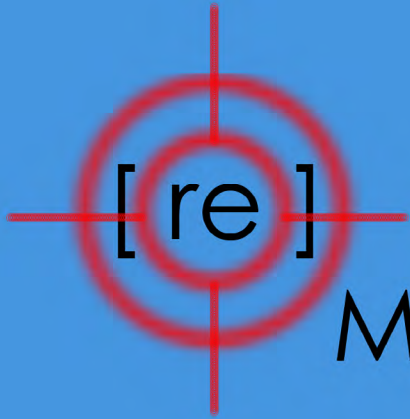
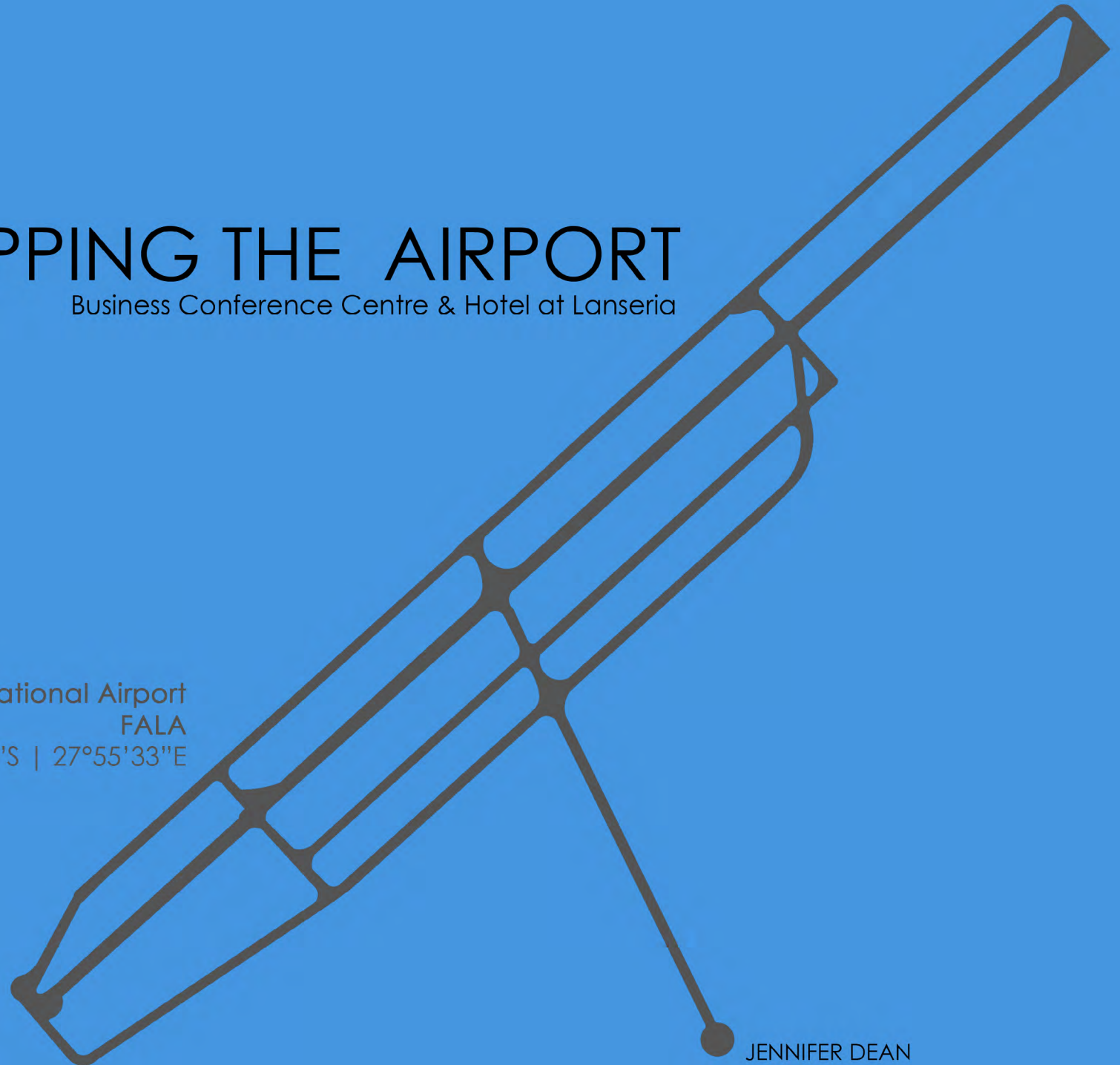




MAPPING THE AIRPORT

Business Conference Centre & Hotel at Lanseria

Lanseria International Airport
FALA
25°56'18"S | 27°55'33"E



JENNIFER DEAN

Dedicated to Mom and Dad,
whose love and support means more than you'll ever know.
Those words of encouragement and that dream have pushed me to carry on.

And to Granny and Karen - you will be missed.

Acknowledgements

Thank you to all those that made this possible:

To God, for I could not have done it without His strength. To Mom and Dad, for the endless discussions and ideas. To Jan, for your fascination with aircrafts and for endless information on the industry.

To Ariane, for your many hours of consultation, direction and encouragement. Also to Lanseria Airport, and the staff there. Thank you to Kim, for all the communications, laughs and POA's that moved me forward; to Allen for assisting on days of disappointment; and to Phillipe, for additional insights.

Declaration

I, Jennifer Dean 0600663N, am a student registered for the course Master of Architecture [Professional] in the year 2013. I hereby declare the following:

I am aware that plagiarism (i.e. the use of someone else's work without permission and/or without acknowledging the original sources) is wrong. I confirm that the work submitted for assessment for the above course is my own unaided work except where I have stated explicitly otherwise. I have followed the required conventions in referencing thoughts, ideas, and visual materials of others. I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my unaided work or that I have failed to acknowledge the source of the ideas or words in my own work.

Signed: _____

on this ____/____/2013

This document is submitted in partial fulfilment for the degree Master of Architecture [Professional] at the University of the Witwatersrand, Johannesburg, South Africa, in the year 2013.



AVIATION

n. the practice or science of flying aircraft (Allen, 1984 : 46)

n. the development and operation of heavier-than-air aircraft. (Encyclopædia Britannica, 2002)

CARTOGRAPHY

n. map-drawing (Allen, 1984 : 106)

MAP

n. representation (usually on flat surface) of earth's surface (or part of it);

diagram showing arrangement or components of thing (Allen, 1984 : 448)

Abstract

The imagery of flight remains one of the most captivating views in history. The bird's eye view it gives to man has helped him to gain an understanding of a particular area, in addition to broadening his knowledge base. Air travel has time in sense (because of its convenience), and shaped cities, with the airport control tower becoming a dominant icon within the landscape. Its form of communication and navigation is different: having its own language, symbols that have to be comprehended before the journey of flight can begin. The map is one such device that serves as a medium between the technical and the lay – enabling a simpler understanding of a complex subject. It is dexterous in its ability to show detail, aiding the design process by highlighting key elements, summarising others, and giving clues as to the proposed site and programme.

The focus of this study is to design a hub for business, as well as a facilitator for improving the knowledge of the visitor through information and networks. Specific functional elements were chosen in an attempt to supplement the existing Lanseria airport, in addition to creating an identity for a gateway into area and its surrounds. In accordance with the co-operative nature of the industry, the proposal can become a marketable feature for the developing, expanding airport.

This document examines the context of aviation and theatrical explorations into its methods of communications (Chapters 1 – 2); the search for an appropriate site (Chapter 3) and the formation of programme and precedent studies (Chapter 4); leading up to the final design of the Centre and its technological aspects (Chapter 5).

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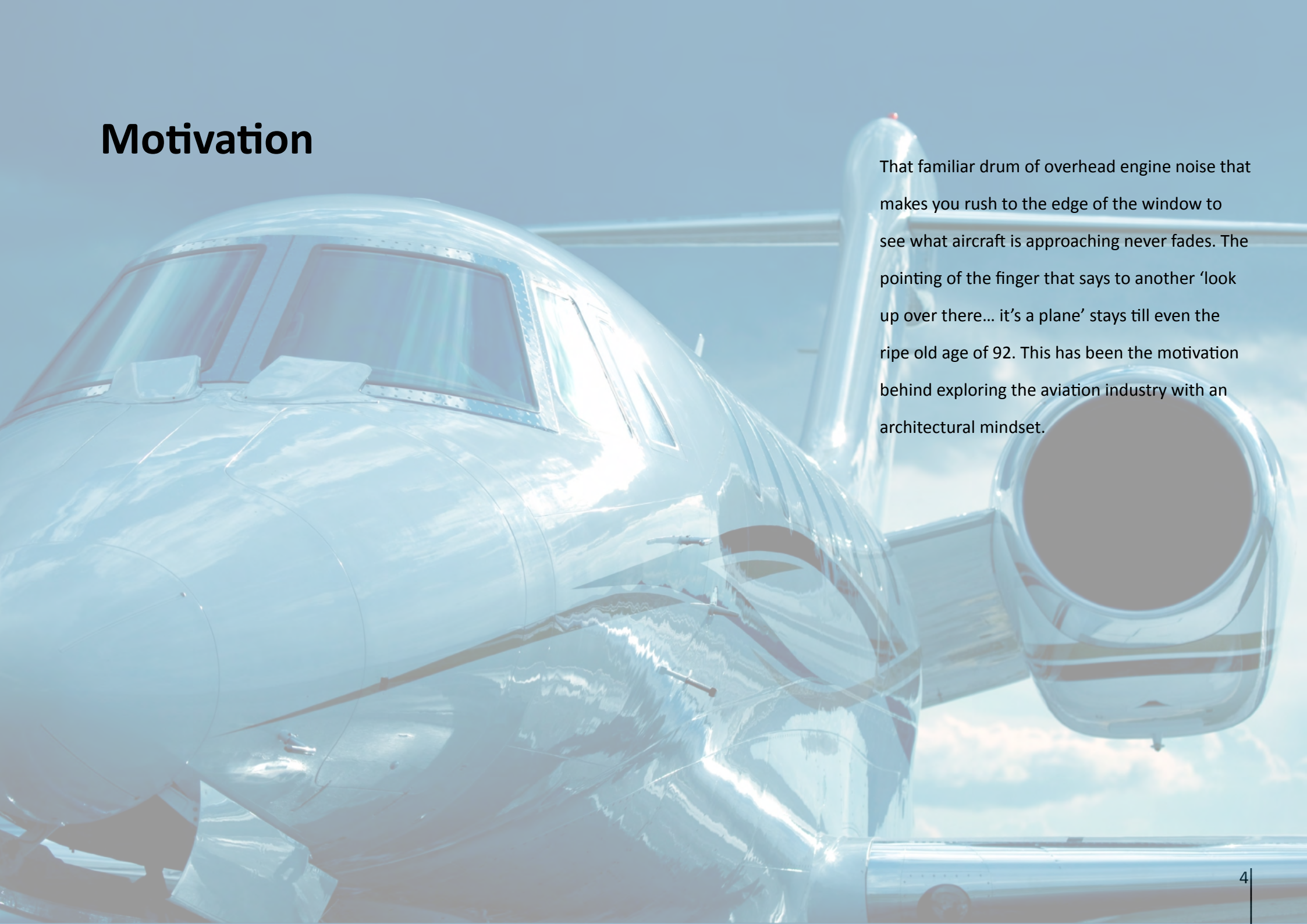
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Introduction

The aviation industry is perhaps one of the most valued industries that shape our world in the 21st century. Its driving force influences the bulk of urban development in many cities, even going so far as becoming the core of the new city: a vision aptly named the 'Aerotropolis'. The airport, as a result, has become an important point of representation for its surrounding area, and a node that functions as both a collection and departure point for people, goods and services. Attributes such as connectivity, accessibility and network are already on offer at airports, and many other industries and businesses utilize these resources in an effort to increase and sustain their own economy, forming a symbiotic relationship. This relationship is sustained for large periods of time, as the air travel industry has proven to be resilient, even in times of global economic downturn.

Motivation



That familiar drum of overhead engine noise that makes you rush to the edge of the window to see what aircraft is approaching never fades. The pointing of the finger that says to another 'look up over there... it's a plane' stays till even the ripe old age of 92. This has been the motivation behind exploring the aviation industry with an architectural mindset.

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For centuries, flight has captured the imagination of human beings. Even before the first mechanical flight was chartered, our fascination to view the earth from an elevated perspective has filled many fictional tales and artists' canvases. "Our determination to fly – for whatever reasons – has come to define us, has become such a thread in the texture of contemporary culture" (Brown & Taylor, 2004 : vii), so much so that it embodies man's desire to reach new heights – "in fact and in spirit" (Gutkind, 1952 : vii). of today: "the tiny shrink-wrapped meals and the matching trial-sized bottles of liquor, the neon-blue toilet water, the layovers, the turbulence, the obnoxious passenger who will always sit right next to wherever you might be sitting" (Brown & Taylor, 2004 : vii). Yet it is that bird's eye view that still manages to entice us each time, "because there are things you can learn about the world only from 5,000 feet above it" (Brown & Taylor, 2004 : viii).

The quickest of all transportation modes has earned its right to be viewed with joy and awe, along with the well-known clichés in the world



Chapter 1

Background

FLIGHT & THE DEVELOPMENT OF THE AIRPORT

Flight for Fantasy

*I wish I could fly | Out in the blue | Over this town | Following you
I'd fly over rooftops | The great boulevards | To try to find out | Who you really are
Who you really are*

Lyrics taken from "Wish I could fly" (Roxette, 2009)

The bird's eye view has served cities and their occupiers long before the invention of flight. The tower or mountain lookout point, high above the rest of the town or countryside, offered both a defensible position and a vantage point for capturing information for a much larger area than can be seen at ground level (see Chapter 2: Cartography & Maps). Hot air balloons in the 18th century drifted higher, offering a wider visual scope for audiences to view cities such as Paris and London. Flight, however, offered more than "a feeling of omniscience ... (for it) also miniaturized the scene" (Hinchcliffe, 2012 : 136). This 'toyland' outlook (Figure 1.1), as named by photographer Félix Nadar, soon caught on with planners, geographers and architects, especially after the successful development of the aeroplane. This provided aerial photography with the stability it needed for clear, pin-sharp pictures, which was found to be lacking in previous experiments with balloon and kites. The aeroplane, together with its mounted camera, thus became the vessel that would extend the layman's understanding of the earth – giving a "new view, a new vision and a synoptic eye" (Gutkind, 1952 : 396) which once only the privileged aviator saw¹. Many claims of the first powered flight have been made, with the Wright brother's successful attempt at covering a significant distance in the air being, perhaps, the most famous. Prior to that, the hot air balloon offered a form of air transportation, however this had limits in terms of travelling direction. The concept of heavier-than-air craft occupied scientists and inventors for centuries before, with investigations into the 'mechanics' of a bird in flight in 1799 by Sir George Cayley (Gray, 2003 : Online) finally offering the answer. Since then, the pioneering of the two distinct functions

of lift and propulsion/ drag, have been applied to aircrafts, which, to this day, are responsible for carrying large volumes of people and goods daily between cities, countries and continents.

Even with its history, air travel is still considered to be “the future” (Property Developer, 2012 : 37) because of its convenience, accessibility and quick turn-around time. A study of the industry in 2010 found that a “new trend was developing - use of small aircraft rather than giant commercial aircraft” (Al-Shamasi, 2012: Online). This is especially evident in business travel where time, in today’s fast paced world, becomes more ‘of the essence’ and its relative cost becomes more competitive. The increased demand for light aircraft has begun to infiltrate lifestyles (as it becomes more affordable), as a sport for hobby enthusiasts and a new type of housing cluster living known as aviation

estates (typically housing with hangar-garages adjacent to a runway for light to medium aircraft). Aviation is a large, complex organism and a ma

for international industry player in today’s world. Lighter-than-air crafts come in a variety of shapes and sizes, offering the everyday user² a range of options for different occasions and functions,



△ Figure 1.1 The world’s largest model airport/railway, the Knuffingen Airport on display in Germany (Getty Images) (Schneider, 2011 : Online)

depending, ultimately, on the size of their wallet. These crafts are categorised according to their various levels of clearance and interference (within the airspace realm):

- Civil (scheduled, non-military flying)
- General (non-scheduled private and commercial flying, including hot air balloons, microlights, etc.)
- Military

In addition to flight, the 20th century also offered a number of other transportation modes, which had developed through previous centuries: “the canal age gave way to the railway age, which in turn gave way to the century of the motor car and the plane” (Pearman, 2004 : 9). “Flying is the most glamorous” (Edwards, 1998 : 2) of all and little else compares with its speed and scale. Albeit at a much larger scale than that of the railways



► Figure 1.2 The Wright Flyer III taking off from Huffman Prairie airport (Pearman, 2004 : 34)

in the 19th century, “flight has opened up continents and allowed mass accessibility” (Edwards, 1998 : ix) in a similar fashion. It is at precisely the place of take-off and landing – the airport – where this ‘opening up’ occurs. The airport, together with ports (canal) and stations (rail) function as an interchange – acting as a nodal point for the area in which it was built. As such, they “have come to symbolise progress, freedom, trade and the aspirations of their host nations on the international stage” (Pearman, 2004 : 9).

Huffman Prairie (Figure 1.2) at Simms Station near Dayton, Ohio, is considered to be the first airport ever built, according to Hugh Pearman. This was due to the public nature offered by the main road and tramway which passed near it, the testing function it housed, the pilots it trained there, as well as fact that the “planes there flew relatively long distances, rather than mere hop-

ping” (Pearman, 2004 : 28). Kitty Hawk – the airstrip where the Wright Brothers’ first took flight from – had only ever been set up as a temporary service and not as a dedicated airfield.

Subsequently, airports have undergone many changes in an effort to streamline the flow of

people between the drop-off zone, the building and the airplane. The larger airports have “increasingly (become) destinations in their own right, much used by people who do not necessarily fly at all” (Pearman, 2004 : 10). This is in part due to the distance between the existing city and the airport. This means that airport visitors are far from most other facilities they may require. This was no longer considered to be a disadvantage when passengers become a “captive market for retailing” (Pearman, 2004 : 10).

The speed at which the check-in process occurred, decreased, ensuring that “passengers are held in airports far longer than they used to be” (Pearman, 2004 : 10). It is almost as if the airport were trying to get back to their roots – to who merely came to look” (Pearman, 2004 : 10).

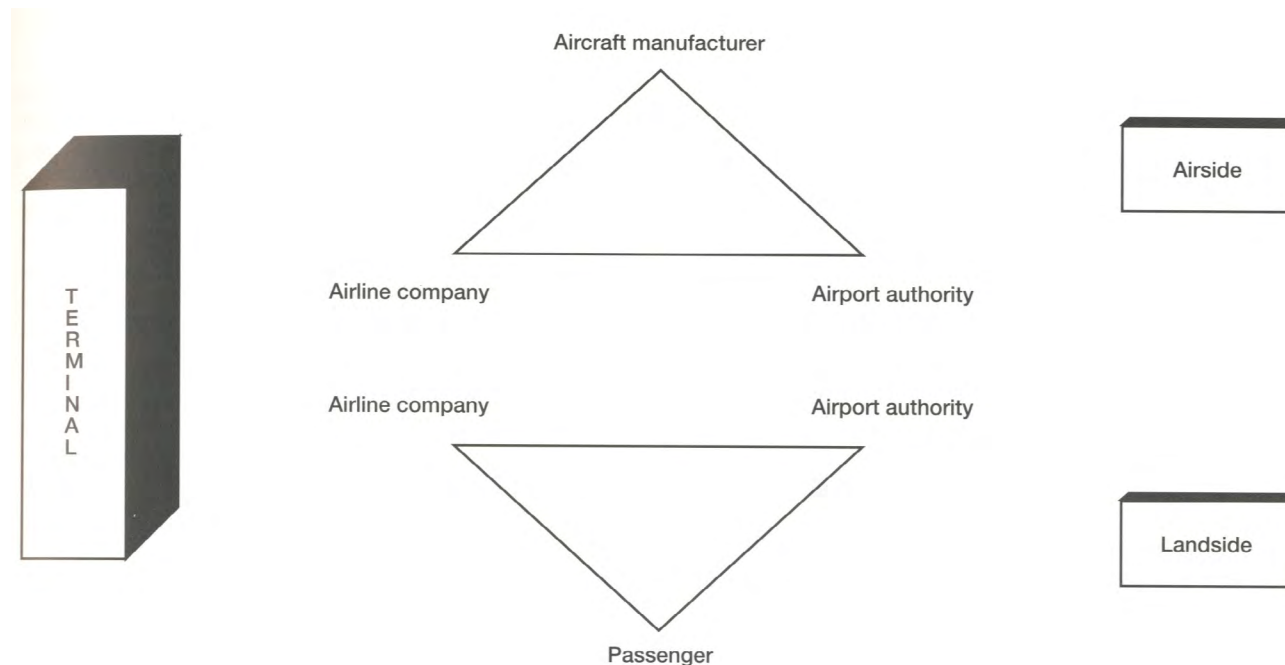


◀ Figure 1.3 Waiting area at an airport (Thyssenkrupp Elevator, 2012 : 8)

As mentioned, airport terminals are places of interchange - a place of opposites in that people either spend a few hours there in limbo, or hardly any time at all, before boarding a plane to someplace else. The person, who spends their time in limbo, wants to be entertained; occupied and “engage in several activities in one vicinity” (Property Developer, 2012 : 36). In order to operate as a whole, a sum of parts is required: “part transport interchange, part factory, part distribution centre, part shopping mall; ... a curious mix of the dynamic and the static” (Pearman, 2004: 14). Essentially the airport terminal mimics the char-

-acteristics of “a miniature city reflecting the values and aspirations of society at large” (Edwards, 1998 : ix), becoming a mix of building functions under one large roof structure – a large shed building typology. However, this could only be applied in simpler times “when all passengers had to do was turn up and take off.” “Complexity and mess were soon to creep back” (Pearman, 2004: 14), so that, unavoidably, the airport terminal loses its typology and identity, for “it is too dispersed and has to do too many things” (Pearman, 2004 : 25).

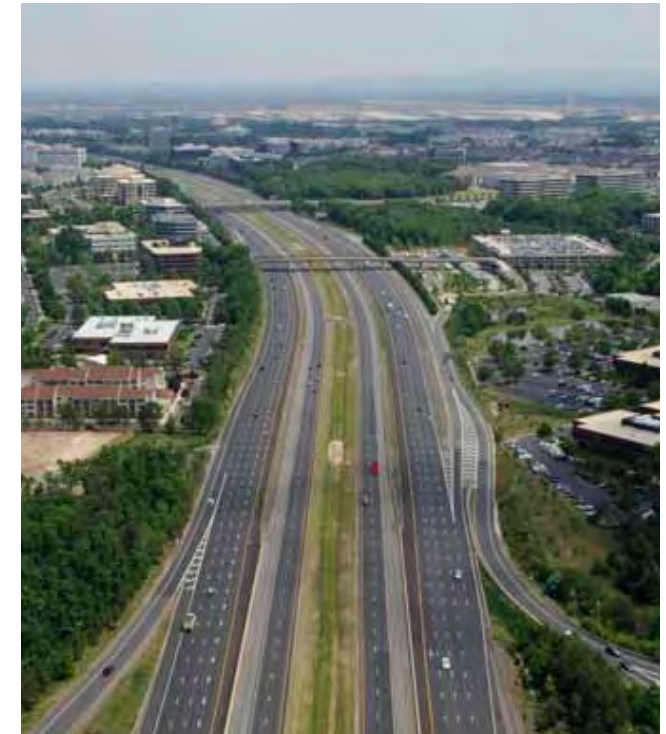
▽ Figure 1.4 Key relationships at airports (Edwards, 1998 : 53)



Initially, a simple organisational structure could be applied to the airport (Figure 1.4). However, the rate of growth and change in the world air transport industry has presented some problems. Progression from its infant stage in the 1960s to the present growth in passenger numbers has blurred the lines of the different functions – resulting in the need



△ Figure 1.5 Impression of New Songdo City, an aerotropolis built from scratch on a man-made island thirty miles southwest of Seoul, South Korea (Derewicz, 2011 : 24)



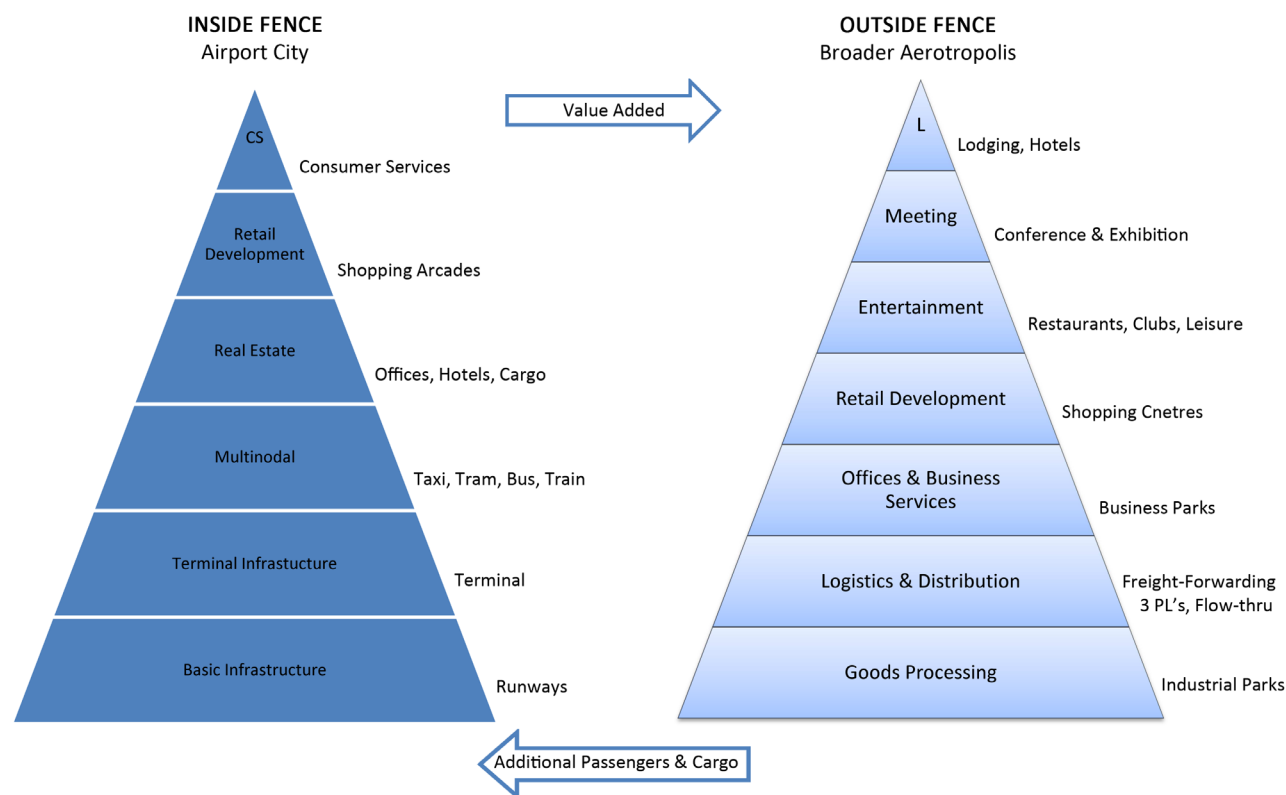
△ Figure 1.6 Hi-tech offices line the Washington Dulles Aerotropolis corridor. (Airport Consultants Council, 2011 : 17)

for clarification in terms of functional and social diversity within the terminal. This is particularly evident in established airports, where “extensive restaurant, retail and leisure facilities (are) manned and often used by people who do not belong to the three principal groups” (Edwards,

1998 : 8). It is then reasonable to liken the airport to a city or town – a place “with a centre (where the terminal buildings are located), industrial areas (hangars and warehouses), an effective road system, and residential areas (hotels in the centre, motels at the edges)” (Edwards, 1998 : 8-9).

Is it any wonder then that with this rapid expansion of the airline industry, a more comprehensive urbanistic skill would be required for the design process of the current airport complex?

Dr. John Kasarda, a sociologist and internation



△ Figure 1.7 Breakdown of the activities within the Aerotropolis (Schphol Group and Dr. John D. Kasarda) (Kasarda, 2010 : 29)

-al business expert, started to realise in the late 1970's that cities had changed. This was especially the case in cities like Detroit, where its factories, businesses and other industries which once flourished in the CBD, were no longer dependant or restricted by waterways and railroads: "Factories moved to the uncongested suburbs, transporting products by truck instead of train or boat" (Dere- wicz, 2011 : 25). Kasarda suggested that instead of 'reindustrialising' in an effort to prevent unem-

ployment, cities should instead shift their mind- set to the new age, where the "global economy is now all about just-in-time manufacturing – make products, ship them, use them right away" (Dere- wicz, 2011 : 26). And that was how the vision of the Aerotropolis was born: a city where busi- ness parks, industry and other job-creators merge effortlessly with airport runways. These commercial facilities, which are linked to the airport, have ensured that airports to- day become "gateways anchors of 21st cen- tury metropolitan development where distant travellers and locals alike can conduct busi- ness, exchange knowledge, shop, eat, sleep, and be entertained without going more than 15 min- utes from the airport" (Porada, 2013 : Online). Still the airport represents more than just trade. It includes power with a heady mix of anxiety on occasion. The consequences of terrorist attacks

on the airport, as well as the aircraft, have meant that security had to tighten and toughen up. “That extreme response to a perceived threat reveals just how vital to a nation’s economic and symbolic well-being” (Pearman, 2004 : 11) the airport is. And it is not just the airport that is important – it is the whole of the aviation industry as well. Regularly used as a “barometer for wider economic conditions” (Davis, 2013 : Online), it rises and falls in synchronisation with the economy: showing “a pattern of strong growth interrupted by a series of short-term downturns from which traffic has invariably rebounded to resume its growth trend” (Pearman, 2004 : 13). In South Africa alone the industry contributes R74bn to the annual gross domestic product (GDP); whilst at the same time sustaining approximately 230 000 jobs across the country (Styan, 2013 : Online). Tony Tyler, the director general and CEO of the International Air Transport Association (IATA), outlined the “cata-

lytic effect of aviation on tourism” (Styan, 2013 : Online) in terms of jobs and economic activity. Deputy President Kgalema Motlanthe, at the IATA annual general meeting held 2-4 June 2013, also reiterated that the industry is crucial to growth and development in Africa, though its full potential could only be realised upon improvement of the intra-African trade (Gerbi, 2013 : Online). There have been many advances in modes of transportation, but none so far reaching as the ‘aircraft’. It is an instrument that lifts both man’s body and spirit, enabling physical and metaphorical connections to be made where previously there were none. In the forward to the book *Our World From The Air*, Dr. G.P. Gooch writes that “the discovery of the art of flight enables us to do a hundred things in addition to bombing our enemies and racing about the earth” (Gutkind, 1952 : v). It is an industry that communicates in

its own language - i.e. symbols and the phonetic alphabet – which enthrall patrons and adds to its glamorous image. The ‘aircraft’ itself becomes an artwork, with the airport serving as the umbrella under which the activities of viewing and communicating happen. It is the future of development; the heart of the country’s economy; and the centre of a ‘city’. The crux then for airport terminals depends on structure and range of functional diversity within its limits. Only then can the full potential be achieved - when “neighbouring development supports and is supported in turn by the airport” (Porada, 2013 : Online).

¹ “Today ... the aerial view ... has become more available for anyone who takes a flight, leafs through magazines or visits the internet. Google Earth has made spectacular aerial photographs commonplace” (Hinchcliffe, 2012 : 144).

² Initially only the rich and famous could afford to fly, and it was only after “the shift from elitism towards mass tourism in the 1960s” (Pearman, 2004 : 9) where a significant spur in development allowed costs to be brought down.

The focus of this chapter was determined by looking at how communication and navigation is dealt with currently at airports and in aeroplanes: visually and through the use of various flight instruments. Maps, with specific reference to cartography, were chosen as the topic of study.

The key research questions are outlined as follows:

- What is a map?
- What can be mapped?
- How do they work and their meaning.
- Why is it necessary to produce maps?
- Truth and perception in a map.

- Language of mapping: universal communication, layering, information and art.
- Mega-mapping: man-made marks on the landscape.
- The relationship between the city, the map, and the building.
- The aeroplane, ports of inter change and the aerial 'map' view.

Using available literature based on cartography and graphics, the paper demonstrates how the language of maps and their graphic representation can guide the architect, the cartographer and the lay public. Other findings covered in

the paper show that the origin of maps stems from mankind's desire to control the unknown, and that every map has an author, topic and reason for existence, which lends to only a certain amount of 'truth' in an image. The map is evident in its influence on both the city and individual buildings, leading to the conclusion that the map is a valuable tool when attempting to understand a particular problem or space.



Chapter 2

Research **CARTOGRAPHY & MAPPING**

Navigation: A map's perspective

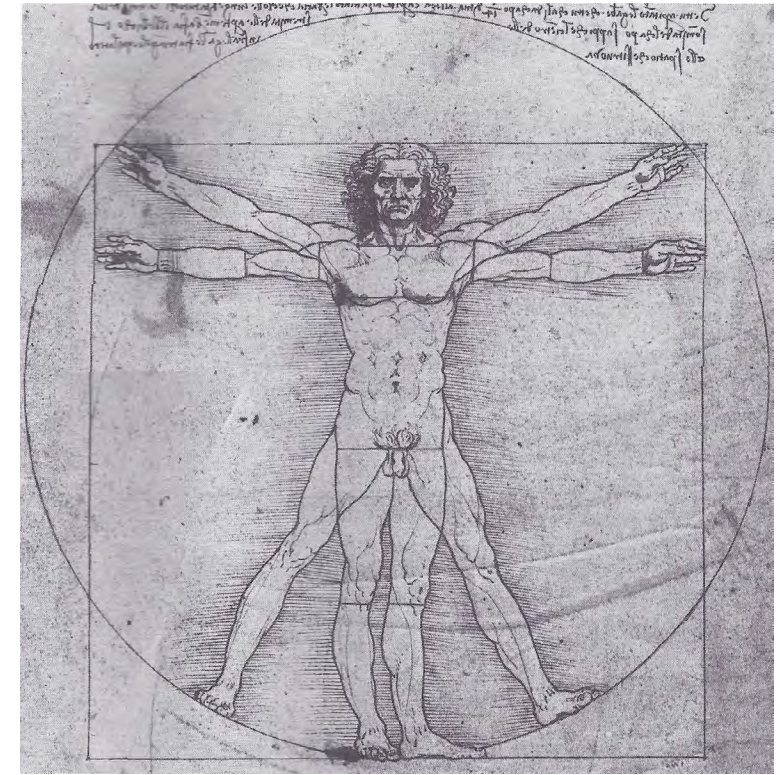
“Then the Lord came down to see the city and the tower (of Babylon) which those men had built, and he said “Now then, these are all one people and they speak one language; this is just the beginning of what they are going to do. Soon they will be able to do anything they want.”” (Genesis 11:5-6, GNB: Today’s English Version)

Architectural design of spaces has contributed immensely to mankind’s ability to control his environment, and in a way, maps have expanded on this. The reason for this need to control; to do anything man wants; has come about as a way of making sense in an ever changing world. Man, in his willingness to explore unknown territory, needed to understand it himself, before he could translate the things seen and information gathered to others. This was a way of making place intelligible. The purpose of this essay is to demonstrate that the translation of space from an aerial point of view has become engrained into our minds, and is one way of representation that helps the architect to demarcate the functional, environmental, economic and socio-cultural structures. It also enhances the architecture in relation to its surrounding influences, aesthetics and the layers of experience it offers.

Maps are “figurative representations of dimensions, attributes and relations of things in the physical or logical world, reproduced at a scale smaller than life-size” (Owen & Fawcett-Tang, 2002 : 10). It is a viewpoint of a particular place, at a particular time, by a particular person. A common set of rules and regulations helps to guide the map reader, so that no matter what culture or language barriers exist, the viewer is able to read the map, and interact with the information provided. This is all in order for humans to understand a place, due to the fact that unknown territories – to the map reader and mankind – have the “equivalent danger that ‘there are lions there’” (Quek, et al., 2012 : 1). So the mapmaker uses proven data of a specific area in space, and sets about ordering and capturing the subject matter in a graphic way. He makes use of a specific “language of pictorial description,” putting “every-



△ Figure 2.1 Ptolemaic Map of the World, 1482. Claudius Ptolemy, Cartographer. (Quek, et al., 2012 : cover)



△ Figure 2.2 Leonardo Da Vinci's drawing of a Man in a Circle and Square, Accademia di Belle Arti, Venice. Courtesy of Alinari/Art Resource Inc. (Edgerton, 1987 : 11)

thing in its proper place with its proper name as he or she sees it.” (Owen & Fawcett-Tang, 2002 : 10). Cartography, or map drawing, over the years has shown that anything can be mapped. These include “places, businesses, galaxies, histories,

bodies” (Owen & Fawcett-Tang, 2002 : 10), etc. Claudius Ptolemy, a Greco-Roman citizen living in Egypt who is most known for, amongst others, his geographic work (Encyclopædia Britannica, Inc, n.d. : Online), devised an organising system – a grid – by which he “coordinated his pictures

of the individual lands with their relative positions in the mappamundi,” (Edgerton, 1987 : 13) as seen in Figure 2.1. Leonardo da Vinci undertook to map the human body in a similar fashion to this, dividing the whole – i.e. the body – into the sum of its different parts, in order to explain

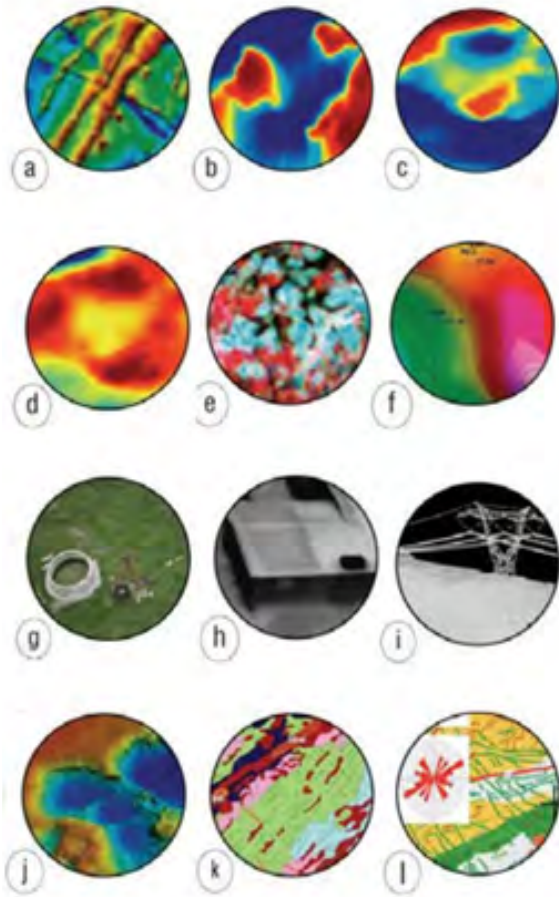
the various functions of the organs that made up the body (Figure 2.2). It did not matter that the geographical information, provided by Ptolemy, was proved at a later stage to be incorrect, but rather it was the system “that interested Leonardo” (Edgerton, 1987 : 13). To this day, mapmakers continue to follow the rules set by Ptolemy, i.e. to orientate north towards the top of the map. There are still many more “iconographic, geometric, linguistic and formal conventions with which to mediate source data into pictorial presentation” (Owen & Fawcett-Tang, 2002 : 12).

