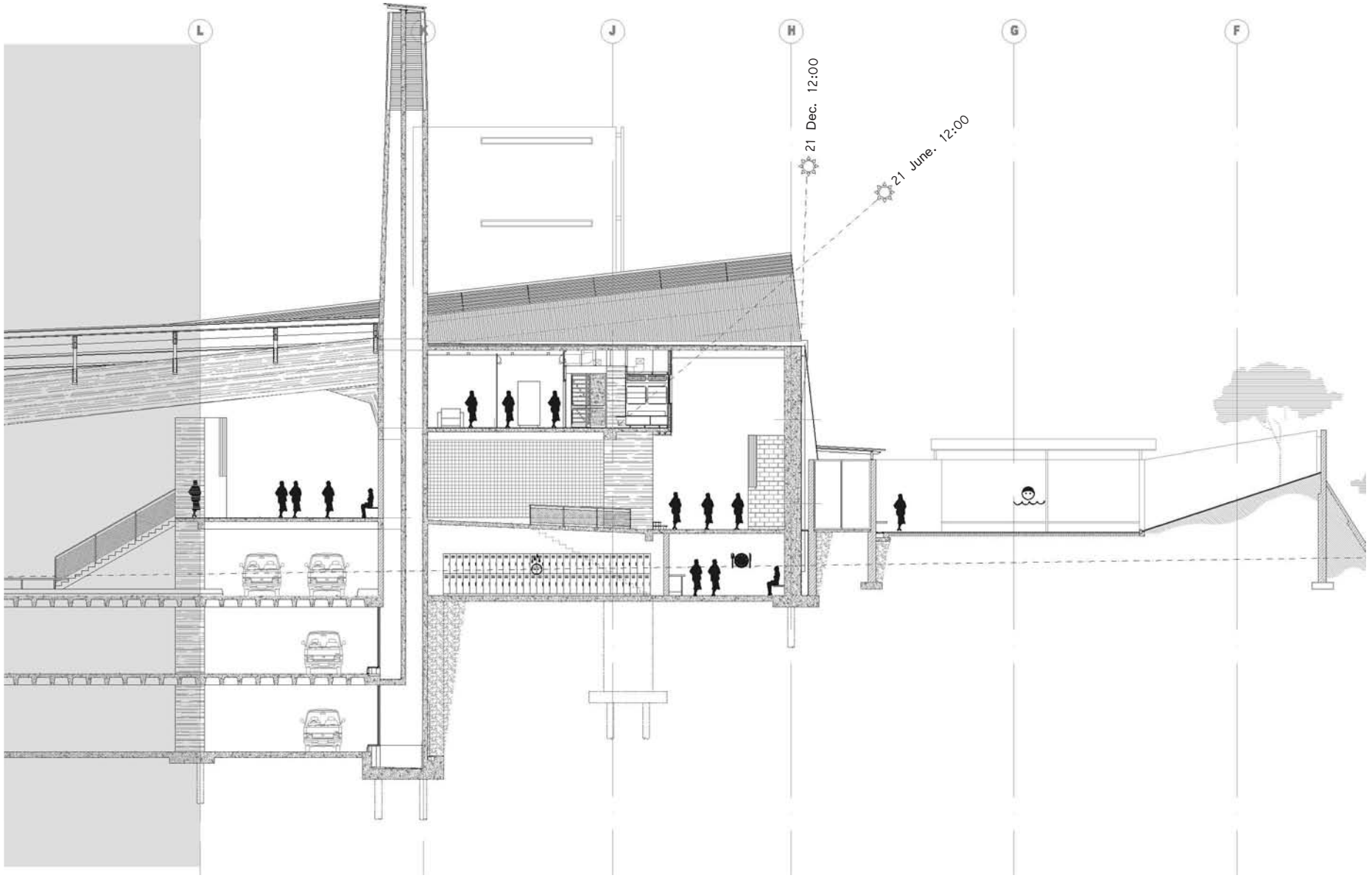
Section A-A
Scale 1:500

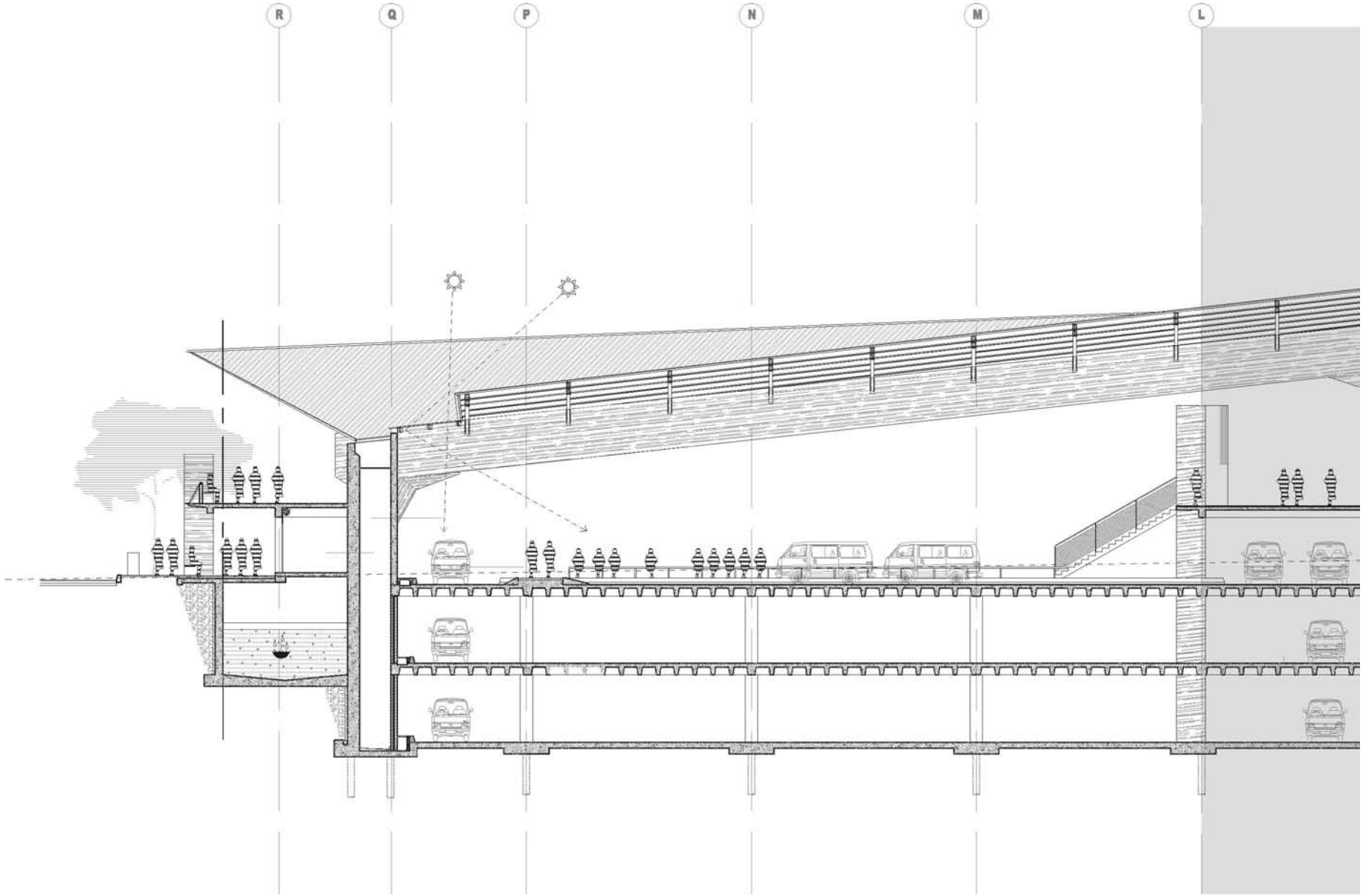


Section B-B
Scale 1:500



Detailed section A-A
Scale 1:250


L
K
J
H
G
F
21 Dec. 12:00
21 June. 12:00



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