



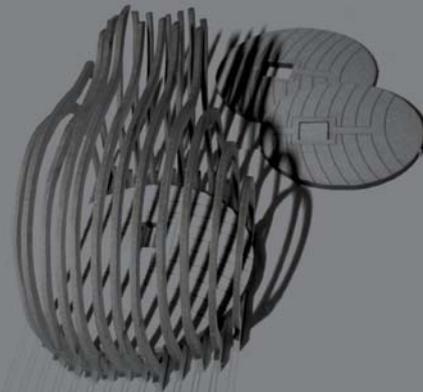
6. DESIGN DEVELOPMENT

The design development phase layers architectural body over the intuitive analogies and moulded form creation illustrated and discussed in the previous chapter. The same building is redesigned and reinterpreted throughout the process leading to a mythical, theoretical and site orientated structure. All phases are included in the dissertation to thoroughly communicate the processes involved in the making of this building.

The design authority becomes a dual imaginative venture (Jilk, 2005: 31-42); between the naive conceptual version of the designer (narrator) and the constrained rational designer who translates the multiple overlapping fantasies

into a complex layered reality; the intuitive development is reinterpreted and reworked.

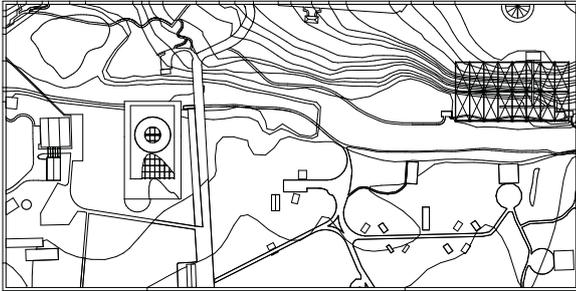
On a mythical level, the user is still seen as the avatar of Child and Animal refer to the Prologue for the mythological Anima – seen by the Author as the joint innocence or spirit of Child and Animal). Children are hypothetically the closest parallel beings to anima; unrationalised, unburdened by memory and visual intoxication. Children intuitively project imaginative meanings over objects creating personal or phenomenal landscapes.



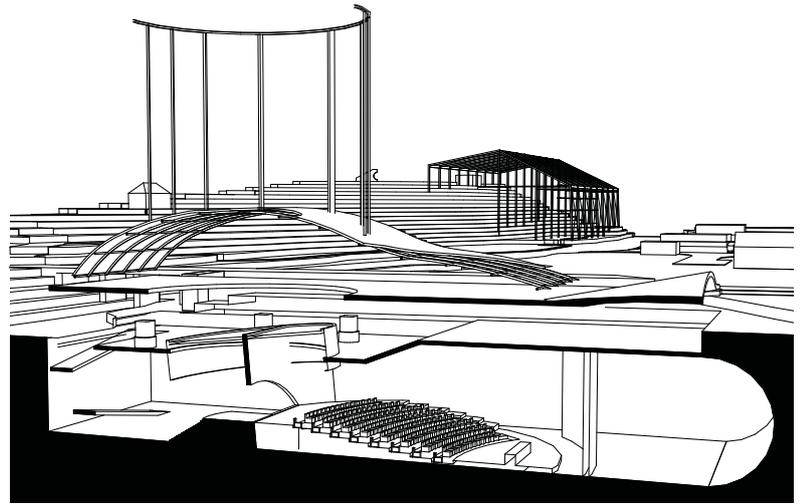
IMG 098: opposite: Framework abstracted from the calabash above: Model of framework for site model



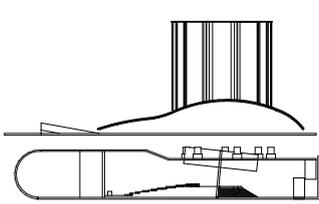
IMG 099: A selection of Initial model work exploring spatial possibilities during the interpretation of the conceptual work.



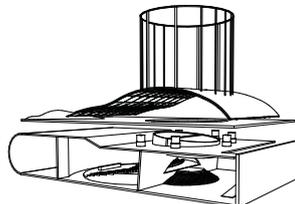
SITE PLAN INDICATING THE RELATIONSHIP BETWEEN THE BUILDING AND SITE



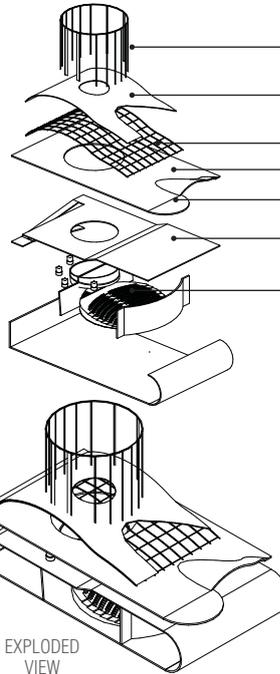
PERSPECTIVE SECTION EXPLORING A POSSIBLE VERTICAL HIERARCHY



SECTION

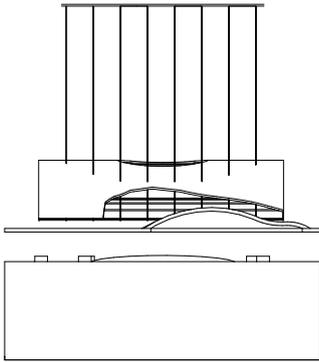


PERSPECTIVE

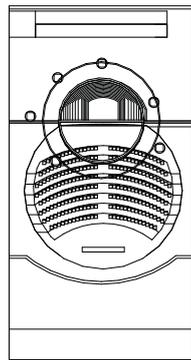


EXPLODED VIEW

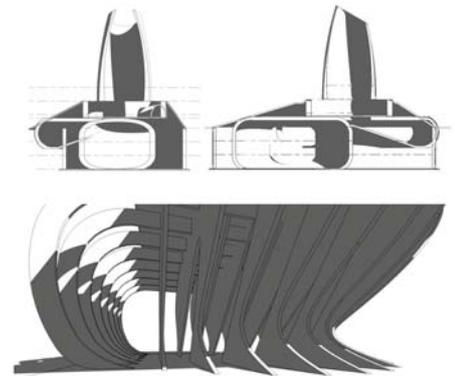
- ANIMAL EXHIBIT AND VIEWING TOWER
- LANDSCAPED ROOF TO SCULPT FLAT TERRAIN
- ROOF STRUCTURE
- GROUND LEVEL FOYER SPACE
- CAVE ENTRANCE
- INTERACTIVE VIRTUAL ZOO LEVEL
- AUDITORIUM