As mentioned, maps follow a specific set of guidelines, and “require geometric translations (of a 3D world onto a 2D plane) or transformations (scaling from 1:1 to 1:n)” (Owen & Fawcett-Tang, 2002 : 12), in order to turn evidence from the real world into a paper (or any other form)

representation of it. Maps work is this manner. They are, after all, intended to indicate the various paths available to unknowing strangers. According to David Wood, in his book *The Power of Maps*, he explains that maps give us a reality, which we accept and do not question, for that paper is what has “described that world” (Wood, 1993 : 4). That piece of paper – the map – makes us aware of a ‘truth’ that goes beyond that of what we can see and grasp in front of us at that moment in time. It allows us to see the bigger picture; the larger scope; our position relative to others in space. “We are always mapping the invisible or the unattainable or the erasable, the future or the past, the whatever-it-not-here-present-to-our-senses-now” (Wood, 1993 : 4-5), thereby converting the invisible to a seen, real ‘truth.’ This makes the map effective. Effective at serving the interests of the mapmaker, as well as the stranger. It gives insight to

a particular place: showing its peculiarity’s, its uniformity, demonstrating its future opportunities, whilst still bringing the “past to bear on the present” (Wood, 1993 : 1). However, he cautions the stranger, in the foreign territory, to remember that even though maps let us see all of this, it is not the complete picture. The map-maker merely compiles – in a readable, graphic manner – “what others have seen or found out or discovered, other often living but more often dead, the things they learned piled up in layer on top of layer” (Wood, 1993 : 6). Consequently, the map becomes a universal window into a specific site, where selective layers of information from tables, census’ and graphs, etc. are projected onto scaled diagram of the site – a “singular vision” (Owen & Fawcett-Tang, 2002 : 10) of the place mapped.

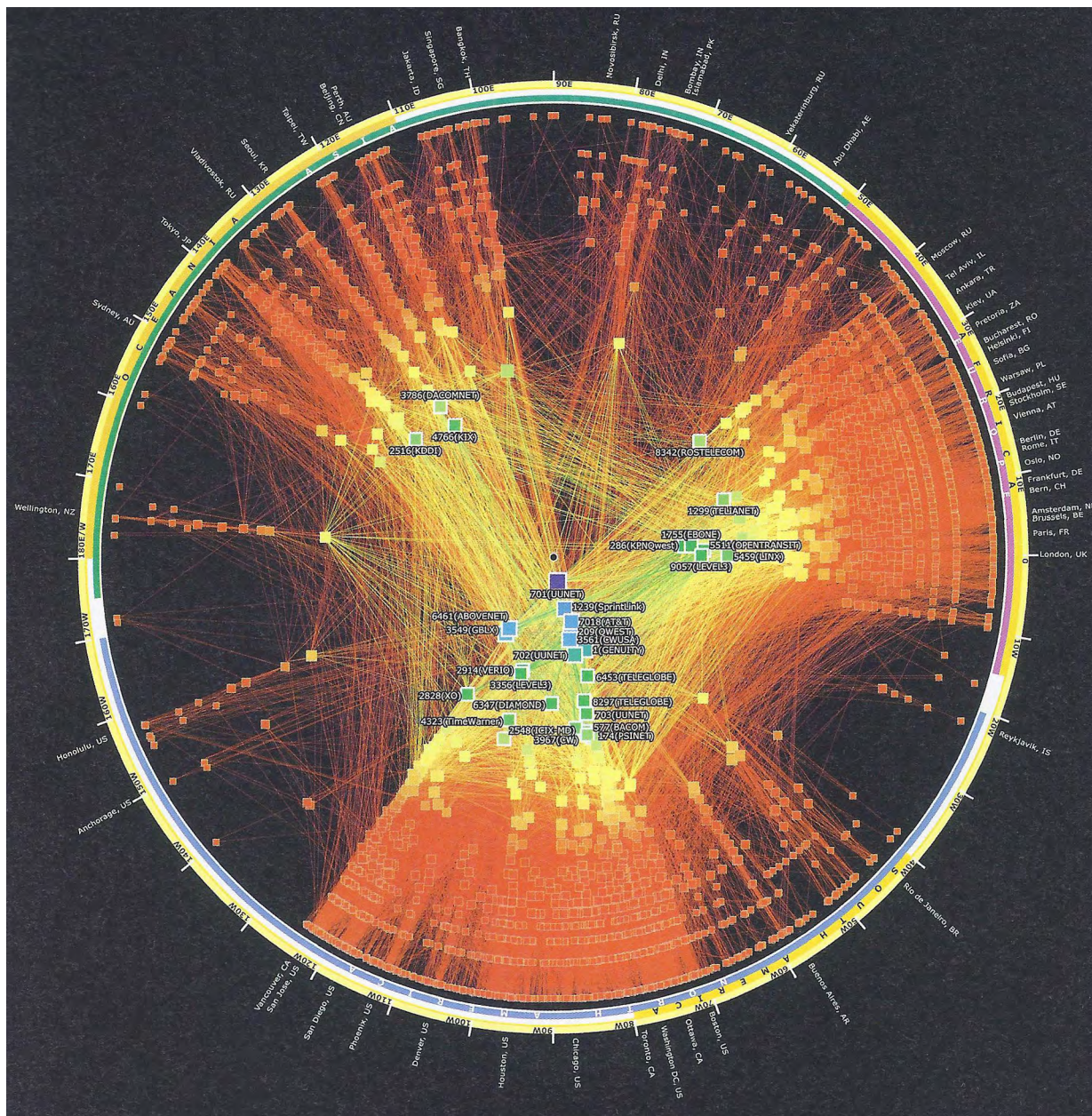
In addition to capturing a ‘picture’ of the envi-



△ Figure 2.3 Mapping results of some of GyroLAG technologies (Ameglio, et al., 2011 : 676):
 (a) Total magnetic field.
 (b)-(d) Computed magnetic vectors x, y, and z.
 (e) Ternary map.
 (f) GPS/INS data enhanced gravity.
 (g) CCD digital video/aerial photo (windmill and water reservoir).
 (h) Thermal imaging (inverse colour).
 (i) 100-hz mobile scanner imaging (power line).
 (j) Digital terrain model.
 (k) Physical geology maps
 (l) Structural interpretation maps.

ronment, maps also serve to “link – connect–
 – the territory with what comes with it” (Wood,
 1993 : 193). This has been the case since the
 beginning of the history maps. Examples of
 such links show how “maps link the territory
 with taxes, with military service or certain rate
 of precipitation, with the likelihood that an
 earthquake will strike or a flood will rise, with
 this or that type of soil or engineering geology
 (Figure 2.3), with crime rates or dates of first
 frost, with parcel post rates or area codes, with
 road networks or the stars visible on a given
 date” (Wood, 1993 : 10). The Geographical
 Information System (GIS), available today to so
 many untrained people, by means of the ‘smart’
 cellphone, Google Maps, and the GPS (Global
 Positioning System) device that is suctioned onto
 the windscreens of the 21st century car, has al-
 lowed the individual to make use of it at any-
 time, every day. It has demonstrated its capacity

for “merging with networked devices within
 other traditionally discreet objects: the map, the
 key, the guidebook, the wallet, the phone, the
 camera – all one thing” (Owen & Fawcett-Tang,
 2002 : 13). The GIS system works by making use
 of distinct data points – as the co-ordinates of an
 object, that each have their own individual and
 rational address linked with an nth amount of
 data – to define an nth amount of objects within
 space. As a result, the map has empowered the
 individual with enough information to be able to
 link to other people, destinations and networks,
 etc. These links may be anything from physical
 networks, electronic systems and transportations
 to implied grids, links and associations. Activities
 are thus reduced to a “geographical metaphor”
 (Owen & Fawcett-Tang, 2002 : 12), having a
 relationship to each other and space by means
 of mappable data. The lay users of the maps
 themselves start to become the inadvertent



△ Figure 2.4 Internet Map, 2003, Edition 2. CAIDA (Cooperative Association for Internet Data Analysis). Based on the Skitter Graph, showing two weeks' activity among 1.2 million IP Addresses. Created with the San Diego Supercomputer Centre, April 1 – 16, 2001. 2003 ©UC Regents. All rights reserved. (Abrams & Hall, 2006 : 32)

map-maker, adding another layer of personal perspectives to the presentation when uploading additional content, in order to increase the efficiency and information purposes of the map.

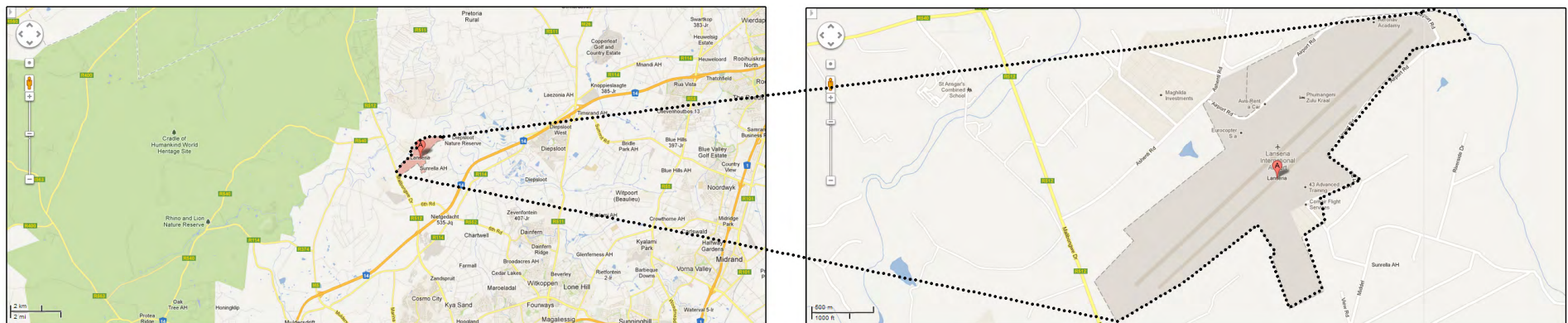
This begs the question: why make maps? Jochen Boberg in her essay 'About the rebirth of a world view,' states that aesthetic creations were invented by man for "this irrational step (of) distancing himself from the world, which meant he could understand it by planning" (Prigaan, et al., 2004 : 7). In this way the map, as a graphic creation, is the distancing tool. The Information Age, where data is present everywhere, i.e. "unleashed by the internet" (Abrams & Hall, 2006 : 12), but not always relevant or applicable, has exacerbated man's control issues. Figure 2.4 demonstrates the amount of activity that IP addresses generate within just 2 weeks – i.e. data searched, downloaded and/ or uploaded. For this reason, maps

have proven competent at enabling man to sift through data and deducing its essence, with the aim of understanding the problem. The complex has changed to become accessible; the hidden has been made visible and the once unmappable has become mappable. “Mapping has become a way of making sense of things” (Abrams & Hall, 2006 : 12). David Turnbull, in his book *Maps are territories: Science is an atlas*, agrees with this by pointing out that maps qualify our place in the world, and our place within the world of nature. Furthermore, he suggests that “the ultimate evidence of the superiority of Western maps is

their use in navigating on unknown waters or in unknown territory” (Turnbull, 1993 : 50).

Maps, as previously declared, rely on scale. It is a ‘truth’ that appears in the world at a specific point in time and is translated and printed to a smaller, more readable size. Scale helps to infer use, applicability and aids data manageability. This implies that more detailed data is required for maps of areas at a larger scale, as opposed to the fact that detailed information may not be required for a smaller scaled diagram. Maps thus have the dexterity that “slides instantaneously

between panorama and detail” (Owen & Fawcett-Tang, 2002 : 11), as demonstrated in Figure 2.5. The success of the map is based on its containment of a hierarchical order of information. Nevertheless, maps still remain a selective depiction of reality. In Peter Hall’s essay titled *Where/Abouts* in the book *Else/Where: Mapping*, he quotes the late J.B. Harley as saying: “Far from holding up a simple mirror of nature that is true or false, maps redescribe the world – like any other document – in terms of relations of power and of cultural practices, preferences, and priorities” (Abrams & Hall, 2006 : 12). This

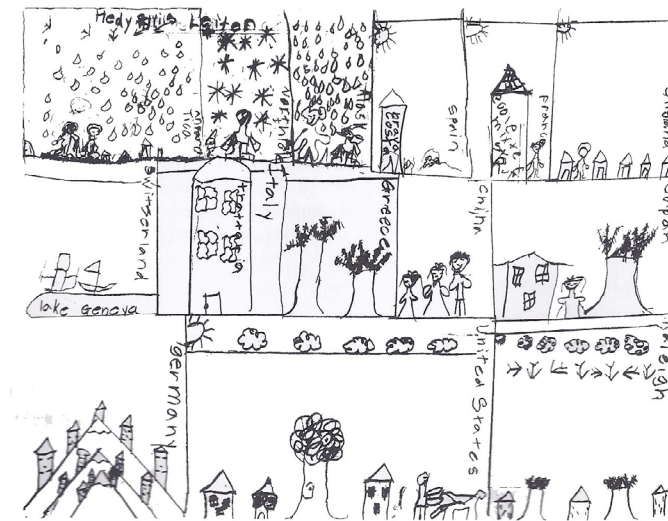


△ Figure 2.5 Maps of Lanseria area showing the differences in scale and information. (Google Maps, 2013: Online)

brings to light the power that the map-maker has.

Even though maps are regarded as neutral carriers of information by their readers, they are still man-made. This has implications in terms of truth and myth; interests served and interests protected; over and above that of perception and bias. Wood points out the fact that maps reveal to us a reality, or else it would merely be someone's opinion. But then again, the other side of the same coin means that it is the map-maker's opinion of gathered information, that has been made a reality. This is when it is important to take note of the interests served by the particular map: "Suddenly the things represented by these lines are opened to discussion and debate, the interest in them of owner, state, insurance company is made apparent" (Wood, 1993 : 19). Acknowledgment of these

boundaries means that the acceptance of the 'realities' (named in the map) have been distorted. In the book *The Power of Maps*, Wood states that Brian Harley argues that "The usual perception of the nature of maps is that they are a mirror, a graphic representation, of some aspect of the real world" (Wood, 1993 : 18). Therefore it can be argued that though the information provided is true, whose truth is it?



△ Figure 2.6 A drawing of Hedy Ellis Leiter (age 7) image of the world (Wood, 1993 : 6)

Language plays an important role in understanding maps. The maps themselves are filled with signs and signals which the map-reader must use in order to navigate. Yet, the lay person is instinctively able to examine and interpret any map. Even those, whose sense of direction fails them at inopportune times, are able to read a map and eventually make sense of a place. It is even more remarkable that even a child as young as 7 – i.e. Figure 2.6, draws the earth in a certain way, which adults recognize and are able to make out distinctive items based on shape and form, etc. This is because the language of representation, graphic conventions and conceptualisation techniques has become so engrained into our society that it seeps into the individual's consciousness. And so it is that "the language of maps that we have grown up with and that seems so natural and realistic has, nonetheless, a coded grammar and vocabulary that would be quite meaning-

less to an Inuit kayaker of 300 years ago” (Owen & Fawcett-Tang, 2002 : 16). The insight gained up until now has been the result of symbols and map-making conventions that each have a history, a cultural reference and an author. These symbols must interact with each other and provide a hierarchy and a description for themselves. As a result, the audience and purpose of the map is made clear with a simple glance at the scope. The description, though, falls to the side, so as not to interfere with the map itself. It becomes a legend, Right: Figure 2.7 – a reference for the map, where projection, scale and orientation can be made visible, but not overpowering. These references acknowledge that “projection gives a point of view, orientation creates a hierarchy, and scale provide an understanding of time and horizon – how far do we need to see and how far are we going” (Owen & Fawcett-Tang, 2002 : 17). Many map-makers and

graphic artists have since then tried to capture the essence of the legend in other ways, misunderstanding, according to Wood, the role of the legend. He declares that it is less about clarifying the meaning of the symbols, but rather that the symbols “function as a sign in its own right” (Wood, 1993 : 101). The legend becomes a signifier, not a sign of the actual physical image that the map refers to – i.e. the  simply refers to the position of a hospital, not the physical signage of that exact Hospital. By the same token, the large lettering of a city name, represented on a map, is not physically present on the ground of the real world, sprawled across the land in mile-wide, mile-high text. It is instead – in most instances – a vertical sign at the entrance to the city (Figure 2.9), that welcomes visitors and inhabitants alike. Once again the notions of truth and myth, and the invisible and real come

► Figure 2.7 Explanation of Map Symbols. (Map Studio, 1994/1995 : 1)





△ Figure 2.8 Satellite composite view of earth (Photo credit: Tom Van Sant/ The Geosphere Project, Santa Monica, CA) (V Terrain, n.d. : Online)

into play. Map-readers must be able to distinguish between the various notions in order to make sense of the data.

This brings into question the concept of truth in an image. According to Jeremy Black, the author of the book *Maps and Politics*, the information provided by a map and “what is shown is real,

but that does not imply any completeness or entail any absence of choice in selection and representation” (Black, 1997 : 11). There is always this tension in cartography between what is true;

real; visible and what is not seen; invisible and intangible.

The abstract nature of the map makes it easy to assume that it is not difficult to omit certain information, when compared to the nature of a photograph. However, photography has struggled with the same theory for centuries – whereby the architectural photographer has the ability to identify “interesting details or features” (Harris, 1998: 87), so as to highlight whatever charm or flaw the building has. That aspect then becomes the detail that is produced and published; the photograph taking on the concretised view by which the building is judged. By the same token, maps – being a man-made production – cater to our preconceived perceptions on graphic style and symbolic presentation. The first publication of the ‘portrait of the earth’ appeared in the November 1990 issue of National Geo-

graphic journal. This portrait, Figure 8, played on the principles of the photograph, when instead (as Wood claims) it is purely a map. His reasoning behind this points to the fact that the photograph’s “obliqueness is appropriate for a map” (Wood, 1993 : 49) and whilst it may seem to be the view that we imagined would be seen from a satellite, it misinforms the reader through a variety of devices. William Owen agrees with Wood in the book *Mapping : an illustrated guide to graphic navigational systems*, by drawing attention to the ‘naturalness’ of the colours, the absence of clouds as well as the the caption of the image: “a clear day.” Therein lies the flaw that is not immediately made clear to the viewer – that the reality of the earth’s spherical shape shows us that the entire globe cannot be “bathed in sunlight” (Owen & Fawcett-Tang, 2002 : 17) at one time. It is not a scientific possibility. The ‘portrait’ therefore becomes a tool to “disguise the

map as a ... reproduction... of the world” (Wood, 1993 : 22). So it seems that however natural the map appears to be, it is not. The map has a message, a topic, a creator and a purpose, and we would do well to take note of this when considering the truthfulness of any image.

We can deduce from the different arguments that the map is another layer, or lens, that can be employed to view the design of the city: an extension of the networks that appear on the ground. The map is informed by the city, and offers an overall view and understanding at a quick glance: “practically, confrontation with an unfamiliar city is typically mediated by the map: transit routes, of streets, of tourist destinations” (Abrams & Hall, 2006 : 148). Cities are known for their overwhelming character when strangers first enter them. It overloads the senses with sights, smells, sounds, noises and the person-

alities of other people. A visitor navigating the space has no choice but to turn to the familiar – the known – in the hopes of finding their path to their intended destination. The map serves as this ‘known’ instrument, whereby its already familiar symbols and codes lead the way. That is not to say that the city is not well marked. Indeed there are hundreds of signposts, billboards, streetsigns and written laws, etc. that direct traffic and people. Occasionally, these signs even compete with each other, bringing themselves



△ Figure 2.9 Signage at night in Las Vegas (Cornwell, 2007 : Online)

into disrepute. The quantity and expanse of signage present in the 21st century far exceeds those that were present in more older, traditional cities. This is most obvious in U.S. and Tokyo “where neon and other forms of illuminated text” (Abrams & Hall, 2006 : 149) characterise the structures of urban space, as shown in Figure 9.

Somehow these real-world insignia only seem to emphasise “the post-modern urban landscape (and its) problem of legibility” (Abrams & Hall, 2006 : 149). Perhaps this is the reason why buildings found it necessary to ‘read’ their function¹. After all, this resolution formed one of the major underpinning’s of urban modernity. Imaginably, this is also the justification behind “church spires and skyscrapers (that) over-reach sight lines and provide orientation and locus; textured curbstones (that) mark the boundary between

road and walkway; signs (which) identify buildings and their purpose or ownership” (Owen & Fawcett-Tang, 2002 : 66). In navigating the city we look for prompts: the familiarity of transport devices, which leads us to ports – points where entry and exit are apparent. These help to orientate and “establish a city’s rhythm” (Owen & Fawcett-Tang, 2002 : 66).

Present at these ports, whether it be interchanges between air, rail, road or sea, are rational signage systems that have been built around areas. They serve the users, “providing text and directional markers that complete the inhabitable map” (Owen & Fawcett-Tang, 2002 : 66). All these things culminate in visual and written clues that guide us in our pursuit to understand something different than that which we already know.

On the other hand, the prototype of early-



△ Figure 2.10 A view embodying the civic spirit of Europe's greatest commercial city - the anti-thesis of the contemporary online route-planning map/image. Jacopo de' Barbari Venetia, 1500. © The Trustees of The British Museum. (Abrams & Hall, 2006 : 159)

modern city mapping best described the city as a public space, and chose to capture the civitas of these spaces. Jacopo de' Barbari's map of Venetia in 1500 (Figure 2.10), is one such example of this. He detailed the townscape in such a way so that the image demonstrated "the civic spirit of Europe's greatest commercial city" (Abrams & Hall, 2006 : 150). This map was not of the route

to the physical destination, that modern maps have become. Rather, it developed into a method of promotion: a 'selling' point to advertise and market the city. Modern, 21st century maps have remained "resolutely functional, entirely ignoring the context of the places they represent" (Abrams & Hall, 2006 : 150). It is a tendency in Western culture to restrict the map's defini-



△ Figure 2.11 Inuit driftwood model of part of the Greenland coast (and Islands). Kunit fra Umivik (Inuit, Greenland) 1884; wood (Anon., 2008 : Online)

tion to "faithfully scaled reproductions of linear spatial relations" (Owen & Fawcett-Tang, 2002, : 12). The Western map is not nearly as concerned with metapatterns as that of its Islamic, South Indian and Inuit counterparts. And yet their ideas have merit – i.e. the non-linear, intuitive representations of topology and human or physical relations add a multilayered perspective to their

models. It was a form of communication, where the three-dimensional charts of the Inuit hunters had to be fingered on a dark night, in order for them to be able to understand the coastline in a kayak out at sea. It was of no concern that the chart (Figure 2.11), made out of driftwood, was highly abstracted. On the contrary, it ensured that the devices remained highly functional, durable, in addition to being weather-and-fumbleproof². Hence they can not be overlooked as maps – for they still describe a place, making it navigable.

For that reason the map, as a description of a place, is not prepared just for the visitor. There are many different users of the city, just as there are of maps. However, how does the visitor; the foreigner; and the resident; the local, know what to use? Does the local inhabitant require a map at all? Owen appears to think so: “Some users

may be visitors, with little knowledge of the city; others may be residents, familiar with the overall pattern but not the detail of certain districts. Some users will want to stay; others only want to leave. Some users may be travelling rapidly by car or bicycle, others by foot. Some users will be interested only in tourist sites, others in utilities like hospitals or transport” (Owen & Fawcett-Tang, 2002, : 66). A single signage system will not suffice in serving the interests of the various users. This is where the usefulness of different layers on a map express themselves. Numerous levels of information are available for any area, but not all are relevant at a specific time, as indicated previously. And if all the levels were to be layed on top of each other, it would only serve to make the map both incomprehensible, over and above being difficult to read. Nevertheless, the act of doing so may provide key opportunities to find connections, links and similarities, as well as

demonstrating the ‘informing’ and ‘informed-by’ relationships that exists between spatial activities. These maps then prove that they are “the conceptual glue linking the tangible world of buildings, cities and landscapes with the intangible world of social networks and electronic communications” (Abrams & Hall, 2006, : 12).



△ Figure 2.12 Relief Map from the Church Facade showing the Fortress Town of Modon during the Candian War 1645-69. Venice, Santa Maria Zobenigo. (Italian Pictorial School, 17th Century : Online)

In some way, the cartographic space and the physical urban space have since become indivisible. The first informs the latter, and vice versa. The tension between creating and recording the city and its architecture has always been apparent, because for both conceptual and practical reasons, the appearance of any city is controlled and matched by the map. Historically, cities have either existed on paper before they were constructed (e.g. St. Petersburg, Washington D.C., New Delhi, Brasilia, countless fortress and colonial cities), or have been reconstructed/expanded upon by means of a plan so that could improve “urban life and citizenship” (Abrams & Hall, 2006, : 148), (e.g. Paris, Rome, Vienna, Amsterdam and Jerusalem). Architecturally, the map has informed the building by extracting the influences from the surrounding context and expressing the situation of networks present at the time. The map was also given a chance at

expression – an art form on display, as shown in Figure 2.12 –where in countries like Italy, “they have frequently been carved onto the facades of public buildings” (Abrams & Hall, 2006, : 149).

Governments, together with housing and loan companies, have also made their finesse evident when using maps to assert civil rights. This is in specific reference to 20th Century America inner-city ghettos, when it was felt that it would be more beneficial to rezone or reshape the bordered areas in question (Abrams & Hall, 2006, : 148). Any border of political value is frequently made clear on any Western map. These borders are, however, not always sensible. On the word of Wood, the normally candid quality of the map vanishes because of the realities of borders. Due to the fact that these boundaries are man-made, they are once again used to exhibit control. Variations in land use, a road or a concertina-wire

fence are most often used as reference points to measure these obscure limits. It is interesting to note the difference in borders, one which has been topographically influenced v.s. the linear, single-line boundary made by man in his division of level ground. This is where maps have proved their worth to fields in a multi-disciplinary manner, stretching its use to include that of social, cultural and political approaches.

Still, this stretching is not limited to the map itself. Man-made marks on the landscape put up for display the ambitions that the human race has for nature. Rather than to be ruled by it, man attempts “to control and moderate nature” (Owen & Fawcett-Tang, 2002, : 66), by communicating narratives of life and death on it. These megamappings, as described by William Owen and Fenella Collingridge, master the large, life-size scale and even manage to blend



△ Figure 2.13 Egyptian Necropolis: Giza Pyramids (Liberato, 2006 : Online)



△ Figure 2.14 Cerne Abbas Giant, southern England (Sasitorn & Warren, n.d. : Online)



△ Figure 2.15 Nazca lines as seen from SPOT satellite (CNES, 2002 : Online)

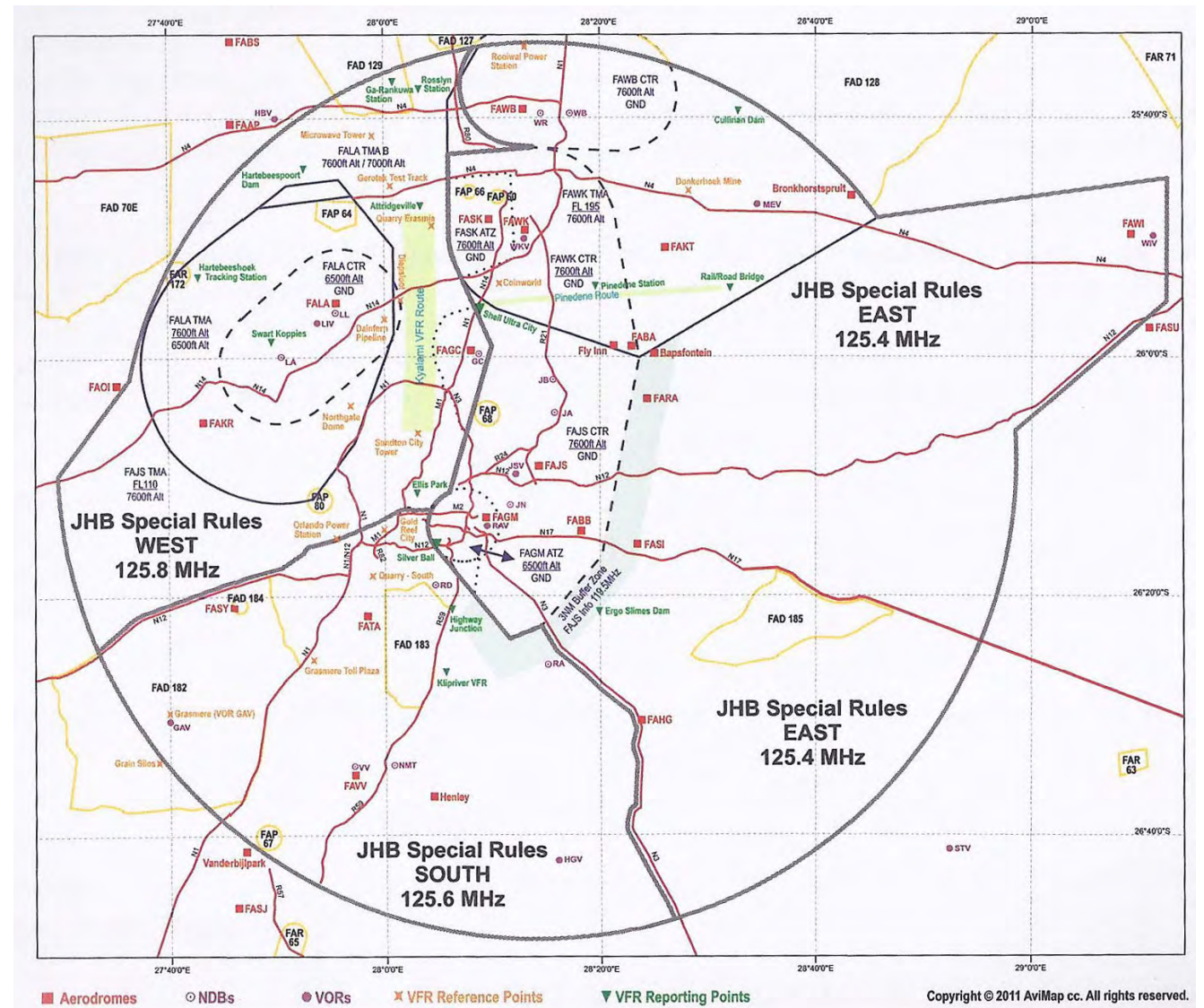
with nature so as to influence it. These ‘map-makers’ are conquering and overpowering the landscape, not simply recording it. The different cultures had different objectives for this subjugation. The Egyptian’s chose to plot the path to the underworld by means of the necropolis (Figure 2.13); whilst fertility and virility were asserted through the giant neolithic chalk figures in southern England (Figure 2.14). The Nazca line’s

in Peru (Figure 2.15) are believed to be large scale drainage models of the path of water down from the Andes mountains to the Nazca desert. Here ceremonial walkways were built alongside waterways to encourage the water flow. These are prime examples where “subject (...the land) and object (...the map) have a tendency to intersect and fuse, each influencing the other” (Owen & Fawcett-Tang, 2002, : 66). Interestingly,

the full extent of these different subjugations can only be comprehended by aerial view. This is astounding, especially because the aircraft and flying had not yet been invented when these landscape marks were built.

So it seems that, in order to make sense of the city, it must be viewed from the air. If nothing else, the aeroplane does this superbly. It is as

though the aircraft was built for this purpose. The elevated view offered by the aeroplane is a culmination of the aforementioned factors: the map, the city and the aerial/ bird's eye view. Light-aircraft pilots, according to Owen and Fawcett-Tang, are not that far removed from the Inuit in their navigational obsessions. Aviation charts describe the three-dimensional complexity of land, sea and airspace through which the pilot must navigate in order to ensure a safe journey. However, the difference between the two are distinct: the pilot must read his map through sight, and not by fingering like the Inuit. The symbols, borders and layers represented on the aviation maps are even more complicated than that of his 'grounded' counterpart. There are a myriad of additional symbols to be understood; and still the ground plane must be taken into account for its levels of elevation. Additionally, even more obscure borders such as "airport



△ Figure 2.16 Johannesburg Special Rules Area (Alexander & Alexander, 2011 : 53)

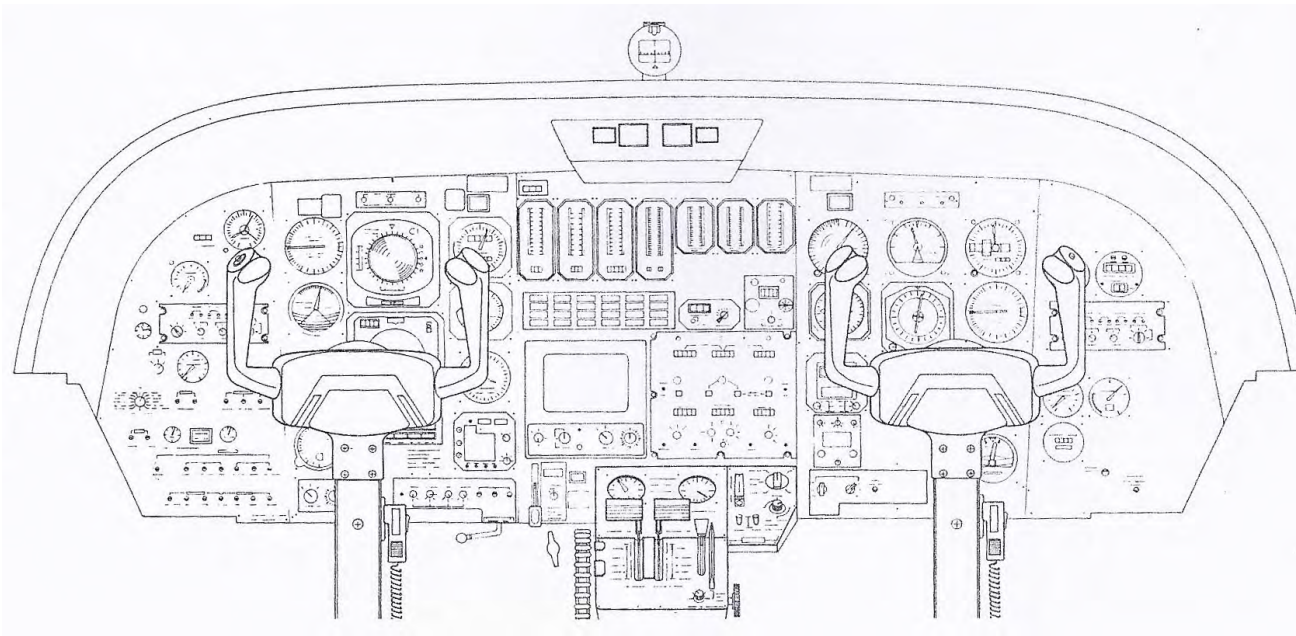
exclusion zones, military airspace, microwave towers, (and) radio navigation beacons” (Owen & Fawcett-Tang, 2002, : 16) appear, most of which have no physical reality (Figure 2.16). This does not mean that these abstractions do not exist, for it is very real in the pilot’s mind. The design of these constructs in the airspace exists to control aircraft movement where no discernable

natural points of orientation exist – i.e “no traffic lights or curbstones in the sky” (Owen & Fawcett-Tang, 2002, : 16).

Besides the rules and regulations that govern the different segments of ‘airspace,’ there is also the “language of communication that transcends political and cultural barriers” (Foster, 1989 : 95).

The flight plan, a ‘map’ of the aeroplane’s potential journey, is filed before takeoff, so that the trip may take place free from interference and hindrances, such as other aircrafts. Navigation then commences from the time of departure to the time of arrival at the chosen destination, and is done through various mediums: the eye (via the map as well as the topographical features seen from the window), the plane’s flight instruments (Figure 2.17), and the commands of the control tower’s. This all takes place so that “despite the diversity of professions and interests that are involved – nations, airlines, manufacturers, controllers, pilots, unions and so on – the ... shared language of communication with the agreed procedures ensures the achievement of that safe passage” (Foster, 1989 : 97).

Nevertheless, the undercurrent remains the map – the instrument which binds and controls



△ Figure 2.17 The cockpit arrangement of a typical long-range small aircraft (Foster, 1989 : 97)

all navigation, wayfinding and understanding. It impacts our daily lives, enveloping physical, social, political, cultural and economic constructs, just so that mankind can comprehend, grasp and appreciate a slice of the world. For that is what maps offer – knowledge that is ordered spatially and layered to facilitate and reveal hidden potential. Wood best summarised that the point of the map is “to present us not with the world we can see, but to point toward a world we might know.” (Wood, 1993 : 12). It is the embodiment of communication and a supplement for a universal language – the modern version of the Tower of Babylon. Whilst only a limited amount of knowledge is passed onto the viewer from the map, the inherent power it holds must not be dismissed. It is therefore the context of the map that separates it from the real and physical world, making it important to always keep what the mapper is concerned with, at the back of our

minds.

