context_ 02

historical analysis_

political stage | sporadic European trading / peak of slave trade | European rush for Africa

Maputo City Event

various African chiefs are settled close to the bay

permanent European occupation (at Baixa)

first electricity, water, trams, telegraph

port booms

YEAR	1498	1530	1600	1730		1838	1869	1875
date	late 1400s	1530	1600's	Dec. 1730	1781	1838	1869	1875
brief event description	Arab trading with Africans at Sofala (Beira) & inland. 1498 Vasco Da Gama circum navigates Africa, stopping twice on the mozambique coast 1507 Portuguese settle & fortify Mozambique Island as a trading & naval base.	Portuguese 'lançados' traders begin settling on the Mozambiquan coast 1542 Portuguese captain Lourenço Marques makes the first known successfull trading voyage to Delagoa Bay (site of Maputo)	Sporadic European trade March 1721 Dutch East India Company founds trading station at Delagoa Bay. 1722 Dutch rebuild settlements following raids by the British	Dutch abandon the fort at Delagoa Bay. 1752 Portugal appoints first governor of Mozambique	Portuguese expel British traders and establish a permanent trading station 1790-1833 Changing political powers with successive colonial ownership	Lous Trichardt reaches Delagoa Bay from the newly settled Transvaal (ZAR). Disease (malaria) wreaks havock	Portuguese & ZAR (Zuid-Afrikaanse Republiek) agree to build a railway between Lydenburg & Lourenço Marques.	Delagoa Bay & surrounds are internationally recognized as Portuguese territory. 1888 Lourenço Marques named capital of colony 1890 Railway built from Lourenço Marques now links to Johannesburg

FIGURE 1 Mozambiquan timeline. (adapted from Casson et al, 2011); **ILLUS 9** Maputo through the time (Rufino, 1925)

Portuguese colonial | transition | civil war

primary port for JHB

reconstruction of built fabric starts

1900

11 October 1899

British declare war on Boere in the Anglo-Boer war

by 1900

Lourenço Marques swamps are filled, botanical gardens & boulevard built

31 May 1902

Vrede van Vereeniging signed in Pretoria signifying end of Anglo-Boer war

1964

1951

Mozambique is made a province of Portugal

1962

Nationalist movement Frente de Libertação de Moçambique (FRELIMO) is formed led by Eduardo Mondlane

Sept. 1964

FRELIMO launch a 'military campaign for independance'

1975

1969

Eduardo Mondlane assasinated. Samora Machel is elected leader of FRELIMO

25 June 1975

Portugugal grants Mozambique full independance.

A transitional FRELIMO dominated government steps into power.

1977

1977

The one-party state of the 'Peoples Republic of Mozambique' is formed.

FRELIMO declares it's 'Marxist-Leninist' stance.

Traditional beliefs & authority prohibited

1980

1980

FRELIMO engages the Resistência Nacional Moçambicana (RENAMO) in a civil war.

RENAMO is funded by the Apartheid Government of South Africa

Infrastructure is destroyed

1986

1986

President Samora Machel & 33 others are killed in a plane crash Machel is succeeded by Joaquim Chissano

1987

Mozambique begins moving towards a free -market economy

1990

1990

FRELIMO embraces social democracy

1990

Name change to 'Republic of Mozambique'

New constitution alows voting and opposition political parties

1990

1990

4 October 1992 Acordo General de Paz peace agreement signed signifyfing the end of civil war

2009

2008

Severe flooding & cyclone Jokwe wreak havock

2010

Protestors riot after bread price is raised

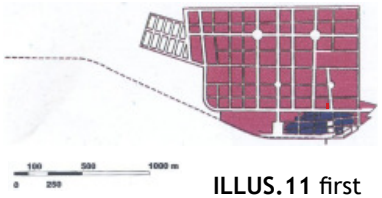




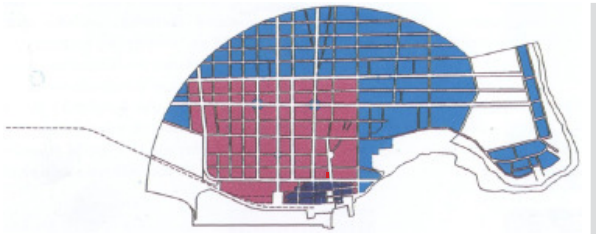

descriptive images. adapted from <p196-199>

commentary

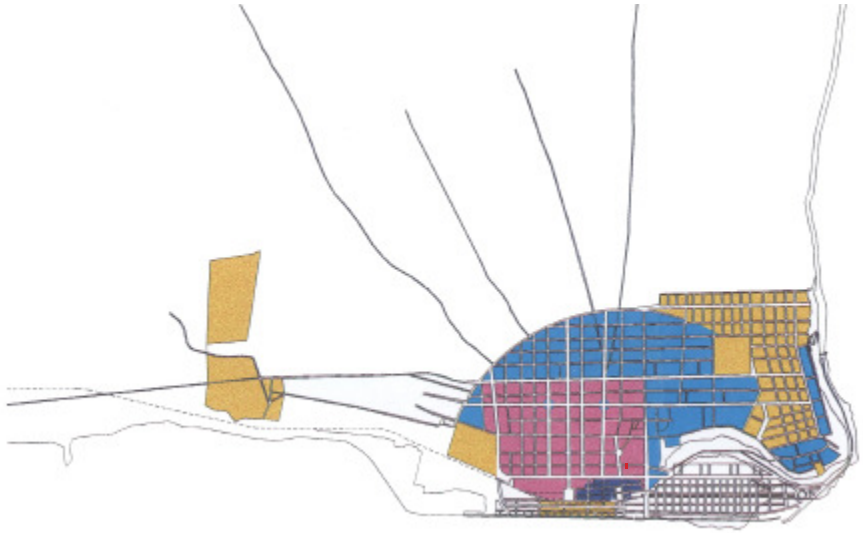
ILLUS. 10 the Fort & trading settlement on an island in a swamp



ILLUS.11 first phase of swamp reclamation & layout of formal street grid



ILLUS. 12 circular demarcation of city limits & extension of street grid



ILLUS. 13 second phase of swamp reclamation & extension

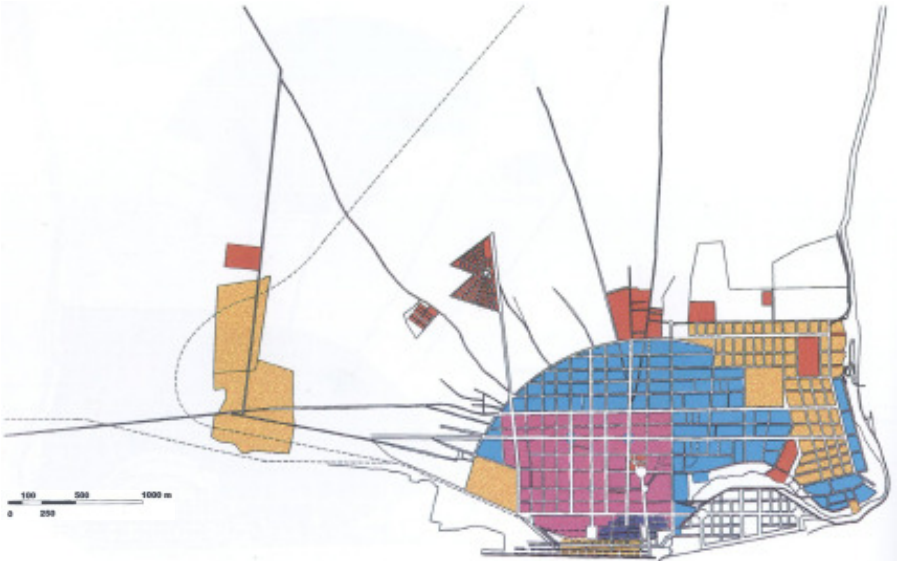
YEAR

1876

1877

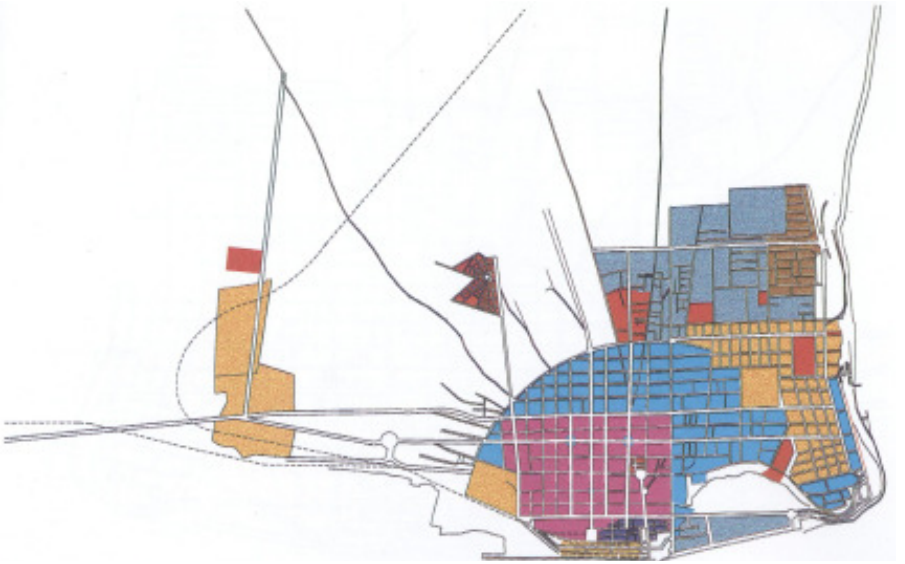
1900

1915



ILLUS. 14 organic extension. consolidation of erfs in second phase swamp reclaimation

1940



ILLUS.15 extension to the North

1975

historical context_

The city of Maputo, formerly known as Lourenço Marques by Portuguese colonists, is the capital of Mozambique It was once a small trading town established on the northern edge of an estuary. Since its early beginnings it has been a place of trade, with its nomadic origins being replaced by more permanent settlement from the 15th century, with the exchanges in power by the British, Dutch, French and finally Portuguese colonists who sought to establish a trade outpost . It was primarily a centre for trade in natural product such as ivory with the small settlement which was located on the island, then separated from the mainland by swamps (Jenkins, 2009; [2]).