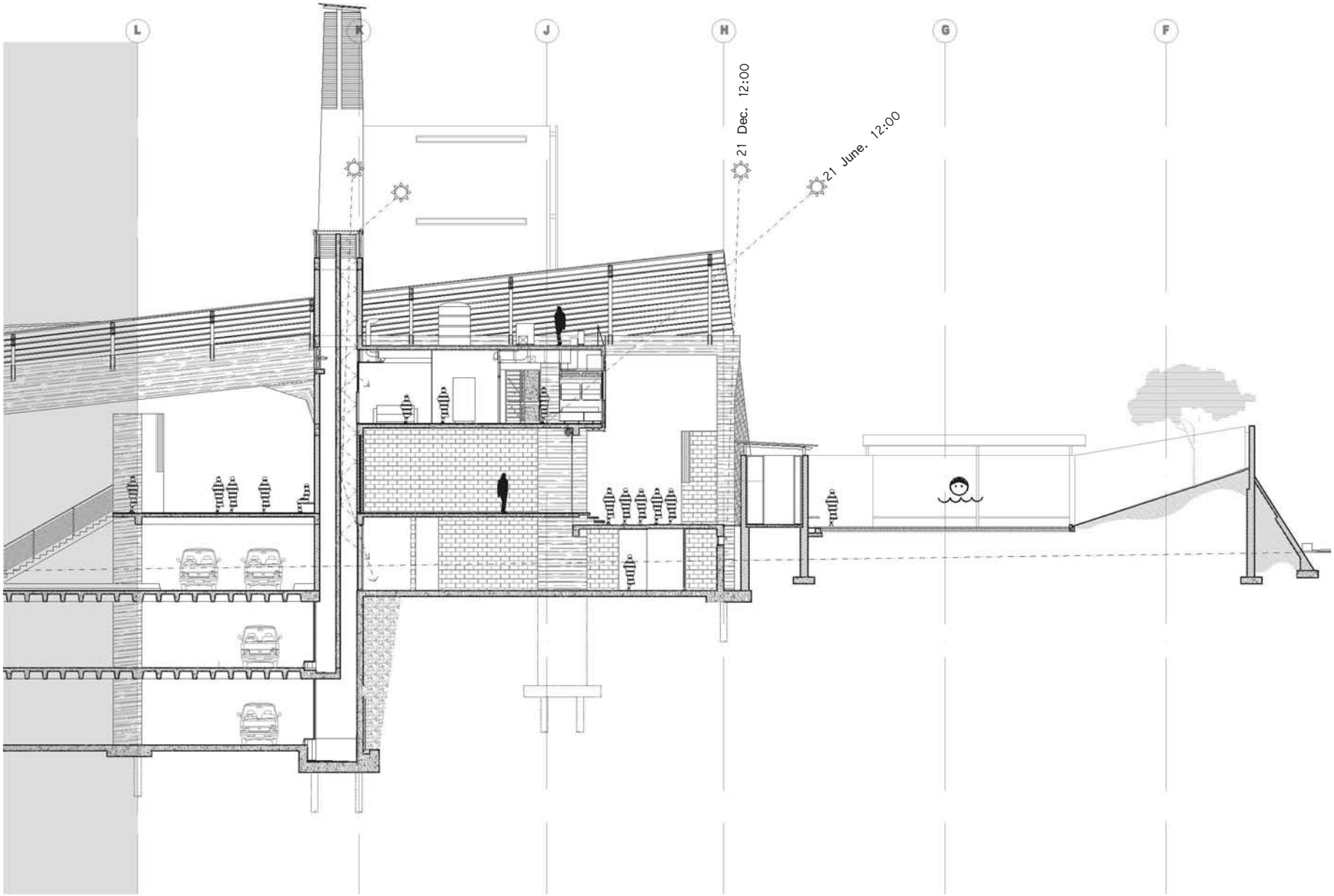
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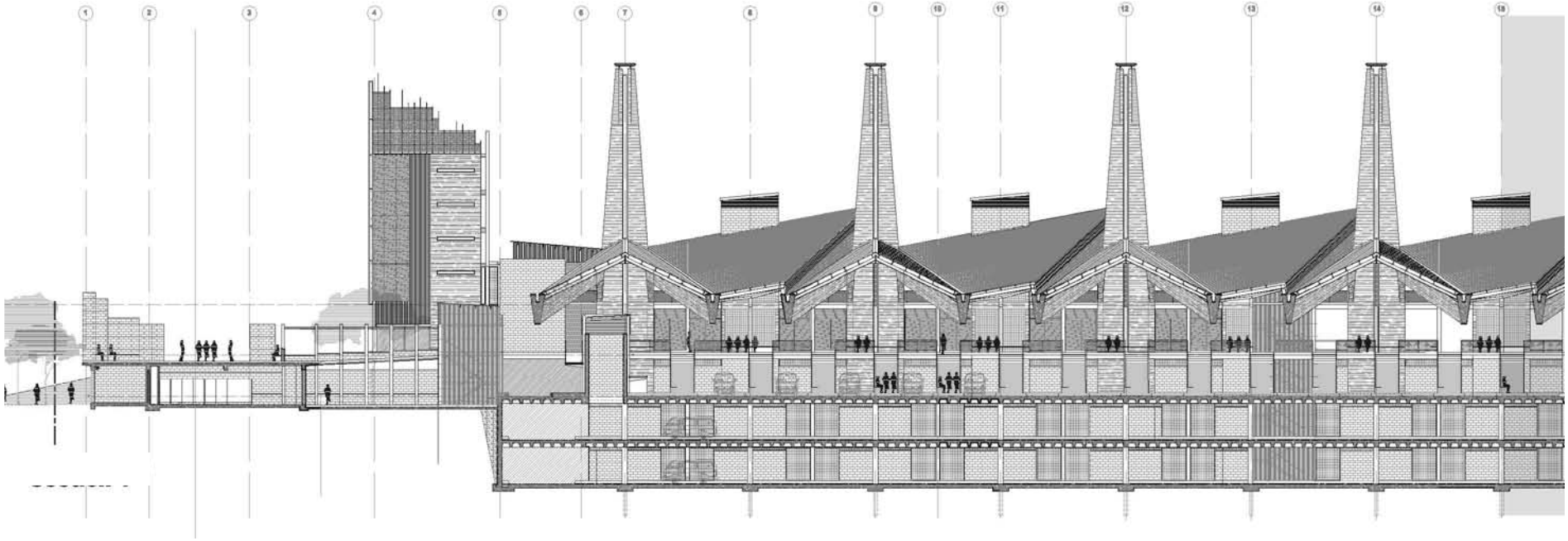
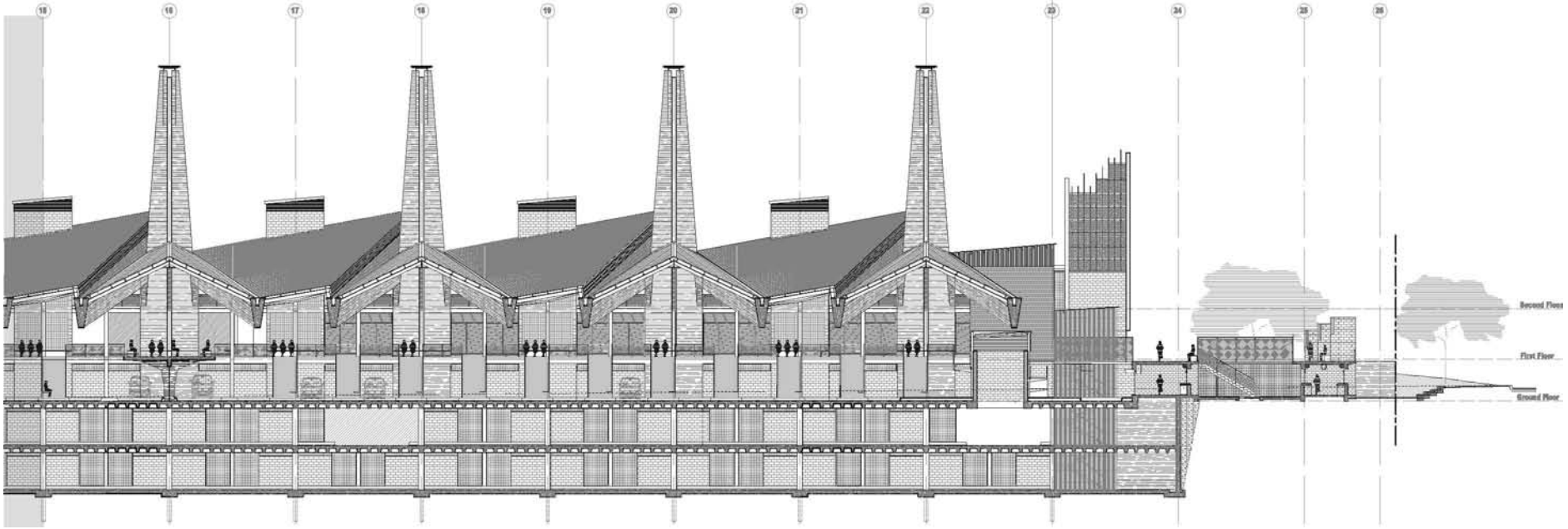
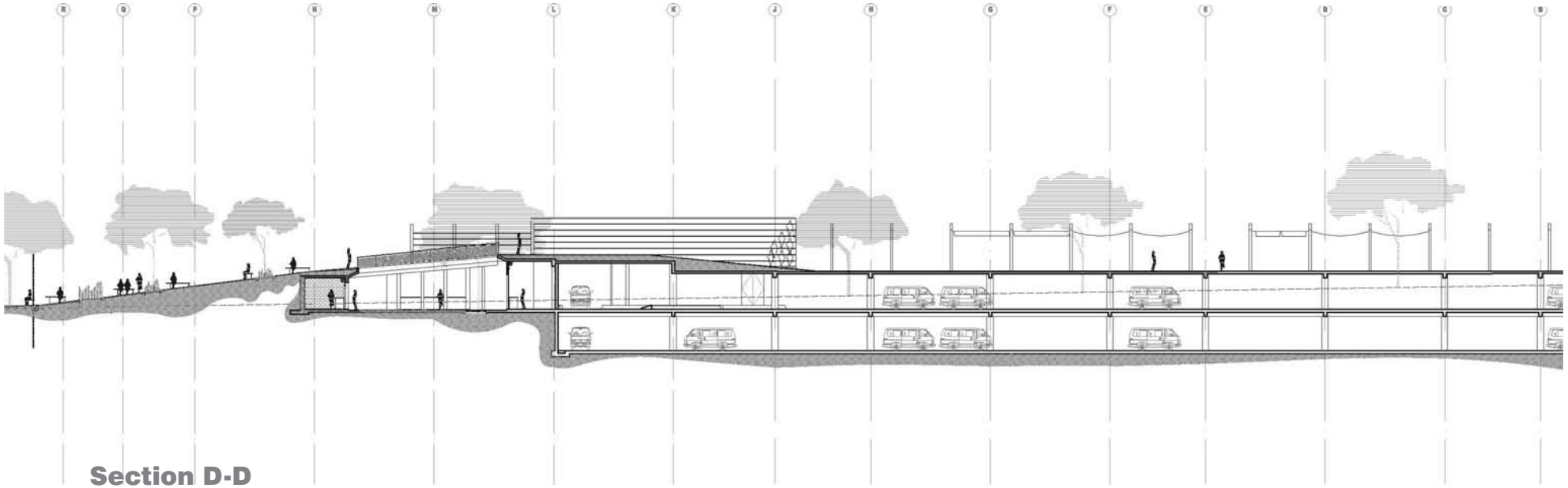
21 Dec. 12:00
21 June. 12:00

