



Recycling - A Marabastad Community Development by Ben Kunz





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Submitted in fulfilment of the requirements for the degree of Masters in architecture in the Faculty of Engineering,
Built Environment and Information Technology, University of Pretoria, South Africa. 2007
Mentor: Rudolf van Rensburg



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"Constant serial replacement [has become] a fashion system and certain forms of identity underwrite it. When who you are is thoroughly caught up with what you own - the things you display on your body or in your home – conspicuous consumption becomes central to the cultivation of a self and to structures of social value and distinction." (HAWKINS,G:2006:8)

This dissertation attempts to generate, create and or recreate an interest in the ways waste is implicated in the making of self [bodily practises] and the particular sensibilities associated with it. An attempt to showcase how much waste and its management features as a part of "our" everyday lives. "We spend a fair amount of time each day managing waste; washing ourselves in the morning, going to the toilet, taking out the garbage, emptying the trash in our email, picking out clothes for the charity bin. There's a lot of waste here – biological, material, informational – and lots of different techniques and bodily practices involved in eliminating it. There's also a whole swarm of thoughts and feelings [towards] these practises and what their effects are. [Clearly] waste obviously has a vital role to play in the care of [the fundamental] the self." (HAWKINS,G:2006:9)

With any city's continual growth and expansion, discarded building material gets taken from the city to the outskirts where it is dumped in landfill sites or used as land-fill for new developments. Most of the building material, grouped with this rubble, has the potential for reuse, but is discarded anyway to save the trouble of sorting it first to separate rubble from reusable material. Smaller batches of building rubble get dumped illegally on vacant or unused sites in the city itself, polluting the city physically and in effect visually shifting the mundane landscape. The stench confusion of waste then cannot be ignored - it requires attention. Through cultural performances associated with development, an organised sequence of material practices that attempt to deploy certain technologies, theories and ideals establish a sense of order with waste as a category of things that need to be fixed.

The theme of this dissertation is recycling and recycling-awareness to the users of the city on a physical and non-physical level. In this the user of the city will be introduced to the effect of recycling on a city and how it can change a city positively from the inside out. The theme includes physical recycling of building material, the recycling of existing dilapidated buildings on the site and the recycling of the existing informal functions and activities on the site.



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- 002 OPPENHEIMER, A. 2002. Rural Studio: Samuel Mockbee and an Architecture of Decency. PRINCETON ARCHITECTURAL PRESS: NEW YORK
- 003 SLESSOR, C. 1994. South African Sensibility, Architectural Review, Vol. 194/1169. July 1994:22-29
- 004 OPPENHEIMER, A. 2002. Rural Studio: Samuel Mockbee and an Architecture of Decency. PRINCETON ARCHITECTURAL PRESS: NEW YORK
- 005 SLESSOR, C. 1994. South African Sensibility, Architectural Review, Vol. 194/1169. July 1994:22-29
- 006 UNKNOWN, 2006. Healing Centre, Architecture S.A. March/April 2006:17-19
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- 007 OPPENHEIMER, A. 2002. Rural Studio: Samuel Mockbee and an Architecture of Decency. PRINCETON ARCHITECTURAL PRESS: NEW YORK
- 008 UYTENBOGAARDT. R. 1985. Uytendogaardt & Rozandal: Community Centre, Steinkopf (1978-1980), UIA-International Architect, Vol. 8: 12-13

Theoretical premise

- 001 Image collage with photos taken by author
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Context

1



1.1 Project location



001 (www.samaps.co.za)

Southern Africa with Pretoria in the north of the Gauteng province.



The CBD of Pretoria with Marabastad highlighted in red and the specific site framed with the red box



The specific site with its surrounding context

1.2 Project overview

Marabastad is a vibrant part of the city. There is a vast unofficial, visible but unrecorded economy of a multitude of tiny enterprises and occupations. This group was and to some extent can still be seen as the city's unrecorded residents. This community has the potential to evolve into a fully serviced diverse and economically viable suburb. This dissertation attempts to suggest ways in which the existing circumstances can be manipulated, enhanced and encouraged to create a platform on which these activities can flourish. This formalised solution or created environment with its structures, boundaries and limitations would allow the informal activities to grow even stronger.

The diversity in Marabastad is not limited to the various cultures and racial groups in this area; it also extends to its built environment. This has manifested itself in the diverse architectural styles and typologies that have grown here and have given Marabastad its character. The CBD grid of the City of Tshwane is extended into Marabastad but on a much smaller scale and size. This creates smaller city blocks geared towards pedestrians and small business activity spines, with pedestrian movement currently favouring most of Marabastad's retail: small business.

Informal activities seem to now emerge around organised activities and fixed structures such as taxi and bus routes, bus stops and pedestrian routes. This pattern allows for development as it resulted from the organising of these individual activities and cultures as interdependent systems. The community of Marabastad is now able to represent itself as a collective within the City of Tshwane.

This thesis suggests that the issues and problems facing this particular community can be realised and addressed by "drawing on a variety of information from the multitude of small, relatively simple and local elements." (HAMDI,N:2004:21) A system where a platform is created that allows for effective communication emergence and development from the bottom up; from the individual to the collective.

To put in place formal systems and activities in a community such as Marabastad would have a negative impact in terms of outcomes and put to death the diversity that makes Marabastad the community it is today, hence the proposal for the setting of a stage on which the community can create, recreate and develop the peculiarities that allow them to identify function and live within Marabastad. As an attempt to promote and enlarge these informal activities and to address the need for proper services and infrastructure of integrity, a building material recycling depot will be introduced. It will be located in the city context to be used by the building companies of the city and still provide a level of informality in order to enhance the local informal activities of Marabastad.

1.3 Site analysis

1.3.1 Macro scale

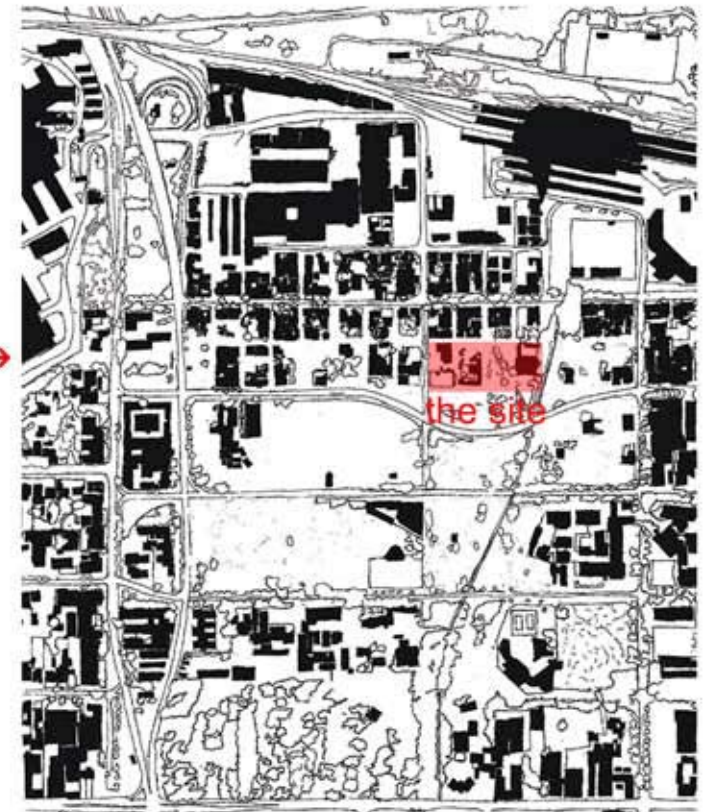
In the existing urban fabric of Marabastad it is clear that there is a lack of density, unlike the rest of the city blocks of the CBD. There exist urban density cavities that need to be filled to extend the continual density pattern throughout the city linking the different activities and functions. The selected site with its proposed series of programmes will aim to start a process of generating urban fabric from itself acting as a catalyst for the process.

With the regeneration of urban fabric through building initiatives, Marabastad will start to reconnect with the CBD restoring its urban dignity. The larger inner city block density should start to overlap into the finer Marabastad grid. The proposed dissertation is to create a gradual transition from the inner city density to the fine Marabastad grid.



004 (COUNCIL.MUNITORIA:2007)

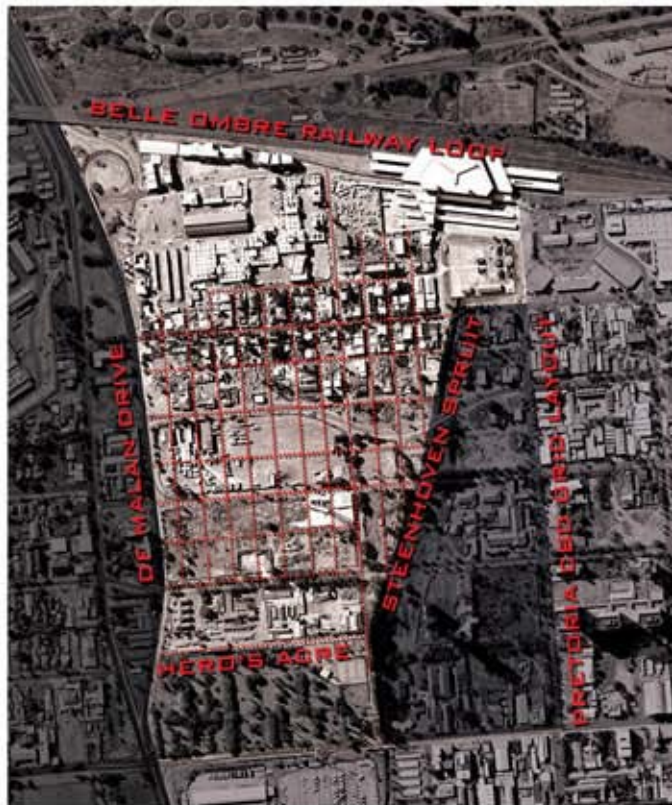
The CBD of Pretoria with Marabastad highlighted in red



005 (AZIZ TAYOB ARCHITECTS: 2002:50)

Figure ground of the urban fabric of Marabastad in 1998

1.3.2 Meso scale



006 (MARABASTAD GROUP FRAMEWORK-2007)

The barriers of Marabastad

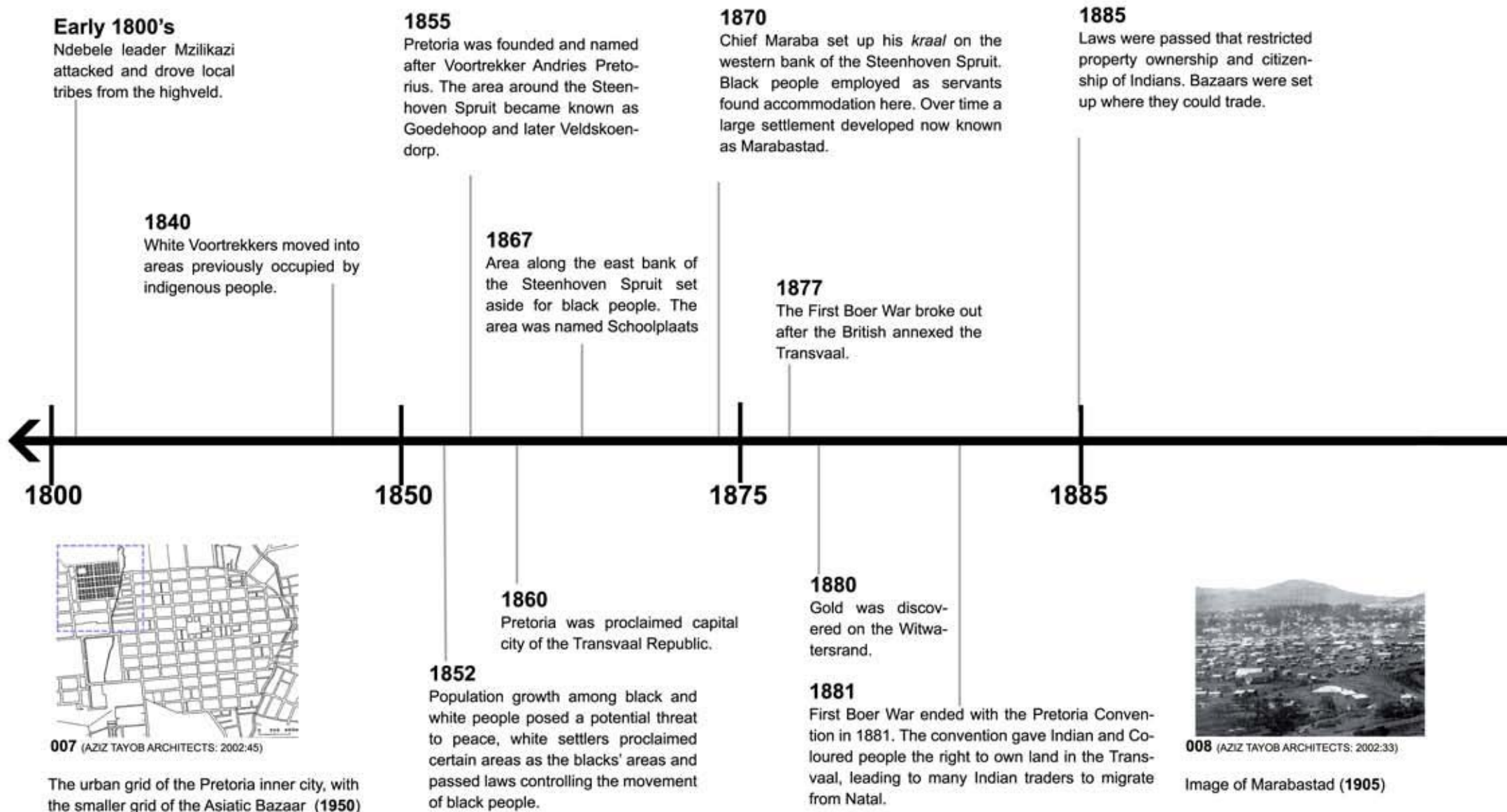
The growth and extension of the Marabastad area is restricted and inhibited with physical boundaries around its current periphery.

To the north where the Belle Ombre train station is located, the railway loop with the ridge to its north prevents expansion. At the eastern boundary runs the channelised Steenhoven Spruit, acting as the transition in scale and size of the city's grid blocks. South expansion is buffered by the Heroe's Acre cemetery, filling a whole city block and to the west is a main road artery of multiple lanes: D.F.Malan Drive.

Although physical barriers exist, there are also social barriers between the inner city and Marabastad. This is due to the racial issues of the past that altered the area physically and the community of the area. The proposed dissertation project will overcome this social barrier with the functions it will provide. The building material recycling depot is open to anyone who wants to use it, allowing people from outside Marabastad to enter the community. A sense and awareness of recycling will be cultivated, and that is not bound to racial groups or the past. This will create a link between all the users of the city, starting with the breakdown of social barriers.

Historical background of Marabastad

(MARABASTAD GROUP FRAMEWORK:2007)





1903

Asiatic Bazaar was established as a township on a fine grid. It later developed into lively mixed used area.

1905

Marabastad and School-plaats consolidated into one township set aside for black people.

1923

Natives Act is passed due to the increase of black people migrating into town, forcing black people to live in areas demarcated as black locations.

1925

Area between Steenhoven Spruit and D.F. Malan Drive, Barber Street and sewer works formed the boundaries of the new Marabastad, which developed into a vibrant community.

1920's

Channelisation of the Steenhoven Spruit.

1918

All homes in the old Marabastad demolished.

1912

The Pretoria town council started forced removal of residents of Marabastad to Bantule where Tshwane University of Pretoria is today.

1934

Slums Act gave authorities power to demolish areas they deem to be slums. Marabastad was declared a slum.

1940

Authorities started to clear out the black population of Marabastad, moving many of the people to Atteridgeville. Only a small Coloured section remained.

1963

Cape Boys Location established between Jerusalem, Bloed, Struben and Ninth Streets. The location was later demolished to make way for an extravagant highway proposal.

1966

Community development acts freezed all development in Marabastad. Proposed Pretoria freeway scheme would have destroyed Marabastad and the Steenhoven Spruit.



009 (AZIZ TAYOB ARCHITECTS: 2002:47)

Asiatic bazaar (1954)

1988

Remaining residents of Marabastad were displaced. The Belle Ombre station was built over the Steenhoven Spruit.

1993

New freeway proposal that still threatens the area today.

1994

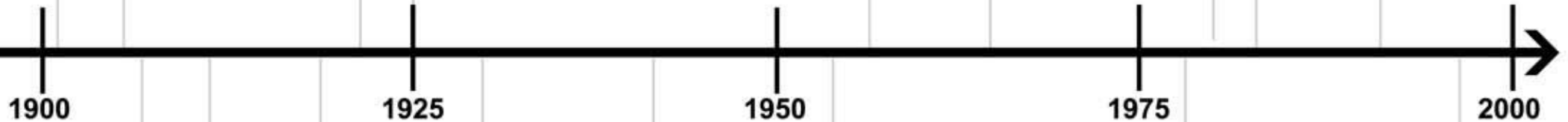
The Birth of the New South Africa, drawing into the area many squatters, hawkers and small scale traders.

1996

The New Constitution erased all discriminating laws and policies to create i.e a free and fair new South Africa.

1987

Conceptual Master Plan for the Asiatic Bazaar was drawn up, but was never implemented.



Visual urban fabric history

(MARABASTAD GROUP FRAMEWORK:2007)



010 (AZIZ TAYOB ARCHITECTS: 2002:49)

1934



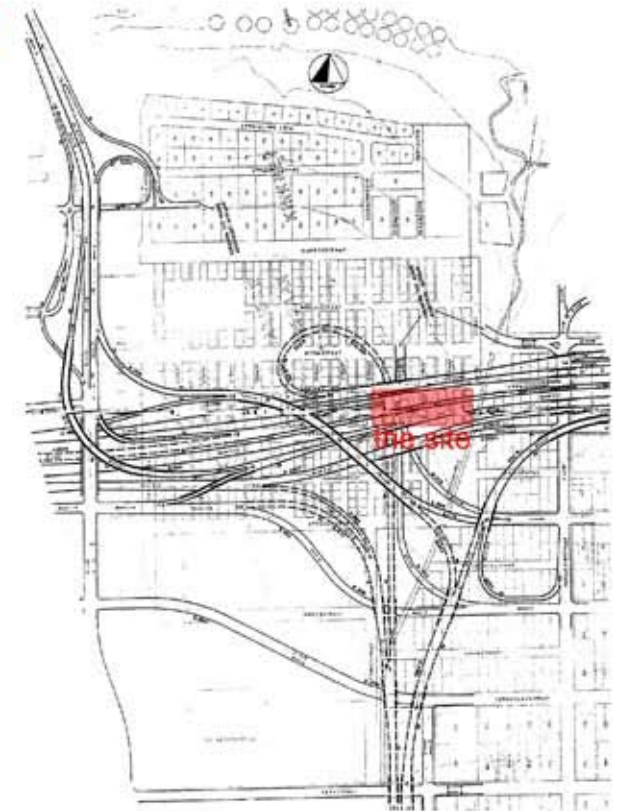
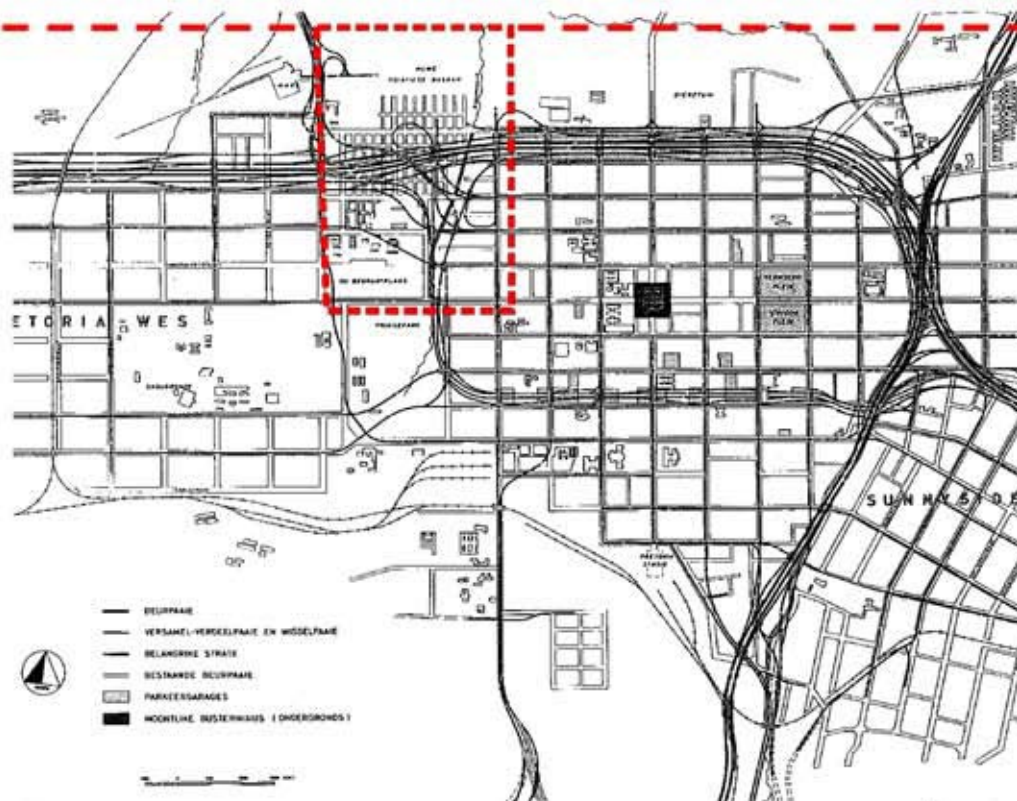
1965



1998

Series of Marabastad Aerial Photographs

Based on a freeway proposal for Pretoria in 1967, the site selected for the material recycling depot was to become part of a major freeway circulation system giving access to the city via an interchange over the Asiatic Bazaar. (BRUNETTE:1967) All the existing structures had been demolished when suddenly the idea was dismissed. But it was too late, as Marabastad had already been destroyed. After the damage was done, there were plans to rebuild and re-establish the community as it was before. But March-past was never part of the inner city plan again. Today it is still the cavity in the urban fabric of Pretoria.



1967 Freeway Proposal for Pretoria Interchange over the Asiatic Bazaar

Heritage background of the Marabastad area

(MARABASTAD GROUP FRAMEWORK:2007)



013 (AZIZ TAYOB ARCHITECTS: 2002:81)

- Irreplaceable landmarks with determined functions
- Landmarks of which the function can be adjusted
- Usage landmarks
- Irreplaceable buildings that are worth preserving
- Buildings that reinforce the qualities of the landmarks

- 1: Church Square
- 2: Paul Kruger House
- 3: Paul Kruger Reformed Church
- 4: Heroe's Acre Cemetery
- 5: Krugerpark Flats
- 6: Talking Beads Training Academy
- 7: Ishmael Mosque
- 8: Nawab Miriammen Temple
- 9: Orient Theatre
- 10: Belle Ombre Railway Station



014 (IMAGE COLLAGE BY AUTHOR)

2

3

Existing urban fabric with the heritage route indicated

Important buildings along the heritage route

The historical route proposed in the Tayob Framework for Marabastad 1998, will be expanded to become a tourist attraction and activity route. The route follows the newly upgraded Church Street west from Church Square and extends north via the Heroe's Acre cemetery. From here it extends further north along Jerusalem Street, past the Miriammen Temple (1927) all the way up to the produce market where it turns east towards the station and continues past the Islamic mosque and the old Orient Theatre recently restored. It meanders past the proposed building material recycling depot with its community centre. A network of public squares and green areas will create opportunities for market activities along the Spruit's green zone. It returns via the Steenhoven Spruit completing the loop back to Church Square. (AZIZ TAYOB ARCHITECTS: 2002:192) It is via the Steenhoven Spruit green route that the building material recycling depot is connected to the heritage route. This ensures that tourists will pass the proposed development where they will be introduced to the theme of recycling awareness within the city context.

This tourist walk is accompanied by a tour operator from the townships called "Jimmy's Face to Face". He has established a presence in Cafe' Riche on Church Square from where he guides tourists around the city. (AZIZ TAYOB ARCHITECTS: 2002:192)

The current isolation of this suburb from the CBD, and the negative perception of the area held by Greater Pretoria prevents Marabastad from attracting many customers. With the upliftment of Marabastad and the re-establishment of its attractive vibrancy, the heritage route will acknowledge Marabstad's history. Talking about the history of Marabastad and that of Church Square at the same time creates the link of the community to the inner city.



Marabastad group framework



The framework, within which this dissertation is set, is a combination of the existing Marabastad area, the Integrated Urban Design Framework for Marabastad and the integration of proposed dissertations, forming a network of needed functions.

The main aim is to weave together the diverse strands of social, economic, legislative and physical environments within Pretoria CBD. The cavity left by the political history needs to be filled with an environmentally sustainable development with human beings at the centre of concerns. (AZIZ TAYOB ARCHITECTS: 2002:22) It needs to be reinstated within the Pretoria central business district, becoming a tourist attraction and in effect the "African Market" of Tshwane that currently hosts 18% of Pretoria's informal trade.

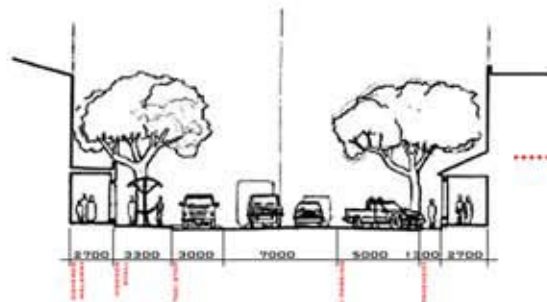
Indicated on the proposed urban fabric network map is the housing development in yellow ensuring the social improvement of Marabastad. The tourist heritage route is shown with the yellow dotted line creating a link between Church square and Marabastad. The other proposed functions consist of sport and various types of educational facilities and an art gallery in the old theatre.

The proposed building material recycling depot is located between the social housing schemes and the train station to the north. It is embedded into the "African Market" urban fabric indicated with blue on the map.

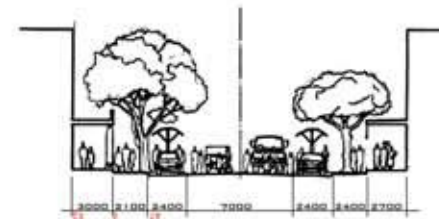
Proposed urban fabric

Due to the sufficient public transport infrastructure, accessibility is more than adequate. There's a bus terminus and taxi rank at the station. Taxi ranks will also be provided on the traffic island between the two D.F. Malan Drives East and West. The flow of pedestrians across these drives will need to be addressed by pedestrian crossings. The PUTCO bus depot will also have to be relocated (possibly to the Belle Ombre loop) in order to return the smaller grid to the site and to reach high-density housing of 60 units per hectare. (AZIZ TAYOB ARCHITECTS: 2002:160) An overnight taxi holding area is proposed across the Spruit to the east, utilised during the day by existing informal trade. A police station will be provided adjacent to the trading area. According to the Gap Proposal for Pretoria Inner City, there will be a tram running along Boom and Church Street, with bus and taxi stops at the corner of Church and Cowie Street.

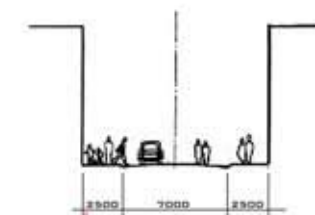
In order to implement pedestrian movement, the majority of north-south routes are pedestrianised, thus west-east routes carry faster moving traffic. Covered walkways and hawker stalls line these routes. Signage should make a positive contribution to the vibrant character of Marabastad by being legible and creative.