The learning from air based mapping for architecture is that a building can become the map, and can be explicitly designed to give information on its larger context, in ways that are visually linked to directions. This approach could be layered, and in the same way that a ‘key’ clarifies symbols, so the building could clarify movement and connections. Different and relevant layers can be emphasised, and the information extracted from these can be used to explore the intended site. A wide variety of informational sources on the specific area would need to be investigated in order to get a more ‘complete truth’ so as to attempt to combat the one directional route that only one source would provide. In convincing the client, these techniques might also prove useful for occasions when weighing the pros and cons of an additional programmable area that

has the potential to increase project costs. The resultant material gathered can then be used to assist in the formation of a programme and site, allowing the resultant architecture to inform a greater context and have a greater sphere of influence than just the immediate erf boundaries.

¹ Louis Sullivan coined the famous “Form follows function” in his effort to make building’s more readable.

² “If they are dropped overboard, they float” (Owen & Fawcett-Tang, 2002, p. 16)

I have discussed how air based mapping can assist the viewer in identifying features within an area in order that they may understand it. Also aforementioned are the value that it can bring to architecture: helping to identify the location and programme of the site. This manifestation is what will give meaning and form to the proposed building.

In the process of site selection, the area around the Lanseria International Airport was looked at and a broader contextual mapping was prepared for the visual analysis exercise. This was done to demonstrate the application of the theory learnt from the previous chapter, as well as to assist in

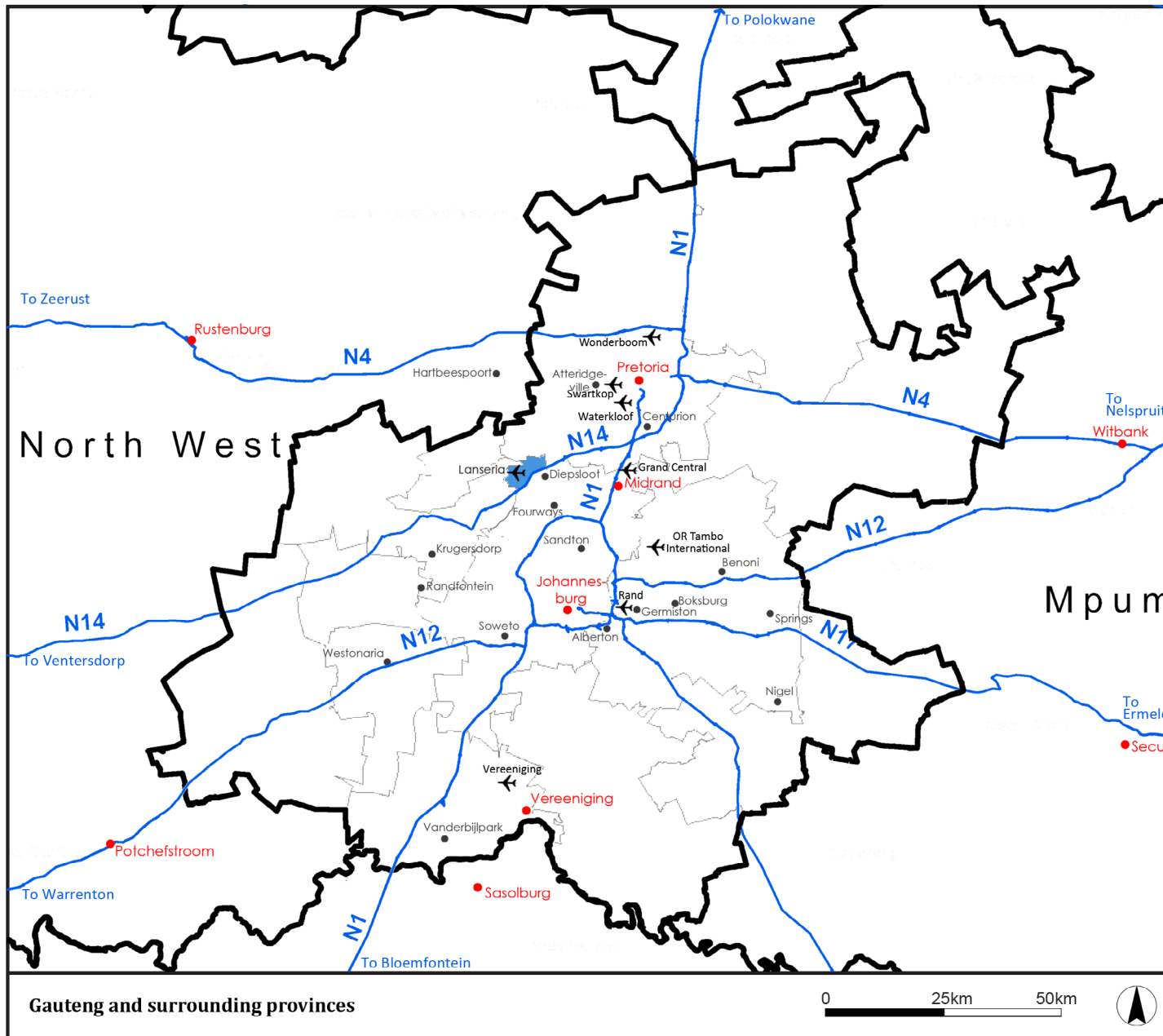
the pinpointing of a specific site. Thereafter the lessons learnt were further harnessed in the one-week Design Charette. During the exercise it was discovered that the airport lay on the Crocodile River Ramble Tourism Route, where a considerable amount of arts and crafts related activities could be found. These findings, together with the business aviation nature of the airport, will be discussed in this chapter, culminating in the decision to design a Business Conference Centre within the Lanseria Airport complex.



Chapter 3

Site Mapping LANSERIA AIRPORT AREA

Airfields in Gauteng



An investigation into the airports in Gauteng shows 8 major airports with notable airspace rights. Both the Waterkloof and Swartkop airfields function solely as air force bases for the South African Military Service, whilst OR Tambo and Lanseria are the only airports having international airspace rights. OR Tambo offers a wide range of facilities in its 'shopping mall' like terminal (from banks, shopping, restaurants, lounges, etc.), whilst Lanseria has a significantly less footprint for the amount of passengers it carries.

Figure 3.1 Major airports within Gauteng

Key:

- National Roads
- Provincial Boundaries
- Major Cities
- ✈ Major Airports (Civilian & Military)

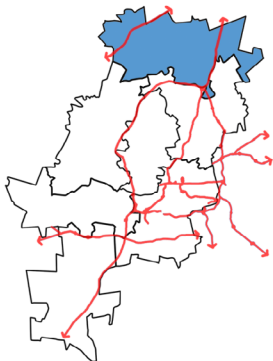
Greater Lanseria Area



Map of South Africa with Gauteng highlighted



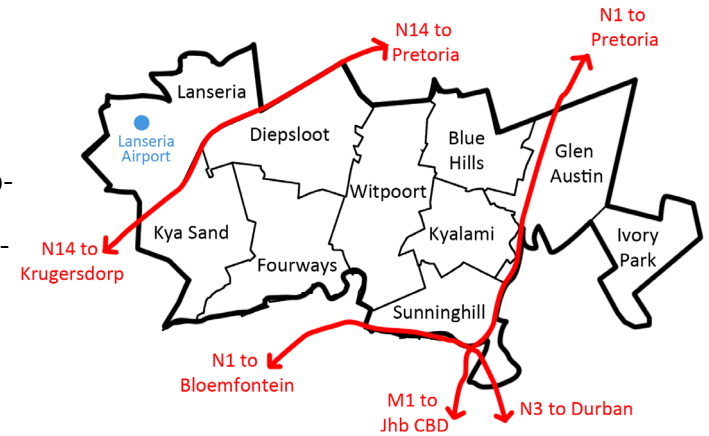
Map of Gauteng with City of Johannesburg's
Municipal boundary highlighted



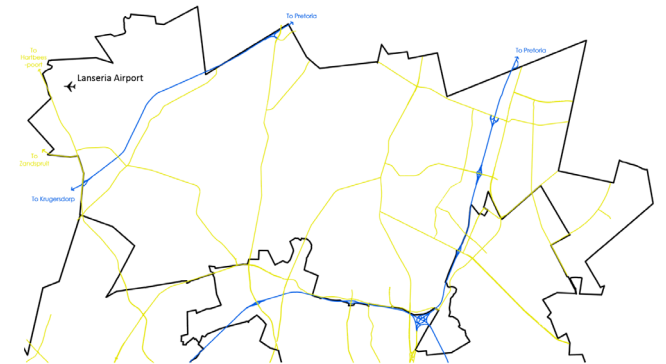
Map of Johannesburg regions with main roads and Region A highlighted

The Lanseria area falls within the municipal boundaries of the City of Johannesburg, and forms part of Region A. It lies adjacent to Diepsloot, Kya Sands, and is also shares its boundaries with the City of Tshwane and West Rand Municipality (Krugersdorp).

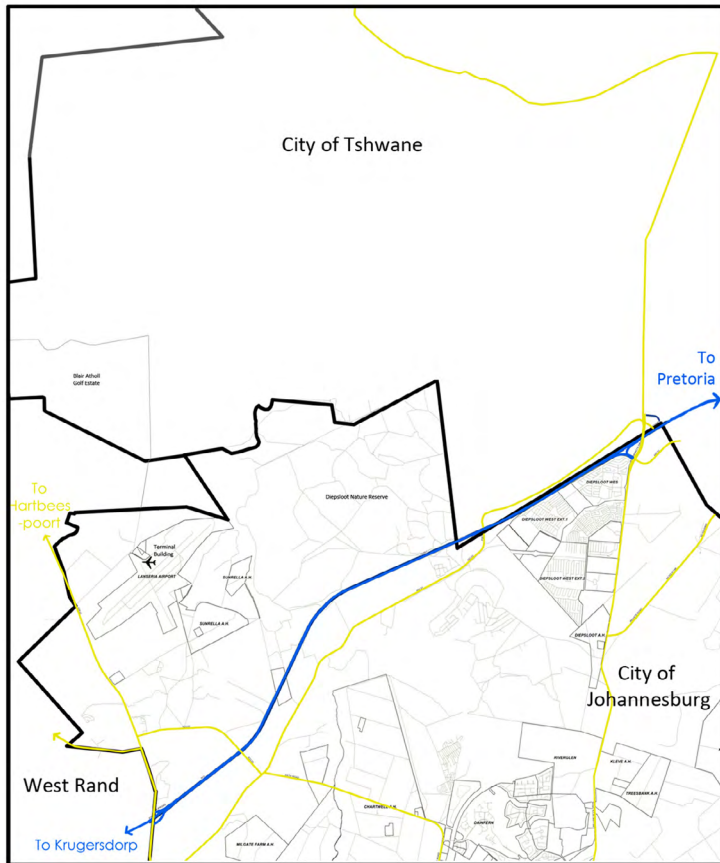
The area is situated on the outskirts of urban Johannesburg, and much of it has to date been functioning as an outskirt area, with haphazard development. The area is easily accessible off the N14 highway, at the R512 (Malibongwe Drive) interchange. The Lanseria area has recently grown to become an important node for Gauteng (Bosch, 2010 : Online), generating increasing interest in private business and public municipal sectors.



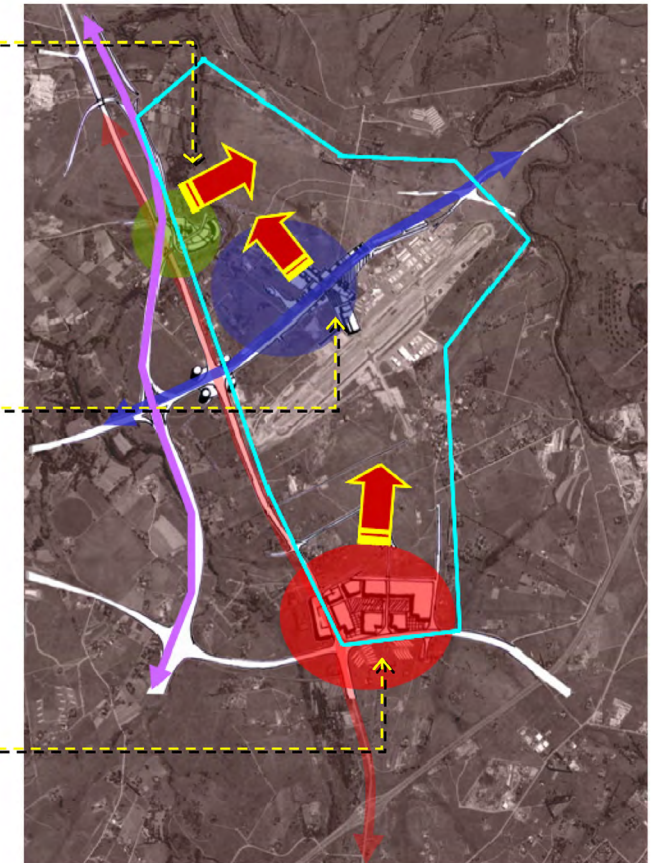
△ Figure 3.3 Map of Region A showing position of Airport and main access roads



△ Figure 3.4 Map of Region A showing position of main and secondary access roads



**TOURISM AND
LEISURE
NODE**



△ Figure 3.5 Map of Lanseria showing boundaries, main roads and adjacent municipal areas

△ Figure 3.6 Development Catalysts (Cradle City Professional Team, 2008, p. 16)

With the increase in development, the City of Johannesburg, Tshwane and the West Rand municipalities (Figure 3.5) have all drawn up Urban Development Frameworks to structure and zone development that is to take place around the

airport, and within the area. In 2008, Amari Land developers submitted a proposal that sought to combine the various frameworks into a unified master plan for the Cradle City development (Figure 3.6). The three nodal points of tourism

and leisure, airport and business, and urban living centre capitalise on the proximity of the airport. Future BRT routes have also been earmarked so that the airport “base now competes with OR Tambo Airport” (Peters, 2010: Online).



△ Figure 3.7 Entrance sign to Monaghan Farm Estate

Consumer confidence has also increased and is driving demand for property in the area (SA Commercial Prop News, 2011 : Online) as is evident in the newly developed 90 ha Lanseria Corporate Estate (zoned for industrial, office and warehouse purposes) (Bosch, 2010 : Online) to the south east of the airport. The actively selling Monaghan Farm (Figure 3.7) and Blair Atholl housing estates nearby are also indicative of the expansion in the area.

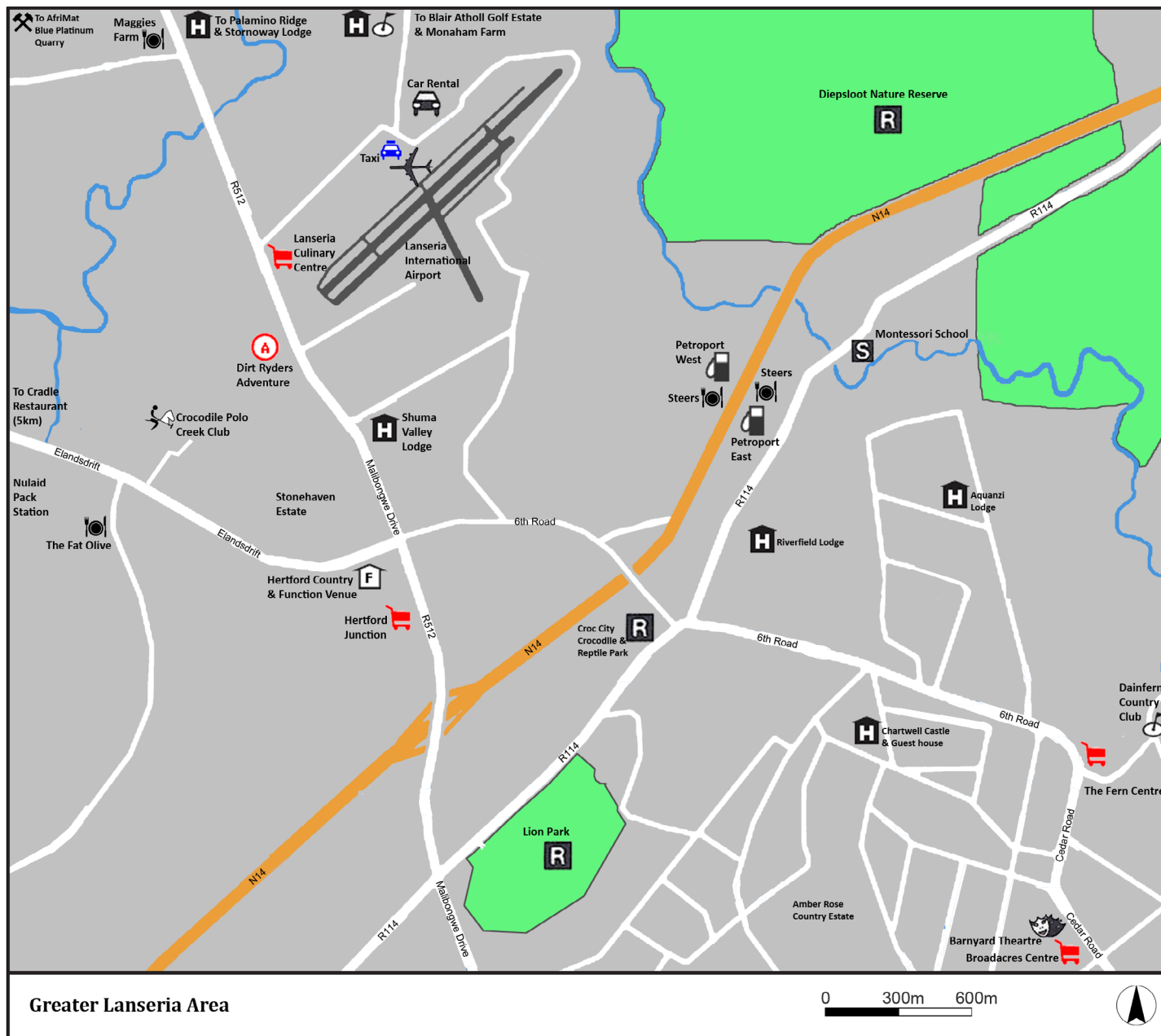
A wide range of activities can be found in the area, with a fair number of accommodation facilities within the region – i.e. 5 km radius, as well as sport interests (adventure, recreation and golf) and shopping centres, as seen in Figure 3.8. Also present is the somewhat defunct Crocodile Ramble tourist route, and a few small conference venues, but these are mostly attached to their respective accommodation partners. The numbers of facilities have started to increase and this is due to the large amount of business persons taking early morning and late afternoon flights.

The Crocodile Arts and Crafts Ramble Route begins at Honeydew, stretching across both the Gauteng and North West provinces including Muldersdrift, the Lanseria Airport, the Cradle of Humankind, Broederstroom and Hartbeespoort. This route, which started in 1987, showcases the “natural beauty of the Magaliesburg area”

and functions “as a drawcard for consumers” (Stoddart & Rogerson, 2009 : 13). These include heritage, culture, arts studios, crafts, gifts, décor, restaurants and tours, etc. (Stoddart & Rogerson, 2009 : 20). The tourism route is divided into 4 main paths, each passing the following nodes (African Explorer, 2013 : Online):

- The Sterkfontein Caves and the Cradle of Humankind
- The Lesedi Cultural Village
- The Rhino and Lion Nature Reserve and Heia Safari Ranch
- Walter Sisulu National Botanical Gardens

A larger map (see insert) was drawn up to record the different interests on offer in the area. The data obtained showed a large variety and it became necessary to classify the various activities into a more succinct chart (Figure 3.9), which could be used as a key for the larger map.

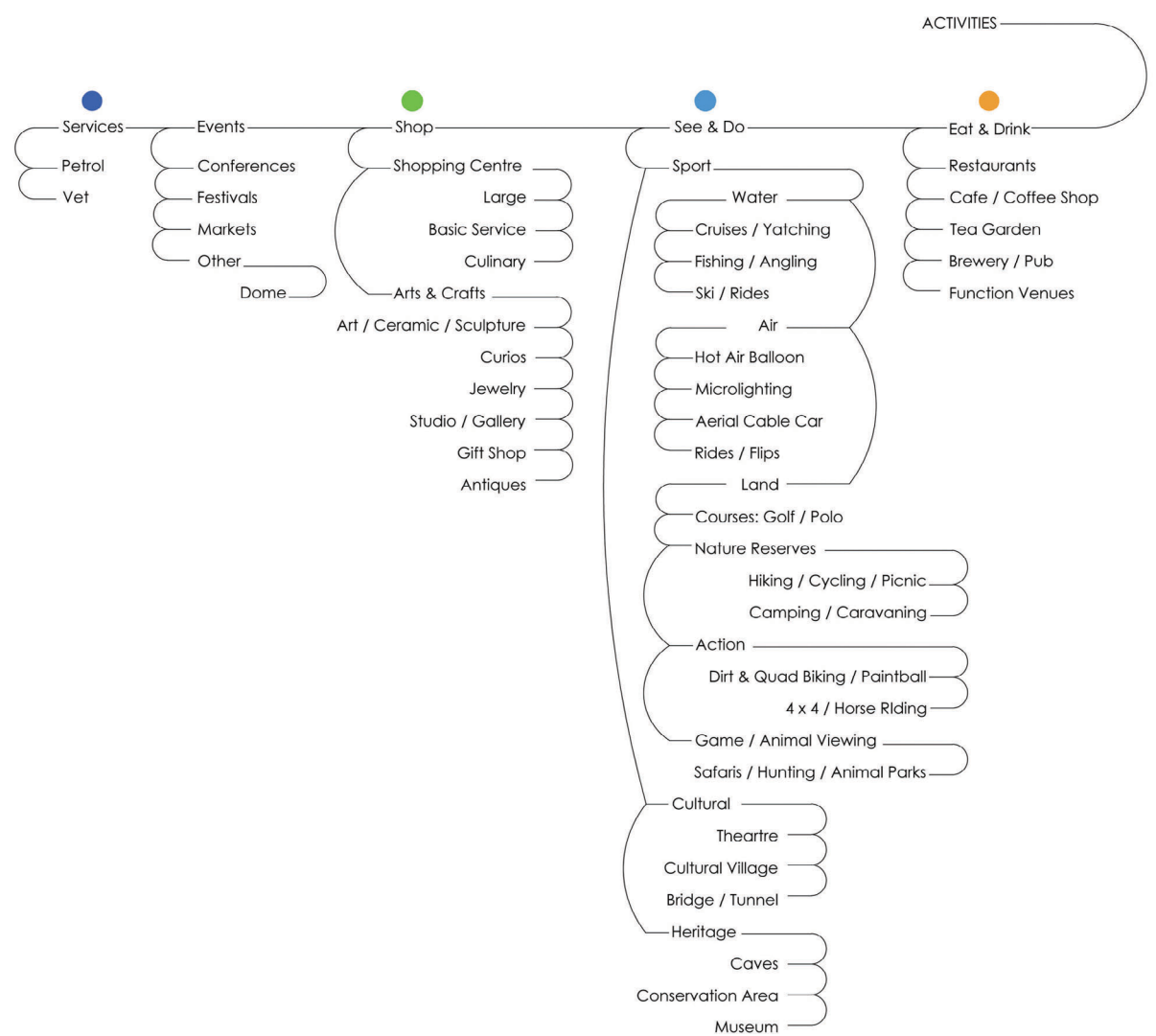
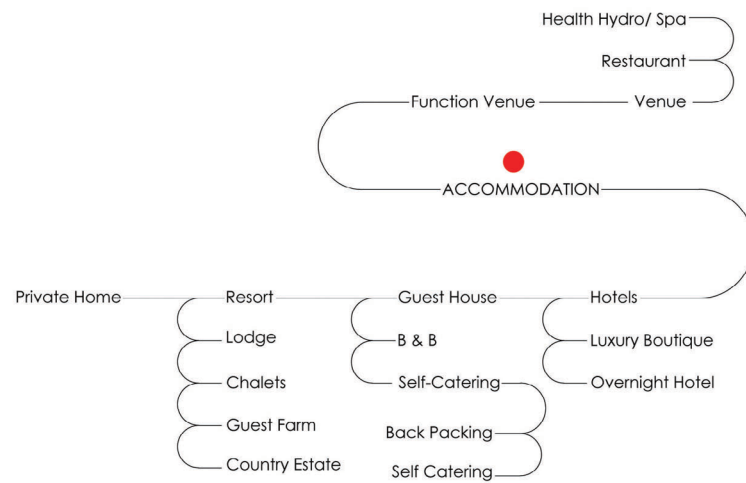


Key:

- Accommodation
- Restaurant
- Petrol
- Recreation
- Shopping Centre
- Theatre
- Golf Course
- Polo Course
- Function Venue
- School
- Adventure Park
- Car Rental
- Taxi Waiting
- Airport
- Quarry

◀ Figure 3.8 Map of the Greater Lanseria Area with activities found near the Airport

▶ Figure 3.9 Infographic developed from activities mapped from the Crocodile Ramble Route and Lanseria Area (To be read as a key for pull out map (*see back page))



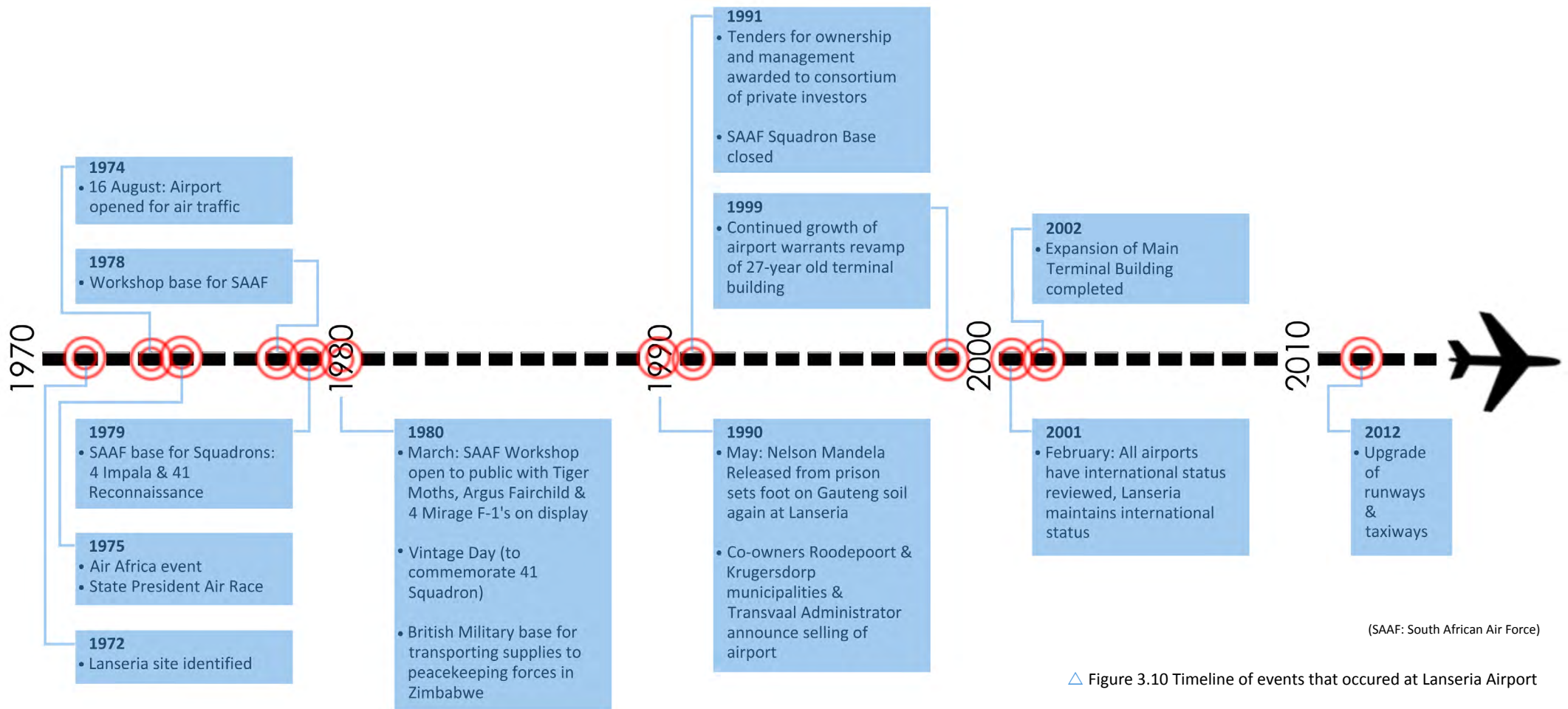
Lanseria International Airport

History

The present site for the airport was identified in 1972 by two Pretoria based pilots, Fanie Haacke and Abe Sher. In spite of a few mishaps

during construction due to bad weather and a shortage of steel (for the hangars) during construction, the airport was completed on time. It

was officially opened for air traffic on 16 August 1974, by the then acting minister of transport, Hannes Rall, who, upon seeing the proposal for



△ Figure 3.10 Timeline of events that occurred at Lanseria Airport

the airport, asked the pilots: “Wanneer lanseer ons dit³?” The term “lanseer” was latched onto by airport officials, and so the name Lanseria was coined (City of Johannesburg, 2012 : Online).

The location was chosen for its relationship to residential areas⁴, ability to handle long runways and for acceptable approaches. The higher elevation of the area also played a deciding role because, unlike its OR Tambo counterpart which is situated at a lower level, a smog and fog-free zone could be ensured for emergency landings in open areas (Lanseria International Airport, 2010 : Online).

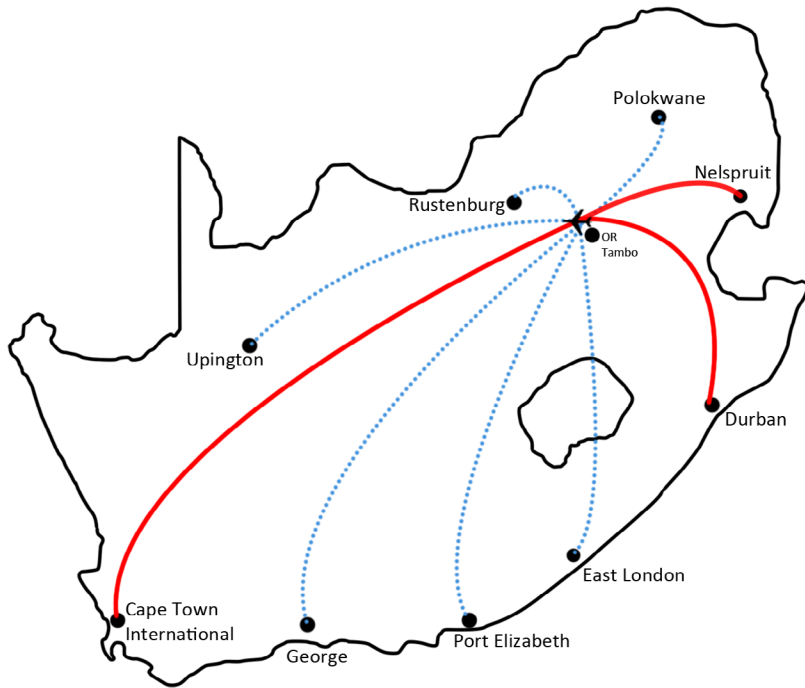
The 1975 Air Africa International event placed Lanseria in the international aerospace calendar and the South African aviation history books, as this was the first time that South African aviation buyers were exposed to the latest international



△ Figure 3.11 View of Lanseria Airport terminal in 1975 (Lanseria International Airport, 2010 : Online)

aircraft and electronic equipment from countries such as Britain, USA, Canada and France (Jozi-Bear Tours, 2010 : Online). In addition to this, air demonstrations that were originally produced in Farnborough and Paris were shown here “in front of thousands of spectators” (Lanseria International Airport, 2010 : Online), as seen in Figure 3.11.

A number of other milestone events in South African history also occurred at Lanseria Airport and these, together with its handling of approximately “70% of the South African charter market, apart from private and business craft on regional and international flights” (Gerneke, 2003 : 58), as reported in 2003, cemented its status in Gauteng.



Map of South Africa showing direct and indirect flights

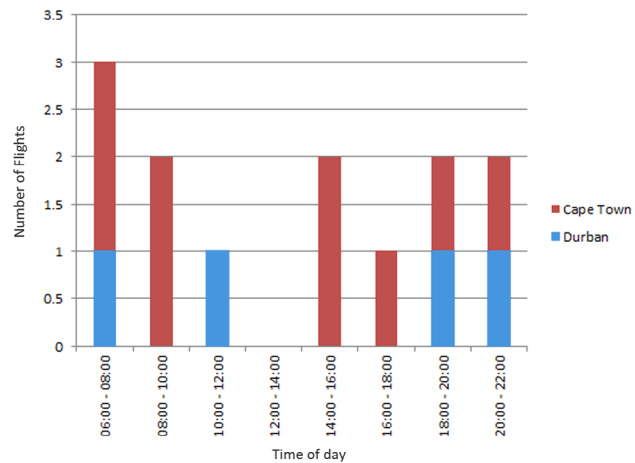
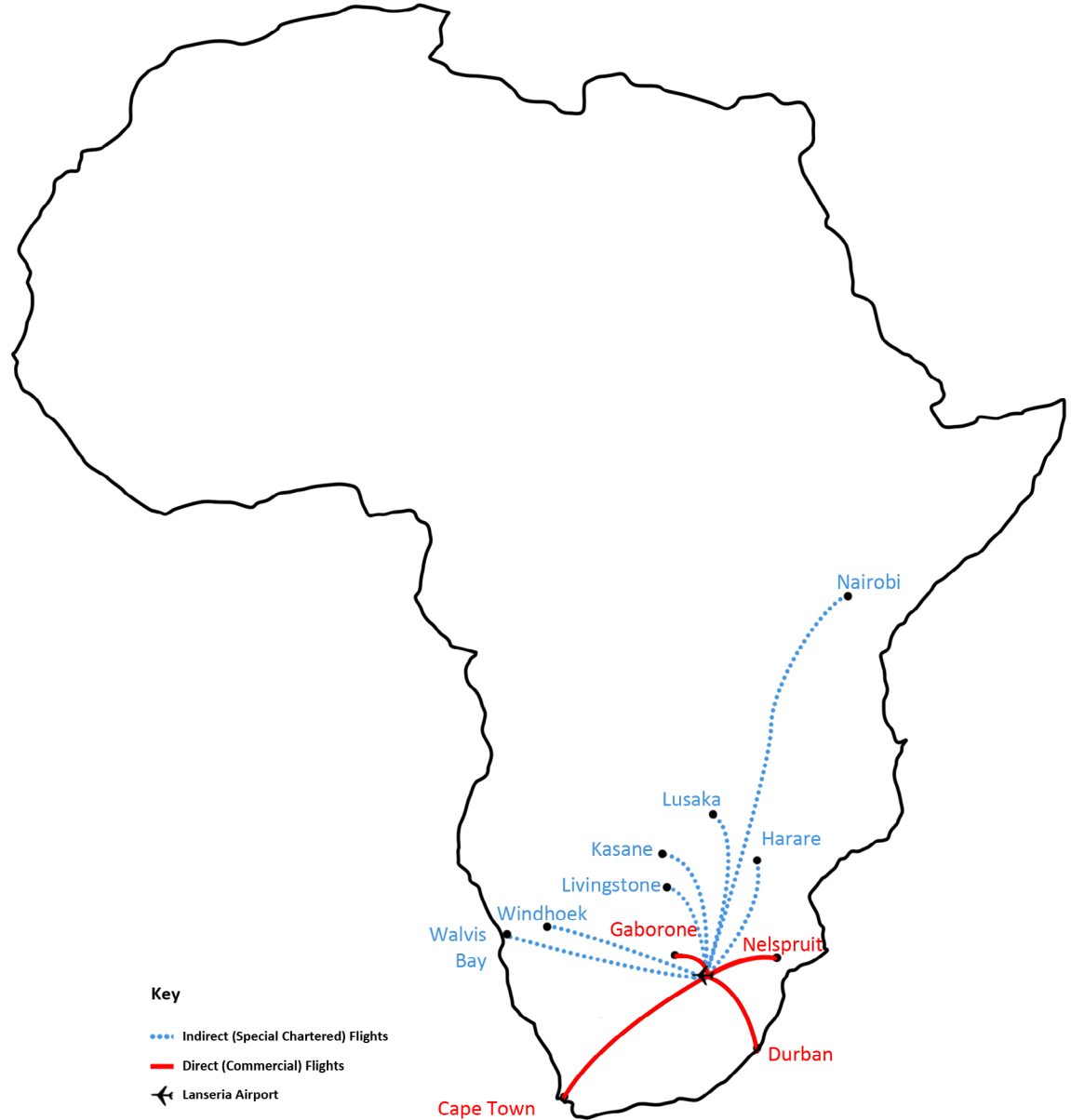
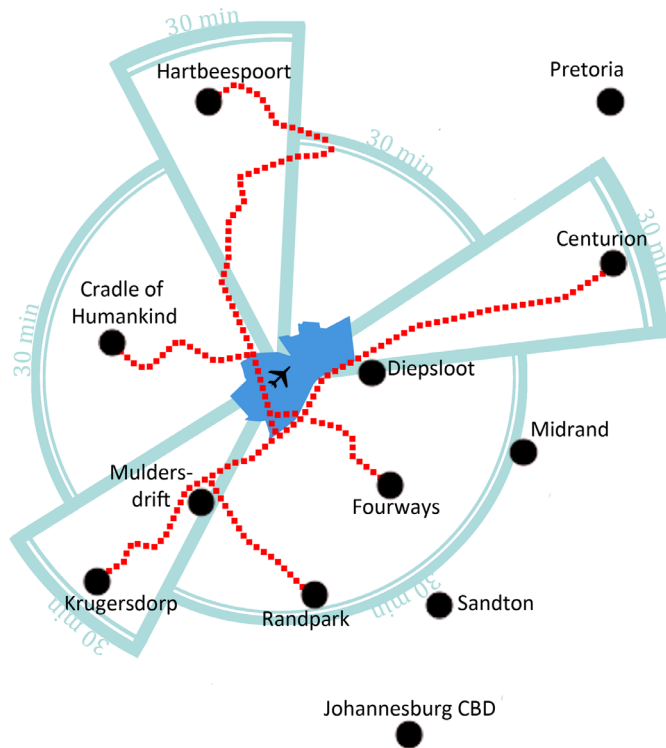


Chart showing frequency of commercial SA flights departing from Lanseria



Map of Africa showing direct and indirect international flights to other African countries

Present



△ Figure 3.12 Map showing areas within a 30 minute vehicular radius of the airport

◁ Figure 3.13 Series of illustrations showing flight pattern analysis

Lanseria airport is the currently the only privately owned international airport within South Africa, and it is estimated that it services 160

000 passengers per year. It is also the preferred entry point for overseas corporate, diplomatic and private aircraft visiting South Africa (Africa Spotter, 2012: Online). John Travolta, together with many other VIP's secured their anonymity during the 2010 World Cup by preferring to land at Lanseria rather than OR Tambo (SA Venues, 2013 : Online).

