

# Introduction

The following chapter documents the process of the design of the astronomical centre and discusses the various factors which were taken into account to formulate the concept. It consequently discusses how the concept of the design was applied and developed.

## Step 1: How to approach the ZOO TORE COURT as part of the northern gateway

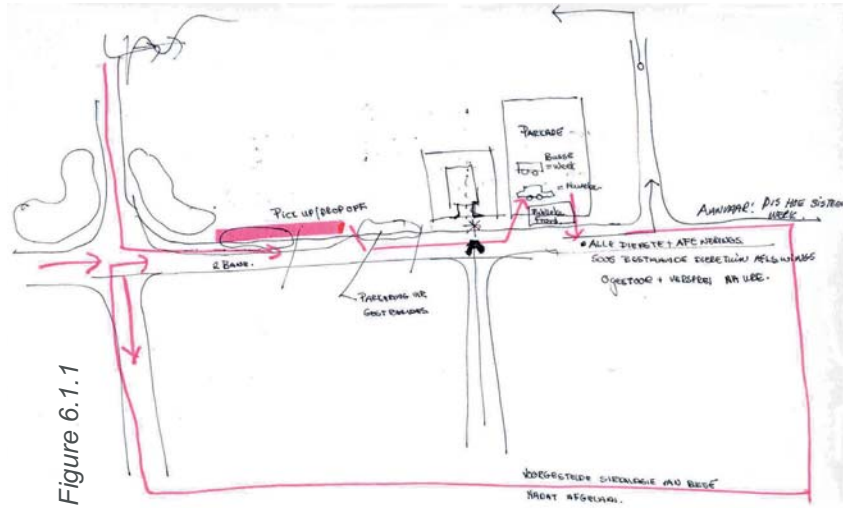


Figure 6.1.1

Working diagram 1: Vehicular movement

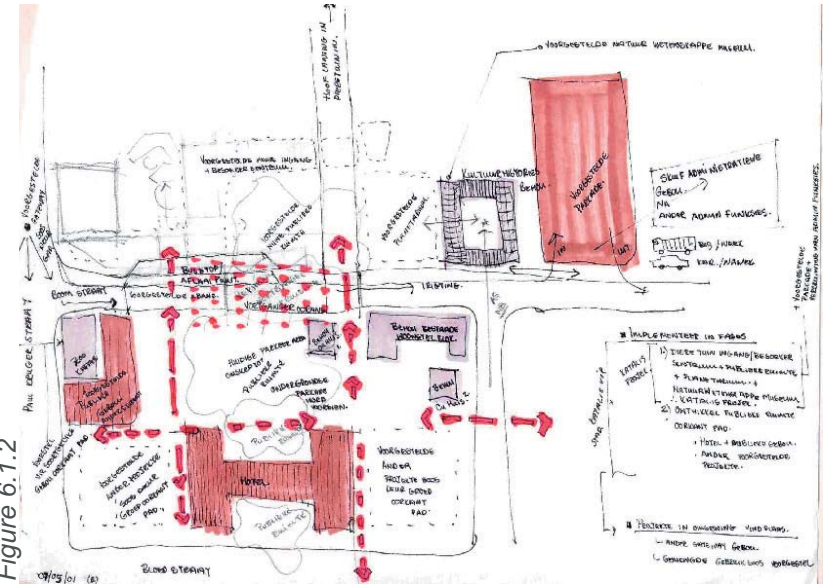


Figure 6.1.2

Working diagram 2: Pedestrian movement in the urban foyer

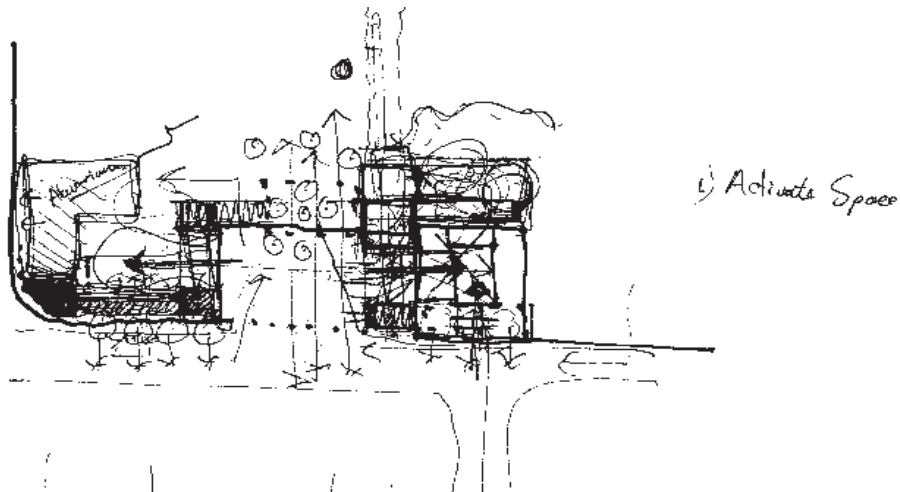


Figure 6.1.3

Working diagram 3: The proposed zoo entrance