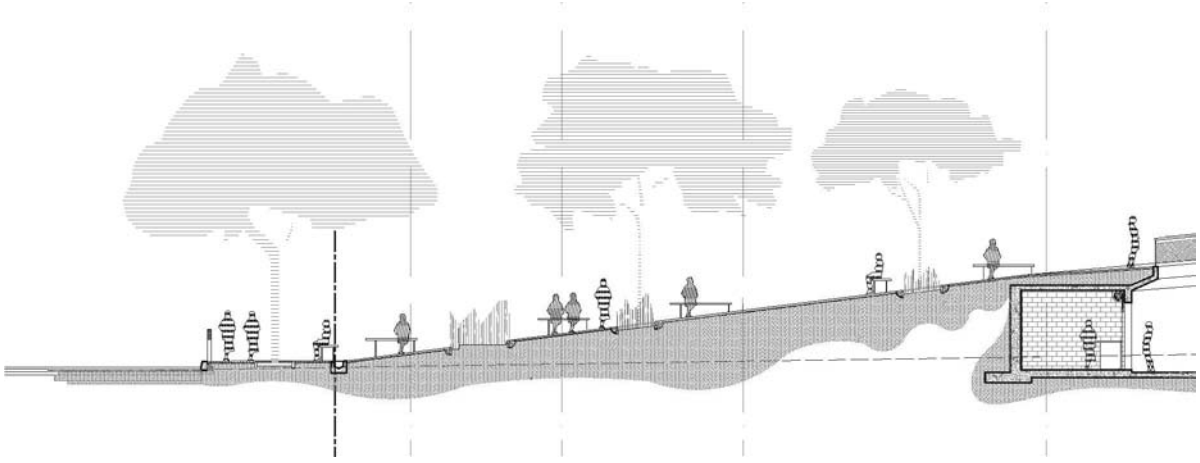


Section C-C
Scale 1:500


Second Floor
First Floor
Ground Floor

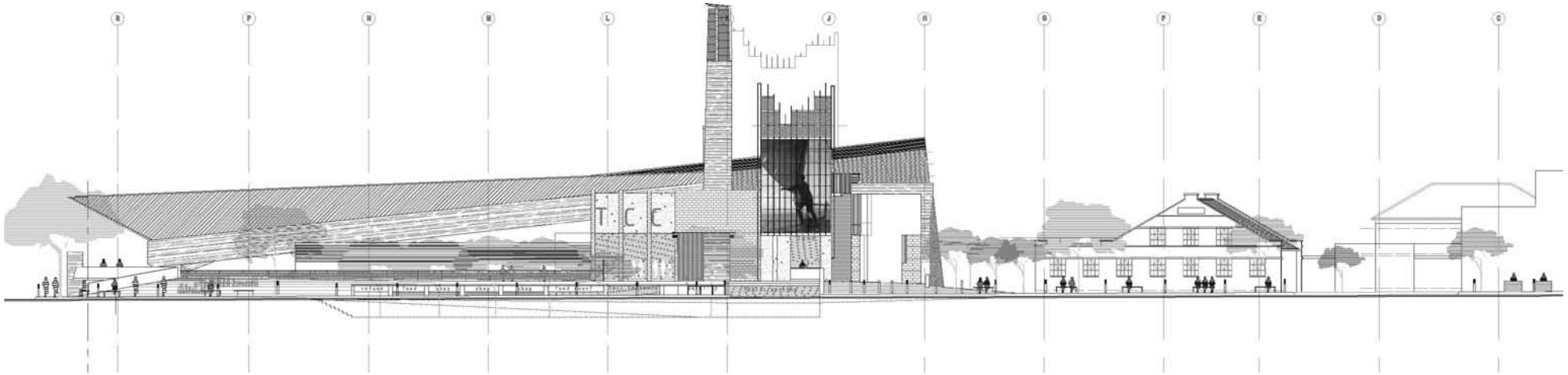


Section D-D
Scale 1:500

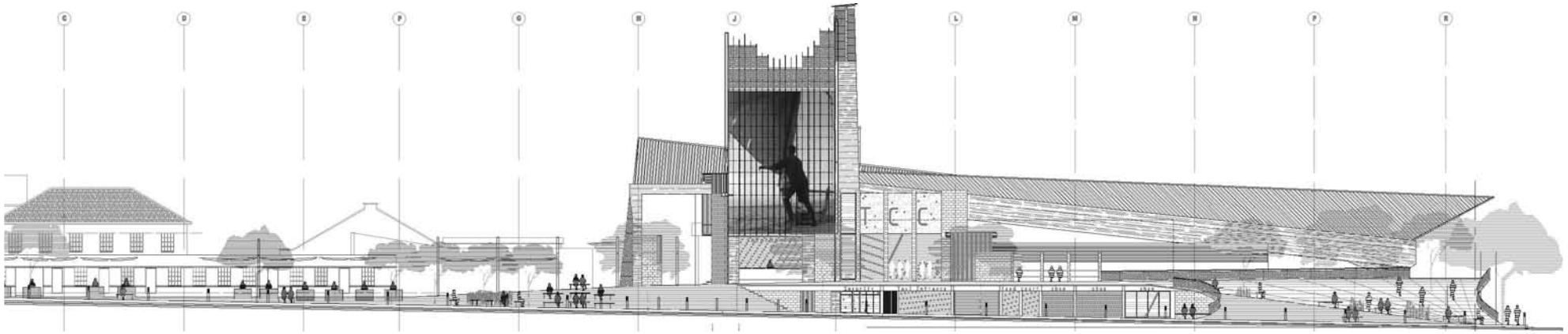


Detailed section D-D
Scale 1:250

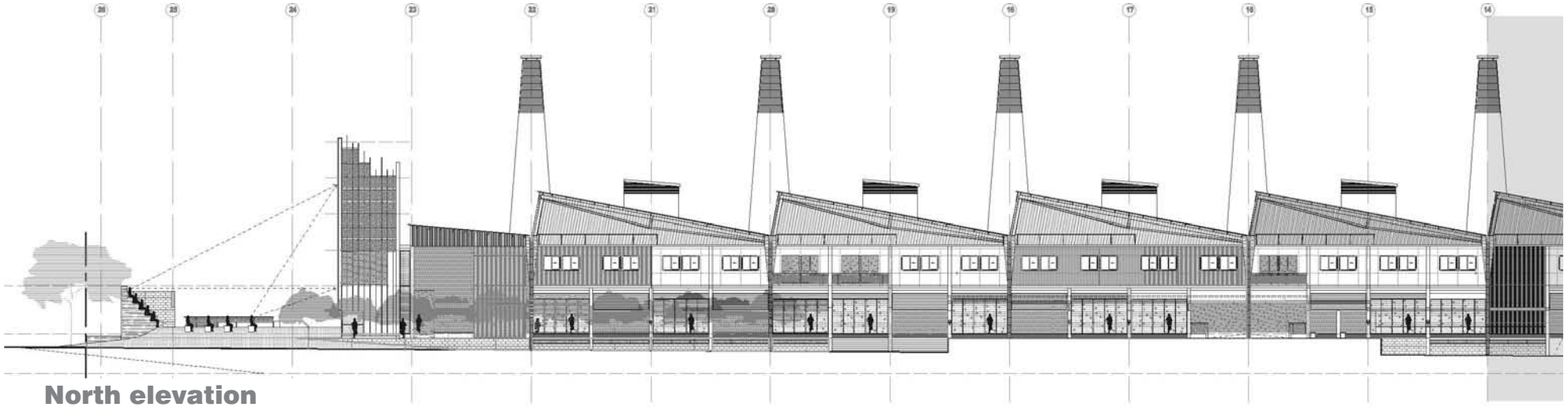
Elevations



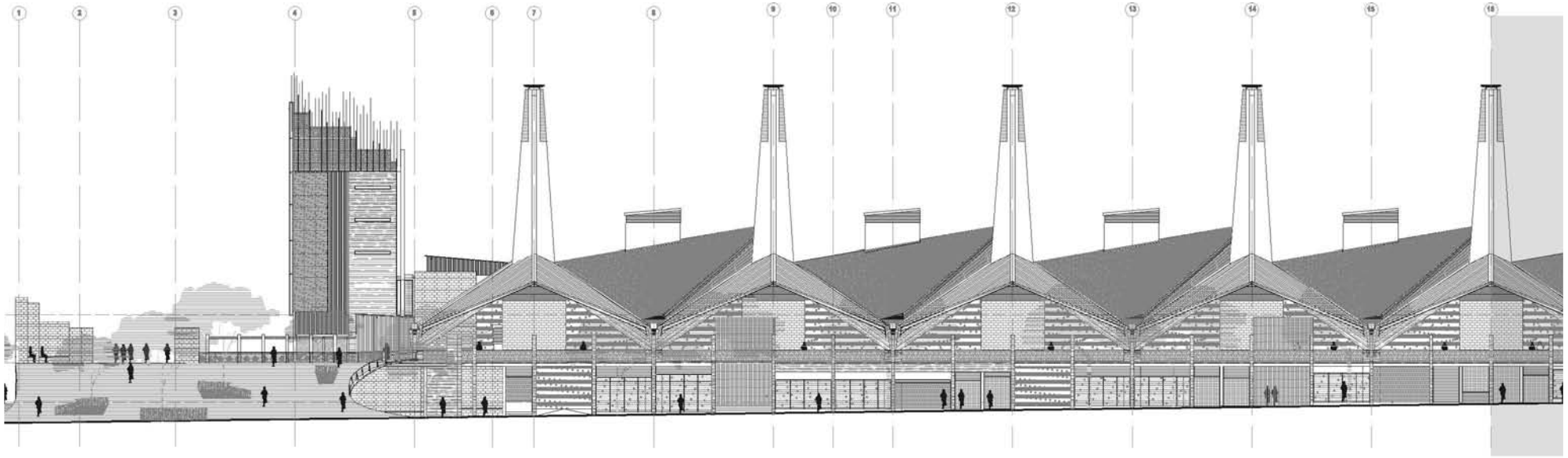
East elevation
Scale 1:500



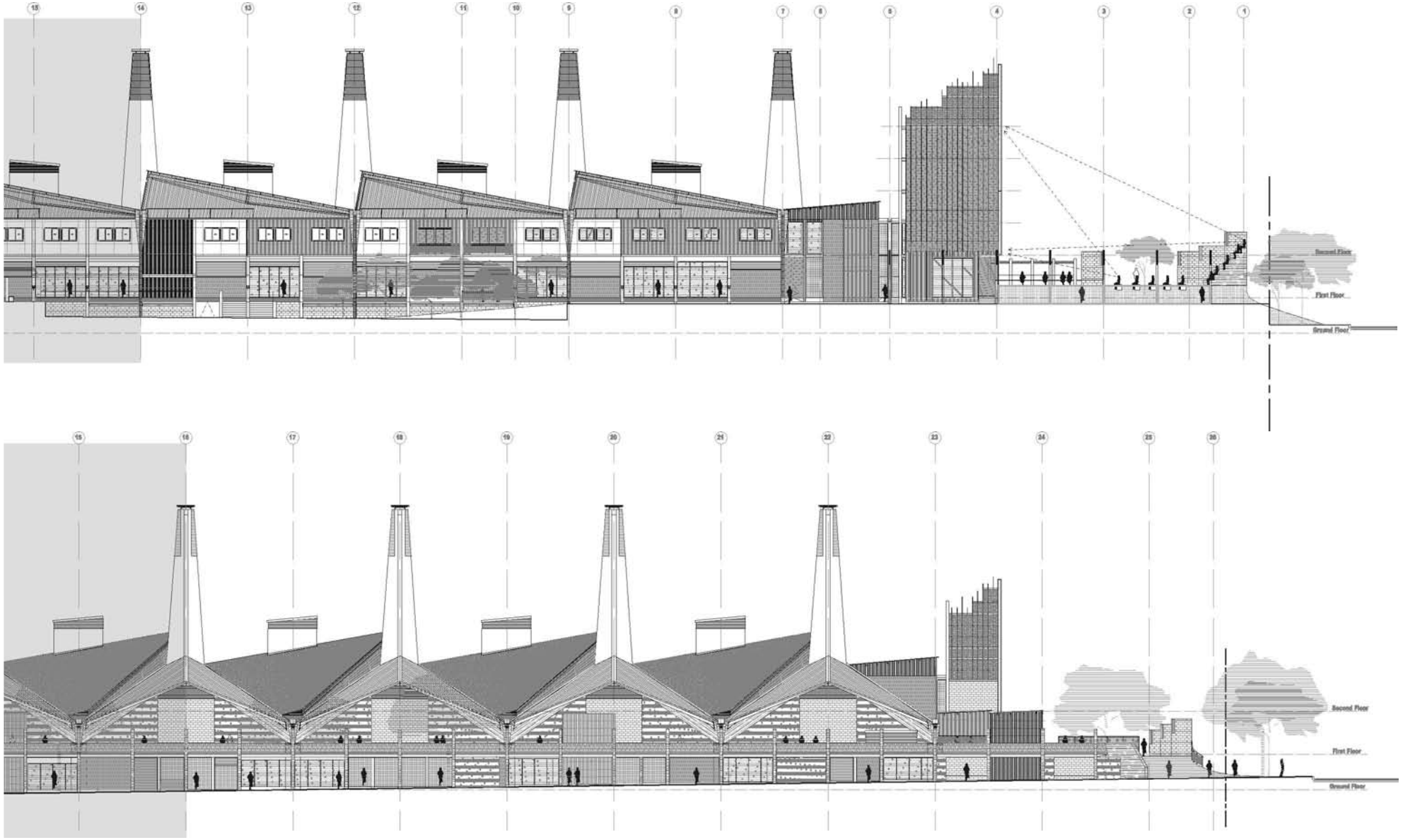
West elevation
Scale 1:500



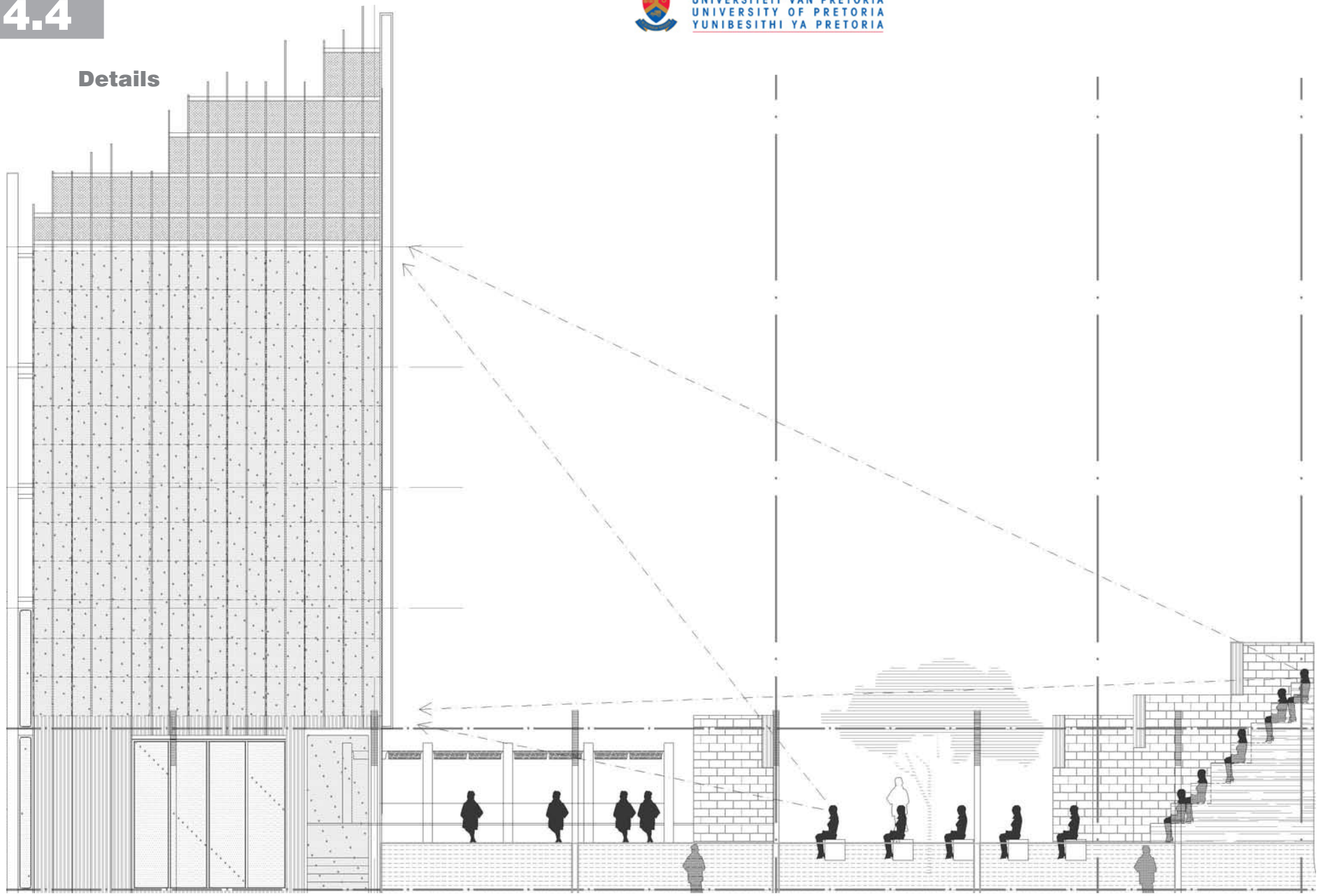
North elevation
Scale 1:500



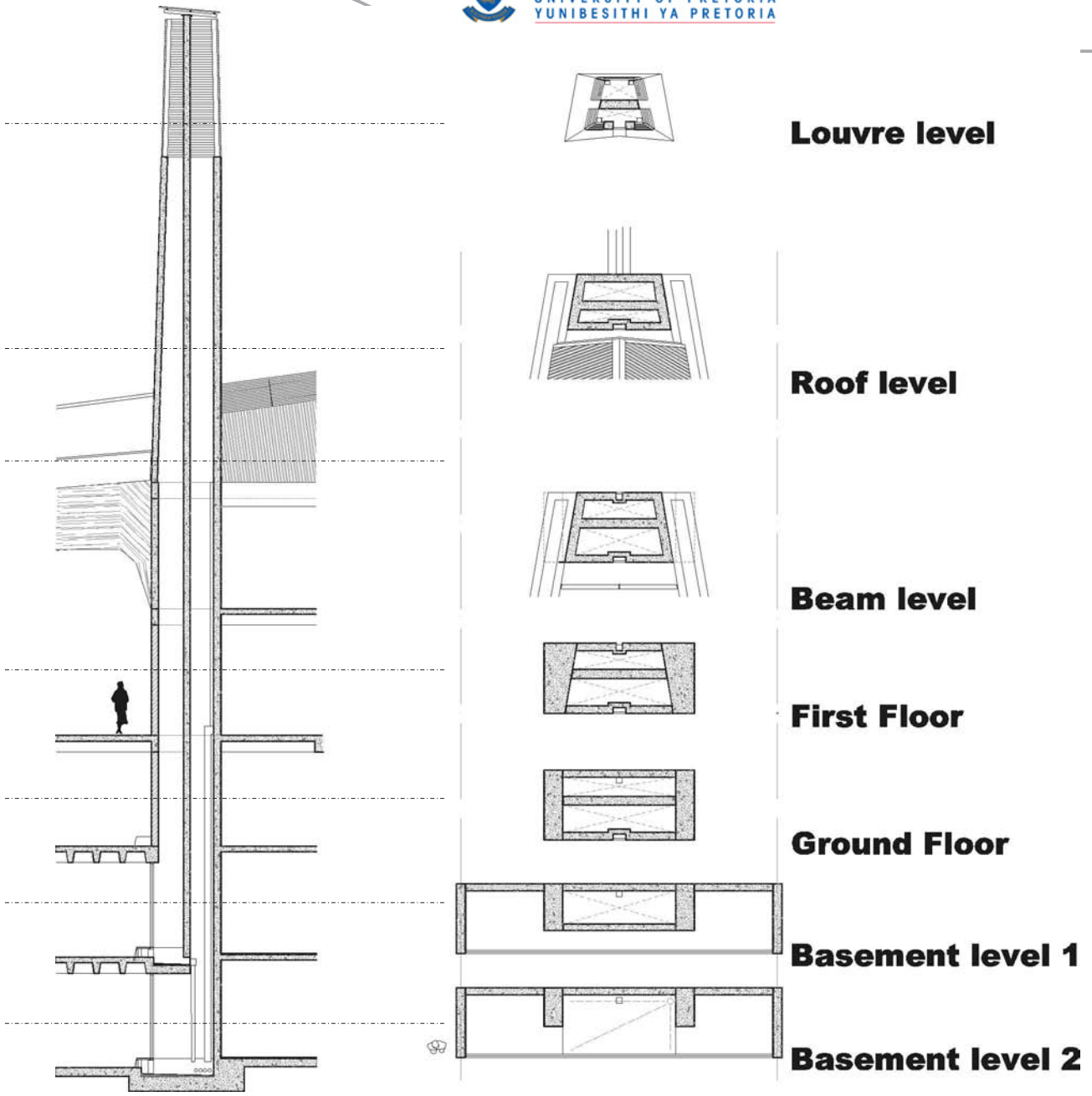
South elevation
Scale 1:500


Second Floor
First Floor
Ground Floor
Second Floor
First Floor
Ground Floor

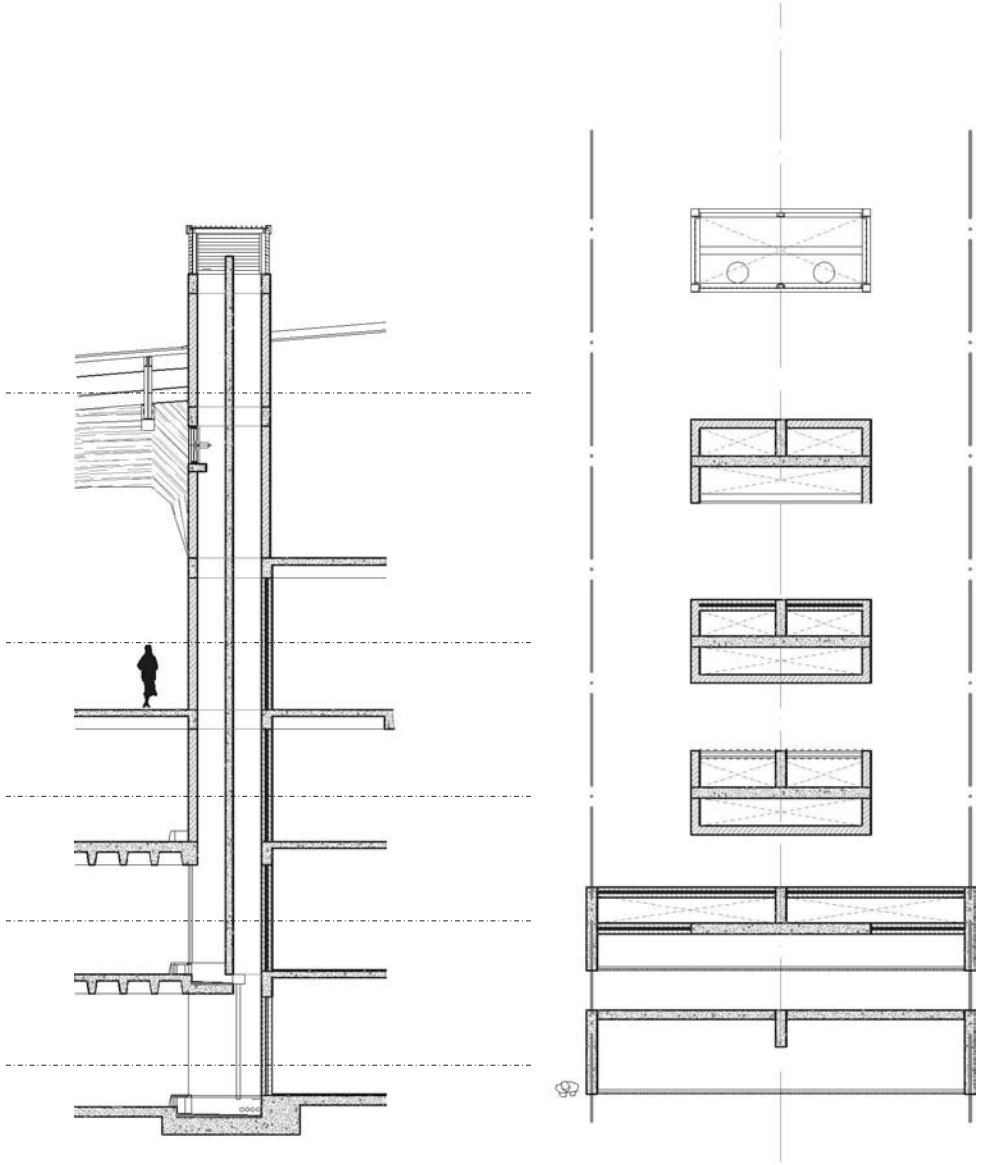
Details



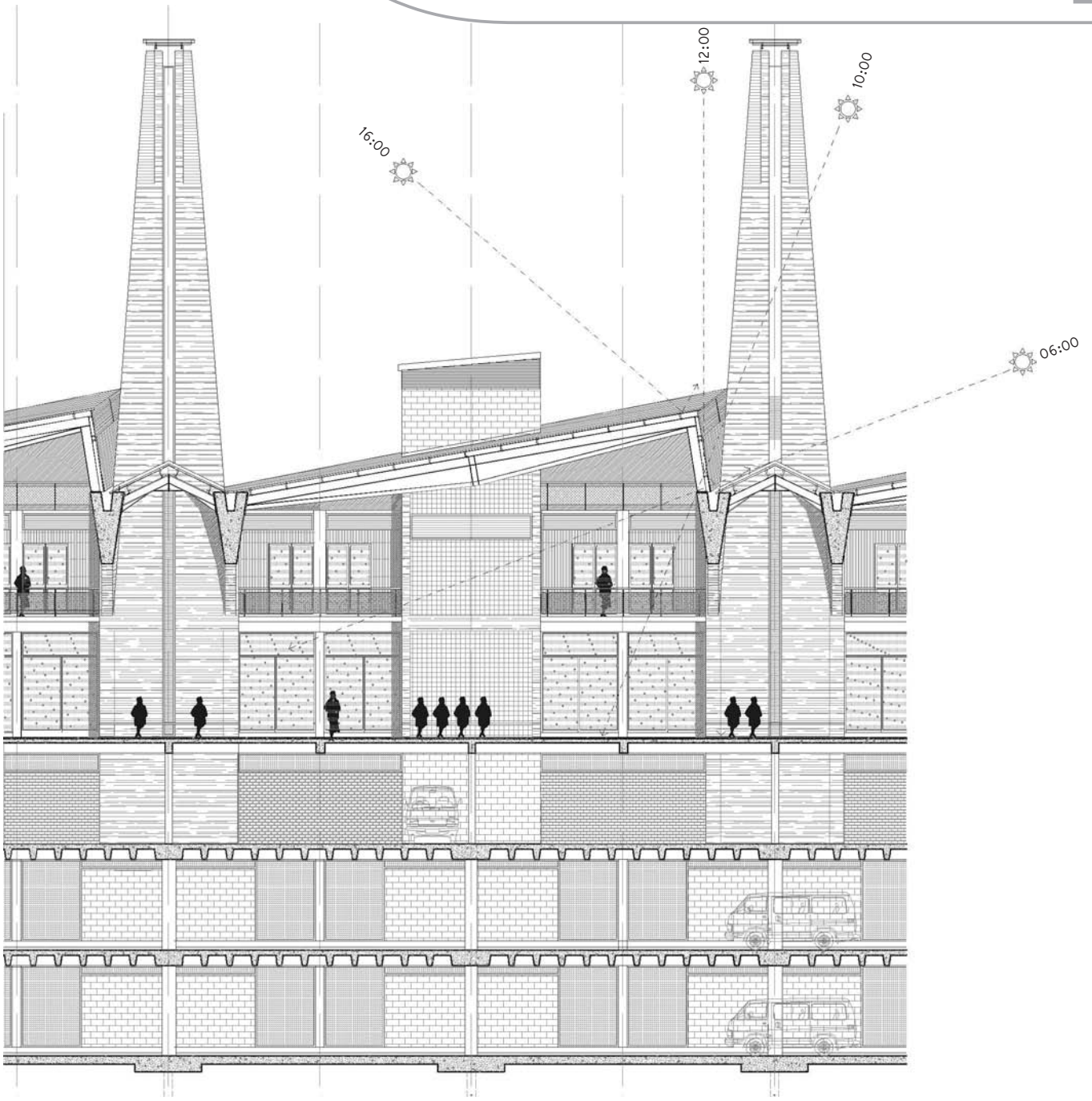
LED tower elevation
Scale 1:125



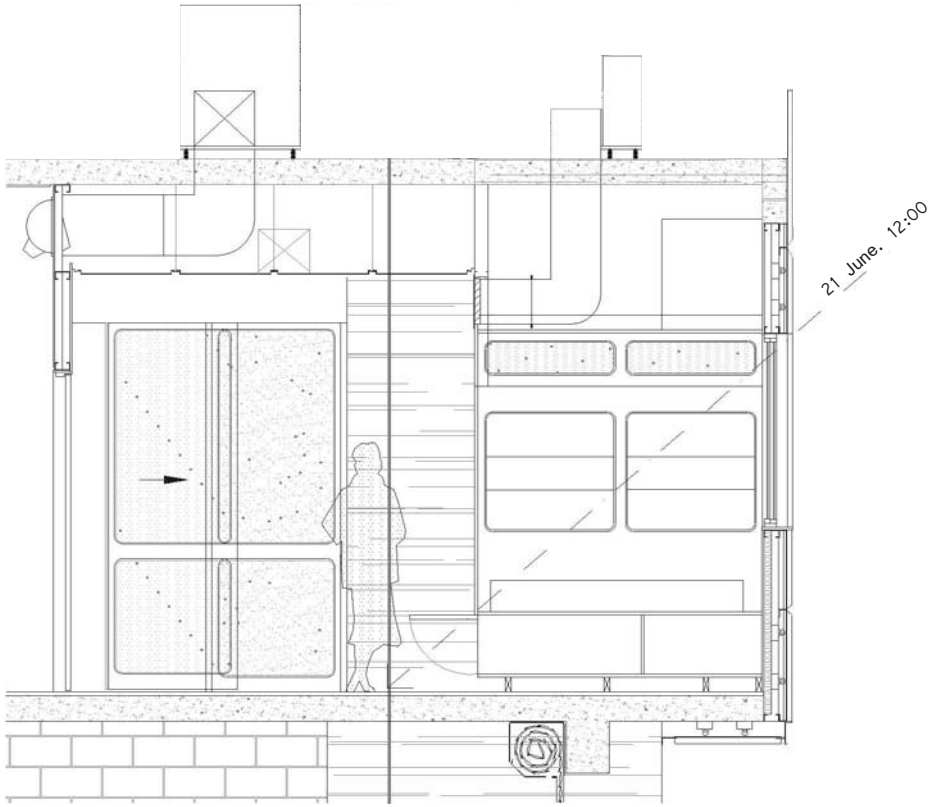
Tapered tower detail
Scale 1:200



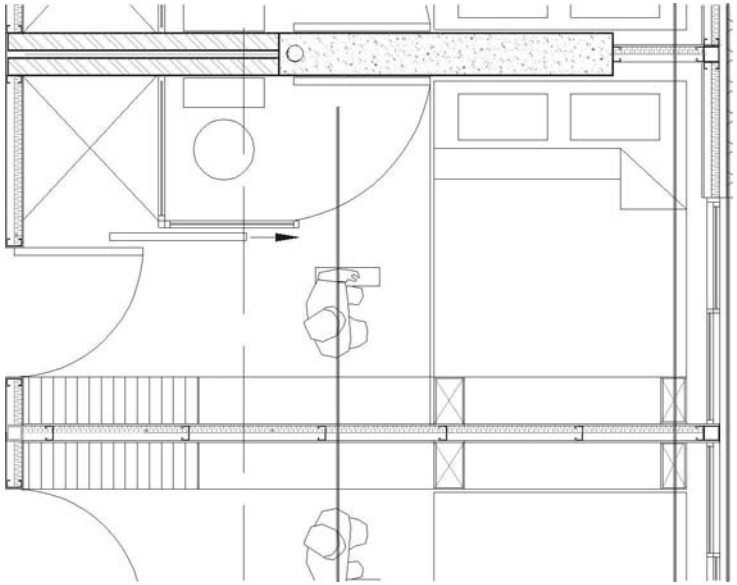
Straight tower detail
Scale 1:200



North towers detail
Scale 1:200

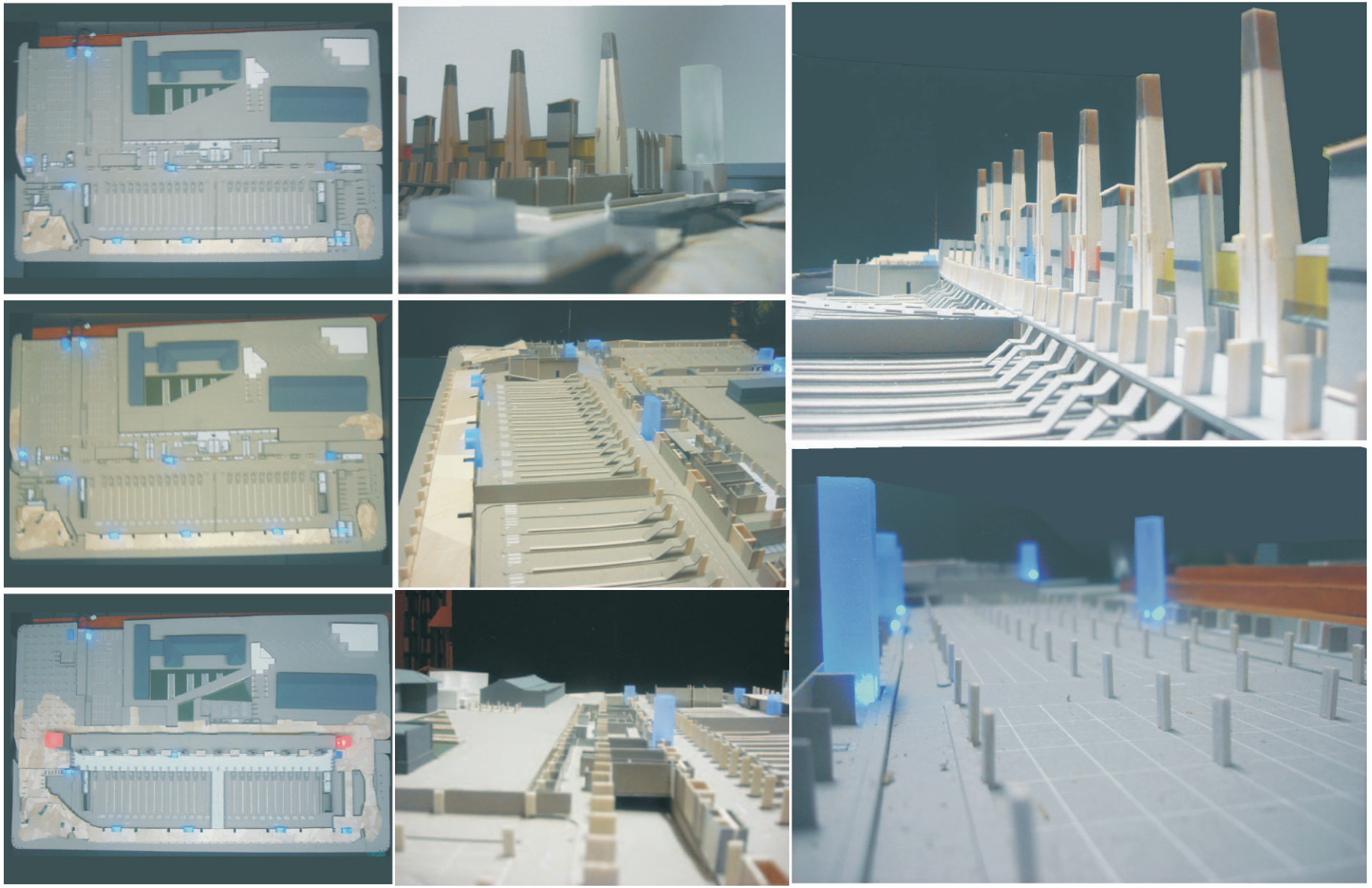


Yotel© sectional elevation
Scale 1:50

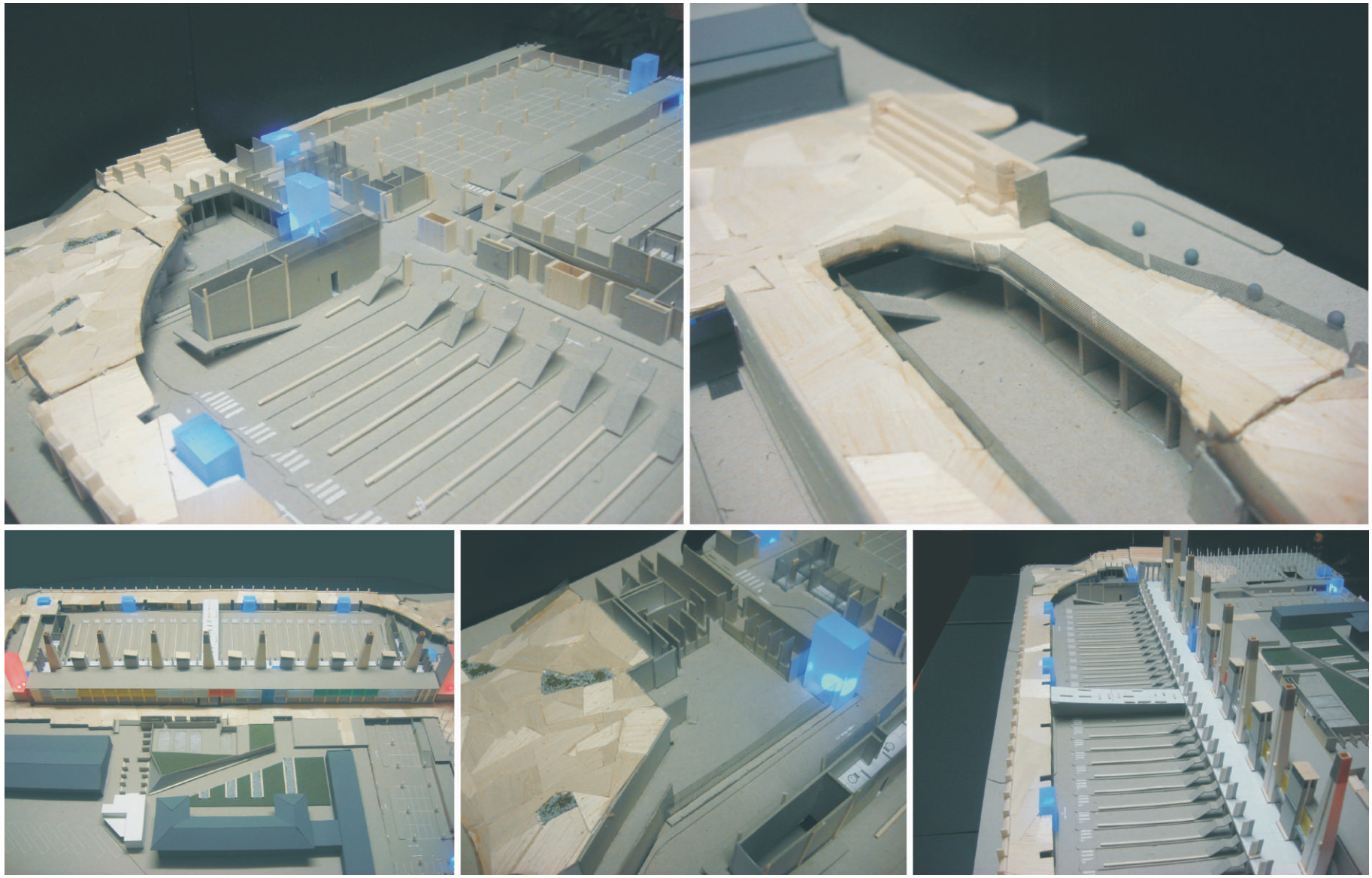


Yotel© double room plan
Scale 1:50

Model

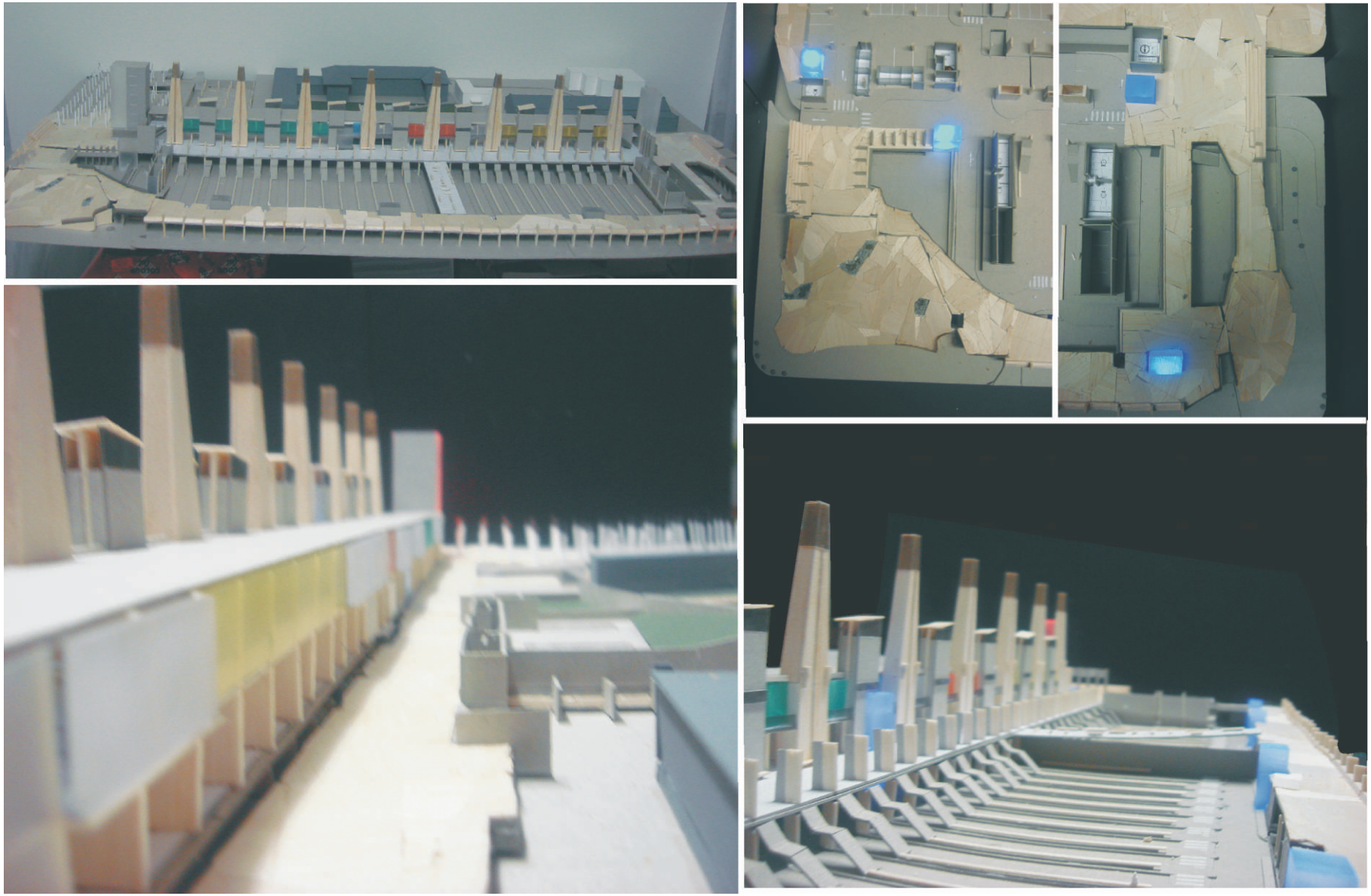


4_01 Final model compilation



4_02 Final model compilation

Model



4_03 Final model compilation

4_04 Final model compilation - light effect

Costing

Tshwane city central taxi terminal

Building Costs

		m†	cost /m†	total
Landscaping		5.723,00	R 1.200,00	R 6.867.600,00
Retail Area		5.723,00	R 3.900,00	R 22.319.700,00
Basement levels		36.160,00	R 2.850,00	R 103.056.000,00
Roofing	sheeting	9.047,00	R 126,00	R 1.139.922,00
	structural steel	9.047,00	R 625,00	R 5.654.375,00
	concrete slab	2.474,00	R 485,00	R 1.199.890,00