A large portion of travellers make use of the number of scheduled, direct and unscheduled, indirect flights departing from the Lanseria airport to improve efficiency and productivity of their business. The remaining portion utilise the airport because of its close proximity to the northern Johannesburg areas, as seen in Figure 3.12.

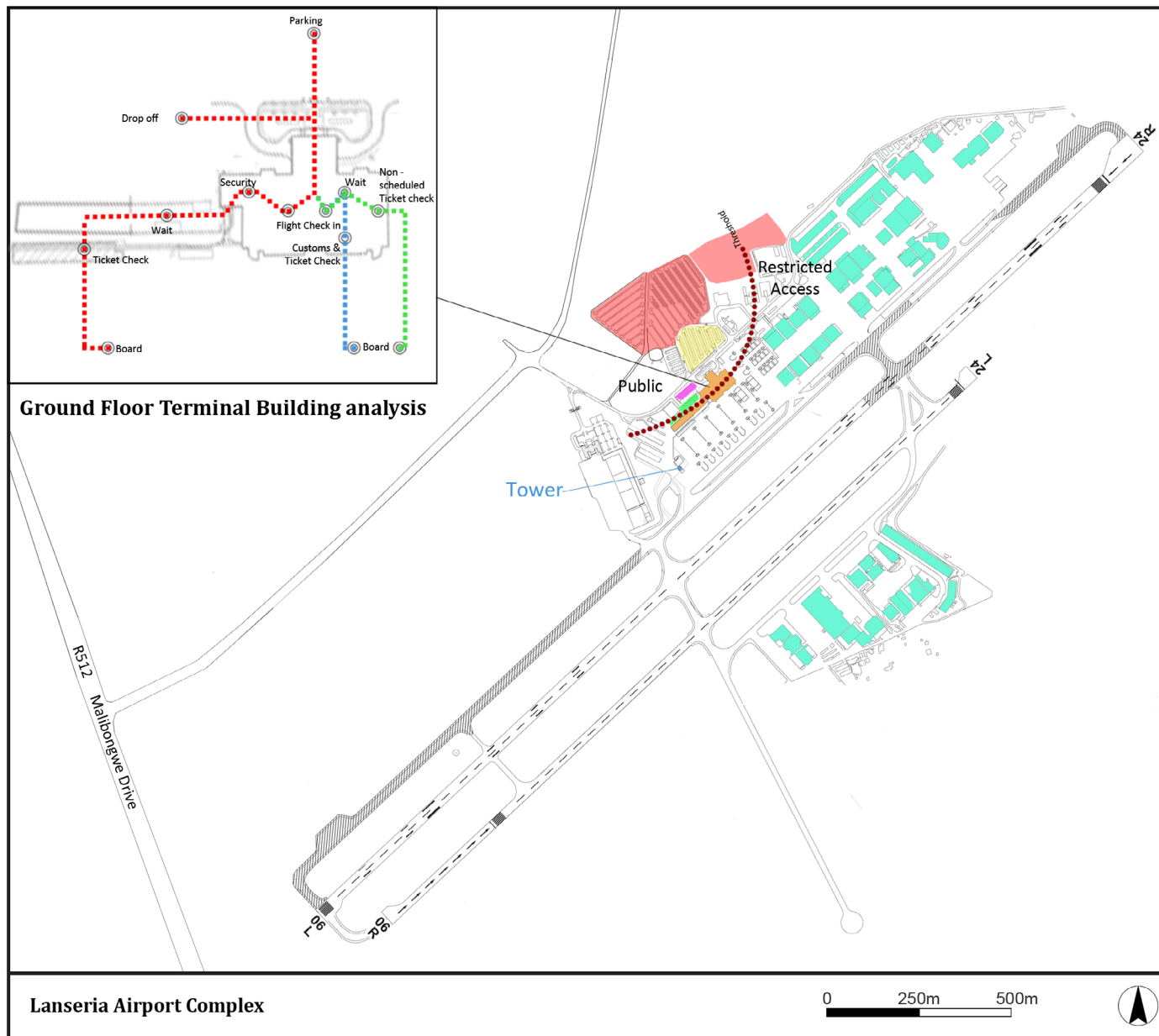
Future

The 4-million passengers expected to travel

through the airport by 2017 (Bosch, 2010 : Online) will ensure a continuous, dependable customer base because of its service levels (i.e. Lanseria Airport is renowned for its swift check-in times of ± 25 minutes), location and the wide extent of catchment areas served. This will prove vital in developing marketing applications for an information platform, in addition to networking assistance for the area, businesses and the struggling Crocodile River Ramble Route.

Contextual Analysis

The operations within the Lanseria Airport complex work efficiently as different functions are placed within good relation to each other, as can be seen in figure 3.14. However, the non-existence of a defined entrance and identity to the area, a lack of good runway views (apart from the first floor restaurant) and a number of large advertisement billboards.



The current facilities within the complex service the basic needs of the domestic and international (i.e. Africa only) traveller. There is a clear public and private (restricted) gradient across the site, and within the terminal building itself.

The terminal building divides itself into two distinct areas - commercial scheduled and international/ unscheduled flights. Among the facilities included within the terminal building is a coffee shop at each of the 2 distinct waiting areas, as well as a Bureau du Change and a novelty shop for aviation enthusiasts. Stepping outside near the entrance, several rental car agencies (such as Avis, Budget, Europcar, Tempest and First) are positioned.

Figure 3.14 Analysis of the airport complex

Key:

- Terminal Building
- Control Tower
- Hangars
- Customer Parking
- Drop off Zone
- Terminal Staff Parking
- Rental Car Parking
- Path for Domestic Scheduled Flights
- Path for International Flights
- Path for Non-Scheduled Flights

Signage billboard advertising
Cradle City Development

Unpronounced entrance to
Lanseria Airport complex

Large Signage
Billboard

Execu Jet Parking

Direction of
Johannesburg



△ Figure 3.15 Panoramic photo of the entrance to the Lanseria Airport Complex

Execu Jet Parking

Large Signage Billboard

Highveld Grassland

Magaliesburg Mountain Range



△ Figure 3.16 Panoramic photo looking South West.



Figure 3.17 Main entry paths to the airport terminal building

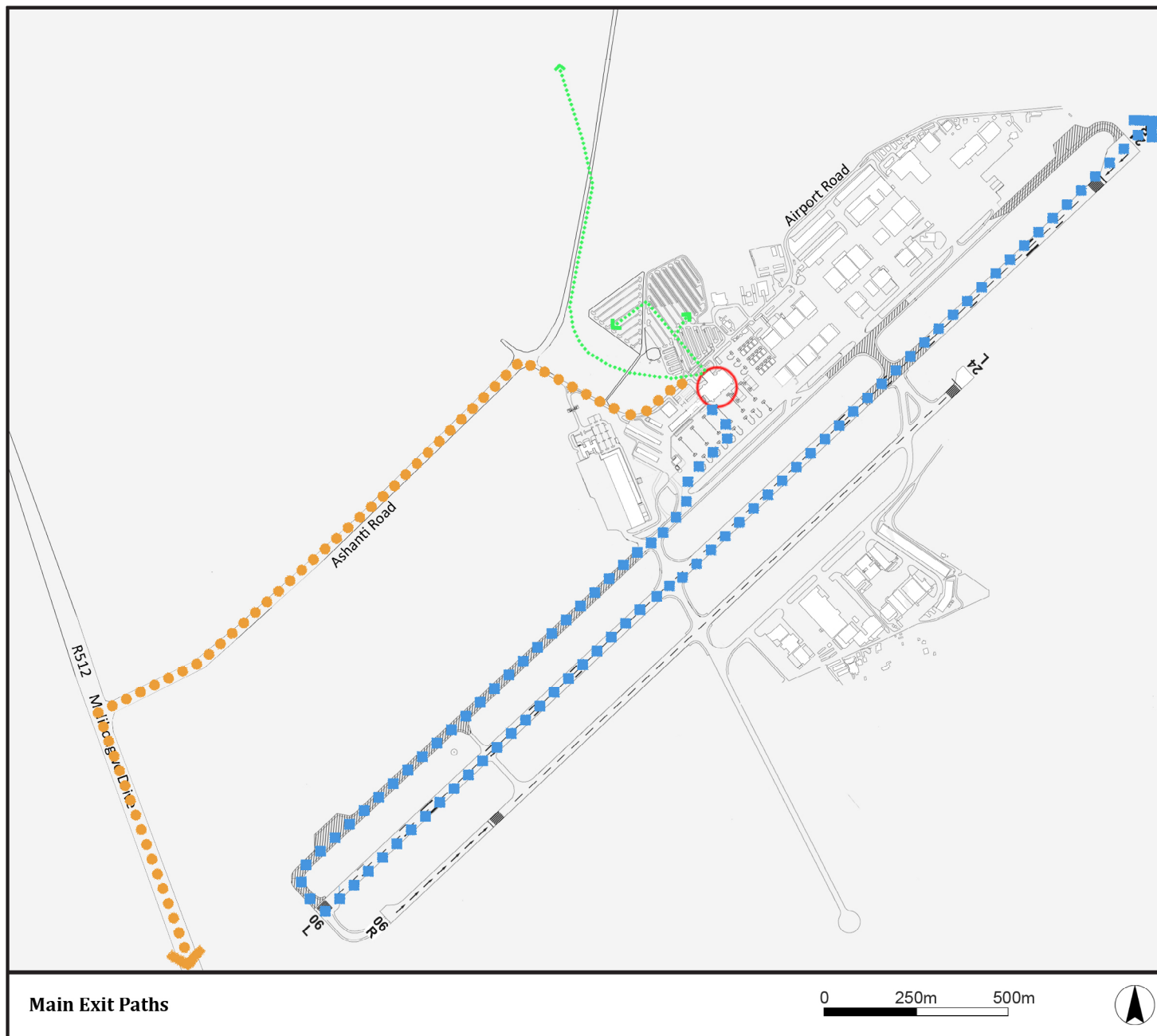
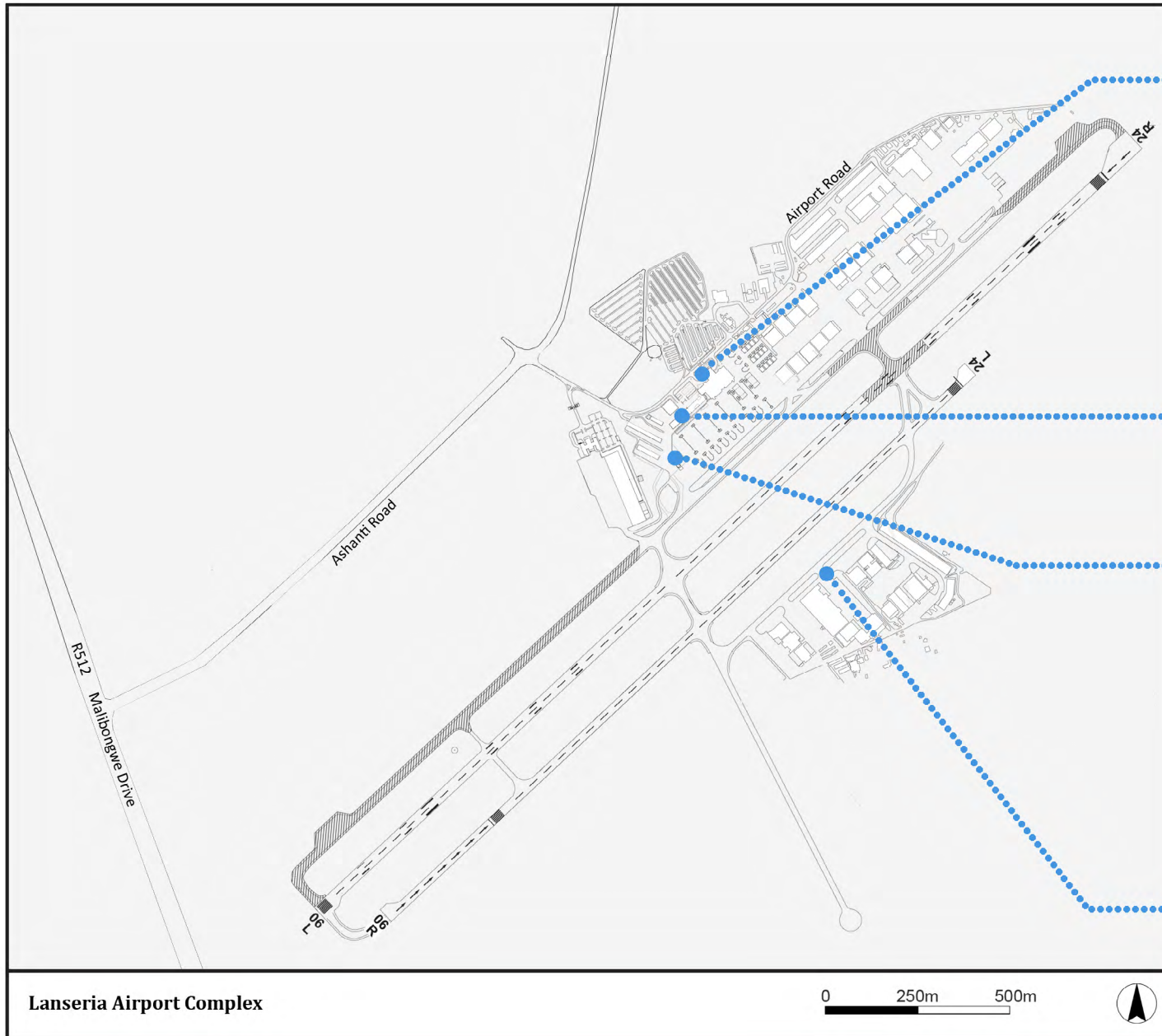


Figure 3.18 Main exit paths from the airport terminal building



Lanseria Airport Complex

0 250m 500m



Terminal Building



Arrival/ Departure. Wing



Control Tower

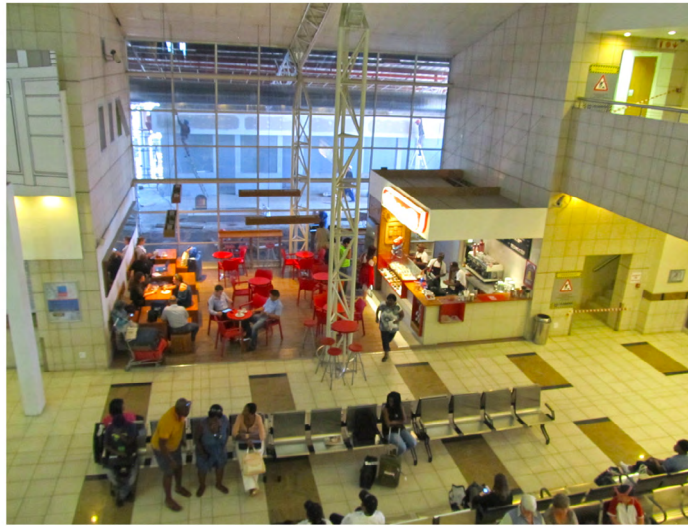


Hangars

◀ Figure 3.19 Photos of some of the functions present and their locations within the airport complex.



▼ Figures 3.20, 21 & 22 Photos taken within the Terminal Building on 22 March 2013



“The city first announced expansion plans for Lanseria in 2009 after an extensive study into the possible expansion of South African airports.” (Reinstein, 2012 : Online), and with building work taking place during my visit in March, it is clear that there is a limited amount of space available - the terminal can only expand so far across in plan, and up in section. Its location and infrastructure have allowed it to “attract

a lot of business from privately owned aircraft as well as scheduled airlines” (Reinstein, 2012 : Online), to the point where it now competes with OR Tambo International airport. Some of the planned additional facilities include a wider concourse entrance, escalators, additional restaurants, spaces for rental car agencies (to be relocated inside the building), etc.

These, however, still do not offer any additional insights to the area, nor take cognizance of the traveller who makes use of the airport. The flexibility of quick, private meeting and exhibition spaces are not on offer, and little of the area is showcased there.

Site Selection

When faced with the choice of a specific site, the following factors were taken into account:

- Growth trends for the area
- Increased developmental interest and UDF framework
- Lack of entrance procession/ identity to the airport (only billboard signs mark the
- The ease of access into the airport complex
- The distance from the terminal building and long term parking area
- Visibility from the main road (Malibongwe Drive) and views of the runway

turnoff from Malibongwe drive, and is regularly confused with the entrance to the Lanseria Culinary Centre).

As a result, the proposed building would need to announce the airport – to make the landscape and arrival procession legible for its current and potential new users. The building would need to be more than a signpost for the area – that which culminates in a map symbol on and for the landscape.

▽ Figure 3.23: Aerial view of Lanseria Airport (Delta Built Environment Consultants, 2013 : Online)

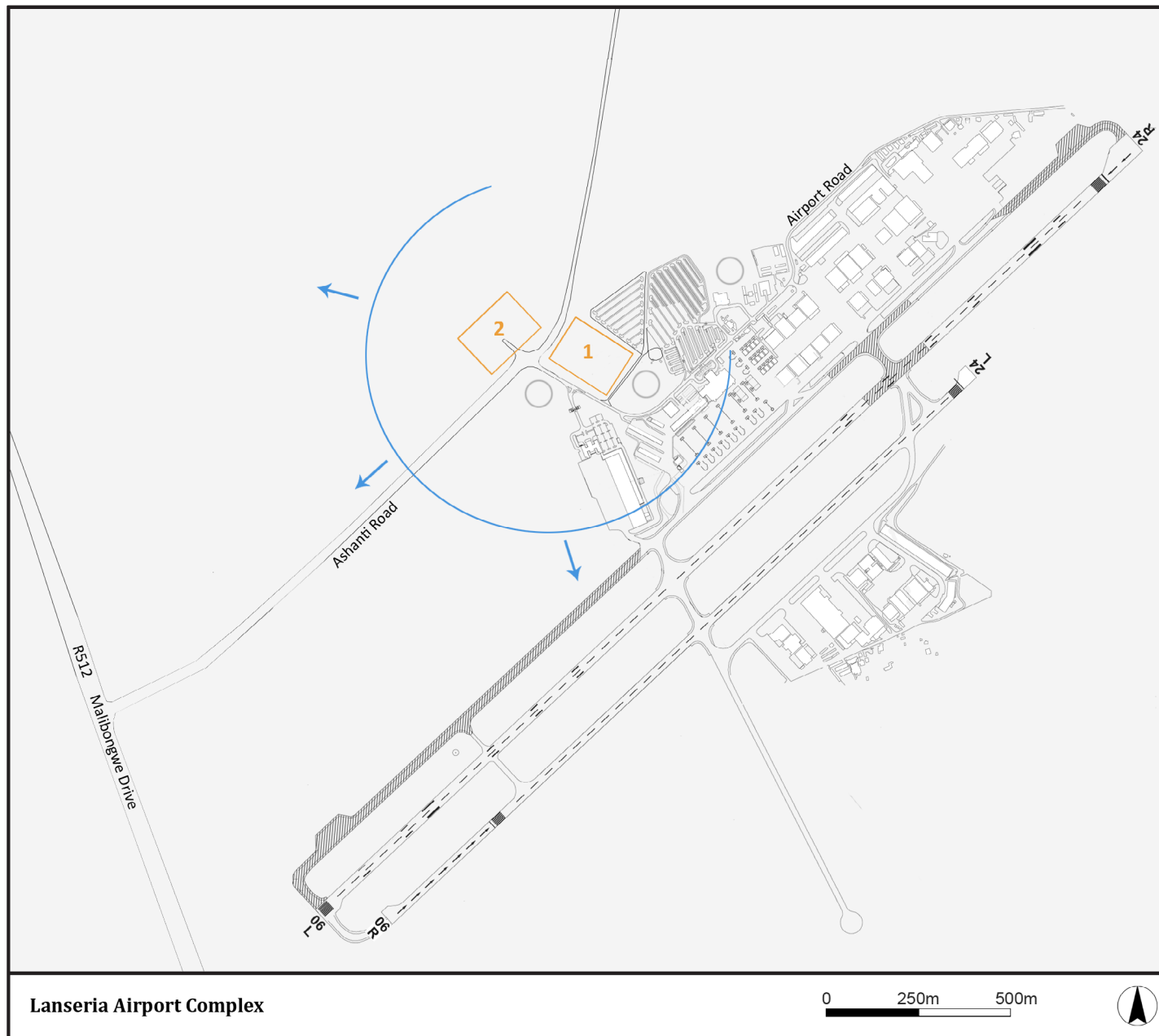


Two options were initially chosen for the site. Unfortunately the land immediately available around the terminal building was already filled or earmarked for future expansion. The entrance into Airport Road (off Ashanti Road) offered the most exposure, with clear visibility from Malibongwe Drive and the runway. Option 1 worked well with the notion of the gateway - into the airport - and fell within the 'border' of the airport complex. Option 2 proved to be less suitable due to the distance from the terminal building, making shuttle routes between the parking and the terminal disjointed.

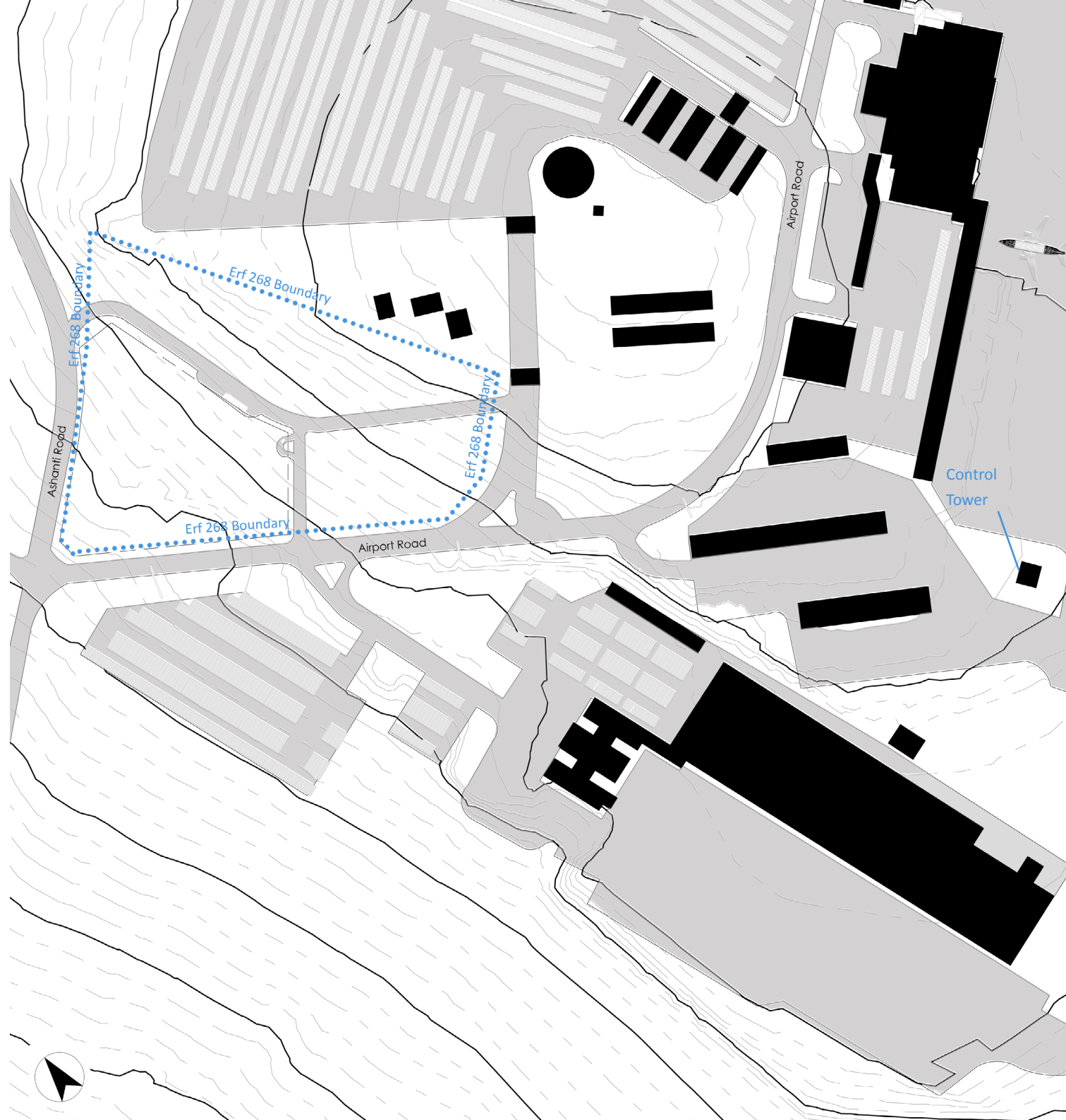
Figure 3.24: Sites considered

Key:

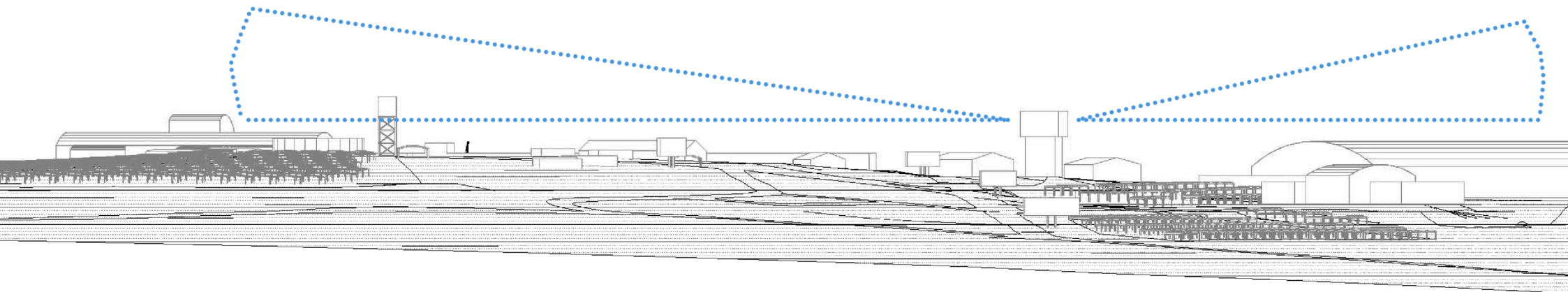
- Site options
- Earmarked areas for future expansion (by LIA)
- View range/ Visibility



Based on the aforementioned factors, it was decided that the centre will be located within the Lanseria Airport complex grounds, on erf 268, Lanseria Extension 20. The site is located at the entrance to the airport complex, on the corner of Airport and Ashanti roads, lending good visibility from Malibongwe Road. It is situated between the entrance to the Execu-Jet offices and the long-term parking area for the airport, and has a north eastern orientation. The original erf will need to be subdivided as it is too large (20 000sqm), and by expanding and making use of the existing pedestrian dirt road and the Execu-Jet entrance, the site boundaries were laid out (figure 3.25). At present, the erf has an undetermined zoning, and is owned by Lanseria Airport 1993 Pty Ltd.



▷ Figure 3.25: Site plan with Option 1 highlighted



△ Figure 3.26: Visibility clearance of the Lanseria Control Tower - the proposed site lies in the foreground



△ Figure 3.27: Panaramic view of the site

The sloped topography of the site is elevated at a level just below the airport terminal building, and offers good views of the Magaliesburg

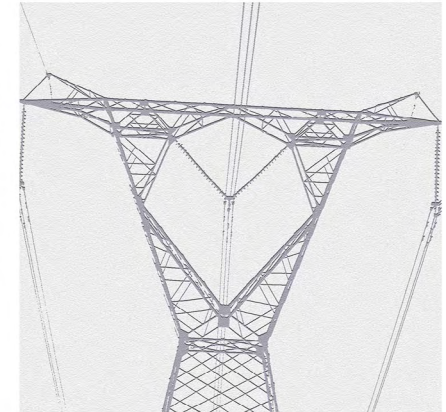
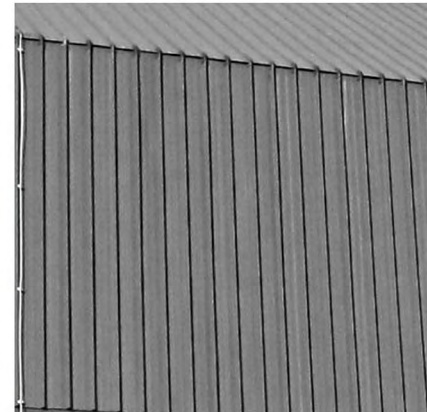
Mountains and the airport runway, Highveld grassland plains and is within a 5km radius of small scale accommodation, restaurants and

‘business orientated’ recreation activities. A glimpse of the control tower can also be seen from the parking area ridge. The shuttle distance

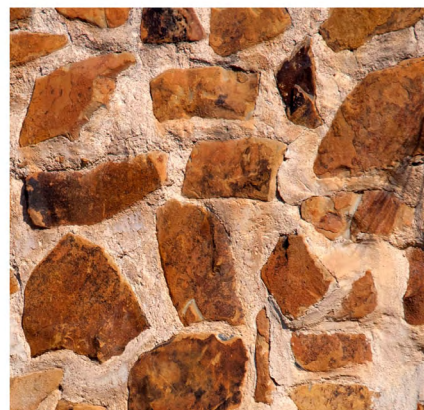
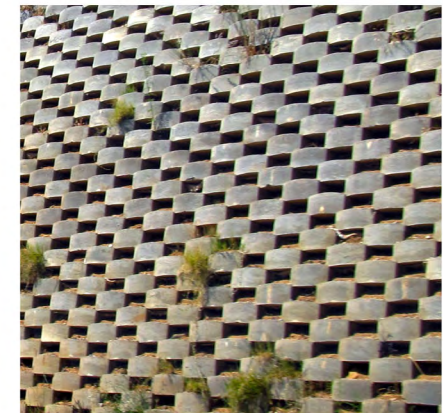
between the site and the terminal building is approximately 0.5km, and therefore a potential bicycle sharing scheme could be implemented. This speaks to the health and well-being of passengers coming from a cramped cabin with little manoeuvrability and legroom.

Material Investigations

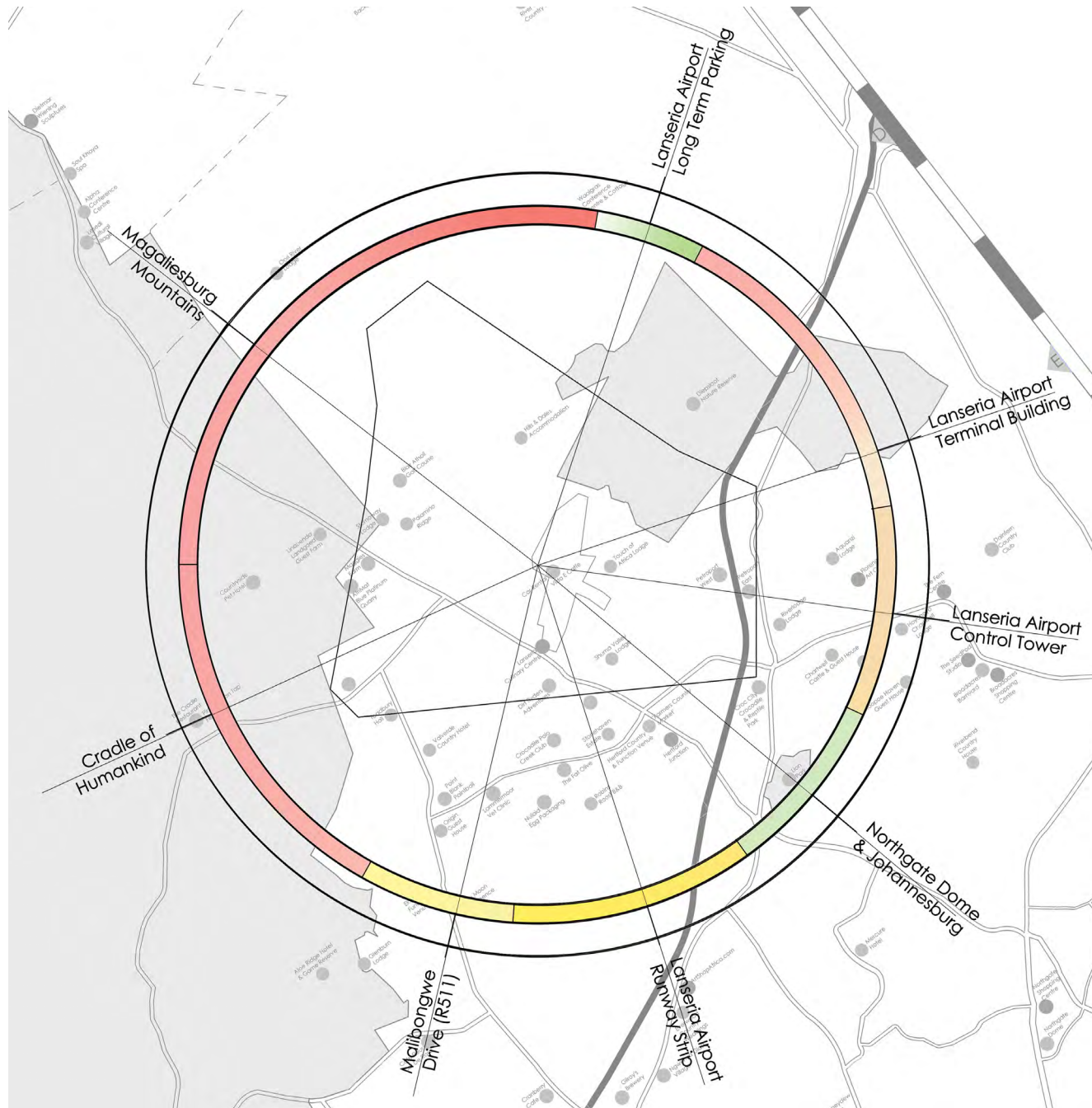
Upon investigating the physical site and its surrounds, I discovered a distinct palette of materials and tones which could be incorporated into my proposal. These ideas seem to emphasise the relationship between man-made elements and nature; distinctions between urban, peri-urban and rural; and a layering of history, present activities together with future aspirations.



MATERIALITY



► Figure 3.28: Representation of surfaces and textures found within the vicinity of Lanseria airport



In applying the mapping techniques learned in order to organise and make sense of the information present, a clearer picture begins to emerge about the Lanseria Airport area (figure 3.28). Its users appreciate its location because of the reputation it has and the convenience it offers, and developers and the government have started to take advantage of it. The sprawling, but wide variety of activities available has become useful by requirement, with many gaps in the market still available for potential entrepreneurs. A recurring theme of the hub for business, and a facilitator for improving the knowledge of the visitor, has started to occur and can be explored as an extension of the airport experience.

◀ Figure 3.29: Main lines of site superimposed onto a map of the area

³ Translation: When do we launch it?

⁴ At that time it was a considerable distance away from Johannesburg.

The choice of site as seen in Chapter 3 plays an important part in determining the programme and role of the building. After careful consideration of the existing functions, characteristics and missing elements in the area, the new building was seen as a supplement and addition to the Lanseria Airport. As such, the map also provided a number of clues for the main components of programme, and a hierarchy of clusters and thresholds could begin to interact with the site's gradients and entrance approach.

Various precedent studies were also investigated for the way in which notions such as mapping, identity and programme were applied in built form. This was done in order for the proposed building to harness the essence of the area, functions and the idea of the map.



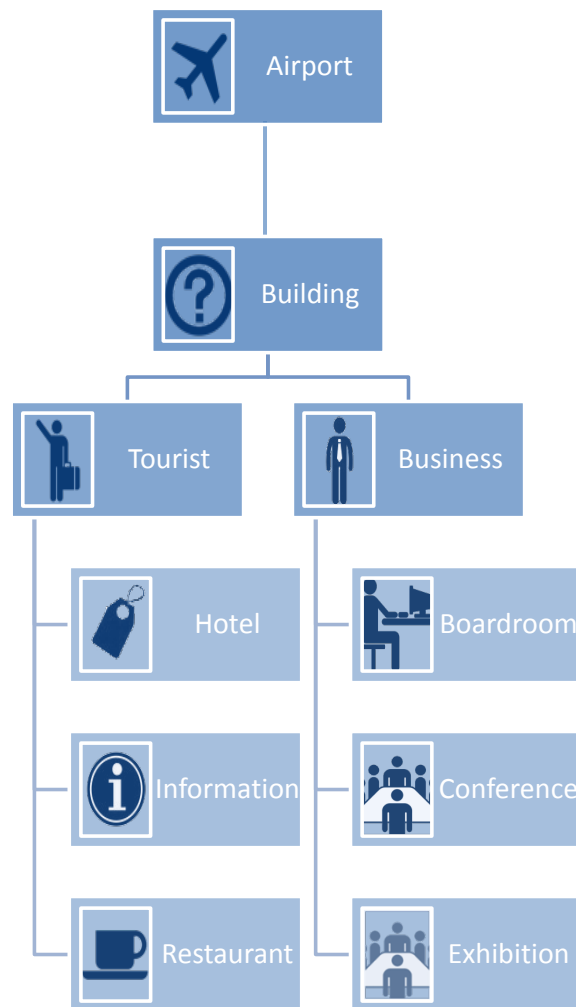
Chapter 4

Defining the Building PROGRAMME & PRECEDENT

Programme Generation

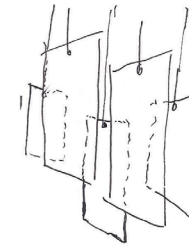
The programme, with the previously mentioned references in mind, should act as a facilitating device to benefit the area as a whole: exhibition and useful spaces for businesses using the airport, as well as for tourism enterprises along the Crocodile Ramble. It is therefore proposed that a multipurpose centre be generated: to pose as a marketable feature for the developing airport, as well as a platform to increase the knowledge base of both the business and recreation traveller.

