Reinventing Infrastructure

An Urban Arena for Cultural Exchange:
Amplifying the significance of the disenfranchised Apies River island as 'other-place' between city and suburb

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REINVENTING INFRASTRUCTURE

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as 'other-place' between city and suburb

Keywords: Public infrastructure, recreational urban space, Apies River

Address: 451 Church Street, Arcadia, Pretoria
Coordinates: 25.4444S, 28.1204E

Multi-functional Programme: Public retail, social and recreational facilities and landscape,
workshop and exhibition space, auditorium and meeting spaces

Research Field: Public Infrastructure, Environment Potential, Heritage and Cultural Landscapes

C. Nieuwoudt

2015

I would like to thank everyone who contributed to the immeasurable experiences and memories of this year!

A special thanks to the support, patience, knowledge and advice of the following people:

Derick de Bruyn
(Study Leader)

Dr. Arthur Barker
(Studio Coordinator)

Karlien van Niekerk
(Editor)

Atelier Kremetart and all other support and motivation

My parents and siblings

Abstract

The potential of the Apies River Corridor, and the identified site's relegation to the engineering demands of modernisation, has resulted in layers of water, built fabric, transport and energy infrastructure that presently dissect the site into rigidly controlled, isolated functions. This has consequently led to the loss of the Apies River's recreational and natural presence within the city. Its ecological potential as resource, as well as its enigmatic and symbolic existence, has been straightjacketed into a linear concrete entity. Its historical significance in the establishment and development of the city, as well as its significance as recreational identity, has been rendered anonymous. Fragmented enclaves (deadlock urban situations) have restricted the potential of underutilised, surplus public spaces.

The theoretical premise of this dissertation asserts that the great divide between nature and culture of the modern paradigm, and the consequential development of industrialisation and urbanisation, controlled our cities' natural resources in independent networks of infrastructural systems, to the control, convenience and exploitation of our cultural practices. Implemented as vehicles for political, social and economic agendas, the current isolated implementation of our urban infrastructure are spatially fragmenting the public realm.

The site chosen for the project has been identified as a collection of fragmented surplus sites adrift between the infrastructural edges of the historic Ceremonial Boulevard know as Stanza Bopape Street (formerly Church Street), and the Apies River Corridor; two significant infrastructural entities in the city of Pretoria.

A reinterpretation of our development processes is required, that acknowledges non-human natural systems as agents and acknowledges the constraints of our cultural practices.[1] By reimagining existing infrastructure as part of the production of form and space, marginalised urban voids can be regained for innovative design interventions, alternative occupation, and public appropriation. The potential of such a reinvention lies in public space that capitalises on the spatial, material and socio-economic possibilities of infrastructure to increase the area's ecological contribution, and amplify its historical significance through establishing a relationship between Stan Street, the Apies River, the proposed interventions and historical remnants, towards reinstating an enigmatic and recreational experience as well as ecological awareness beyond its infrastructural use.

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1.   A general theory in the realm of environmental ethics, known as the last man argument was constructed by Richard Sylvan (before 1983). This thought experiment aims to illustrate that the dominant principles of the Western ethical tradition (which Sylvan calls a "super ethic"), as incapable of providing a satisfactory foundation for an environmental ethic. The last man thought experiment argues that because there are no other human considerations, the chauvinistic freedom principle therefore hold no grounds for moral disapproval of his actions. However, to an environmentally progressive ethics, the actions of the last man are morally appalling. The influential instinctual impact of this thought experiment exposes a prevalent, however not universal, biophilia that reinforces an appreciation that the exhaustion of our natural resources and biodiversity deprives us not only from the resources but diminishes the life to which many of us aspire. (Grey 2009: 40-41)

Opsomming

Die teoretiese uitgangspunt van hierdie verhandeling konstateer dat die ruimtelike fragmentasie van ons huidige stedelike toestand grotendeels beinvloed word deur die skeiding van natuur en kultuur in die moderne paradigma, asook gevolglik die ontwikkeling van industrialisering en verstedeliking wat natuurlike hulpbronne in geïsoleerde netwerke van infrastrukturele stelsels beheer, as instrumente vir politiese en sosio-ekonomiese agendas.