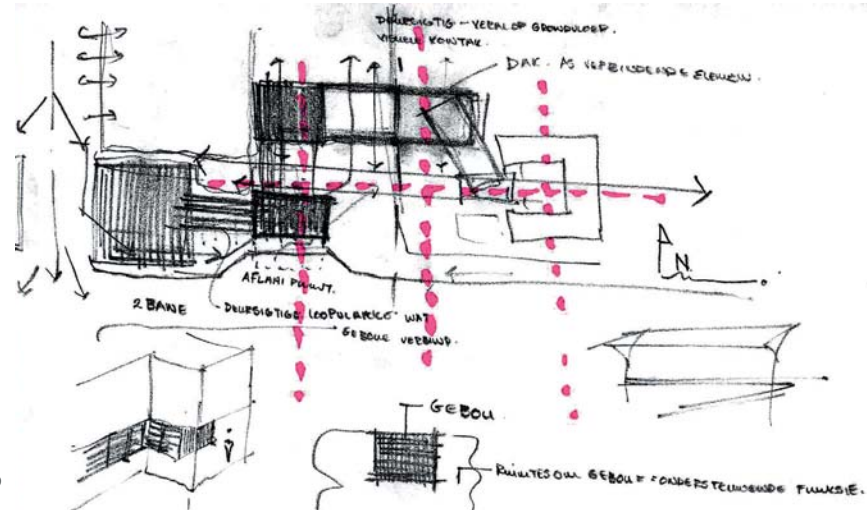


Figure 6.1.4

Working diagram 4: Pedestrian movement in the zoo forecourt

# The Result: The Zoo Forecourt Proposal

## Existing Zoological Gardens

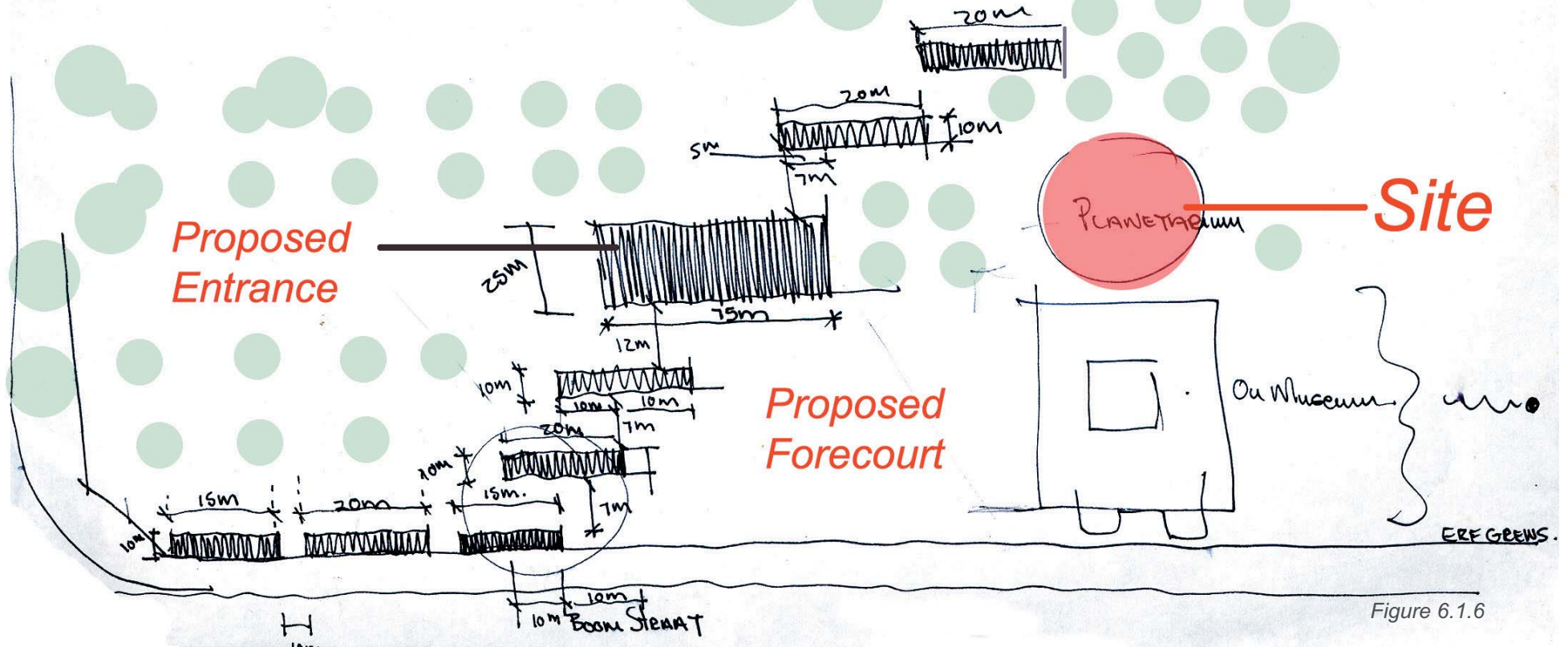


Figure 6.1.6

## Step 2: How to deal with the *historical museum*



Figure 6.1.9

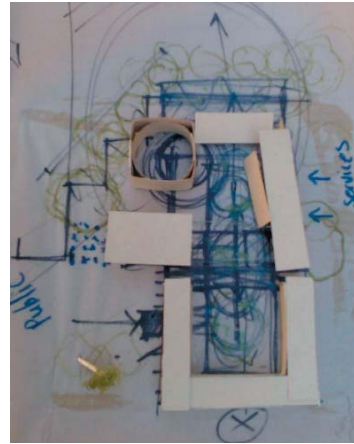


Figure 6.1.10



Figure 6.1.11

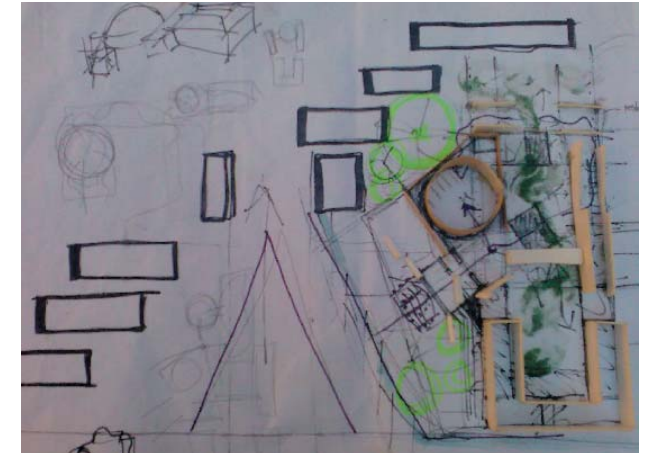
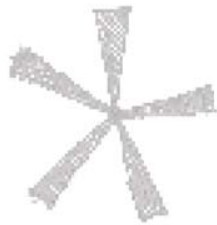


Figure 6.1.12



By considering the historical and cultural value of the neighboring Museum and the Zoo administration's current plans of renovating the building, it has been decided to *not physically