With the ever-present threat of invasion from inland tribes and other colonial powers, much of the built fabric was based around the opportunity for defence, with access to the island being limited to one road linking to the mainland as well as a large fortress and praça (central square) to allow for public gathering and lines of sight (see Illus. 10). The historic citadel of Lourenço Marques can be clearly identified from the surrounding areas by its tight knit urban fabric featuring smaller block sizes divided by narrow streets.

Following the discovery of gold in Lydenburg in the late 19th century (ibid; [4]) a connecting road was built to allow for a port link between the Republic of Transvaal and Lourenço Marques. The subsequent economic boom led to an expansion over the swamps to the higher lying mainland as well as a new dock to accommodate the increased steam ship activity. Land reclamation of the dividing swamp lands began in the late 1880's in a two phased procedure, eventually linking the lower lying Baixa area to the higher lying and rapidly expanding city. Urban plans from both 1903 and 1940's propose large scale development for the rapidly expanding city. The distinction between the finer grained historic citadel and the grid-like upper urban pattern, with a two kilometre radius from the historic praça is clearly evident in Illustration 12 and 13. This radial development can be seen to define a barrier between the formal "cement city" (ibid ; [10]) and the informal residential housing lying to the North of the city.

By the late 1960's industrial activity began decentralising itself from the commercial Baixa district due to lack of space and land prices and migrated towards Matola, to the west of Lourenco Marques. The increased foreign investment resulting from the growing port activities resulted in rapid development and improvement of areas within the inner ring of the city. The subsequent building boom resulted in a number of high rise apartment buildings and private sector developments (ibid ; [13]).

This development was cut short after the 1974 revolution after which a rapid de-colonisation of the city began as power shifted away from the Portuguese colonial government. Following independence, the decreased foreign investment lead to state intervention in which unfinished buildings became state owned and developed. Increased populations on the outer extents of the city, now known as Maputo, saw rapid development in the peri-urban sector to the North (ibid ; [14]). State development was focused in the unfinished sites in the "cement city" resulting in "the previous bustling and rapidly verticalising central business district 'Baixa', with its major associated entertainment and commercial infrastructure, [beginning] to 'hollow out' as food

became channelled through state ration shops throughout the city" (ibid; [15]).

The civil war in the late 1980's however, resulted in a significant influx of residents into both the Baixa and higher lying 'cement city' seeking safety from the war-ravaged rural areas, resulting in a rapid densification of residential areas.

The last 20 years has seen resurgence in development aided by increased foreign investment, particularly from the Republic of China. High rise developments along the reclaimed land to the east of the Baixa and a general lack of municipal control over development have allowed a new threat of gentrification and insensitive development to be placed upon the historic fabric.

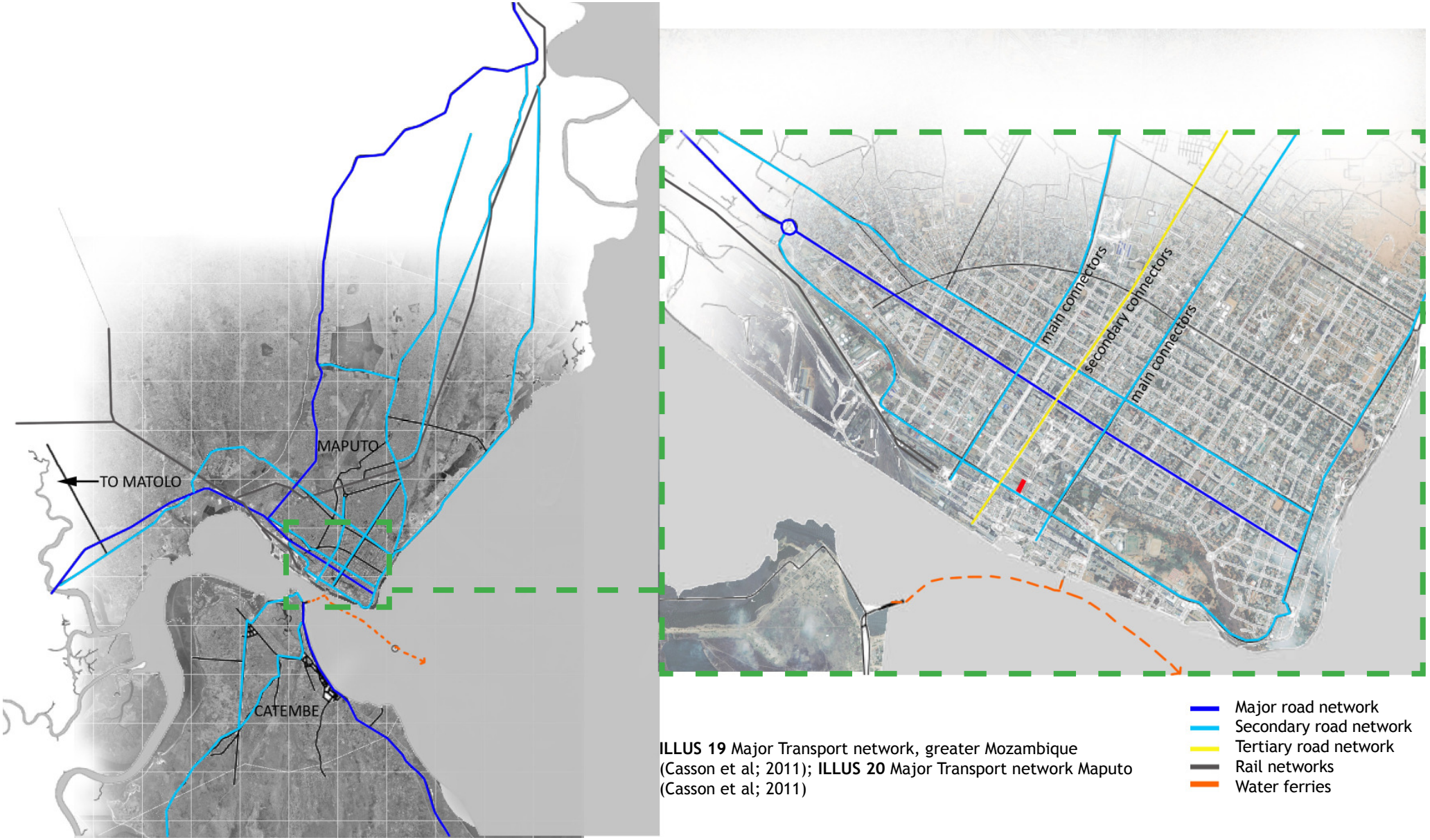
This is the current context in which this dissertation will be based. As such the subsequent intervention must seek to play the role of intermediary between the historical layers of cultural heritage and the developing multi-national character that will be characterised in future developments for Maputo.

