



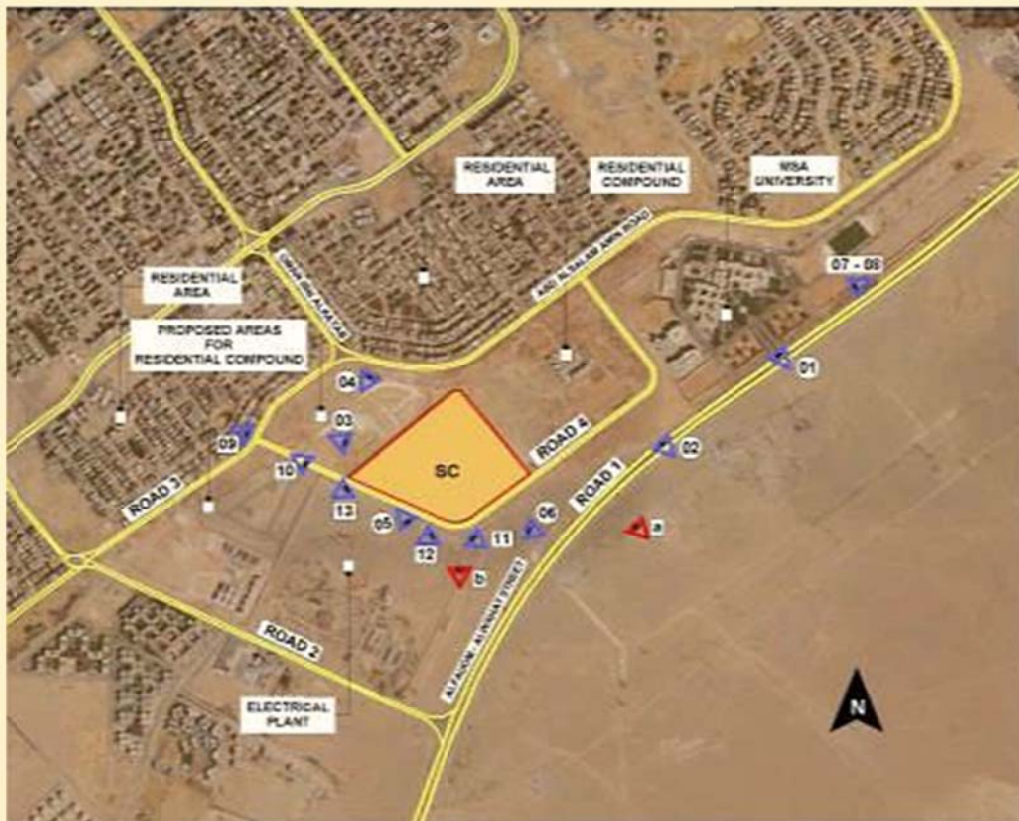
*THE ARAB REPUBLIC OF EGYPT*



BIBLIOTHECA ALEXANDRINA  
مكتبة الإسكندرية

**International Competition for  
A Comprehensive Master Plan  
& Architectural Design of  
THE SCIENCE CITY  
In the 6<sup>th</sup> of October City  
Giza, Egypt**

*Under the Auspices of the International Union of Architects*



*Project Brief  
Terms and Conditions  
15 April 2016*

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## Introduction

### 1. The Challenges of the Science City

The Bibliotheca Alexandrina, the New Library of Alexandria, aspires to implement a landmark honouring the enterprise of science. In light of its mission, the Library of Alexandria has endorsed a science city project by organizing an open, one stage international architectural competition for the comprehensive master plan and conceptual design. The new “**Science City**” complex will be built on the western edge of Cairo, in the heart of the 6<sup>th</sup> of October City. This new complex, to be constructed on prime land, calls for inspiring new comprehensive master plan and conceptual design; that will ultimately create the first 21<sup>st</sup> century science museum, learning and research facility in Egypt.

### 2. The Philosophy of the Science City

The design of science city will create a set of buildings and spaces that must be inspiring on the outside and motivating and exciting on the inside to visitors and employees alike. It must express a particular vision of the search for knowledge and the pursuit of science.

Humans interact with one another and with nature. They explore the limitless universe and the inner self and the subtlety and complexity of these explorations and social relations form the web of life. Such explorations result in expressions that we have come to call Art or Science. But exploration is at the root of being human from our youngest years to the winter of our lives.

Science is driven by curiosity about the natural world and the inner self. It is empirical, rational and logical. It is about the joy of discovery and the delight of understanding.

Technology is the utilitarian application of Science. It may precede science, as it did when people used tools and levers without understanding the scientific principles that underlie them. More recently, technological development kept pace with scientific research. “Research and Development” or R&D, has engineered progress throughout the 20<sup>th</sup> century.

The Science City celebrates scientific enterprise with its exhilarating and unending journey of discovery, and promotes the “Culture of Science”. It is a place where we honor the past, celebrate the present and invent the future. It helps our greater society, as well as its national and foreign visitors, gain insights into and an appreciation of scientific culture, which is more than a widespread knowledge of scientific facts and figures. Scientific culture embraces the acquisition

of a sceptical outlook and promotes evidence-based regulation of human social activities and interactions. A society whose culture is permeated by a culture of science is one whose public discourse honours the search for truth, recognizes the contributions of others, remains open to opposing points of view, celebrates rationality and adheres to logic and proof.

The scientific method is central to the enterprise of science. Without it there can be no real R&D, no technology. It is a necessity, not a luxury. Younger generations must become producers of knowledge, not just consumers of technology. Those who do not tolerate opposing views will not be able to enjoy the enormous benefits of science and technology. We must allow the scientists of tomorrow to make their contributions to a better future for all.

In thinking about how to design the buildings that will constitute “Science City” competitors should reflect on the evolving nature of science. The classical definitions of natural sciences include the following:

- **Physical Sciences: Physics and Chemistry;**
- **Life Sciences: Biology (Zoology and Botany);**
- **Earth Sciences: Geology, Observation and Meteorology.**

These classical definitions that functioned separately for a good part of the last two centuries have been challenged in the last half century. Increasingly, discoveries have resulted in overlapping scientific domains: Biochemistry, Palaeontology and Molecular Genetics, to name but a few. Today we are witnessing another enormous convergence of the domains of bio-info-nano-technologies, prompting exploration and experimentation between these hitherto separate fields.