These will include public commercial and retail facilities, in addition to a conference centre, exhibition halls, travel agency and tourist information. The development will consist of 2 main programmatic components: Business and Tourism

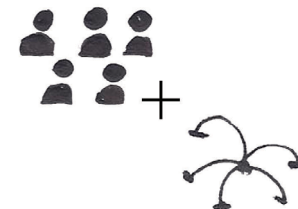


△ Figure 4.1 Basic representation of programmatic functions

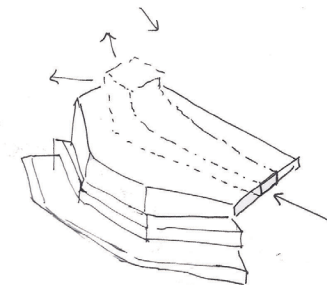
Programmatic Functions



Information about wide spread area translated & exhibited to business persons, tourists, visitors and locals alike.



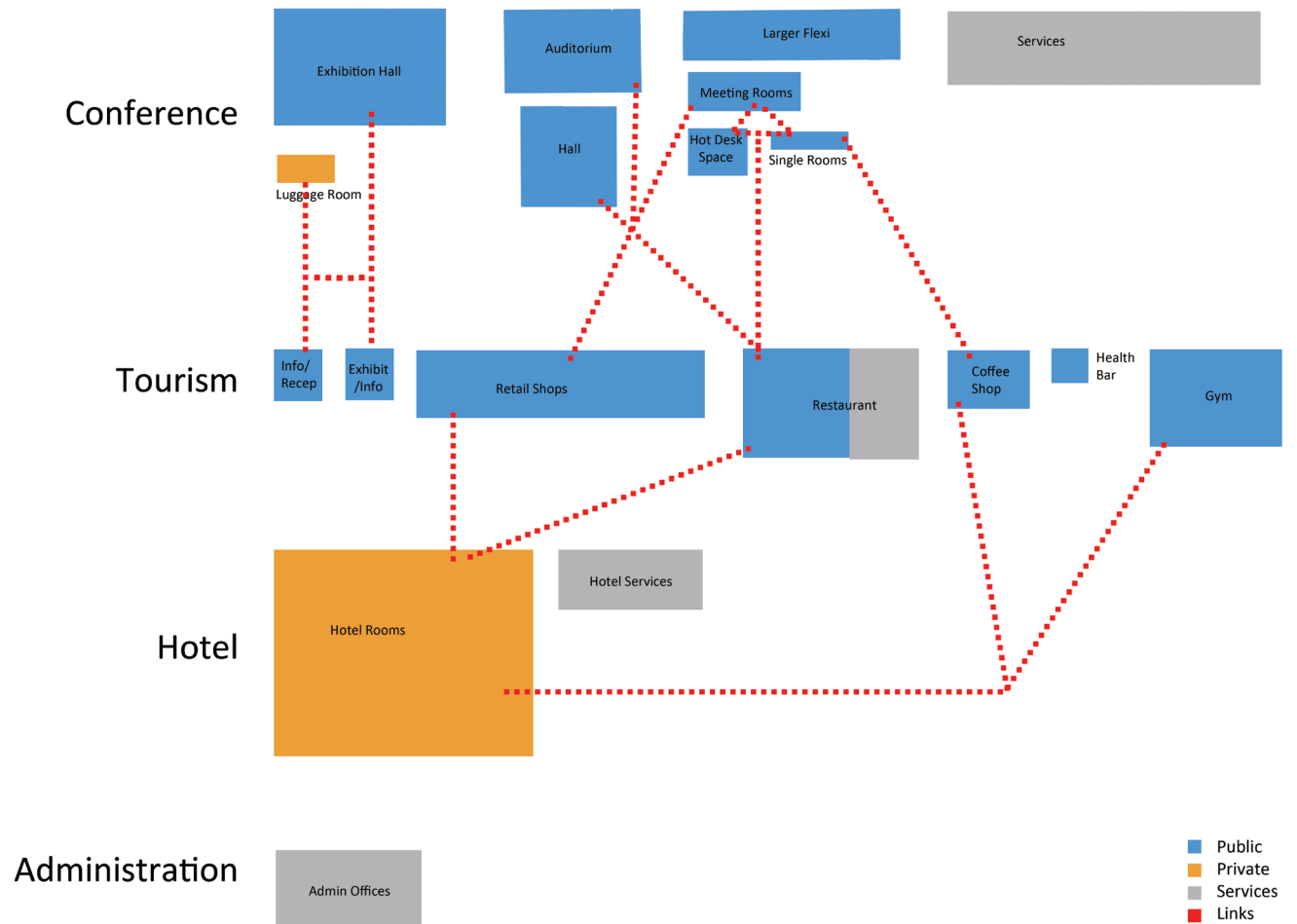
Communication and networking platform to create and maintain linkages: engagement.



Terracing landscape, thresholds and levels of privacy gradient: leading up to a reference point.

△ Figure 4.2 Conceptual thoughts on programmatic functions

The centre is to accommodate retail, admin spaces and amenities (ablution, storage and rest areas, etc.) in order to be self-sufficient. The abundance of long term parking is underutilised and it is therefore proposed that a shuttle between the centre and parking is established. The mixed use resources incorporated into the building are planned so as to offer a flexible capacity for events (i.e. seated for a meal) for networking and presentations/ exhibitions. Established smaller venues are available within the vicinity at local accommodation spots, and therefore the development would offer a consolidated, larger volume space that does not negatively impact the business of the smaller, team-building orientated venues, such as Shuma Valley Lodge, Hertford Venues, etc. This is also in line with the goal of the project to make information about the area available to both tourists, and local residents.



△ Figure 4.3 Programme in terms of area (N.T.S)

Precedent Studies

In searching for clues for my building proposal, various concepts of layering, connections and linkages, identity, entrance and topography started to emerge. Precedents where programme

elements are shared were also considered to assist with functional layouts and planning.

The chosen few documented here display some of these properties in various innovative ways.



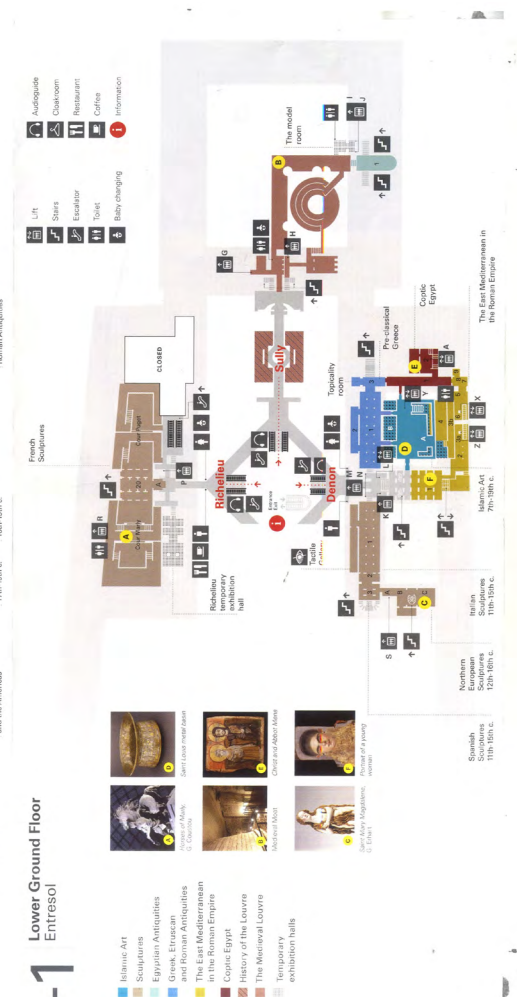
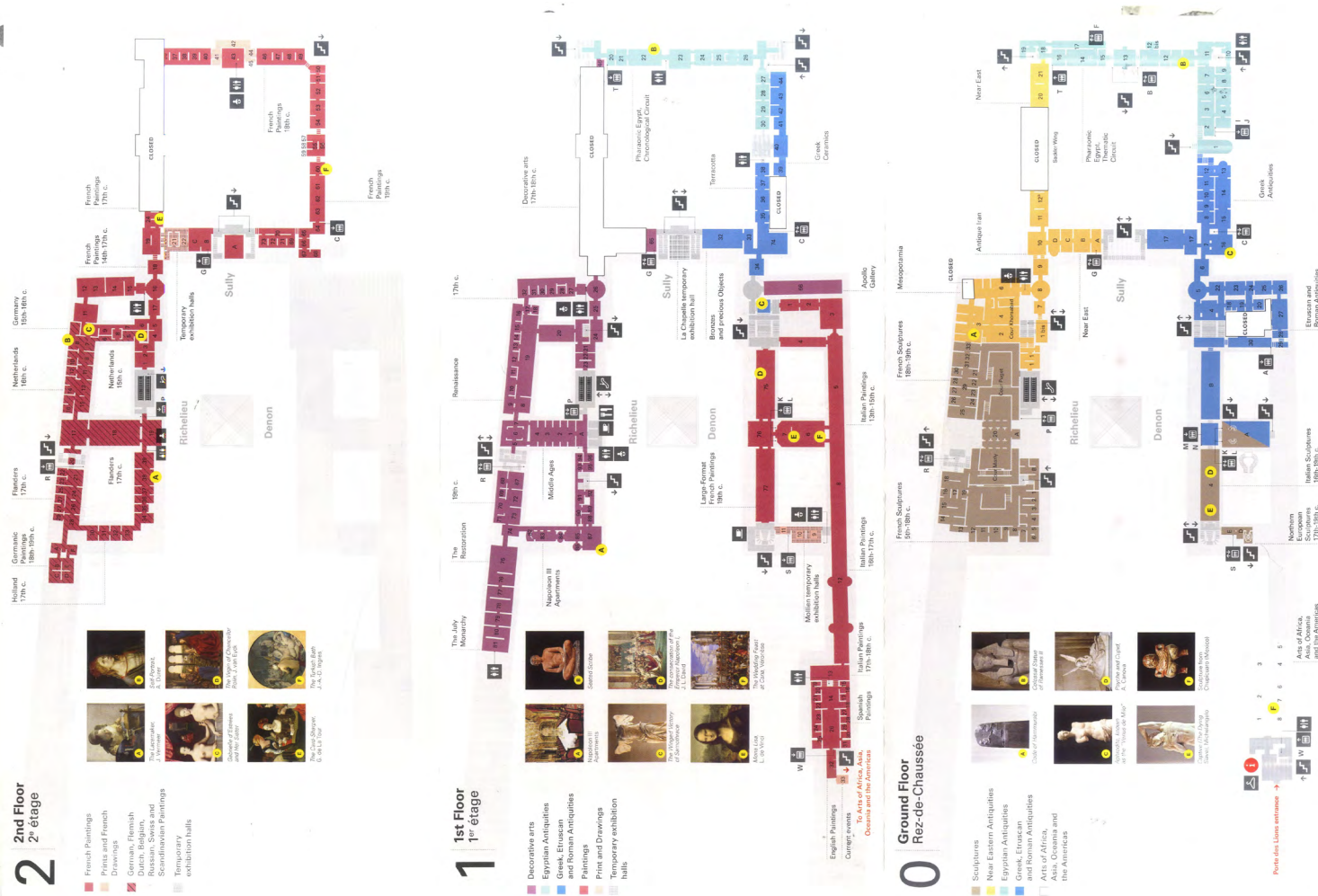
>> 'Map'

Musee du Louvre

Date: c. 1640 | Location: Paris, France | Architect: Jacques Le Mercier

Always part of the Top 10 list of places to visit in Paris, the Louvre Museum has an extensive art collection, as well as history to it. It is a good example of how horizontal layering within a building has been used to give orientation to the visitor, as well as linking the building and its programme to the city and transport network (i.e. just outside the building, both the bus and Metro stations can be found). Within the building itself, different floors house art, sculpture, antiquities, etc, and all this within an historical building which started out as a fortress, changing to a home before finally being renovated as a museum.

◁ Figure 4.4 View of the Pyramid entrance



△ Figure 4.5 Louvre Plan/ Information (Louvre Museum, n.d. : Map)

The floor plans above map the various artworks - demonstrates a logical stacking of uses, which building and the artworks. according to period, style and placement. This makes it easier for the users to navigate the

>> Identity



Northern Cape Provincial Government Legislature building

Date: 2004 | Location: Kimberley, SA | Architects: Luis Ferreira da Silva |

It seems apt that Kimberley (with its history of diamond mining and apartheid planning) is the capital city of the Northern Cape province and the site where Legislature buildings sought to “merge the fabric of the ‘black’ township of Galeshewe and the main ‘white’ town” (Deckler, et al., 2006: 11).

△ Figure 4.6 View of entrance (Sol Plaatjie, n.d.: Online)

The relationship to the landscape, people and the area was not conceived as a description of one single truth, but instead it represents a number of diverse cultures, “lending an identity to the building for the user and the visitor” (Deckler, et al., 2006: 11). The landmark is in the form of a sundial tower - which rises above the rest of the buildings, “drawing the eye closer” (Deckler, et al., 2006: 13), marking the passage of time.

Mpumalanga Provincial Government Legislature and Office Complex

Date: 2001 | Location: Nelspruit, SA | Architects: Meyer Pienaar |

▽ Entrance (Meyer Pienaar Architects, n.d.: Online)



▽ View (Meyer Pienaar Architects, n.d.: Online)



The silhouettes of the granite domes found in the Nelspruit area are echoed in the design of the domes within the 'campus' complex. The different functions of the complex are housed in differently expressed pavillions, all built along the natural contours of the site. Sustainability and local craft techniques proved fruitful in the search for identity in "the first major public building of our democratic state" (Deckler, et al., 2006: 15).

Forum Homini Boutique Hotel

Date: 2006 | Location: Johannesburg, SA | Architects: Activate Architects |

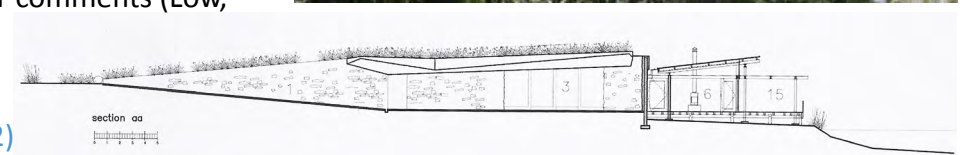
▷ (Inhabitat, n.d.: Online)

This privately owned boutique hotel took inspiration from its Cradle of Humankind location - a world heritage site within the Highveld landscape. Entrance into the building is via a split or 'schism', "suggesting a return to the understanding of earth as potential shelter" (Low, 2007 : 152), and stone walls make reference to the nearby ridges of the Magaliesburg mountains.

▷ (Cabin Zoom, n.d.: Online)

The story of mankind's evolution, originating from the African continent, was used as a backdrop, "creating an ambiguous interconnection between the landscape and the architecture" (Low, 2007 : 152), and "architecture and iconography," as Lindsay Bremmer comments (Low, 2007 :153).

▷ Section (Low, 2007 : 152)





Highlands Mountain Retreat

Date: 2002 | Location: Golden Gate, SA | Architects: Crafford & Crafford |

◁ Figure 4.12 View overlooking the cabins

Situated within the Golden Gate National Park in the Free State, these cabins are found high up in the mountains (2200m above sea level), half-hidden from view and protected from the elements. Unobstructed views are offered here, and on a clear day you can see from the Drakensburg mountain range to Harrismith and Kestell.

The roof becomes an extension of the mountain, as the buildings are cut into the mountain, allowing the indigenous landscape to grow over the buildings. In a place where winter temperatures regularly drop below 0°C, the landscape serves an additional purpose as an insulation barrier - which helps to regulate the temperatures inside the log cabins.

>> Programme

CTICC, Cape Town

Date: 2003 | Location: Cape Town, SA | Architects: Van Der Merwe Miszewski |

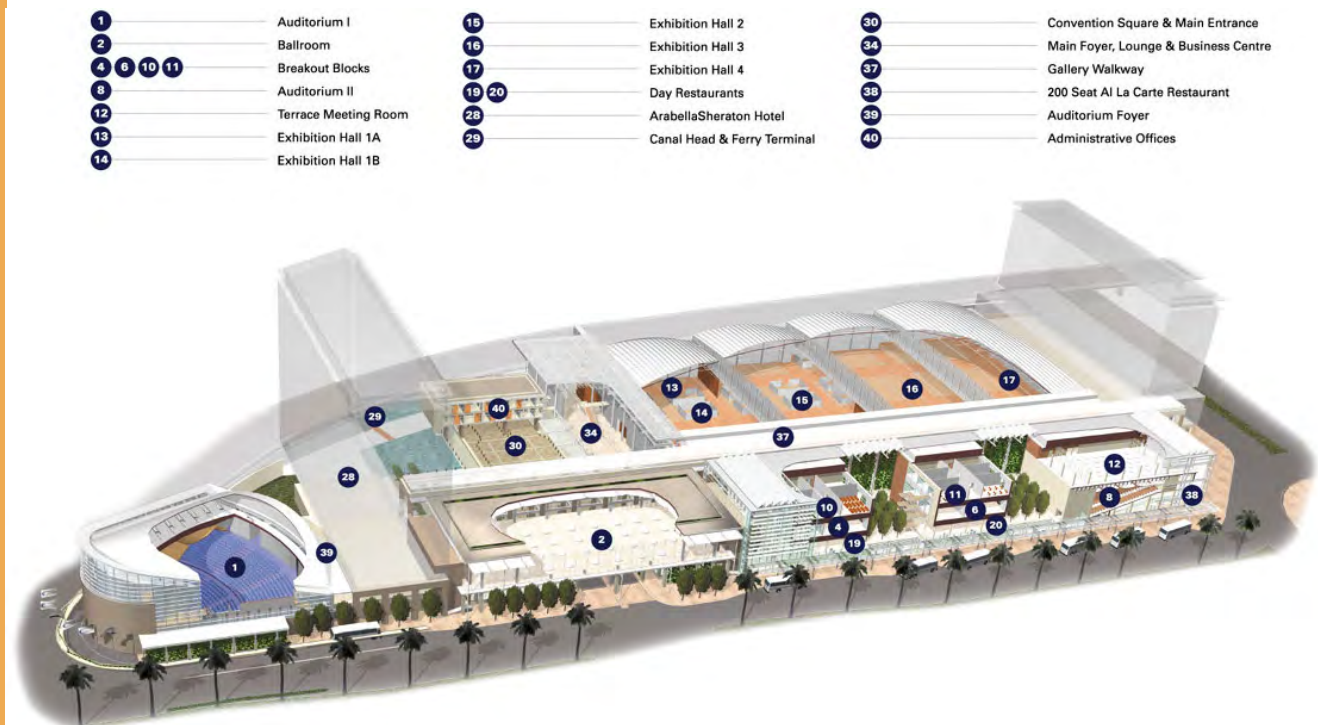
▽ Figure 4.13 Cut-away diagram (Van der Merwe Miszewski Architects, n.d., p. Online) |

The Cape Town International Convention Centre is works for both large crowds of people and smaller, more intimate functions through its

clever use of organisation and segmentation.

A wide central corridor that runs the length of the building links the various spaces, in addition to serving as break-out spaces for conferences.

Entrances off the street are large and inviting, allowing the general (non-conference, sometimes also tourist) public to experience parts of the building.

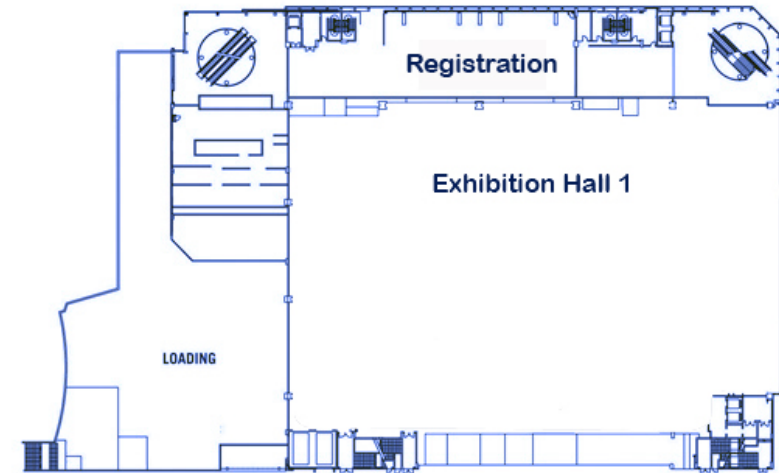


Sandton Convention Centre

Date: 2001 | Location: Johannesburg, SA | Architects: Louis Karol |

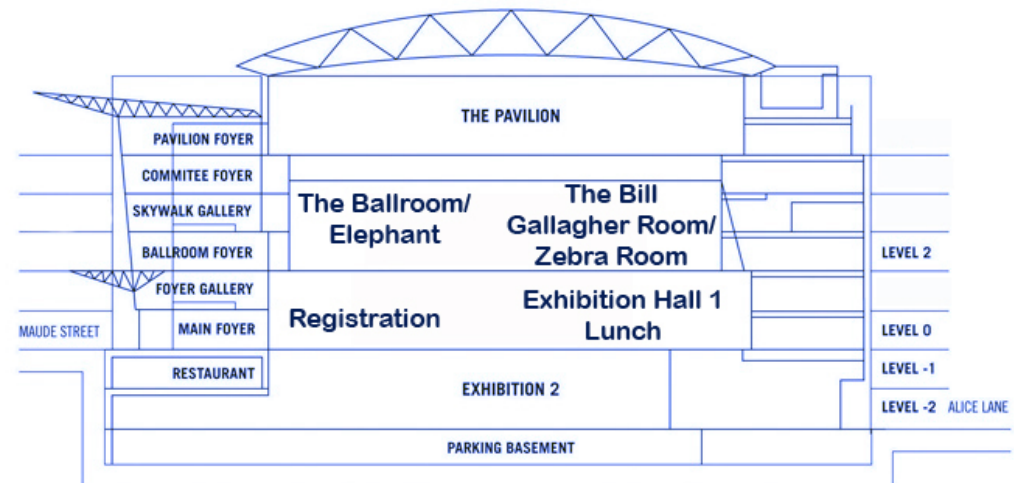
The simplicity of the planning lends a legibility to the centre, which is especially vital in the Sandton hub. The numerous ballrooms and exhibition halls hold large numbers of people (both local and international visitors), which means that navigation between the spaces are important.

The vertical configuration of the centre is due to the “high premium on available land” (Kotze, 2009 : 174) within the Sandton area, but the relationship between foyer/ pre-function area and conference room remains navigable between the different spaces and across floors .



△ Level 0 plan (Louis Karol Architects, 2012 : Online) |

▽ Section (Louis Karol Architects, 2012 : Online) |





Munich Airport Centre (MAC)

Date: 2000 | Location: Munich, Germany | Architects: Murphy/ Jahn |

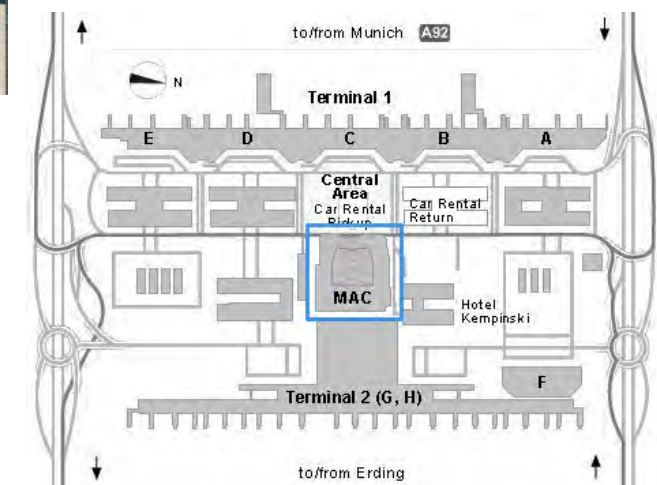
Considered to be a good representation of “the airport, the city and the region” (Schleifer, 2007 :

△ Figure 4.16 View of entrance (Edwards, 1998 : 115)

195) in Munich, Germany. The centre, which can be seen from the road, is the “visible symbol of

the airport” (Schleifer, 2007 : 195), providing the passenger terminal area with an identity, whilst spatially ordering the many different functions it houses under its large canopy-roof expanse: “a grid of hotels, offices, shops, restaurants, conference centre and clubs, located parallel to the main terminal building” (Edwards, 1998 : 195) . It is ideally situated - linked to the terminal but not directly a part of it. The S-Bahn railway system on the other side of the centre means that it can capitalise of foot traffic from both directions.

△ Figure 4.17 Map with the MAC highlighted (Munich Airport, n.d. : Online)



Slow Lounge, Sandton

Date: 2011 | Location: Johannesburg, SA | Decor & Design: Tonic |

There are a wide variety of work, meeting and leisure spaces provided for the elite business man at the Slow Lounge in Sandton. It is located across the road from the Sandton Gautrain station, and within walking distance of all major Sandton attractions (e.g. Convention centre,

shopping centres, etc) making for an ideal check-in, work and go senario.

The Lounge provides a range of flexible rooms - from single occupancy, more intimate rooms, round table rooms, video conferencing, board-room and workshop spaces to name but a few. Each room also is decorated and furnished in a

unique and distinctive manner. Open spaces, rest rooms, as well as food and drink areas (bar, restaurant, bistro and coffee shop) provide the Co-mair, FNB and RMB elite business-class patrons with a “discreet vantage point overlook(ing) the bustle” (Slow, 2012 : Online) of Sandton.

▽ Figure 4.18 Views of the different room configurations available within the Slow Lounge venue (Slow, 2012 : Online)

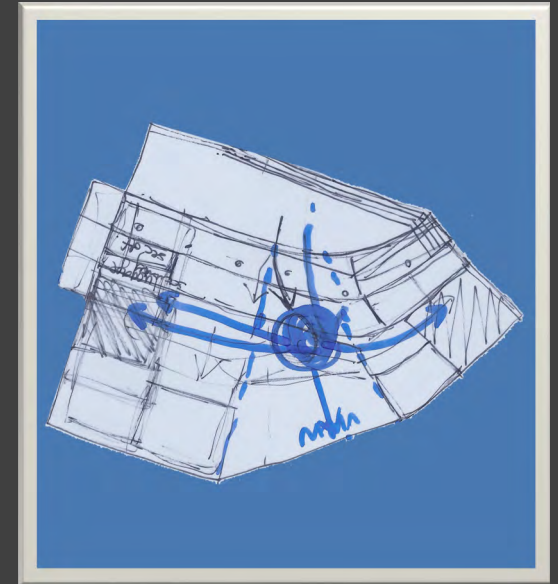


Conclusion

From the preceding, I have decided to stack the programme in a logical manner, by choosing to layer the clusters of functions horizontally between floor plates. This will ensure a legibility that can be developed further into the façade of the building. The elements that can describe the identity of the Lanseria area can be done by defining the tower in such a way that it becomes more than a mere landmark. Key visual links should be emphasised, but also controlled in order to merge and bring together the different scattered activities, which will help to define the connection to the airport. A diversity of spaces within the conference centre must be catered for, so that they become flexible and useful to more than just the Business class traveller.

This chapter focuses on the design development by exploring the process of mapping, form finding and other conceptual thoughts. The airport as a collection and dispersement point is one of the key attributes that encapsulate the essence of the Lanseria area. The ordering of the programme was considered in terms of horizontal layering (much like a map), functional relationships and then laid out in conjunction with the entry path procession. The connection to the site was considered with respect to the contours and the views offered, as well as it being a link to the airport.

The technological investigations took the concept of the map and link to the airport further by unfolding the layers of information and programme in terms of a metaphor – just like a map is a bird's eye perspective into the area it covers, so the user is brought through the building via a series of snapshot images taken horizontally or vertically: whether it be of views, uses and/ or other users. The idea of guiding runway lights (after all – it is linked to the airport) were also captured through the detailing of the skylights and balustrades, affording the users a clear view and orientating device for what is happening below or above them.



Chapter 5

Design & Technological Development
DEVELOPING THE CENTRE AS A BUILDING

Design Development



△ Figure 5.1 Conceptual drawing of the relationship between the airport, aircraft and mapping

Conceptual Informants

The principle drivers of the thesis have been about the relationship between the airport and its subsequent requirements, as well as the aircraft and the air views it provides through the map.

Investigations into the site around the airport complex have reiterated a number of clues, with the airport functioning as the first point of contact into the area: a node for both collection and dispersement of people (Figure 5.2).

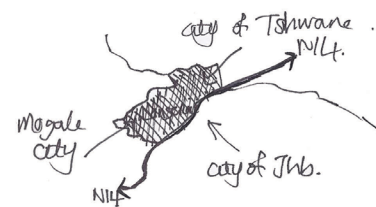
Airports, as aforementioned, act as commercial nodes, offering attributes such as connectivity, accessibility and network, with Lanseria Airport being no different. However, as a point of interchange, I have shown that it has a lack of

identity and coherence with respect to the larger area. In the process of making space intelligible, information needs to be provided through keys and symbols in order to empower people. The airport is more than a mere visual reference to flight and more complex than the processes that are glimpsed by the public. It is an economic and social implications which can be harnessed more effectively.

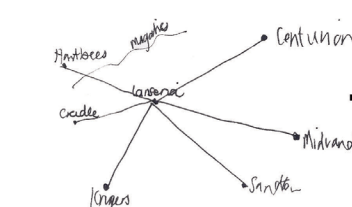
Social

Meetings and events have been shown to have a constructive social impact on society, “contributing to health and wellbeing, education, social diversity, community spirit and civic pride” (Business Tourism Partnership, 2013 : Online). Both the conference and tourism sectors will help to boost trade and export capacity, especially because of the increasing investment within the area, and the new trend of light aircraft aviation.

Collection



Surrounded and maintained by 3 main municipal boundaries.

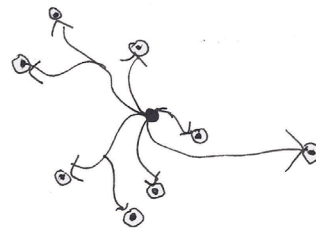


Node to which all influences are drawn.

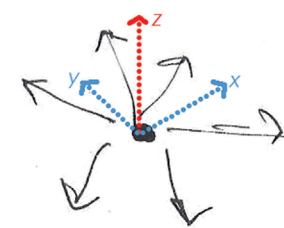


Central node as a collection point.

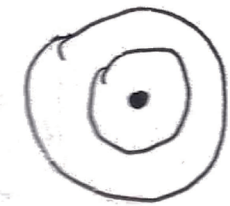
Dispersement



Chaotic, sprawling dispersement of functions.



Central node as departure point.



Controlled and contained means of showcasing functions.

Site Clues



Lack of entrance and identity, over-use of large display advertisement boards.



Approach and identity needs to be established within the area.



Channel, funnel and redirect traffic and movement in an intelligible way: focused, destination.

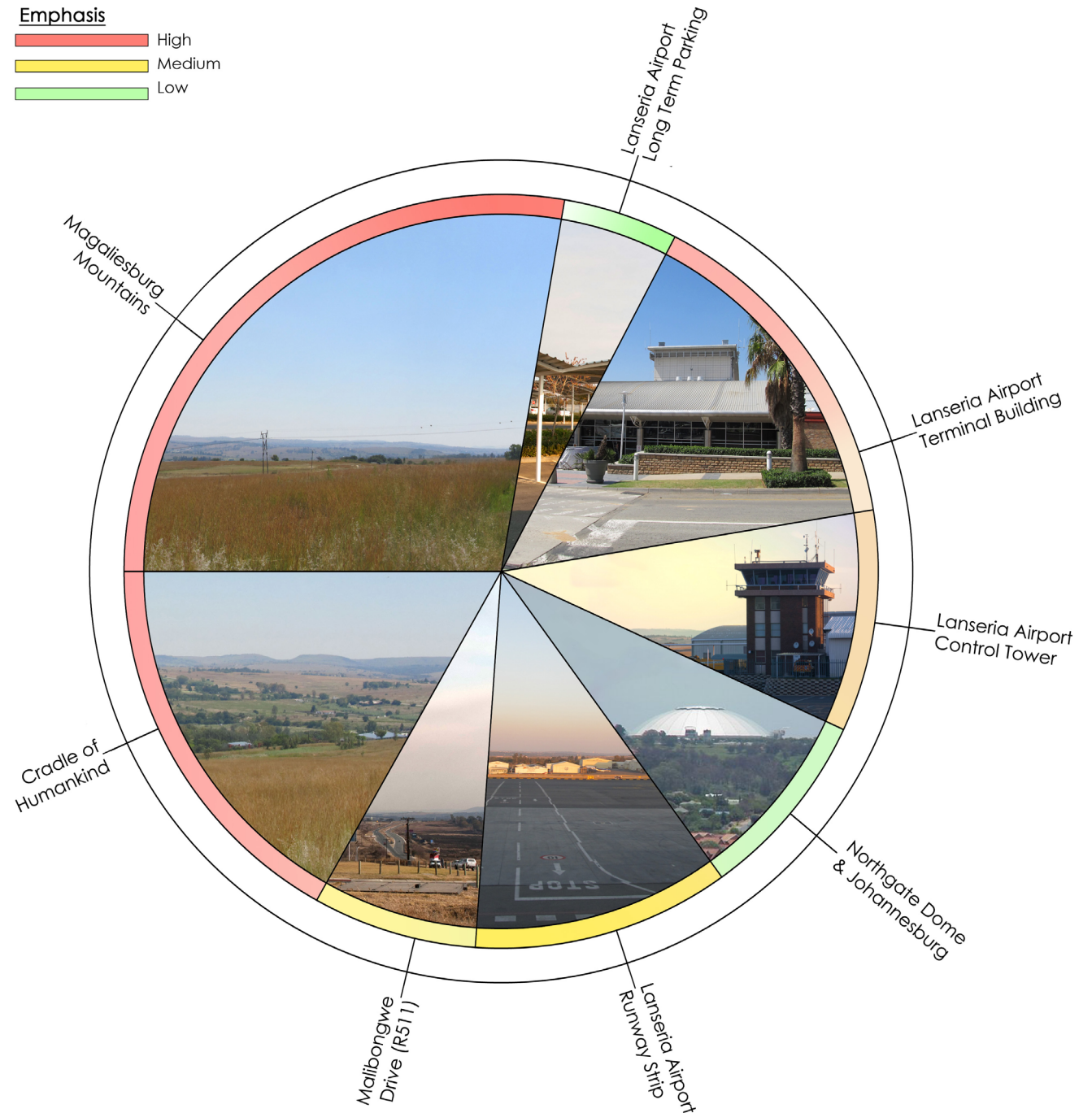
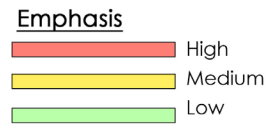
△ Figure 5.2 Thoughts on the area and building

Economic

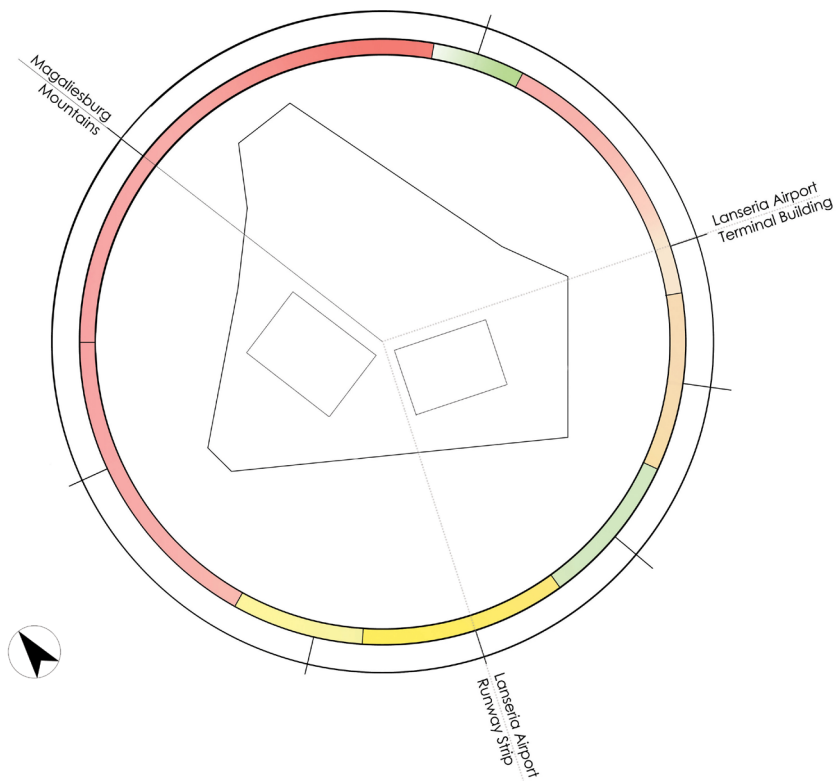
The significance of conference centres lies in their ability to generate demand for local dining, accommodations, retail and other local businesses. These attributes, together with the tourism aspects that function in a similar nature, will what attracts visitors into a community, creating an economy and stimulating its growth.