CLOCKWISE FRONT TOP RIGHT:
ILLUS 16 Entrance to Botanical Gardens (Rufino, 1925), **ILLUS. 17** Botanical gardens (Rufino, 1925), **ILLUS.18** Tram on Avenue Agiar (Rufino, 1925)

macro_ scale

meso_ scale

micro_ scale



ILLUS 19 Major Transport network, greater Mozambique (Casson et al; 2011); **ILLUS 20** Major Transport network Maputo (Casson et al; 2011)

macro_ scale
meso_ scale
micro_ scale

Map showing Maputo_greenscapes
(unspecified scale)

macro_ scale

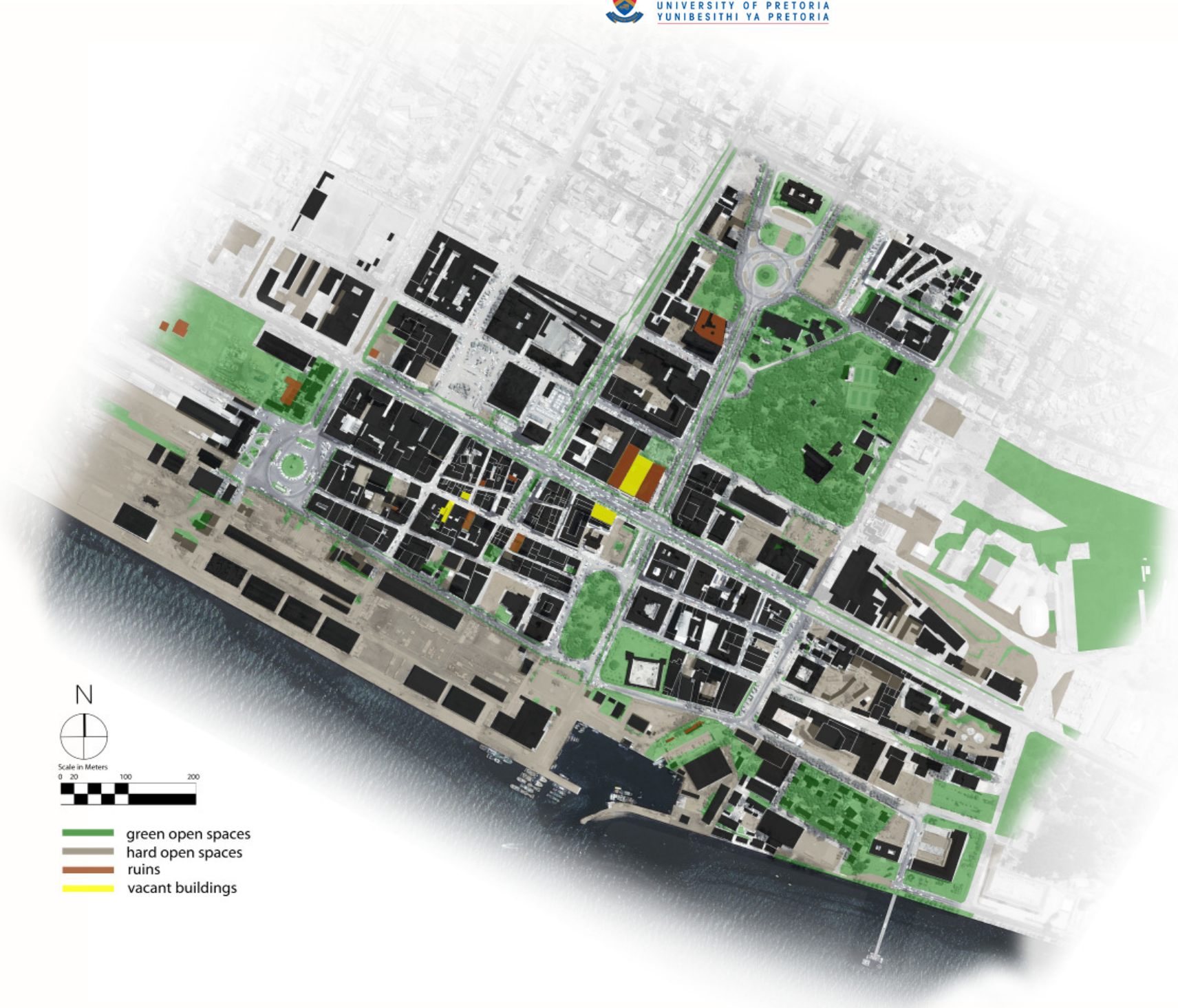
meso_ scale

micro_ scale

observations_

- High levels of movement clustered around transport nodes
- High density at Mercado Central
- Strong pedestrian links up main connector streets North- South
- Strong North-South transport connections
- Avenue 25 de Septembre main vehicular artery
- Main Chapa routes along North-South connections to greater Maputo

ILLUS. 21 Transport networks(Casson et al, 2011)



observations_

- Limited green spaces within urban centre - mostly under utilised and poorly maintained
- Large portion of land blocking seafront from urban fabric
- Areas of vacant land and parking lots can become part of greater green network
- Pockets of lost and abandoned space within fabric
- Large pocket of vacant land forming inconsistancy in urban fabric
- Potential for block at corner of 25 de Septembre and Ave Samora Machel to be re-developed

ILLUS. 22 Green networks (Casson et al, 2011)

macro_ scale

meso_ scale

micro_ scale

observations_

- Informal retail clustered around transport interchnages and markets
- Large portion of informal trade is not fixed
- Fixed informal usually related to formal retail function within building

ILLUS. 23 Formal and Informal trade (Casson et al, 2011)

observations_

- Highest density of movement around transport interchanges
- Informal trade clustered along pedestrian routes
- Heavy pedestiran movement along pavements needs to be accomodated

ILLUS. 24 Combined analysis (Casson et al, 2011)

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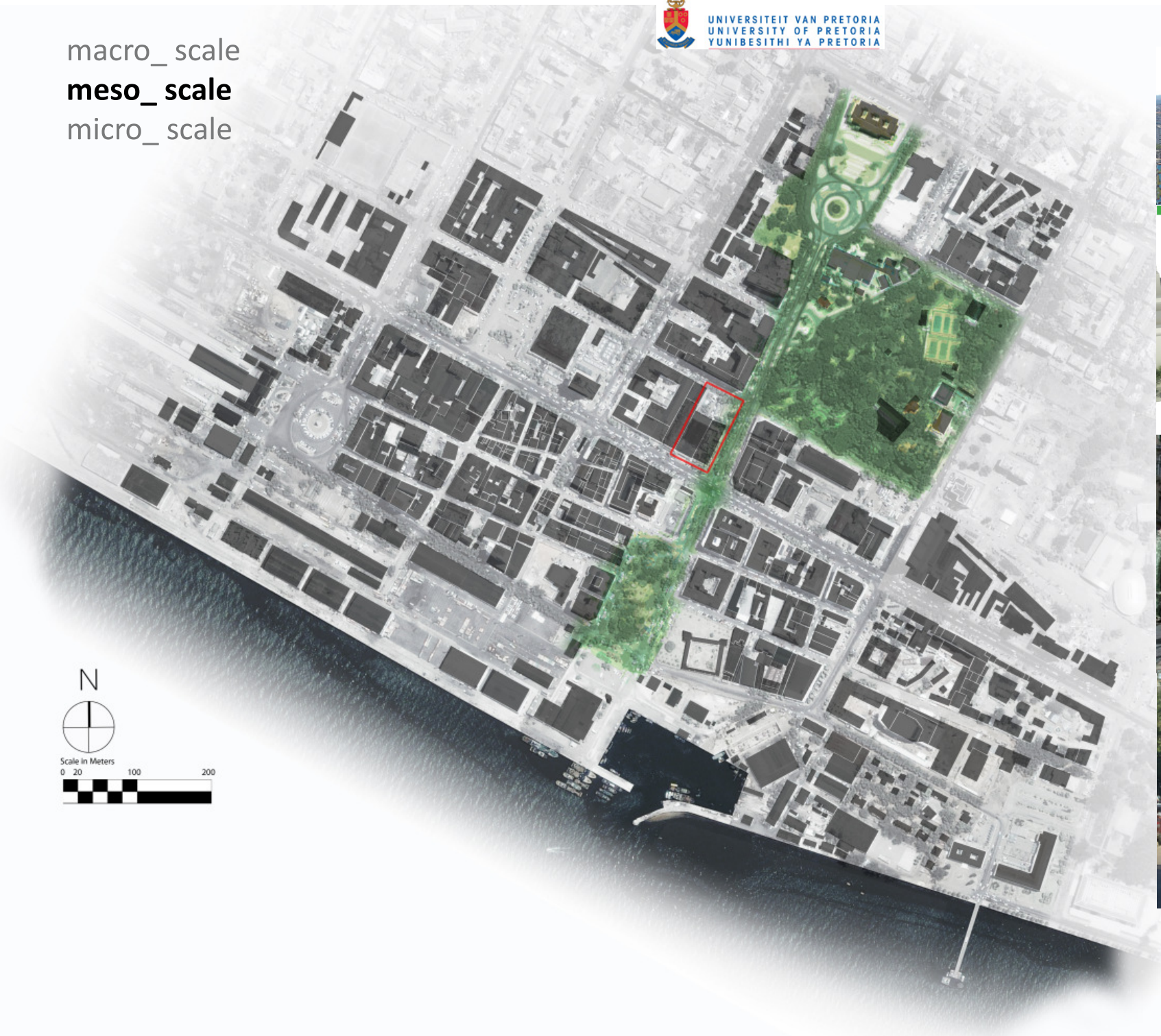
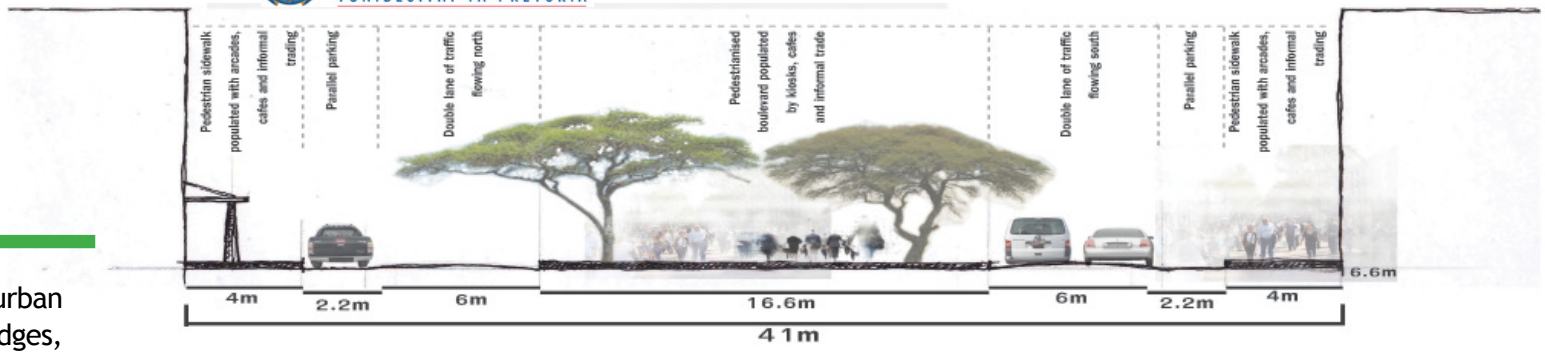
macro_ scale