touch the old building* but rather integrate it into the development by making use of a series of courtyard spaces that act as threshold spaces.

# The Result



Figure 6.1.13

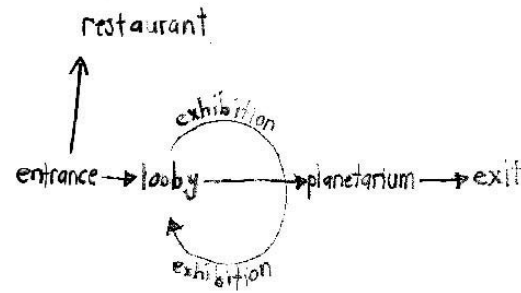


Figure 6.1.14

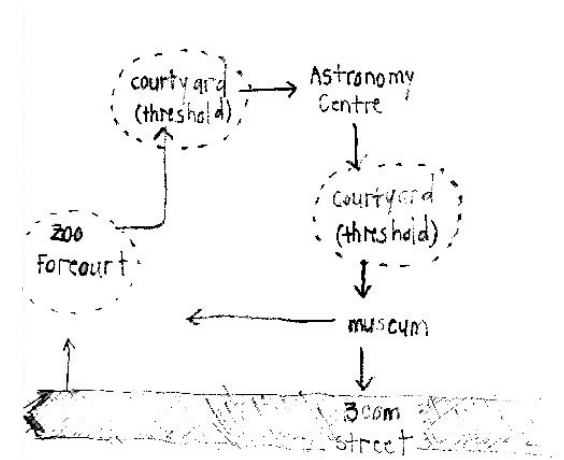


Figure 6.1.15

## Step 3: Understanding the *movement*

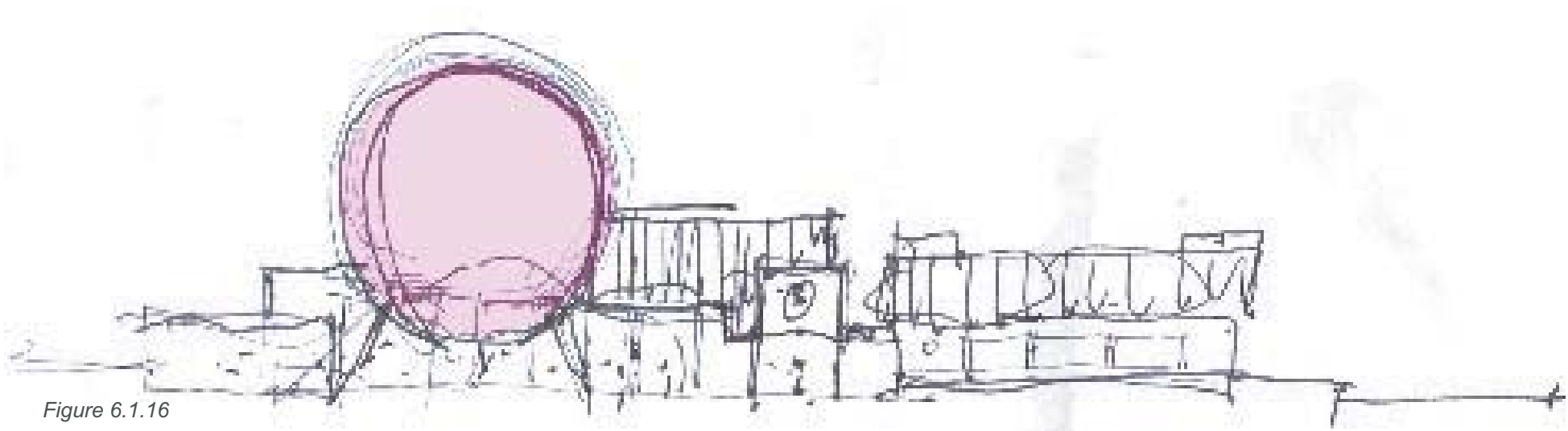


Figure 6.1.16

## 6.2 The *final concept* of the design of the Astronomy Centre

Design challenges and responses

As a result of the challenging site and unprecedented nature of project in the South African context, the following three determinants were considered to formulate the concept.