Demolitions		358,00	R 250,00	R 89.500,00
Sub total		68.532,00		R 140.326.987,00

Special items

		units	cost/unit	total
Hotel		52	R 160.000,00	R 8.320.000,00
Concrete beams		2.000,00	R 1.250,00	R 2.500.000,00
Concrete	tower (tapered)	1.680,00	R 1.250,00	R 2.100.000,00
	tower (Straight)	980,00	R 1.250,00	R 1.225.000,00
Water harvesting		280,00	R 3.000,00	R 840.000,00
LED displays		R 750.000,00	1,5	R 1.125.000,00
Sub total				R 16.110.000,00
Sub total				R 156.436.987,00

Table 5_01 Costing schedule

Municipal connections			
	units	cost/unit	total
Sewer	1	R 15.000,00	R 15.000,00
Water	1	R 30.000,00	R 30.000,00
Stormwater	1	R 15.000,00	R 15.000,00
Electrical (@R 700.00/KVA)	450	R 700,00	R 315.000,00
Sub total municipal services			R 375.000,00
Sub total			R 156.811.987,00

Professional fees	
Architect	R 9.574.864,25
Quantity surveyor	R 5.396.904,00
Engineer	R 7.737.212,00
Sub total Professional fees	R 22.708.980,25
Sub total	R 179.520.967,25

Escalation		
	Months	
1%per month prior to Site Handover	6	R 9.408.719,22
0.65% per month During costruction	24	R 24.462.669,97
Sub total Escalation		R 33.871.389,19
Total project cost		**R 213.392.356,44**

Table 5_01 Costing schedule Continued
(Interview: Hyslop, D.)

Conclusion

Public transportation terminals can be viewed as gateways into the city. At present they are poorly rundown adding to a perception of insecurity and mismanagement. However in reality public transport terminals are a hive of activity, and thousands of people converge onto a small informal space where one can buy practically anything, eat anything, and go anywhere.