meso_ scale

micro_ scale



green open spaces_



Lynch categorises the five elements of urban environments as consisting of nodes, paths, edges, districts and landmarks. These elements, whether in singular form or as a combination of linking elements, begin to define urban areas and create positive urban environments and spaces.

Within the Baixa context multiple linkages consisting of paths connecting spaces of interest can be found. The most significant of which can be found along Samora Machel Avenue and the proposed Las Rambas project (based largely on the Spanish Las Ramblas of Barcelona) (Forjaz, 2011). This pedestrian boulevard will serve to link a newly created municipal precinct, complete with amphitheatre and parking facilities as designed by local architect Jose Forjaz, and the proposed water terminal linking the Baixa to both national and international inhabitants (Maputo workshop, 2011). It will also serve as a uniting element linking the two large open green lungs within the Baixa area, namely the *Jardim tudura* (botanical gardens) and *praca 25 Junho*. The Ramblas also becomes a critical orientating device for visitors to the city.

ILLUS. 25 Open space network (Casson et al, 2011); **ILLUS. 26** Municipal buildings Maputo (Hart, 2011); **ILLUS. 27** Proposed municipal precinct development (Forjaz, 2010); **ILLUS. 28** Las Ramblas, Barcalona (Hart, 2010); **ILLUS. 29** View down Avenue Samora Machel (Hart, 2011); **ILLUS. 30** Proposed street section through Las ramblas (Casson et al, 2011);**LLUS. 31** Proposed las Ramblas atmosphere (Hart, 2011)

1 _CONSELHO MUNICIPAL (City Council)
_ 1903-1905
2 _CATEDRAL (Catherdral of our lady)
_Construction commenced 1936\
_inaugurated 14 August 1944
_ gothic style
3 _ RADIO MOZAMBIQUE
_Constructed 1948
_Modern style
_Tropical climate response,brise soleil
4 _TELECOMMUNICATIONS OF MOZAMBIQUE
_1946-1948
_Art Deco style
5 _CENTRO CULTURAL FRANCO MOCAMBIQUE
_Construction began 30 June 1898
_Colonial style with large balconies
6 _ CASA DE FERRO (Iron House)
_Rediscovered 1960
_Prefabricated Iron & Steel
_Resprentation of capabilities of material
7 _ STATUE SAMORA MOSES MACHEL
_Inaugurated 1989
_Reinforced concrete, marble, bronze
8 _ TRIBUNAL SUPREMO (Supreme Court)
1890
_Colonial style
9 _MERCADO CENTRALE (Central Market)
_1901-1903
_manifestation of Industrial Revolution
_ Iron construction, dome
10 _ Predio Pott
_1891-1905
_steel frame construction
_built for late consul to Transvaal
11 _CORREIOS DE MOCAMBIQUE (Central post office)
_1903
12 _IMPRENSA NACIONAL (National Press)
_1857
13 _ MUSEU DE MOEDA (Museum of Money)
_1873 Portuguese Goverment Building
_1964 proclaimed historical monument
14 _CAMINHOS DE FERRO DE MOCAMBIQUE
(Central Station)
_1908-1910
_Manifestation of Industrial Revolution
15_MONUMENTO A PRIMEIRA GUERRA MUNDIAL
_(WW1 Monument)
_inaugurated 1935
16_CASA DOS AZULEIJOS (House of Tiles)
_1879
17_FORTALEZA DE MAPUTO
_ Between 1851-1867
_Site of old fort circa 1780-1796

18 _GIL VICENTE CINEMA
_ 1925-1927
19 _MILLENIUM BIM Bank of Mozambique
20 _ MINISTRY OF FINANCE
_ Pancho Guedes building
21 _PASTELARIA SCALA AND CINEMA SCALA
_ built 1931
22 _ MCELL TOWER
_ tallest building within the baixa at 33 floors
23 _ ESTACAO NACIONAL (Central Post office)

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macro_ scale
meso_ scale
micro_ scale

ILLUS. 32 (OPPOSITE) heritage buildings (Casson et al, 2011);
ILLUS. 33 Character of Baixa (Casson et al, 2011);

1 Mercado Centrale


then


now

2 Praca la Trabalhadores (formerly Mac Mahone)

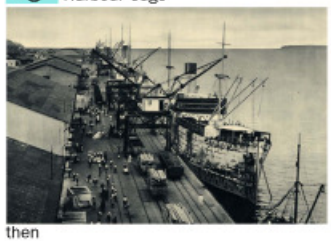

then


now

historical character:
_vibrancy of open space
_narrow street
_character with colonades
_multiple transport modes create bustling street spaces

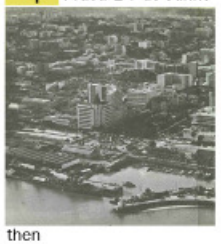
current character:
_derelict green spaces
_congestion and parking on pavements and plaza's
_privatised sea edge
_juxtapostion of formal and informal activities

3 Harbour edge


then


now

4 Praca 24 de Junho


then


now

5 fishing harbour


then


now

7 botanical gardens


then


now

6 Avenue Signori Pedrosa


then


now

macro_ scale
meso_ scale
micro_ scale

Maputo city grid

Pretoria city grid

typical Maputo blocks
- irregular in size and shape
- organic subdividing evident

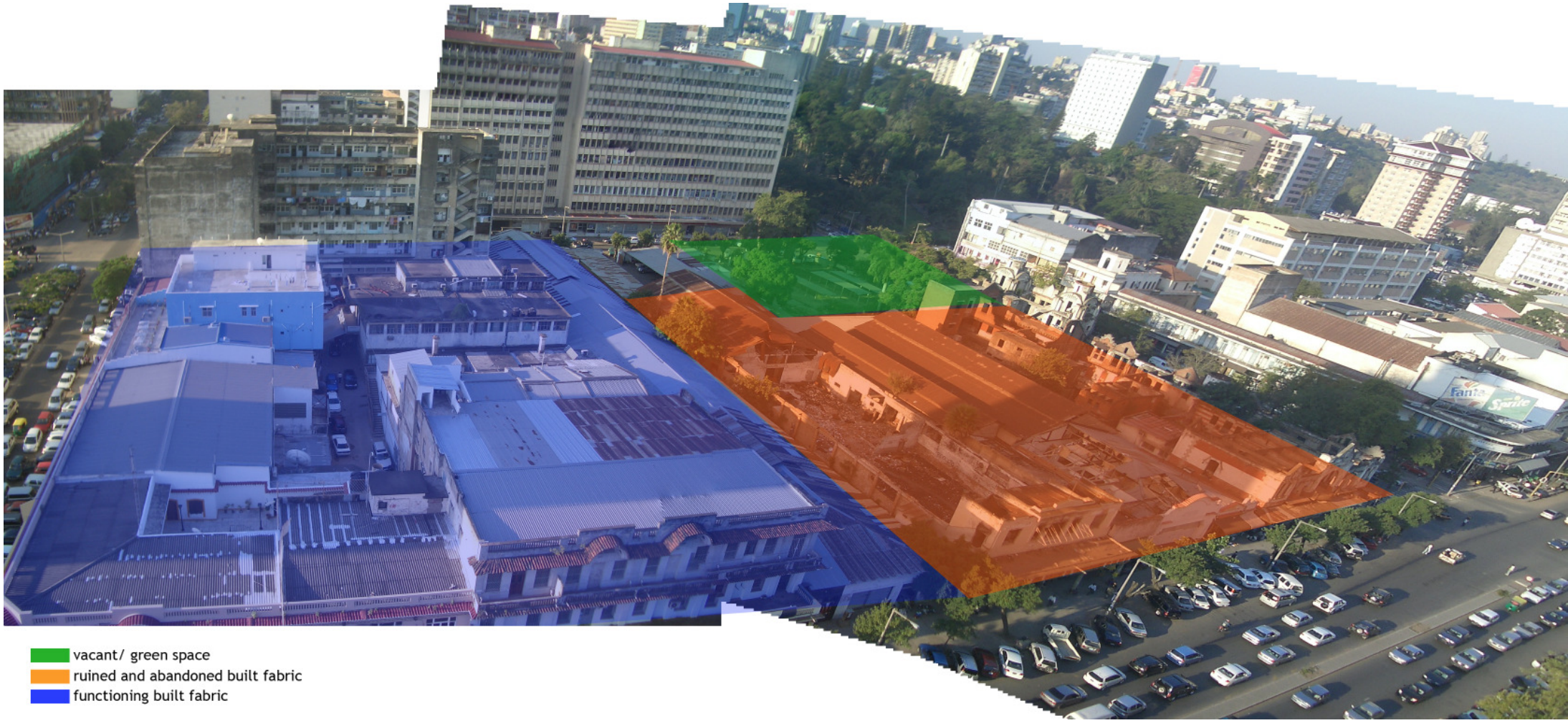
typical Pretoria block
- regular in size and shape
- 230x 150 m