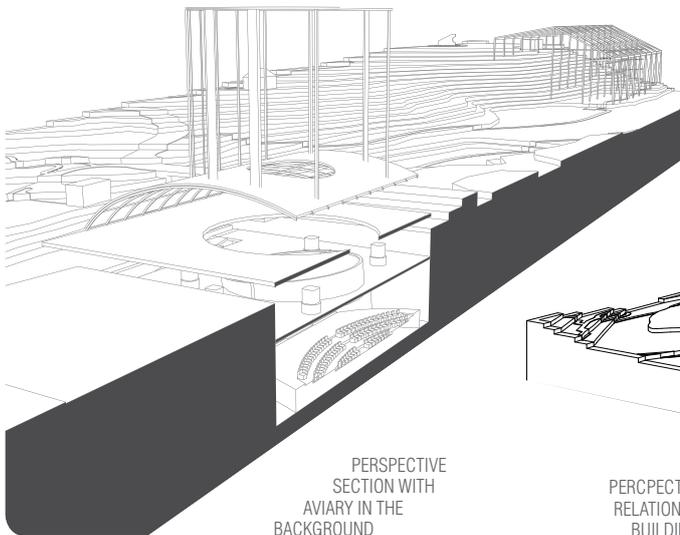
SECTION



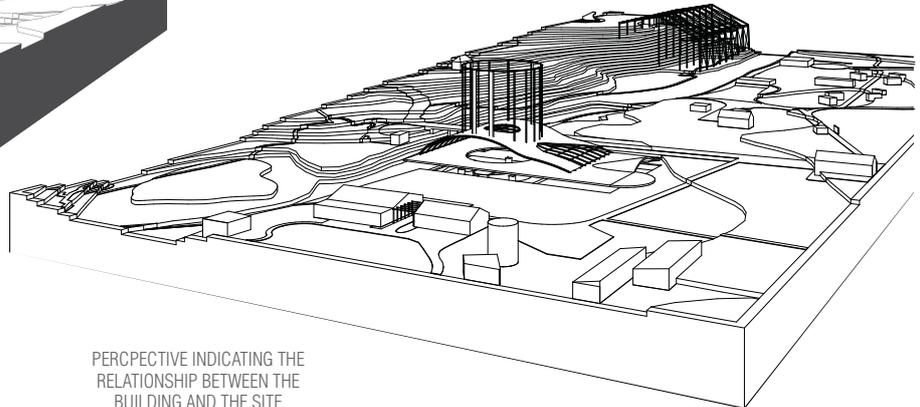
PLAN



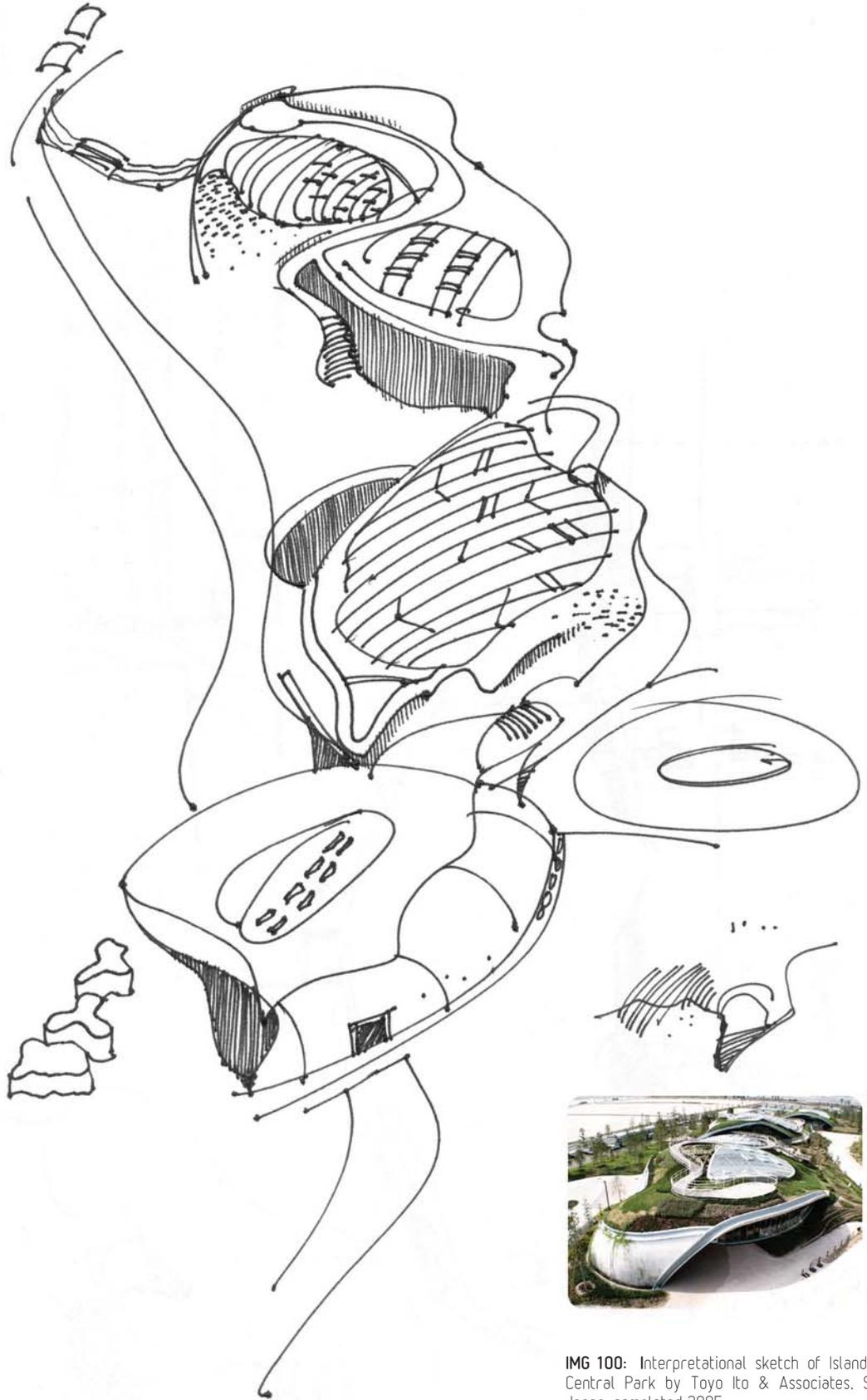
MODELS OF FURTHER EXPLORATION OF THE SPACES WITH A LITERAL INTERPRETATION OF THE CONCEPTUAL SKETCH WORK



PERSPECTIVE SECTION WITH AVIARY IN THE BACKGROUND

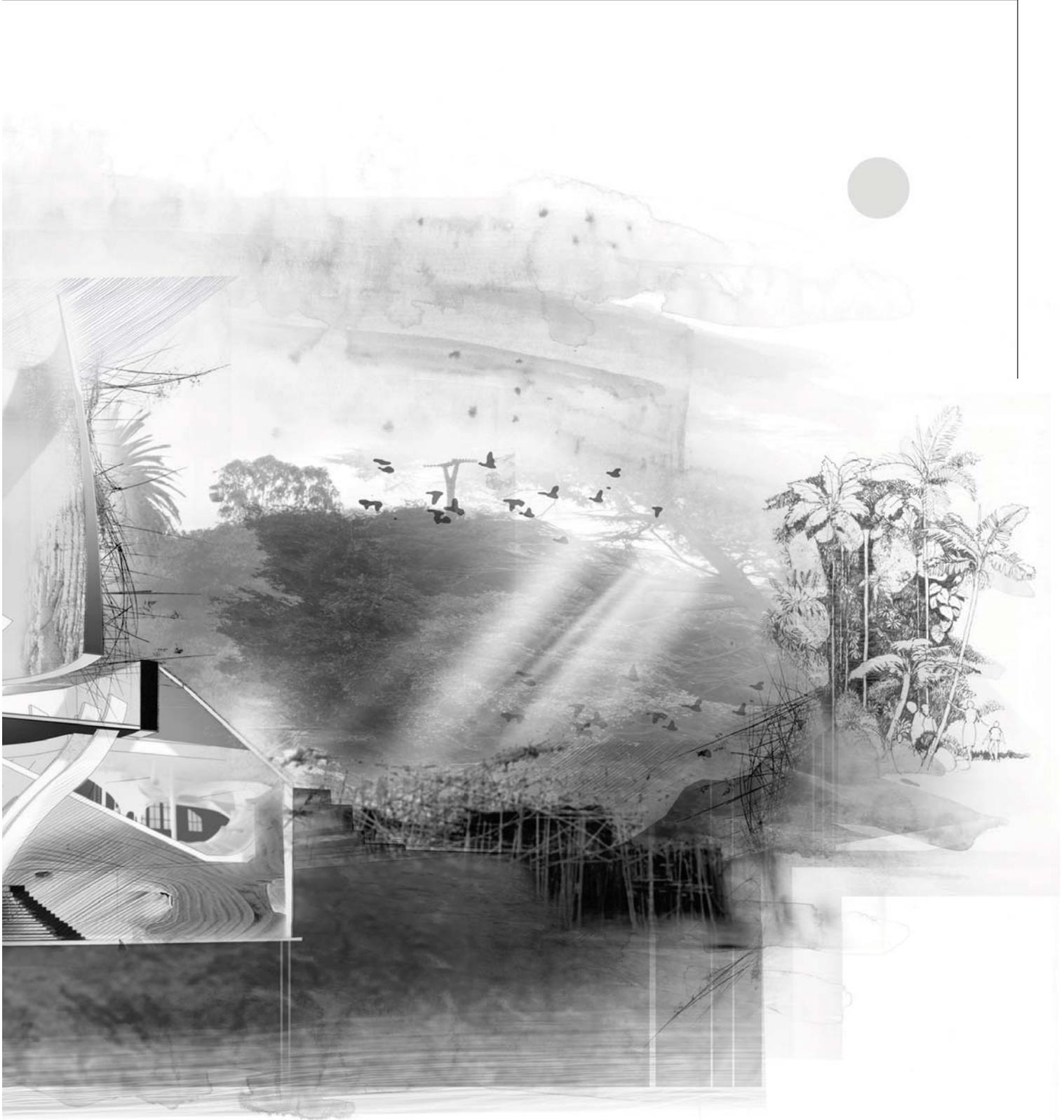


PERSPECTIVE INDICATING THE RELATIONSHIP BETWEEN THE BUILDING AND THE SITE



IMG 100: Interpretational sketch of Island City Central Park by Toyo Ito & Associates. South Japan, completed 2005



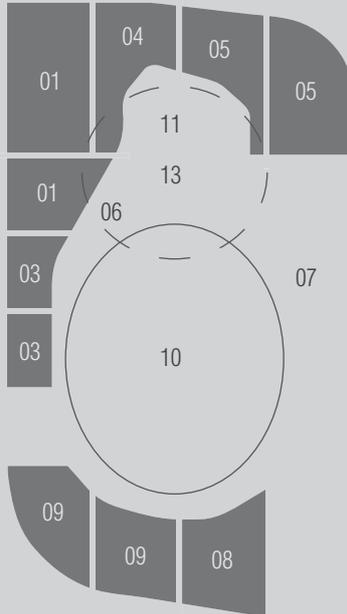


IMG 101: Conceptual sectional view of the building from the east. June 2011

Then, over time, we see a structure rise up, and as it takes shape, each part stands clearly revealed in relationship to the others and to the invisible law of gravity. When the building is finished, it must continue this act of revelation, demonstrating of what it is made, how it is made and the new forms it makes out of those constituent parts. It must undermine our glancing summation of everything around us into base reality and repeatedly challenge our attempts to comprehend our world in such a totalizing manner. (Betsky, 2000: 19)