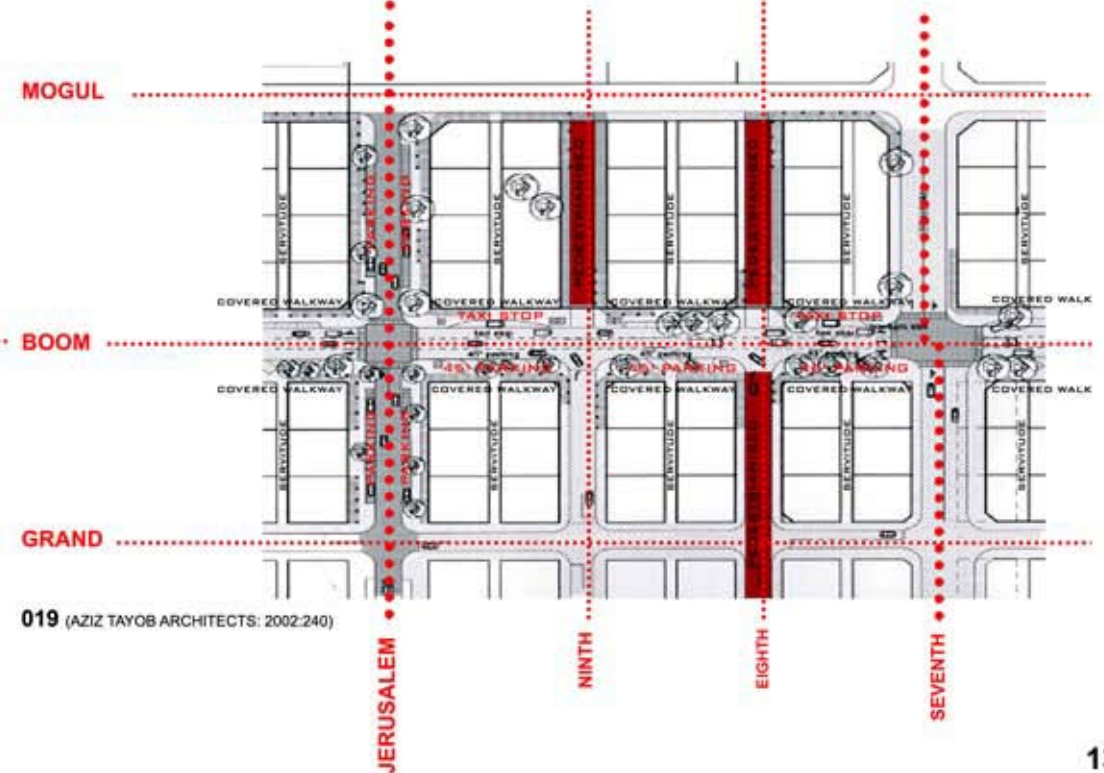
016 (AZIZ TAYOB ARCHITECTS: 2002:241)
Typical section through Boom Street



017 (AZIZ TAYOB ARCHITECTS: 2002:241)
Typical section through Jerusalem Street



018 (AZIZ TAYOB ARCHITECTS: 2002:241)
Typical section through a side street



019 (AZIZ TAYOB ARCHITECTS: 2002:240)

Infrastructural analysis



Access map to Marabastad highlighted in yellow

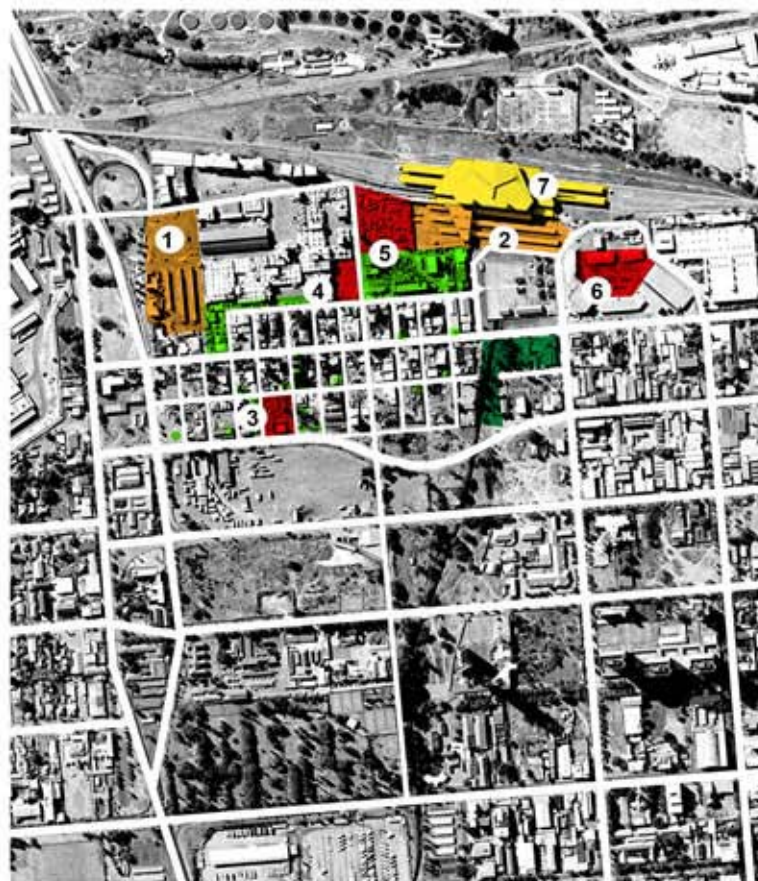
Access to Marabastad is adequate due to the main traffic arteries, indicated with the red lines, running through it. D.F. Malan Drive is a large artery providing access to the CBD from the north-west. This is the entrance to the city from the north-west regions outside the CBD used by the commuters coming from Soshanguve township. Church Street gives access to Atteridgeville township from the west and Mamelodi township from the east.

The bus route network in the city is indicated with the yellow dotted line, providing transport to and through Marabastad that acts as a transitional space for all commuters. The proposed dissertation site is indicated on the map and it is conveniently accessible via all means of transport.

- 1: D.F. Malan Drive
- 2: Boom Street
- 3: Bloed Street
- 4: Struben Street
- 5: Church Street
- 6: Skinner Street
- 7: Paul Kruger Drive
- 8: Nelson Mandela Drive
- 9: Belle Ombre Railway Loop

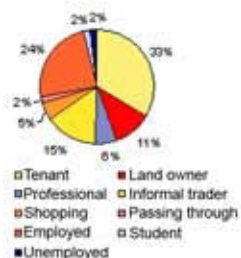
Social and economical analysis

(MARABASTAD GROUP FRAMEWORK:2007)

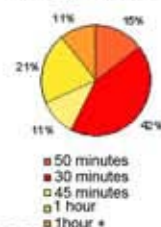


021 (MARABASTAD GROUP FRAMEWORK:2007)

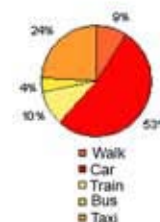
Reason for being in Marabastad



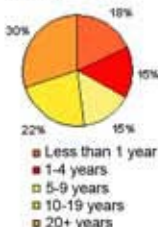
Time spent travelling to Marabastad



Manner of transport to Marabastad



Time present in Marabastad



022 (AZIZ TAYOB ARCHITECTS: 2002:138)

- 1: Marabastad bus rank - 12 000 people pass per day
- 2: Belle Ombre bus rank - 9 000 people pass per day
- 3: Jerusalem taxi rank - 3 500 people pass per day
- 4: 7th Street taxi rank - 500 people pass per day
- 5: Bazaar Street taxi rank - 3 500 people pass per day
- 6: Belle Ombre taxi rank - 700 people pass per day
- 7: Belle Ombre train station - 24 000 people pass per day

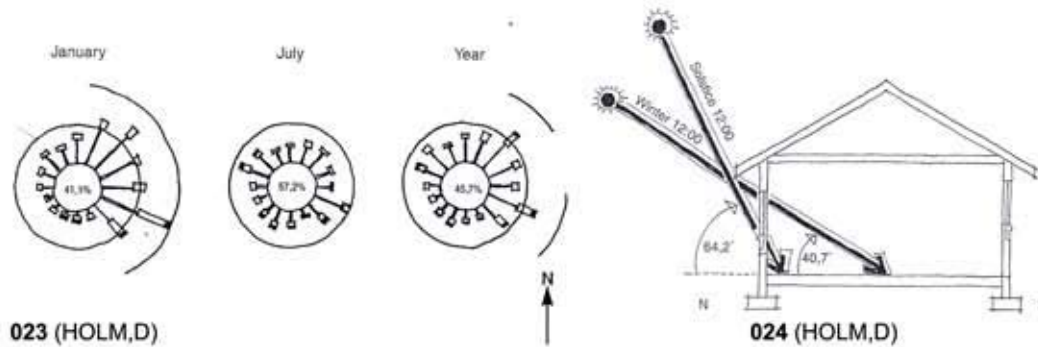
Marabastad hosts 18% of Pretoria's informal trading and with all the commuters passing through via different means of transport, it is clear why trading is a growing economy. Most of the commuters are from the north-west passing through Marabastad every day. (AZIZ TAYOB ARCHITECTS: 2002:103) This makes Marabastad a transition area to commuters between the inner city and outlying regions.

Most people that trade in Marabastad have been there for years selling to their loyal customers passing through. The formal traders of Marabastad consist mainly of the Indian community whereas the informal trade is a mixture of black cultures. (AZIZ TAYOB ARCHITECTS: 2002:126)

The concentration of informal trading, indicated with green, is highest closest to all the different ranks and the station where all the commuters wait for their transport or emerge from the specific transport used. The informal trade provides an income to numerous people and helps counter unemployment.

Informal trading is an existing activity on the proposed site, informing the design on a public space that needs to accommodate it.

Bio-physical analysis



Climate: Marabastad is characterised by generally high temperatures and relatively low local humidity frequently combined with high afternoon temperatures in the summer. The summer rains reach an average of 741 mm per year. (HOLM,D) This allows the proposed building material recycling depot to harvest rainwater providing accessible water to the informal activities. Precipitation occurs mostly due to thunderstorms with rates around 90 to 100mm per hour. Hailstorms are fairly common as well.

Wind: Prevailing winds are calm and blow from the north-east in the morning backing to north-west in the afternoon. During winter cold snaps bring winds from the south, while in the summer thunderstorms are accompanied by turbulent wind patterns. The proposed roof structures and facilities should be designed to maximise cross ventilation by utilising the prevailing wind directions.

Topography: Marabastad falls in a gentle slope from the south-west to the north-east at about 1:36. This slope places no constraints on development. The underlying geology is composed of localised Andesitic lava with interbedded agglomerate, shale and tuff. Soil conditions are such that highly variable foundation conditions may be expected to occur, from solid rock at shallow depth to potentially expansive residual andesite soils. (AZIZ TAYOB ARCHITECTS: 2002:73)

Jan	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ave
Maximum average monthly temperature (°c)	28,6	28	27	24,1	21,9	19,1	19,6	22,2	25,5	26,6	27,1	28	24,81
Minimum average monthly temperature (°c)	17,4	17,2	16	12,2	7,8	4,5	4,5	7,6	11,7	14,2	15,7	16,8	12,13
Average monthly amplitude (K)	11,2	10,8	11	11,9	14,1	14,6	15,1	14,6	13,8	12,4	11,4	11,2	12,68
Average monthly relative humidity (%)	58,0	59,5	60,0	59,5	55,0	53,0	50,0	46,0	45,0	49,5	54,0	56,5	53,83
Average monthly rainfall (mm)	136	75	82	51	13	7	3	6	22	71	98	110	56,17
Rham 72	74	76	78	76	75	71	64	61	64	68	70	75	70,75
Rhpm 44	45	44	41	34	31	29	28	29	35	40	43	44	36,92

025(HOLM,D)



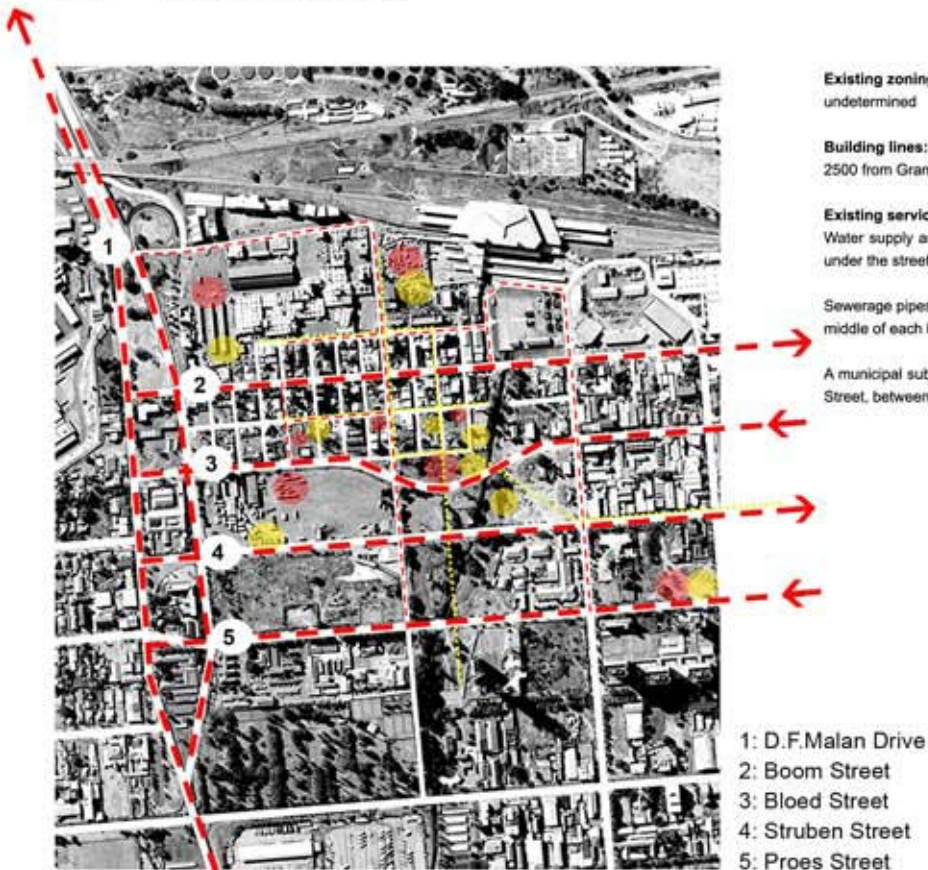
026(IMAGE COLLAGE BY AUTHOR)

An image collage of existing buildings on the site with the city as backdrop

1.3.3 Micro scale

Key:

- - - Vehicular movement
- - - Pedestrian movement
- Pedestrian gathering points
- Vehicular gathering points

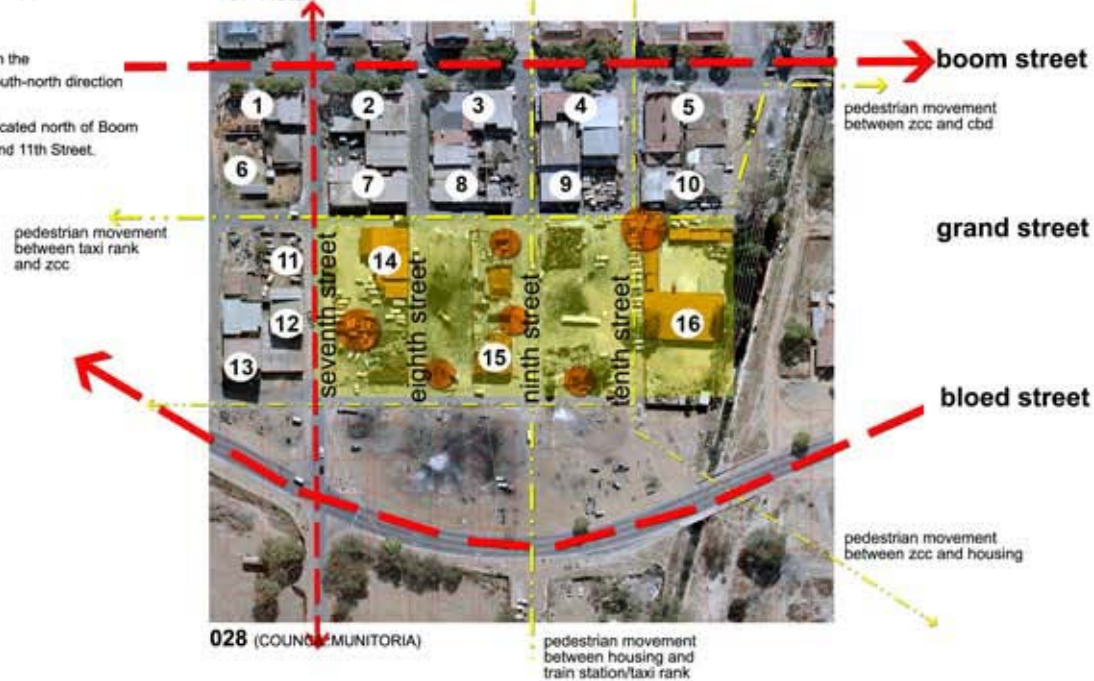


027 (MARABASTAD GROUP FRAMEWORK:2007)

Behavioural analysis of Marabastad

Behavioural analysis

- | | |
|---------------------------------|-----------------------------------|
| 1-5: Small retail shops | 11: Mechanic |
| 6: Creche | 12: Crescent Clinic |
| 7: Mechanic with bar | 13: Liquor store and bar |
| 8: Retail | 14: Mechanic |
| 9: Mechanic and funeral parlour | 15: Retail |
| 10: Retail | 16: Zion's Church of Christ (ZCC) |



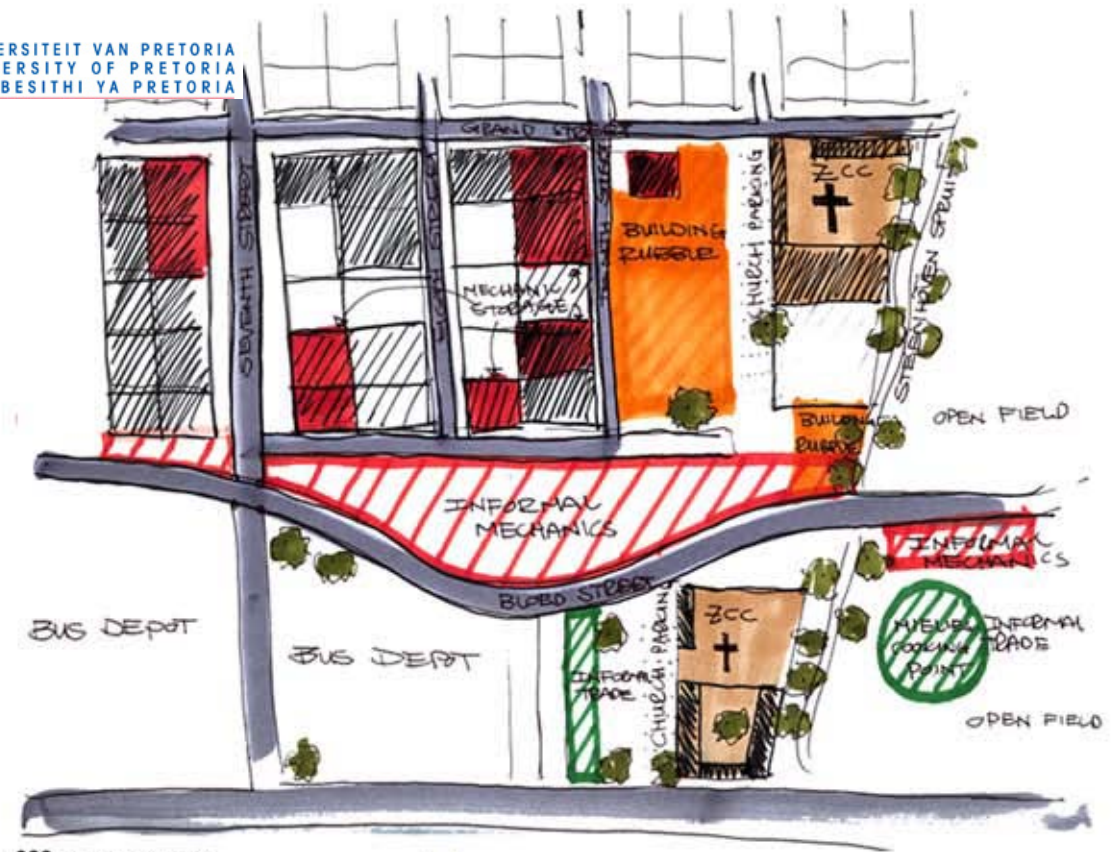
028 (COUNCIL MUNICIPALITY)

Site specific analysis

Site activities

There are numerous heterogeneous activities on site, but they all share the same purpose, and that purpose is survival. The activities can be called survivalist enterprises because the business aspect thereof has no growth prospects.

All of the activities on this site are informal and it is done with the bare essentials, if any. Many are interconnected and interdependent. The small moveable market-like tuckshops are dependent on the taxi drivers buying fruits or sweets when they come to the site to repair their taxi's exhaust and tyres at the informal mechanics. The mechanics only have a few tools and second-hand tyres that they store on site, for their business. Some locals salvage illegally dumped building rubble to re-sell to the local community as building material, where others boil mealies in steel drums to sell on the streets to pedestrians passing by.



030 (IMAGE BY AUTHOR)



029 (IMAGE COLLAGE BY AUTHOR)

An image collage of the activities on site

Recycling analysis

With the city's continual growth and expansion, discarded building material gets taken from the city to the outskirts where it is dumped in landfill sites or used as landfill for new developments. Most of the building material, grouped with this rubble, has the potential for reuse, but is discarded anyway to save the trouble of sorting it first to separate rubble from reusable material. Smaller batches of building rubble get dumped illegally on vacant or unused sites in the city itself, polluting the city physically and visually: in effect shifting the mundane landscape.

The Pretoria CBD does not have a building rubble dump site due to waste of valuable commercial and retail property and lack of open space. It is for this reason that the Tshwane City Council has a legal building rubble dump site in Garstkloof, to the South-east of Pretoria outside the CBD, where there is enough space. There building removal companies, as well as the public, can discard their load where local salvagers collect, recycle and sell salvaged building material to the public. However, the distance to this site limits residents and building companies in the city creating the need for a building material recycling depot closer to the CBD, forcing them to dump illegally on the vacant sites of Marabastad.

The building rubble dumped on site consists of:

- Clay bricks, whole and broken, with plaster and mortar attached.
- Broken and whole ceramic tiles.
- Precast concrete units such as lintels, water channels, etc.
- Glass bricks.
- Steel window and door frames.

As recycling is of major importance in this dissertation, the process introduced will involve:

- Physical recycling of dumped building material.
- Re-use of existing dilapidated buildings on site.
- Accommodating the existing activities on site, thus the recycling of activities to enhance it.
- Breaking down of the poverty cycle. In other words, recycling of social dilemmas ensuring upliftment.
- Recycling of the existing brown field site to become economically viable.



032 (AZIZ TAYOB ARCHITECTS: 2002:80)

A map indicating the known illegal dumping zones



031 (IMAGE COLLAGE BY AUTHOR)

An image collage of dumped building material on site



2

The problem



2 The problem

2.1 Problem statement:

Throughout the City of Tshwane and predominantly in the more economically unfavourable areas, discarded and sometimes growing mounds of waste can be seen. A characteristic prevalent of the society in which we live in, a society that is fast becoming dependent on the idea of disposability. It indicates that today, waste is becoming the social text on which a community's logic or illogic can be assessed and analysed and a means through which we can identify the issues that plague that particular community.

2.2 Sub problems:

2.2.1 Sub problem 1

How does one distil the idea of recycling and limit it to specific types of waste and what makes these categories applicable within the Marabastad area, specifically the site chosen?

Building demolishing companies or building contractors have difficulty in dealing with building rubble on-site and needs to get it out of the way quickly and with least effort to take it to landfill sites. There is not enough time or floor space on building sites to sort the discarded building material into different material categories for recycling before removing it from site. Due to Marabastad's slum-like nature, building companies and local people dump building rubble illegally on barren pieces of land in Marabastad to save themselves the trouble of driving to the landfill sites on the outskirts of the city. Locals in Marabastad however has started to see the potential of this illegal dumping problem as a chance to earn extra needed income by salvaging material that can still be used. Discarded bricks are cleaned from mortar and plaster and re-sold again to the public on pallets. Steel, metal and tin on the other hand are either collected and taken to depots for cash return or used for making art-work. Like the other informal trading in this area, this local recycling industry managed without any formal services and proper equipment.

To formalise these on site activities, would be to lose their essence: the informality and spontaneity of activities in the area. In an attempt to promote and enlarge these informal activities and to address the need for proper services and infrastructure of integrity, a building material recycling depot will be introduced. It will be located in the city context to be used by the building companies of the city and still provide a level of informality in order to enhance the local informal activities of Marabastad.



001 (IMAGE COLLAGE BY AUTHOR)

An image collage of existing buildings on the site

2.2.2 Sub problem 2

Why not use the idea of waste management [recycling] as way and means through which one can address some of the socio-cultural and economic issues in Marabastad?

Opportunities

- It is an ongoing process.
- The idea of recycling is currently being implemented on site and in and around Marabastad.
- As an economic activity, the cyclic repetition of events and or operations that predominantly govern recycling are not complex in their nature and would allow for even semi or unskilled persons to participate in this process.
- The cyclic nature of this process would imply a continued activity, that would then work as a formal structure from which small enterprises can start to base their growth, emergence and development.
- The nature of this process allows for it to be associated with other community based projects in primary areas such as health care, education and the arts. Giving a platform created flexibility, in the way that it can be used and adopted to suit the needs on the people within the community.
- Recycling is an activity that can encourage and promote the idea of "developmental facilitation". Where the formality and rigidity of the rules that govern the chosen development strategy are not set with no real predictability. Allowing for this development to be appropriated by the same community within which it is being implemented.
- Sustainable urban growth emergence and development is contributed to with ideas that form part of the principles that govern recycling.
- Identity, respect and coherence are some of the effects that recycling can trigger within a community that carries this idea through into the activities that already exist within it.
- The short term monetary benefits to the participants in the recycling process would also affect the economic situation within the community of Marabastad.

Drawbacks

- Resources.
- Facilitation in terms of systems that have to be put in place to ensure that recycling stay a viable economic activity.
- How does one incorporate the diverse varied socio-cultural and racial groupings into a system where together they can start to operate as a collective in an attempt to enhance the individual and his specific needs and problems?



002 (PHOTO BY AUTHOR)

A photograph of Eighth Street of the site

2.2.3 Sub problem 3

How does the idea of waste management [recycling] allow for the continuation of the informal activities already in place while at the same time providing a formal structure on which these informal activities can then play themselves out without adverse hindrance on their emergence and organic development?

Opportunities

- Different levels of formality/informality of the activities and their processes can be integrated within the formal structure to allow for mutual respect and insight in order to bring the community to a place of unity.
- To provide a formal structure or platform on an urban scale, accessible to informal activities, will secure the future of these activities once the whole of Marabastad develops further.
- The formal structure or platform created can adapt to different needs as the informal activities change, or change scope, to accommodate the emergence and organic development of the activities.
- Marabastad's formal and informal activities should aspire to a symbiotic rather than an adversarial relationship because they are interdependent.

- To provide integrated functions of a more formal level within the development in order to generate attraction of people and companies, ensuring an income to support the development. This will ensure that the development will obtain a sense of dignity and purpose within its context aiding the value of the informal activities.
- The process of recycling will always be part of the city. Once a culture of recycling is established within Marabastad, the need to recycle will become part of everyday life. This process of recycling will always have its different levels of formality ensuring the future of unskilled people to generate income with access to proper skills development within the centre

Drawbacks

- The constraints of the site in terms of size to accommodate natural emergence and organic development of all the existing activities already on site.
- Although the locals are easily adaptable to new circumstances, due to the informal nature of their activities, how will they react towards a new development of a more integrated level of formality and informality within the Marabastad context?



003 (IMAGE COLLAGE BY AUTHOR)

An image collage of existing neighbouring buildings of the site on Grand Street



2.3 Hypothesis:

"In the affairs of man there always appears to be a need for at least two things simultaneously, which in the face of it seem to be incompatible and to exclude one another. We always need both freedom and order". (SCHUMACHER:2007:94) Order brought about by the use, reuse and manipulation of the available resources in terms of manpower, activities and ideas to allow for a platform that serves as the formal stage on which small and informal activities are allowed their freedom to emerge and develop. Borrowed from the school of thought that looks at emergence as the border between order and chaos. Where on the one hand one has structure, cohesiveness within and in between systems which give us order and stability, but on the other hand a spontaneity, adaptability and inherent ability to self-organise that allows the freedom for species, institutions and industries to evolve and survive based on experience, circumstance, status-quo and learning, empowering them within the communities that they emerge and survive within and pushing for their creativity, diversity and ability to respond to its needs. "This creativity and novelty comes forward when people's environment is disturbed and they are open for change. To begin with, there must be a certain openness, a willingness to be disturbed in order to set the process in motion; and there has to be an active network of communication [in order to] amplify the triggering event. The next stage is the point of instability, which may be experienced as tension, chaos or crisis. At this stage, the system may either break down or it may break through to a new stage of order, which is characterised by novelty". (CAPRA,F:2002)

Through novelty and creativity in response to change, emergence takes place. "New organisations form through emergence and this need to be designed. It is a cyclical, progressive and non-linear process, emerging exponentially". (HAMDI,N:2006) The importance of the success lies within the relation between structures designed and those which are able to emerge. Human organisations always contain both designed and emergent structures. "The designed structures are the formal structures of the organisation [city] the emergent structures are created by the organisations' informal networks and communities of practice. Designed structures provide stability. Emergent structures, on the other hand, provide novelty, creativity and flexibility. They are adaptive, capable of changing and evolving. The issue is not one of discarding designed structures in favour of emergent ones". (CAPRA,F:2002) Rather the coexistence of both. This thesis attempts to put forward a platform on which both these ideals play themselves out without the one unconstructively affecting the other. Finding that balance linking the structures designed and those that must emerge – not either/or. Through emergence new partnerships in the community are encouraged creating organisations that are connected to others from within its border to form a network from which they can all draw strength and together have an impact on their individual environments and those of the collective. Emergence enables people to develop skills, self-confidence, business experience and employability. These acts of association rebuild commitment to wider society and re-engage people as citizens strengthening the network and sense of community.