block development_

The Maputo grid system was largely introduced in 1881 during the implementation of the urban plan designed by the military leader Araujo It was largely based on grid systems found in many western cities (Perez, 2011; 2). While the urban plan was never realised, many elements including the suburb divisions and semi circular linking road dividing fromal and informal housing areas have been adopted.

Roads in Maputo do not follow the largely regulated *cardo* (north south axes)- *decumanus* (east-west orientators) lines which can clearly be seen in the Pretoria urban layout. Maputo roads often vary in orientation creating an irregular grid shape. In addition, the organic subdivision of larger thinner blocks by smaller informal roads which become permanent allows for a grid pattern with great diversity.

ILLUS. 34 (OPPOSITE) Grid analysis (Google earth, 2011);
ILLUS. 35 Block analysis (Hart, 2011);



macro_ scale
meso_ scale
micro_ scale

ILLUS. 36 Maputo city textures (all by Hart, 2011)

macro_ scale
meso_ scale
micro_ scale

ILLUS. 37
Predio Potts Introductory Images (all by Hart, 2011)

Predio Potts history_

The Predio Pott building was built in 1891, for the then consul to the Transvaal Province, Gerrard Pott. Originally it consistied of a single story building on the southern corner of the site located on the corner *Avenida Aguiar* (now Avenue Samora Machel) and *Avenida D Carlos* (now Avenue 25 September). The façade was altered in late 1894 with the extension along Avenue Samora Machel. In 1903 the upper stories were added to the current building footprint (Perez, 2011; [11]).

Built by a Durban based architectural firm ING & Anderson, the building,was erected during the height of the political excitement in Laurenço Marques that followed its classification as a city.

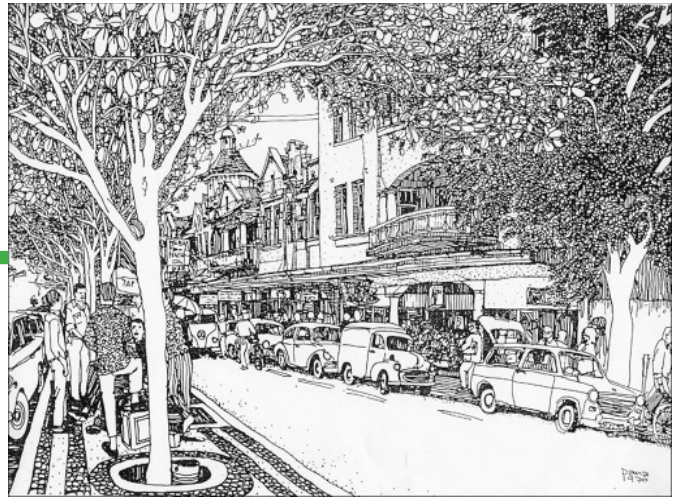
The 1877 expedition of engineers invited by the mayor, General Joaquim Jose Machado, brought with them new construction techniques and materials. (ibid, [7]) The adoption of the Victorian style of building as well as the use of new materials such as cast iron and cement have a large influence on the subsequent construction method employed.

Revolutionary for its time, the building consists of concrete and plaster clad steel columns supporting steel I sections onto which the upper floors and walls where supported. The steel work used within the building was imported from the Glengarnock Steel Works in Scotland. This mill was a pioneer in the rolling of structural steel members which in its day "acquired a high reputation among structural engineers" (Findlay, [2009], np) and due to its competitive price in comparison to other manufacturing works in Europe, allowed it to become widely exported. The punched company name can still be seen on many of the structural members within the building.

The early mixed use typology of the building consisted of retail on ground level, residential of level one and commercial studios on the second floor.

On the 12th December 1990 the building was devastated by a fire which remained un-extinguished for several days due in large part to a lack of fire fighting equipment and water as well as poor response times from the fire department (ibid, [12]).
Many of the residents living in the building at the time were refugees of war-ridden rural areas who had sought refuge in the building. 17 families lost their homes in the blaze (ibid, [7]).

While planning permission to restore the building was sought by the owners, to date, no restoration efforts have been made.



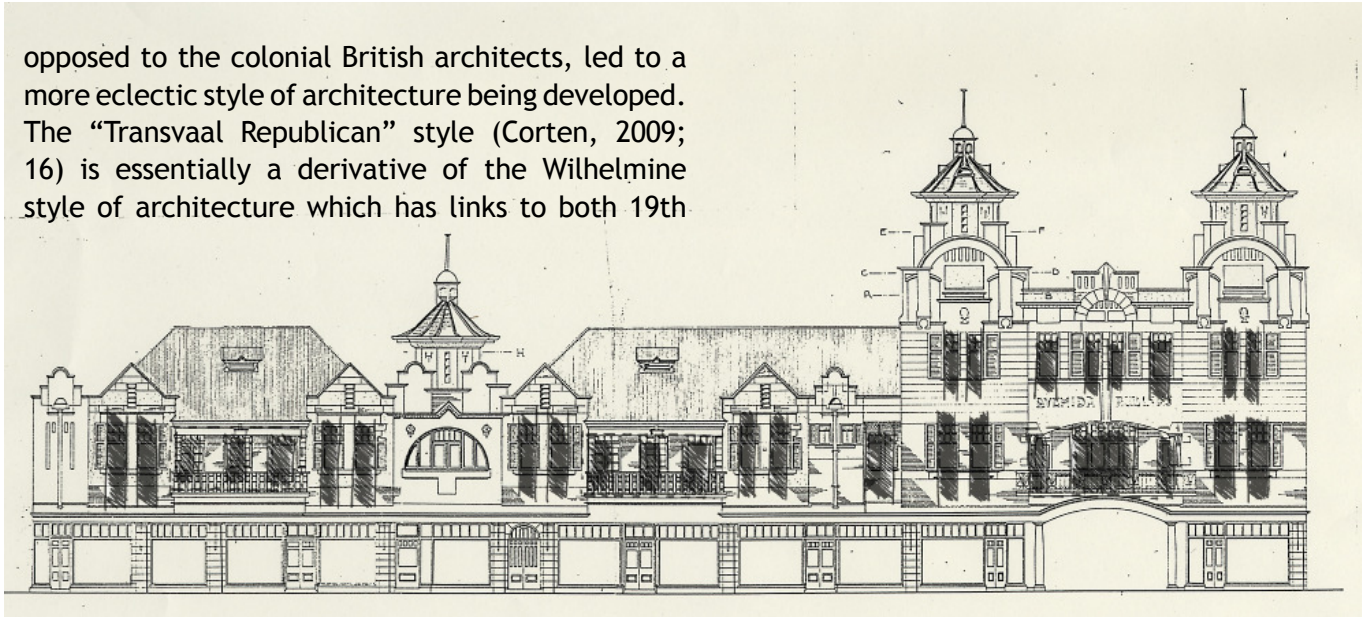
ILLUS. 38 Artists impression of Predio Potts Ave D Carlos (Dana, 1972); **ILLUS. 39 (BELOW)** Artists impression of Predio Potts Ave Aguiar (Dana, 1972)

building analysis_

ILLUS. 40 Predio Potts 2011, Ave Samora Machel Elevation (Hart, 2011); **ILLUS. 41 (BOTTOM)** Solid to void rythm of facade. (hart, 2011)

form_

The eclectic style found within the building originates largely as a result of a varied range of influences within the building's history. Following the appointment of Dutch architect Sytse W. Wierda as the head of the Transvaal department of public works by President Kruger in 1877 (Corten, 2009; 16), a number of buildings commissioned through the department show distinct stylistic references to Dutch architecture of the time. The Ou Raadsaal (1889-1902) and Palace of Justice (1897), were largely designed by Dutch trained architects, a number of whom had strong working ties to Transvaal Republic. In contrast to the popular Victorian style of architecture, seen used during this time period internationally, the influence of the Dutch as opposed to the colonial British architects, led to a more eclectic style of architecture being developed. The "Transvaal Republican" style (Corten, 2009; 16) is essentially a derivative of the Wilhelmine style of architecture which has links to both 19th



Century German and Dutch architecture. As former consul to the republic of Transvaal (Perez, 2011,5), Gerrard Pott would have undoubtedly been familiar with governmental architecture of the time which may have been influential on the subsequent design of the Prędio Potts.