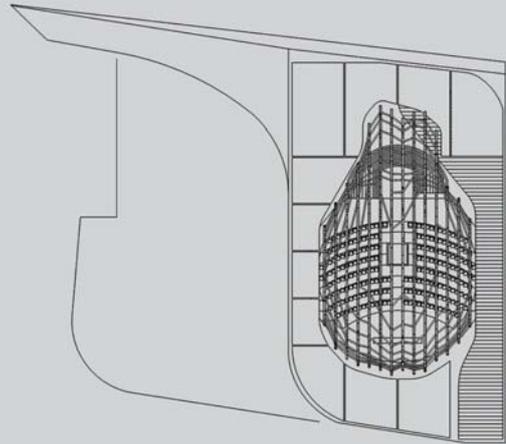
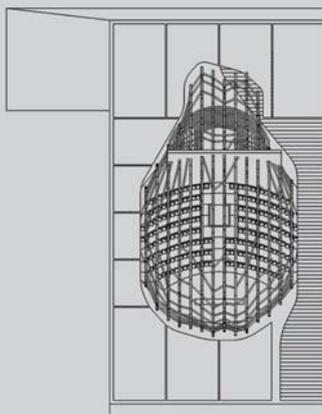
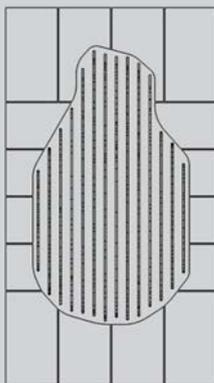
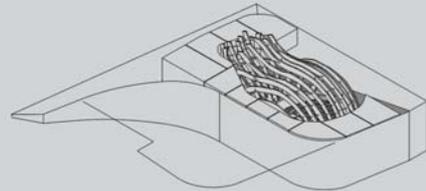
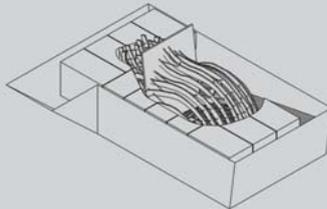
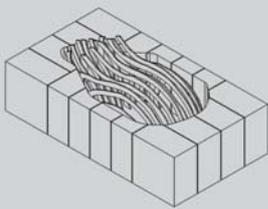
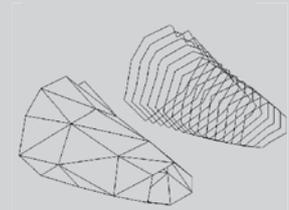
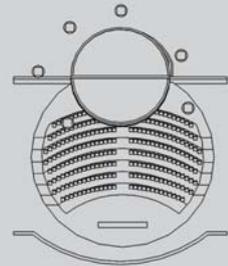
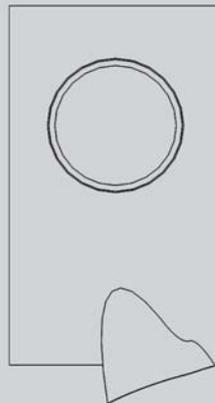
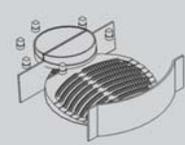
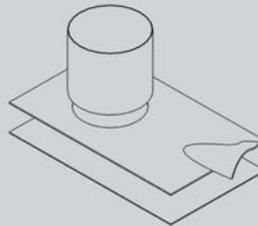


INITIAL LAYOUT

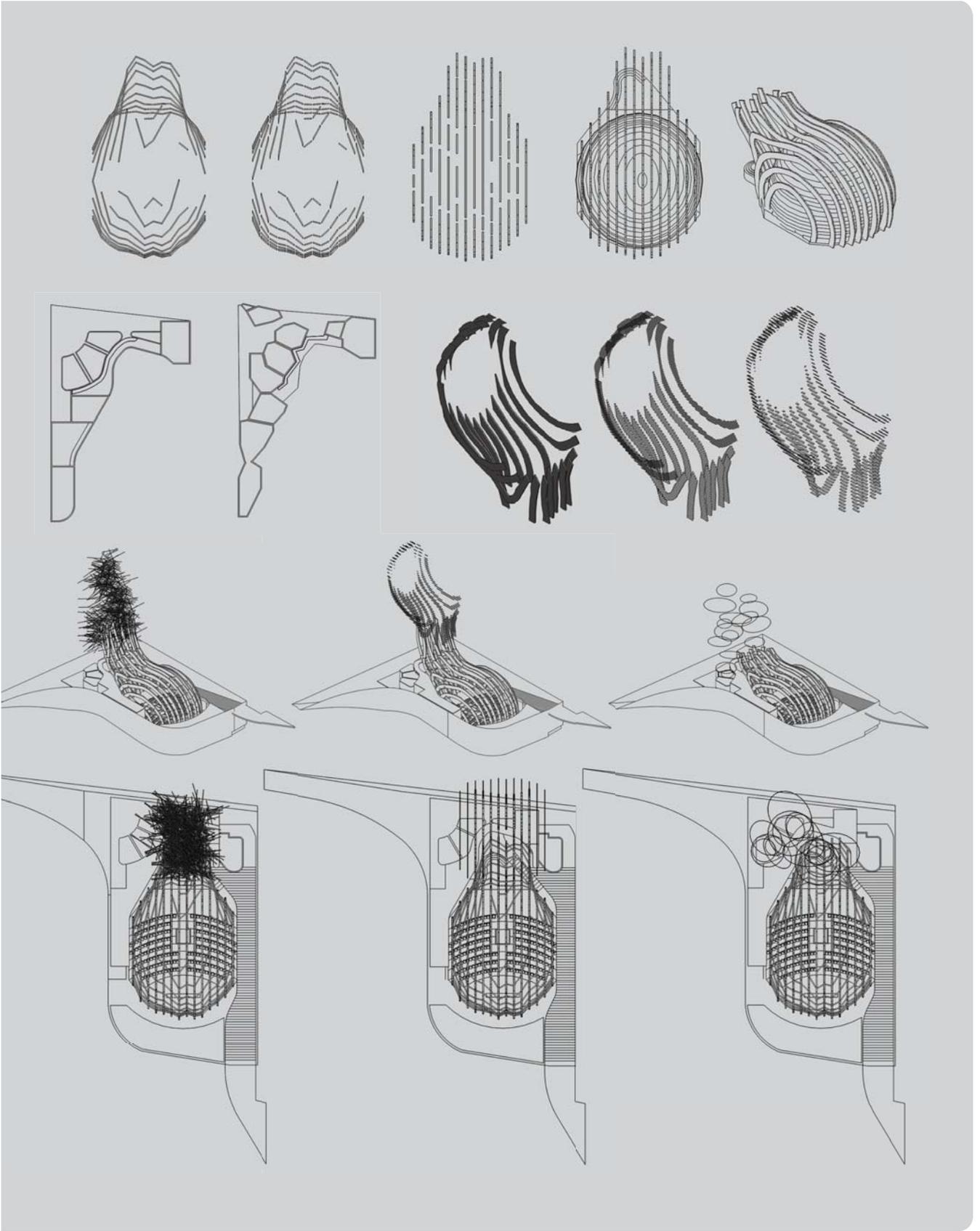


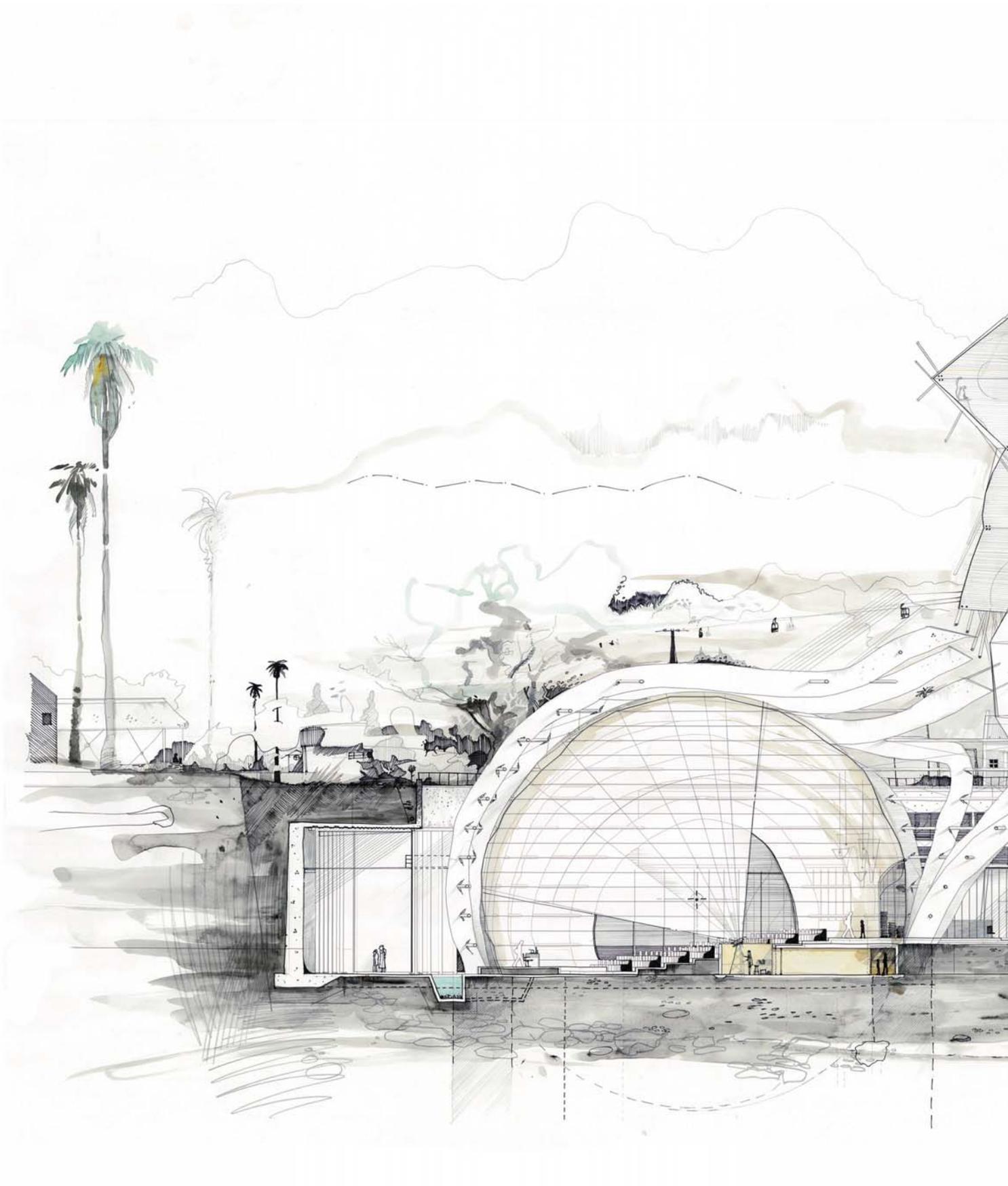
- 01 NIGHT ROOMS
- 02 RESEARCH ROOM
- 03 VIDEO ANALYSIS
- 04 STORE AND HYGIENE
- 05 CLINICAL UNIT
- 06 REFRESHMENTS
- 07 ABLUTIONS
- 08 STORE
- 09 BACKSTAGE
- 10 AUDITORIUM
- 11 EXHIBITIONS
- 12 ANIMAL EXHIBITION & VIEWING TOWER