Furthermore, we rely increasingly on process and system views, rather than isolated events or “snapshots”. Take, for example, photosynthesis. It is now seen as drawing on the different scientific disciplines in different ways. Thus:

- **Light: the energy source (physics)**
- **Photosynthesis: the food production process (chemistry)**
- **For plants (biology)**

Energy, biochemical pathways, cell Biology and plant physiology all contribute to enhance our understanding of nature. Furthermore, we are moving from creating collections of data (or specimens) to creating connections between separate collections of data or specimens.

The domains have blurred: we see mathematics as the basis of music. We study the brain to understand the mind. Neurology and psychiatry are seen to be different ways of looking at that most fundamental part of ourselves: our brain. Computational linguistics and literary criticism seek greater understanding of language, its uses and the messages that it carries.

Even as we write or read these lines, new technologies for presentation and communication are being developed. The pace of change is rapid. Thus the Science City must be built in stages in order to allow it the flexibility to absorb changes in museology or exhibition format, to update interactive learning facilities, and to remain open to new possibilities from building to building during the execution of the campus.

### **3. The Proposed Development**

The Bibliotheca Alexandrina is launching an international competition for architects and planners to design the Science City (SC). The project aims to foster scientific culture and knowledge to the public. Through its architecture and programs, the Science City will connect past achievements with present advancement, while guiding future development.

Egypt has been a world leader in scientific achievements. At the dawn of civilization, Egypt laid the foundation of scientific knowledge and scientific thinking. Scholarship and literacy, a system of writing, classification and practical knowledge were at the heart of remarkable Egyptian achievements in all fields of knowledge. Early Egyptians observed the stars and contributed to the development of astronomy, thus ultimately paving the way for the exploration of outer space. They used their knowledge of the stars to navigate and explore the seas preceding future ages of exploration. Their knowledge of chemistry, medicine, geology, mining, metallurgy, plants, animals, and architecture was essential for later achievements. Above all, it is their contributions to mathematics and geometry that provided the basis for later advances in the physical sciences.

### **4. The Vision**

Our vision is to establish a national central institute with international standards that can illuminate the world of scientific knowledge and technology. The SC will be comprehensive in its content, demonstrating unity among the sciences. The SC will not only be connected to

educational and cultural facilities within the 6<sup>th</sup> of October City, but also to other local, national, regional and worldwide organizations facilities. These include universities, educational facilities, scientific research centres, libraries, and media production centers. This connection to major scientific and research centers worldwide will enable the SC to simultaneously act as an eye and a vehicle, linking our society to the latest achievements in the fields of science and technology.

## 5. The Objectives

The main strategic objectives of the SC are:

- Disseminate scientific knowledge and scientific thinking among the general public.
- Promote science for development
- Support science education and research

Science City should address various aspects in society by ensuring that science-related projects and findings are presented to the public in an exciting and entertaining manner, with thoughtful simplification that conveys the key principles of scientific investigations as well as their importance for human welfare and development.

It is vital to promote science for development. The demands for scientific research in a developing country must be driven by a desire to contribute to the creation of jobs, to put scientific ideas to use, and to utilize local human and natural resources for the maximum economic benefit without sacrificing environmental safety and social well-being.

The potential to explore where Egypt can make an impact and increase its export of scientific goods is one of the main objectives of the Science City. By helping in creating the proper climate for inventors and by fostering the spirit of discovery, and emphasizing the importance of curiosity-driven research, the public and students will be able to venture into new areas that can directly benefit society.

In this context, a comprehensive master plan and conceptual design competition was a better response to our needs, than a detailed project competition, which would bind participants to a specific project with detailed requirements, such as the number of rooms in each facility and the approximate size and intended use of each room.