Die potensiaal van die Apiesrivier-korridor en die geïdentifiseerde terrein word tans beperk tot stelsels / sisteme vir water, geboue, vervoer en energie – infrastruktuur wat streng beheer uitoefen oor prosesse en hulpbronne in geïsoleerde netwerke, as gevolg van die feit dat die rivier gereleer is om aan die eise van modernisering en stedelike ontwikkeling te voldoen. Gevolglik het dit gelei tot die verlies van die Apiesrivier se natuurlike teenwoordigheid in die stad. Die ekologiese potensiaal van die rivier as hulpbron, asook sy enigmatiese en simboliese bestaan word beperk tot 'n lineêre beton entiteit. Die historiese betekenis daarvan vir die vestiging en ontwikkeling van die stad, asook die betekenis as ontspanningsidentiteit het anoniem geraak. Die ontwikkelingspotensiaal van die rivier en aangrensende terreine word tans onderbenut as gevolg van hierdie gefragmenteerde stedelike toestand.

Die voorgestelde terrein is geïdentifiseer as 'n versameling gefragmenteerde aangrensende terreine, ingeperk deur die infrastrukturele grense van die historiese Seremoniële Boulevard , naamlik Stanza Bopapestraat (voorheen Kerkstraat) en die Apiesrivier stormwaterkanaal; twee belangrike infrastrukturele entiteite in die stad van Pretoria.

'n Herinterpretasie, wat nie-menslike natuurlike stelsels as agente erken, asook bewus is van die beperkings van ons kulturele praktyke, word vereis. Deur bestaande infrastruktuur geïntegreerd te herontwikkel as deel van toekomstige projekte, met 'n fokus op die skepping van vorm en ruimte, bied geleenthede vir innoverende ontwerpingrypings, alternatiewe gebruike, en openbare herbenutting. Die potensiaal van hierdie herbenutting word omsluit in die vermoë van openbare ruimtes se om by te dra tot die stimulering van die ruimtelike, materiële, en sosio-ekonomiese moontlikhede van infrastruktuur om die ekologiese bydrae van die gebied te verhoog en sy historiese betekenis te versterk deur 'n nuwe verwantskap tussen Kerkstraat, die Apiesrivier, die voorgestelde argitektoniese ingrypings en historiese oorblyfsels te skep om uiteindelik 'n enigmatiese ervaring asook ekologiese bewustheid bo en behalwe die rivier infrastrukturele gebruik te herstel.

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Preface

The author holds the belief that architects ought to commence research and projects on the scale of the city. "…[A]rchitecture and designed landscapes serve as grand mnemonic devices that record and transmit vital aspects of culture and history" (Treib 2009:i). An underlying framework that supports the exchange between the urban fabric, cultivated landscapes and cultural transformations is defined through the infrastructure of our cities. Including everything from stormwater conveyance systems to railway and vehicular networks, sanitation services and information networks, as a few of the numerous examples, infrastructure is omnipresent and facilitates all human activities.

Apart from the magnitude of the impact of infrastructure on the built environment through its scale, its ability to provide a cultural reference point in cities through its potential to produce a diverse programmatic and socio-cultural response to public space, as well as its inherent connective and enabling agenda, reinforces the view of infrastructure as a critical area of investigation with particular relevance for the architectural profession.

The present condition of existing infrastructure as isolated layers, and its sectional potential involving structure and space, incentivises an architectural investigation that expresses a concern for design professionals to play an active role in the development and implementation of infrastructure in the public realm. This investigation therefore aims to mitigate the negative spatial and socio-economic impacts of unintegrated infrastructural implementations, towards encouraging an emphasis on infrastructure with a deliberate agenda of producing positive public space that allows for a multiplicity of socio-economic opportunities and public appropriations of the urban realm.