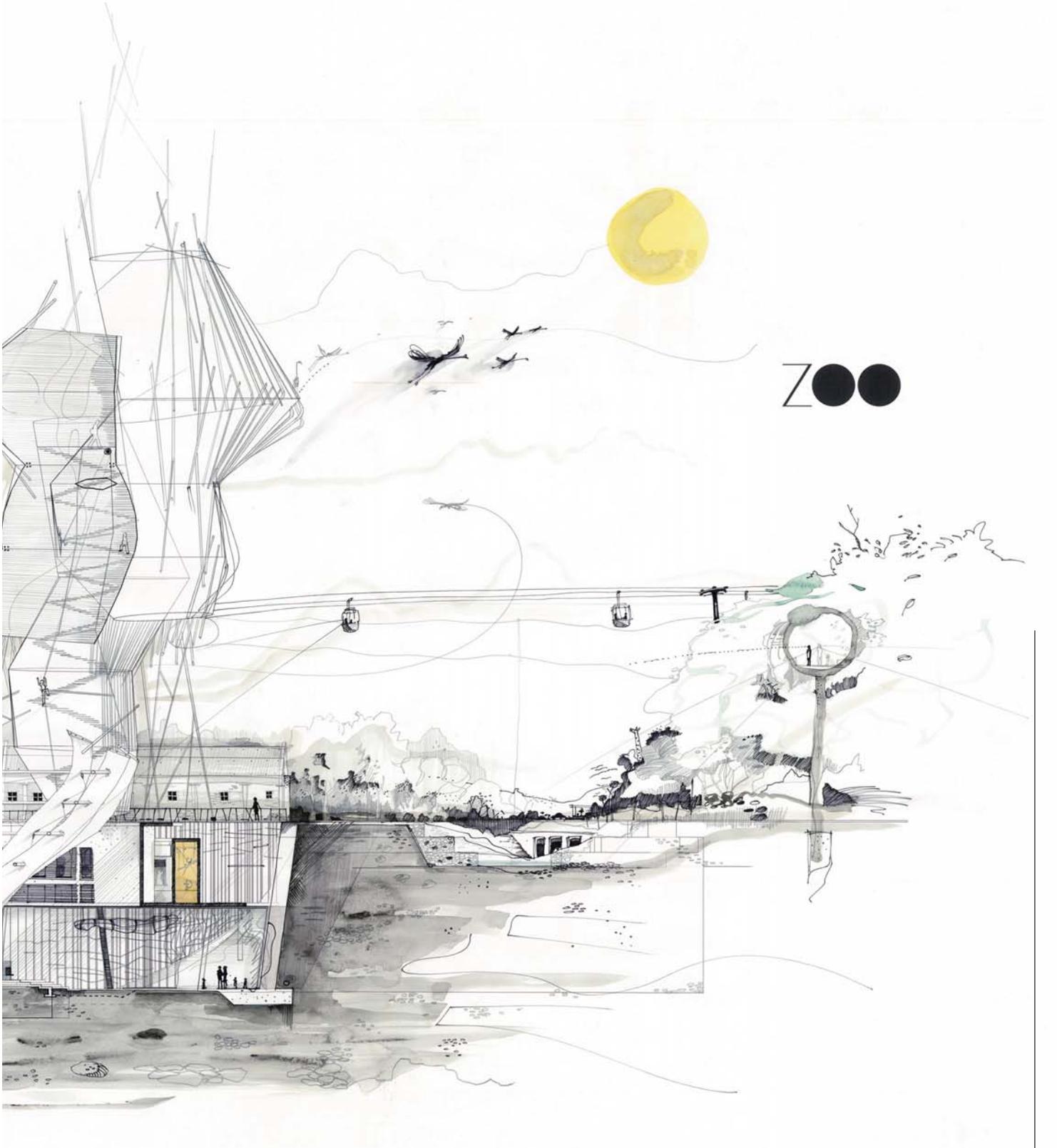
SPATIAL DEVELOPMENT



IMG 102: Establishing the primary programmatic components of the building, June 2011







IMG 103: Conceptual sectional view of the building from the east. July 2011

The Maropeng Visitor Centre

Architects: GAPP Architects and MMA (Mphethi Morejele Architects).

Client: 'a Afrika Leisure' (Pty) Ltd; Opening of facilities: December 2005

The Maropeng Visitor Centre is an award winning exhibition, focusing on the development of humans and our ancestors over the past few million years' (IMG 106), and forms part of the greater Cradle of Humankind site⁶. Maropeng is finally fulfilling its destiny as a foremost, undeniably important World Heritage Site. GAPP, in association with MMA, commenced the development of the site in 2000, shortly after its declaration as a World Heritage Site in December 1999 (GAPP, 2011).

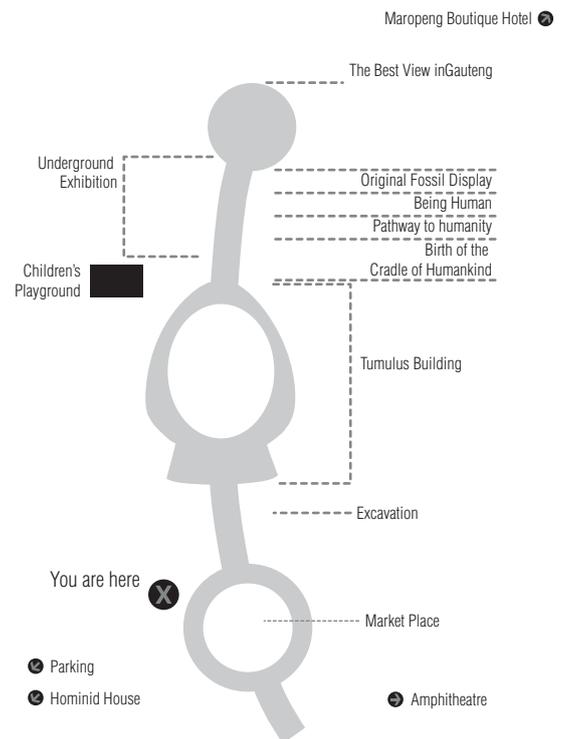
The precedent was chosen on the basis of the designed or themed experience, which addressed the same issues of representing a themed concept through appropriate architectural intervention (IMG 022).

Maropeng means 'returning to the place of origin' in Setswana, the meaning and spirit of The Cradle of Humankind is derived from the Sterkfontein caves and the new interpretation is reflected in the Maropeng development that is focused around the Tumulus and Museum Cave.

The educational exhibition is laid out in the building called the Tumulus, a tall grass covered earthen mound representative of early hominid burial mounds (IMG 108). The Tumulus Building is also referred to as an enormous buried fossil, with concrete 'bones' sticking out the top and serves as the gateway to the interactive museum experience (Maropeng, 2011).

The journey through the exhibition is themed around a journey of discovery from the beginnings of the world, through the history of humankind, right into the future. From the Tumulus, visitors descend into a 'cave' where they take a boat ride on a subterranean lake. Visitors are then treated to a 'journey through time', beginning with the fossil finds of our earliest ancestors, ending in a small, natural amphitheatre with a spectacular view down the central valley, fringed by layers of mountains (GAPP, 2011). At the end of the boat ride visitors enter the interactive exhibition space which is self guided and introduces visitors to the concepts of evolution, extinction and genetics.

The building itself embodies the link between past and future; the front of the building representing a burial mound is transformed into a glass, hi-tech and futuristic facade to the back of the building or exhibition exit (IMG 105). Parts of the development is hidden between the hills on the site; this aspect forms part of the Maropeng experience by encouraging the visitor to discover more, to dig deeper as a metaphor for the archaeological and palaeoanthropological work so strongly related to the Cradle (Maropeng, 2011).