In addition, the architectural practice responsible for the design of the building, based at the time in Durban, South Africa, would also have had a large influence on the eclectic style of the building. FJ Ing of the firm ING and WELLS (later ING and ANDERSON), a British trained architect, had been working in Johannesburg during the 1880's, until such time as he and then partner EP Wells, were awarded the contract to build the Durban Club in 1898 (ref here). When examining buildings designed and built in a similar time period within the Durban context such as the Town Hall (see illus **) one can see clear stylistic references such as the incorporation of Corinthian capitols, plaster-banding and decorative , almost byzantine style towers.

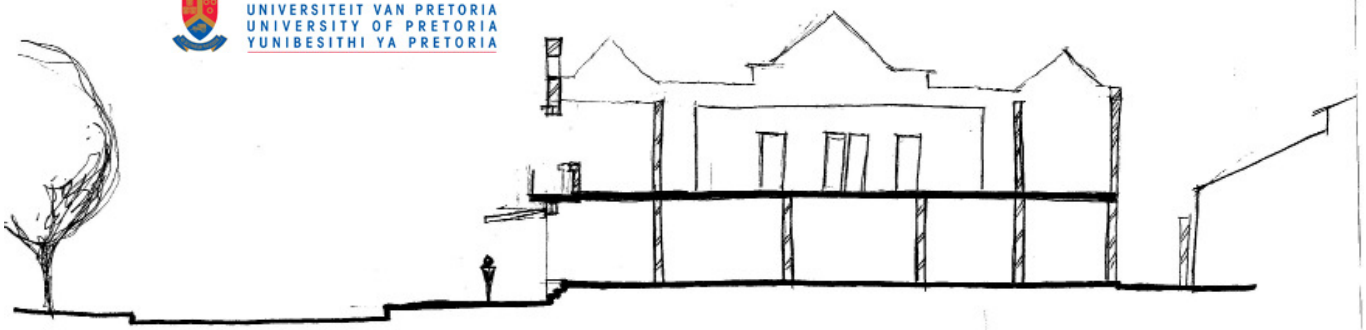
With the outbreak of the Anglo-Boer war in 1899, work and building materials within South Africa became a scarcity. In this time, the firm were commissioned by Pott, to design the primarily commercial building in the city of Lourenco Marques.

Steel shortages in South Africa due to the war, as well as the proximity of the Maputo Port, facilitated the large amount of imported building materials within the building.

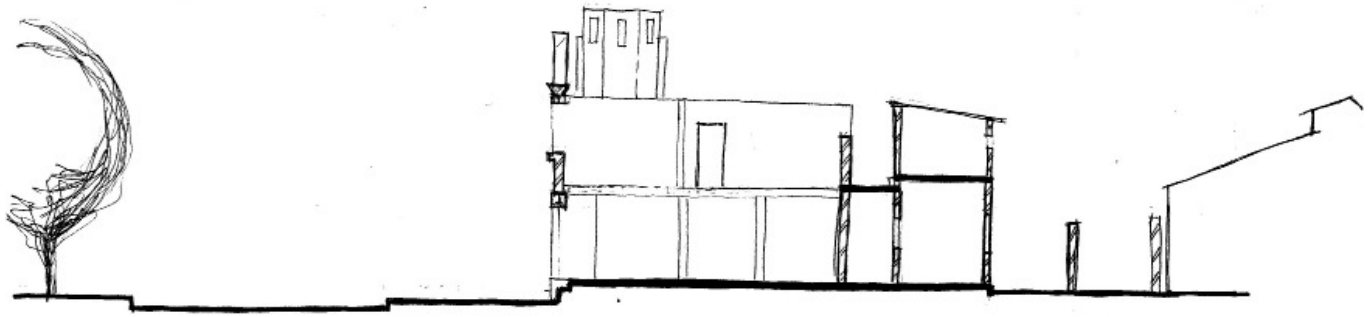
Largely built as a steel framed warehouse typology, the building incorporated large ground floor openings for retail purposes, and smaller residential units (added at a later stage) on the level above. Predominantly two storeys in height, the northern portion on Avenue Samora Machel is the only three storey portion on the site with the tall tower structures raised above this level. Roofs would have originally been constructed with corrugated iron roof sheeting on double pitched, timber roof truss construction. Cast iron decorative fretwork and balustrading was used, some of which can still be seen in portions of the building. Internal rooms on ground floor are relatively large due to column structure, whilst on the upper levels smaller roughly square partitioned rooms, suitable to the residential function can be found.

The building in both style and materiality can be clearly identified as completely foreign to its surrounding context (Hart, 2011). It is this unique architectural quality, as well as its cultural connection to political powers based in Lourenco Marques at the time, that give this building such an important historical identity with the Baixa context.

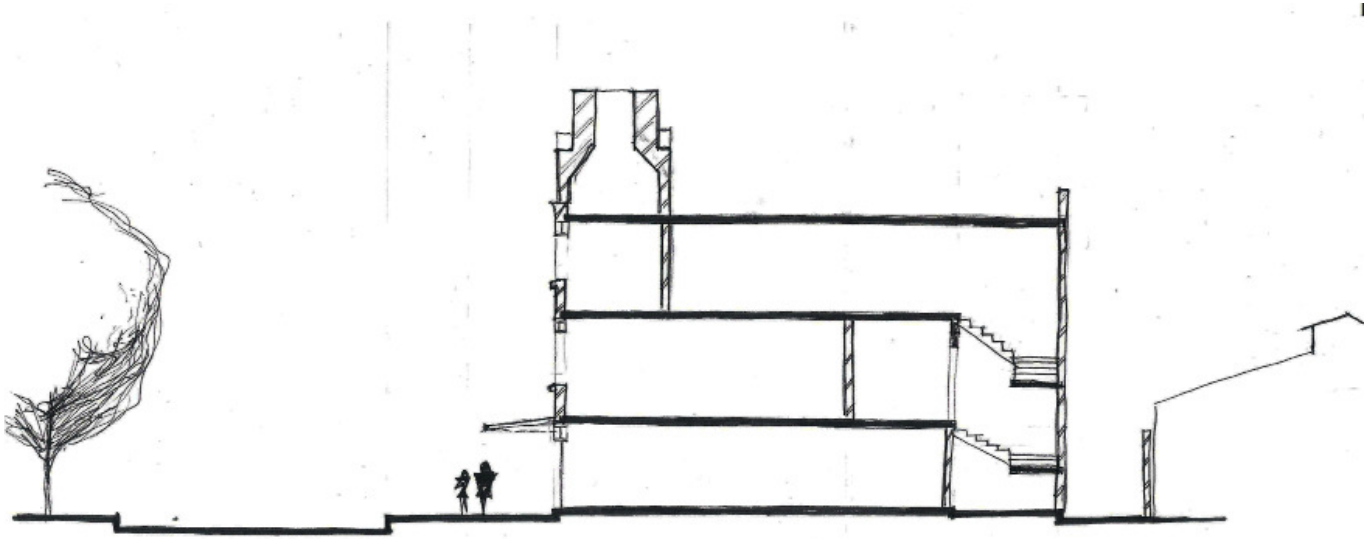
ILLUS. 42 (ABOVE FROM LEFT) Cast iron fretwork (Perez, 2011) ; **ILLUS. 43** artistic impression Predio Potts circa 1948 (Perez, 2011); **ILLUS. 44** Durban Town Hall 1883-1910 (Unknown, 2011); **ILLUS. 46** original turret with roof, Predio Potts circa 1990 (Perez, 2011); **ILLUS. 46** facade detail Predio Potts, 2011 (Hart, 2011); **ILLUS. 47** Dutch influenced tulip plaster detail (hart, 2011); **ILLUS. 48** Turret in current condition (Hart, 2011)



ILLUS. 49 Predio Pott, East-West Section A (Hart, 2011)



ILLUS. 50 Predio Pott, East-West Section B (Hart, 2011)