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## Section 1: Project Brief

- 1.1 ..... Background
- 1.2 ..... The Site Area
- 1.3 ..... Urban Context

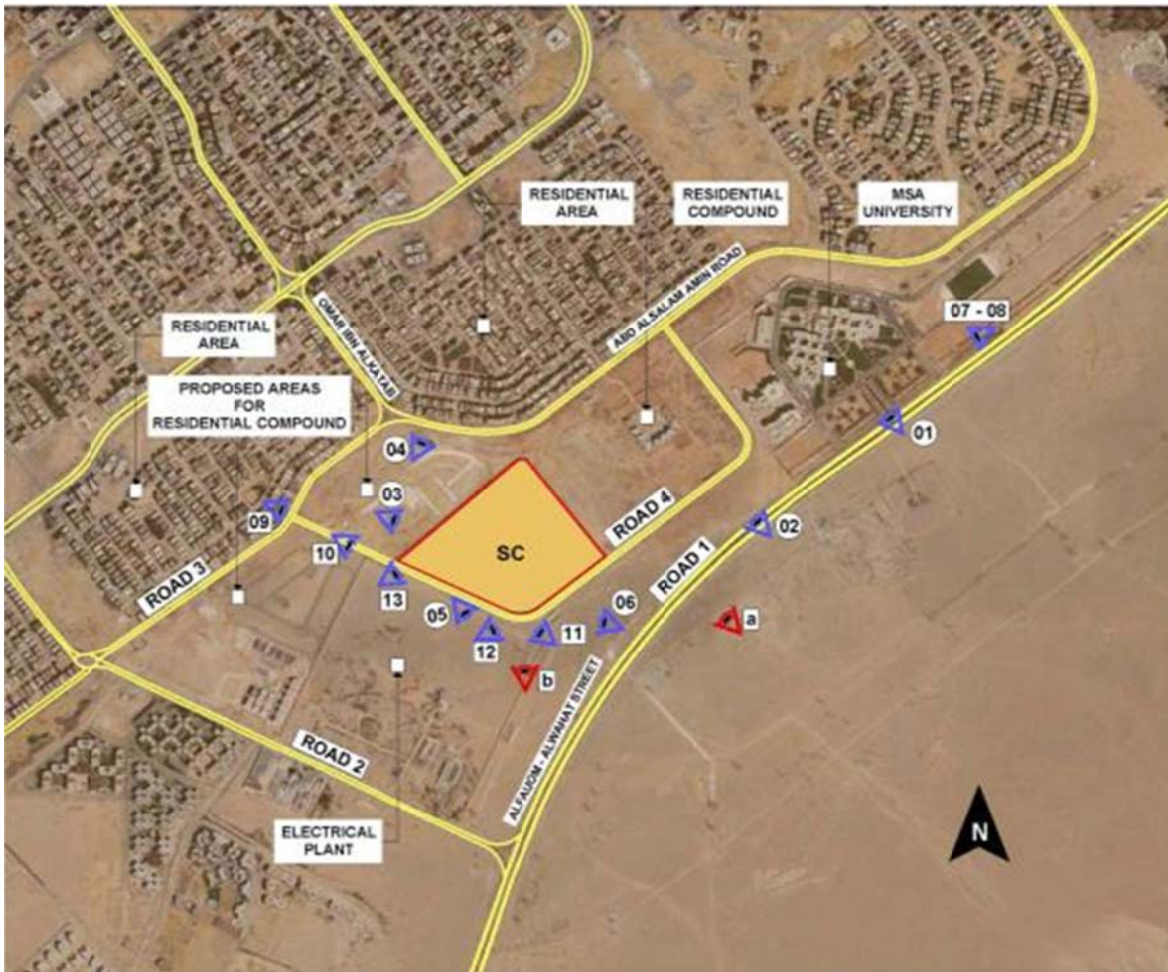


## 1.1 Background

Having arrived at the 21<sup>st</sup> century, the world is on the verge of great scientific advancement. Science City will be the vehicle with which Egypt can join the fast-advancing world of science, bring Egyptians closer to the world around them and engage Egyptian scholars in an active dialogue with the future. Egypt, with its long-standing civilization and scientific achievements that once dazzled the world, is worthy of a new lighthouse of scientific knowledge not only to reclaim Egypt's role as a leading nation, but also to guide young Egyptians in a world open to all kinds of messages. It will also serve to create the climate conducive to further scientific advances, demonstrating links between science, technology and industry. Egypt has successfully re-established the **Bibliotheca Alexandrina (BA)** and started the construction of a **Grand Egyptian Museum** to showcase Egypt's ancient past. The **Science City (SC)** will become the third jewel in this triangle crowning the achievements of a new era that celebrates the past with an eye to the future, balancing literature, science and the arts.



Access to site within the 6<sup>th</sup> of October City



## Site Map for Neighboring and Accessibility

### 1.2 The Site Area

- Site Area: Net area 124,994.80 m<sup>2</sup>
- The maximum built-up area is 37,498.44 m<sup>2</sup> not to exceed 30% of the total area (According to the 6<sup>th</sup> of October City Council regulations and permitted 3 floors heights).
- The estimated required floor area is \*85,000 m<sup>2</sup> (+/- 10%). \*page 24
- Expected visitors per year: 1 to 1.5 million visitors' individuals.
- Expected numbers of employees: around 450 employees.
- Purpose: to create a Science Center including Interactive Science Exhibitions, Collections Museum, Research & Development Facilities, Workshops and Conference Center.
- The outdoor space, exhibition area and Science Park shall not be added to the total built-up area and is at some to \*88,200 m<sup>2</sup> (+/- 10%). \*page 23.
- Expected casual and frequent visitors to the Science City include Groups/Individuals, Researchers, and Staffs and Employees.

### 1.3 Urban Context

The selected site is located in Giza Governorate within the boundaries of the 6<sup>th</sup> of October City approximately 38 km from Cairo. The 6<sup>th</sup> of October City was founded as a result of President Sadat's Open Door Policy post-1973, to create new centers for human settlement and economic activity outside of the existing urban center. The 6<sup>th</sup> of October City is established within the Greater Cairo Master Plan and hosts now around one and a half million inhabitants.

The 6<sup>th</sup> of October City is accessible from several routes; Cairo-Alexandria desert road, Ring Road, Al Fauom-Al Wahat road. Using the 26<sup>th</sup> of July axis, it takes 20 minutes from Al Mohandeseen neighbourhood to reach the SC site. Organized public transportation does not yet reliably connect the city with the Greater Cairo Region. People depend on private cars, corporate private buses, and commercial private sector mini-buses. Although somewhat hazardous, these mini-buses are the most efficient means of communal transportation for the moment.

To the northeast, adjacent to the site, is a new compound under construction named High Land. To the northwest is vacant land planned to house another residential compound. To the southwest, across an internal road, is an electric power plant facing the site. Between the Al Wahat-Al Fauom road and the internal road is vacant land planned to be a buffer zone servicing the highway (see map on pages 10, 11).

The city consists of 12 neighbourhoods hosting different housing categories and elite residential compounds, a number of universities (e.g. Modern Science and Art University, The 6<sup>th</sup> of October University, Misr University for Science and Technology and Ahram Canadian University), High Institutes, the Media and Production City, Dream Land Recreational Park, hotels and restaurants, supermarkets and mega stores, among a growing number of projects aimed at enhancing the lifestyle of Cairo residents. In addition, its industrial area is becoming one of the important industrial zones in Egypt.

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## Section 2: The Program

### 2.1 Aims of the Project

### 2.2 Components of the Project

#### 2.2.1 Proposed Main Components of the Project

#### 2.2.2 Facilities List and Estimated Area

### 2.3 Spatial Relation Diagrams

### 2.4 Planning and Design Considerations

### 2.5 Challenges and Implementation Phases:

#### 2.5.1 Phasing and 3 Interactive Campuses

### 2.6. Building Regulations and Standards

#### 2.6.1 Regulations

#### 2.6.2 Standards

### 2.7 Museology

#### 2.7.1 Museology themes

#### 2.7.2 Museology Design Aspects

## **2.1 Aims of the Project**

Our aim is to inspire curiosity, discovery, and learning about science and technology through outstanding exhibitions, collections, and educational activities.

## **2.2 Components of the Project**

An architectural design provides the spatial layout for exhibiting scientific themes and ideas. The building could serve as an educational instrument as it exhibits building sciences. Similar to other first-class international science cities, the Science City should accommodate services and functions that are related to science projects, scientific research, communication, exhibit maintenance and production, recreation, and support for technical installations.

### **2.2.1 Required Main Components of the Project**

The Science City programme consists of eight main components that accommodate all of its functions. These components are as shown in the following list:

- 1) Exhibition Halls and Spaces
- 2) Conference Center
- 3) Planetarium
- 4) Science Park
- 5) Research Center
- 6) Observatory Tower ( Landmark of the project)
- 7) Administration
- 8) Technical and Service Units

### 1. Exhibition Halls and Spaces

- a. Orientation and Information Hall
- b. Collections Exhibitions
- c. Interactive Exhibition
- d. Temporary Exhibition
- e. High Definition Theatre

### 3. Planetarium

### 4. Science Park

The park is a thematic recreational outdoor space, expressing Egypt's diverse landscape and natural life.