Terminals are one of the more important representations of the public transportation industry and have an inherent possibility for changing bad perceptions by outsiders of public transportation, furthermore changing the perceptions of the city. This imagery is exceedingly important if Tshwane wants to be the African capital city of excellence, and with three million soccer fans coming to South Africa. Will they have the benefit of an excellent Tshwane and even better South Africa?

The 2010 soccer World Cup is a perfect initiative where financial resources have been set aside for upgrading of roads and transportation. Public transport facilities and perceptions will have rare means of improving. The World Cup will come and go but terminals must develop financial sustainability in order to guarantee their future.

Current trends have brought insight on possible approaches that terminals can appropriate in order to become more financially sustainable.

These have shown that terminals attract both tenants and traders. Therefore, by allowing a symbiotic relationship to develop between tenants and the terminal could produce the financial resources required to operate and provide a secure place for traders and tenants to sell and store their goods. Other facilities such as social services, entertainment and hotels could do the same and additionally increase the terminal use well after peak hours.

South Africa's economy is growing at a rapid rate and many more of these facilities need to be built before 2025. Let this be the starting point, a terminal facility that is as focused on its function as it is on adding social and economic benefits to its users, with the added benefit of leaving a better impression on visitors.

TO : Dr. H. Wiese
Mr. N. Pillay

FROM :

DATE : 14 February 2005