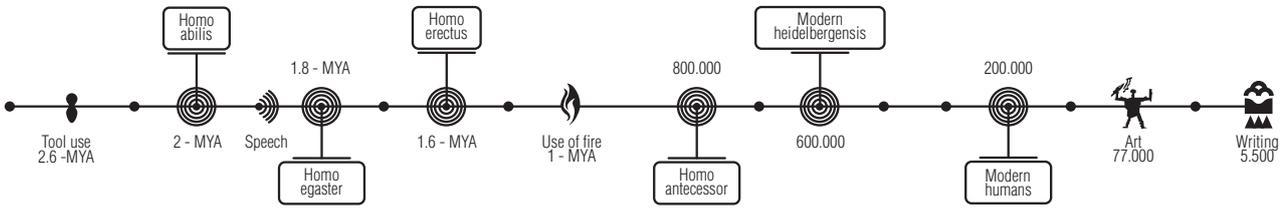


IMG 104: Map of the Maropeng facilities to orientate visitors

IMG 106: opposite: Diagram adapted from the Maropeng exhibition



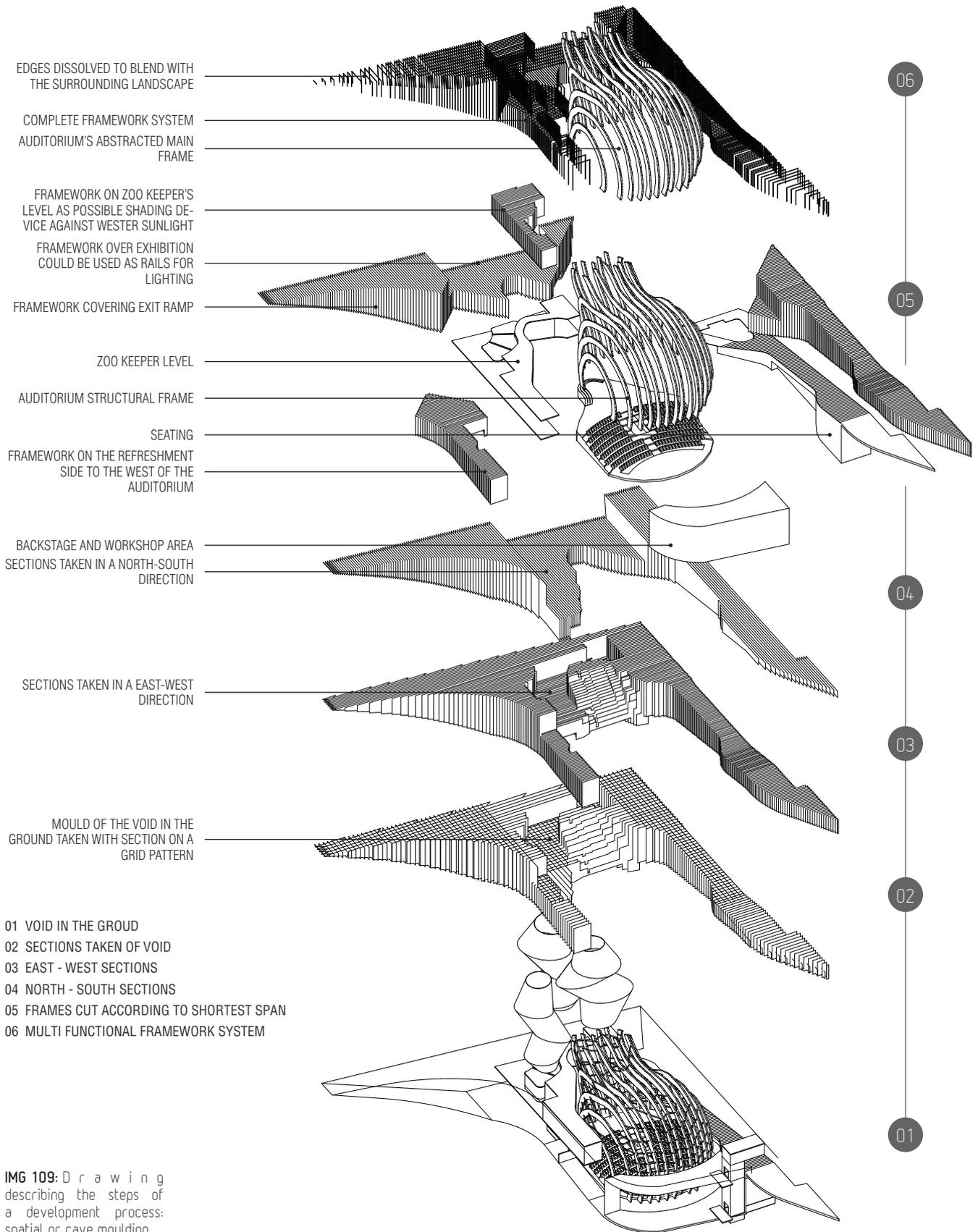
IMG 105: left to right: Approach to the Tumulus building (burial mound). Natural amphitheatre with futuristic facade in the background. Material selection



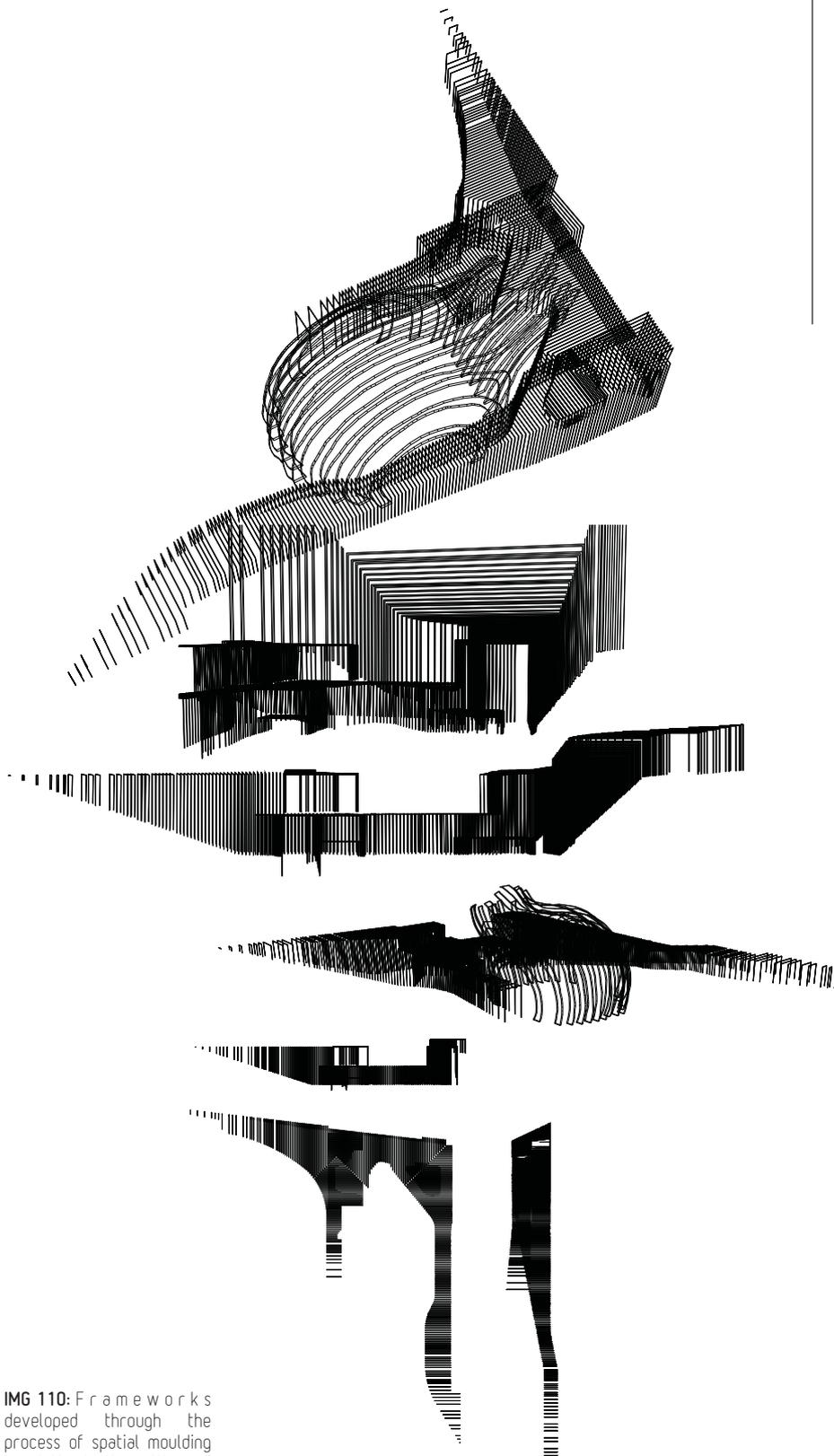
IMG 108: The natural Tumulus building (burial mound) covered with grass



IMG 107: Artificial lighting on frames and lighting effects within the hidden immersive experiences : main exhibition space



IMG 109: Drawing describing the steps of a development process: spatial or cave moulding