2.4 Delimitations:

- The recycling process will exclude the recycling of bio waste, garden refuse or any other organic waste.
- The training facility is not a public school.
- The public space in the development is not a taxi rank or formal market area.

2.5 Assumptions:

- This dissertation is based on and informed by the new Marabastad development proposal and that this brief will fit into the proposed upgrade of Marabastad.
- The proposed housing development according to the Marabastad framework will ensure that enough housing is provided to the locals working in Marabastad to want to live there.
- The Zion's Church of Christ (ZCC) will stay a permanent programme on the existing site ensuring pedestrians movement across the site.
- The taxi-service yard will keep the existing activities on site regarding the mechanics in terms of tyre and exhaust replacement and fixing.
- Marabastad will develop to grow to a more urban scale ensuring an inflow of people apart from the commuters travelling through daily.
- Marabastad will keep its sense of informal trading and activities.

2.6 Client profile

2.6.1 Non-placed based actors

- Council of the Municipality of Tshwane
- Department of Education

2.6.1 Placed based actors

- Council of the Zion's Church of Christ (hereafter referred to as the ZCC)
- The community
- Waste Group
- Building material removal companies



Precedent studies



3



3.1 Project: Nelson Mandela Interpretation Centre Location: Alexandra, Gauteng, South Africa Architects: Peter Rich Architects

This community owned museum facility is situated in a high-density urban community. It hosts jazz archives, internet cafés, a food court and youth centre with workshop areas. The building is designed on both a civic and domestic scale through the use of materials and the manipulations of space. The language of the design reflects resourcefully selected material use, consisting of recycled and waste materials, rural materials and urban materials combined with a more sophisticated use of polycarbonate walling. The visual and physical culture of Alexandra is celebrated with the loose-fit composition on the terrain and the views the building creates because of its open-air qualities. "The centre is dignified while being appropriately tough in a context of poverty and neglect." (DECKLER ET AL:2006:46-49)



001 IMAGE COLLAGE BY AUTHOR (DECKLER ET AL 2006:46-49)

Materials used:

- Cement blocks.
- Clay bricks.
- Steel H-columns and I-beams.
- Polycarbonate sheeting.
- IBR profile metal sheeting.

Influences:

- The new intervention is both carefully and elegantly designed to engage with the existing structures on site with the addition of new structures to enhance and not take away from what was on the site.
- A combination of materials, influenced by the context, as a play on spatial quality, texture and gradation
- Although this building is set in a township it is designed to an urban scale creating a sense of dignity.

3.2 Project: Thomaston Farmer's Market, 2000

Location: Thomaston, Newbern, United States of America.
Architects: Rural Studio

The Thomaston market is the Rural Studio's first foray into architecture to advance economic and town development. It is a civic building that hosts a farmers market and is mainly columns and a roof, a butterfly of corrugated metal with a prominent drain at its centre. The roof's supports – ribbed metal purlins, horizontal steel piping, and piped steel columns – are all welded. (OPPENHEIMER, A:2002:134-137)



002 IMAGE COLLAGE BY AUTHOR (OPPENHEIMER, A:2002:134-137), SKETCH BY AUTHOR

Influences:

- The roof is light and airy in appearance but is anchored to the ground with its steel columns in concrete. The steel columns are fixed in concrete column-footings which give the columns their bulky appearance without the waste of expensive material to achieve it.
- The proportion and "lightness" of the structure and the effective use of material will be investigated and applied to the recycling yard that will consist of a series of roofs.

Materials used:

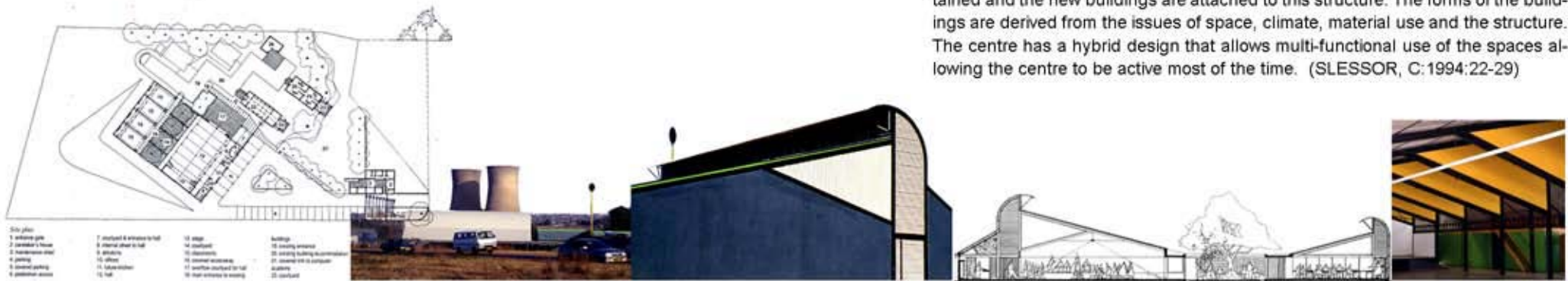
- Steel columns and trusses.
- Steel wire mesh.
- Cast in-situ concrete that is painted.

3.3 Project: Soweto Careers Centre

Location: Soweto, Gauteng, South Africa

Architects: Jo Noero

The centre creates a community focus and relates well to its context, topography, site limitations and existing buildings on the site. It has a variety of well designed spaces suitable for a mixture of functions. A sense of drama is created with innovative designed scooped roof structures what could easily remained portal framed buildings. Materials were resourcefully selected and typical vernacular materials of self-built houses were used to demonstrate to the users the good aesthetic and functional performance potential there of. The original structures of the site are retained and the new buildings are attached to this structure. The forms of the buildings are derived from the issues of space, climate, material use and the structure. The centre has a hybrid design that allows multi-functional use of the spaces allowing the centre to be active most of the time. (SLESSOR, C:1994:22-29)



003 IMAGE COLLAGE BY AUTHOR (SLESSOR, C:1994:22-29)

Influences:

- This centre influences the choice and use of materials in the dissertation.
- The hybrid designed spaces create an open variety of functions within one complex development. This can be introduced into the dissertation where it is also placed in a context with heterogeneous functions.

Materials used:

- IBR profile metal sheeting.
- Steel columns and truss work.
- Plastered and brightly painted masonry brick walls.

3.4 Project: Supershed and Pods, 1997 - 2001. Location: Alabama, United States of America Architects: Rural Studio

The barnlike Supershed rises 6 meters and stretches 43 meters. It shelters self designed and built student cottages and pods, which fit between the bays of the roof columns. The two parallel rows of pods are an assortment of diverse materials, textures and colours, but forms a coherent whole with the supershed creating a public promenade or circulation axis covered by the roof. The metal-roofed superstructure is supported with robust timbers recovered from a former railroad trestle and keeps the rainwater off the pods. At the one end of the promenade is a cardboard-bale classroom and on the other ablutions. This results in a quirky vernacular aesthetic. (OPPENHEIMER, A:2002:70-83)



004 IMAGE COLLAGE BY AUTHOR (OPPENHEIMER, A:2002:70-83)

Influences:

- The promenade forms a movement and circulation spine to which other elements are attached and is celebrated by the oversized roof that covers this circulation spine.
- The oversized roof can give an urban quality to the functions taking place underneath it.

Materials used:

- Wax impregnated cardboard-bale
- Timber
- An assortment of diverse recycled materials
- IBR profile metal sheeting

3.5 Project: Duduza Resource Centre

Location: Duduza, Gauteng, South Africa

Architects: Jo Noero

The Resource Centre in the Duduza Township has a dual educational and community function. It accommodates a series of informal education projects and is designed to cover a variety of uses and be capable of future adaptation as a community college. The facilities are arranged on a linear circulation spine, intended to replicate the scale and character of the street. The spine opens halfway into an open courtyard defined by a two-storey administration building which acts as the civic heart of the centre. (SLESSOR, C:1994:22-29)



005 IMAGE COLLAGE BY AUTHOR (SLESSOR, C:1994:22-29)

Influences:

- The resource centre interweaves educational and community functions to become a public building.
- The hybrid design allows for different programmes in the same centre maximising the functions and functionality of the building.

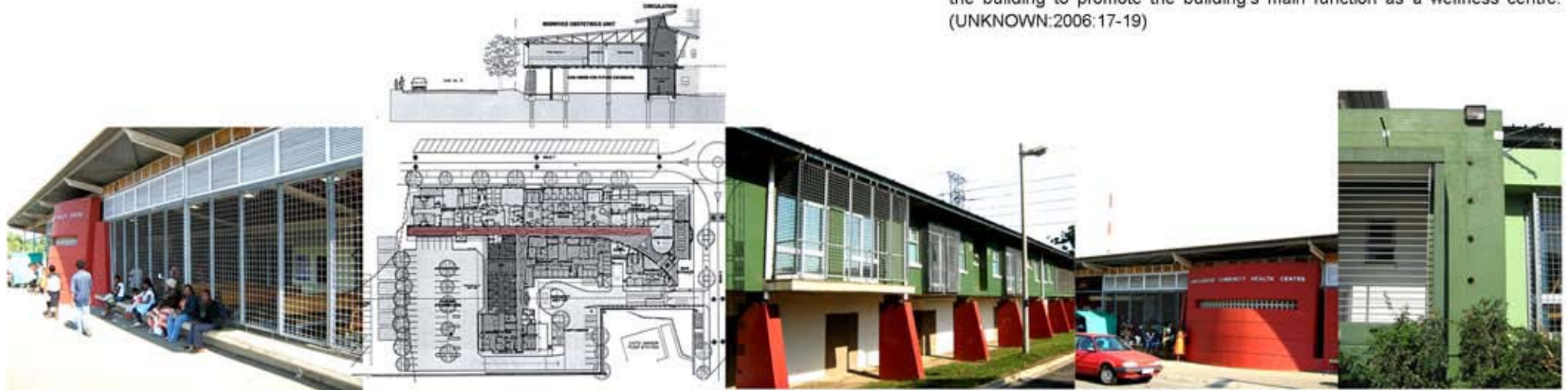
Materials used:

- IBR profile metal sheeting.
- Steel columns and truss work.
- Plastered and brightly painted masonry brick walls.

3.6 Project: Umkhumbane Community Health Centre

Location: Cato Manor, KwaZulu-Natal, South Africa
Architects: Robert Johnson with ZAI Consultants

This hybrid design engages with its site and is very successful in terms of the different programmes using the spaces designed. It engages rather than alienate the users on a functional level as well. Although its main function is to provide health care to the local Cato Manor community, the building forms a penetrable façade interacting with the street through articulated treatment of building components. This ensures that some of the deplorable elements of the public sector health system, like endless numbered queues, are transformed into public waiting places that are used for church assemblies on Sundays. The care facilities are organised in pockets and is structured along an ambiguous spine that is naturally ventilated. This spine allows fresh air and sunlight into the building to promote the building's main function as a wellness centre. (UNKNOWN:2006:17-19)



006 IMAGE COLLAGE BY AUTHOR (AUTHOR'S OWN)

influences:

- On urban scale and size, the building sets a strong precedent for future development on this high road.
- The robust design of the building is still very elegantly designed especially the mentis grid and steel mesh panels, for security, in front of the windows and courtyards of the building. The use of mesh-walls rather than solid walls allows the public to interact with the users of the building and let the outside into the building.

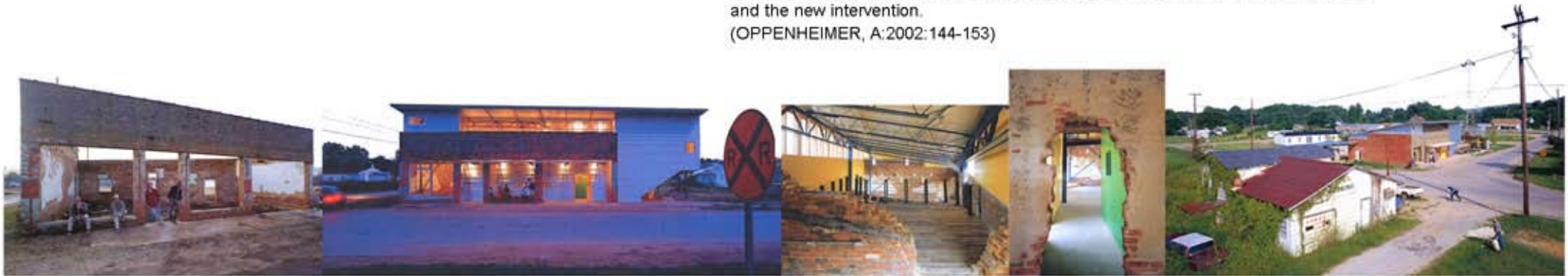
Materials used:

- IBR profile metal sheeting
- Plastered and brightly painted masonry brick walls
- Steel mesh and mentis grid

3.7 Project: Akron Boys and Girls club, 2001. Location: Akron, United States of America Architects: Rural Studio.

This club is a supervised gathering space for children when most of their parents are at work outside of town. Before Rural Studio intervened, it was a deserted weathered red brick husk of a former store. The students retained the old existing walls and topped the structure with a slanted roof, build off-kilter interior walls, and created a metal-wrapped add-on containing a small classroom, a computer lab, a bathroom, and a utility room. The interior is turned into a stage and brings the town inside. As the building is in a more rural-suburban environment, urbanity is added by a canopy and street furniture that extends the side-street wall and reinforces the path between the town's laundrette and gas station. Exciting architecture is achieved through material use and the language between the old existing structure and the new intervention.

(OPPENHEIMER, A:2002:144-153)



007 IMAGE COLLAGE BY AUTHOR (OPPENHEIMER, A:2002:144-153)

Materials used:

- Clay bricks.
- Steel columns and trusses.
- IFR profile metal sheeting.

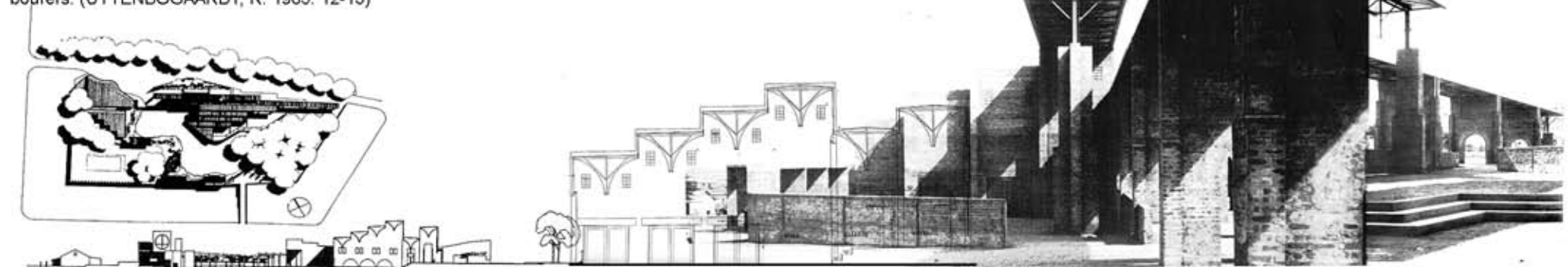
Influences:

- The new building's steel columns are respecting the existing structure and is therefore built behind the existing walls.
- The existing walls are kept in their original state as a remembrance of what was.
- The building material selection was informed by its surrounding context.
- Street furniture connects the interior and exterior of the building and forms a link with the street and surrounding buildings.

3.8 Project: Steinkopf Community Centre, 1978-80

Location: Steinkopf, North-west Cape, South Africa
Architects: Uytendogaardt & Rozandal

The building answers the primary needs for place and shade in this very hot and arid landscape. It creates a permeable place of shelter, shade, colours, trees and spaces that enriches the experience of urbanism. To strengthen the defined space, three peripheral walls enclose it with the principle circulation space of the town acting as the fourth wall. The programmes added to these walls consist of a library, visitor town houses, a crafts centre and a swimming pool. The main programme is the multi-functional community hall free-standing from the three walls to create interrelated outside spaces. The building's construction and material selection complements the local pragmatic light steel farm buildings with infill brickwork done by semi-skilled labourers. (UYTENBOGAARDT, R. 1985: 12-13)



008 IMAGE COLLAGE BY AUTHOR (UYTENBOGAARDT, R. 1985: 12-13)

Influences:

- The high walls of the community hall steps gradually down in height to become orientated to a more pedestrian scale.
- The multi-functionality of the community hall is strengthened and maximised with the added different programmes to the complex.
- Urbanism is achieved through the placing of the community hall in the public space and the volumetric scale of the building.
- The public space is defined and activated by the programmes surrounding it creating an urban square.

Materials used:

- Mild steel frames and roof trusses.
- IBR profile metal sheeting.
- Unplastered masonry brickwork.



Theoretical premise



4



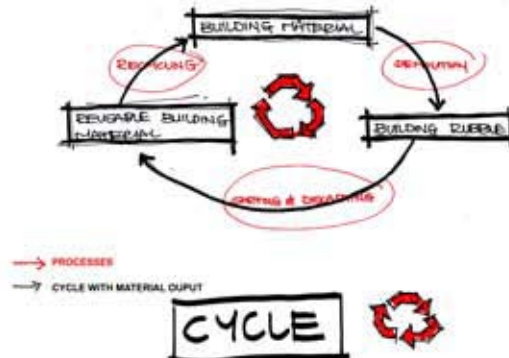
4.1 Rationale

"When dwellers control the major decision and are free to make their own contribution to the design, construction or management of their housing [dwelling and or workplace], both the process and the environment produced stimulate individual and social well-being. When people have not control over, nor responsibility for, key decisions in the housing [building] process, on the other hand, dwelling environments may instead become a barrier to personal fulfilment." (TURNER:1972)

This is especially true in an environment where the economic backing and systems are limited and scarce. This inclusion of the users of the design is a fundamental part of the proposed design. An attempt to encourage ownership with the long term output of appropriation. In this way, it attempts to set the stage for the growth, emergence and development of the proposed development. The proposed design also attempts through various ideologies and practises to redefine the proposed design and the built environment on site as a part of the process of enablement where the task of involvement consideration and understanding of the users and the current activities and systems become primary and influential in the proposed design.



001 Site activities



002 Recycle diagramme

A learning process for both the designer and user that in itself is "attempting to develop a kind of professional artistry that enables [both] to improvise and be informed, working [together] somewhere between order and chaos." (HAMDI, N:2006) Recognition of the duality of the nature the proposed design and environment, being the school of thought from which the designer appreciates the issues that need to be addressed on site while at the same time trying to enhance the dynamics that are already existent on site, despite the fact that these activities may be part of the problems found on the site and within the community of Marabastad. An environment that as a structured goal specific project must also allow for communal growth, emergence and development of its users and the socio-cultural and religious organisms that will use interact and function within this space. In order to address this duality, this dissertation proposes the need for an understanding of the organizational structure and workings within the surroundings, the community and the built environment.

The proposed design therefore attempts a change in the approach towards change, organizational change but representing it through the design intentions an understanding of "the natural change processes that are embedded in all living [communal] systems." (CAPRA, F: 2002:101)

In this way the proposed design in this dissertation takes into consideration the "organizations that mirror life's [communal] adaptability, diversity and creativity." (CAPRA, F: 2002:101) This dissertation becomes a representation of the understanding of the nature of this community and specifically the site chosen, as a "living system [that] continually creates; re-creates [itself] by transforming [and] or replacing [its] components [facets]. [In the way this system, community undergoes] continual structural [the genii of the community in Marabastad] changes while preserving [its] web like [diverse, contradictory] patterns of organization. Translating this understanding of the inherent change processes that are currently to be found on site with idea's processes of change that do not detract from these but only serve as platform on which their diversity and complexity is played out, transformed and or changed to allow for growth, emergence and development on both a macro and micro level.

This relationship from the bottom up, allows for a better understanding of the locale chosen, the proposed design through recycling that serves a flexible community based and emergent industry lends credibility to the more formalised structures (being the community hall and church) anchor the design to the specific site. These anchors through their interactions with the surroundings then act as a feeder, a stage that allows the informal activity of recycling and emergent industry to play out. On this stage they can then change, adapt, transform and or replace components of themselves to better suit the growing emergent community that is Marabastad. It sets an environment that encourages emergence in terms of activity and systems that invariably leads to innovation driven by management as opposed to purpose and ideology. It is the generation of a support base, that allows for the users and inhabitants of the proposal to provide and develop themselves through methodologies that are relevant to the community while considering their individual needs, both socio-cultural and economical. The creation of a communal co-operation is a response to the needs of its community.

The proposed design allows itself sustainability through itself. "A systemic solution to the problem of organizational change, which like many systemic solutions, solves not only that problem but also several others, [as it starts to function] in terms of complex nonlinear networks, [and] is likely to lead to new insights into the nature of complexity," (CAPRA, F: 2002:100) that in turn allow for the design to create solutions within itself in the long term. In this way the proposed design allows itself an element of long term sustainability that comes from within itself and this in turn implies that growth, emergence and development are but part of the characteristics, the nature of the proposed design.

This spontaneous encouragement of "emergence of order and the dynamics of structural coupling, results in the continual structural changes that are characteristic of all living systems [community]." (CAPRA, F: 2002:101)

4.2 Approach



003 (IMAGE COLLAGE BY AUTHOR)

formal

design order structure rules routines coherence cohesiveness stability



proposed design



informal

response to need

freedom

SPONTANEITY

adaptability

instability

evolve

chaos

experience

NOVELTY

emergence



004 (IMAGE COLLAGE BY AUTHOR)



Concept development

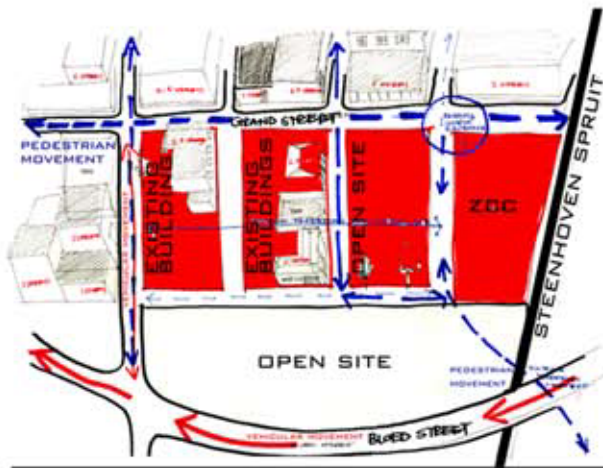


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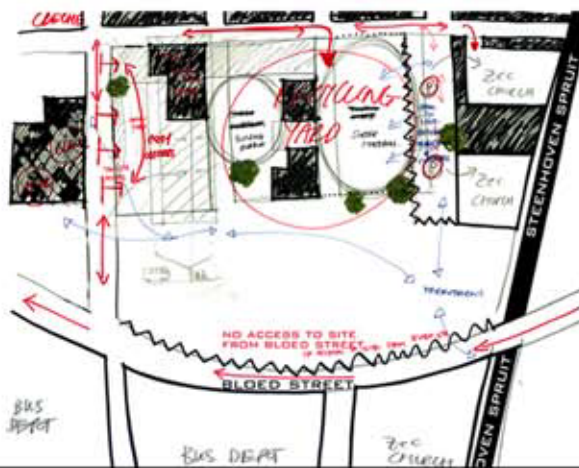


Descriptions

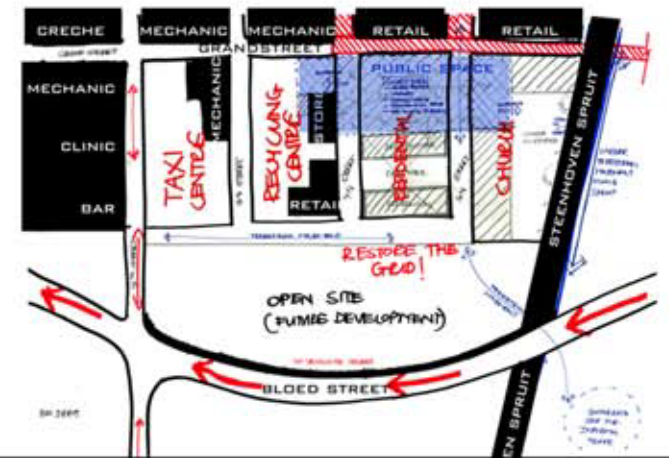
- 001 Site exploration indicating existing buildings with movement axis
- 002 Programming exploration in terms of access and existing functions
- 003 Programming exploration with introduced public space creating an urban square for existing activities to spill out on to



001

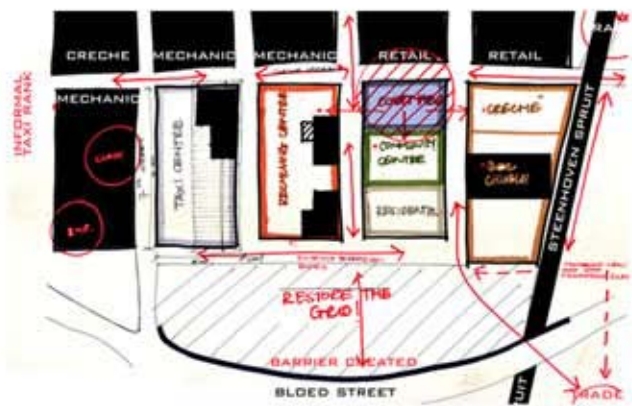


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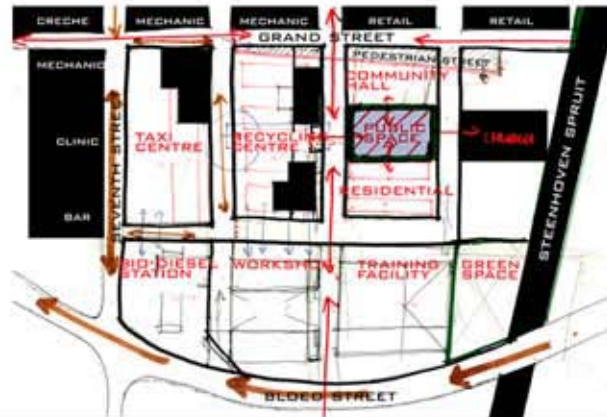


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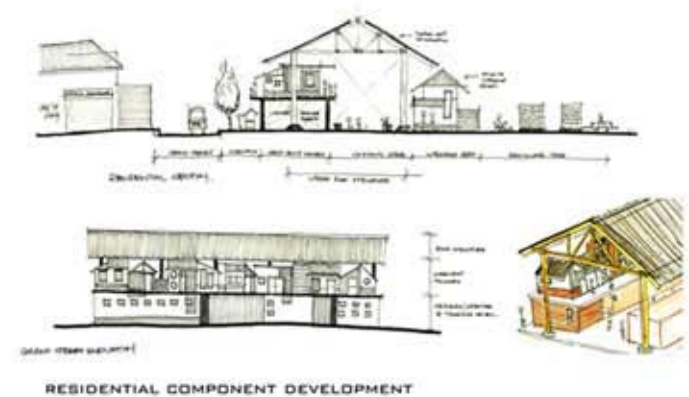
- 004 Restoration of the grid with programmes assigned to grid blocks. A community centre is placed between the public space and residential units to centralise public functions.
- 005 Public space shifted between community hall and residential units to create urban street boundary at Grand Street. A diagonal pedestrian axis is explored to create a ritual space at the entrance of the church set off Grand Street. Combined spatial and programme planning with proposed neighbouring development on site.
- 006 Residential component development south of the public space to create living units on site for recycling yard and proposed neighbouring facilities.