ILLUS. 51 Predio Pott, East-West Section C (Hart, 2011)

structure_

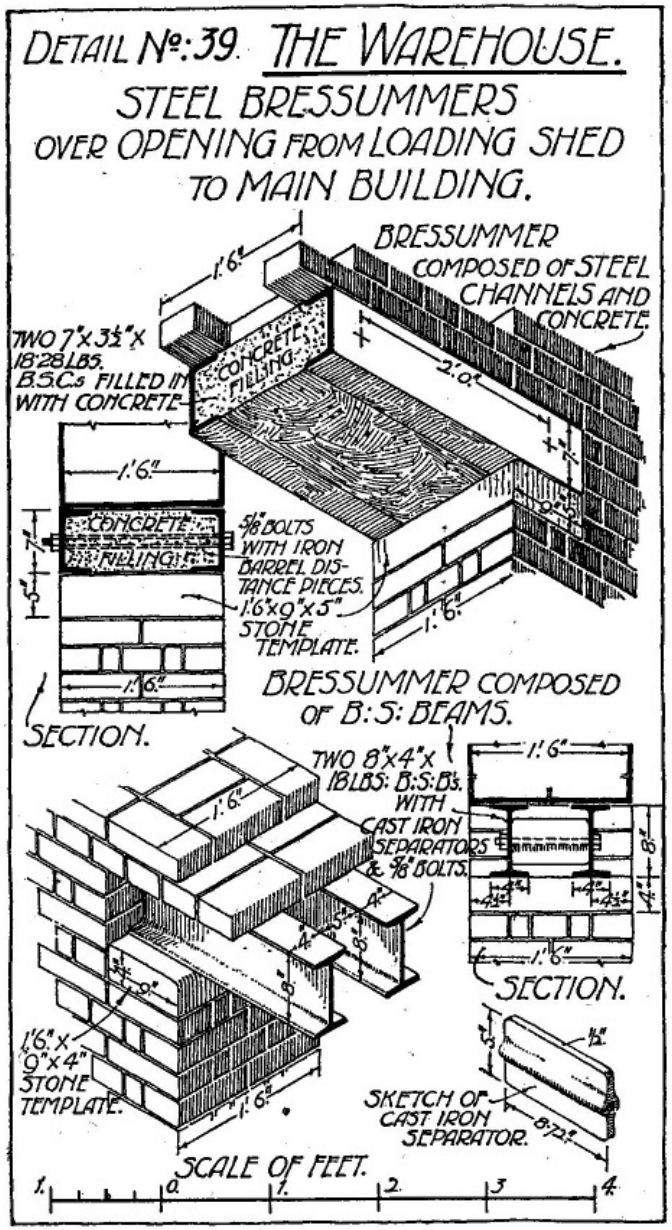
Primarily a column and beam construction, steel I-sections are supported on a concrete column grid with bearers and cross members supporting the floor and wall structure of the floors above. The use of steel as a framing mechanism was first seen in 1893 in Cape Town, South Africa, in the Jagger & Co warehouse by Anthony de Witt, the architect largely credited with the introduction of the construction method to South Africa. (Hartdegen, 111; 93) The following decade saw an increase in popularity of the method with arguably the most ambitious of which being the Carlton Hotel in Johannesburg, in 1904 (ibid). Given the construction period of the Prędio Potts building, during 1891 to 1903, the design would have been directly influenced by the technological knowledge of the time. This can be seen in the use of steel sections within the Prędio Pott building. While the strength of the steel I section lies largely in its depth, many of the beams are placed on their sides, possibly as a result of poor construction understanding given the limited knowledge of the material at the time.

The advantages of the steel framing is that it allows for large open planned spaces on ground floor suitable for retail purposes. Double steel I sections are used as lintols above openings. A similar construction detail of the time can be seen in Illus 51.

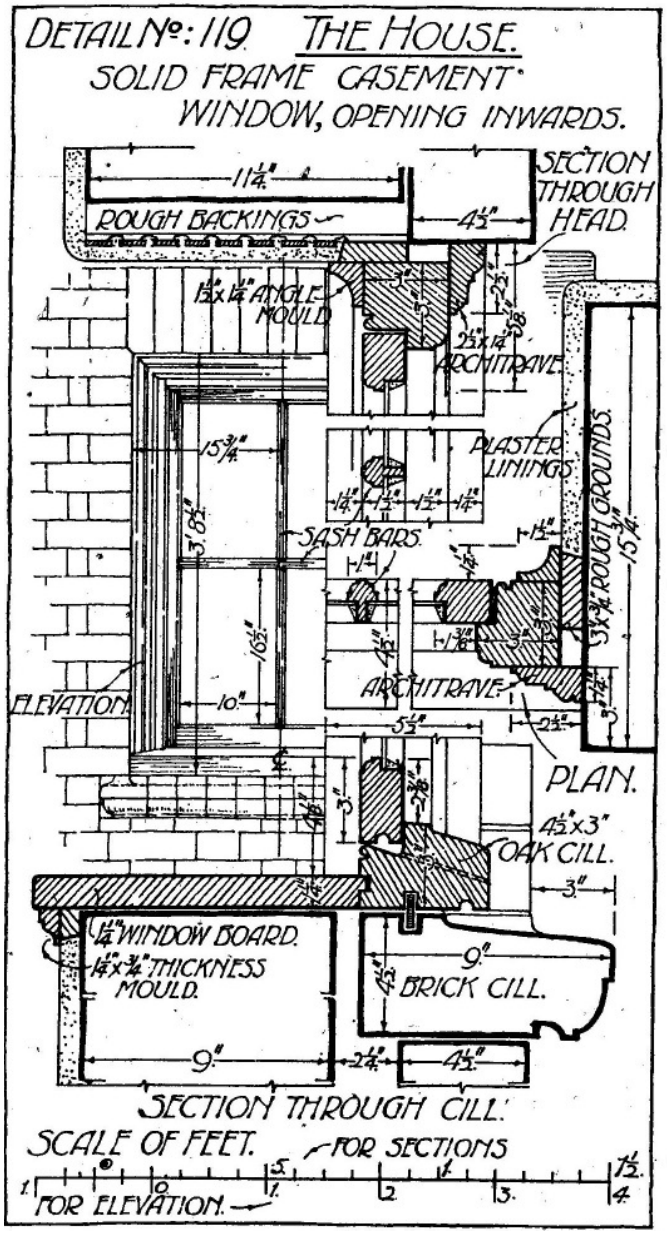
Steel beams are clad with a gypsum plaster board construction to increase fire resistance of the structural steel. However, much of this cladding has deteriorated and been removed.

Internal walls are placed directly onto the steel members with timber bearers being suspended between, onto which the timber floor boards were placed. Much of the original flooring has been removed or was destroyed in the 1990's fire. A small portion, mostly external walkways, consists of a concrete floor slab which remains largely intact. Single internal masonry walls are bagged and painted with double external walls being internally plaster rendered

Originally timber sliding sash windows as seen in Illus. 52, cottage pane French doors, as well as decorative screening elements would have been found in openings within the building. Much of the timber and steel decorative work has been removed since the building has been vacant.



ILLUS. 52 typical steel lintol warehouse construction detail (Drury, 19xx; 73); **ILLUS. 53 (OPPOSITE)** typical timber sash window detail (Drury, 19xx; 250); **ILLUS. 54 (OPPOSITE)** Section A-A Predio Potts showing original constrcution circa1903. (Perez, 2011)


DETAIL Nº: 119 THE HOUSE.
SOLID FRAME CASEMENT WINDOW, OPENING INWARDS.
SECTION THROUGH HEAD.
ROUGH BACKINGS
1½"x¼" ANGLE MOULD
2½"x1¼" ARCHITRAVE.
PLASTER LININGS
SASH BARS.
ELEVATION.
ARCHITRAVE.
PLAN.
4½"x3" OAK CILL.
¼" WINDOW BOARD.
1¼"x¾" THICKNESS MOULD.
9" BRICK CILL.
SECTION THROUGH CILL.
SCALE OF FEET.
FOR SECTIONS
FOR ELEVATION.


SECCAO "AA"

steel frame buildings and fire_

When heated, steel expands and elongates. When this elongation is restrained at its ends by walls or by connecetions to other structural members it can result in deformation of the structural member in the forms of twisting or buckling. One predominant method of increasing fire resistance thus reducing the subsequent spread of fire within a steel frame building is the encasement of the steel member within concrete. If the steel member then becomes heated, this expansion causes the concrete casing to “pop” off in a process known as spalling. The steel member is thus then exposed to direct heat which can result in loss of strength of the structural member.