Linkages

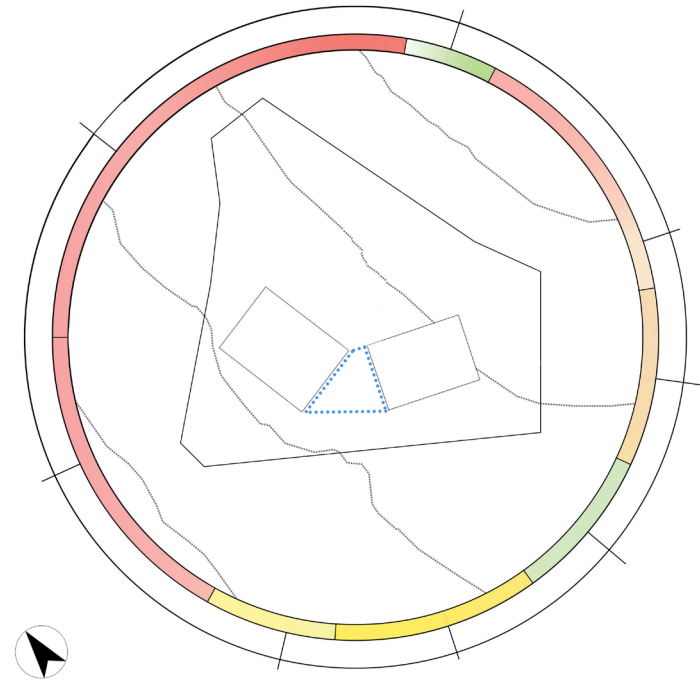
I applied the theory of mapping into building form by considering the map I had drawn up (see insert). I then chose to highlight the main essence of the area – that which makes it uniquely Lanseria. This essence is its location (i.e. Jhb, Lanseria, Malibongwe road & border NW province) and visual clues (i.e. Magaliesburg mountains, Lanseria airport buildings and the landing strip, Northgate Dome). Figures 5.4 - 5.6 depict these



△ Figure 5.4 Conceptual view analysis from the chosen site



△ Figure 5.5 Conceptual layout of building on the site

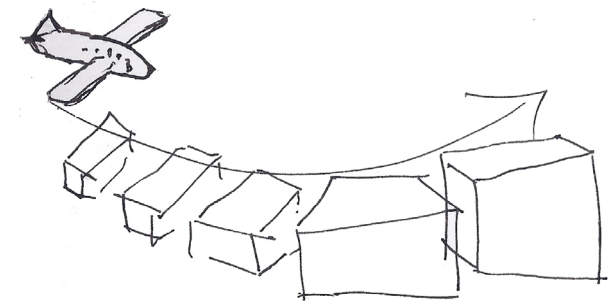


△ Figure 5.6 Central viewpoint emphasis

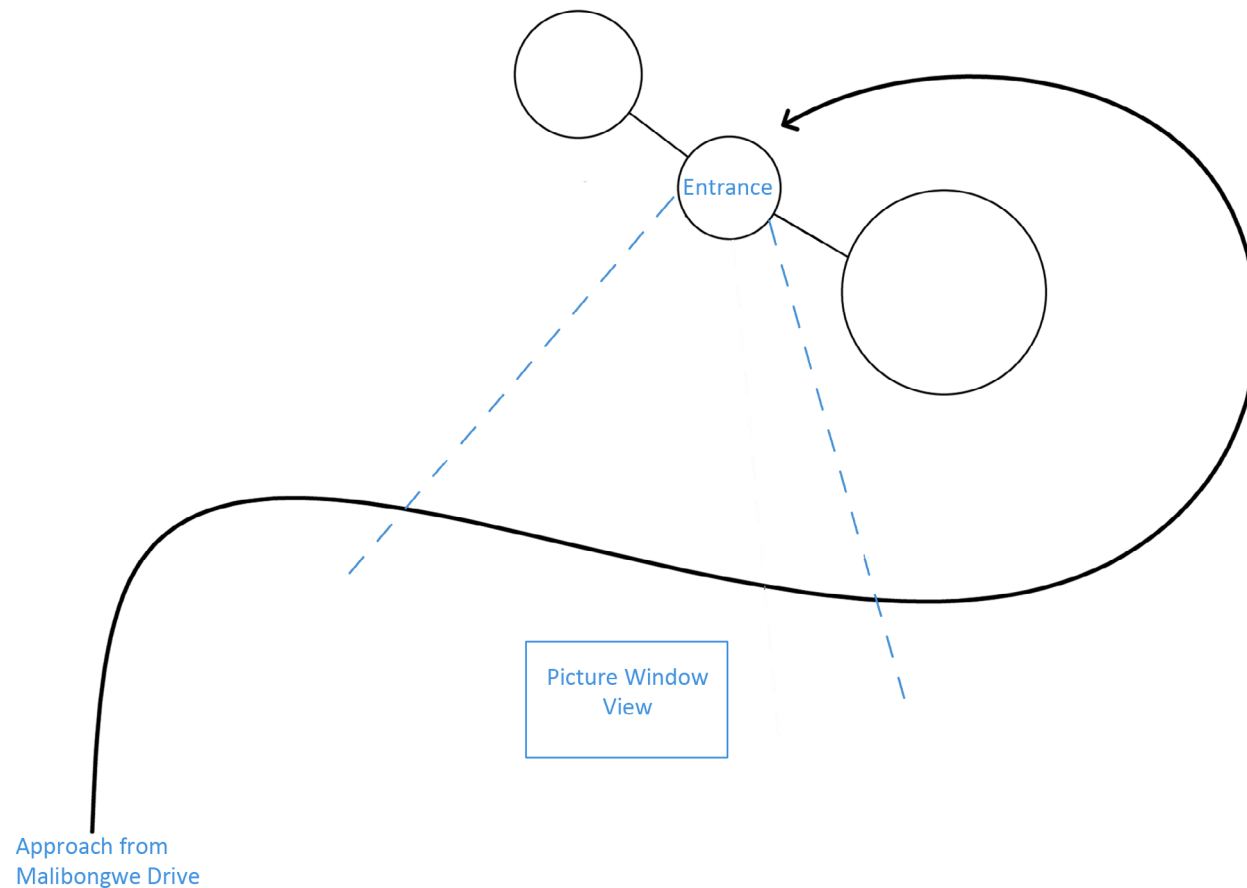
slices as well as the level of emphasis – i.e. most important visual clues like Magaliesburg and the airport terminal building.

Keeping these references in mind, the building was divided into two wings, which served to define and frame the main runway view. To give

further meaning, the one wing was placed on the airport terminal building and runway axes, whilst the other was positioned on the Magaliesburg mountain axis.



▷ Figure 5.7 Early sketch of the form and 'runway' like character

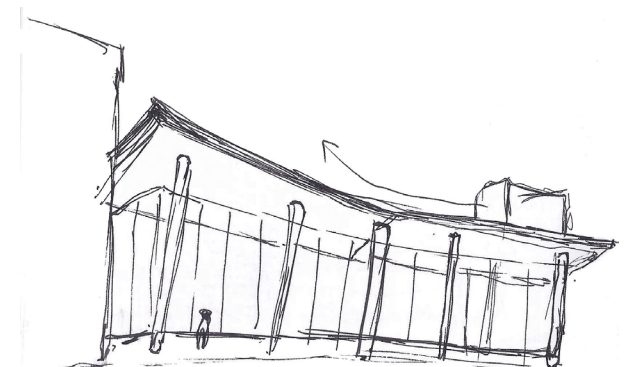
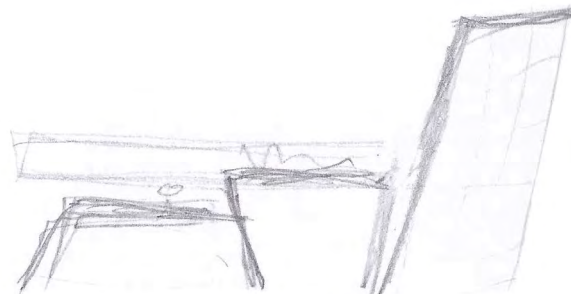
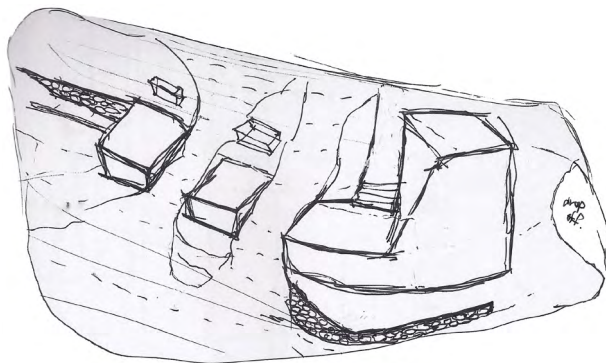


A simple but symbolic entry procession was used to emphasise the 'picture window' view, lending itself to become a central point where arrival, information and orientation could be dealt with.

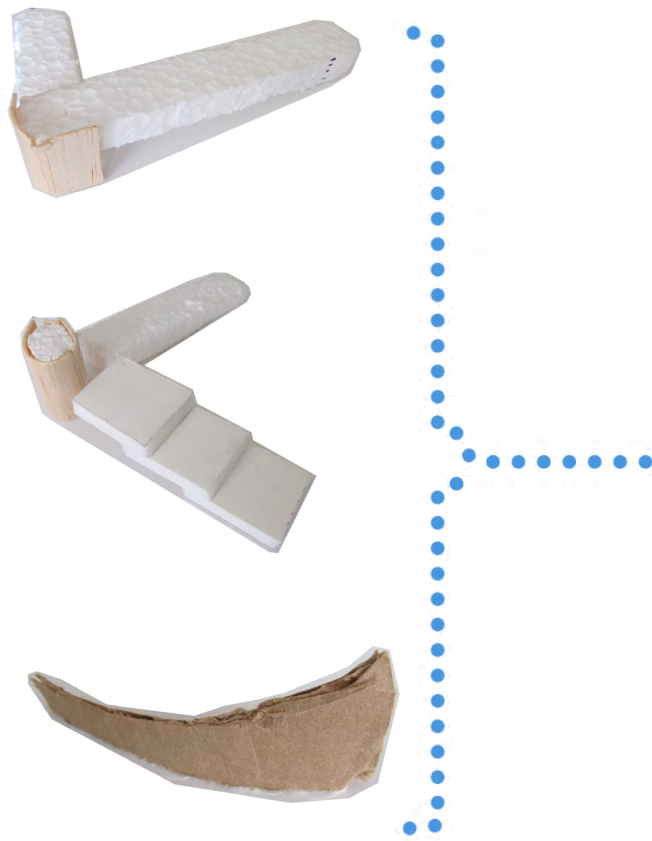
A logical stacking of uses in section and a change in the entrance progression to the building enabled a more open, interactive ground floor, and a public privacy gradient that made more sense with the site's privacy gradient.

◀ Figure 5.8 Entry progression

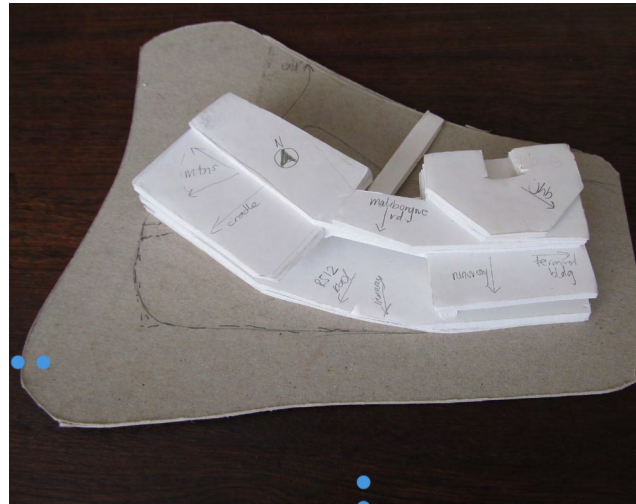
◀ Figure 5.9 - 11 Early thoughts on form and entrance



Form Finding

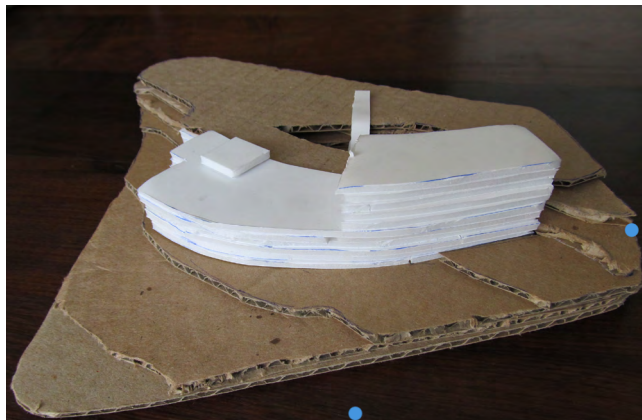


△▷ Figure 5.12 Model exploration of a series of ideas derived from infographic figure 5.3



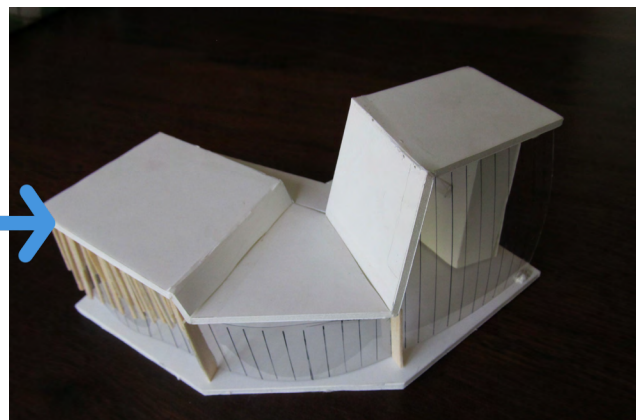
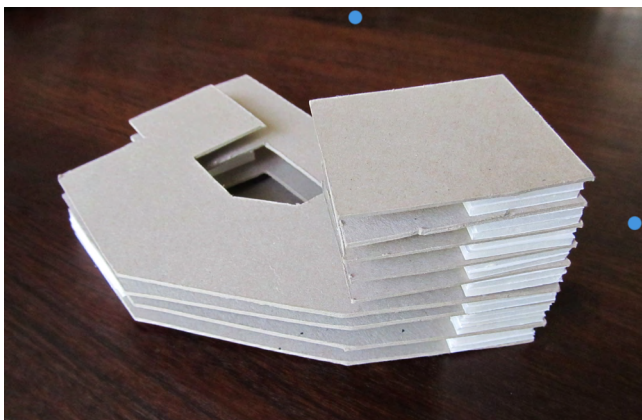
Phase 1

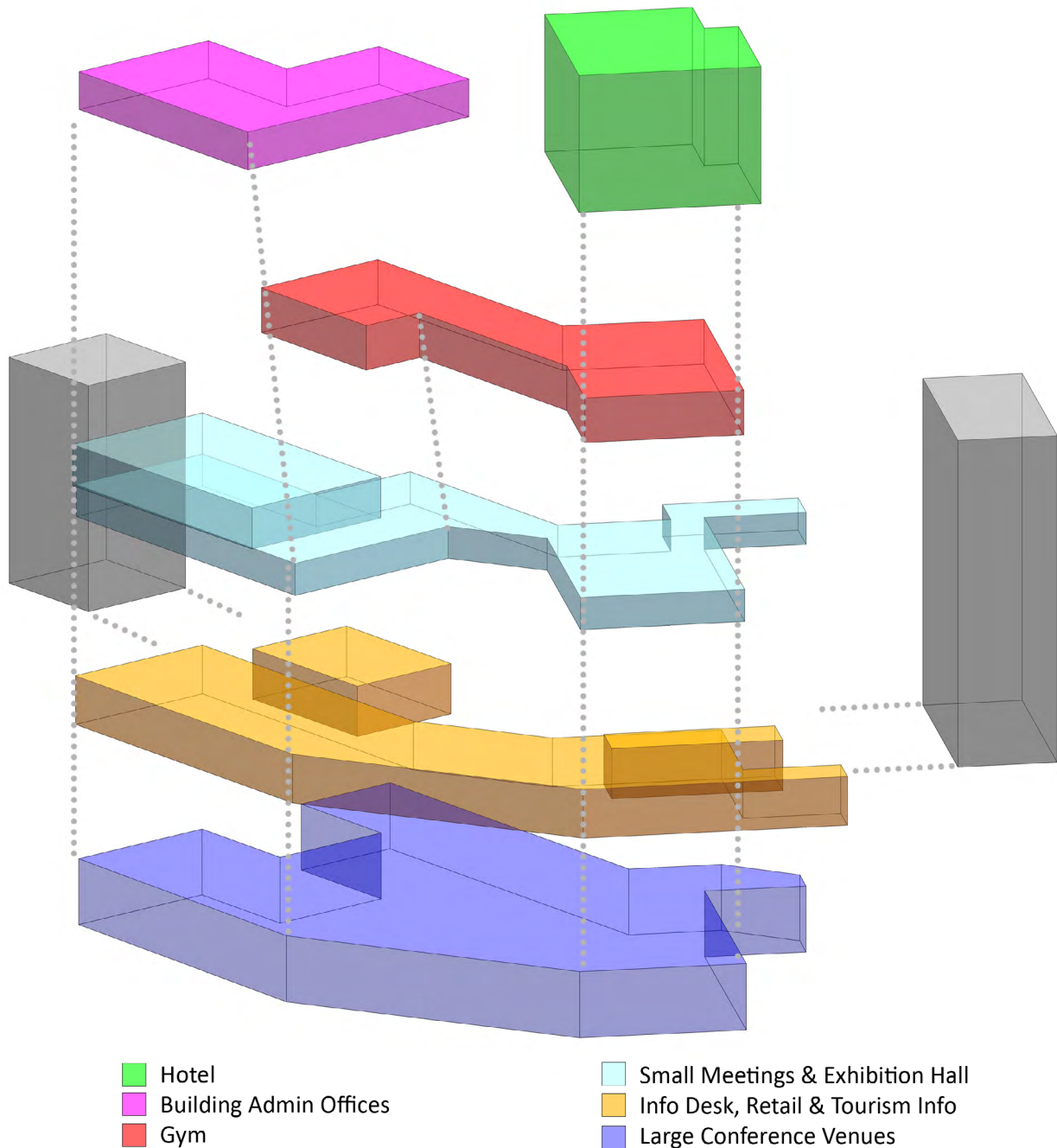
The initial design phase sought to establish a form, with certain types of elements starting to appear. At first the 'tower' like element pointed towards the Magaliesburg mountains, but after some discussion based on the layout and feel of the site - especially the contours - it was felt that the landmark element should relate directly to the airport terminal building.



Phase 2

This phase tried to incorporate the idea of the runway and the site as a connector / link. Since the links do not always make themselves apparent to the eye at ground level, the exploration into the site acting as a separating, yet joining element was investigated. Initially, two separate entrances were designed (one for the more private conference and one for more public facilities) but this proved confusing and took away from the central information point idea. The





chosen design best emphasised the tower, 'picture view' central element and the awareness of an aeroplane, whilst still maintaining a clear logic to it.

Programme

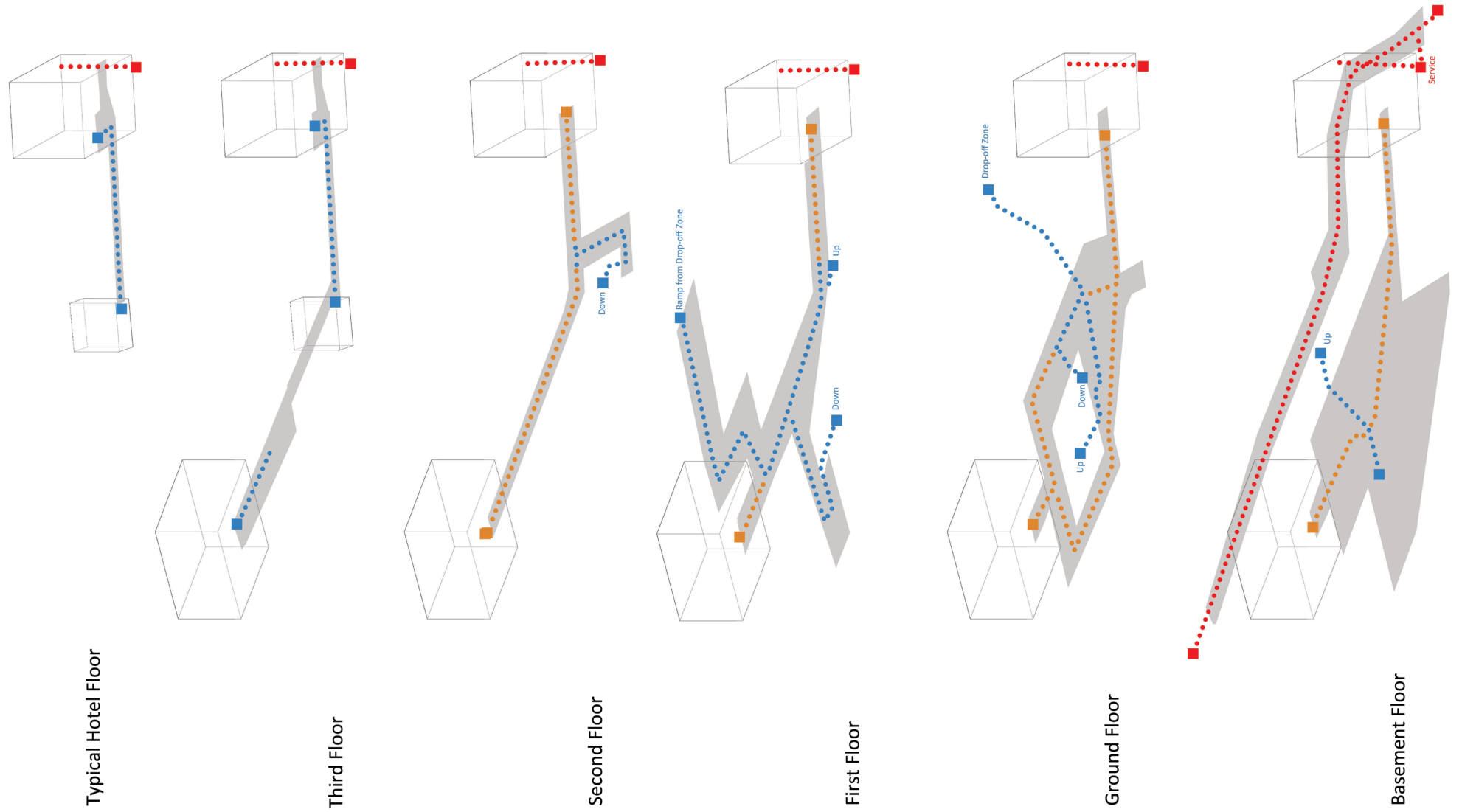
The functions within the building were organised according to their relationship with the entrance, and split across floor plates so that each level could read like a horizontal plane of information. The privacy gradient applied was in line with the threshold that runs across the Lanseria Airport site (see figure 3.14).

Circulation

The primary circulation was harnessed to frame and highlight the 'picture view' node of the building in the public areas. The secondary circulation holds the programme together, binding it to the site and acting as an additional orientating device.

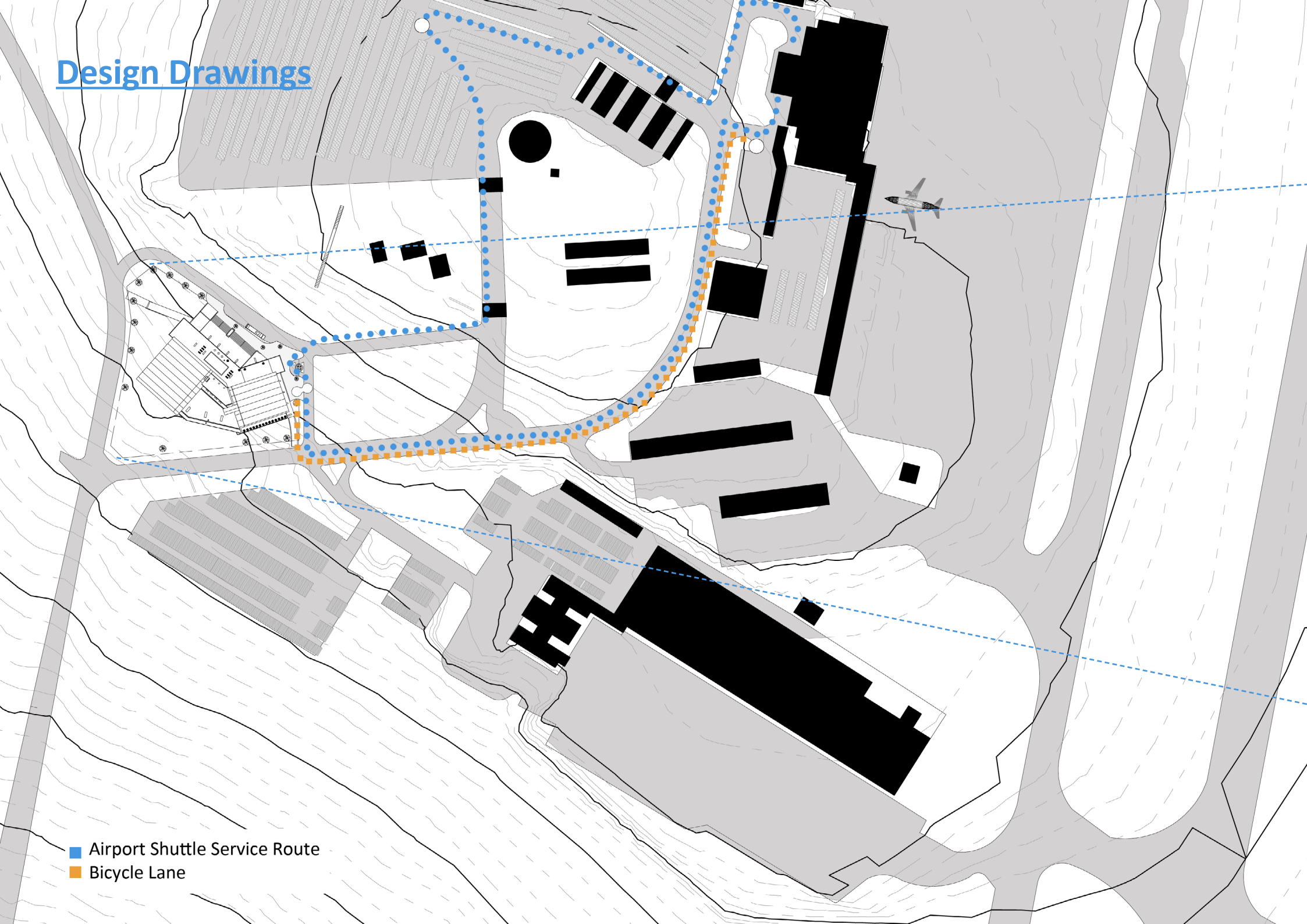
◁ Figure 5.13 Programme components within the building

▽ Figure 5.14 Circulation diagram showing the different paths

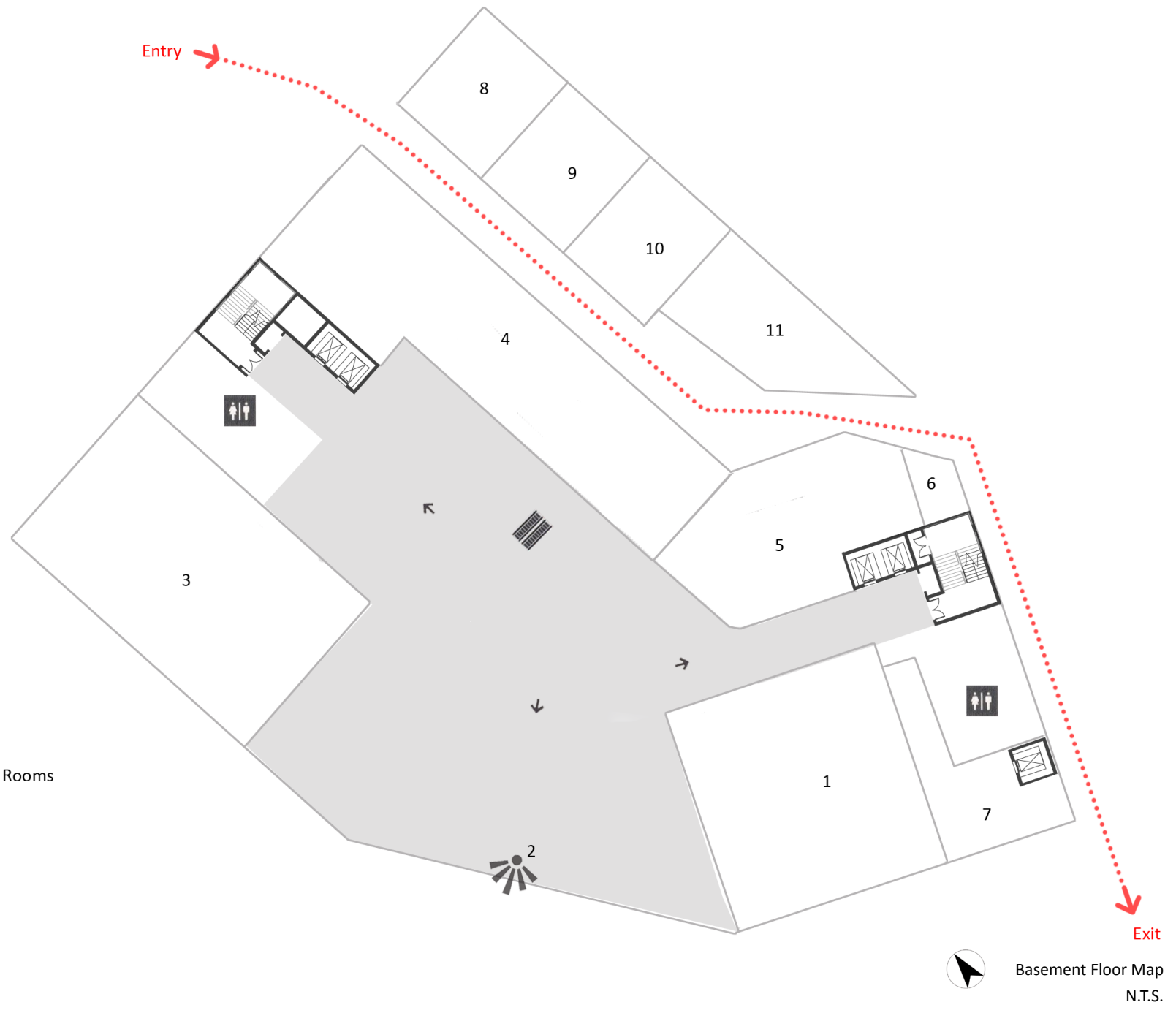


Design Drawings

- Airport Shuttle Service Route
- Bicycle Lane





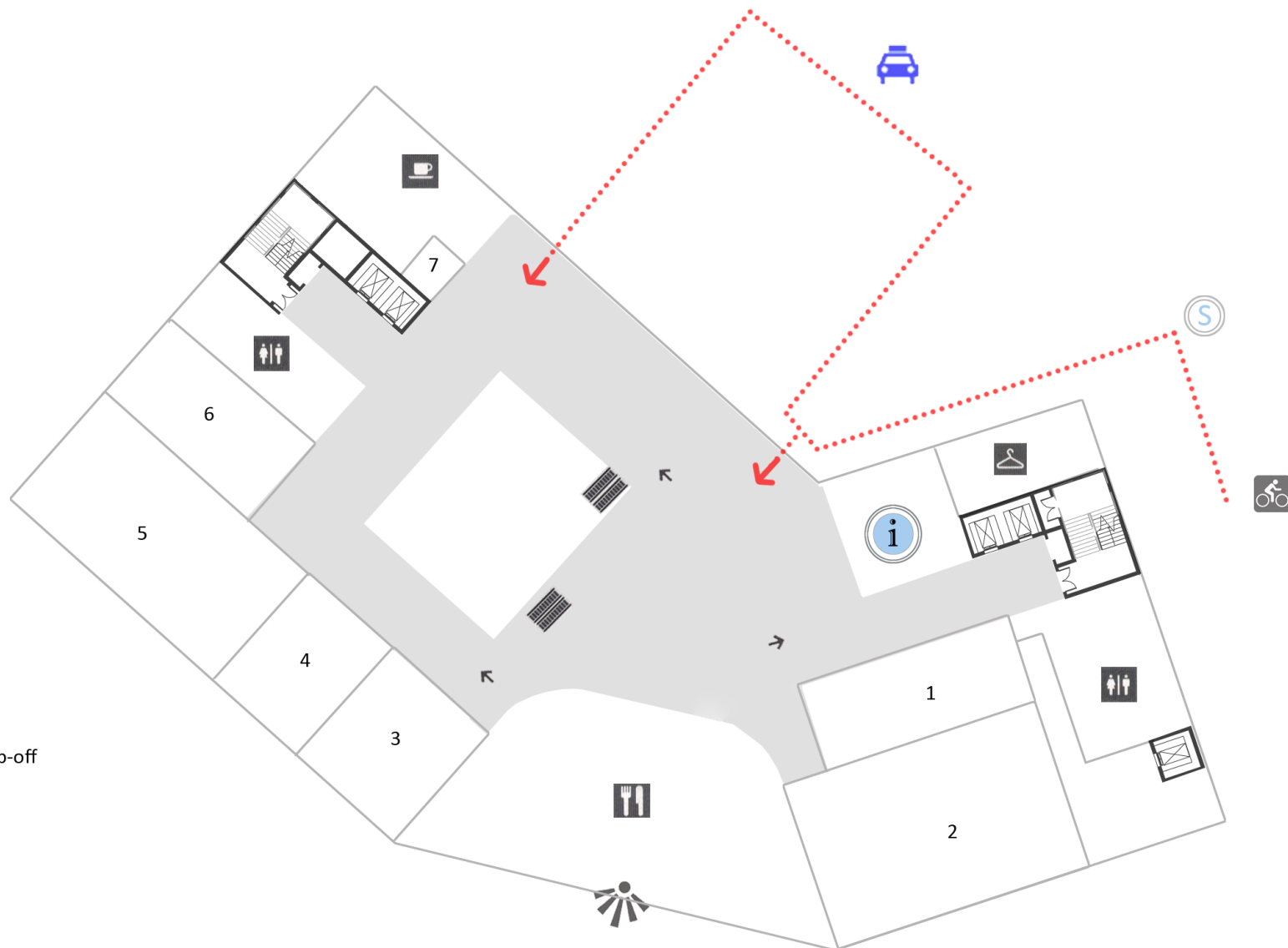




Basement Floor Plan



-  Entrance Paths
-  Bicycle Sharing Station
-  General Drop-off Zone
-  Airport Shuttle Pick-up/ Drop-off
-  Info Desk/ Hotel Check In
-  Luggage Store
-  Restrooms
-  Curio Store
-  Restaurant Kitchen
-  Restaurant Seating
-  Travel Agency
-  Print/ Copy/ Fax Store (e.g. Postnet)
-  Internet Cafe
-  Stationery Store (e.g. PNA)
-  ATM's
-  Coffee Shop
-  Escalator
-  Circulation Direction
-  Lookout Point



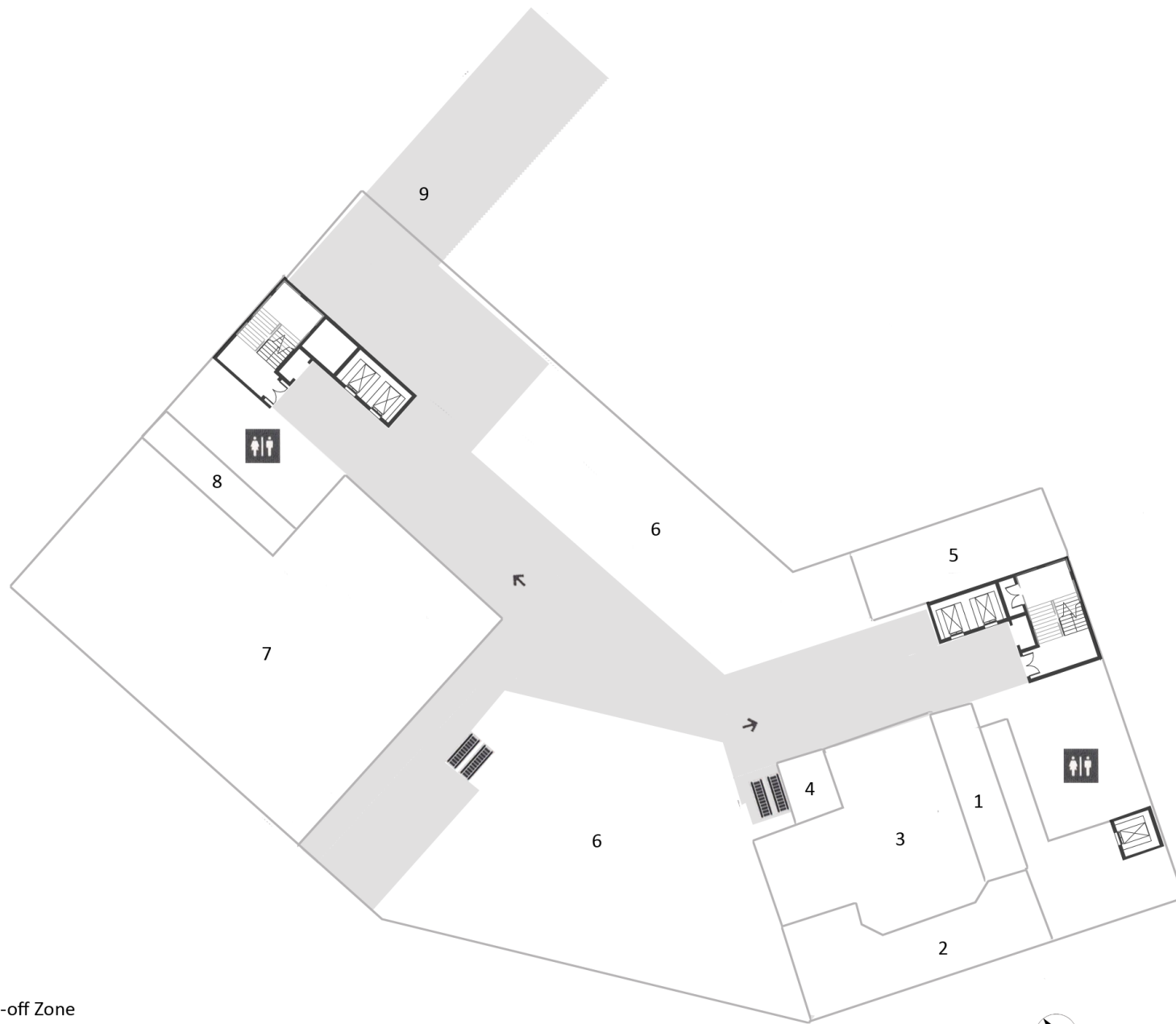
Ground Floor Map
N.T.S.