### 2. Conference Center

- a. Auditorium
- b. Two Lecture Halls
- c. One Multi-Purpose Hall
- d. Four Meeting Rooms

### 6. Observation Tower

The observatory Tower will provide facilities for astronomy and the observation. It will also act as a Landmark for the project.

### 5. Research center

- a. Collections Departments
- b. Research Shared Facilities

### 7. Administration

- a. SC Head Department
- b. Finance and legal Department
- c. Information and Public Relations
- d. Personnel and Recruiting
- e. ICT Department
- f. Finance Management and Fund Raising
- g. Engineering and Maintenance

### 8. Technical and Service Units

- a. Inventory
- b. Workshops
- c. Complementary Services
- d. Technical Plants and Security

The 8 components shall be phased into 3 campuses & central core of services  
(See pages 30, 31, 32)

### **2.2.1.1 Orientation and Information Hall**

The Hall should be in the Science City's core; easily accessed from the entrance and directly connected to all the exhibitions, HD theater, conference facilities, public services and amenities. It will introduce the visitor to the world of science, scientific culture and research. Exhibits in this hall should reflect unity within the sciences, and must allow for periodic changes to the master exhibits. The Hall will accommodate as well visitors services as; restaurant serving visitors to; conferences, exhibitions, activities and events, Cyber cafés, several attracting shops, post office, medical center, banks and a prayers area.

#### **A. Collections Exhibitions**

The Collections Exhibitions will host the permanent collections which will be developed incrementally. Each group of the collections will tell its own story, or as part of didactic, thematic or contextual displays. These objects are not frequently replaced and they are of major assets for the Science City and part of human scientific culture. The environmental standards must be considered within this exhibition so as to preserve the exhibits in good conditions. The Exhibition area will contain information nodes which allow visitors to navigate through the eight main collections sections data base.

#### **B. Interactive Exhibition**

The Interactive Exhibition thematic spaces and galleries should allow for reasonable flexibility in order to periodically update the exhibits as scientific discoveries and theories develop. Interactive exhibits will need special installations: power, water supply, water drainage, data, etc. Attention needs to be paid to supplying power and communications trucking as widely as possible on the exhibition floor and walls, with drop down capability from the ceiling or roof structure.

The general exhibit concept for each theme should consider the following: historic development of ideas, Egyptian examples, applications in daily life, inspiring scientific figures and their major contributions in the past and present, industrial applications to science, social influences, and future visions.

The Interactive exhibition should include the children's world, which is a place for children to learn, share, experience and create. Whether they come with family or a class, children can



experience the scientific approach through games. The hands-on exhibits teach children how to formulate hypotheses and make deductions by themselves. The Children World will be hosting the activities for children aging from 3 up to 6 years old.

And since the large audience of the Science City will include children of school age, teenager and adults which are usually an active group, therefore large spaces and long hikes to encompass the entire exhibit area is an advantage.

### **C. Temporary Exhibition**

The Temporary Exhibition is intended to host travelling exhibitions, commercial applications to science, and technological innovations. It should be designed to accommodate four large exhibitions at the same time, therefore flexibility of space and installation, again, are key factors to the success of this function.

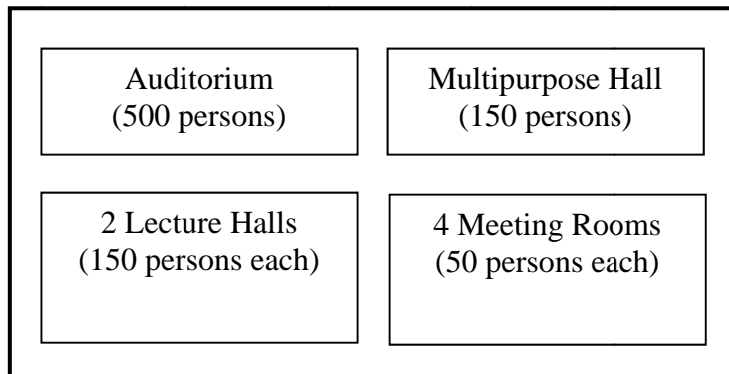
### **D. High Definition Theater (HD Theater)**

The High Definition Theater gives viewers the ultimate large screen experience with projections of stunning documentary movies. It will be educational and entertaining for all age groups, accommodating approximately 350 persons. It will be equipped with state-of-the-art projection equipment.

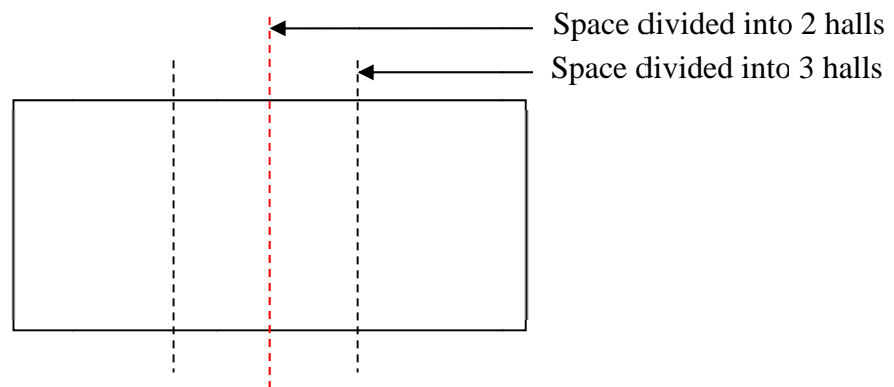
#### **2.3.1.2 Conference Center**

Special events, scientific and ICT conferences will take place in the Science City auditorium. The auditorium will accommodate **500** persons. Supporting facilities will consist of 2 lecture halls that hold 150 persons each, one multipurpose hall that holds to the capacity of 150 seated persons and 4 meeting rooms, which can accommodate 50 persons each.

The auditorium, lecture halls, multipurpose halls and meeting rooms will all be equipped with advanced technological equipment which will allow for overseas conferences that establish international networks. The multipurpose hall should be flexible and can be divided into two or three smaller halls.



**Conference Facilities Components**



**Space Division for Multipurpose Hall Diagram**

### 2.2.1.2 Planetarium

The Planetarium plays a central role in shows that cover diverse scientific themes with a special emphasis on astronomy. It will provide both live and multimedia shows every day and will receive an average of 150 – 200 visitors per show.