004



005



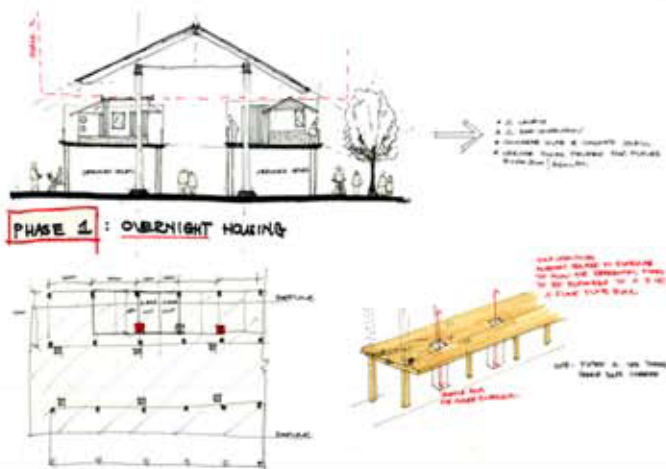
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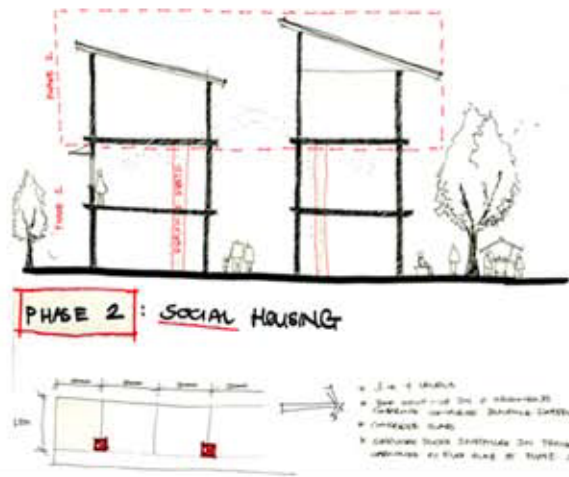
007 Residential component exploration

008 Exploration of phasing

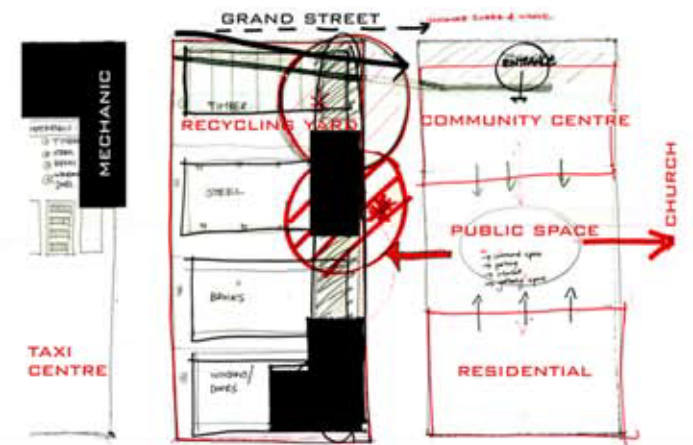
009 Public space serving as spill out space for the community centre, recycling yard, the ZCC (church) and the residential units.



007



008



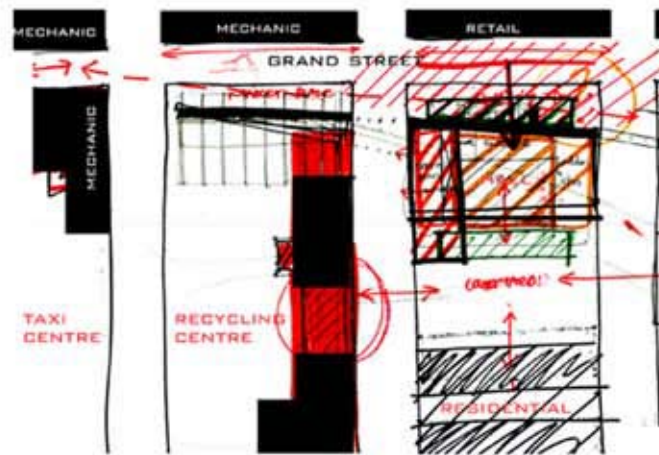
009

010 Recycling centre layout with public entrance possibilities from the public space.

011 Further refined spatial exploration with neighbouring development.

The residential units are discarded due to a proposed neighbouring social housing scheme east of Steenhoven Spruit.

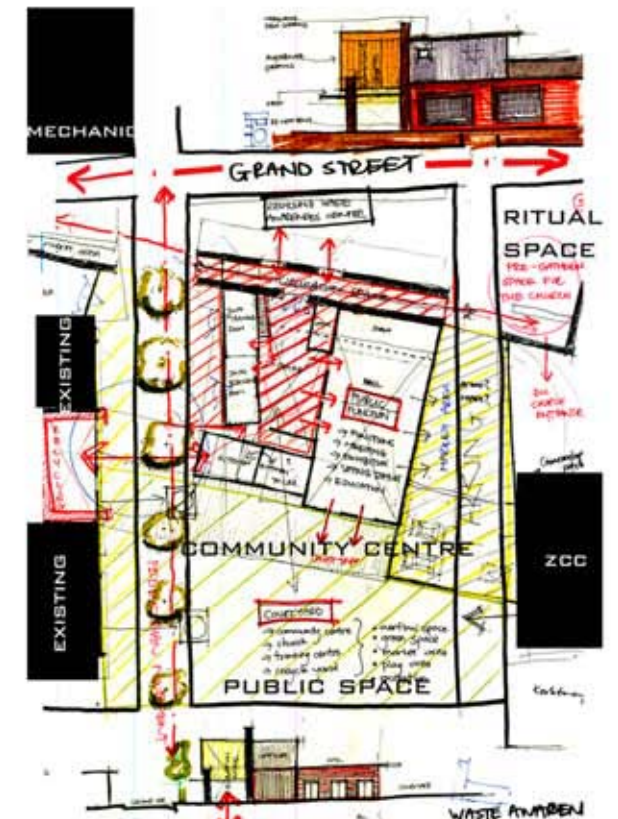
012 Development of community centre as training centre for recycling yard with a ritual space for the north entrance of the ZCC created by diagonal pedestrian axis.



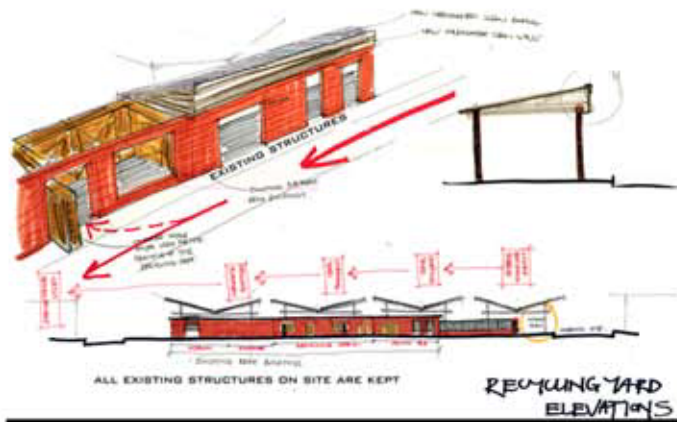
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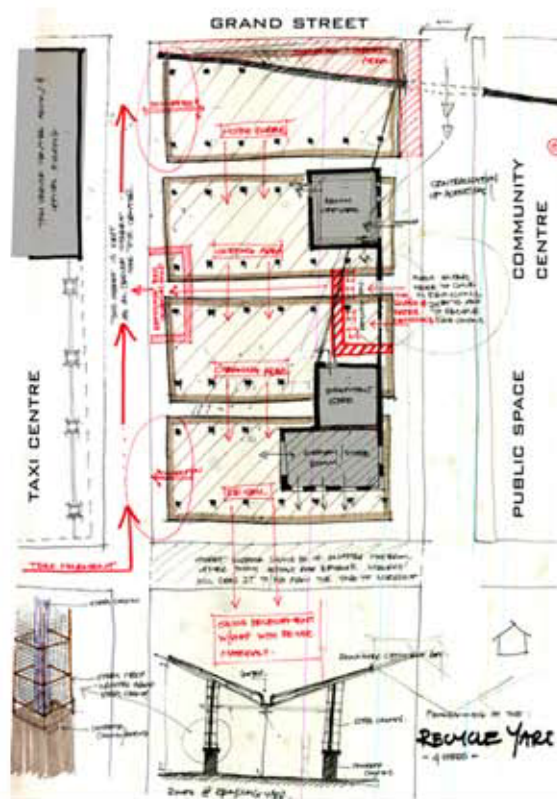
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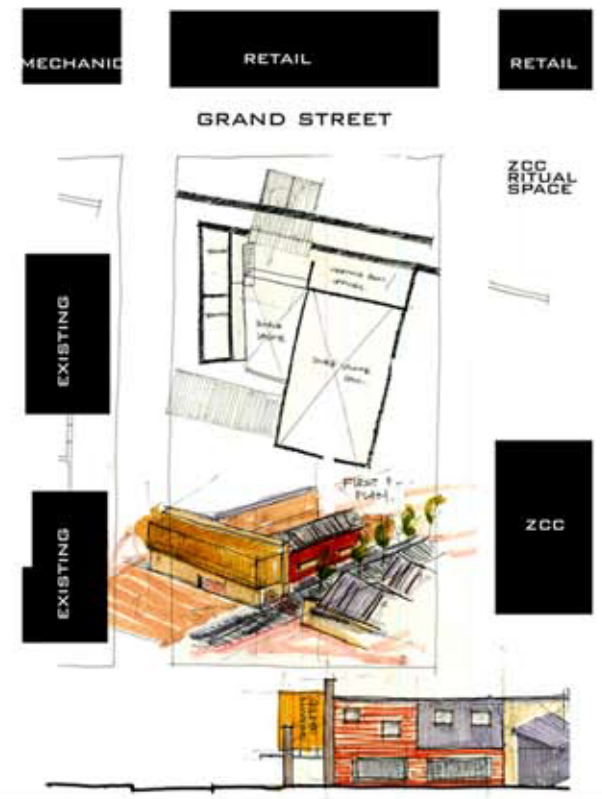
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013



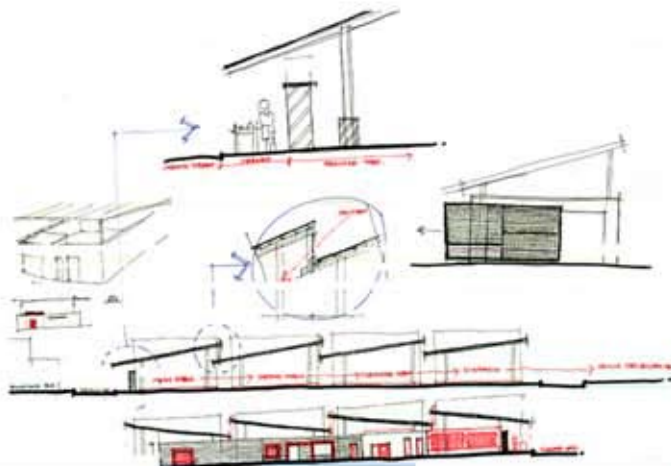
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015

Descriptions

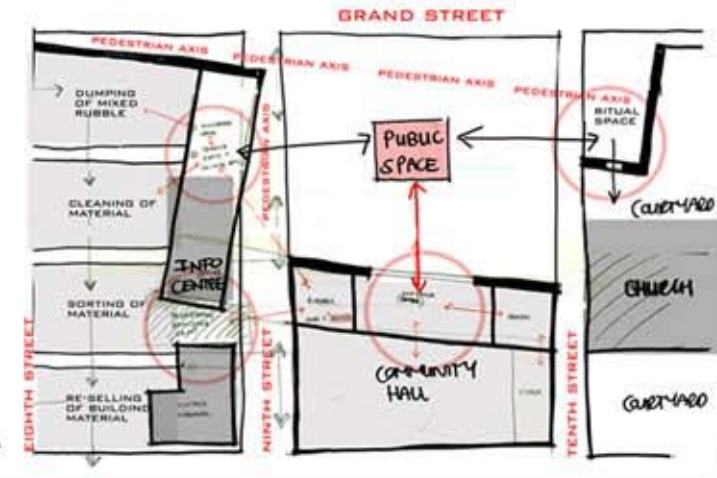
- 013** Recycling yard elevation of existing buildings and new roof seen from the public space
- 014** Recycling yard programme layout with entrances, service road and butterfly roof exploration after the investigation of Rural Studio's Thomaston Farmer's market.
- 015** Community hall with training facility layout with 3D and elevation exploration, here this centre has a large public space south of it and a small public space in front of it.
- 016** Alternative roof exploration at the recycling yard with connection possibilities.
- 017** North elevation of recycling yard and community centre with investigation of a wall element built from recycling material after the investigation of Rural Studio's Supershed and pods.
- 018** **TURNING POINT IN DESIGN:** The design with its functions lacked urban qualities for the context it is in. The influence of Rural Studio lead to a more rural approach to design. The Nelson Mandela interpretation centre were investigated as a precedent to achieve urbanity within a community that lacks good urban qualities. This resulted in the community centre moving back to create just one public space from where the entrance to all the surrounding activities can be. The one public space is now able to be fully activated by the function surrounding it. The size of the functions were enlarged an higher volumes were introduced.



016



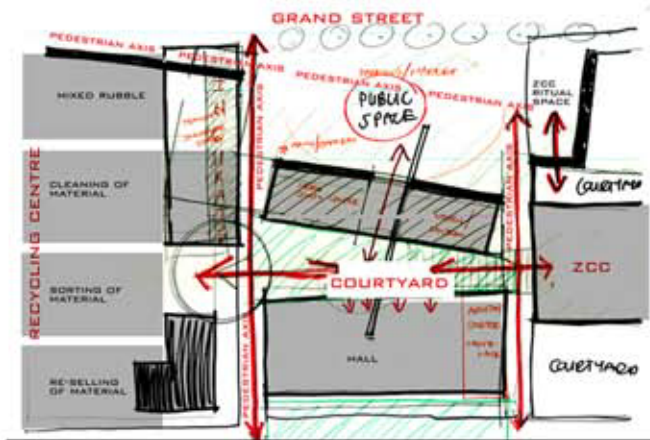
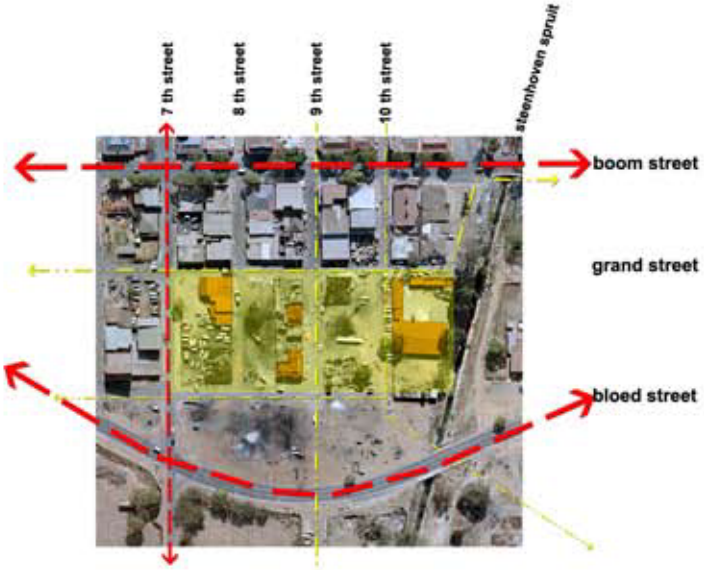
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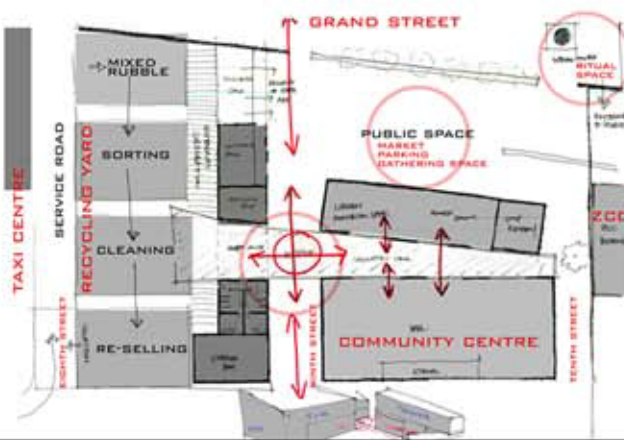
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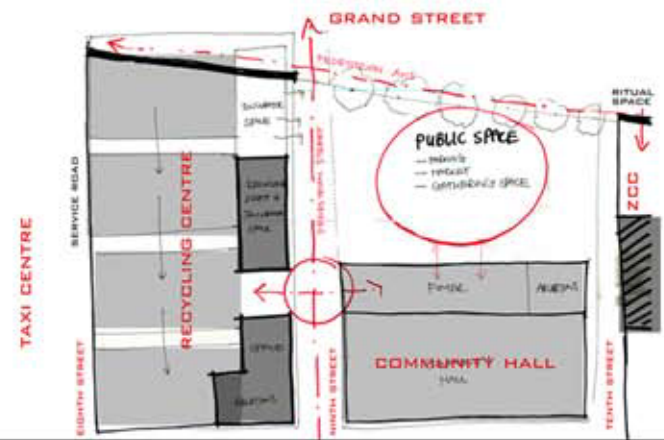
- 019 Internal courtyard created at community centre between the hall and an information centre/foyer, accessible from the public space.
- 020 Diagonal pedestrian axis ends with a water tower at the ritual space that acts as an orientation tower in the public space.
- 021 Community centre's geometry is simplified and entrances are indicated, this positioning of the centre frames the public square.



019

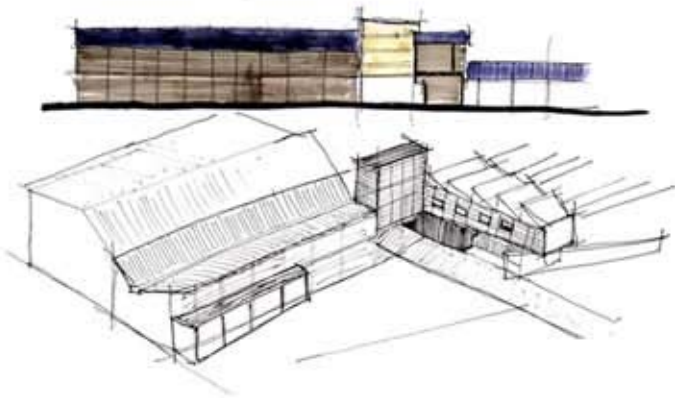


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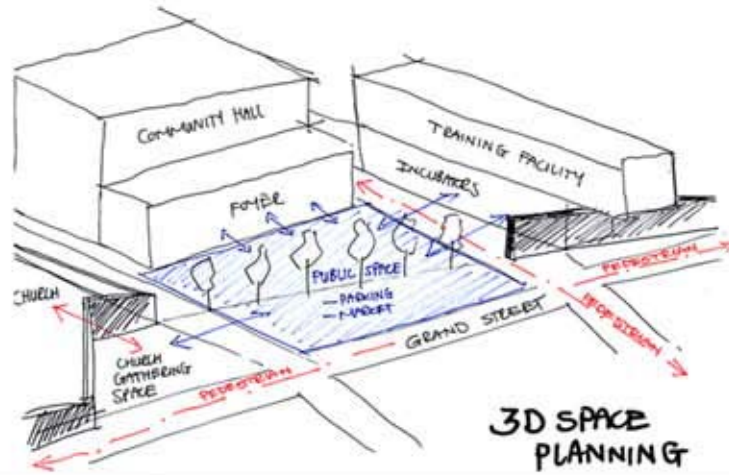


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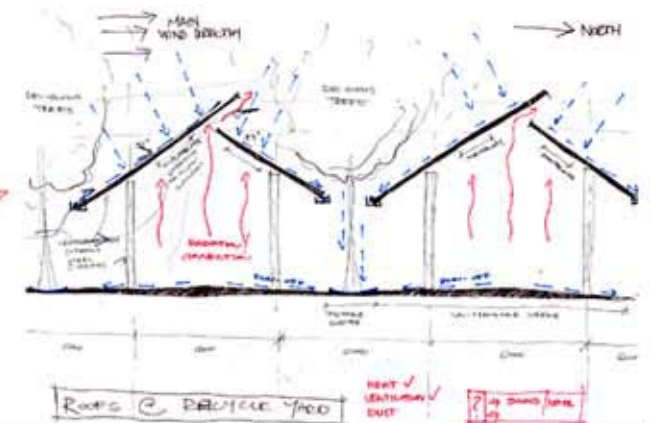
- 022** Connection exploration between community centre and recycling centre.
The training facility is now located above the existing buildings of the recycling facility to give it an urban sense.
- 023** Volumetric exploration, placing and programming in relation with the public space and the pedestrian axis.
- 024** Exploring other roof structures over the recycling depot other than the original conceptual butterfly roofs.



022



023



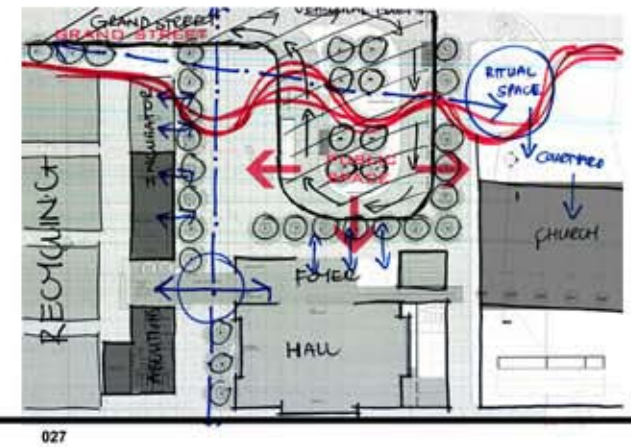
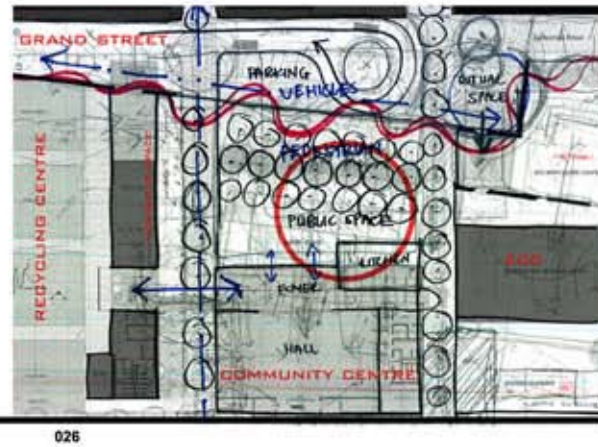
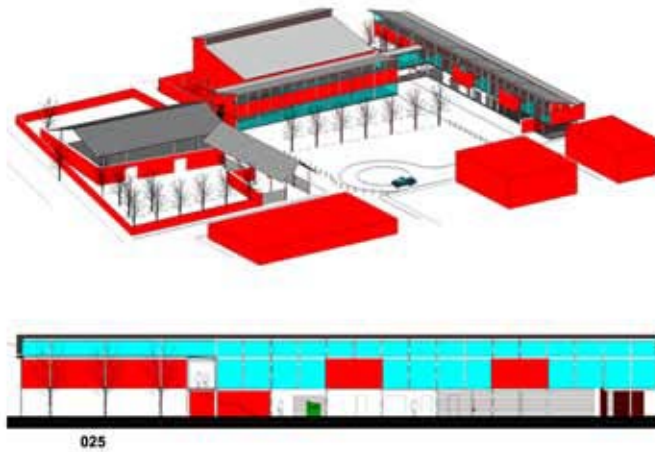
024

Descriptions

025 3D model with training facility elevation.

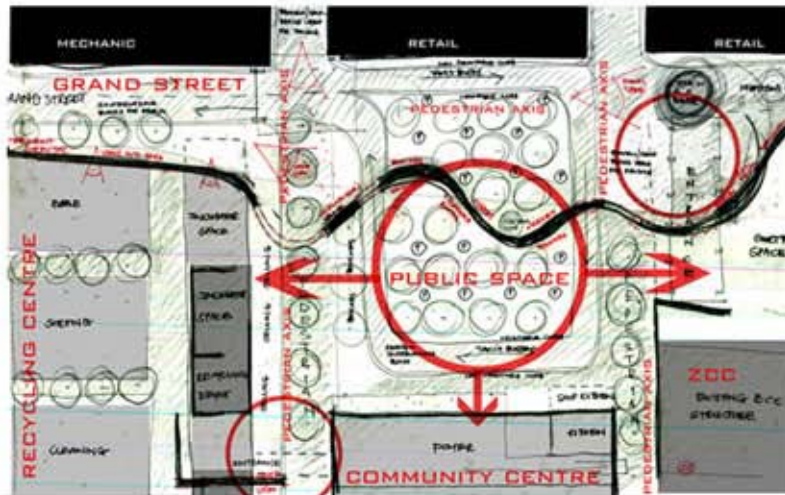
026 Turning circle for cars to create a pedestrian public space is introduced and a free form element is explored on the diagonal axis.

027 Further exploration of free form element with the turning circle taken through the whole public space to allow taxi's and busses to drop off and pick up people using the surrounding functions.



028 The free form element encapsulating and defining the ritual space and acting as a direction indicator for pedestrian movement.

029 The free form element consists of a series of walls, benches, floor lines and is constructed from recycling materials to introduce the theme of recycling to the public. The shape is further explored.