- The Context Study and Site Analysis
- The Precedent studies
- The Functional Requirements of the Facility



### The urban foyer

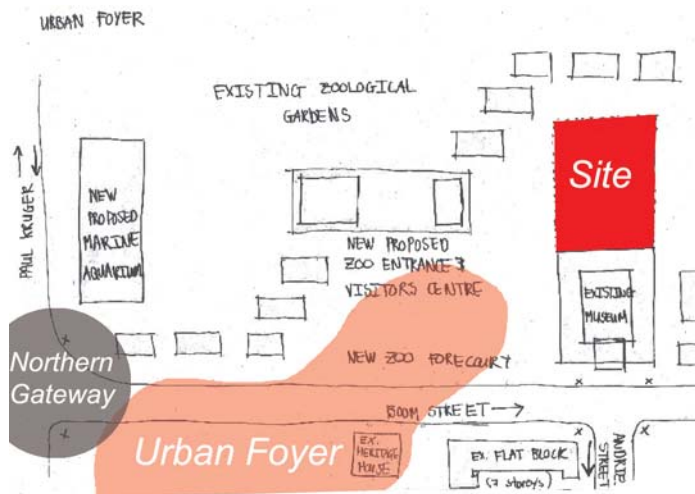


Figure 6.2.1

### Site indicators

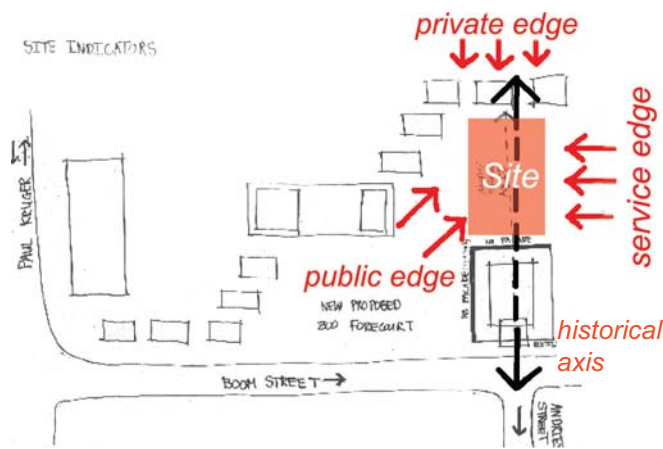


Figure 6.2.2

### The nucleus

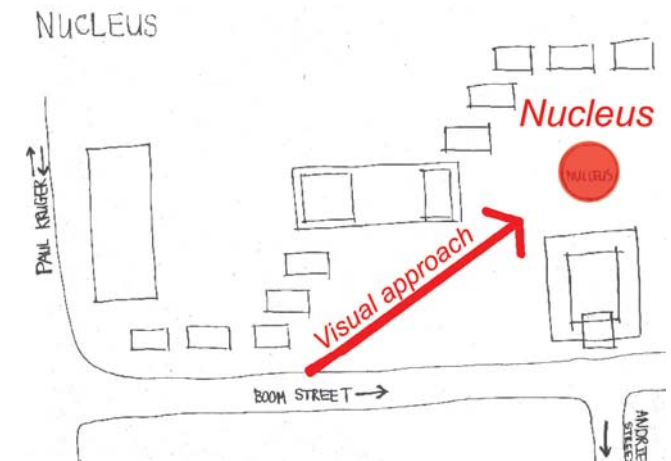
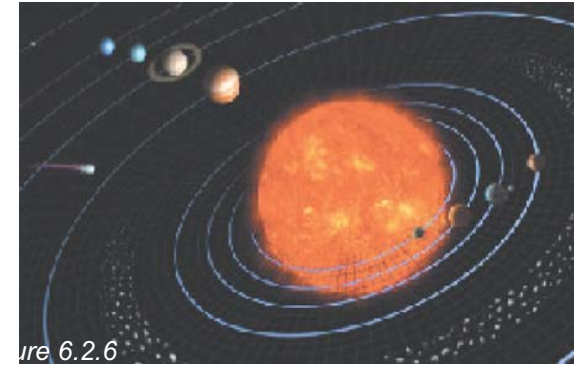


Figure 6.2.3



*Pedestrian approach:  
'Route of Exploration'*

*Series of rooms become a  
'sequence of events'*



Figure 6.2.4

Figure 6.2.5

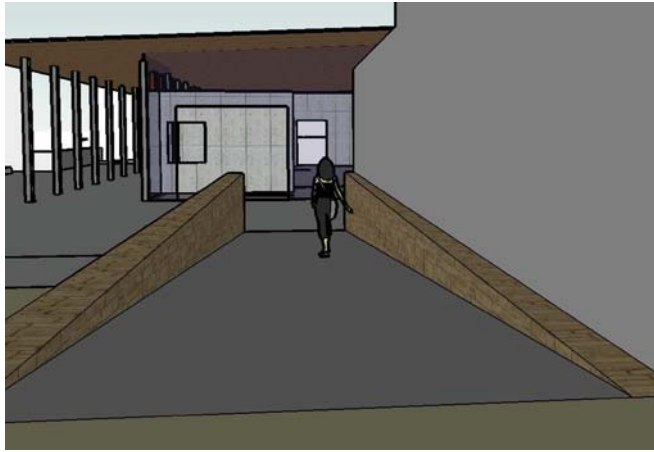
*The Cosmic Pathway : Movement becomes the mediator between space and time*

\* Pearson argues that space and time are the essence of the universe (Pearson 2000:110). In order to communicate this concept the visitor is led through a series of spaces that represents a series of cosmological concepts. The main objective of the design therefore becomes the development of a cosmic pathway which communicates the mysteries of the universe.