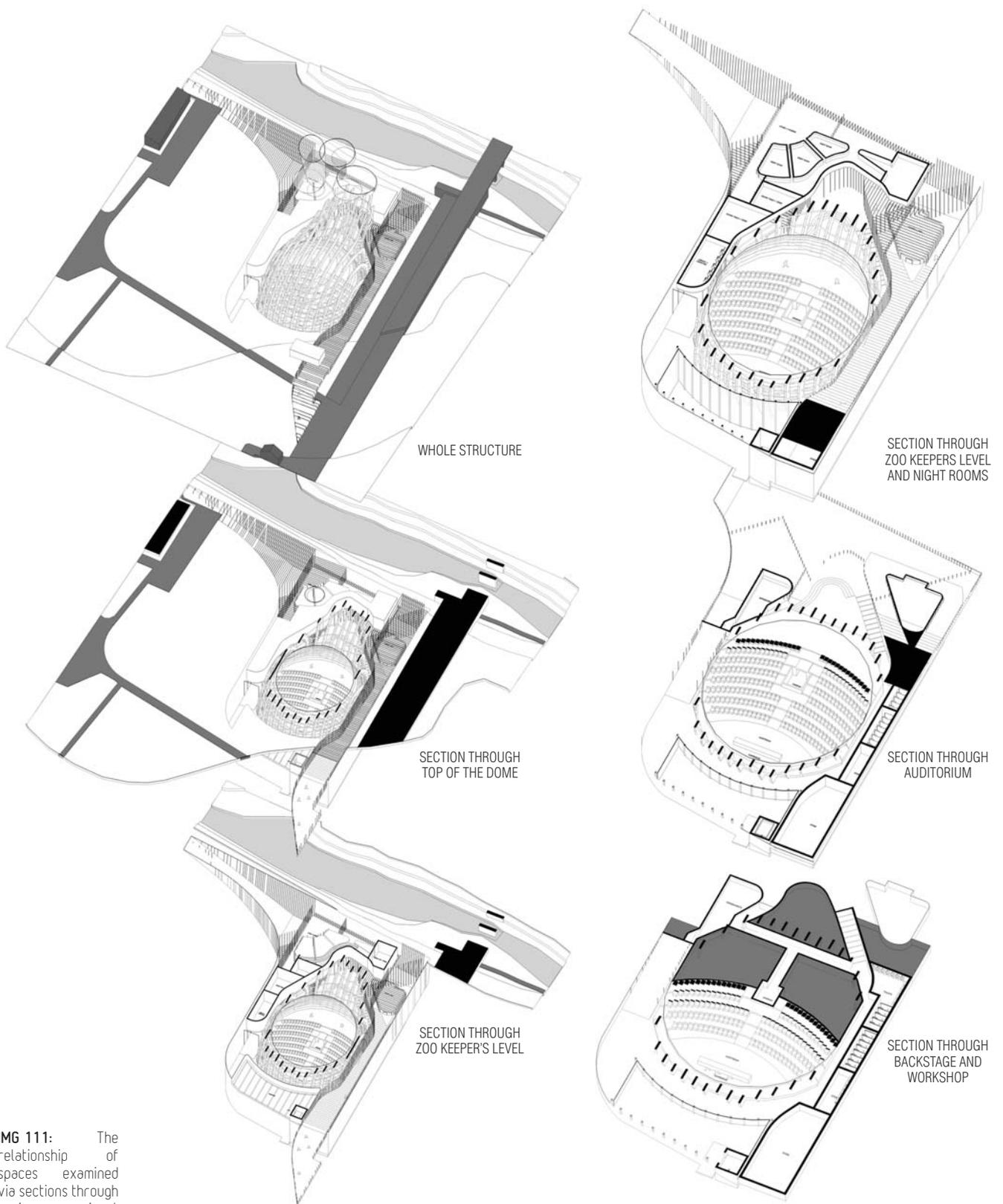


IMG 110: Frameworks developed through the process of spatial moulding in relation to the outlines of the main structural dome

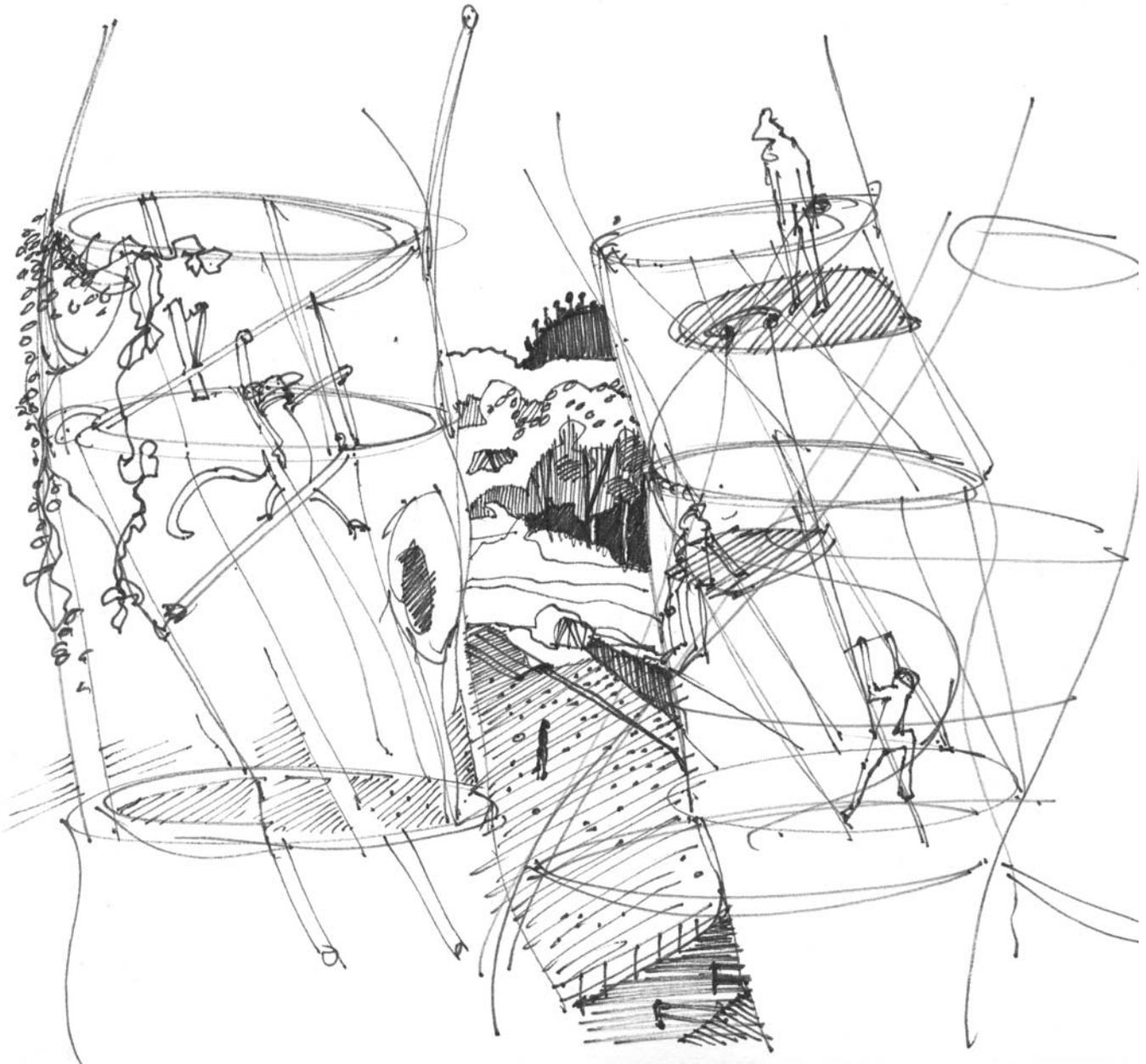
The framework system developed from a spatial moulding exercise (IMG 109). During the exercise the exterior spaces were divided into sections along the north-south (main pathway in line with the bridge) and east west (Apies River) axis. The initial objective was to make the excavated or burrowed space a visible entity, in other words to mould the space and interpret it into object. The resulting geometry created such a strong language that it was developed into the steel framework or portal frame structure. As the visitor enters the structure the perspective creates the effect of an enclosed passage or tunnel; however as the visitor progress through the structure the sides gradually open up.

With the addition of crawler plants the frameworks can provide shaded entrance and exit pathways during the summer months; a platform is also created for the picnic terrain to flow over the barrier walls of the building creating the illusion of the structure rising through the surface like growing roots. The dried out plant material can be weaved into the structure during the winter months creating a crafted entrance experience; thus the plants will seasonally establish new relationships with the architectural structure. The natural elements will be allowed to overwhelm the architecture blurring the boundary between structure and landscape (The Imagineers, 2007). The natural growth will further assist with creating a high contrast between the gardens and the immersive virtual environment in the interior of the domed theatre.

In addition the structure will be used as lighting rails for the exhibition spaces (IMG 107), and it provides a basic organizational element to assist with the installation of exhibits.



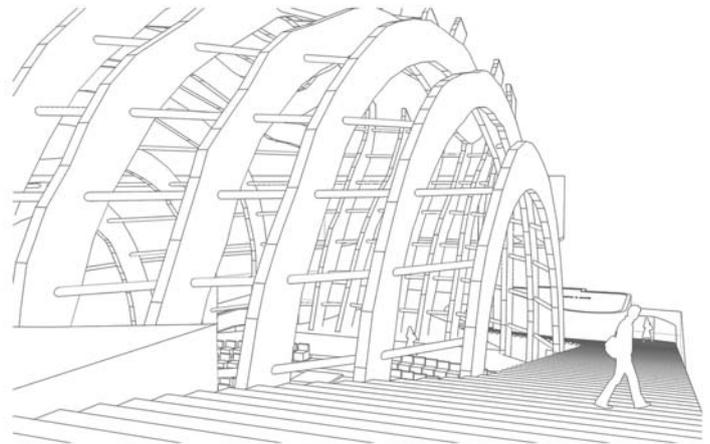
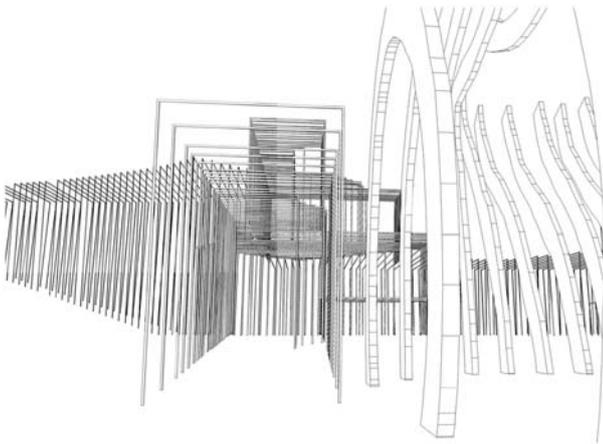
IMG 111: The relationship of spaces examined via sections through various prominent levels from ground level downwards



IMG 112: Sketch of the exhibition towers for Animal and a viewing or climbing tower for Man

The exhibits in the form of viewing or climbing towers allow the primates to move vertically creating a more favoured environment for primates (Mallapur, 2005). Animals will move from the indoor facilities (night rooms) to the outdoor exhibit tower as the keepers permit⁹. Viewing towers allow the visitors to mimic primate climbing behaviour and interact with the animals on their natural level. Behavioural enrichment features should include sway poles and artificial branches; natural plant material can serve as plant based enrichment.