028



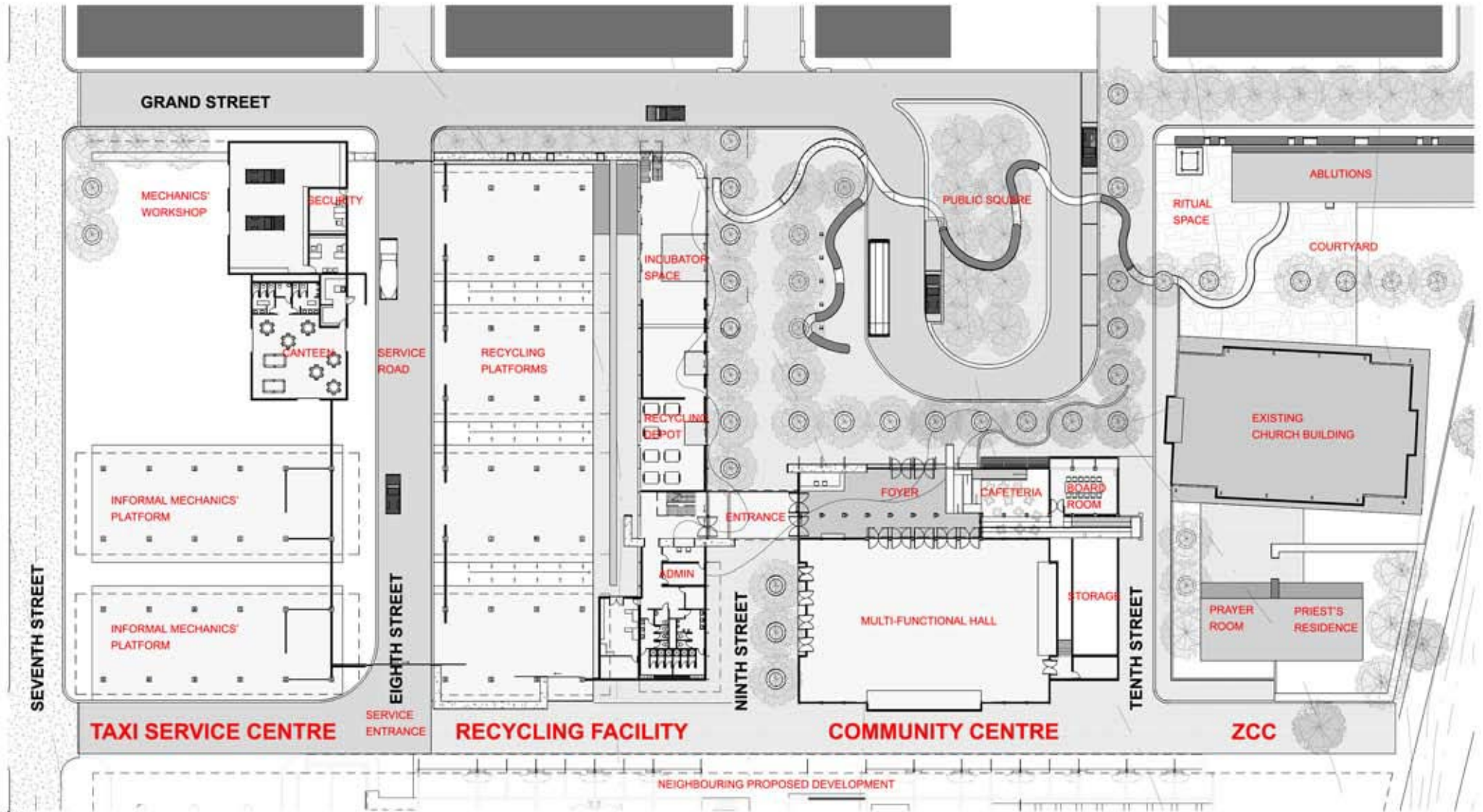
029



Design clarification

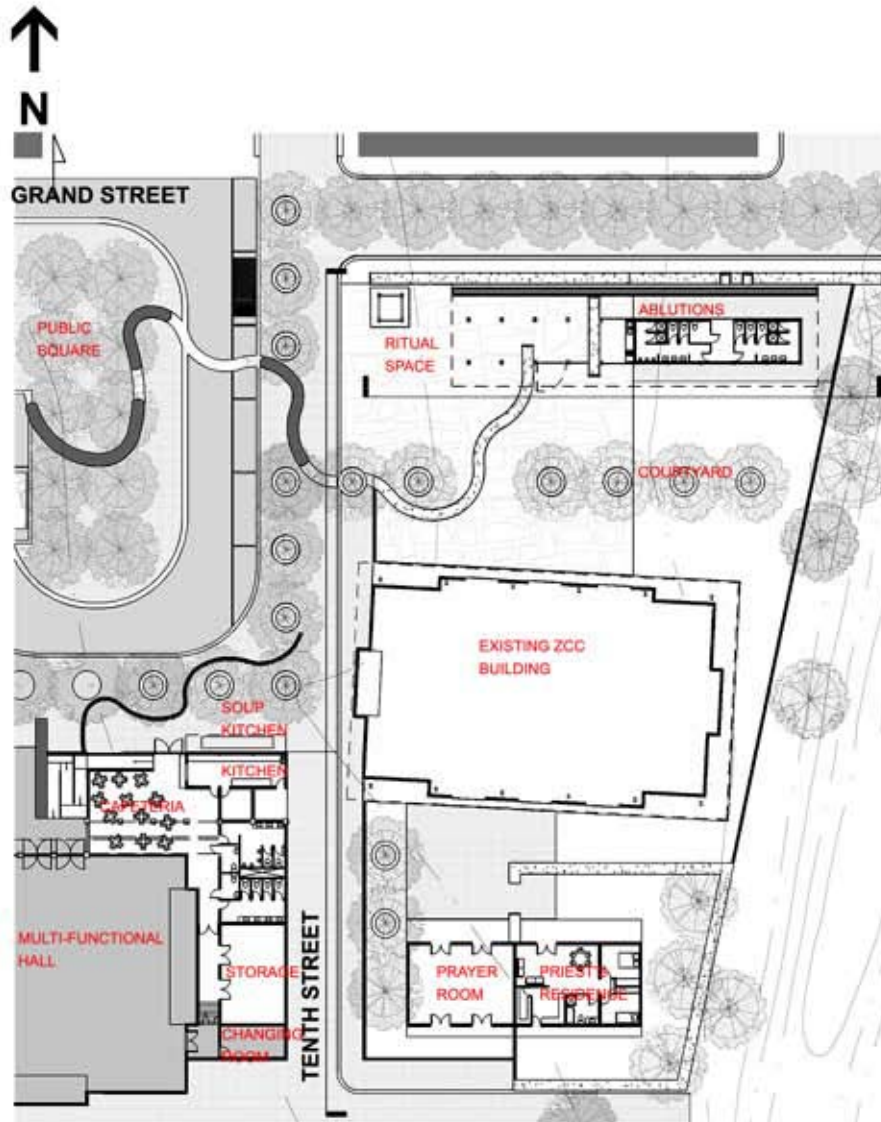
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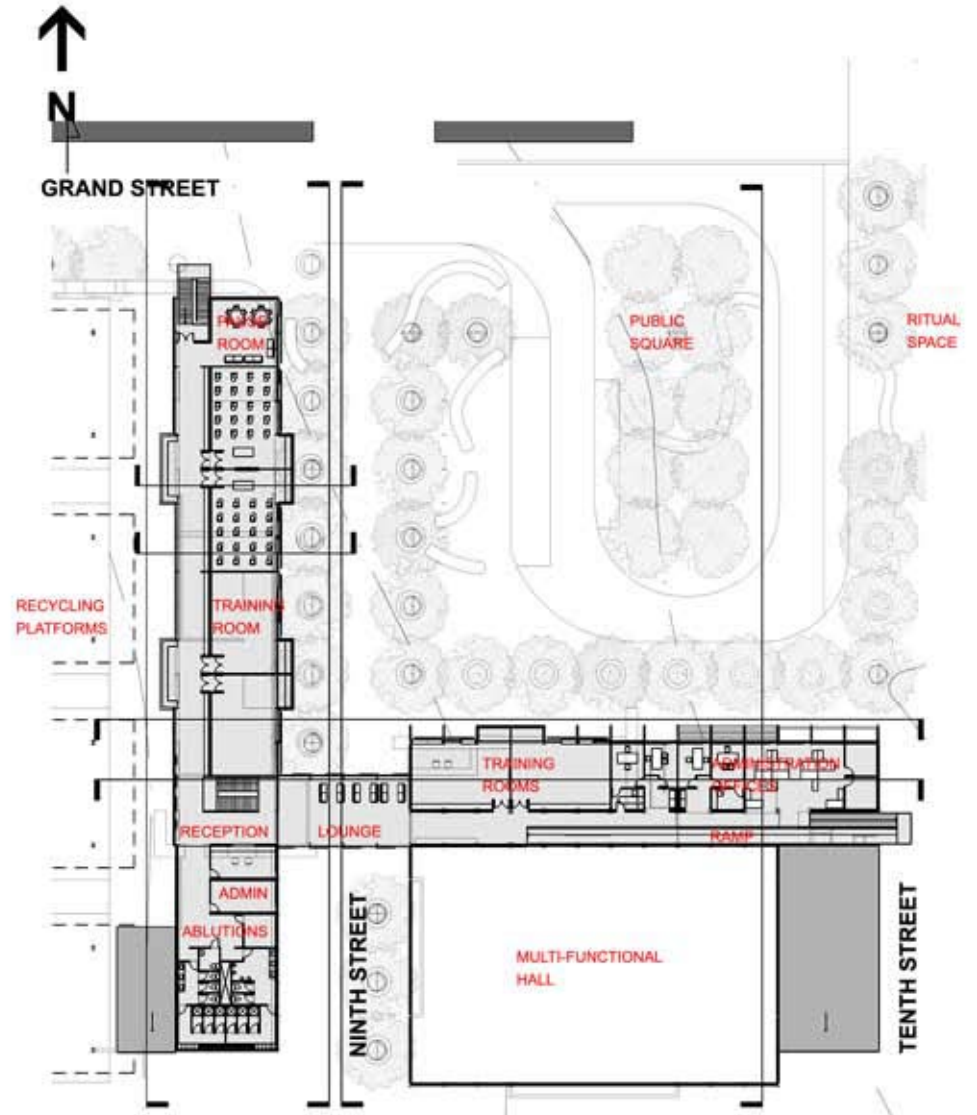


scale bar
3000

Ground floor plan



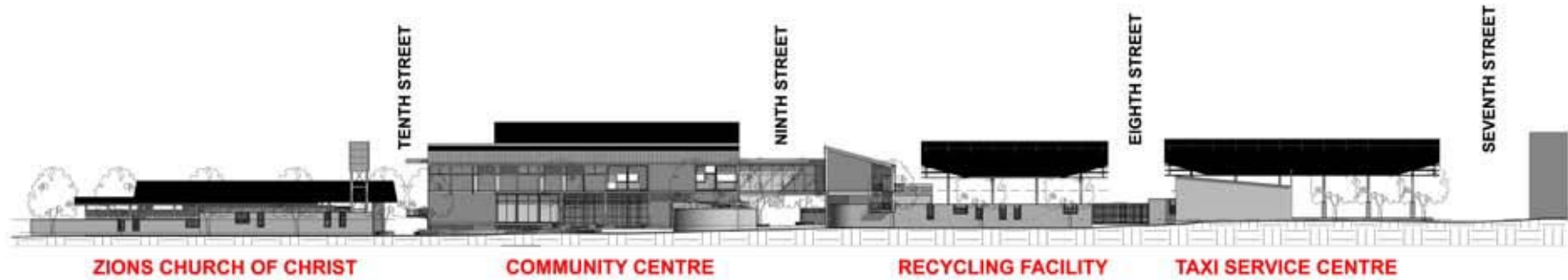
Lower ground floor plan



First floor plan



East elevation



North elevation

Existing buildings with functions on the site

All of the existing buildings will be incorporated into the design in order to strengthen the theme of recycling specifically on the reuse of dilapidated structures and their functions.

1: This is a mechanic workshop where taxis and cars are repaired and upgraded. Although the structure is architecturally of no value, the building was once a victim of a very artistic graffiti artist giving the skin of the building historical value of the true Marabi-culture meaning Marabastad culture in the locals' tongue.

2: Another mechanic workshop is used specifically for upholstery replacement. The roof of the building is in a poor condition allowing precipitation to soak the interior. A variety of bricks and brick bonds were used for the construction of the walls.

3: This is a mixed use enterprise of retail and funeral policy services rendered. The roof again is in poor condition.

4: This site is the existing grounds of the ZCC, believed to be holy ground. It is open to members throughout the week for prayers while having lunch in the presence of the priest.



Ground floor plan

Urban programming of the development

1: The taxi service centre:

The centre is located next to Seventh Street for easy access to vehicles driving from either of the one ways, Boom or Bloed Street, in need of a quick service. Many taxis are using Seventh Street as the connection between the one ways which has generated the urban decision to place the service centre on the edge of the development next to the street.

2: Building material recycling depot:

Located next to the taxi service centre, it forms part of the light industrial function of the site. The depot is easily accessed from Seventh Street to inhibit heavy vehicular movement any further into the development.

3: Community centre and training facility:

These are public programmes of the development and are accessed from the public square. It's placed central to the development where pedestrians, who would use these functions, are the focus. In urban mass or volume, the community centre is the largest and highest building to convey its importance as a beacon in the community where they will congregate.

4: Zion's' Church of Christ (ZCC):

The ZCC is an existing programme on the site and is the big attraction for pedestrians in the development. On Sundays all the main services are held when all the members attend. But it remains a popular destination for prayer throughout the week ensuring a very active vibrancy around it.

5: Public square:

This square is framed by the training facility to its west, community centre to its south, the ZCC creating the east boundary, with the neighbouring mechanic workshops to the north. It serves as a public spill-out for all surrounding programmes activating the space.

Employment opportunities

Unemployment is a serious issue in Marabastad. With the re-development in the community this issue will be addressed and employment will be created by manner of an arrange of aspects within this building material recycling depot.

The employment opportunities lies within the following aspects:

- Employment of people for the actual building work.
- Employment of people in departments like general maintenance, training staff, recycling artists, security personnel, cleaning staff, salvage workers, labourers at the recycling depot, kitchen staff and management personnel.



Ground floor plan

Programmes: Permanent and changeable/adaptable



al access to the development

1: The ZCC and the community centre with its training facility will be the permanent functions in the development due to their need in the community and their public importance.

2: The light industrial programmes are designed to be adaptable according to people's needs. Their programmes can change along with their informal activities it hosts or as the activities' scope changes.

1: The main pedestrian axis on Grand Street forms part of an important vista of Marabastad (AZIZ TAYOB ARCHITECTS: 2002:81). This pedestrian axis is linking the Jerusalem taxi rank, to the west of the development, with the ZCC and beyond into the CBD. One gets east-west access to the development on this pedestrian axis that opens up into the public space in front of the community centre.

2: This second main pedestrian axis on Ninth Street links the whole Belle Ombre taxi-, bus- and train interchange with the Krugerpark flats south of Marabastad. This link opens up into the public space and activates the space with pedestrian inflow. It serves as the north-south pedestrian access to the development.

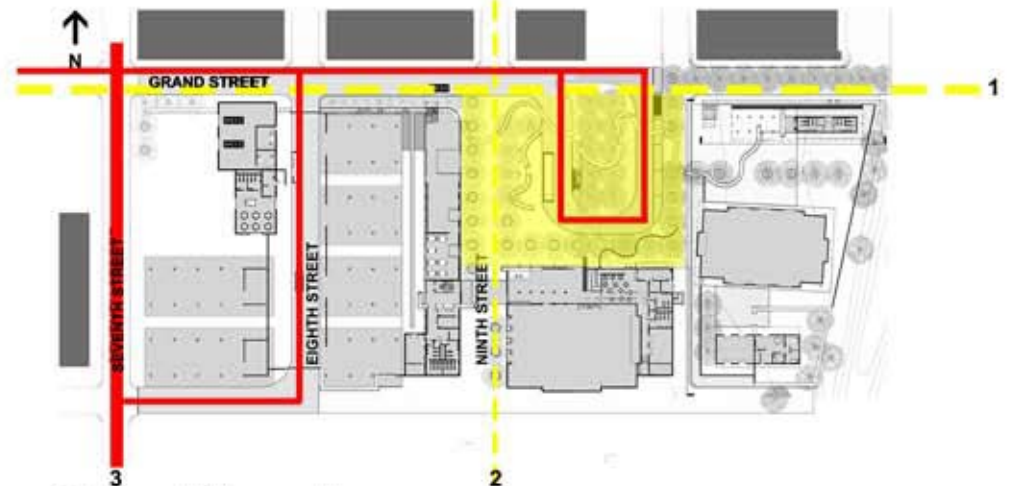
3: Private vehicles, taxis and buses access the site via Grand Street which leads to an open space with a traffic circle, parking and bus stop. Trucks and pick-ups coming to the building material recycling depot access the centre from Seventh Street turning up in Eighth Street, which becomes a service road, to return to Seventh Street via Grand Street.

Parking

Due to the informal nature of Marabastad, regarding where vehicles drive and park, the decision was made that areas for parking will be allocated rather than formal parking bays made. Informal parking can take place along Grand Street and on the island created by the circle in the public space. Formal parking is provided along Grand Street circle. The bus stop is provided with space for 2 buses waiting for passengers. This can also be used by the taxis.



Ground floor plan



Ground floor plan

Taxi service centre

Platforms:

"The taxi industry operates uncontrolled motor repair workshops in the area, which are the source for major oil pollution." (AZIZ TAYOB ARCHITECTS: 2002:103). This is due to the lack of facilities to operate successfully. A platform is a roof covered informal mechanic workshop space to provide shelter for the local mechanics to change vehicle tyres and weld exhausts on the taxis in a demarcated and controlled environment. It centralises the informal mechanic activities in order to make the trade more manageable for the community. The roof is high enough and supported by steel columns on concrete footings with no infill walls allowing taxis to drive through underneath the roofs to be protected from the elements. This enhances the informal activities and allows growth by providing an infrastructure that will maximise its profit and clientele, because of the lack of current infrastructure. The roof structure is designed to be robust.

Workshop:

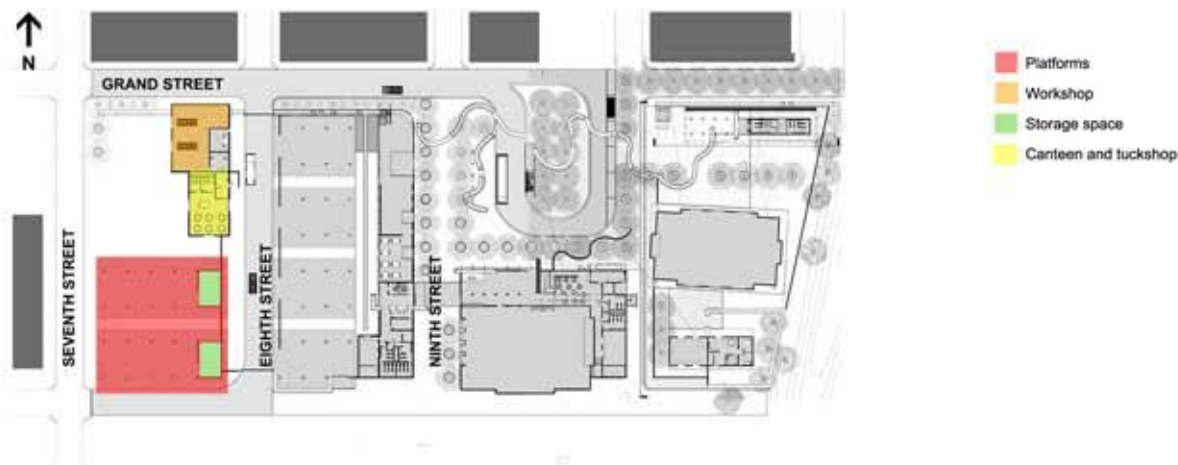
This is an existing mechanic workshop that will continue to function, tapping in on the general improvement of the facilities created for the new taxi service centre. Currently it is large enough to service 2 vehicles in need of repairs inside the building.

Storage space:

Ample divided storage space underneath the platform roofs are provided for the informal mechanic's equipment and spare tyres. It is secured with a steel mesh frame that is used throughout the development as a security measure. The equipment stored on trolleys as well as the tyres can just be chained to the mesh frames.

Canteen and tuckshop:

This is mainly for the workers of the building material recycling depot at lunch time. Its location in the development, also ensures continued customer inflow from the busy taxi service centre and the mechanic workshop. It is large enough to be equipped with pool tables seeing that it is a popular attraction in Marabastad. The kitchen with its refuse area has access to the service road of the recycling depot. The refuse is then conveniently taken away by the municipal waste trucks passing through the recycling yard.



Ground floor plan



3D View of roofs and platforms



Roofs over platforms at taxi service and recycling facility

Building material recycling facility

Platforms:

These platforms and the platforms at the taxi service centre are similar architectural language and design specifications. Once again it is provided to protect the activities from the elements. The building rubble is dumped at platform 1, where it gets to be categorised in different building material. The sorting process continues at platform 2, where the material is cleaned from debris, rubble or attached mortar, plaster etc. From here it is moved to platform 3 as cleaned categorised material ready for reuse. Platform 4 is dedicated to the collection of material for reuse by the public and other building companies that get access to this platform from Eighth Street, the service road. The proposed building technology training facility south of the development under discussion, has access to the reusable material, from the south of the platform. Students enrolled at this neighbouring training facility, collect the material with wheelbarrows from the south access point of platform 4.

Incubator space:

This space is provided and reserved for one of the many informal activities on site. It is the workshop or studio space for local recycling artists to use the dumped building rubble from platform 1, of the recycling depot, to create artwork. It is an informal level of recycling from the recycling depot to the public square, used by pedestrians. It is located next to the main north-south pedestrian axis and opens up towards the public space. It is enclosed with moveable steel mesh frames, as a security measure, to open up to the public and the recycling yard.

The mesh frames allow the pedestrians passing the incubator space to look into the workshop space and recycling yard even if closed. This generates interest and stimulates a recycling awareness with the public passing by.

Skills transfer can also take place in this incubator space where unskilled locals can receive training from the skilled artists. Due to its public function the community of Marabastad can be stimulated through observation of the activities that take place here.

Pedestrian recycling depot:

Due to Marabastad's sense of informality, different levels of recycling are introduced in the recycling centre. The recycling depot and incubator space's focus is on building materials that pedestrians barely will carry along with them. It is for this reason that a paper, plastic, glass and tin recycling depot is located next to this pedestrian axis for the stimulation of interaction from pedestrians to take part in the process of recycling. Passing pedestrians can quickly enter the depot to discard their categorised trash. This facility is conveniently located close to many small businesses and informal trading that generates waste paper/cardboard, which hawkers can collect. One can also take it to the centre where one will collect a meal ticket to exchange for food at the soup kitchen, located within the community centre.

Administration and security control room:

A security system is located at the gate to regulate and check the trucks leaving the depot. Its control room is located in one of the existing buildings to oversee the workers on the platform. Here the workers will also receive their salaries.

Internal circulation spine:

This spine is provided for safe movement within the recycling depot for the managers and workers who are not busy working on the platforms. It is also a volumetric gap between the platform's roofs and the training facility's roof, on the first floor plan above the incubator's space, to allow for a more elegant connection between different buildings and functions.



Ground floor plan

- Platforms
- Incubator space
- Pedestrian recycling depot
- Admin
- Circulation spine



Recycling facility section



West elevation of incubator space and training facility

Community centre

Foyer:

The foyer is directly accessible from the public space and the north-south pedestrian axis and serves as the transition space between the public space and the community hall. It hosts the ramp that connects the ground floor level activities with the functions on the first floor level.

Multi-functional hall:

The hall is designed to accommodate 400 people and can be used for various activities where people want to gather in large numbers. Two moveable stage locations are provided. It is located either at the internal east wall of the hall or the south wall. This maximises the multi-functionality of the hall. If the stage is positioned against the east wall the audience is arranged in the conventional layout of many rows with not too many chairs in each row. When the stage is positioned against the south wall, the stage will be visible from the foyer as well as the public space, enlarging the audience capacity. Natural lighting filters through the space from the north and south at roof height, where the ventilation louvres are positioned for natural ventilation.

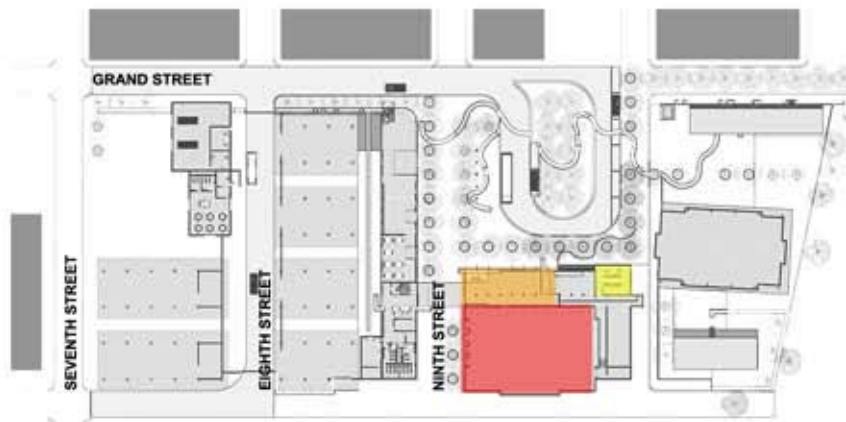
Possible functions of the hall could be:

- Performances and concerts
- Weddings
- Dances
- Community meetings
- Larger ZCC (church) gatherings
- Election stations
- Indoor sports
- Expo's or exhibition space

Board room:

The board room is accessible from the ramp. It has a landing, according to building regulation specifications, at its double door. This facility can be used by the training section or administrative offices both located on the first floor plan.

- Foyer
- Multi-functional hall
- Board room



Ground floor plan



Community centre 3D

Cafeteria and soup kitchen:

These functions are located on the lower ground floor and are accessible from the community centre's foyer via a ramp or from the public space. It is linked volumetrically with the foyer space and is defined by the two ramps. The one ramp is the foyer access and the other ramp is the access link to the first floor and cuts through the cafeteria space on a higher level. The cafeteria is used for any event happening in the hall, the above training facility and administrative offices, the church and the public. The kitchen serving the cafeteria is run by the church (ZCC), generating income for its soup kitchen to help support the community members in need.

Ablutions:

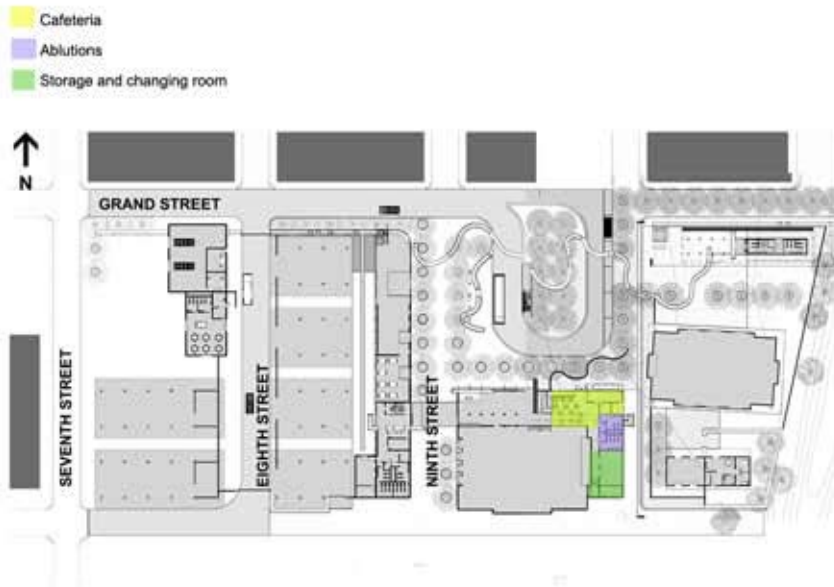
The ablutions are only provided for the people using the hall and cafeteria. It is accessible from the foyer through the cafeteria and from the changing room.

Storage and changing room:

These rooms support the hall functions and are accessible from the hall. The storage room is for chairs, tables and equipment and the changing room is to be used by a performing artist or group.

Refuse area:

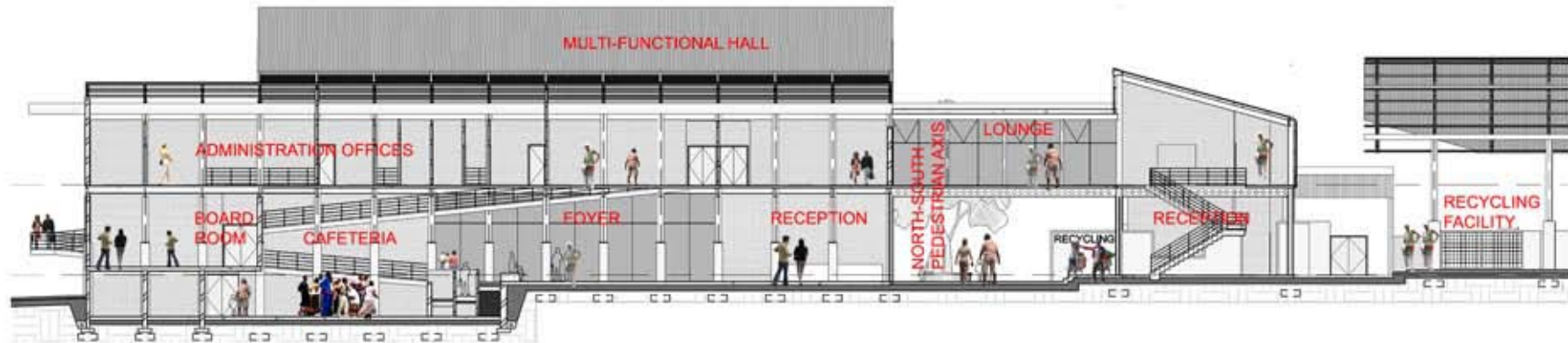
Located at the back-of-house of the kitchen and its external entrance. It is not protruding from the building in order to maximise the use of the pedestrian axis between the church and the community centre. It is secured with a moveable steel mesh frame.



Lower ground floor plan



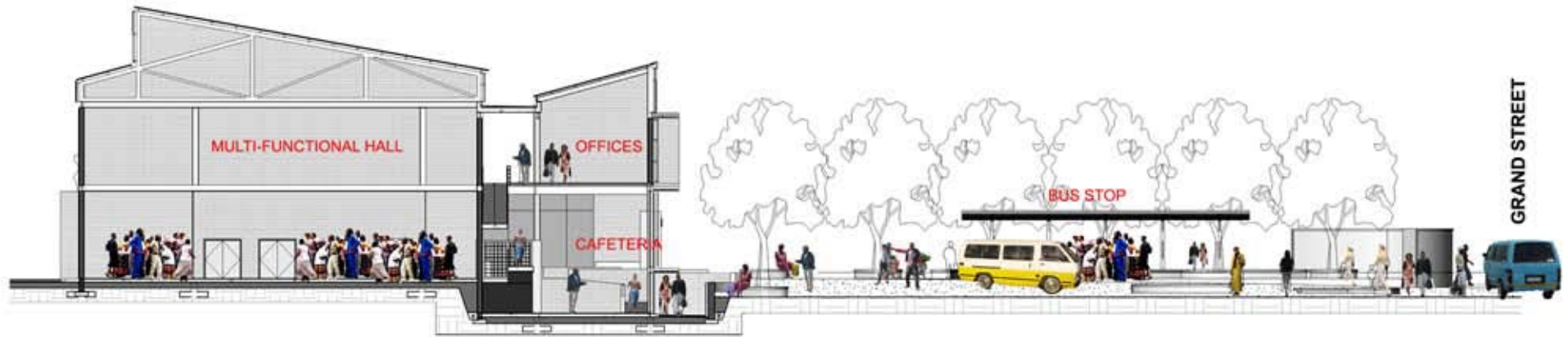
Interior 3D view of community centre's foyer



Community centre section



North elevation of community centre



East section of community centre



West section of community centre

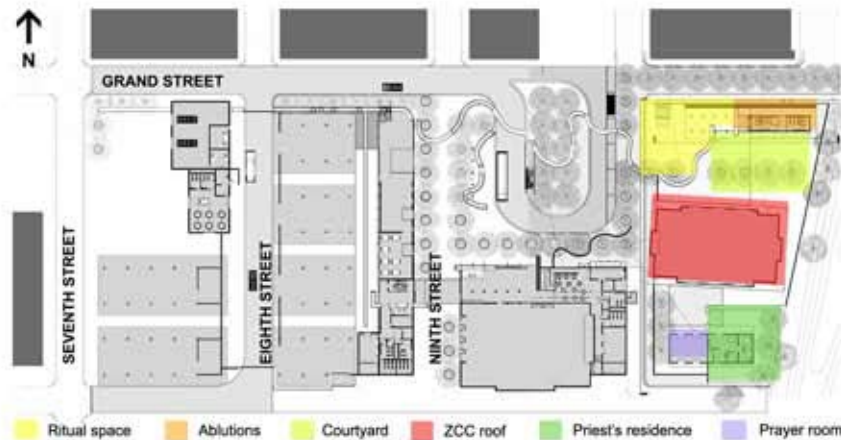
Zion's Church of Christ

Ritual space:

According to their religion, evil spirits need to be cast away from members with water, before they enter the holy ground from the north. A bucket with water used to be positioned at the entrance where the priest will splash the water in the people's faces and on their backs. This ritual took place on Grand street in the public visual axis vista proposed by the Aziz Tayob Architects Framework for Marabastad, incorporated into this dissertation.