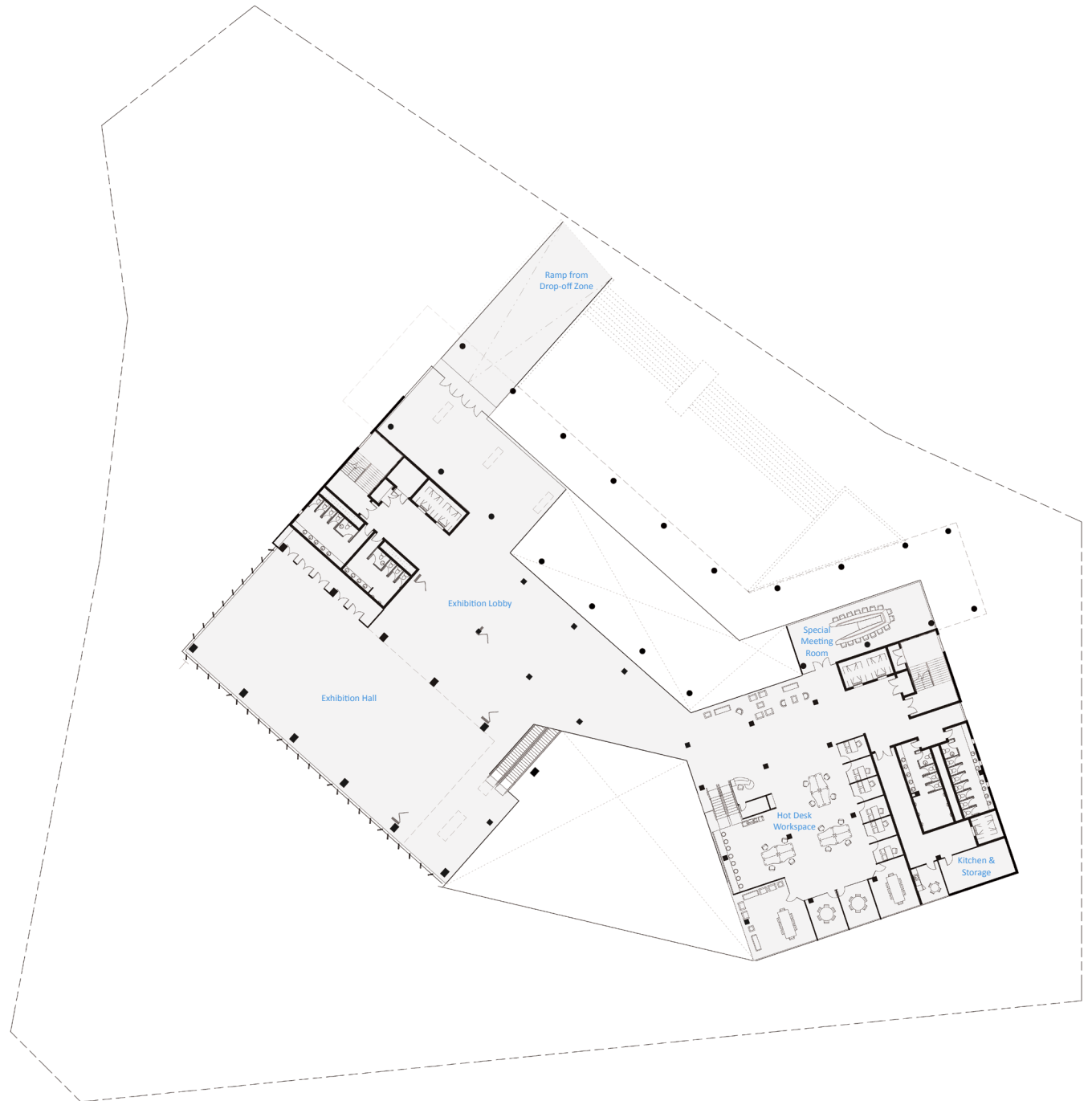
Ground Floor Plan



-  Restrooms
-  Escalator
- 1 Single Studio Booths
- 2 Meeting Rooms
- 3 Hot Desk Workspaces
- 4 Reception
- 5 Special Meeting Room
- 6 Void Below
- 7 Exhibition Hall
- 8 Storage
- 9 Ramp up from General Drop-off Zone
- Circulation Direction



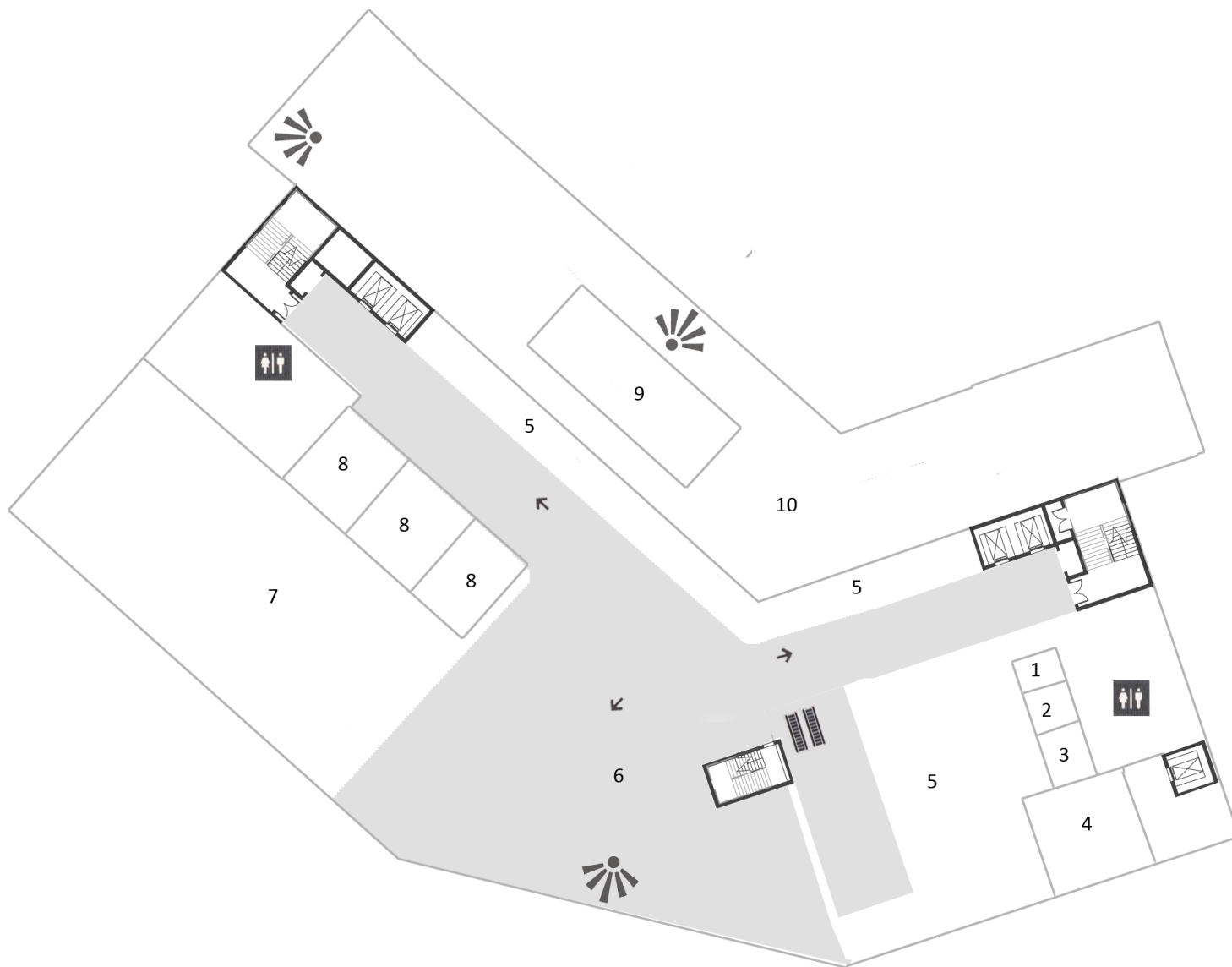
First Floor Map
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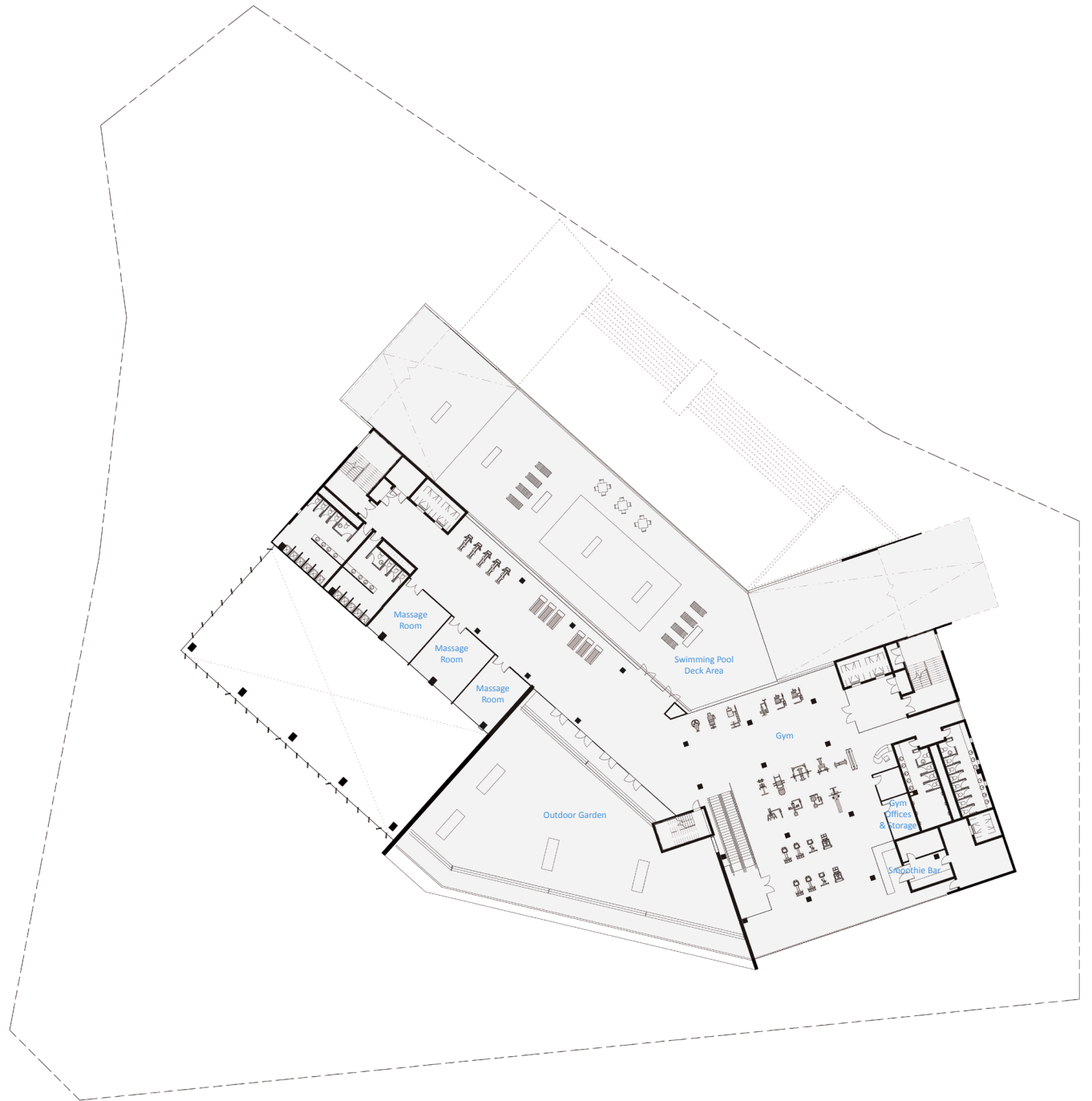
First Floor Plan



-  Restrooms
-  Escalator
- 1 Gym Reception
- 2 Gym Office
- 3 Equipment Storage
- 4 Smoothie Bar
- 5 Gym
- 6 Outdoor Garden
- 7 Void below (Exhibition Area)
- 8 Massage Rooms
- 9 Swimming Pool
- 10 Deck Area
-  Circulation Direction
-  Lookout Point



Second Floor Map
N.T.S.



Second Floor Plan





Staff Restrooms

1

Hotel Laundry

2

Hotel Storage

3

Hotel Workshop & Storage

4

Secondary Fire Escape Stair

5

Hotel Rooms

6

Staff Deck Area

7

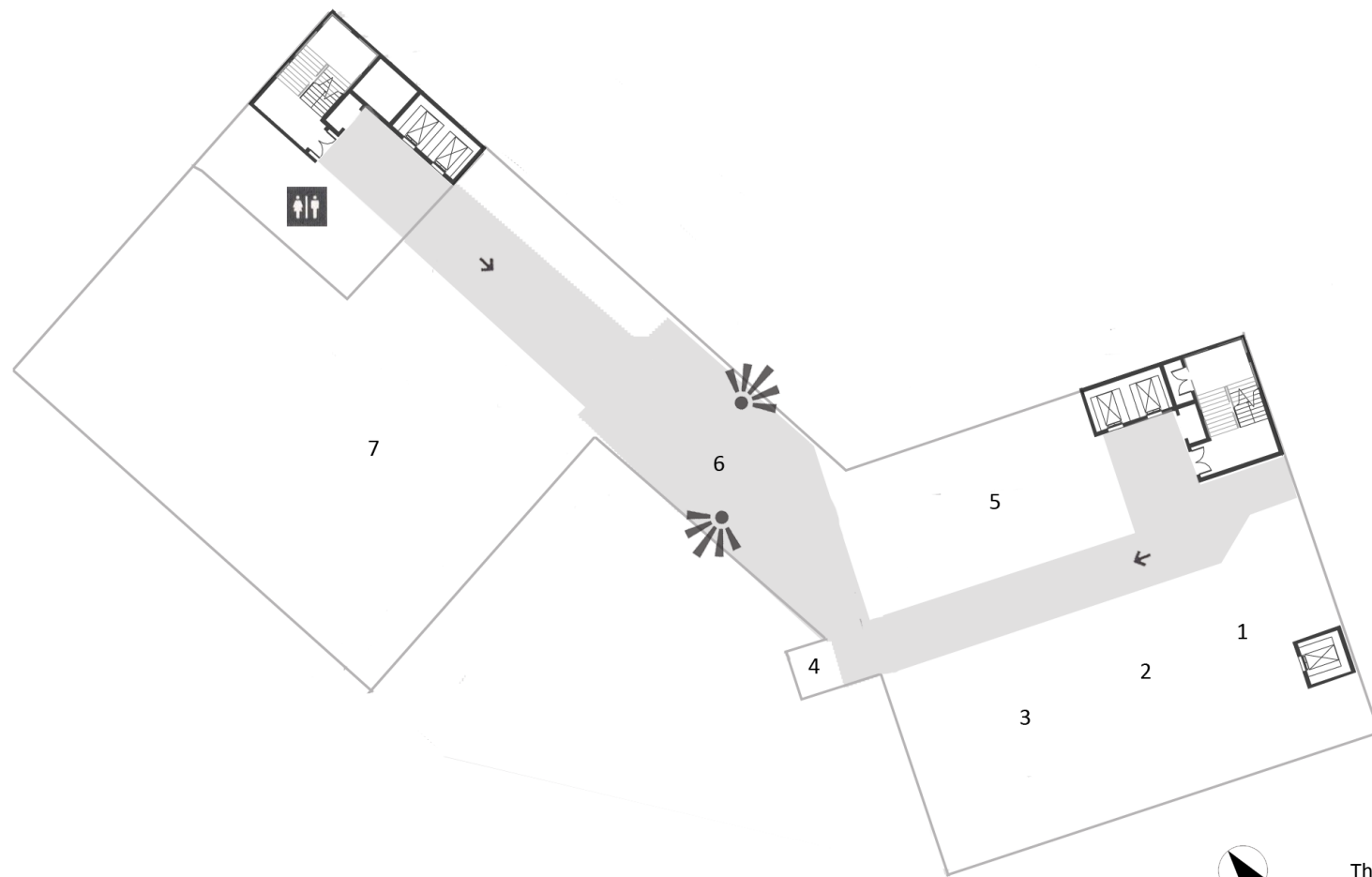
Building Admin Office Area



Lookout Point



Circulation Direction



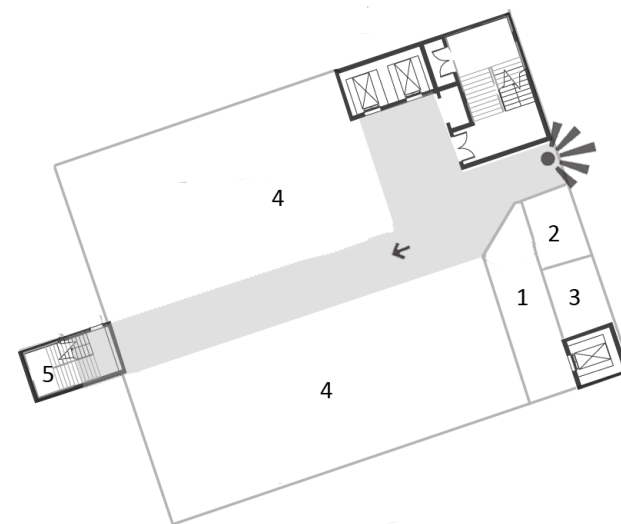
Third Floor Map
N.T.S.



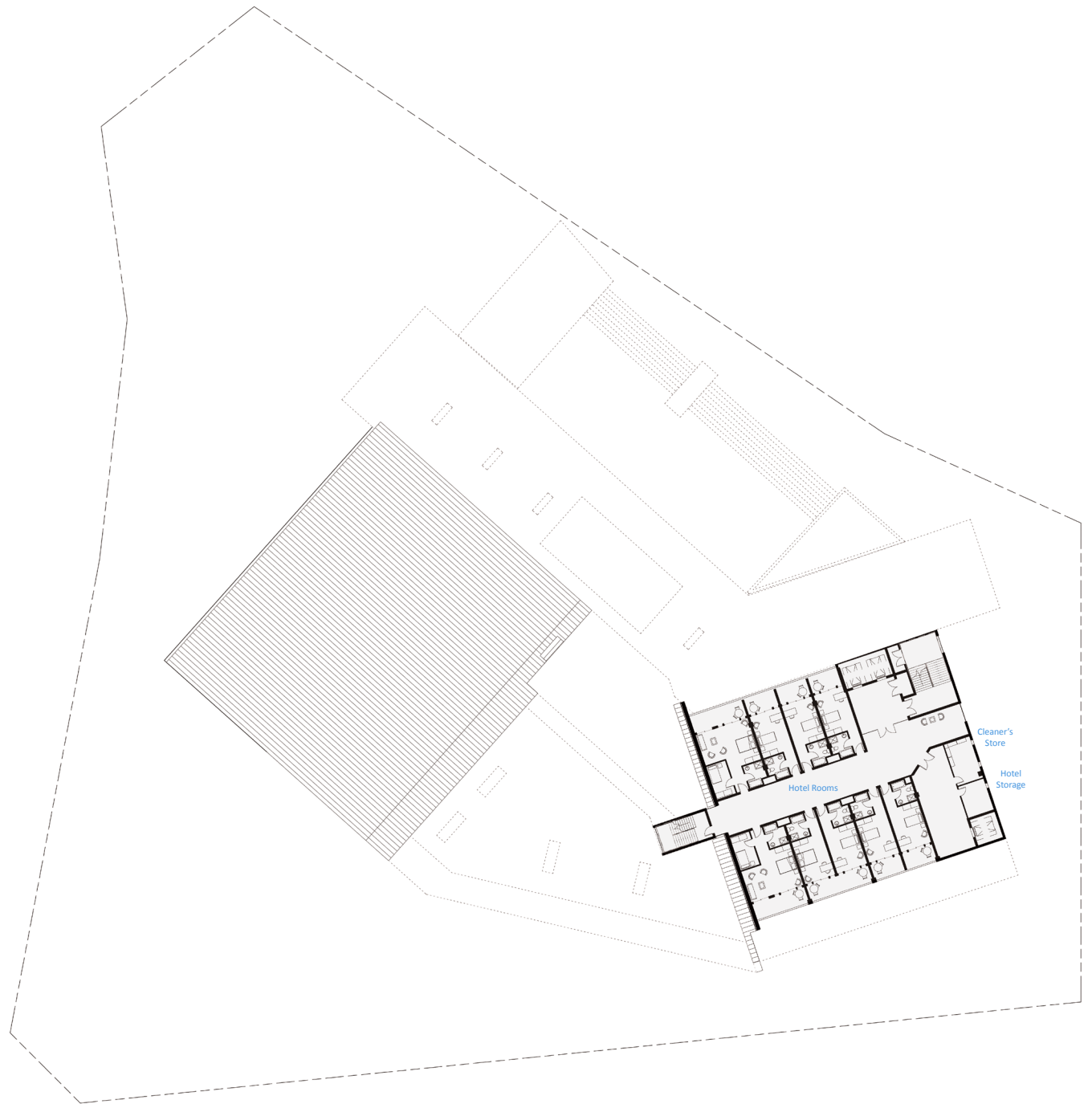
Third Floor Plan



- 1 Service Passage
- 2 Cleaner's Room
- 3 Storage
- 4 Hotel Rooms
- 5 Secondary Fire Escape Stair
-  Lookout Point
-  Circulation Direction

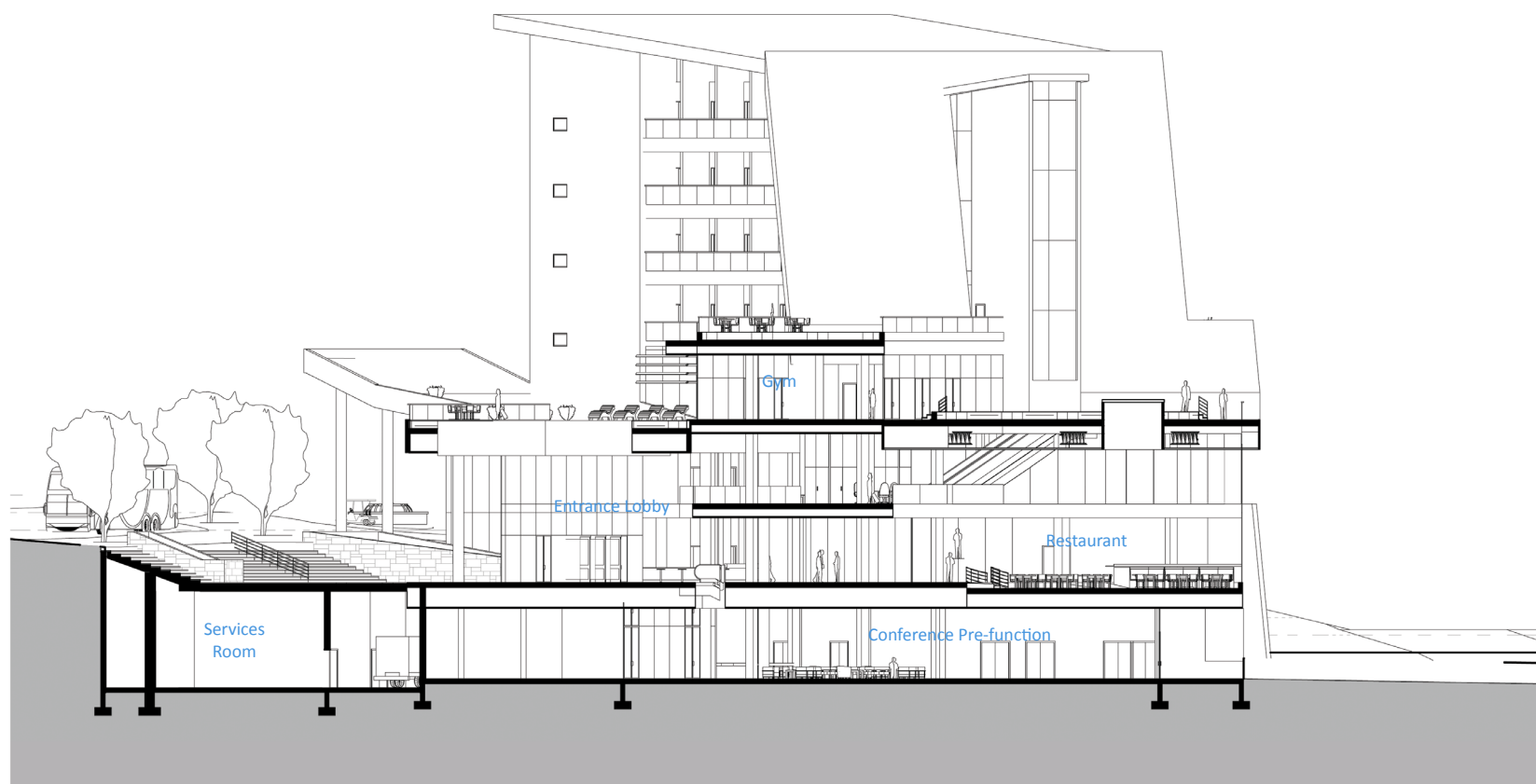
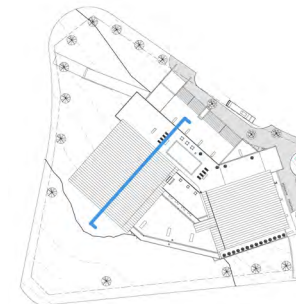


 Typical Hotel Floor Map
N.T.S.

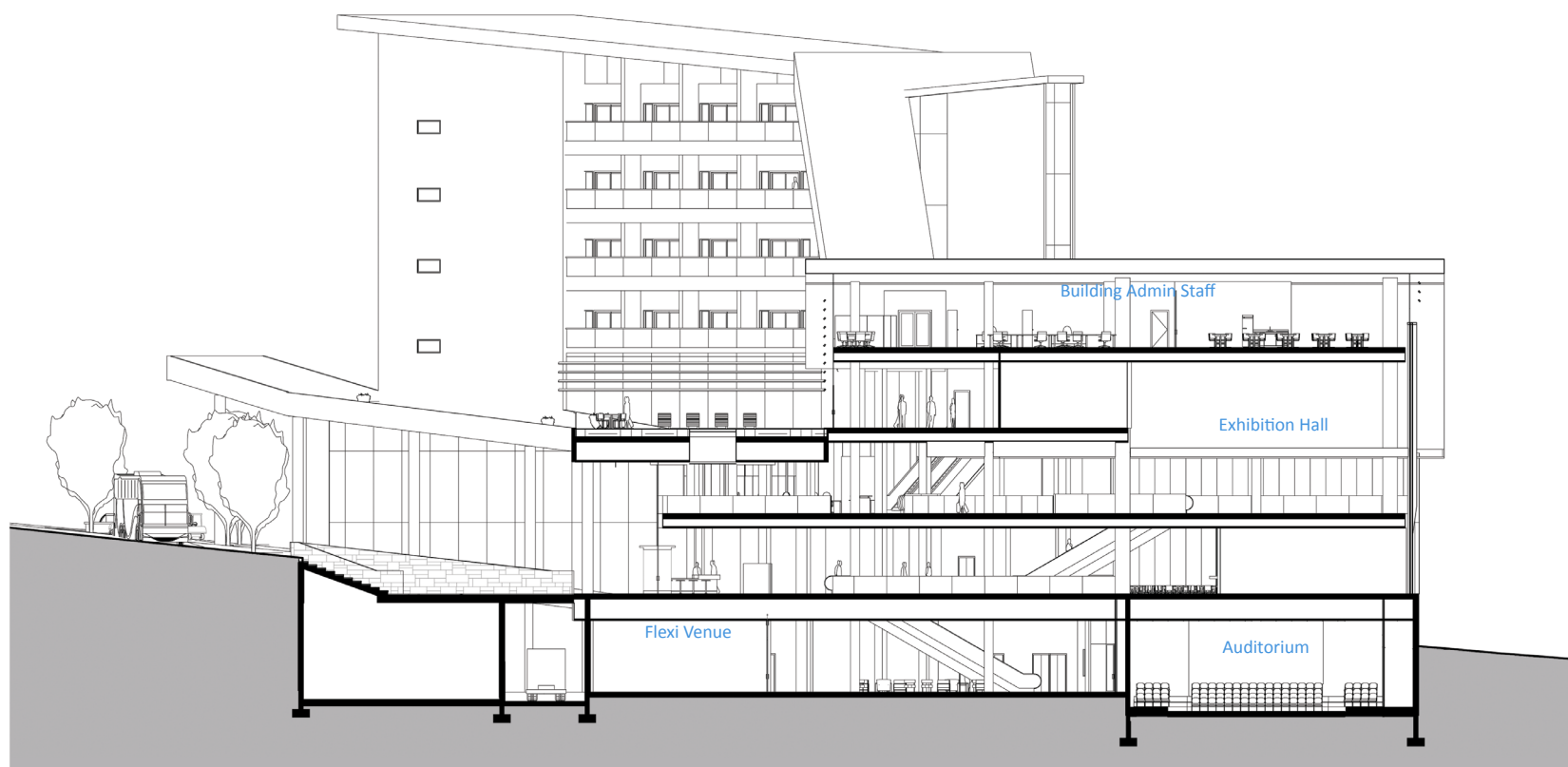
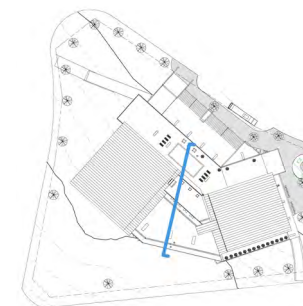


Typical Hotel Floor Plan

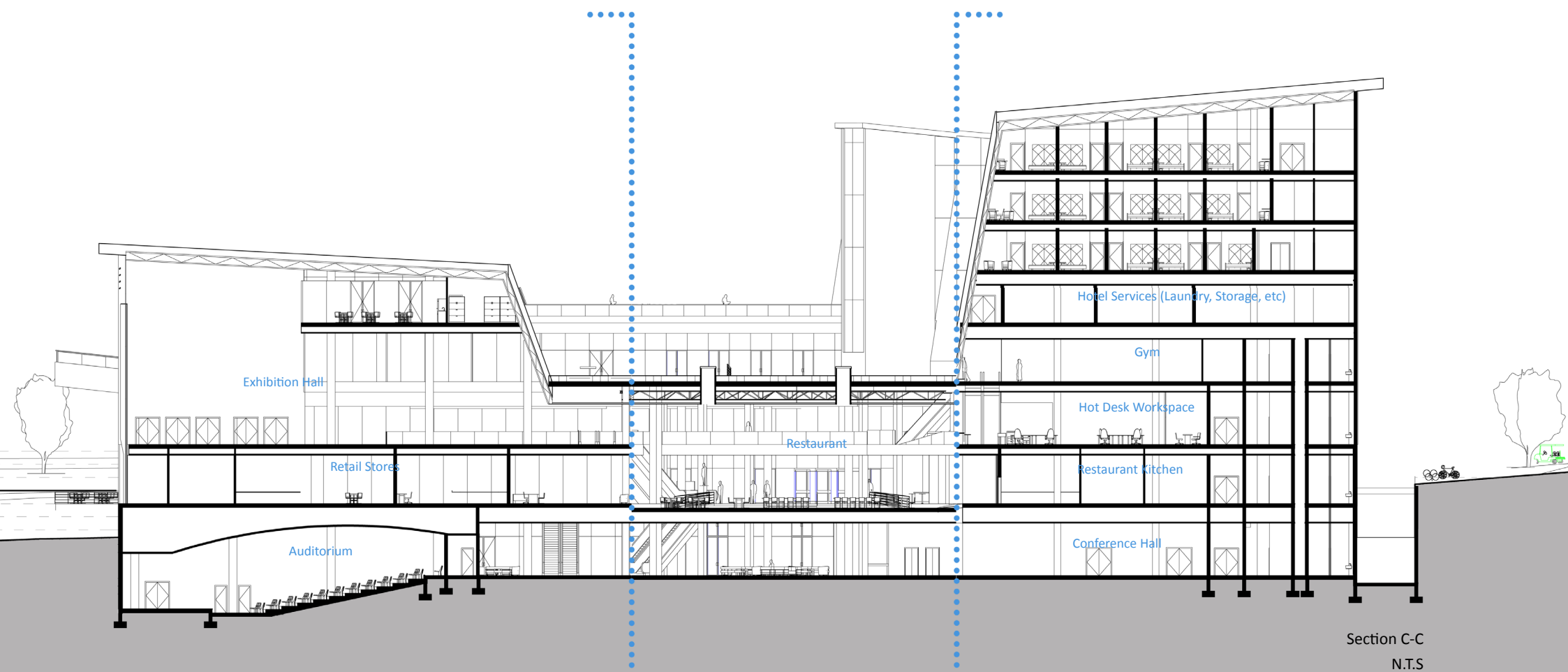
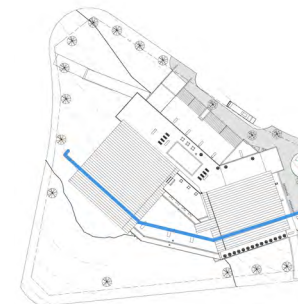


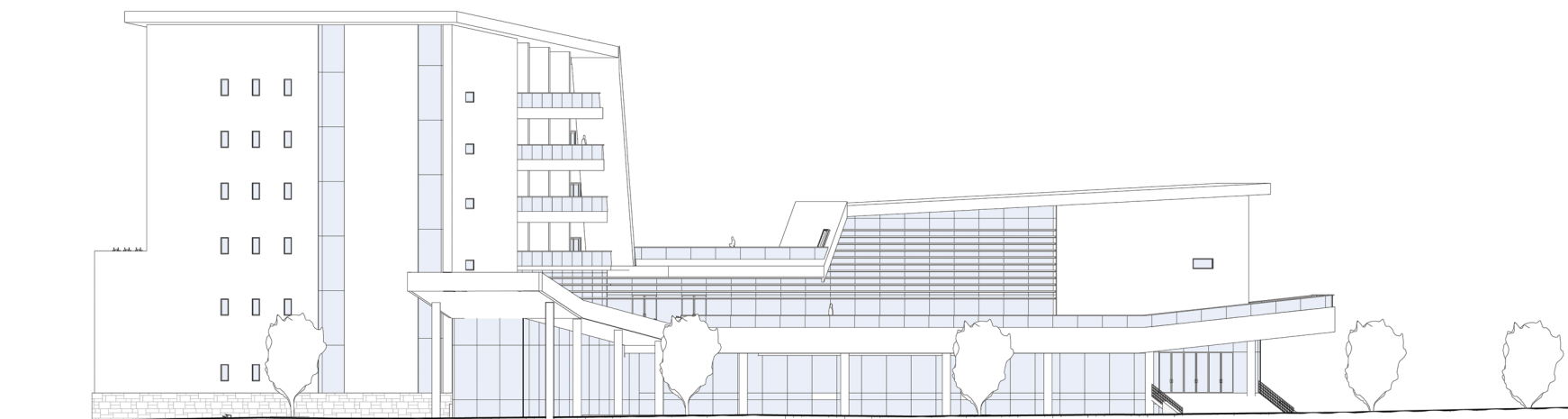
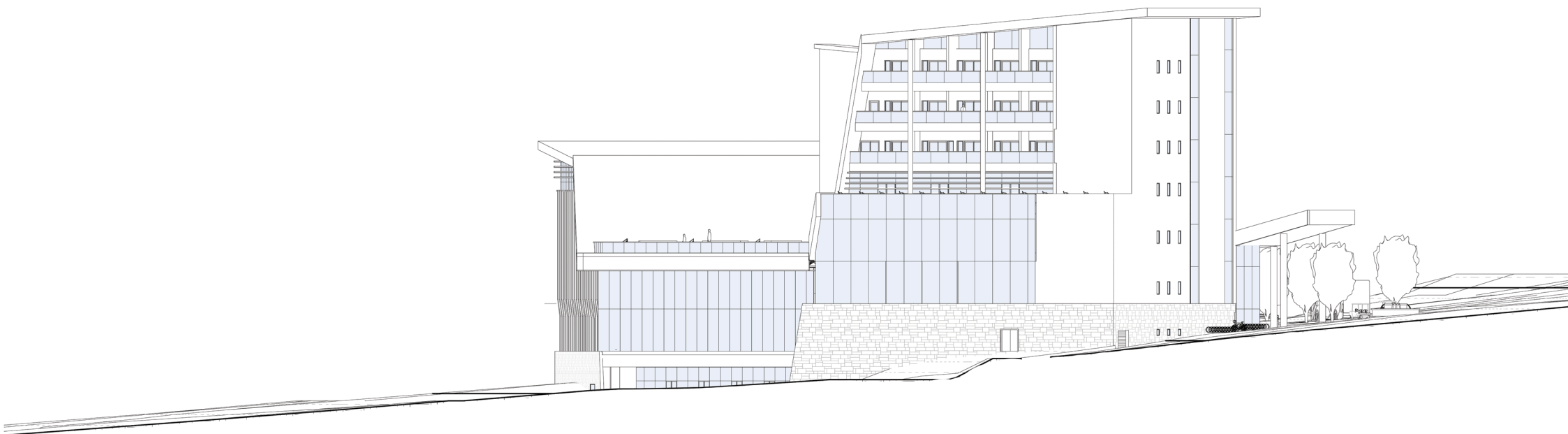