INITIATOR : Mr. Dennis Baloyi / Miles Arnold (Tel: 358-1500)

PURPOSE OF REPORT

To describe the proposed Inner city Bus distribution system to assist in eliminating mini bus taxis from the centre of the city.

Background

The CBD serves approximately 200 000 job opportunities. People come to the CBD for various reasons (1998 data):

- Work 59,0%
- Shopping 15,0%
- Education 12,0%
- Health 2,0%
- Entertainment 0,5%
- Other 11,5%

At present many of those who come to the CBD by private and public transport expect to be able to either drive to a parking area (private) or be dropped off very close to their work so that their walking time to their actual place of work is minimal. In practice this is not so. The modal split provided below is that for the whole of the CTMM's travel, but it is an approximation of how people coming into the CBD may travel on their main mode:

Mode	%	No of People in am peak period (to CBD)
Minibus Taxi	15,1	30 200
Bus	9,5	19 000
Train	6,5	13 000
Car	33,0	66 000
Walk	33,0	66 000
Other (Bicycle, motorbike,)	2,8	5 600

In 1996 an investigation was done to see what the viability of an "Innner City Distriution System" would be for Pretoria, as part of the "Four Cities Project". The conclusion was that although some commuters walked fairly long distances (up to 2 km) and that others said they were prepared to pay something for a distribution service, the actual demand for such a service was relatively low, and any such service would not be viable enough for the low amounts that people were prepared to pay (as most were from low income groups).