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CHAPTER ONE

INTRODUCTION

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Main Observation

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Introduction to the Urban Framework

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The Apies River - Urban Issues and Opportunities

Identifying the Site

Programmatic Intentions

Architectural Hypothesis

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Design Informants

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1.1
Main Observation

The integrity of architecture's apparent stability is rooted in a collection of interdependent natural-cultural forces, constantly generating themselves through processes of transformation. However, the strain of these forces reveals a tense environment and a humanity with restricted control of nature, and of its own transformation. Change becomes integrated and consequential in these interdependent suspended fields, rendering the idea of pure autonomy obsolete (Woods 2009).

The theoretical premise of this dissertation argues that the spatially fragmented public realm of the present condition of our cities is one of the resultant factors of the great divide between nature and culture of the modern paradigm and of the development of industrialisation and urbanisation controlling natural resources in isolated networks of infrastructural systems as vehicles for political, social and economic agendas.

1.2
Problem Statement

Infrastructural developments have consequently rendered the presence of nature in cities anonymous, have disenfranchised its potential opportunities to serve as resource and amenity with enigmatic characteristics from society and the city, and have inevitably expedited the depletion of its availability.

A reinterpretation of our development processes is required that acknowledges non-human natural systems as agents and also acknowledges the constraints of human practices, in order to move towards an ecosystemic approach.

With new opportunities, new challenges and a vulnerable landscape to cultivate and preserve; architecture of the near future and its urban consequences ought to be cognisant of historical potentials and failures, yet, their essence should be as different as that of the century before (Holl 1996).

Figure 1.1 Crossing over the Apies River at Arcadia drift. (Hilton T)

Figure 1.2 Bon Accord Dam as recreational entity to the Apies River Corridor. (Hilton T)
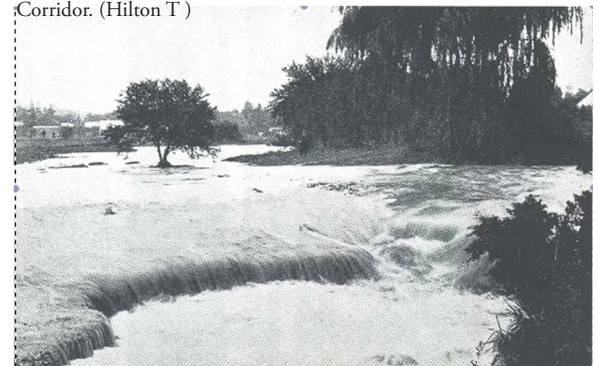

Figure 1.3: Flooding resulting in the cannalisation of the Apies River. (Barnard and van Niekerk 2013)