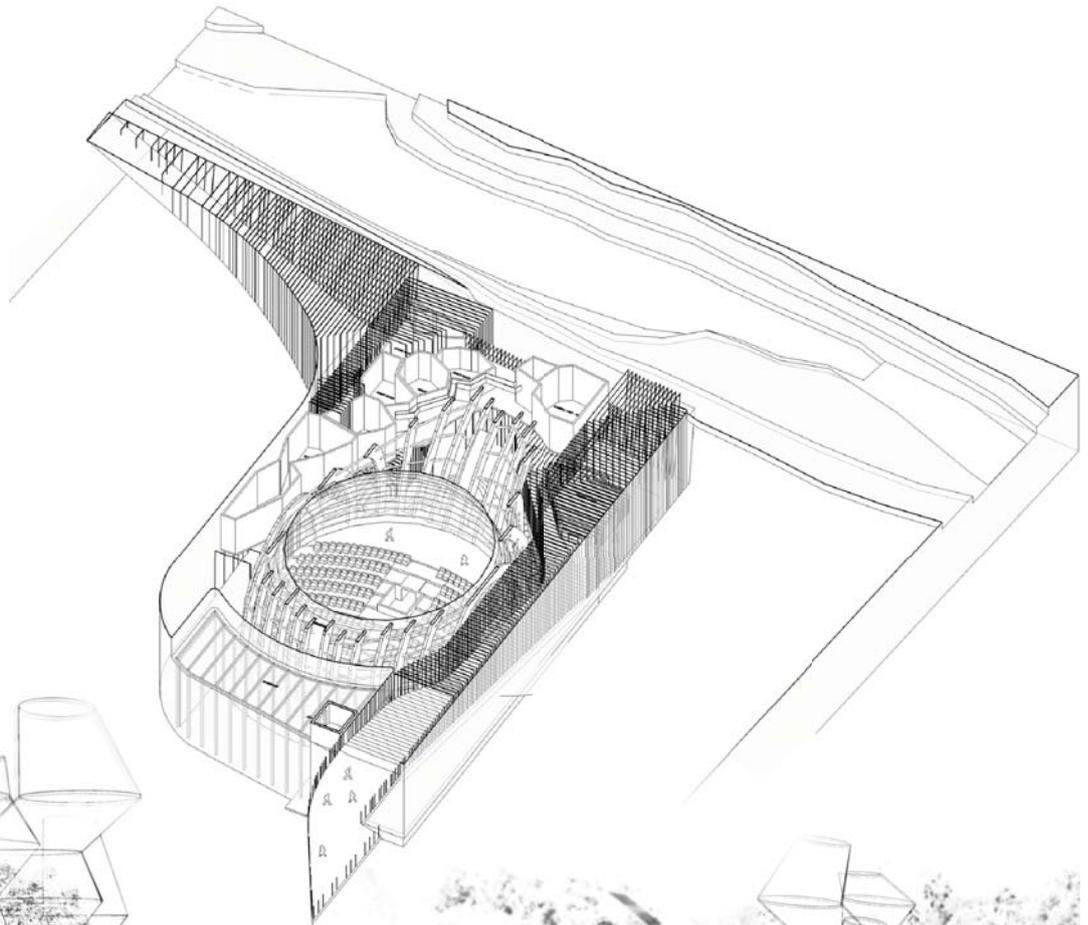
Plant based enrichment can provide environmental enrichment for the primates. According to Frediani (2009: 29-52) The focus of enrichment to date has been on tactile, olfactory and visual methods of sensory stimulation. Additional sensory modalities which could be stimulated through plant enrichment include auditory and equilibrium (orientation in space and time). Animals (and their keepers) can gain a lot from enlightened plant use through exploring physical and psychological stimulation and maintaining systematic records that are shared to enable study and replication elsewhere.



IMG 113: above left:
View through the framework system

IMG 114: above right:
The view on entering the building

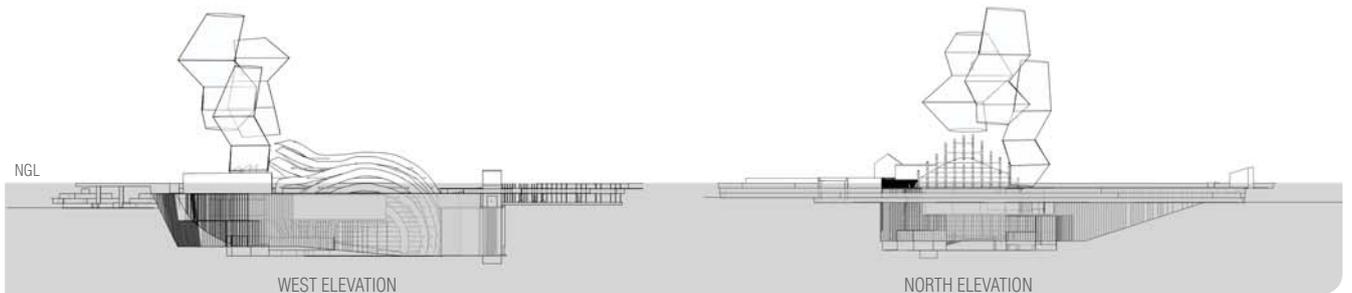
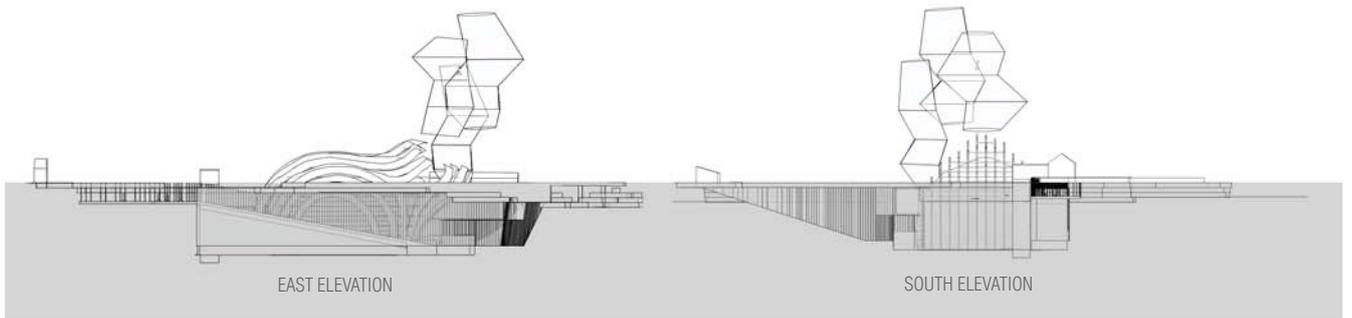
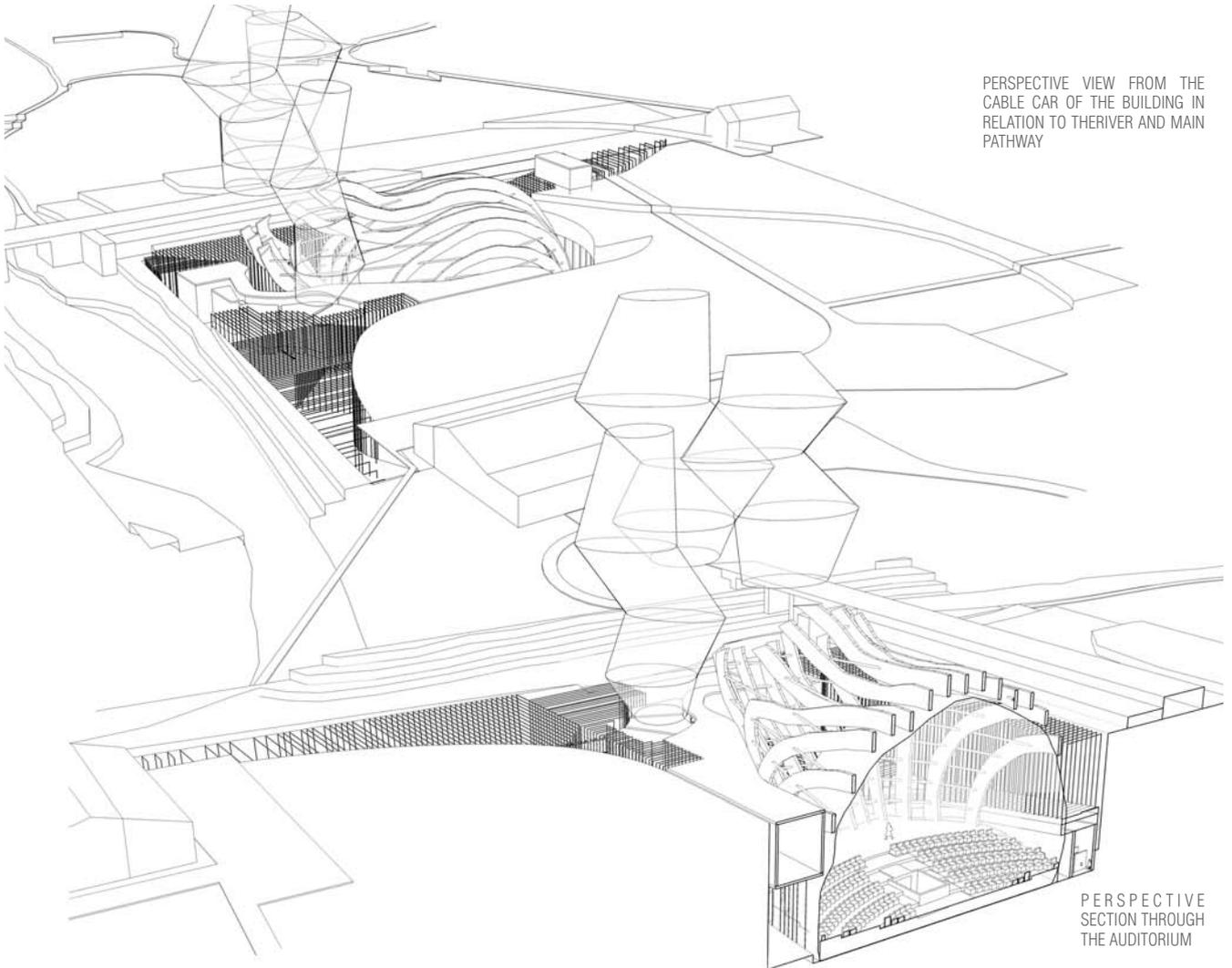
IMG 115: r i g h t :
Section taken on ground level indicating the reinterpreted version of the zoo keeper's level