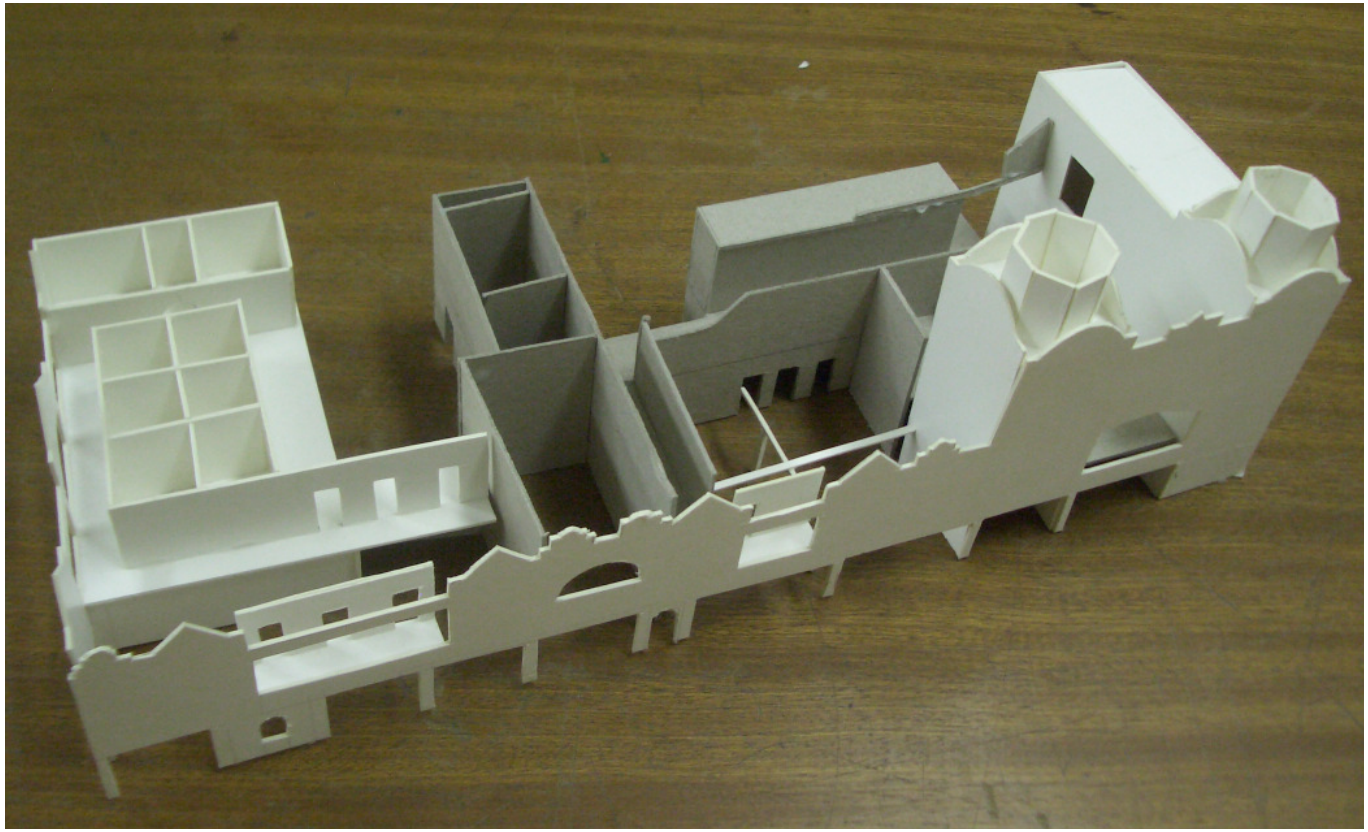
At a temperature of between 550 to 600˚C, steel undergoes a physical change and realignment in its atomic bonds. This can result in a lowered yield stress of up to 40% (Milke, 2002; 5) as can be seen in the stress strain graph. The yield strength of steel at room temperature (20˚C) after being heated to 600˚C is roughly half that of the original yield strength of the member. Temperatures reached within building fires vary depending on material type, ventilation conditions etc. and can be estimated to reach approximately 1200˚C (Milke, 2002: 4).

Given the deformation range of steel above the 600 ˚C mark, hot rolled steel members can be deemed structurally sound should they exhibit no form of deformation such as twisting or warping (Tata steel, 2011) following a fire as the member is assumed to have not reached a temperature in excess of this. If the load exerted on the structure was less than the design load for the intended structural member however, this may result in an inaccurate visual assessment of the member (Tata steel, 2011). This necessitates the implementation of hardness tests to deem any steel work structurally sound. While structural members within the building do not show signs of deformation such as warping or twisting, it is plausible, given the construction knowledge of the time that the structural members may have been overdesigned for the actual loading. Thus it is assumed that all members within close proximity to the source of ignition of the fire, which appear, in the present day state, to be exposed to potential fire damage, to be unfit for any additional structural loading by any future building.

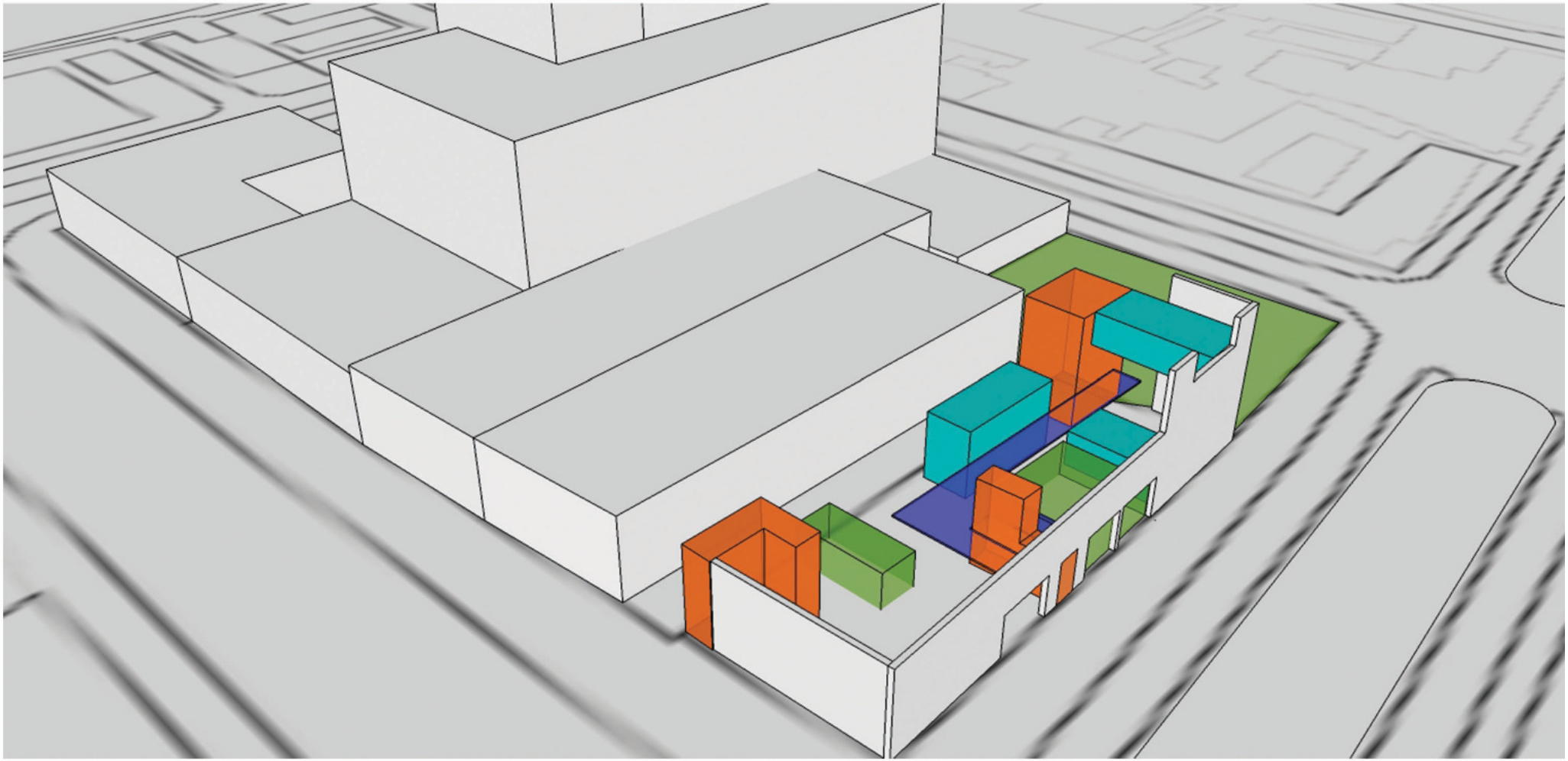
In addition, the typical method of extinguishing fires is with the use of water. As such, when the relatively cooler water comes into contact with the super-heated steel member, a rapid cooling known as quenching occurs. This process is often used in the making of steel products as the rapid crystallisation of particles during cooling to create a hard and durable surface. This process can however increase the brittleness of the steel resulting in compromised structural integrity.

When examining historic accounts of the 1990’s fire within the Predio Potts building, it is noted that the fire was not completely extinguished due in large part to a lack of water and fire fighting equipment. While this could have allowed for a gradual reduction in temperature of the steel members as opposed to the quenching of the steel when exposed to water, the assumption has been made that all exposed steel members within the building could potentially have been subject to quenching and are thus assumed to be not structurally sound.

ILLUS. 55 Plaster encased steel members (Hart, 2011);
ILLUS. 56 Model showing structural vs unstable built fabric (Hart, 2011)



current building function_



Current observations of the building function (based on site visits made in February and June 2011) can be summarised as follows:

- The facade creates a boundary edge around the site - containing the space behind it.

- Vegetation has begun to repossess the spaces within the ruin, gaining footholds in now vacant shops which have resulted in the creation of green areas within the built fabric.

- An informal residential component towards the rear of the site on both the upper and lower levels has occurred.

- A central linking circulation spine (shown in blue in illus opposite) can be established along which residential activities are clustered

- The beginnings of threshold between existing spaces have been allowed due in large part to the degree of ruination of structural elements. The absence of the elements begins to blur edge conditions

ILLUS. 57 Found structural analysis (Hart, 2011); **ILLUS. 58** Predio Potts Februaury 2011 (Hart, 2011); **ILLUS. 59** Plaster informal housing in ruin (Hart, 2011)