The concept that informed the movement route is that of objects orbiting around the nucleus. By taking advantage of the expression of architectural form of the sphere, the visitor is led on a journey in which different views of the nucleus will be experienced.

# The Narrative

In developing the narrative, the study on the existential expressive qualities of architectural form, discussed in the theoretical investigation, was considered to create a sequence of spaces that communicates concepts of the cosmos.



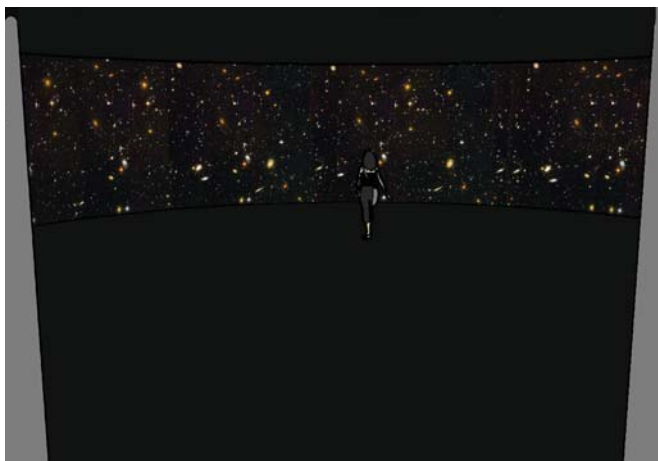
*Moment 1: The approach*



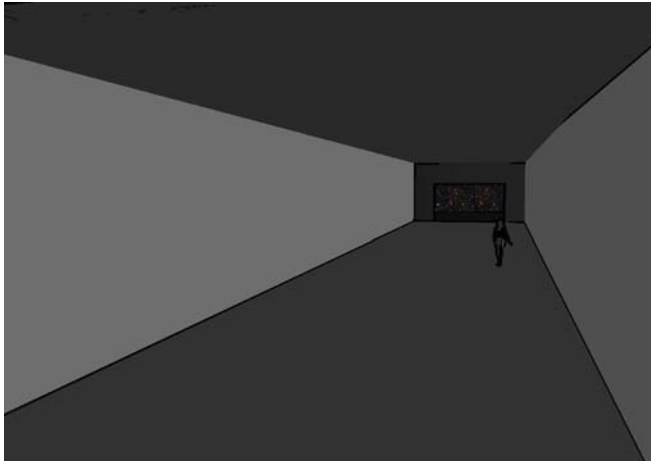
*Moment 2: The suggestion*



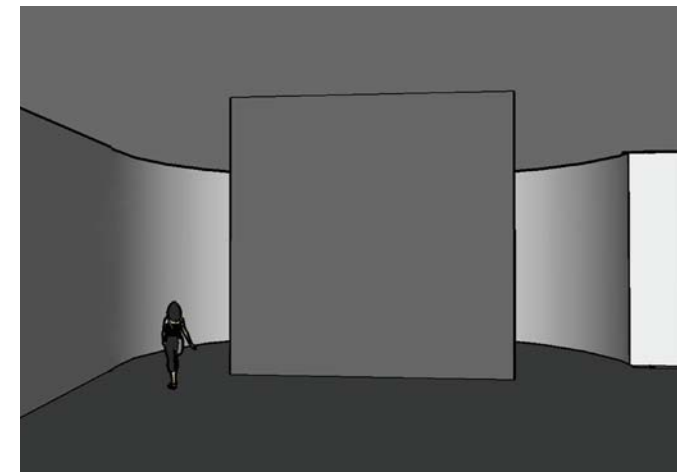
*Moment 3: Descent into solidity, entering earth*