### 2.2.1.3 Science Park (Outdoor spaces)

The main objectives of the Science Park landscape are: To provide education through recreational interactive activities, and to revitalize the landscape energy in nature and its relation to machine. The outdoor exhibits will be an extension of the ‘Science City’ indoor interactive exhibits. It should display different elements of natural Egyptian landscapes. The exhibits should portray aspects pertaining to fauna and flora, hydrology, geology, and energy using hard and soft landscape.

#### **2.2.1.4 Observatory Tower (Landmark of the SC.)**

The observatory Tower will provide facilities for the astronomy and the observation. It is the landmark; characterized by an Observation Tower. The Observation Tower shall be constructed on a limited area no more than (3) % of the allowable construction area (or according to the designer's perception). The Observation Tower height shall be around 45 meter high. The Observation Tower shall mark the zone of the 6<sup>th</sup> of October with a special nature overlooking the pyramids. The observatory tower lower floor consists of entrance, reception area, information desk and administration and media room, while the upper floors consist of an observatory and services and an open deck or view area.

#### **2.2.1.5 Research Center**

The research center will host a range of collections which conform with the Collection acquisition policy of the Science City. It will consist of eight main departments and a number of shared facilities.

While the shared facilities will comprise, the public interface reception, digital archive, library, shared laboratory, meeting rooms, administration and scientists offices and lounge. All labs will be adequately fully equipped with computer stations to help in processing data and cataloguing it.

All departments will accommodate Curators' offices who will be responsible for identifying specimens, plan and oversee the arrangement, cataloguing, and exhibition of collections. They also maintain collections with technicians and conservators. They acquire and preserve important documents and other valuable items for permanent storage or display. They also identify, acquire, describe, catalogue, and analyze, special collections for the benefit of the researchers and the public.

All departments will comprise a storage area which should allow the collections to grow. Design should consider state-of-the-art preservation method; therefore maintaining environmental standards is a must. Climate control, air movement and outdoor air, air cleanliness, light levels, materials, macroclimates, pest control and movements (visitors, objects and machines) are main environmental factors that need to be considered.

### **2.2.1.6 Administration**

The administration is the brain of the Science City. The administration will work as one large central administration associated by small satellite administration units located within different components of the Science City for facility management.

The main departments are the following;

- a. The Science City Head Department**
- b. Finance and legal Department**
- c. Information and Public Relation Department**
- d. Personnel and Recruiting Department**
- e. ICT (Information and Communication Technology) Department**

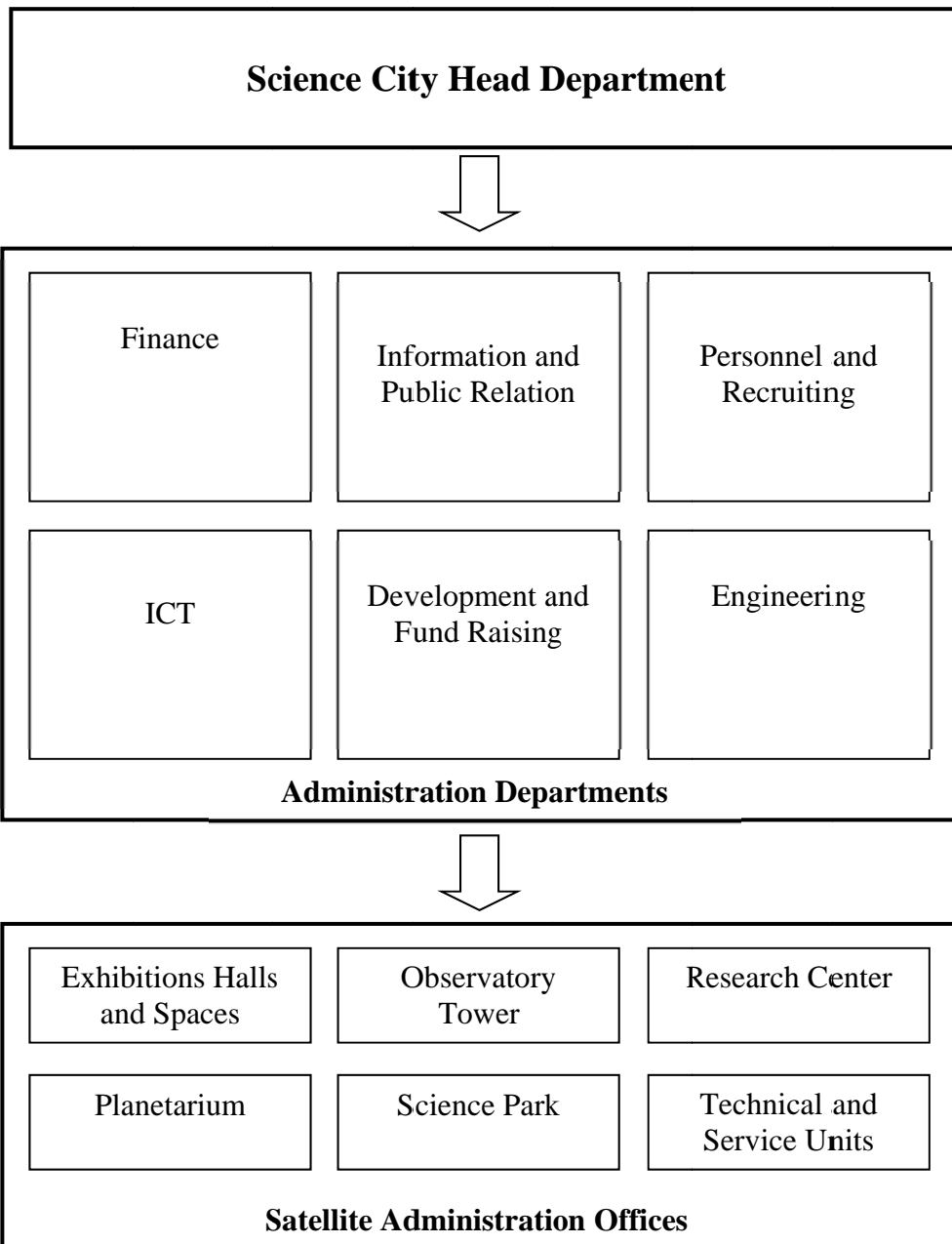
The department will host the Science City main server. It will be responsible for updating the Science City digital library. These updates will accompany the occasional changes in the Interactive and Rotating exhibits. The department will also prepare for the advertising concerning the Conferences, scientific workshops...etc. It will be maintaining and upgrading the computer terminals' which the visitor uses to navigate through the Science City digital library.