A further transport study was done in 1998/99 on the public transport in the CBD as part of the Pretoria Inner City Integrated Spatial Development Framework. This study identified the three main public transport termini in the city as:

- Pretoria Station
- Belle Ombre / Asiatic Bazaar and
- The taxi ranks in the vicinity of Bloed Street / Boom Street and van der Walt Street.

In the report a proposed mixture of guided and non - guided forms of transport (light rail and bus) were suggested for the distribution of passengers between these termini and the inner city. Although this report was never formally adopted by Council, these broad proposals have found support within the CTMM.

From this report the following table is provided on passenger walking times and there acceptability from the terminus or station to the inner city:

TIME	PERCENT
< 5 min	59,3
5 - 10 min	15,3
10 - 15 min	12,2
15 - 20 min	1,9
> 20 min	0,4
Total	100
ACCEPTABILITY	
Yes	56,0
No	24,9
Don't know	19,0
	100

2. Requirements for an Inner City Distribution Service

If the principle of the three major public transport termini for the CBD is accepted, then a system of two interlinked routes to serve these termini and the inner city destinations is proposed as an initial suggestion. See plan attached with the proposed routes. Where the routes cross, passengers can change between the routes at transfer points.

Due to the arrival times of trains, buses and taxis at the three termini (which varies from 3 to 10 minutes in the peak period, it is proposed that if the system is to be utilised, a maximum of 5 minute headways should be used in the peak periods (05:30 - 08:30 and 15:30 - 18:30). In the off peak the headways could reduce to 15 minutes. These service levels determine the costs of the system whatever the actual demand might be.