*Moment 4: Explosion, the big bang*

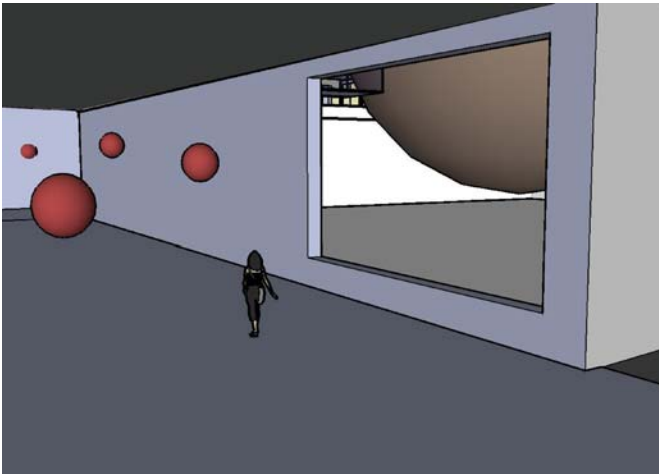


*Moment 5: Expansion, the universe*



*Moment 6: Infinity*





*Moment 7: Scale of celestial objects*



*Moment 8: Space contraction*



*Moment 9: Ascend to earth surface*



*Moment 10: Entering sky*



*Moment 11: Entering nucleus*



*Moment 12: Visual infinity*

### 6.3 Design development

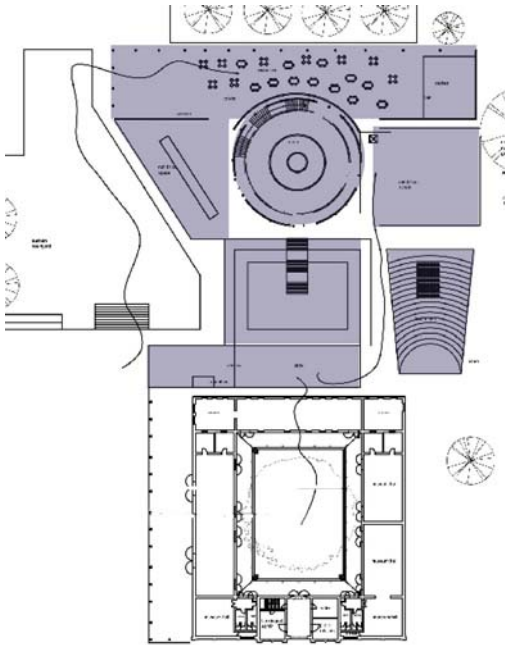


Figure 6.3.1

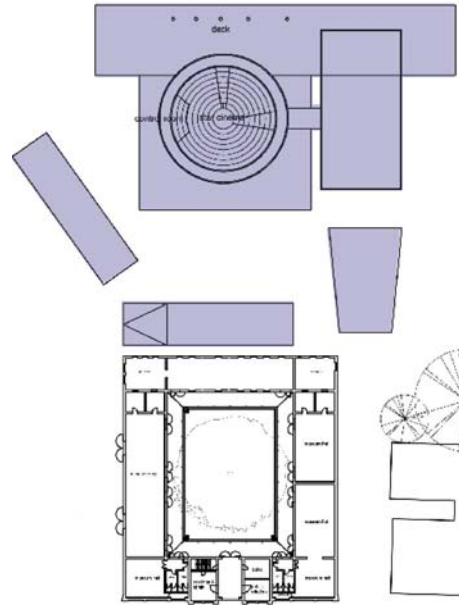


Figure 6.3.2

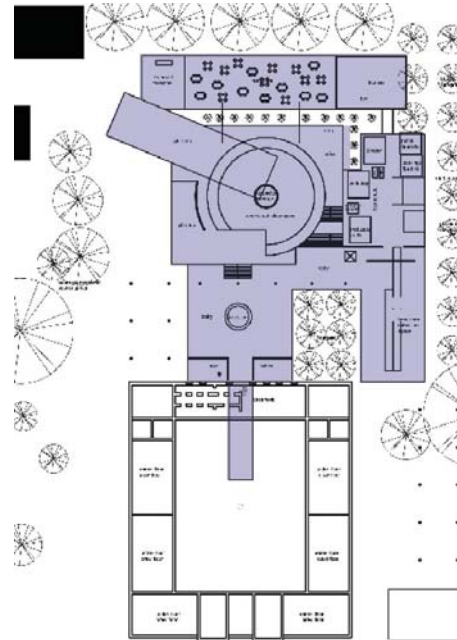


Figure 6.3.3



Figure 6.3.4

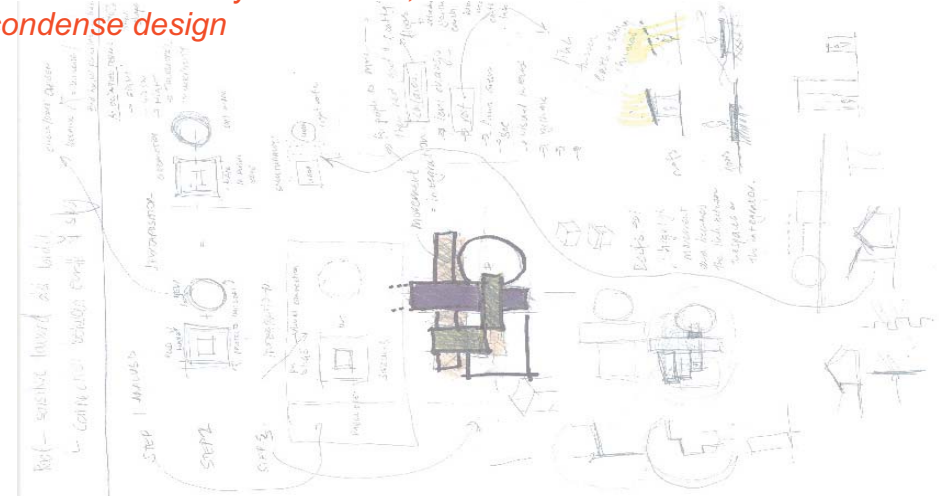
The entrance of the new structure becomes the link between old and new