#### **f. Finance Management and Fund Raising**

This department studies the long and short-term strategies of the exhibitions, and systematically analyzes and establishes plans regarding finance, administration, exhibitions and their facilities.

#### **g. Engineering**

This department plans exhibition themes, ideas and design relevant drawings, models, lighting and exhibition display, and to manage and supervise their productions.



**Administration Organization Chart**

### **2.2.1.7 Technical and Service Units**

The Services section is the backbone of the whole science city complex. It contains the following departments:

#### **A. Inventory**

This will include all kind of storage as; stationary, exhibit storage, workshop storage...etc.

#### **B. Workshops**

The Science City will be equipped with workshops that will allow for the installation and maintenance of exhibits. The workshops may organize educational public visits to the Science City's backstage.

#### **C. Complementary Services**

These services include a common loading/unloading bay and dock for receiving exhibits for the rotating exhibition, collections specimens, and materials for workshops. They also should include; security, crating services, worker's services and offices managing the services operations. Designing these services should consider the following:

- Direct, uninterrupted flow of works, without ramps, turns or steps, if possible, from the loading dock through shipping/receiving to crating/uncrating and into crate storage and transit store
- All rooms to have unobstructed access with no steps, ramps, or turns, to research center storages, Interactive, rotating exhibition area, and workshops.
- All areas must be restricted to authorized staff during operational hours only.

#### **D. Technical Plant and Security**

The space will accommodate the main technical equipment access doors that will associate the technical systems, and for the security, fire and safety control and management. The most technologically advanced mechanical systems available at construction time should be considered in the design.

### 2.2.2 Facilities List and Estimated Area:

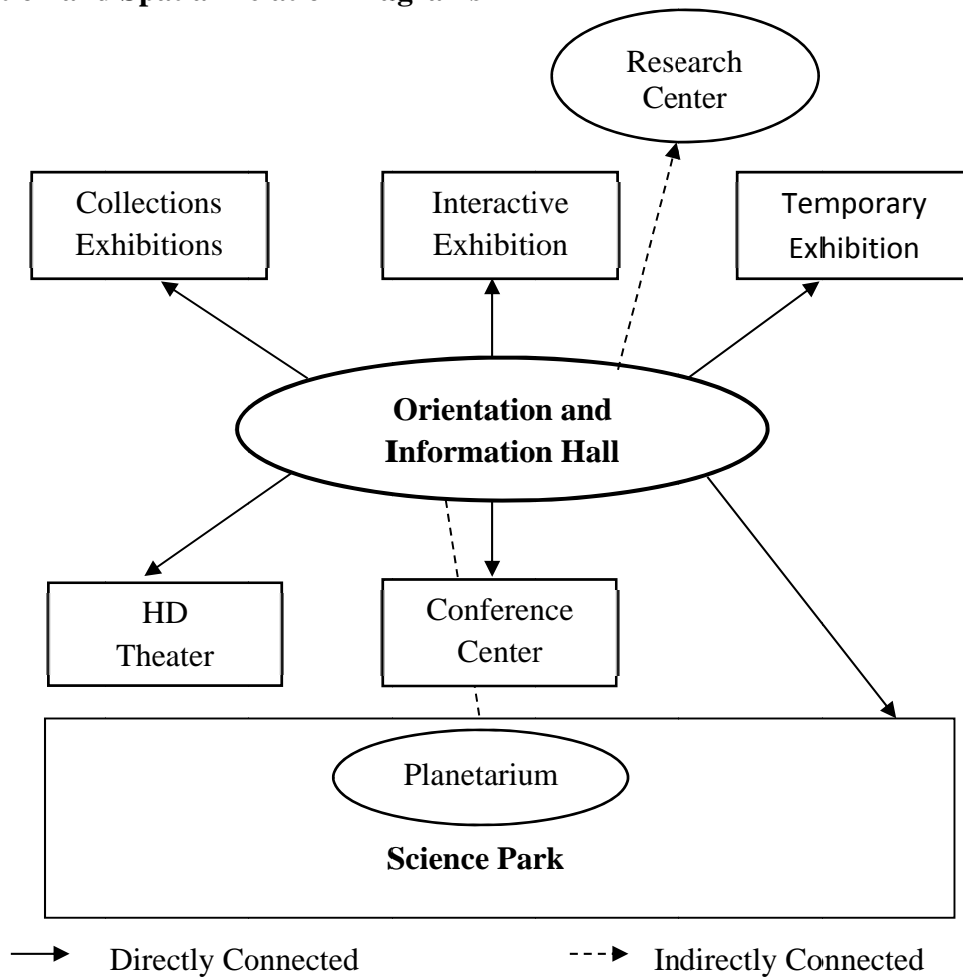
For a conventional approach, the facilities areas are suggested to competitors. It is not mandatory for competitors to abide, precisely, to these areas.

CODE	ACTIVITIES	Approximate Area in m <sup>2</sup>	REMARKS
<b>1</b>	<b>Exhibitions Halls and Spaces</b>	<b>18,300</b>	
1.1	Orientation and Information Hall	4,200	
1.2	Collection Exhibition	3,000	
1.3	Interactive Exhibition	8,000	
1.4	Temporary Exhibition	2,000	
1.5	High Definition Theater	1,100	For 350 persons
<b>2</b>	<b>Conference Center</b>	<b>2,500</b>	
<b>3</b>	<b>Planetarium</b>	<b>1,000</b>	For 200 persons
<b>4</b>	<b>Science Park</b>	<b>(88,200)</b>	(outdoors) Not added to the total built up area
<b>5</b>	<b>Research Center</b>	<b>18,750</b>	
5.1	Collections Departments	16,650	
5.2	Research Shared Facilities	2,100	
<b>6</b>	<b>Observatory Tower</b>	<b>8,400</b>	
6.1	Ground floor	1,600	
6.2	First floor	1,600	
6.3	Tower core	2,200	11 floors x about 200 m2
6.4	Observatory floor 1	1,000	
6.5	Observatory floor 2	1,000	
6.5	Top deck	1,000	