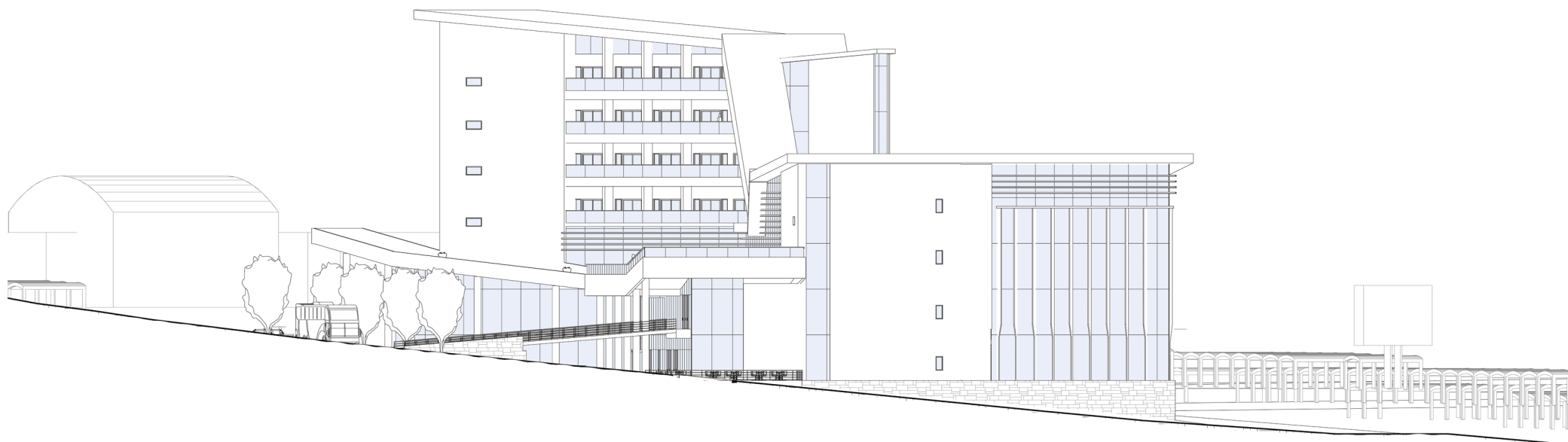
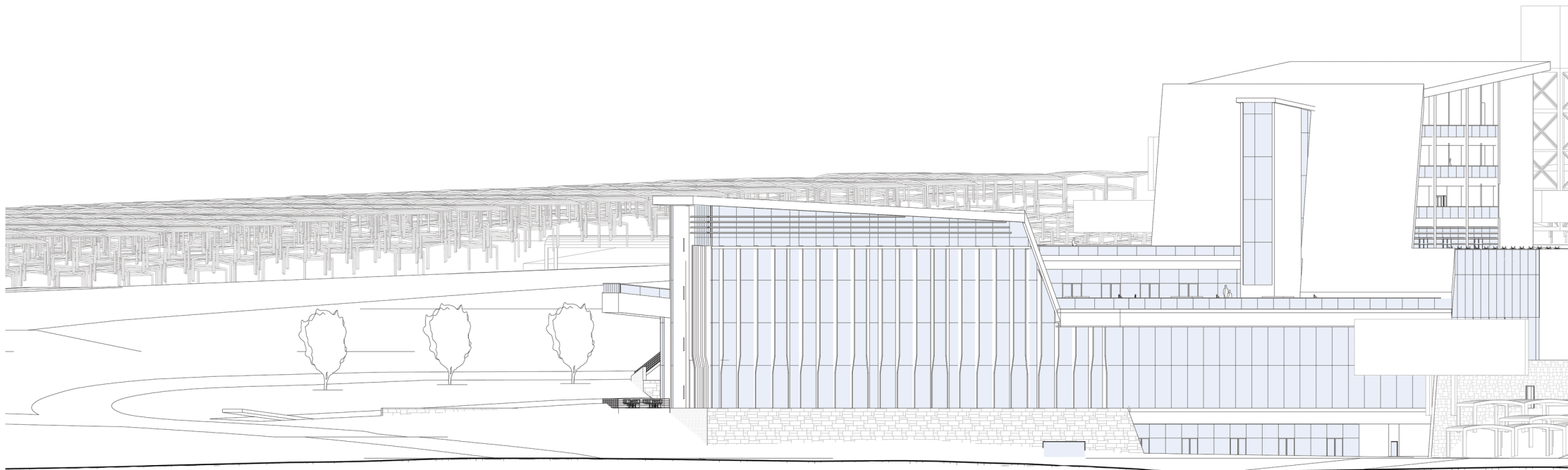
Section A-A
N.T.S

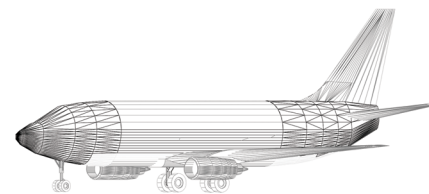
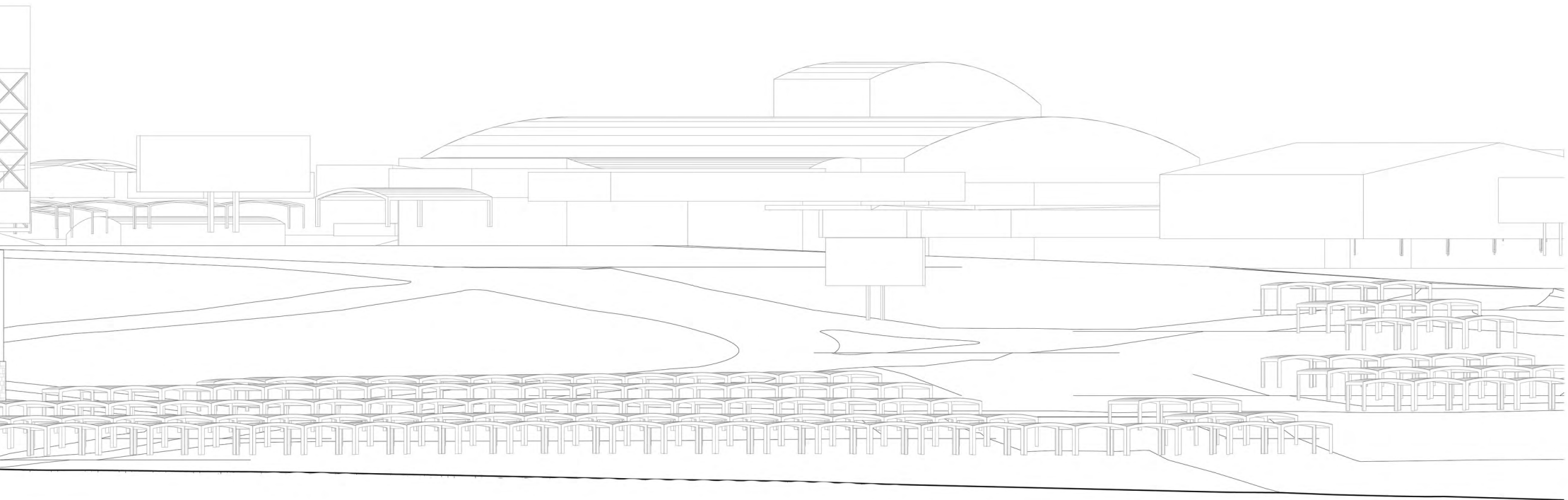


Section B-B
N.T.S









North West Elevation

N.T.S



Approach from Ashanti Road





Technology Study

Viewing and the ability to see beyond one's immediate surroundings has driven mankind in his quest to better understand things. Watching and observing has enabled humans to make deductions based on the information available at hand, in order to proceed and/or correct their paths in everyday situations. As discussed, the map is one type of 'window' that allows a person to navigate, for it presents a bird's eye view of information on different layers (and scales). The aeroplane is an extension of the map, offering real-time views of the world below.

The airport is the starting point in the flight journey and is as such the first viewing platform where the aeroplane and runway are on show. The Business Conference Centre and Hotel, as an extension of the Lanseria Airport, and can therefore provide another layer of views, information

and clarity to the airport and its surrounding area.

Taking these factors into consideration, the concept of visibility and permeability is the key to the technological resolution of the building. The focus as such would be to construct a view as unobstructed as possible for both horizontal and vertical axes. In particular, three precedents come to mind where this has been successfully achieved.

▽ Figure 5.15 View of courtyard (Schittich, 2012 : 298)



Extension of the Städel Museum

Date: ____ | Location: Frankfurt | Architect: Schneider & Schumacher

The latest extension of the museum added a new gallery space for contemporary art beneath the existing gardens. A series of 195 circular skylights light the exhibition space below the concrete and glass roof mound that is a garden courtyard. An internal shading system prevents direct insolation from entering the space. (Schittich, 2012 : 299) Artificial lighting has subtly been integrated within the skylight framework so it is not visible to the naked eye.

▽ Figure 5.16 View of exhibition space (Schittich, 2012 : 299)





Joanneum Visitors' Centre

Date: ____ | Location: Graz | Architect: Nieto Sobejano

The Visitors' Centre has several "inverted, truncated glass cones" (Schittich, 2012 : 337) which serve to light the spaces in the basement below. These features are central to the design concept, as they become a "dominant feature of the underground level" (Schittich, 2012 : 337), allowing

◀ Figure 5.17 View of courtyard space (Schittich, 2012 : 344)

daylight and visual connections to be made during the day. At night the reverse happens on the above ground level, whereby the area between the three buildings (that the centre links) is illuminated and this changes the dynamic of the urban space.

"Adidas Laces" Research and Development Building

Date: ____ | Location: Herzogenaurach | Architect: kadawittfeldarchitektur

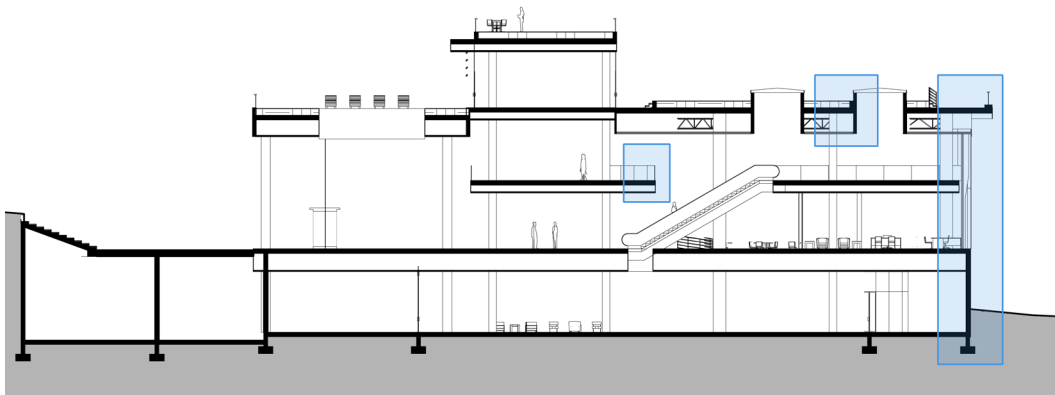
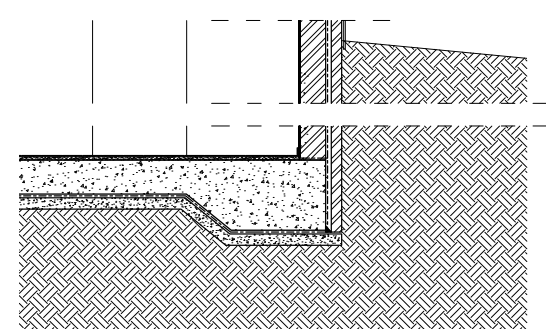
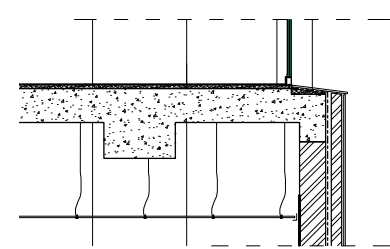
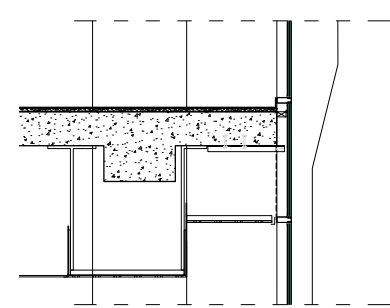
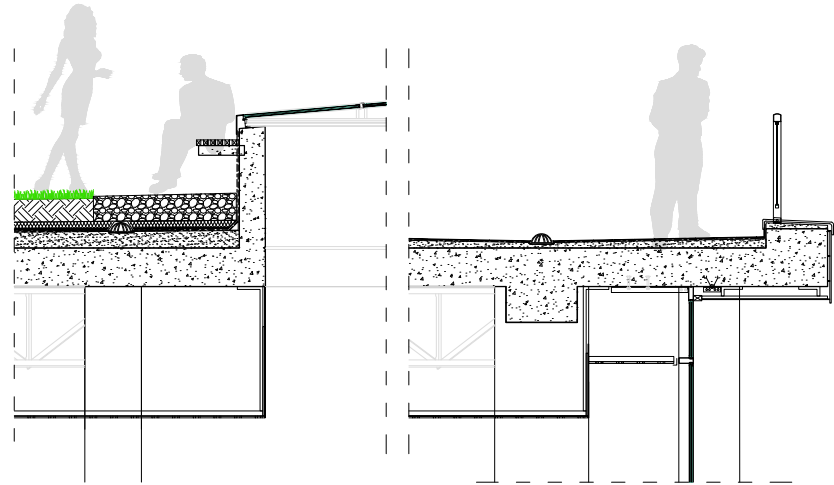
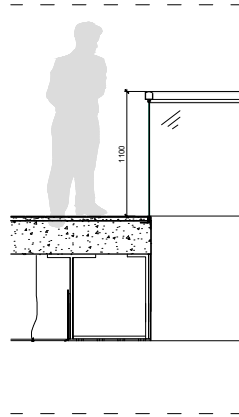
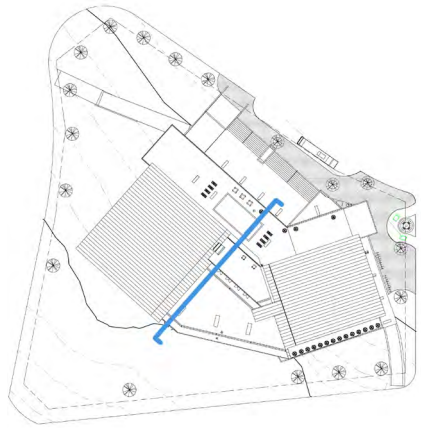
The circulation within the building consists of slender bridges crossing a centrally lit atrium. These were developed as a more efficient way of circulating so that the working areas on within the building have minimal disturbances. The "lace" linking bridges (Schittich, 2012 : 345) have

a very transparent nature and hover seamlessly within the atrium. Minimal structural supports for the balustrade aids visibility, showcasing and celebrating the unrestricted movement of the workers.

▶ Figure 5.18 View of "lace" bridge links (Schittich, 2012 : 347)

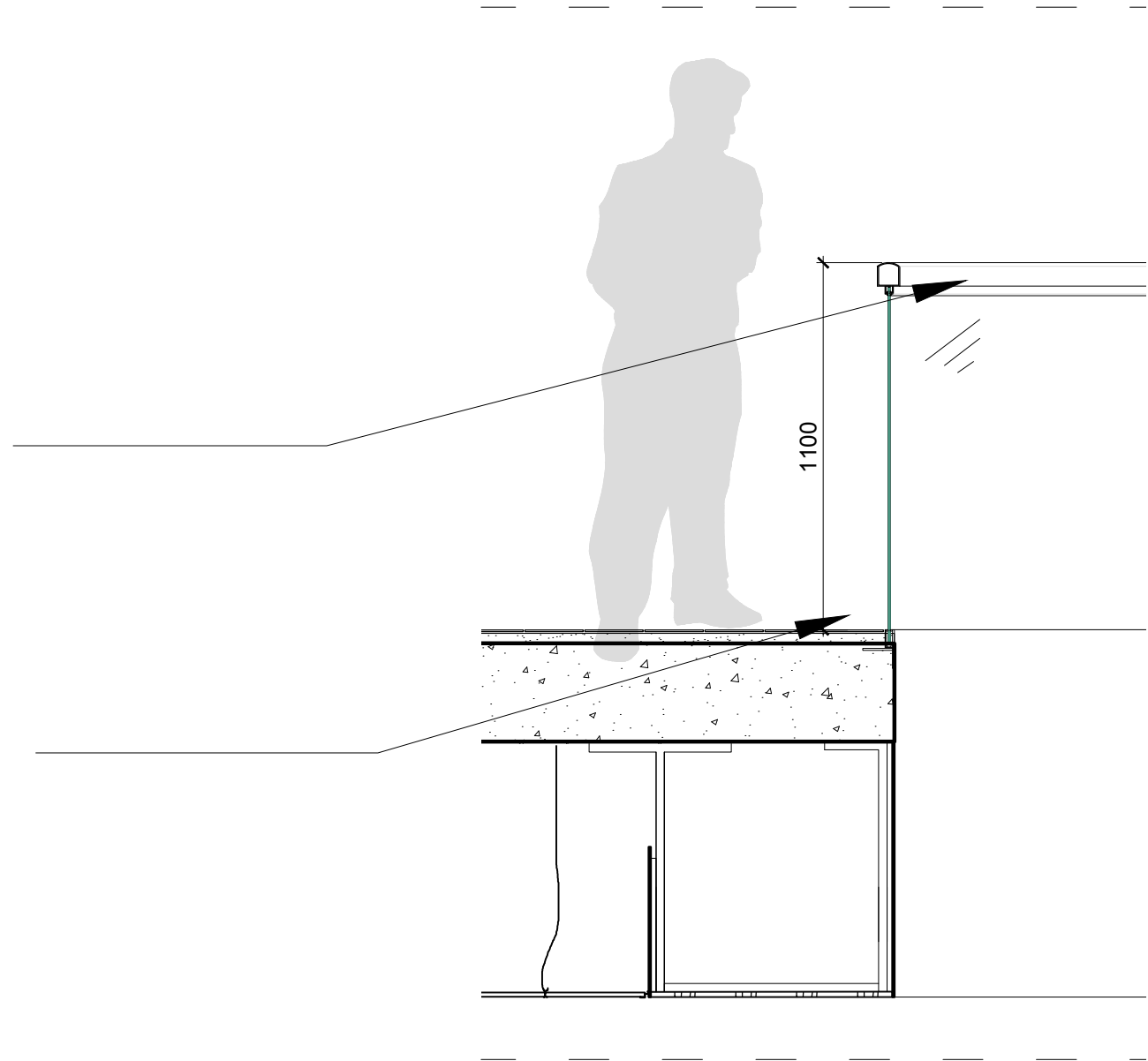


Details



63mm shaped brushed aluminium top rail profile on 8mm laminated clear tinted, toughened safety glass, as per specialist's drawing. 50mm gap between glass sheets at 1500mm centres

Balustrade glass on Neoprene setting blocks (100mm long at 750mm centres) held in place with continous non-shrinkable grout. Grout covered with 10mm silicone topping. Balustrade fitted in 45 x 115 Steel channel (runs entire length of balustrade) and secured with 10mm diameter round steel anchors at 600mm centres)



Portion 1 of detail (Scale 1:20)

Skylight consisting of Aluminium
Double Glazing Unit by glazing
specialist

38 x 50 FSC Certified Marine Ply
Timber slates fixed to concrete seat,
coated with marine varnish

Derbigum CG4 H & Derbigum CG3
water proofing

Layer of topsoil forming garden on
top of geotextile

Gravel fill

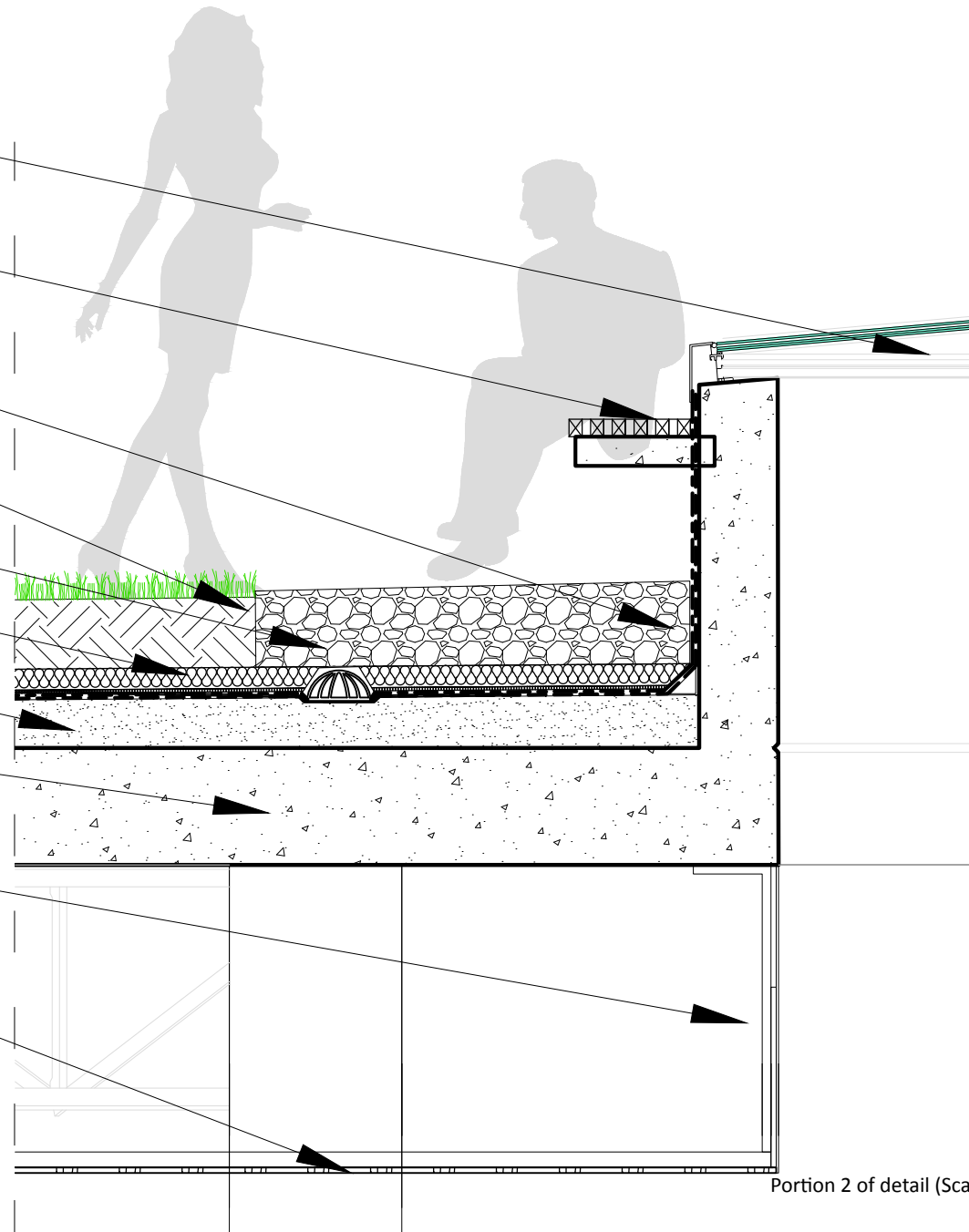
Delta MS 20 P Drainage Sheet

Screed to slope (min fall 1:70) to cast
iron rain water outlet

Reinforced concrete flat slab

25 x 25mm Square tubing
support bolted to soffit.

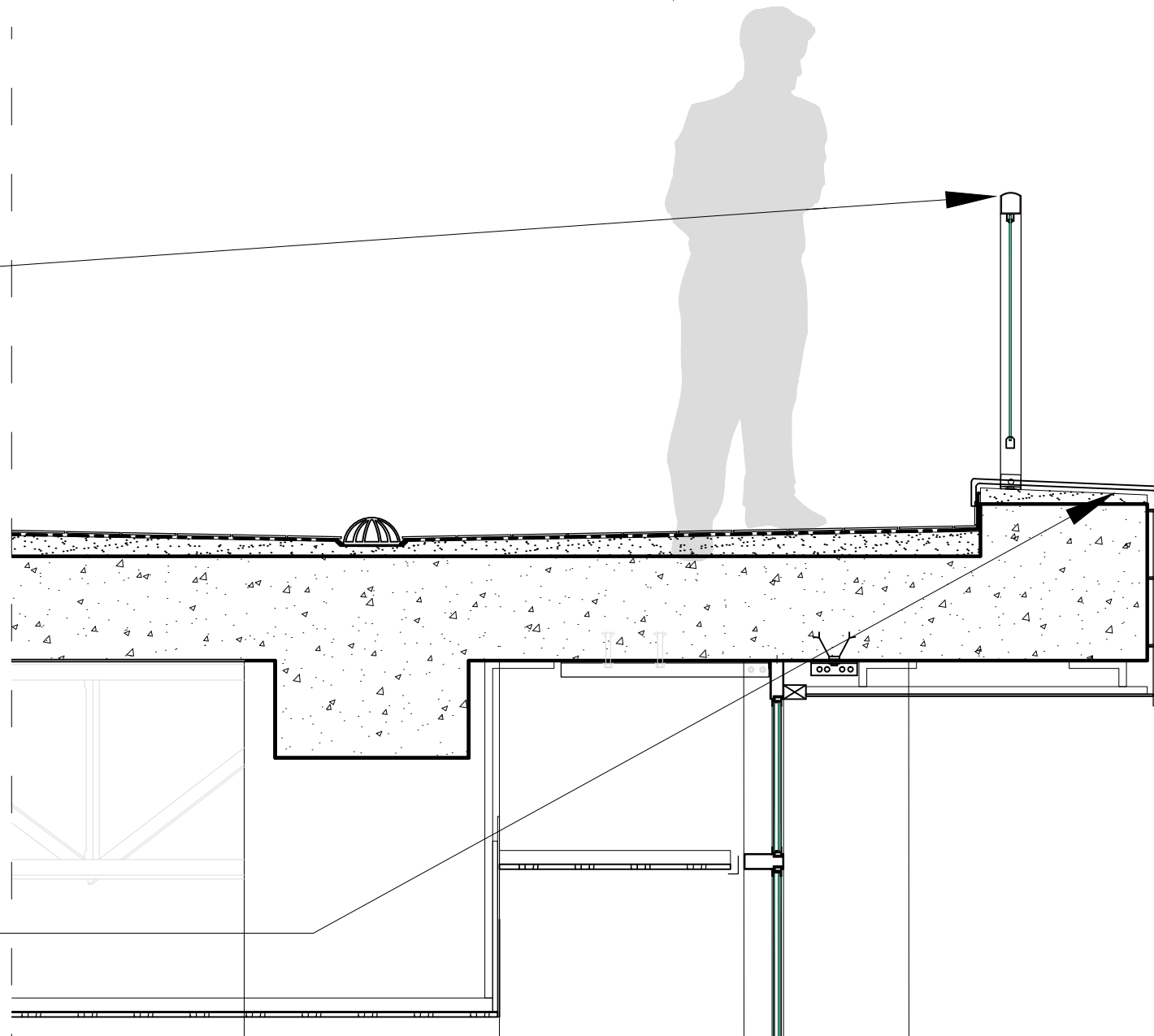
6mm Rhino Board plastered, skimmed
& painted. Fixed to 16mm chipboard
with drywall screws securely fastened
to square tubing.



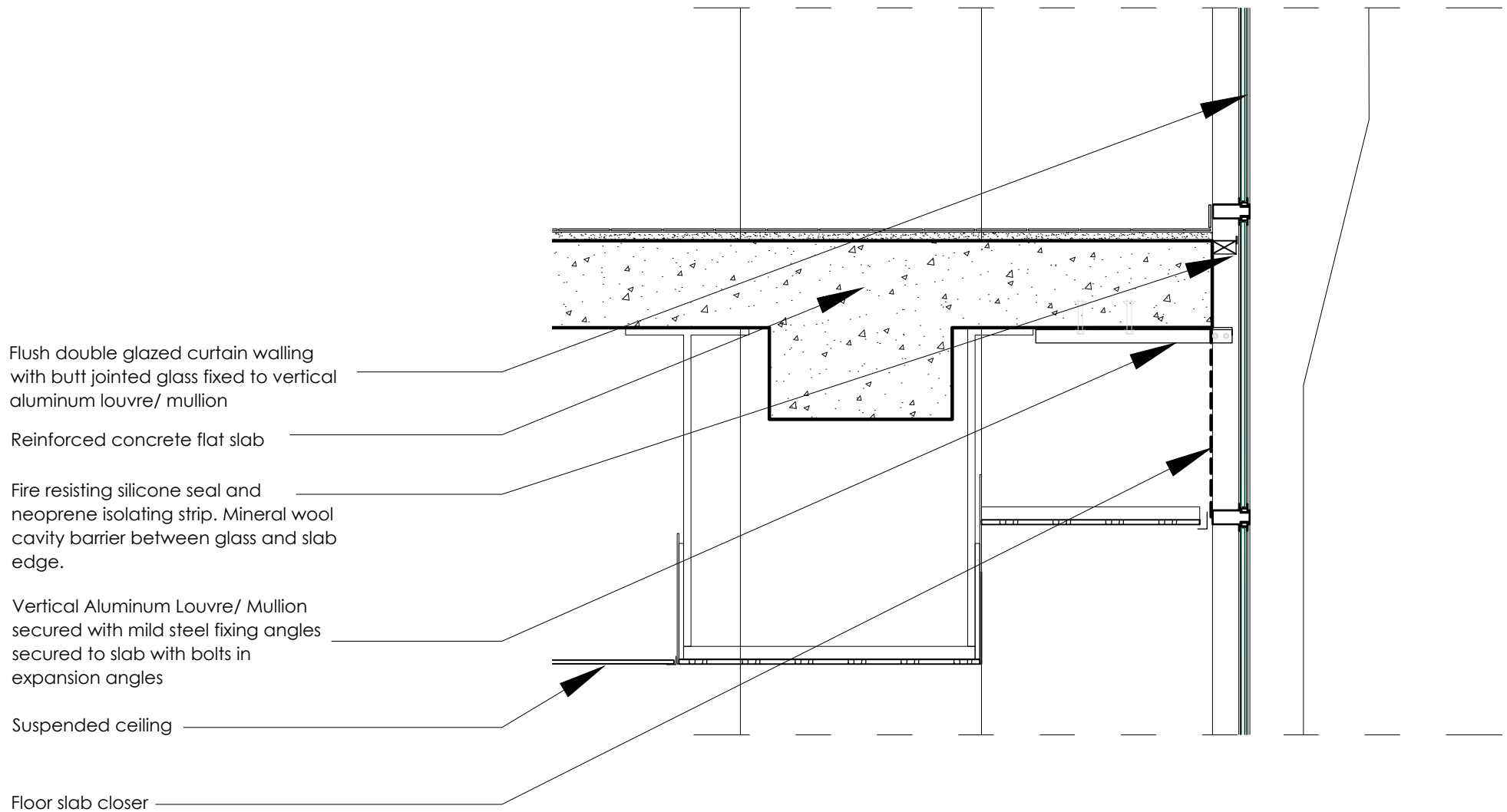
Portion 2 of detail (Scale 1:20)

63mm shaped brushed aluminium top rail profile on 8mm laminated clear tinted, toughened safety glass, with square bottom rail max 100mm from top of floor, as per specialist's drawing.
50mm post (at 1500mm centres) welded onto base plate secured to concrete floor.

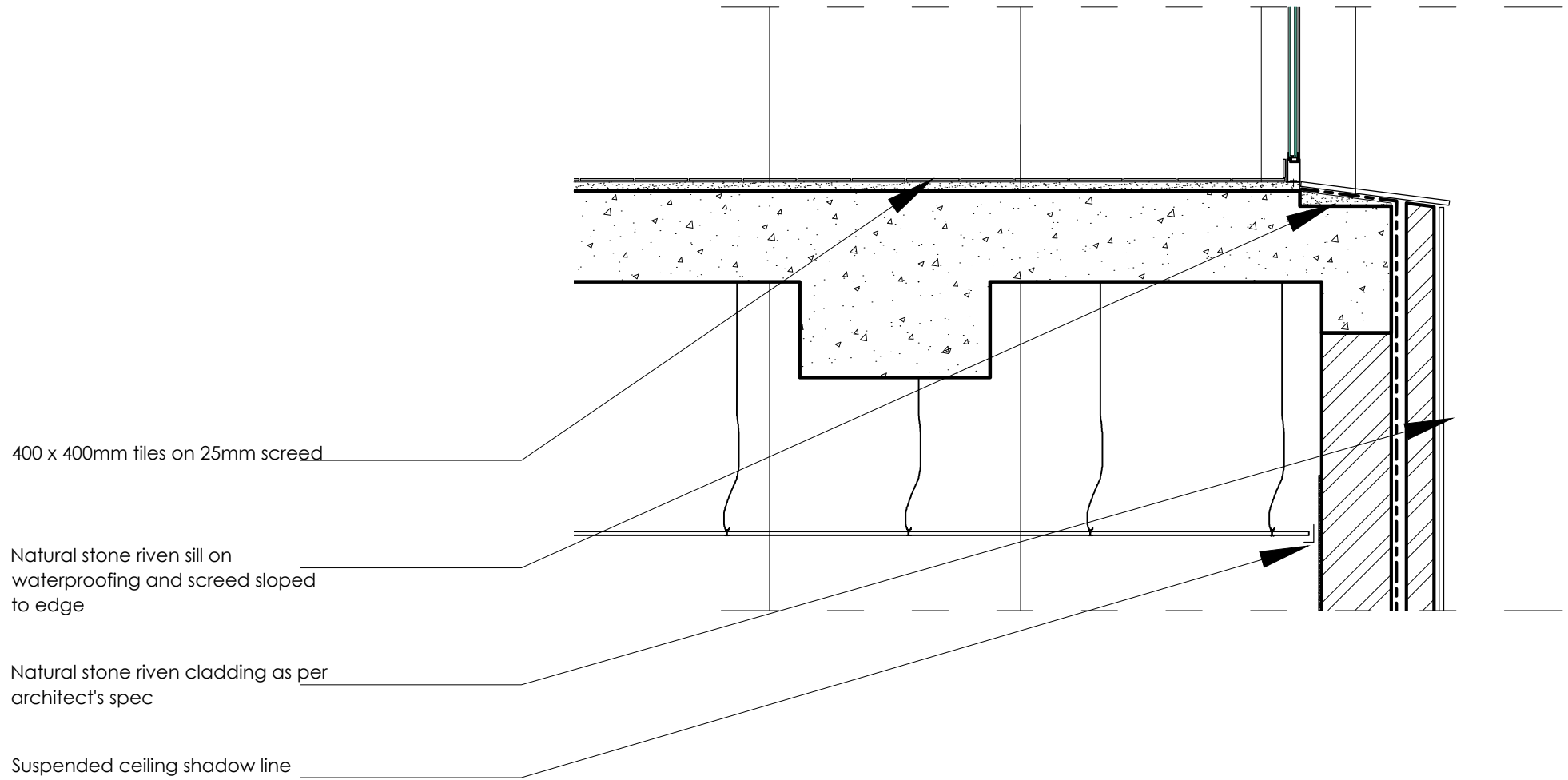
Sheet metal coping
'Rainscreen cladding' of sheet metal panels secured to slab edge through fixed battens. False ceiling of sheet metal panels on box profile frame suspended from square tubing bolted to soffit.



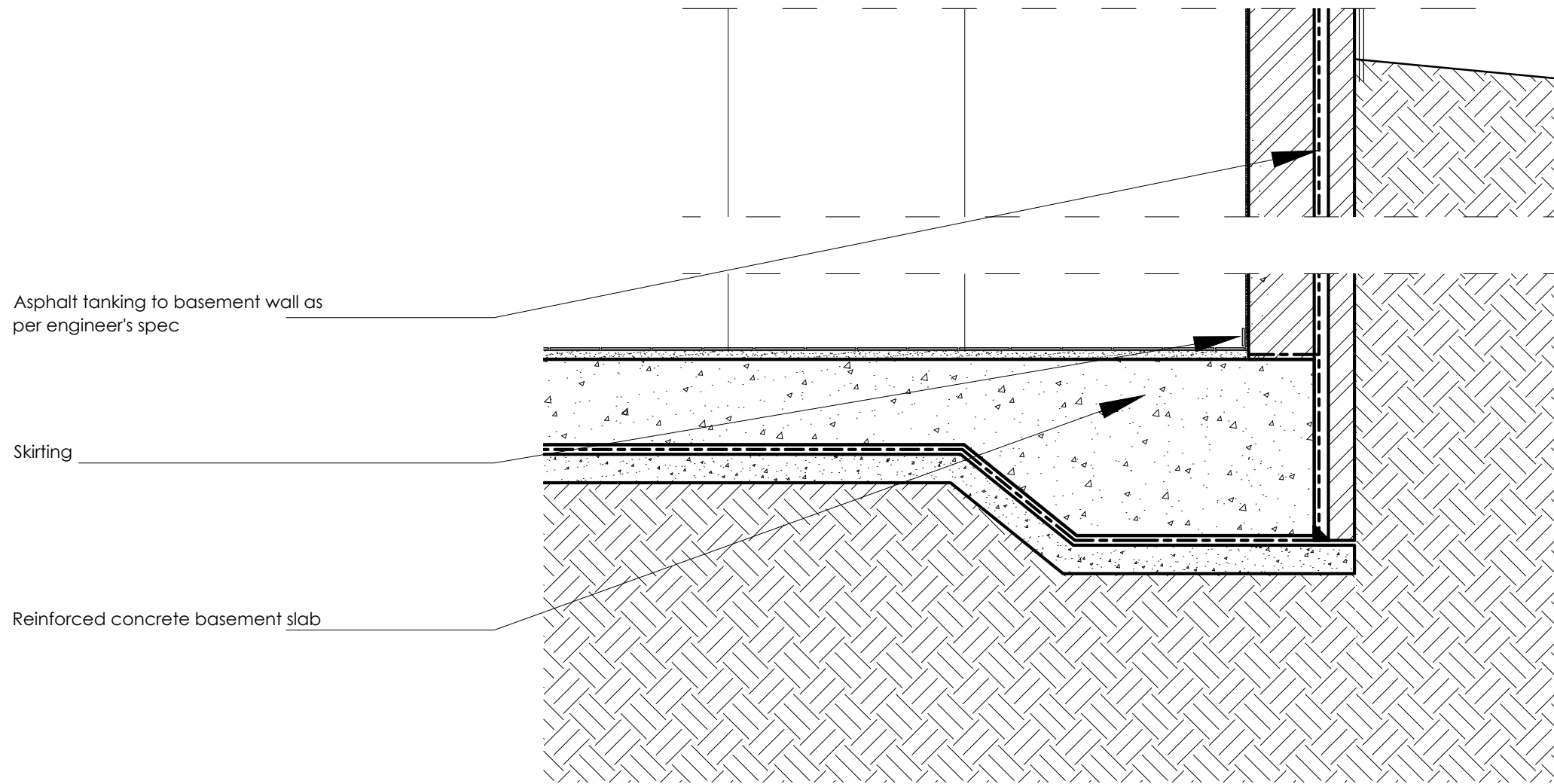
Portion 3 of detail (Scale 1:20)



Portion 4 of detail (Scale 1:20)



Portion 5 of detail (Scale 1:20)



Portion 6 of detail (Scale 1:20)

Conclusion

This project set out to understand the different dynamics of aviation, and how the knowledge obtained could be applied in architecture. The airport as a place of interchange has had a great impact on cities, with the terminal building being the centre of a cluster of activities needed for those making use of the airport. Through my research on cartography, several visual and instrumental clues were discovered, which aided in the process of site selection, programme and identity of my building. As a result, the Business Conference Centre and Hotel has grown out of the information gathered on the area. This mapping and analysing exercise allowed the architecture to form a symbiotic relationship with the Lanseria airport.



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