Figure 1.4: Present condition of the cannalised Apies River. Photograph by author
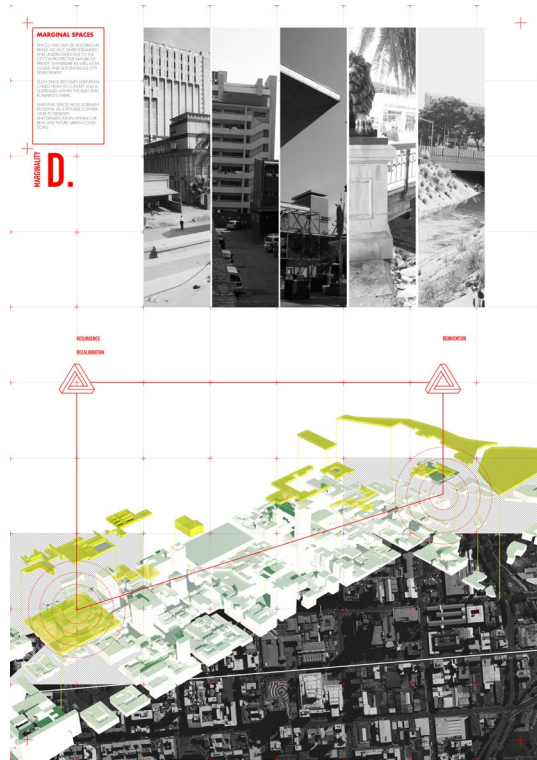
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Figure 1.5 Urban mapping investigation illustrating the marginal spaces identified within the area of investigation, as well as identified areas of intervention. By framework group 2015
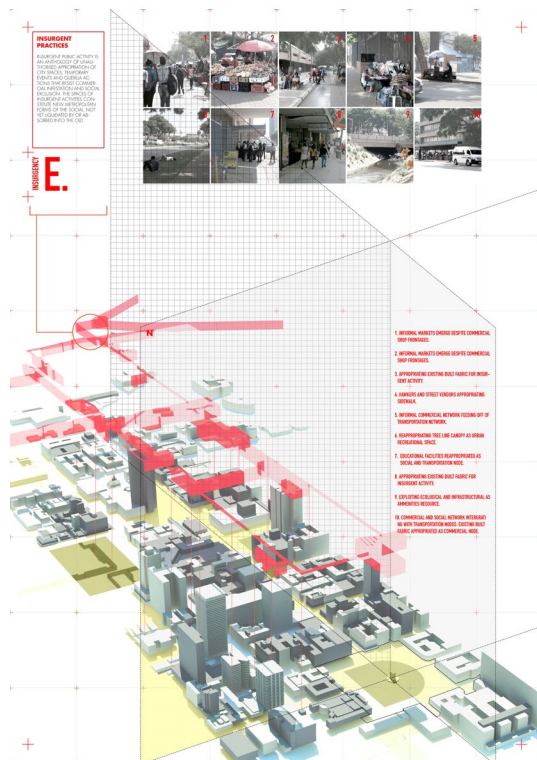

Figure 1.6 Urban mapping investigation illustrating the insurgent activites identified alongside marginal spaces within the area of investigation. By Framework group 2015

Introduction to the Urban Framework

Historically the city of Pretoria has undergone multiple layers of transformation. When viewed from above, the city appears to have been striated over time, due to the power of political, economic and infrastructural transformation. The most predominant consequences can be identified as governmental migration from the city centre; a lack of public interface and no relationship between civic spaces and proposed introspective isolated precincts; economic agendas resulting in autonomous property development; and infrastructural expansion resulting in isolated systems of networks implemented in an ad hoc way, spatially presenting an unsustainable, non-resilient and homogenous base for the future densification of the city centre.

The bureaucratically driven origination and development of Pretoria as administrative capital, as opposed to an agenda driven by resources or socio-economic considerations, has allowed the city to elude its socio-cultural responsibilities, leading to urban and social entropy in marginal public spaces. In their damaged state, they offer entirely new possibilities for first understanding the conditions constituting public space in the present state of our cities, and investigating an alternative appropriation of an architectural intervention in a place undergoing continuous transformation.

Urban Vision

The urban vision aims to create a more diverse and sustainable framework for future development strategies, such as the Re Kgabisa Inner City Development Project and the Tshwane Vision 2055: Remaking South Africa's Capital City, through adressing factors that presently lead to the marginalisation of public space within the city, by applying an architectural intervention that challenges the future perpetuation of this condition. The urban vision proposes to reimagine an underutilised network of disenfranchised spaces into a heterogeneous adaptable system that is integrated with the existing city infrastructure, rather than hierarchical interventions of architectural dominance. The city's real identity and the concerns of its lived reality need to be extracted from its undermined position and exposed to challenge and develop the residue of the city's bureaucratic ideological agendas.

1.5
The Apies River - Urban Issues and Opportunities

The Apies River corridor and the identified site have been relegated to engineering due to the demands of modernisation, resulting in layers of water, built fabric, transport and energy infrastructure that presently dissects the site into rigidly controlled, isolated functions.