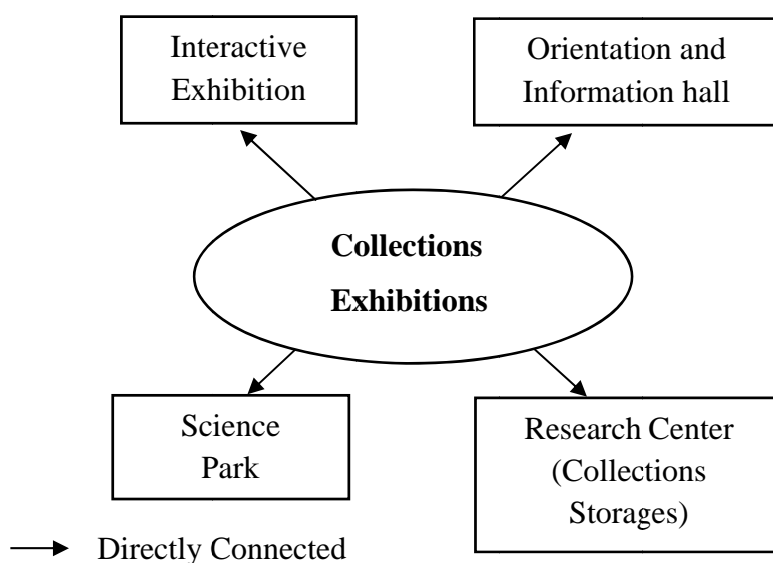




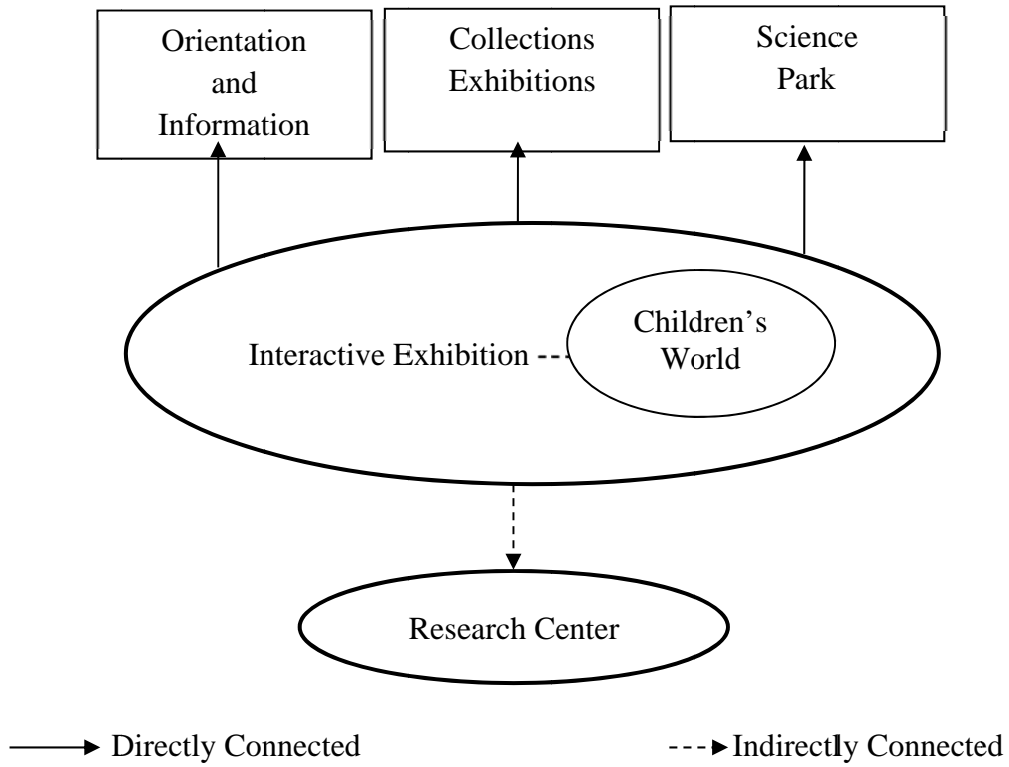
### 2.3 Orientation and Spatial Relation Diagrams



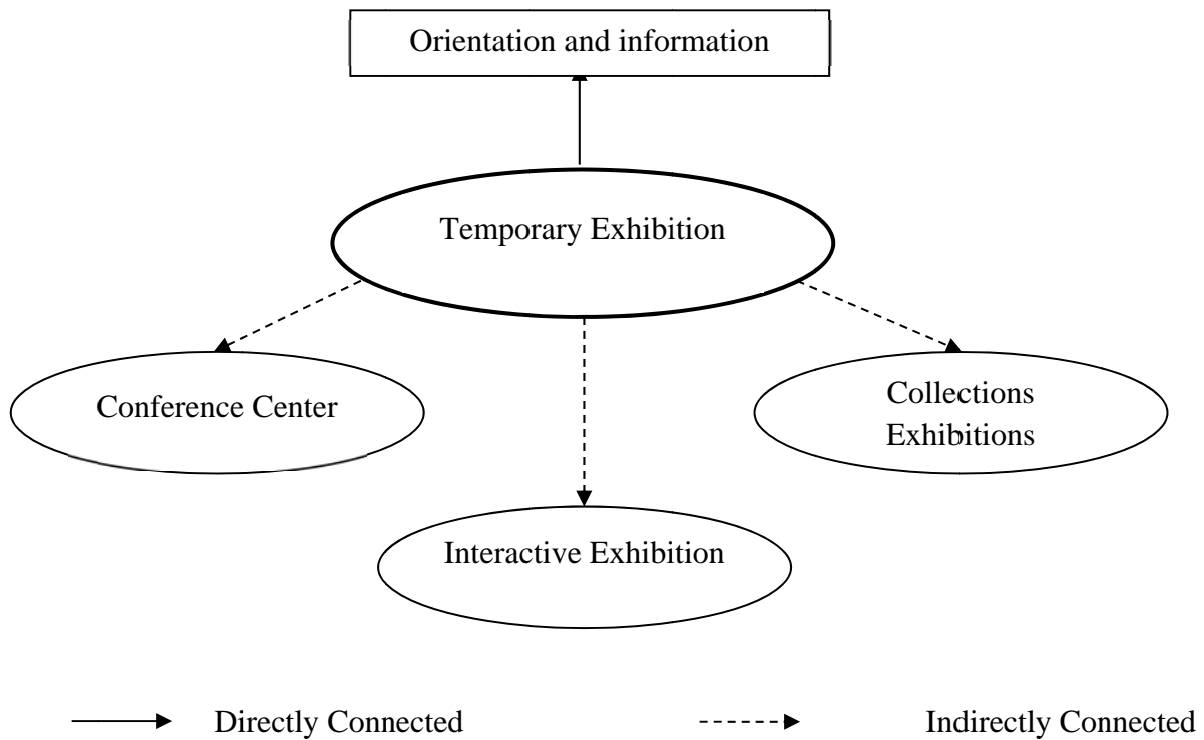
**Orientation and Information Hall Spatial Relation Diagram**