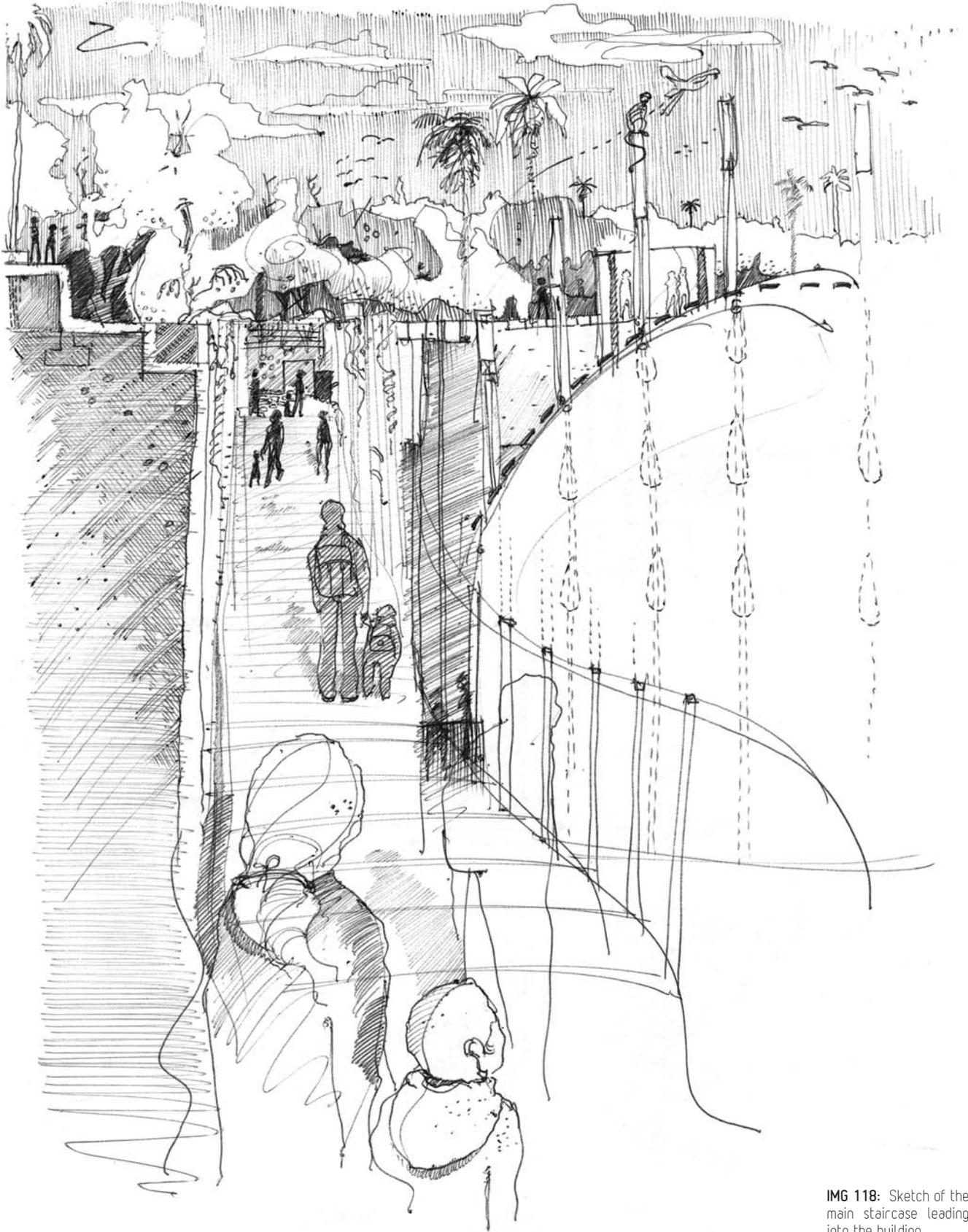


IMG 116: b e l o w :
Building set within the landscape as viewed from the river and the cable car system respectively

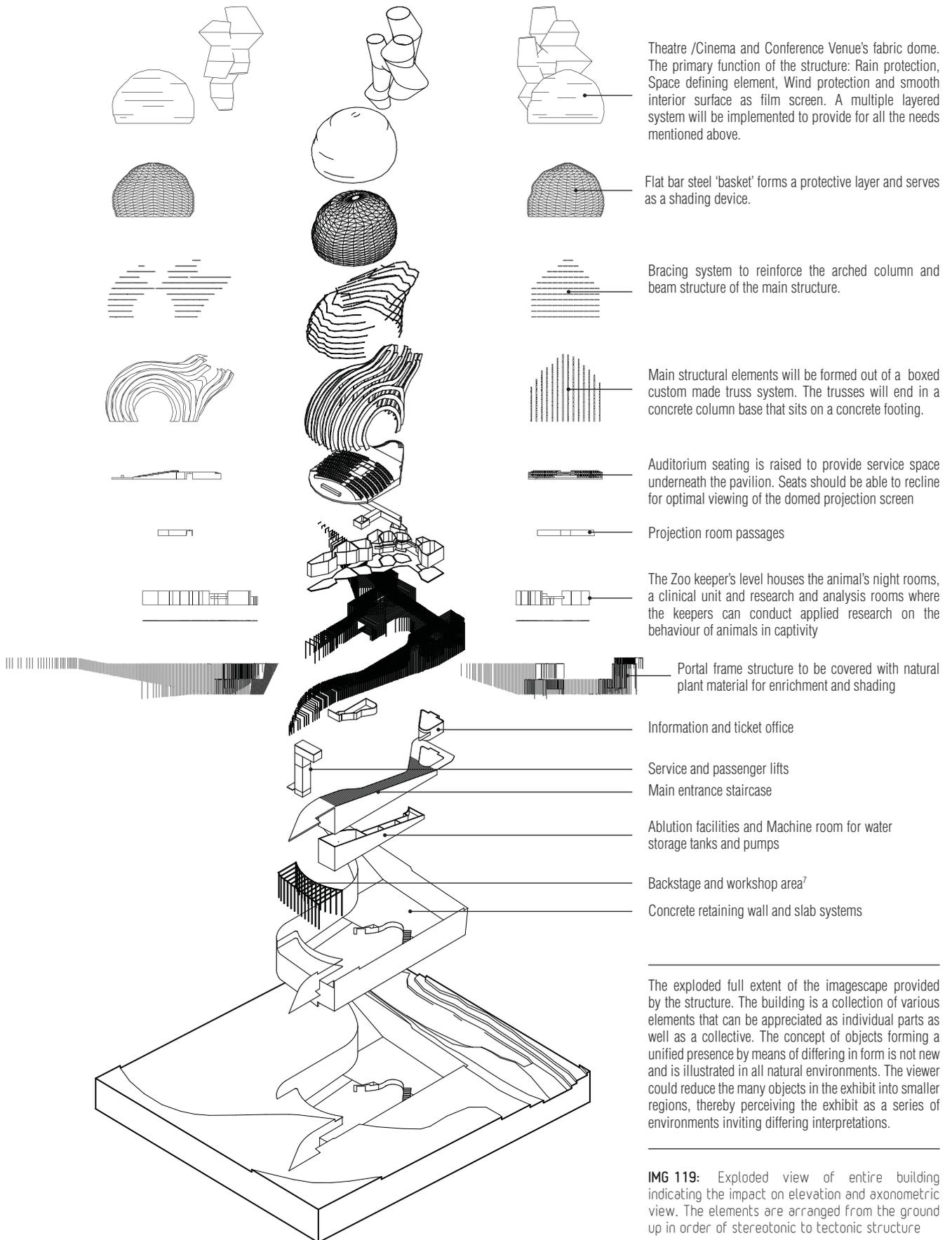
IMG 117: o p p o s i t e :
Initial perspectives and elevations







IMG 118: Sketch of the main staircase leading into the building



Theatre /Cinema and Conference Venue's fabric dome. The primary function of the structure: Rain protection, Space defining element, Wind protection and smooth interior surface as film screen. A multiple layered system will be implemented to provide for all the needs mentioned above.

Flat bar steel 'basket' forms a protective layer and serves as a shading device.

Bracing system to reinforce the arched column and beam structure of the main structure.

Main structural elements will be formed out of a boxed custom made truss system. The trusses will end in a concrete column base that sits on a concrete footing.

Auditorium seating is raised to provide service space underneath the pavilion. Seats should be able to recline for optimal viewing of the domed projection screen

Projection room passages

The Zoo keeper's level houses the animal's night rooms, a clinical unit and research and analysis rooms where the keepers can conduct applied research on the behaviour of animals in captivity

Portal frame structure to be covered with natural plant material for enrichment and shading

Information and ticket office

Service and passenger lifts

Main entrance staircase

Ablution facilities and Machine room for water storage tanks and pumps

Backstage and workshop area?

Concrete retaining wall and slab systems

The exploded full extent of the imagescape provided by the structure. The building is a collection of various elements that can be appreciated as individual parts as well as a collective. The concept of objects forming a unified presence by means of differing in form is not new and is illustrated in all natural environments. The viewer could reduce the many objects in the exhibit into smaller regions, thereby perceiving the exhibit as a series of environments inviting differing interpretations.

IMG 119: Exploded view of entire building indicating the impact on elevation and axonometric view. The elements are arranged from the ground up in order of stereotonic to tectonic structure