- The abovementioned has resulted in the loss of the collective presence and significance of the river within the city.
- Its ecological resources and potential as well as its enigmatic and symbolic presence have been straightjacketed into a linear concrete entity.
- Its historical significance for the establishment and development of the city, as well as its significance as recreational identity, has been rendered anonymous.
- Fragmented enclaves and impasses (deadlock urban situations) have diminished the potential of public spaces.
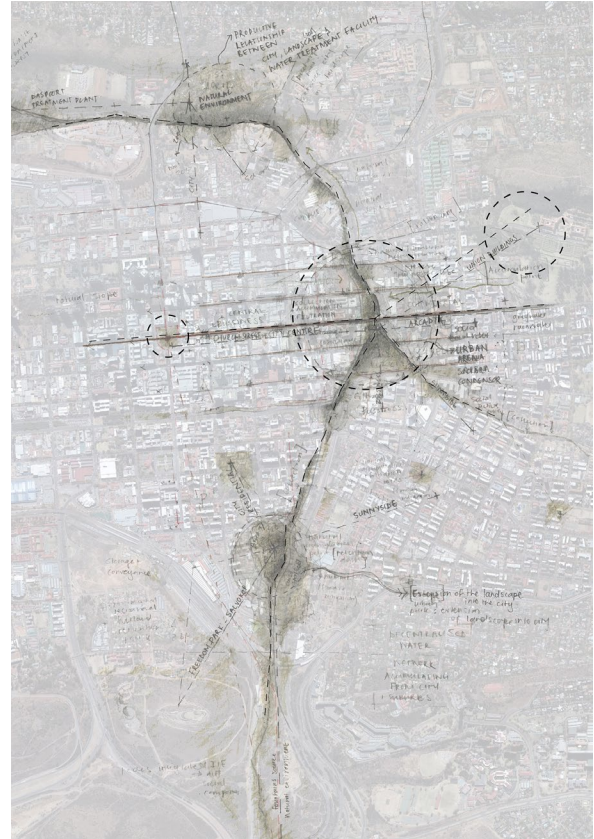
1.6
Identifying the site

The chosen site has been identified as a collection of fragmented surplus sites adrift between the infrastructural edges of Nelson Mandela Drive and the Apies River corridor. The site is hinged on its northern boundary to the historical Ceremonial Boulevard know as Stanza Bopape Street (old Church Street), as potential inception point of a collection of positive opportunities to be the extracted and amplified between the city and the surrounding suburbs.

Built Fabric

Transport network

Topography

River Channel

Stormwater network

Sewage network

5
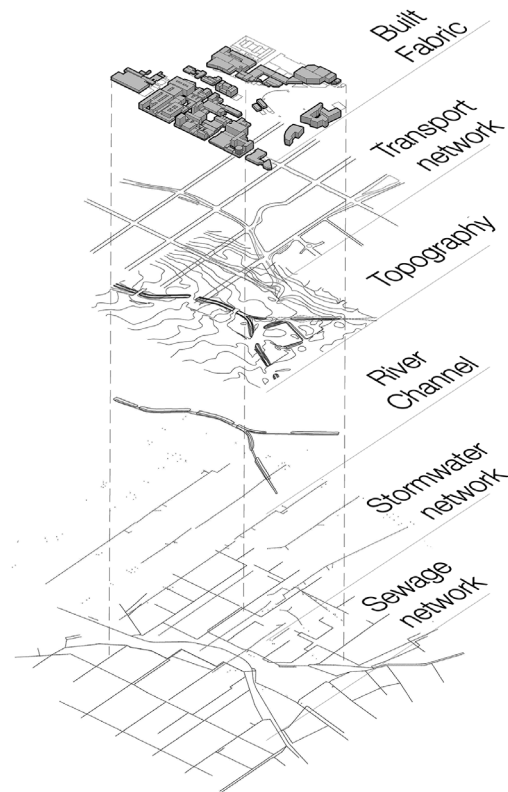
1.7
Proposed Programmatic Intentions

The programme as cultural urban arena becomes an adaptive, dynamic infrastructural device for a performative public spectacle, established on the Ceremonial Boulevard between Church Square and the Union Buildings. This intensified public realm would consist of a decentralised urban stormwater filtration system, and a cultural memory park with social, economic and recreational facilities bordering the inner city and its surrounding suburbs.