Create a central courtyard

Discard secondary auditorium, condense design

Discard diagonal lines in plan



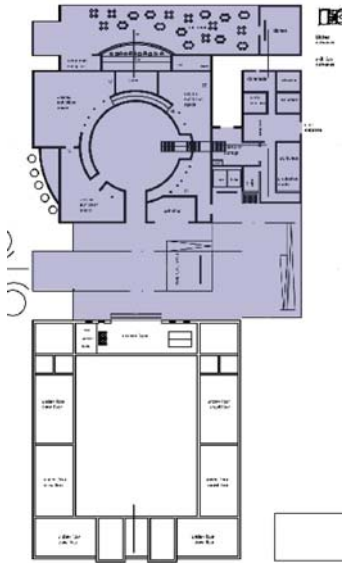


Figure 6.3.5

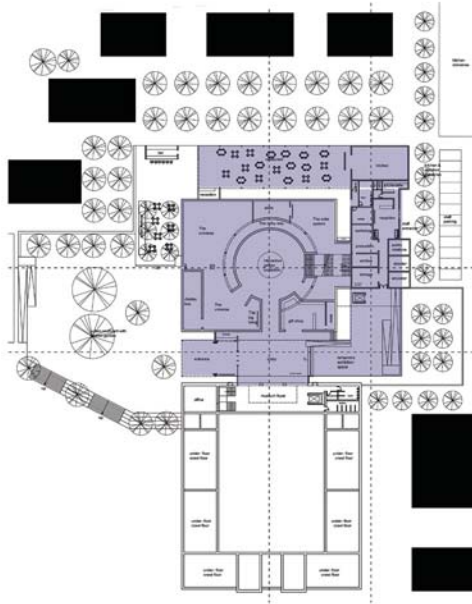


Figure 6.3.6

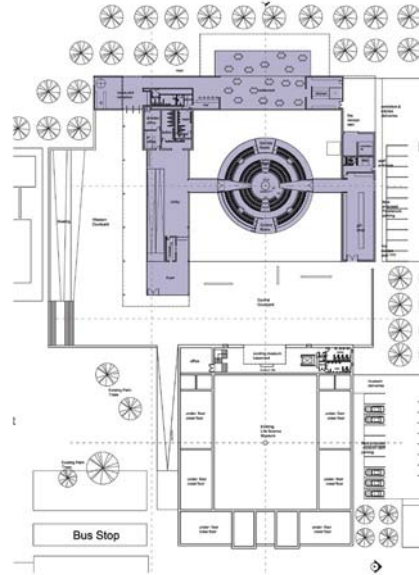


Figure 6.3.7

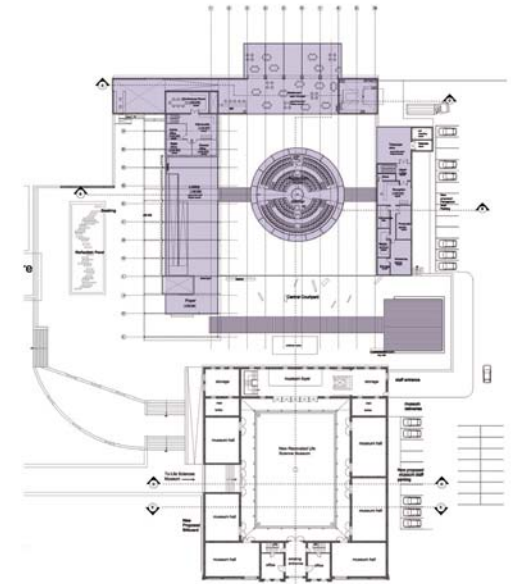
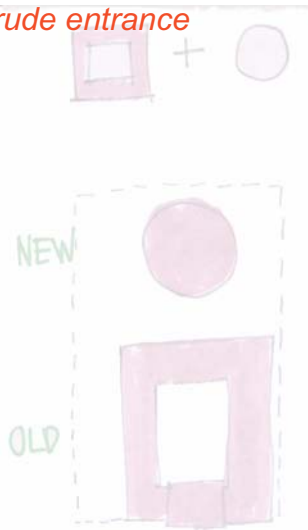
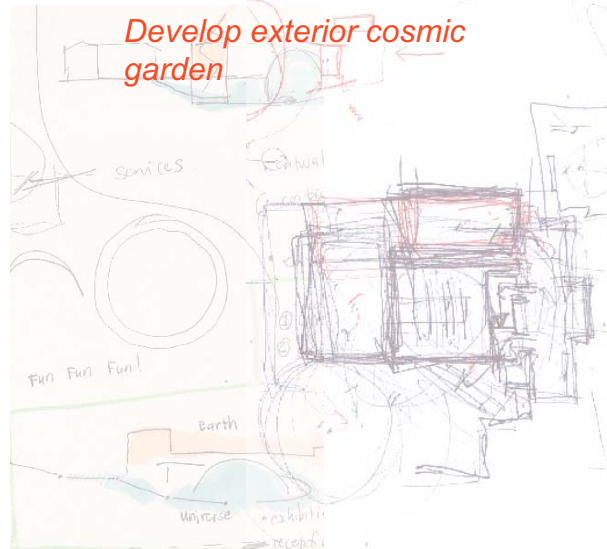