Analysis of route requirements

	Yellow Route	Blue Route	Total
Route length	7,2	4,0	11,2
No buses required (pk)	6	4	10
Bus costs (cap - annual)	R 2 250 000	R 1 500 000	R 3 750 000
Bus costs (fuel, tyres, maint.)	R 1 350 000	R 1 000 000	R 2 350 000
Total bus costs (per annum)	R 3 600 000	R 2 500 000	R 6 100 000
Drivers required (2 drivers/bus)	12	8	20
Staff Costs (annual)	R 1 600 000	R 1 000 000	R 2 600 000
Total Cost (bus & staff)	**R 5 200 000**	**R 3 500 000**	**R 8 700 000**

The costs in the above table are based on the following:

Buses (single desk, low floor): Capital cost R 1 500 000, Life 20 years, interest rate 8%
Operating costs: R 6/km (300 days/yr)

Driver cost: R 8000 salary pm Note: existing staff will not be adequate for this service.

Initial Capital required for purchase of buses: 20 x R 1 500 000 = R 30 000 000.

3. Summary and Conclusion

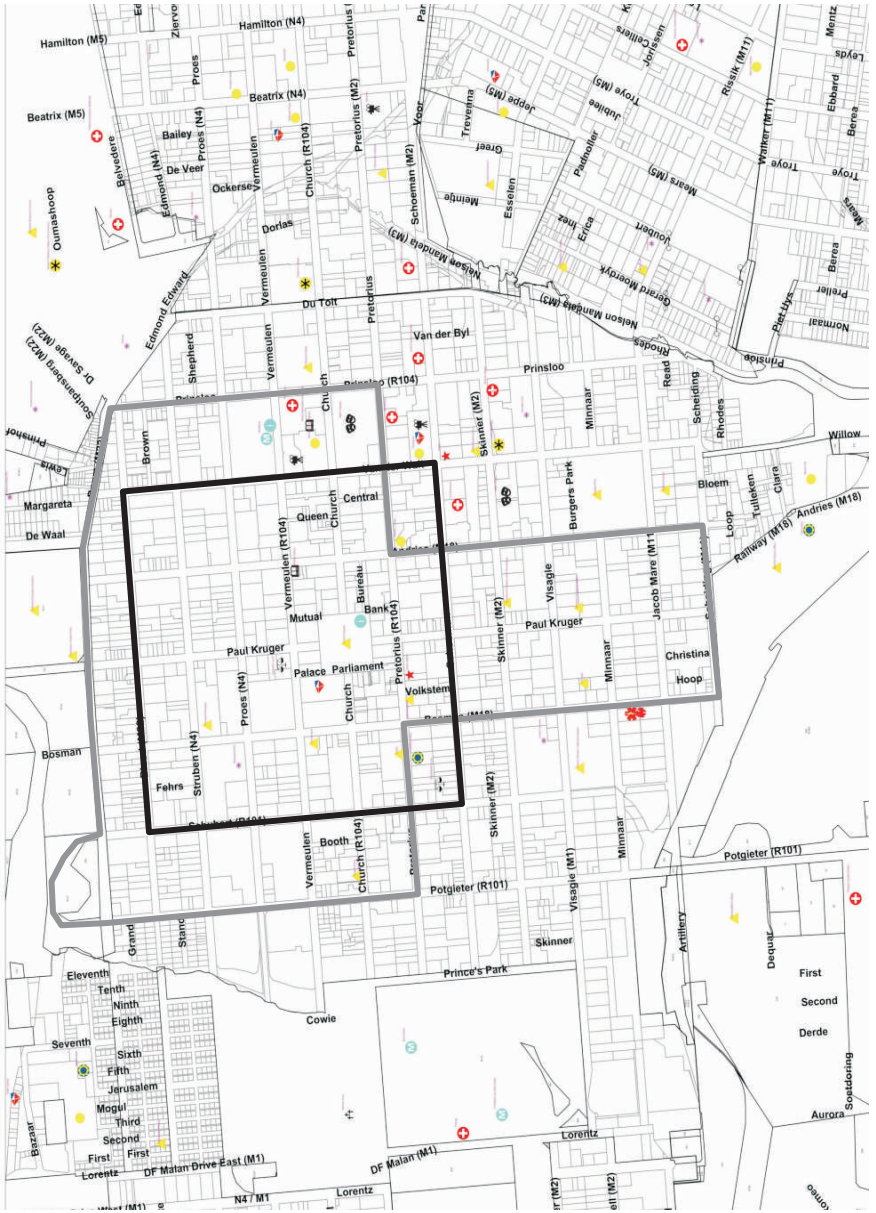
The above gives the approximate costs of such an inner city distribution system. Due to the fact that these are relatively high costs and the need for extensive stakeholder involvement (existing bus and taxi routes and operations will be affected) it is essential that a proper feasibility study be done to verify the above and to test other possible routes combinations. Such a feasibility should be able to be done for about R 300 000. The implementation of such a system can have far reaching implications for the city and must be well considered.

Due to the fact that transfers are generally negative for commuters, it is assumed that there may be no income for such a service. If it is decided to bring in a tariff for the service, it is suggested that it should be a flat rate and that transfers between the routes should be free.

It should be noted that single deck buses (with good capacity - 60 seated passengers - and easy accessibility) were used for this costing exercise, however it should be noted that the choice of mode could be a contentious one, and possibly midi- buses could be used equally well. The problem comes with the actual number of passengers which use the system.

It should be noted that the Mynah buses in Durban were ultimately taken off as their capacity was too limited for the fluctuating demand; the maintenance costs were also relatively high for their capacity.

Annexure: Possible 2 route system for inner city distribution system



PRETORIA NEWS
THURSDAY MAY 17 2007

Hawkers on the march over harassment at rail stations

Disgruntled hawkers take their grievances to the highest office in the country.

PICTURE: PHILL MAGAKOE

Vendors want Mbeki's help to carry on trading

XOLANI MBANJWA

About 200 hawkers who ply their trade at the Pretoria station marched to the Union Buildings yesterday to ask President Thabo Mbeki to intervene and end the "harassment" of vendors on trains, stadiums and streets.

Through the SA Railway Hawkers' Association (Sahra), they handed over a memorandum of grievances to representatives from the offices of the president and transport minister.

They demanded a moratorium on all evictions and for all stakeholders to be "transparent and share with us information on funds allocated for the development of informal traders as well as institutions charged with handling such funds".

The hawkers complained of being arrested without any warrants of arrest issued or proper appearances in front of a "credible court of law".

They demanded a "general review of all policies impacting on informal traders and that the president's office must be the middle man and call all stakeholders to meet and solve all problems once and for all".

Sahra co-ordinator Augustine Mqaba handed the marchers' memorandum to Elias Ndlovu of the president's office and Godfrey Maluleke of Transport Minister Jeff Radebe's office.

"The reason for this march is the ongoing harassment of hawkers at all Metrorail stations countrywide.

"The harassment has spread to soccer stadiums where hawkers are being evicted and refused (the opportunity) to make a decent living.

"We believe that the matter is now a political rather than a business one.

"We have chosen to be part of the informal sector as a means of survival rather than resorting to crime and other illegal means of making a living.

"But we have, in the past years, been facing brutal harassment from security personnel and the SAPS at station platforms and soccer stadiums," said Mqaba.

The primary objective of the country's economic policy was to promote growth and development to create jobs, sustain development and alleviate poverty, he said.

"The president's office must appoint and deploy relevant experts who will assist the sector to have an in-depth understanding of (informal trading) in order for it to develop."

New Bloed Street Mall will improve inner city and life of commuters

One of the major projects of the City Urban Renewal Programme, aimed at regenerating the inner city, is the R190-million Bloed Street mall and taxi rank. The development, which is scheduled to be completed by October 2008, will transform this busy and sometimes chaotic taxi rank into a world-class retail and transport facility.

The development has been planned carefully for some time now, after it was realised that the current taxi rank on Bloed Street was inadequate. Commuters, taxi operators and traders alike had to deal with congestion and unsafe, often unsanitary, conditions. The City of Tshwane sought a private-sector partner for the development and implementation of the project, and found this partner in Isibonelo Property Services.

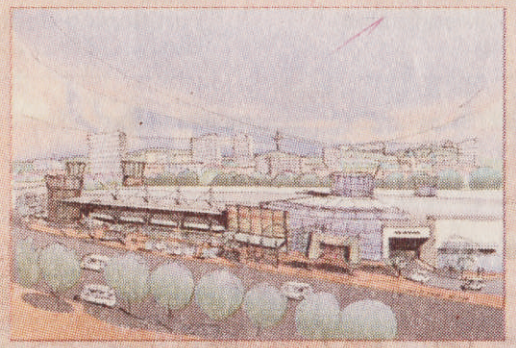
The new "taxi-mall", as it will be known, stretches between Bloed and Boom Streets and Andries and Prinsloo Streets. Work began in February this year and is progressing according to schedule. While construction is under way, a temporary taxi rank has been set up between Paul Kruger and Andries and Boom and Bloed Streets. This facility is also of a high standard and was built at a cost of R3 million.

The mall will have two floors. Major retailers will occupy the upper level, while smaller convenience stores and the taxi rank will be situated on the ground floor. Tenants have already shown an interest, and the mall will contain a mix of formal and informal retail outlets and other service providers. The anchor tenant will be Spar, but five banks and other retailers, including clothing, food, furniture, liquor, grocery, and vehicle maintenance dealers will make up the rest of the tenants. A unique move on the part of the developers is to include informal traders in the formalised trading sector, with the aim of empowering them to graduate to larger shops. There will also be ample ablution facilities, overnight parking for taxis and on-site safety and emergency services.

Another advantage of the development is that the new taxi rank will be able to accommodate up to 450 taxis, which will reduce congestion caused by these vehicles on Van Der Walt, Boom and Bloed Streets. This will make the entire area safer for motorists and commuters alike. The structure of the mall's operation will also allow for more visible policing and law enforcement.

During construction, about 3 500 jobs will be created and, once completed, about 800 permanent jobs will be made available through the daily operation of the mall.

Enquiries about the project can be made to Lourraine Makwange at 012 358 7907.



BLOED STREET MALL

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