The proposed recreational and socio-economic appropriations represent possible scenarios of the animated infrastructure. Thus the programmatic response requires an alternative reimagination of a hybrid typology that addresses the need for inter-operability and adaptable appropriations that would encourage urban scenarios of social and economic engagement at different time cycles, continuously activating the precinct and enhancing a symbiotic relationship towards resilient urbanisation.

1.8
Architectural Hypothesis

Regardless of the multiplication of artificial environments, our cultural influences cannot be removed from our interpretation of nature that establishes us as living beings. Both the cultural constructs and natural entities of cities are manifestations of the relations between natural and cultural developments over time and collectively influence a city's distinctive existence (Whiston Spirn 2002:4). Infrastructure has the potential to facilitate an integrated continuum of this nature-culture exchange between the natural systems and resources operating and shaping our artificially constructed built environments. The "final" proposal can therefore not be an individual product or intervention, but is therefore rooted in a broader spatial vision, a didactic metabolism for activating the specific condition and similar consequential conditions prevalent in the city.

1.9
Research Questions

- How can the dehumanised infrastructural complexes in the city be reinvented in a symbiotic relationship with ecological and socio-cultural existence?

- How can a newly established architectural identity through exploitation of infrastructure and resources – its scale, language, accessibility and edge conditions – establish an intangible dialogue with the polarised conditions of the city centre and residential areas?

- How can an infrastructural reinvention of an adaptable recreational and socio-economic typology, through a discharge into its context, amplify the positive opportunities and significance of the spatially fragmented Apies River Island as 'other space' between city and suburb?

1.10
Design Informants:
Architectural and Conceptual Intention

By reimagining existing infrastructure as part of the production of form and space, the marginalised urban voids are regained for innovative design interventions, alternative occupation, and a new public appropriation that connects the city to the water. The proposed intervention aims to become an architectural filter as an extension of the existing infrastructure of the urban realm, Church Street and the regenerated Apies River Island, that:

- contains and activates recreational potential;
- offers new public space through establishing a relationship between Church Street and the river;
- increases the area's ecological contribution through reinscribing an identity;
- amplifies its historic and cultural significance through establishing a relationship between the proposed interventions and historical remnants on the surrounding site;
- capitalises on the spatial, material, and socio-economic possibilities of infrastructure; and
- provides an enigmatic experience beyond its infrastructural use.

1.11
Methodology

An iterative process of consolidating different research methodologies and their findings is used to fully comprehend the urban processes of transformation as well as the potential directive effects of the proposed interventions within the context of the city, river and site, as set out in the methodology diagram. These will include:

- Literature studies on the transformation of Pretoria's spatial landscape.
- A contextual investigation that involves mapping and comprehending the palimpsest of urban transformation processes, apparent observations, and the extraction of intricate subversive underutilised opportunities and networks.

- A detailed site investigation to observe, document and transmit through drawing and other representational methods, the quantitative and qualitative information site constructs.
- Design research as an iterative analysis of proposals within the contextual field.

A synthesis of these readings and investigations will provide a collective body to inform a point of departure as foundation for the project.

Preface:
Point of Departure and Background to the investigation

Theoetical Premise:
Formulation a position and substantiating the investigation

Design Development:
Iterative Process

Contextual Investigation: Urban Framework and Vision

Investigating Existing Infrastructure at the Scale of the City:
Identifying issues and Opportunities

Investigating Existing Infrastructure at the Scale of the River:
Identifying issues and Opportunities

Investigating Existing Infrastructure at the Scale of the Site:
Identifying issues and Opportunities

Technical Resolution:
Iterative Process

Design Informants:
Identifying the client and Programmatic Response

Supportive Theoretical Investigation and Precedent Studies:
Applied at different scales

Conceptual Response:
Conceptual design development