Figure 6.3.8

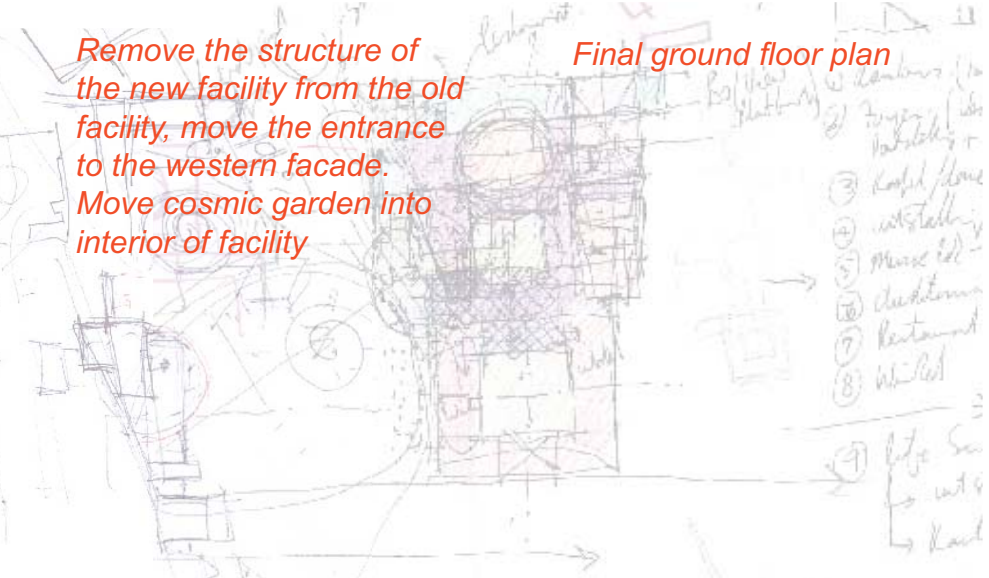
Extrude entrance



Develop exterior cosmic garden



Remove the structure of the new facility from the old facility, move the entrance to the western facade. Move cosmic garden into interior of facility



Final ground floor plan

- ① Auditorium
- ② Lounge / bar
- ③ Kitchen / cafe
- ④ restrooms
- ⑤ Museum
- ⑥ Exhibition
- ⑦ Restaurant
- ⑧ Workshop
- ⑨ Life Sciences
- ⑩ Library

The building becomes a path of discovery, problem solving becomes the adventure. The following are the interactive features incorporated into the design whereby the visitor learns by means of involvement :

Figure 6.2.10

- 1) The 13-billion year age of the universe is communicated by the length of the exhibition journey. Along the path it is indicated how many years have gone past. At the end of this pathway the age of mankind is represented by the width of a hair (figure 6.2.13).
- 2) The solar courtyard will be an interactive playground, accommodating object that teaches the user about scientific concepts (figures 6.2.7 & 6.2.8).
- 3) The solar system scale walkway is an interactive educational tool teaching the user about the scale of the solar system. The walkway is a route through the zoo that is proposed to be lit at night. It is designed relative to the nucleus of the design, representing the sun (figure 6.2.15).
- 4) The star stops are marked areas on the floor in the temporary exhibition space. These areas have corresponding skylights from where certain specific southern hemisphere constellations can be seen on the first day of every month at 8pm (figure 6.2.14).



Figure 6.2.7



Figure 6.2.8



Figure 6.2.9

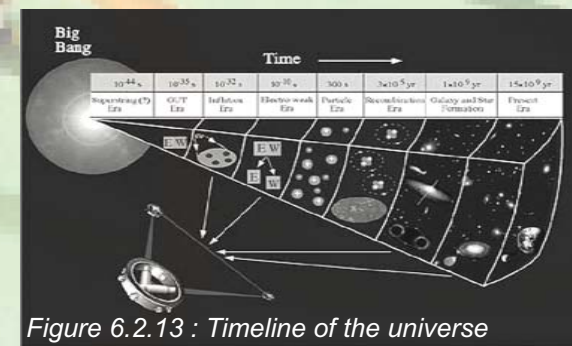


Figure 6.2.13 : Timeline of the universe

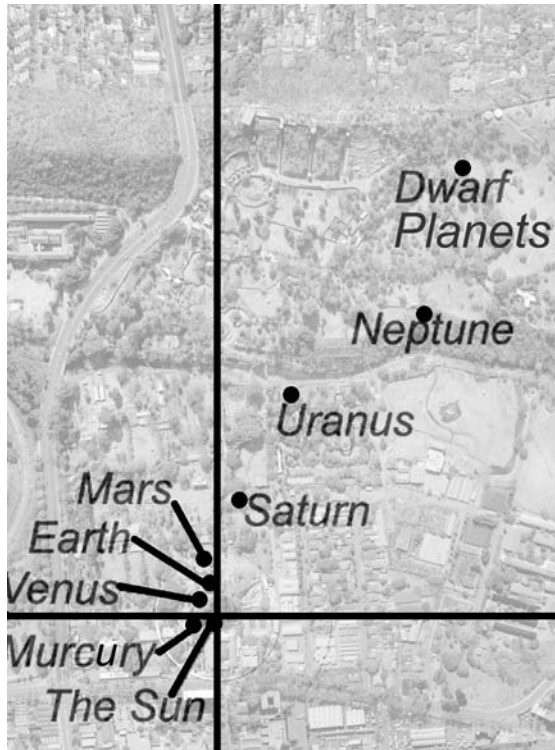


Figure 6.2.15 The solar system scale walkway



Figure 6.2.14 Diagram of a star stop

## Conclusion

In this chapter the process of the design of the astronomical centre and the various factors which were taken into account to formulate the concept were considered. It consequently discussed how the concept of the design was applied and developed.



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA



UNIVERSITEIT VAN PRETORIA  
UNIVERSITY OF PRETORIA  
YUNIBESITHI YA PRETORIA