The need to shift this ritual ceremony off the public vista was crucial to create a more intimate ritual space for the congregation. The recycled wall frames the ritual space, and with a bench, it defines the transition from public to semi-public area. The recycled wall placed between the ritual ground and internal courtyard of the church forms a backdrop to the ritual. A straight recycled wall physically cuts the public Grand Street vista off from the ritual space, creating a defined procession route into the church. At the start of the straight recycled wall a water tower is located, within the ritual space, to serve as a multi-functional element in the landscape.

In urban sense the tower serves as an orientation element creating a pedestrian movement beacon on the different pedestrian axis routes. It announces the ritual space whilst at the same time defining it too. The tower is constructed with steel columns that support a water tank on a platform deck. The water tank is clad with a skin of polycarbonate sheeting fitted with lights on the inside, to glow and also serve as a beacon at night. In the spiritual sense it is a cry to heaven creating a symbolic vertical connection between God and His people.



Lower ground floor plan

On the pragmatic and functional level it stores the water, collected from the church ablution's roof, for the actual ritual ceremony.

The ritual space ends with the extended roof of the ablutions over the space to bring the scale down to intimate pedestrian level where a north-south wall directs the procession to enter the holy ground from the north.

Ablutions:

The facility is for the use of the congregation only and consists of a small open kitchen, toilets and showers. The entrance is located north of the ablutions in order to create a solid wall facing the internal courtyard giving it a solid boundary for definition of the space.

Internal courtyard:

This is the transition from the ritual space to the holy ground in the presence of the priest. Seating benches are provided around the trees, similar to those located in the public space to unify the development. This is a relaxing space where the church members come and enjoy their lunch during the week while they pray in the priest's presence. On Sundays the congregation will use this space for singing and dancing before the start of the service underneath the existing church roof structure.

Existing church roof structure:

Detached from the existing steel portal frame roof columns are new walls to define the private church space from the courtyard whilst at the same time respecting the existing old structure. The Steinkopf Community Centre has influenced the stepping down in height of the building's walls to pedestrian scale. The highest walls are situated behind the priest's podium, then it become lower on the sides down where the pedestrians are in the courtyard.

Priest's residence:

The priest stays on site, throughout the day and week, so as to give help or counselling when needed. The existing priest's residence is a fibre cement kit-of-parts building located at the entrance of the church grounds. It is moved from there to the private courtyard for the priest in a masonry clay brick home to differentiate between the progression levels of public to private from north to south of the ZCC grounds. The priest's residence is enclosed by the recycled wall, to introduce the theme of recycling to pedestrians moving through the development from the south-east, where the proposed social housing scheme is located.

Prayer room:

This is provided for private counselling and small prayer groups to be used during the week. It's located in the semi-private domain of the church where it will be quieter.



Procession elevation of the ZCC



West elevation of the ZCC

Public square

Function:

The square is fed with pedestrians passing through on the two main pedestrian axis through the development. It is framed by the surrounding activities to give it a sense of urbanism and it is these surrounding activities that activate the space. The square acts as an orientation space for a pedestrian to either enter the church, community centre or recycling depot.

Traffic circle:

According to the Marabastad Commercial Association there exists a need for more drop-off points for taxi's at various locations in the area to minimise centralised road congestion. Because of the fact that Grand Street is a cul-de sac, a circle, with an 8 degree internal radius, to turn vehicles is introduced in the space with taxi and bus stops. This will allow the users of the surrounding functions to have direct transport access to and from the development.

Surface treatment:

The square is paved with reused half bricks from the recycling depot and interlocking brick units for the road and circle to allow for a continuous permeable covered surface.

Street furniture:

Low masonry walls, 450mm high, with concrete copings are placed around the trees all along the circle to both prevent vehicles to go beyond the road and to provide ample seating in the square.



Ground floor plan

Recycled wall

This is a 1000mm thick wall constructed with wax impregnated cardboard bales and/or compressed soft drink cans. It runs along the pedestrian axis introducing the theme of recycling to newly arrived visitors to the centre. Throughout the design it has a function of movement direction indication and announcement of public entrance into the different facilities. At times the element is a bench and at other times it creates a boundary like a wall. In solid wall stretches, there are gaps to provide framed sneak peaks of the function behind the wall. This allows the pedestrian in Grand Street to be introduced to the process of recycling in the building material recycling depot, creating a sense of interest. The element is rigid (formal) at the taxi service centre and takes on a free form (informal) inside the public space to illustrate the unpredictable or informal movement patterns of people through the space, ending in the ritual space of the ZCC.

The wall's sides are not finished off, to keep the rough look and feel of the surface and is coped with concrete. It is the symbol of the combination of informality and formality; the informal paper bailed or compressed tin material used in combination with the formal material, concrete. The recycled material represents the informal activities of the context and the concrete represents that added formal structures. Together it represents the theoretical premise of the design; the formality creating a platform for the informality to function.

Water treatment

1: Rain water is harvested from the taxi service centre and recycling facility platform roofs, and is stored in tanks located between these roof structures. The water is used by the service centre for washing of cars and cleaning of the platform. At the recycling facility the water is used to clean the dumped building material and to wet the platforms to prevent dust clouds to be blown into the training facility.

2: All paving is done with reused half bricks, to create a permeable surface for the water to drain into the underground water table. The paved surface is continuous throughout the public square, and is sloped inwards towards the tree lanes to retain the water at the tree bases for natural irrigation during the rainy season. Excess runoff, drains towards the canalised Steenhoven Spruit that acts as the main storm water collector on the site. (AZIZ TAYOB ARCHITECTS: 2002:100)

- Street furniture
- Recycled wall
- Water harvesting

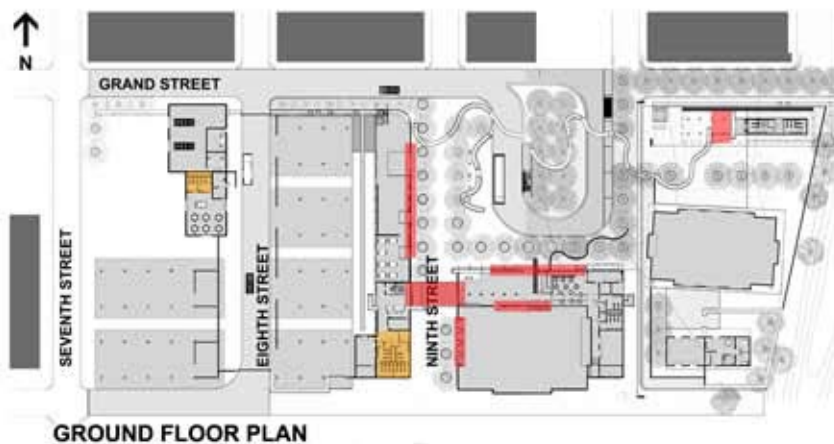
Entrances

The main pedestrian entrance of the development is at the junction point of the community centre and the recycling facility on the north-south pedestrian axis. To announce the entrance the first floor bridges the training facility with the administrative office space to create a bridge link. This provides covering on ground floor where the entrances are located. Receptions are located within each entrance. The entrance at the recycling facility has its own reception whereas the entrance to the hall has a reception for both the administration offices and training facility located within the foyer.

The hall has an entrance directly from the public space as well. The reason for two entrances are that the community hall should be able to function completely isolated from the recycling facility in order to be used by the community, accessible from the public space. The training facility with its administrative offices of the recycling facility has access to the community centre from the north-south pedestrian axis where the recycling facility entrance is also located. The hall has a direct entrance from the pedestrian axis too, so that it can be used depending on the specific function active in the hall.

Public entrance to the incubator space is provided along the north-south pedestrian axis.

The ZCC members need to enter the holy ground from the north, thus an entrance is provided from the ritual space, linked with the public square, to enter from the north.



Public ablutions

According to the framework compiled by Tayob, a shortage of public ablution facilities exists in Marabastad. Unfortunately, due to the slum-like conditions of the suburb that manifests itself in physical destruction, the existing public ablution facility in Mogul Street is severely vandalised. This gave an indication to the location of these facilities in the development and how it can be controlled and managed.

1: These ablutions are provided at the canteen and tuckshop for the customers of the taxi service centre. The public wanting to use the ablutions is regulated through the canteen to minimise vandalism. The canteen is responsible for the maintenance of this facility.

2: These ablutions are also accessible to the public, but through means of the recycling facility entrance to regulate the public. It has access from the recycling depot for the workers and the artists at the incubator space. Locker rooms with showers are provided for the workers of the recycling depot who will have keys for this facility.

Security

Marabastad's social problems are trapped in a vicious circle of crime and violence. The area is regarded as a crime hotspot, and crime features as one of the most prevalent problems listed in public opinion surveys. (AZIZ TAYOB ARCHITECTS: 2002:106) It is for this reason that the whole development is designed to be robust in nature and material selection in order to minimise vandalism to the buildings. To prevent burglaries or unwanted visitors with ill intentions to enter the premises, steel mesh frames are provided at all entrances and windows as burglar bars or security gates. It is designed to form part of the language of the building's robust and simplistic architectural style to ensure safety and security without the appearance of a jail.

- Entrances
- Public ablutions



North-south pedestrian axis



Recycling facility entrance 3D

Training facility

Reception:

The general training facility reception is located within the foyer of the community centre at the entrance from the pedestrian axis. The reception on the first level is for registration and administration purposes. Spatially it forms part of the waiting lounge that is the connection bridge link.

Waiting lounge:

This lounge is used by students of the community who enrolls at the training facility for skills development and literacy programmes. This is the connection bridge that spans over the north-south pedestrian axis connecting the training facility with its administration offices on the first floor level. It protects the entrances below against the natural elements and serves as a portal to the development on the north-south pedestrian axis.

Training rooms:

According to the Tayob Framework for Marabastad 1998, the use of different training facilities and support programmes to uplift the community on a social level, are crucial for the economic growth of Marabastad. It is for this reason that the training facility is designed to accommodate a variety of activities like adult literacy, skills development and consultation. It is mainly provided for adult literacy programmes in association with the recycling facility.

The manuals used for literacy training is developed by literacy agencies registered with the Department of Education and the Independent Examinations Board. This programme can be used to teach adults English reading, writing, listening and speaking skills – using the theme of waste. The same manuals can be applied to teach more than just literacy skills, it can also teach life skills. The life skills learners are taught, include how to do surveys of their areas to identify waste related problems and recommend solutions, as well as how to plan and chair community meetings. (GARNER, G. 2001:43) Their skills can be implemented and put to the test by taking part in the upliftment programmes of Marabastad.

The learners can be taught managing skills and responsibility by entrusting them with the management and success of the pedestrian recycling depot next to the incubator space. Part of the responsibility will be to help with the organisation of the food coupons received by hawkers who bring in waste paper/cardboard to the centre.

The training rooms can be used by local welfare bodies for upliftment assistance to the community. The Pretoria Homeless Consortium developed a help centre in 1998 as a programme of the Pretoria Inner City Partnership to operate from Marabastad. This Consortium can use the training rooms for the following service they provide: Counselling and guidance, talks by visiting experts, medical services by visiting nursing staff from the Pholang Clinic and skills training workshops in co-operation with the Gauteng Department of Social Welfare. (AZIZ TAYOB ARCHITECTS: 2002:188) Academic institutions in Pretoria could offer skills to the community, such as legal aid. "As Marabastad is redeveloped, the promotion of outreach contacts between the Marabastad community and other communities of Tshwane could help heal, at a social level, the rift that has historically existed". (AZIZ TAYOB ARCHITECTS: 2002:194)



First floor plan



Administration offices

Waiting balconies:

The balconies mirror the training storage rooms in the sense that it is solid mass that projects from the passage way cantilevering into the recycling depot space. It's located opposite the entrance doors to the training rooms to create pause space from the movement in the passage when students have to wait for a class.

Pause room:

This is the lounge area for relaxing between lectures or to sit and eat your own lunch. It is not designed to be a cafeteria for there is one provided in the community centre that can be used by the students. The pause room is an informal relaxing space for a couple of students.

Training room storage:

The storage rooms cantilever over the pedestrian axis to create covered pronounced entrances at the incubator space below. It is constructed from masonry bricks without any openings. This plays the east elevation of the training facility off between solidness that projects from the façade against the glass reinforced panels of the training rooms that are flush with the façade. It is used as a storage space for various equipment, teaching literature and apparatus.

Library:

Skills development manuals and teaching literature are kept on shelving in the passage to create access to education for the learners. This ensures that the wide passage is not just a movement axis but a learning experience as well.

Offices:

This is the supporting administration facility for the successful management and supervising of the training facility. The Department of Education or registered literacy agency have the offices available to rent and is provided with private offices, open plan office space, store room and utility/copy room.

Ablutions

The ablutions are provided for the use of the training facility students and its administrative department personnel. Locker rooms are provided for students who do not have the privilege of running water at home or for students and personnel who need to refresh.

Security

The security of the training facility and administration offices lies in the success of the management of the reception areas located on the ground floor. Moveable steel mesh frames serve as security gates at the start of the ramp in the foyer when the community hall is used to prevent the public from moving through the foyer up the ramp. These same moveable steel mesh frames are the security measures at the exits of the fire escape staircases on the ground floor level.

Ramp

The ramp is located in the foyer of the community centre and is the main access, from the ground floor, to the first floor level. It protrudes the building surface at the east end, creating a landing that is cantilevered from the building to give a person a glimpse of the ZCC and the lush Steenhoven Spruit. It is the connection point between the reception in the foyer and the above training facility with its administration offices.

Fire escapes

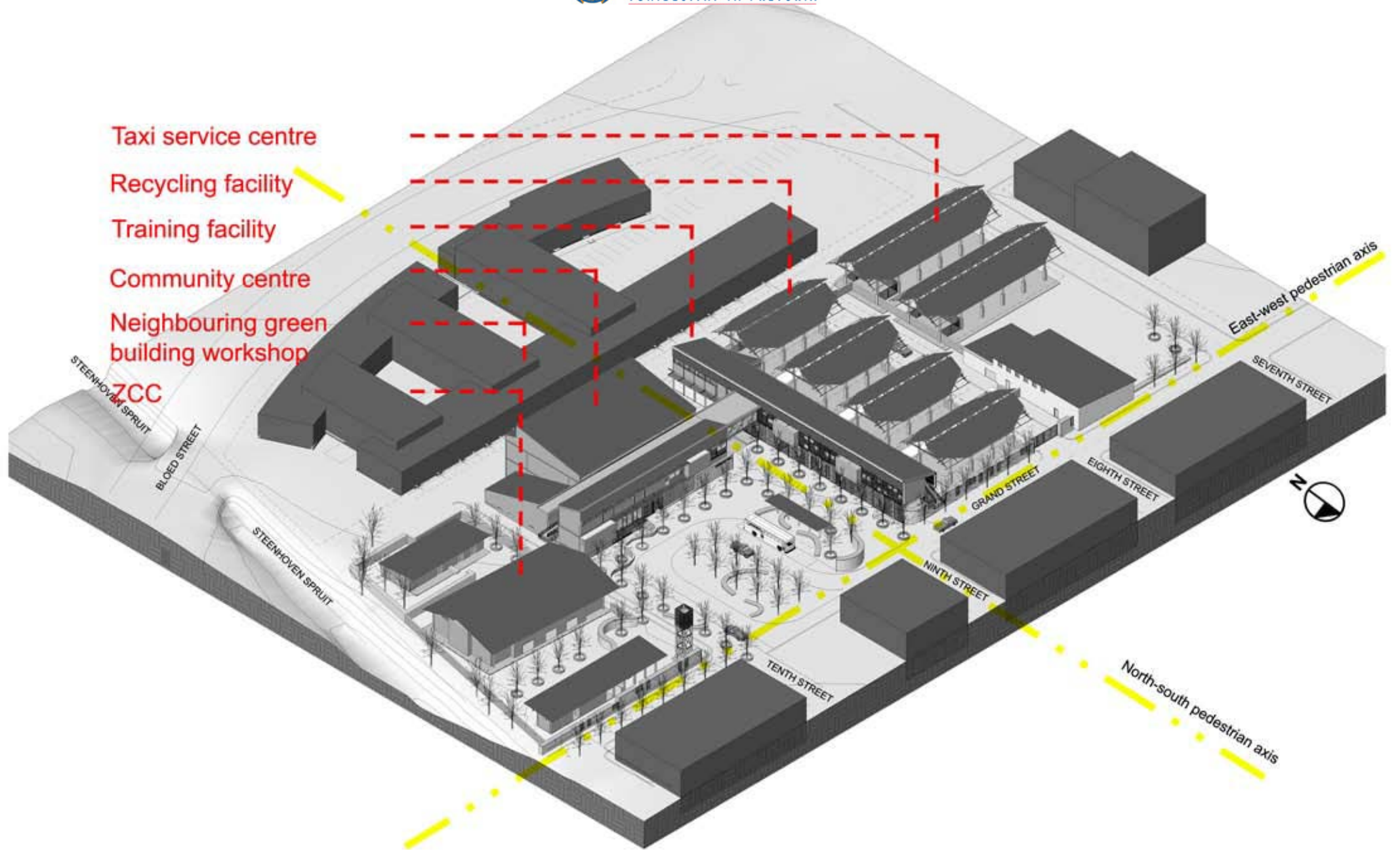
Fire escape staircases are provided according to building regulations. They can be easily accessed from the administration offices and the training facility. The training facility's north fire escape is located at the end of the wide passage and is treated as a feature element of the north elevation of the facility. It protrudes the building's skin and its landing juts through the recycled wall element on Grand Street. It gives the elongated rectangular building a soft dissolved ending and creates interest on the pedestrian east-west pedestrian axis that is an important vista.



3D View of incubator space and training facility



East elevation of incubator space and training facility



3D View of the development

Building material selection

The materials are selected from those commonly used by the local community in Marabastad. The materials, selected for this development, are categorised into "formal" and "informal" materials. The "formal materials" are referring to the conventional material selection for large developments within urban context, where the "informal materials" are representative to materials used for self-built houses.

Formal material selection

Steel construction:

A steel construction frame is used to form a grid for infill. Steel is used due to its availability and recyclability properties.

Masonry clay bricks:

Bricks are used as infill, due to its availability and re-use properties, and can be done by semi-skilled labourers.

IBR profile metal sheeting:

This is used to continue with the existing light industrial architectural language of the community.

Concrete:

The use of concrete is limited to foundations, a few columns, flooring and a roof gutter.

Informal material selection

Wax impregnated baled corrugated cardboard/paper:

The theme of recycling is introduced, by means of these cardboard bales, to the material selection of the development. It can be replaced with new bales once it requires maintenance, with little cost involved.

Compressed tin cans:

This is used in combination with the cardboard/paper.

Glass reinforced panels:

GRP of a variety in colour is used as glazing at the training centre. It's to allow a spectrum of colours to bright up the interior of the training rooms to give it an informal training atmosphere.

Shading net:

This is applied as a shading device on the east facade of the training centre. It is a relatively cheap material and it draws from the informal market gazebo stands on the site. It plays the informality of the material off against the formal steel and brickwork.

Steel mesh:

Due to the high crime rate in Marabastad, security is of great importance to the development. Steel mesh is introduced for use as a security measure, but allows people to still observe the activities on the other side of it.



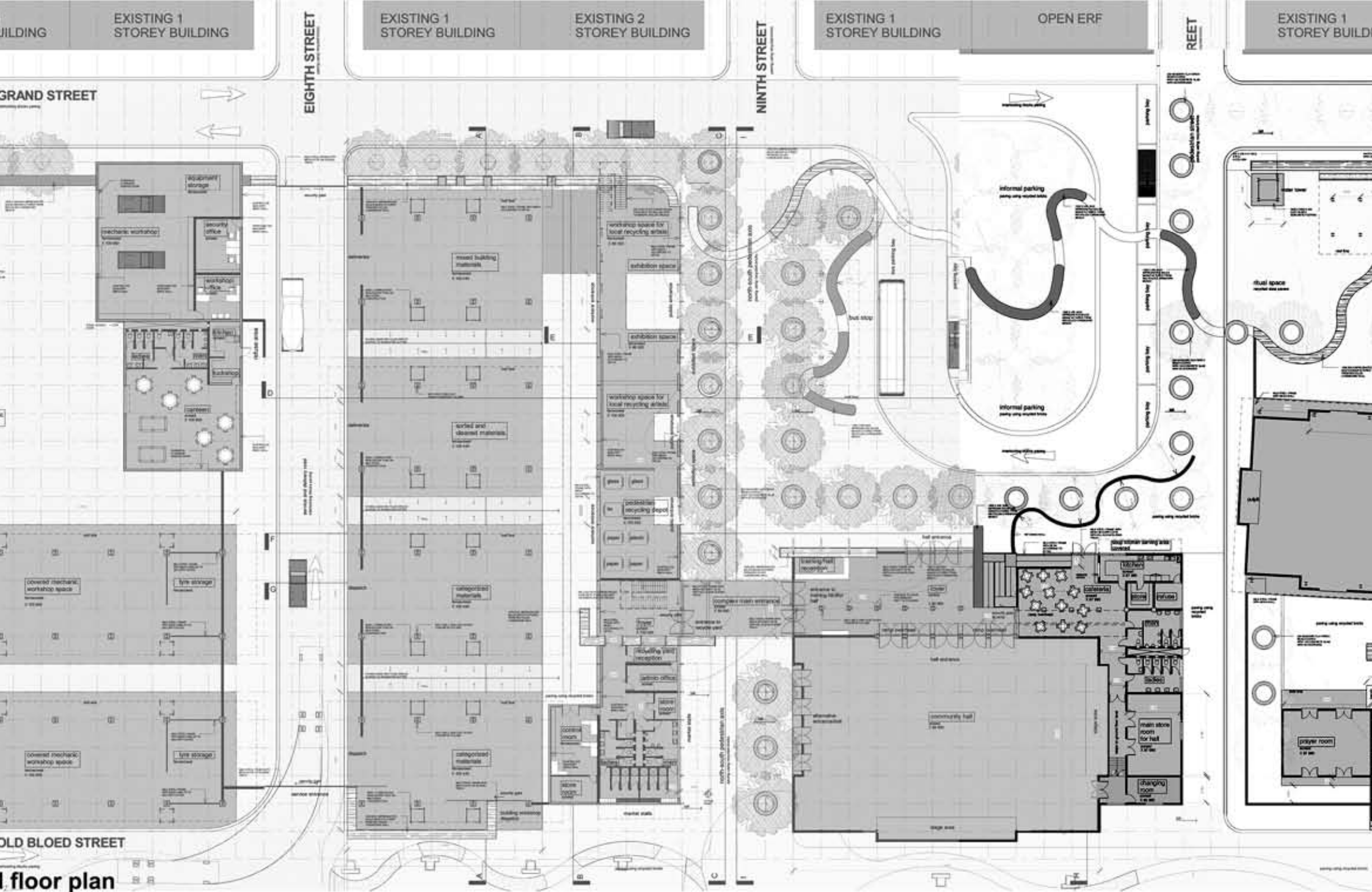
Technical documentation



7







1 floor plan



OLD BLOED STREET
plan

BUILDING

EXISTING 1 STOREY BUILDING

EXISTING 1 STOREY BUILDING

EXISTING 2 STOREY BUILDING

EXISTING 1 STOREY BUILDING

OPEN ERF

EXISTING 1 STOREY BUILDING

EIGHTH STREET

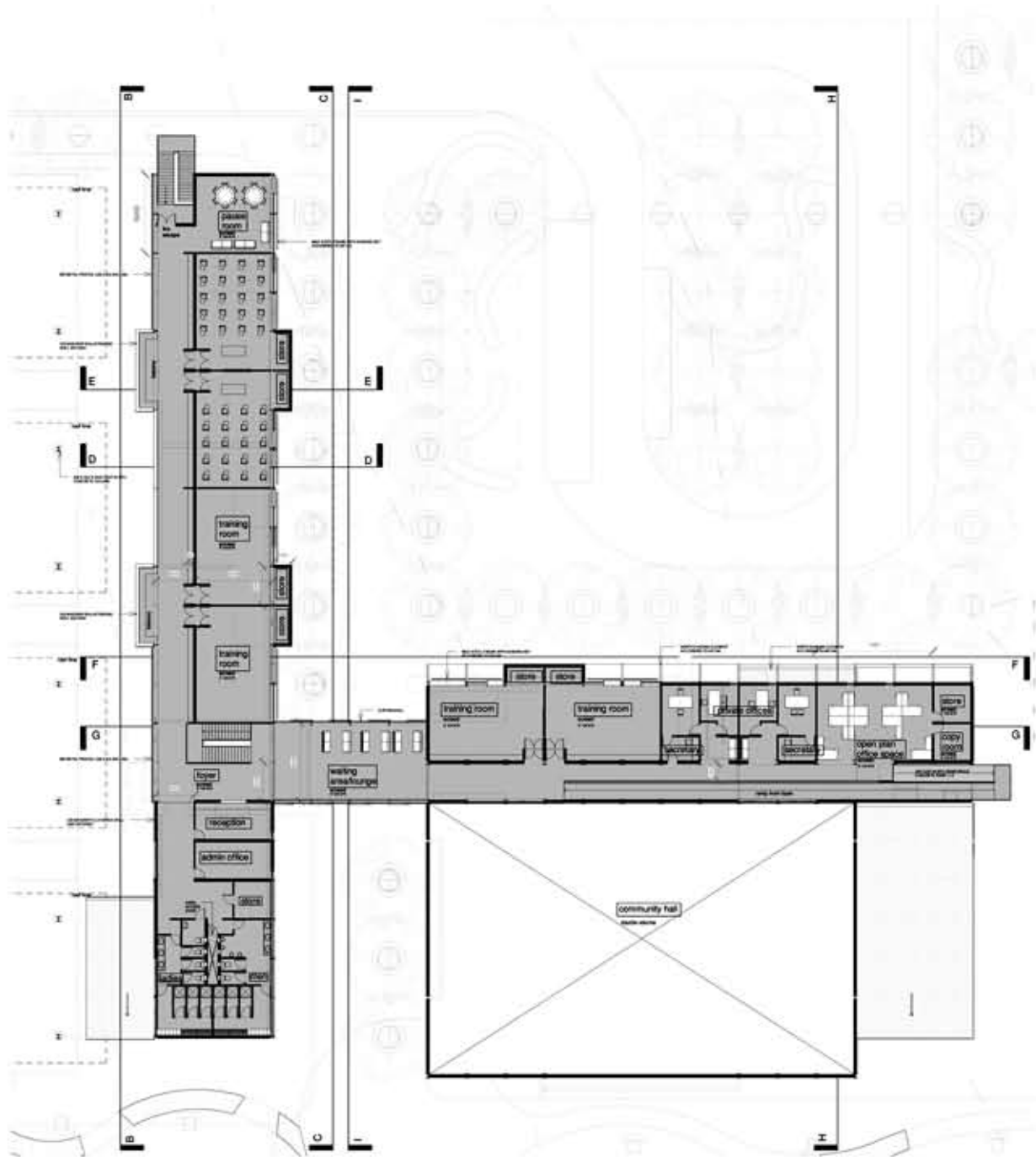
NINTH STREET

TENTH STREET

GRAND STREET

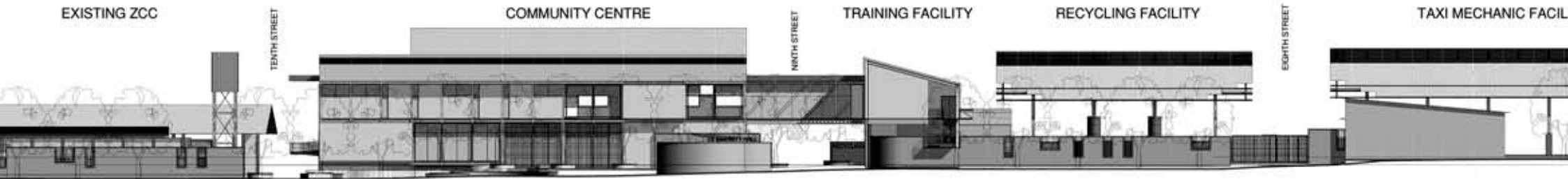
OLD BLOED STREET



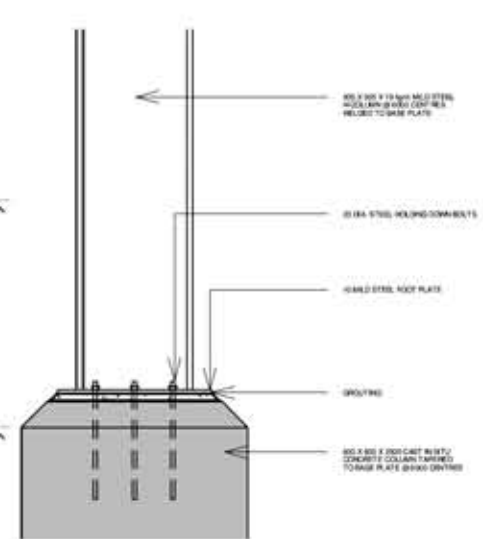




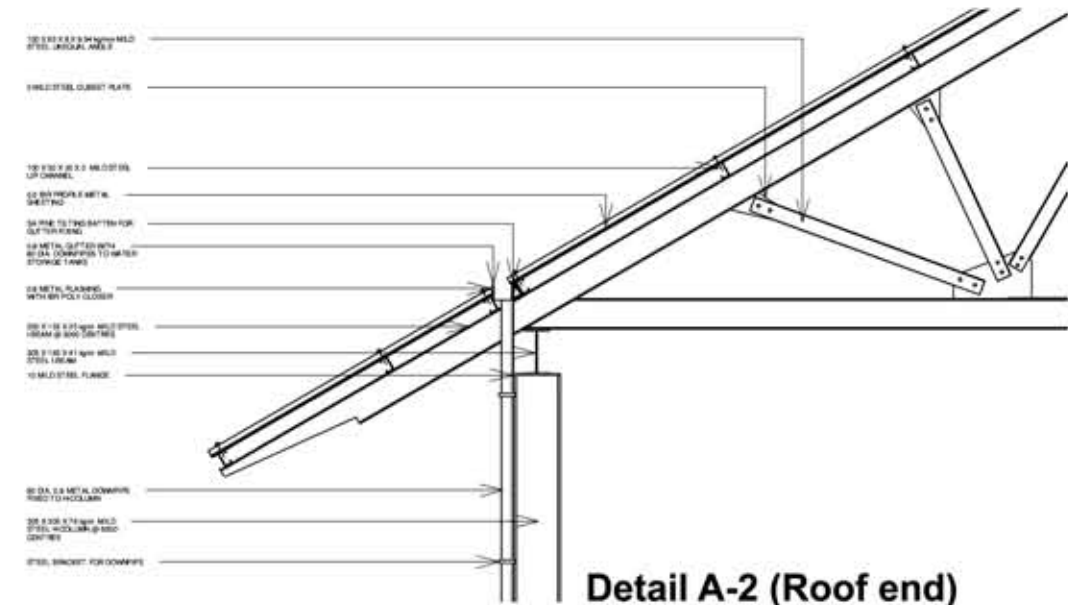
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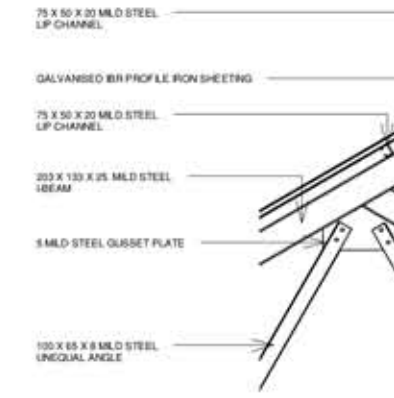
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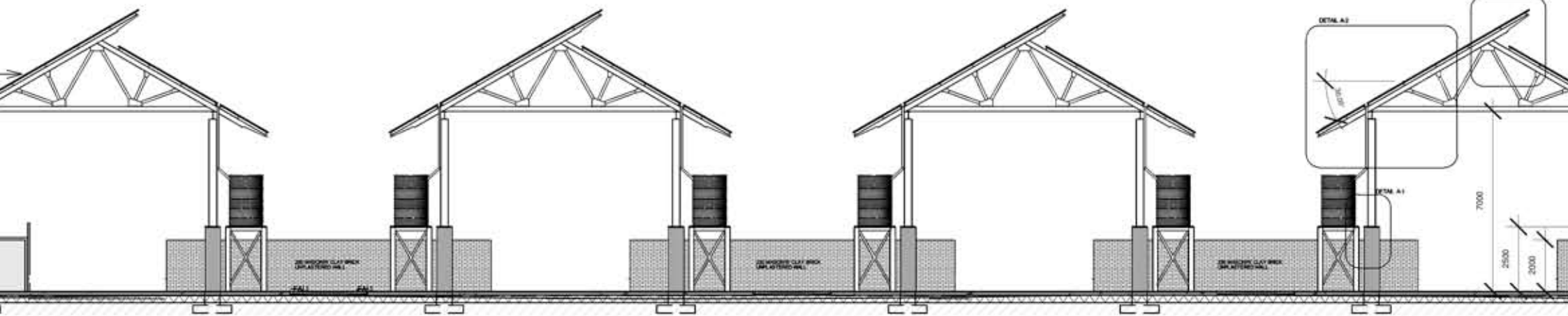
(column fixing)



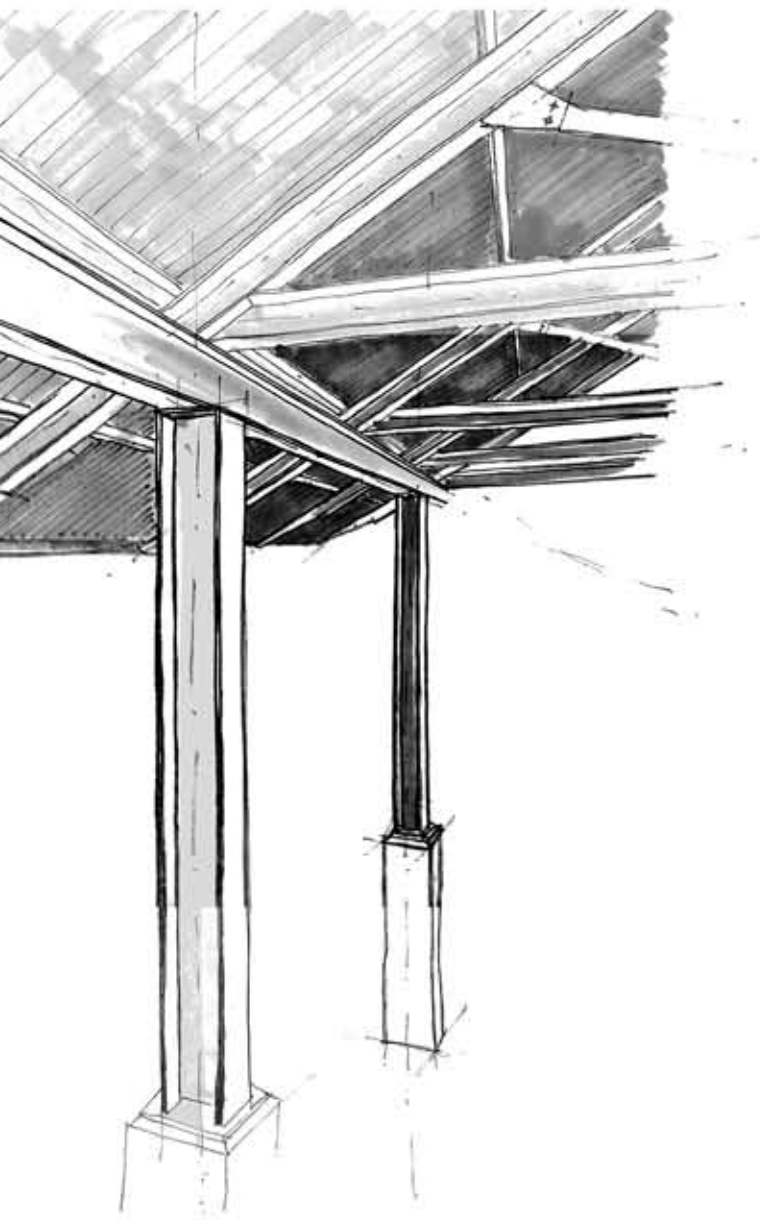
Detail A-2 (Roof end)
1:50



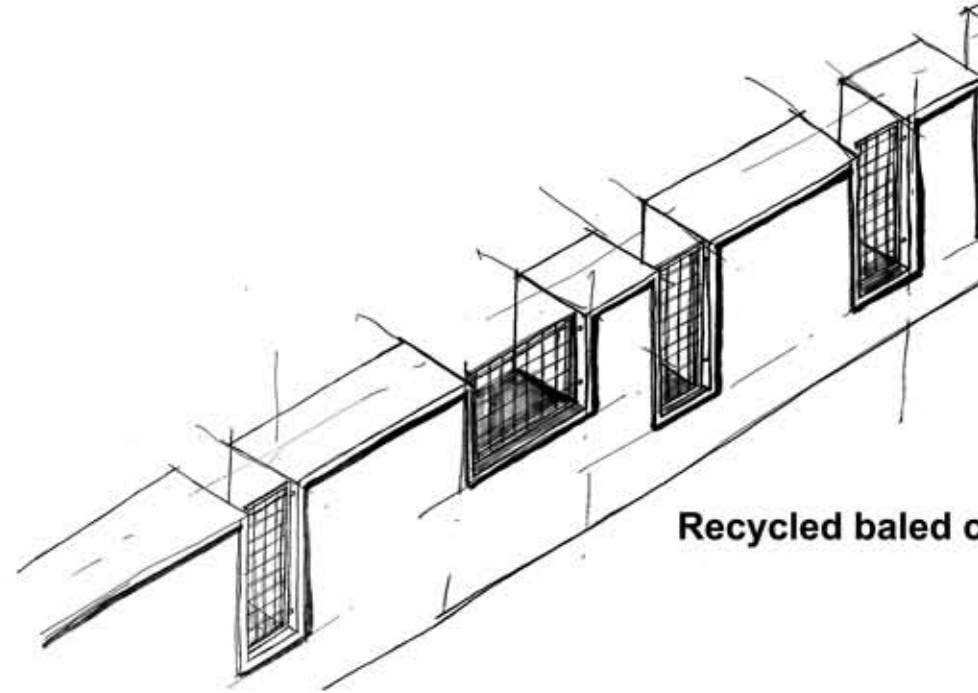
Detail A-2
1:50



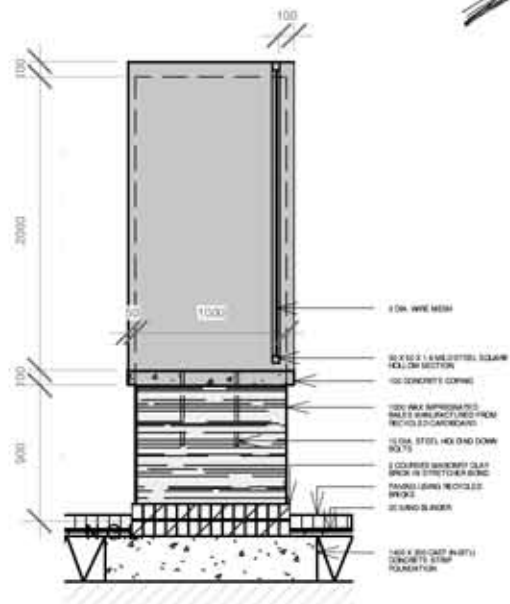
(Recycling depot)



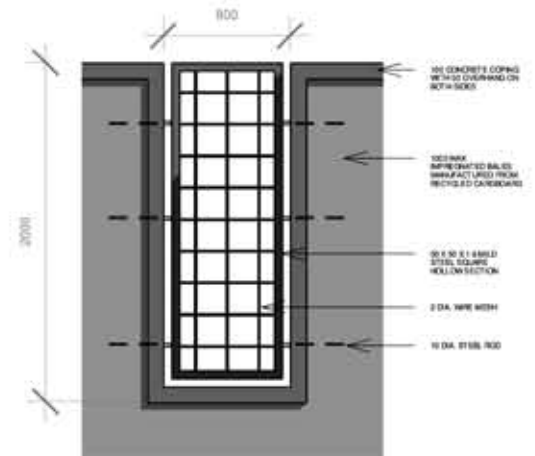
Utility roof 3D



Recycled baled o



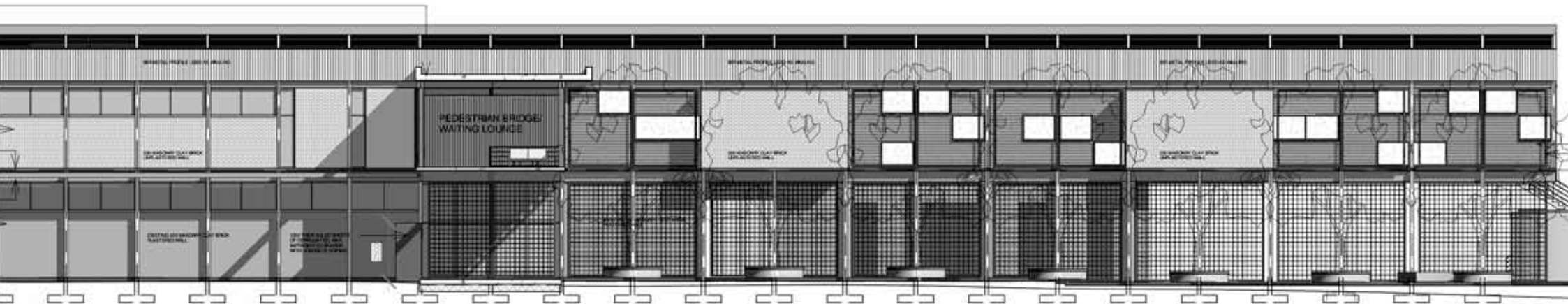
Detail A-4 (Recycled wall section)
1:50



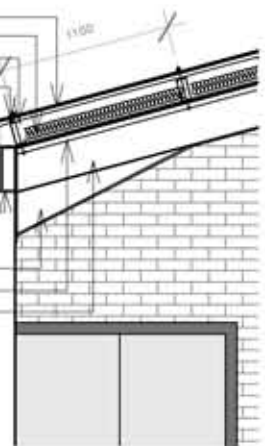
Detail A-5 (Recycled wall e)
1:50



Training facility west elevation)

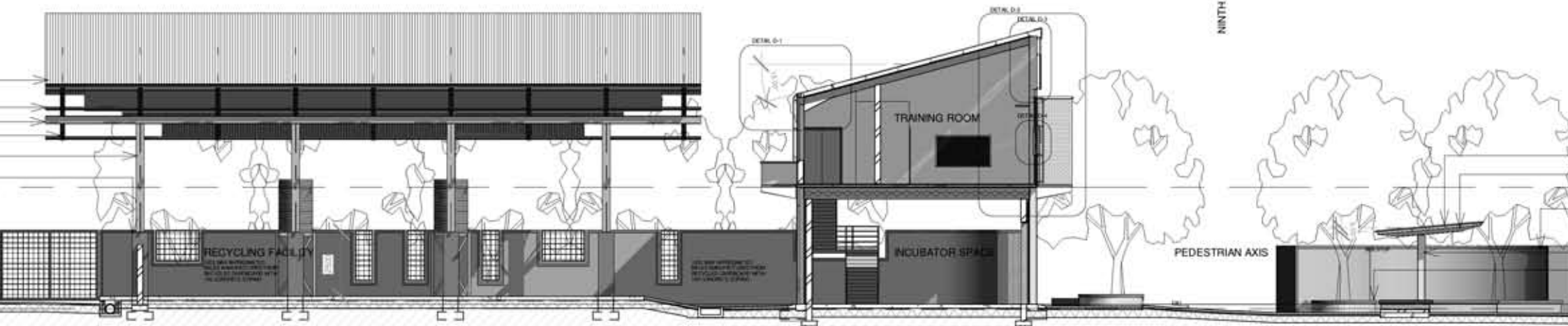
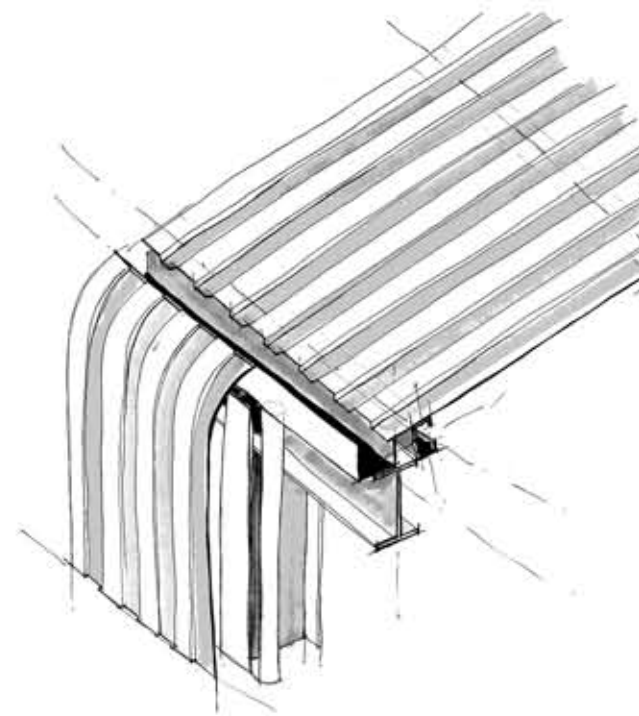


Training facility east elevation)

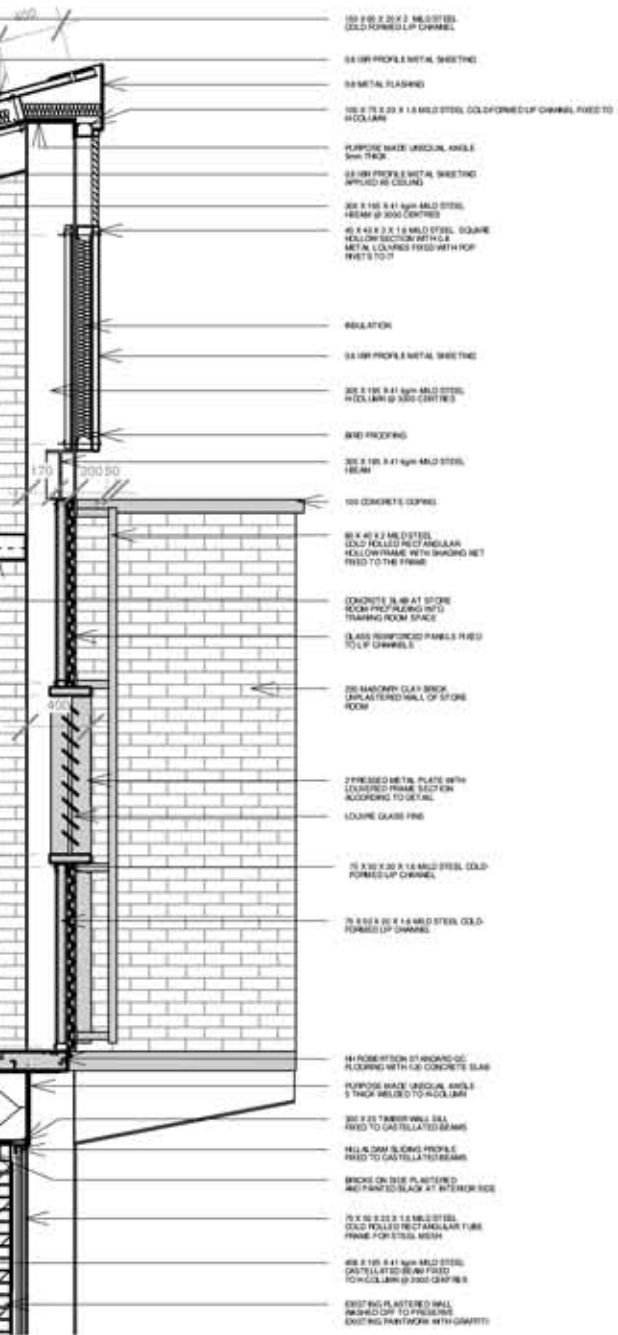


of end with gutter)

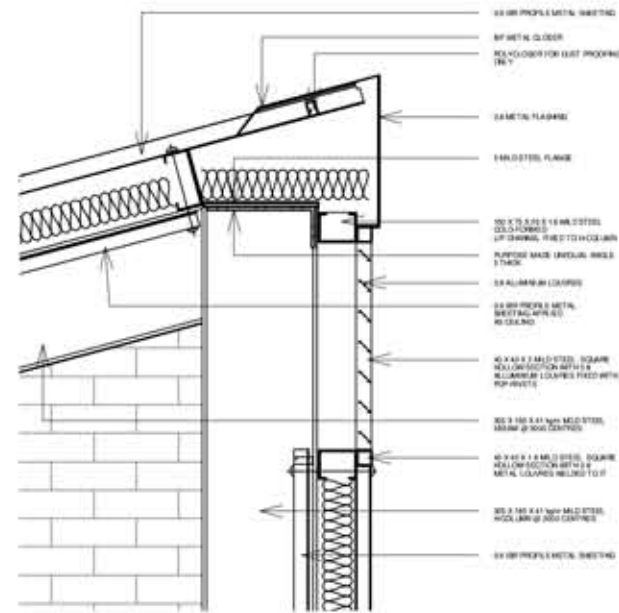
Roof gutter 3D



Recycling facility)

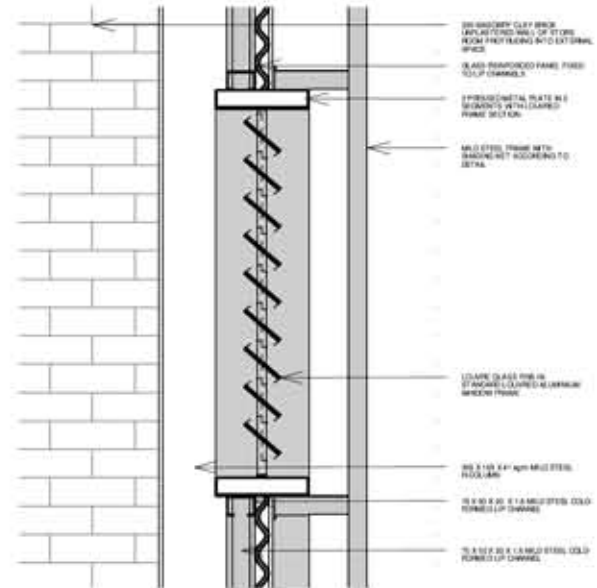


balcony section)



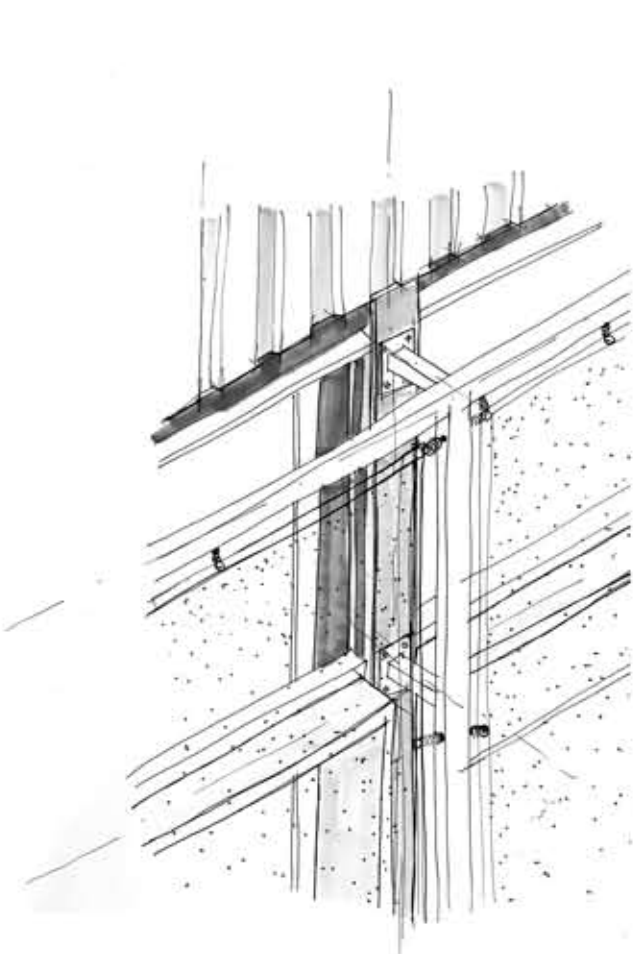
Section D-3 (Louvre detail)

1:20

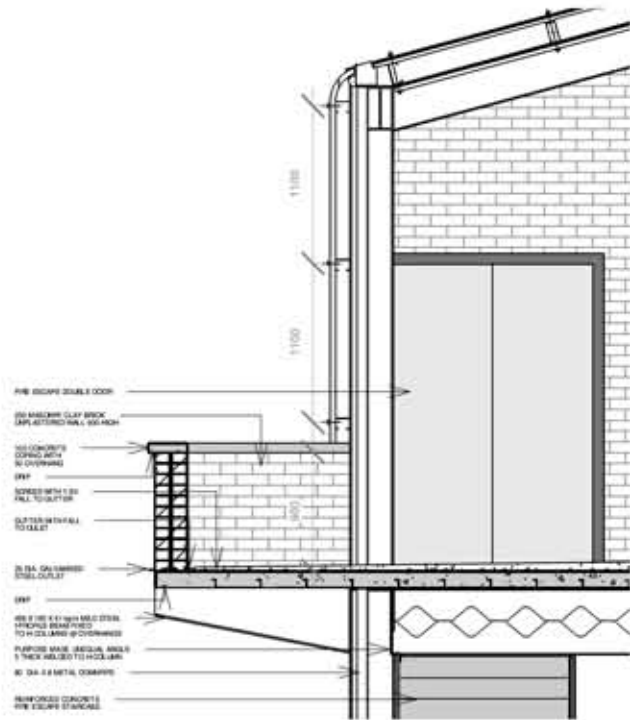


Section D-4 (Window detail)

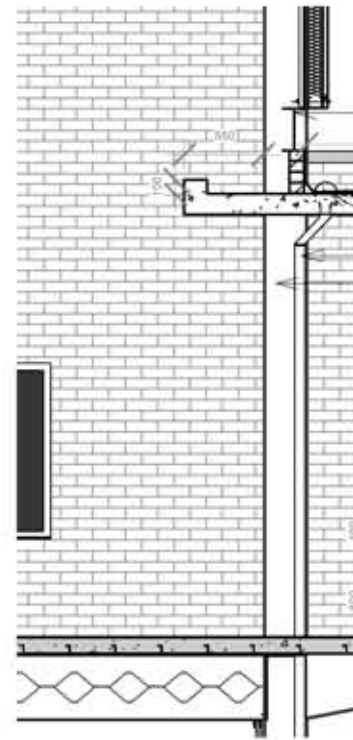
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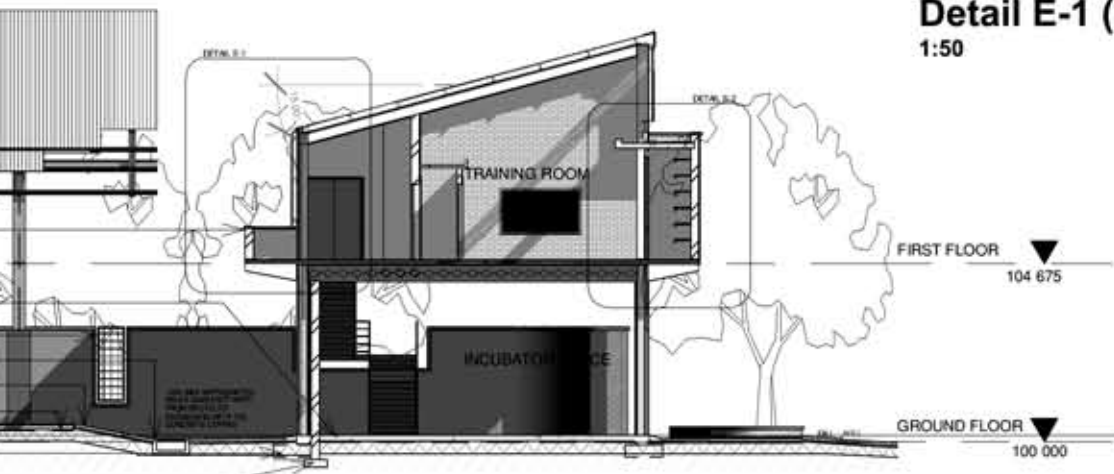
Shading element 3D detail



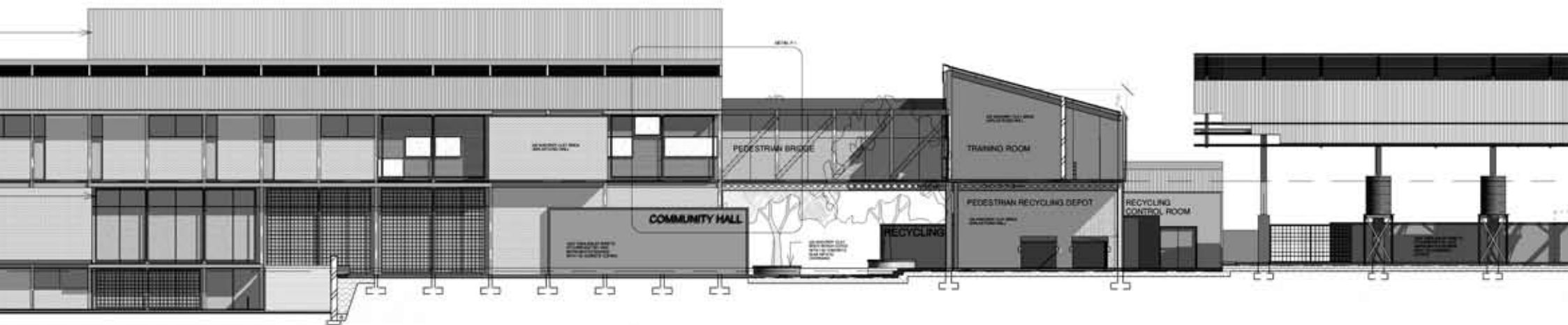
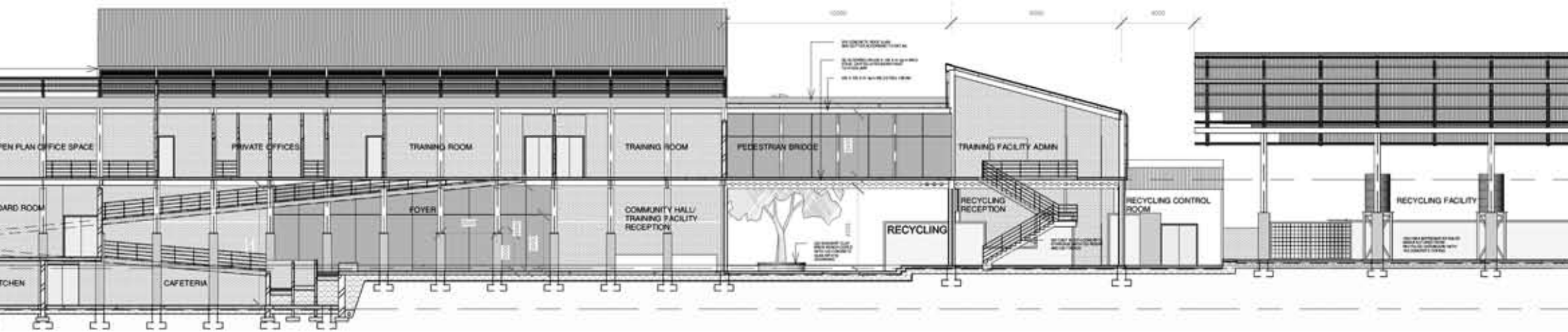
Detail E-1 (Balcony)
1:50



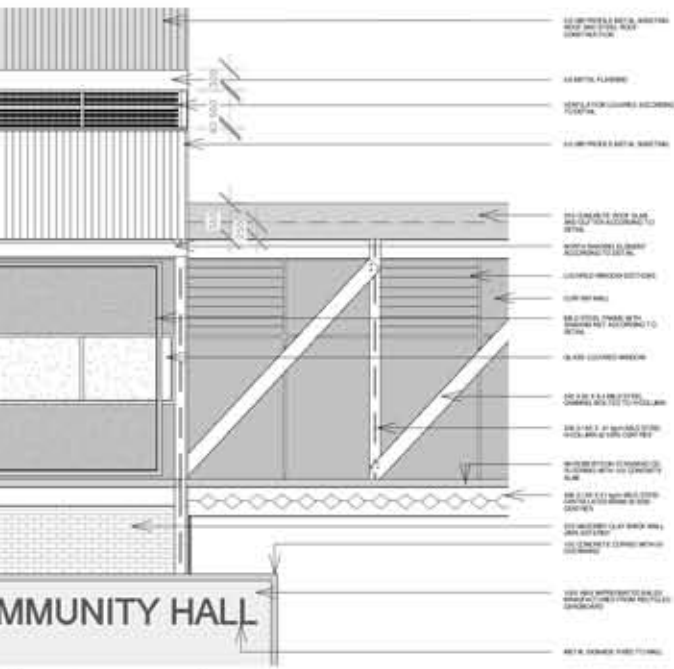
Detail E-2 (Store room)
1:50



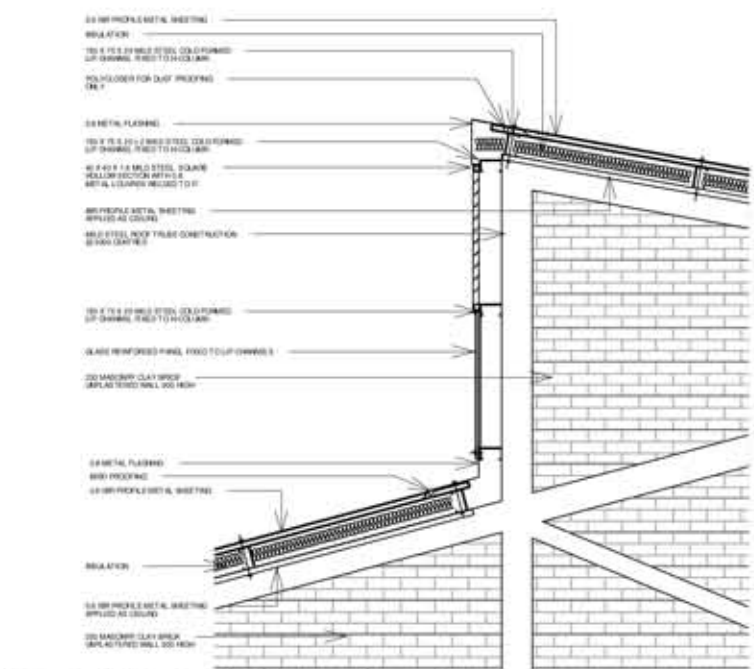
(Training facility)



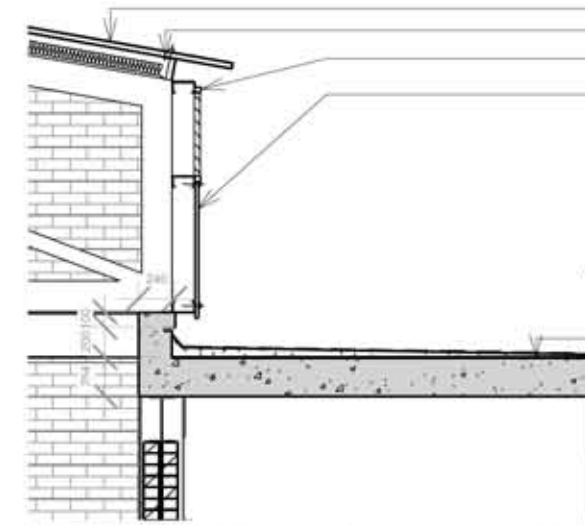
Community centre north elevation)



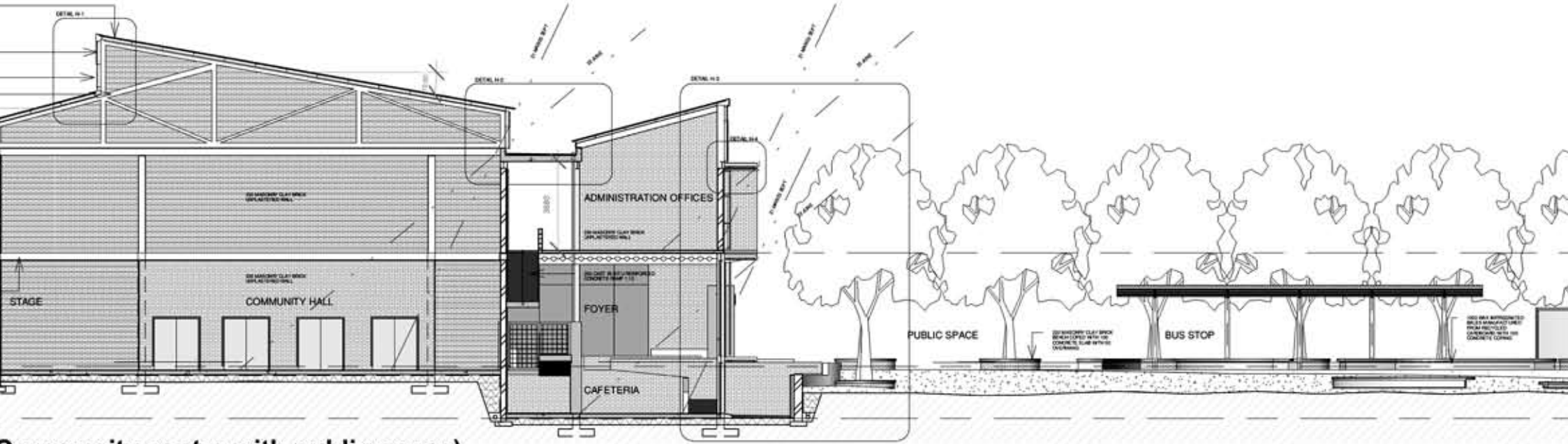
Community Hall



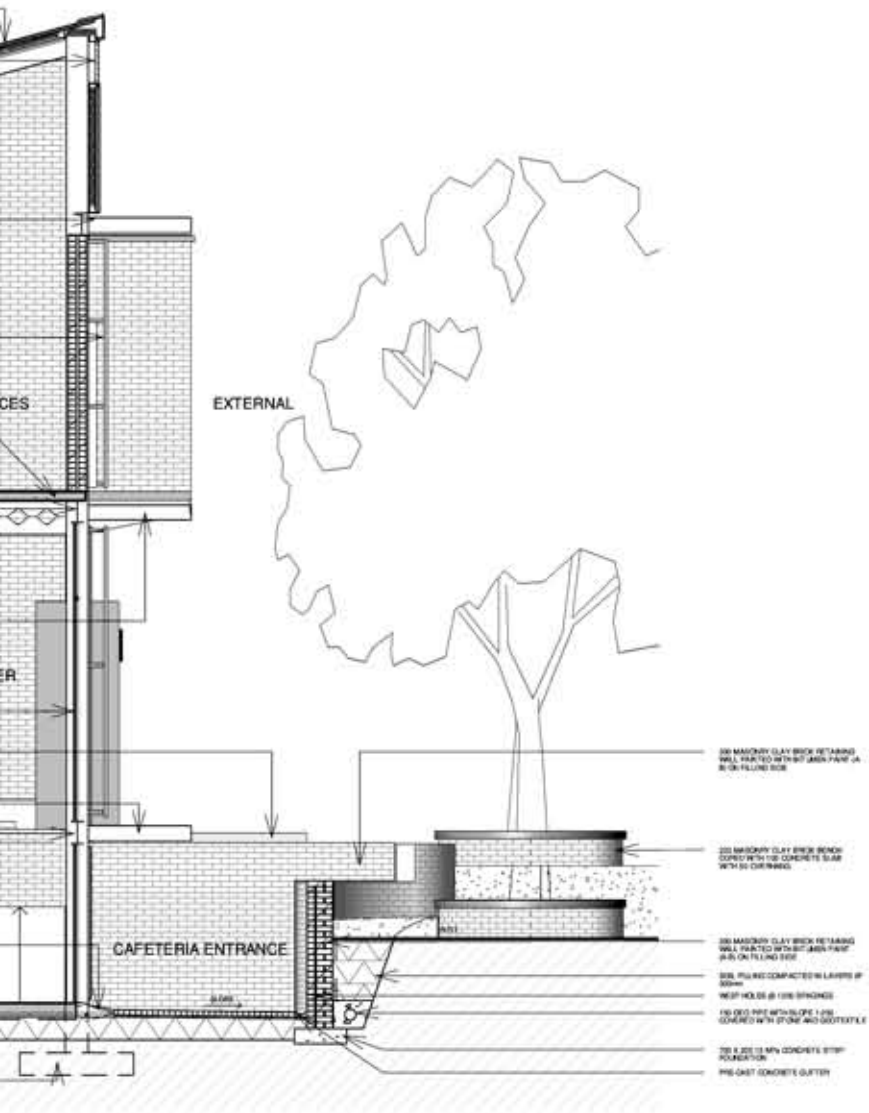
Detail H-1 (Hall roof end)
1:150



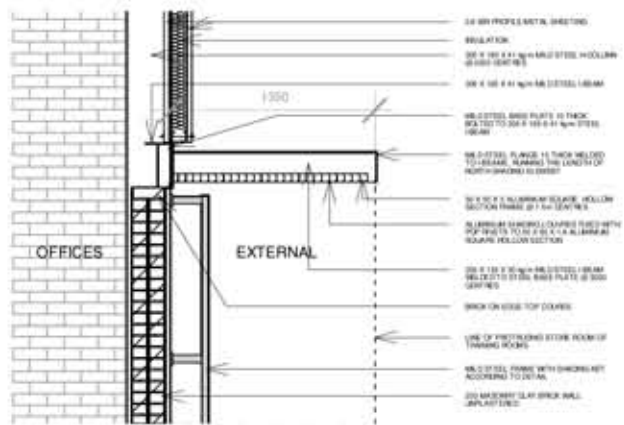
Detail H-2 (Concrete roof gutter)
1:150



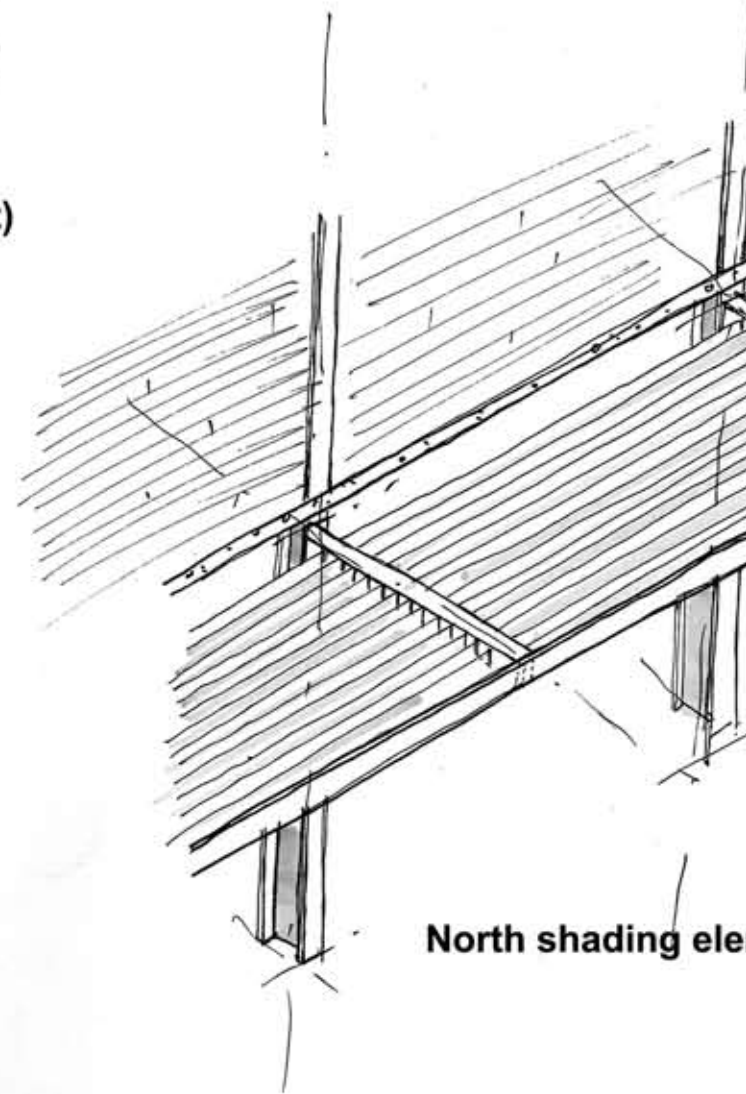
Community centre with public space)

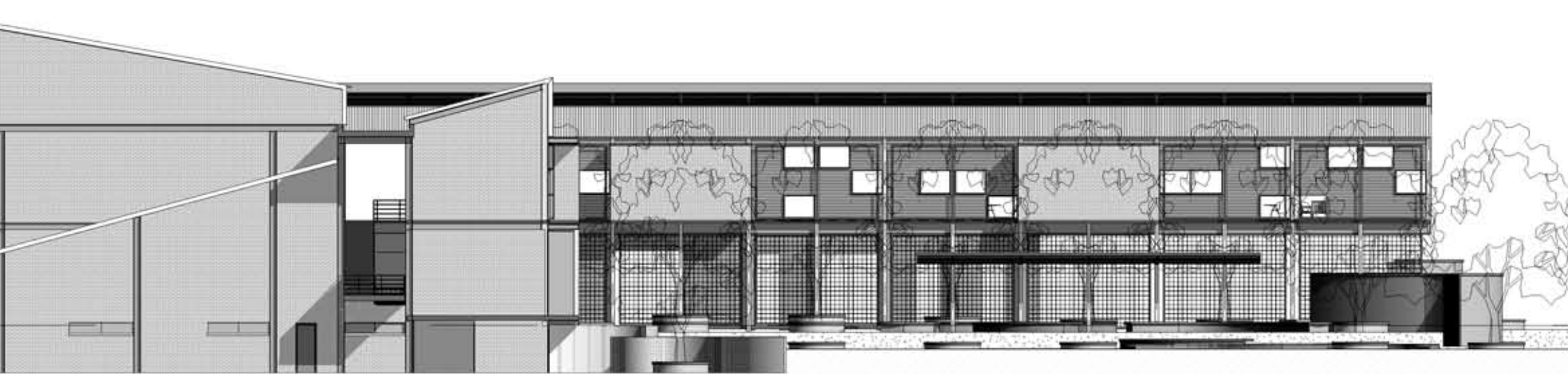


cade section)

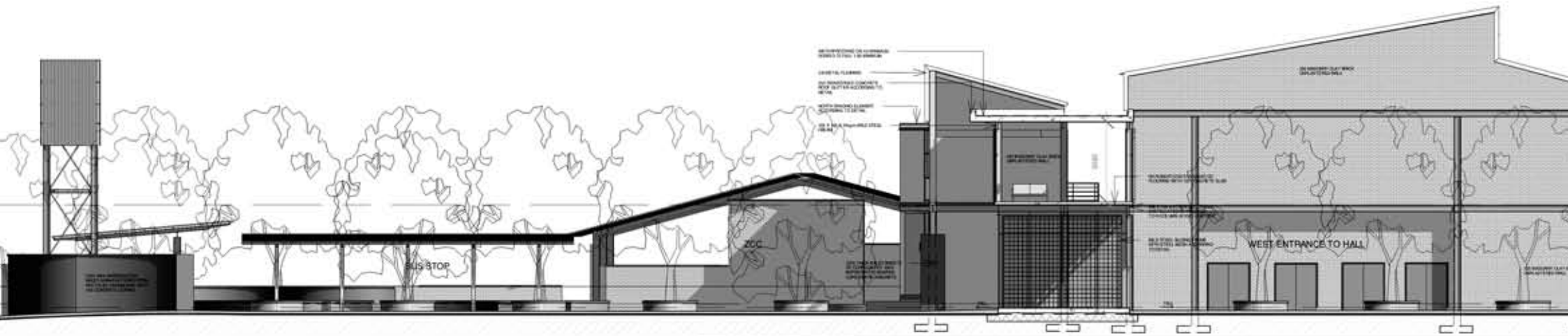


Detail H-4 (North shading element)
1:50

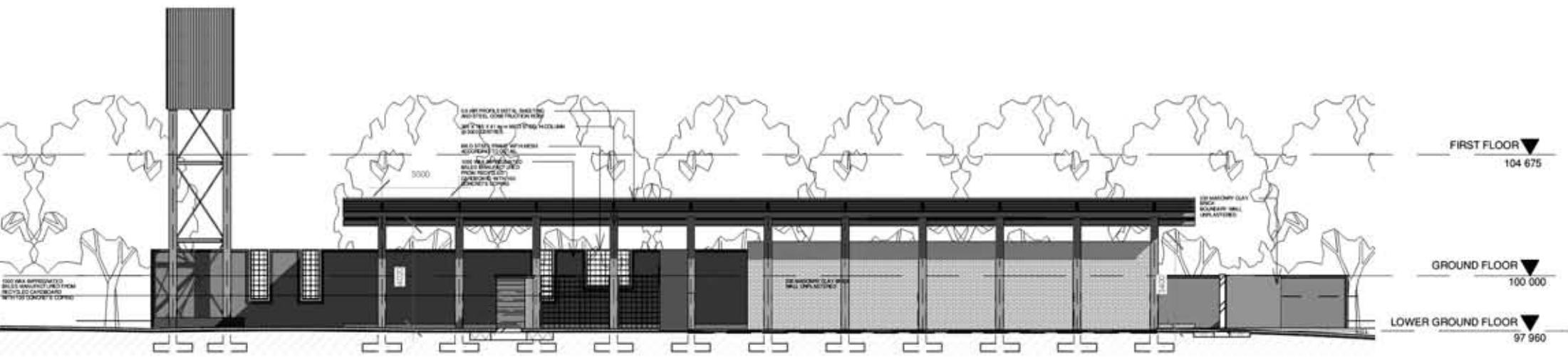




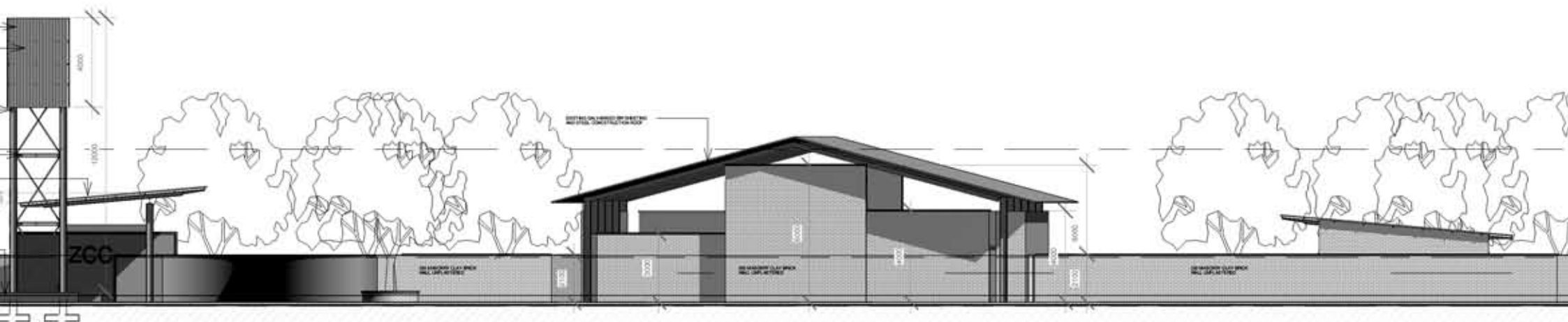
centre east elevation



community centre with public space)



ace and procession)



vation)

In conclusion, this dissertation has through the proposed design allowed for an interest in the ways waste, and the processes that can be associated with it can be manipulated in the making of space in its fundamental form [self] and the particular sensibilities associated with it. This has been done within the proposed design by clearly outlining the vital role it plays in the care of "[the fundamental] the self" HAWKINS,G:2006:9), as an economic generator, and point from which socio-cultural activities can be allowed for.

In allowing for the reuse of the already existing building material, the proposed design allows for an expression in terms of the cultural performances associated with [development]; an organised sequence of material practices that attempt to deploy certain technologies, theories and ideals in order to establish a sense of order with waste as a category of things that can be useful. This created a tool through which peculiar communities can express themselves.

This reuse of waste and existing building materials, the recycling of existing dilapidated buildings on the site and the recycling of the existing informal functions and activities on the site is shown as the theme of the proposed design as recycling and the creation of awareness to the users of the city on a physical and non-physical level, to the idea of it. The proposed design evokes the user of the city to the effects, techniques, processes and ideologies that shroud the idea of recycling, and how it can change a city positively from the inside out.

"In the affairs of men there always appears to be a need for at least two things simultaneously, which in the face of it seem to be incompatible and to exclude one another. We always need both freedom and order". (SCHUMACHER:2007:94) The design introduces order through the reuse and manipulation of the available resources in terms of manpower, activities, existing buildings and ideas.

This allows for a platform that serves as the formal stage on which small and informal activities like waste management, informal trade and movement patterns are allowed their freedom to emerge and develop. Emergence is created as the border between order and chaos. In the design the freedom for emergence is created by providing the community centre and the ZCC as the order and stability in the design, whereas spontaneity, adaptability and the inherent ability to self-organise is found at the introduced platforms. These platform spaces can allow transformation as to provide a sense of freedom to the users. It evokes evolution and survival to these activities that derived from experience, circumstance, status-quo and learning, empowering them within the communities that they emerge and survive within and pushing for their creative, diversity and ability to respond to its needs. "This creativity and novelty comes forward when people's environment is disturbed and they are open for change. To begin with, there must be certain openness a willingness to be disturbed in order to set the process in motion; and there has to be an active network of communication [in order to] amplify the triggering event. The next stage is the point of instability, which may be experienced as tension, chaos or crisis". (CAPRA,F:2002)

The proposed design serves as a platform on which both these ideals play themselves out without the one unconstructively affecting the other. The design can therefore be referred to as the place, the balance linking the structures designed and those that must emerge – not either/or. New partnerships are proposed within the design, leading to the creation of organisations that are interconnected from which they can all draw strength. Together these partnerships have an impact on their individual environments and those of the collective. The design also encourages the development of emergence through its ability to act as a platform on which people develop skills, self-confidence, business experience and employability. These acts of association are introduced as a kick start to re-engage people as citizens, strengthening the network and sense of community.

"New organisations form through emergence and this need to be designed. It is a cyclical, progressive and non-linear process, emerging exponentially". (HAMDJ,N:2006) The proposed design has through various systems, spatial typologies and connections allowed for a design that has drawn on the existing site novelty and creativity as a trigger for a response to change, allowing for emergence to take place. This is shown through the interconnections between the spaces that link the dissertation together with the formalisation of new activities that serve as a platform on which the existing informal activities can play themselves out and evolve into new organizations that are better suited as a response to the area.



Conclusion



List of sources

Books

- AZIZ TAYOB ARCHITECTS. 2002. Integrated Urban Framework for Marabastad, Tshwane Metropolitan Municipality. Pretoria.
- BRUNETTE, K.E 1967, 1967 Freeway Proposal for Pretoria. Interchange over the Asiatic Bazaar. PRETORIA.
- CAPRA, F. 2002. The Hidden Connections: A science for sustainable living. Anchor Books: New York
- DECKLER, T; GRAUPNER, A; RASMUS. 2006. Contemporary South African Architecture in a Landscape of Transition. Double Storey Books: Cape Town
- HAMDY, N. 2004. Small change: About the art of practise and the limits of planning in cities. EARTHSCAN: UK
- HAWKINS, G. 2006. The Ethics of Waste: How We Relate to Rubbish. Rowman & Littlefield Publishers, Inc.: USA
- OPPENHEIMER, A. 2002. Rural Studio: Samuel Mockbee and an Architecture of Decency. Princeton Architectural Press: New York.
- SCHUMACHER, E.F. Small is Beautiful: A study of economics as if people mattered. Sphere Books: London
- TURNER, J.F.C. 1972. Freedom to Build: Dweller control of the housing of the housing process. Macmillan: New York.
- WEGELIN, H. 2006. The craft of building: Volume 1. Published by Author.
- WEGELIN, H. 2006. The craft of building: Volume 2. Published by Author.

Journals

- GARNER, G. 2001. Waste Aware: An attempt to reduce the waste stream through education and communication, Urban Green File, Vol. 5. No. 6. January 2001:43
- GARNER, G. 2000. Waste Management in Johannesburg: What the iGoli2002 plan envisages, Urban Green File, Vol. 5. No. 3. July/August 2000:39-45
- HOLM, D. Manual for Energy Conscious Design. Department Minerals and Energy: Directorate Energy for Development
- MEYER, A. 2005. Plastics Recycling: Challenges to Consumers and Council, Urban Green File, Vol. 10. No. 2. June 2005:40-42
- SLESSOR, C. 1994. South African Sensibility, Architectural Review, Vol. 194/1169. July 1994:22-29
- UYTENBOGAARDT. R. 1985. Uytendogaardt & Rozandal: Community Centre, Steinkopf (1978-1980), UIA-International Architect, Vol. 8: 12-13
- UNKNOWN, 1994. ISSA Award for Excellence 1994, Architecture S.A. Vol. 94/9/10 October 1994:22-29
- UNKNOWN, 2006. Healing Centre, Architecture S.A. March/April 2006:17-19