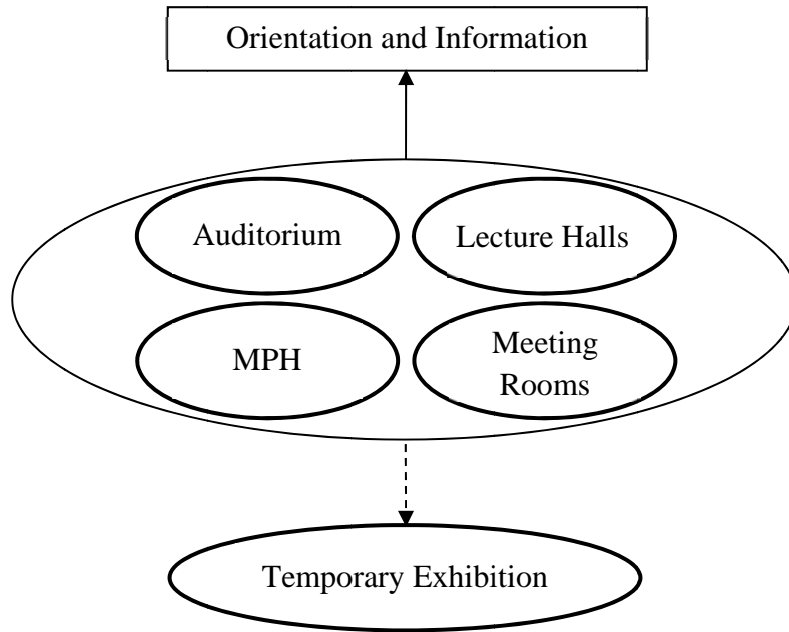
**Collections Exhibitions Spatial Relation Diagram**



**Interactive Exhibition Spatial Relation Diagram**

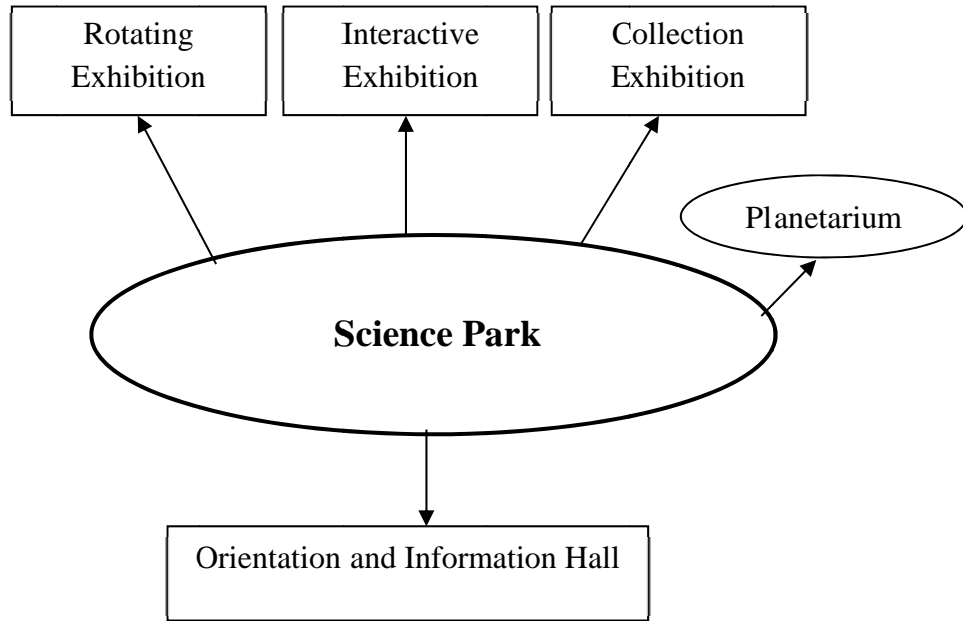


**Temporary Exhibition Spatial Relation Diagram**



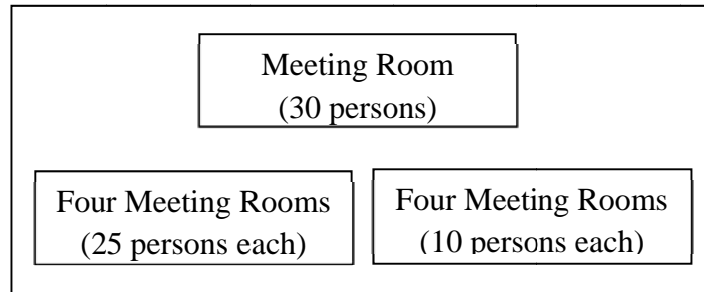
→ Directly Connected      - - - - -> Indirectly Connected

**Conference Facilities Relation Diagram**

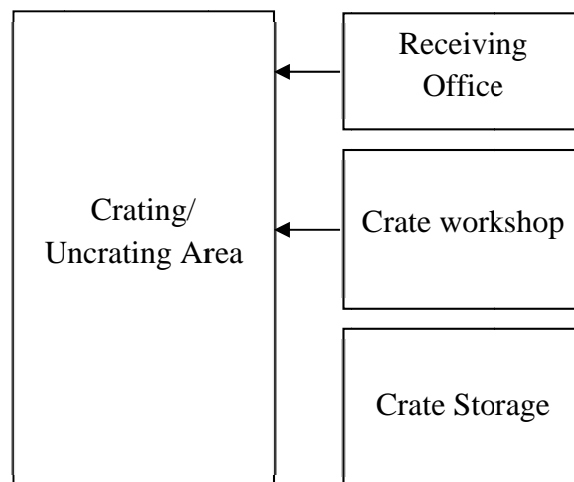


→ Directly Connected

**Science Park Spatial Relation Diagram**



**Research Center Meeting Rooms Components**



→ Directly Connected

**Crating/un-crating Services Spatial Relation Diagram  
(Technical and Services Unit – Complementary Services)**

## **2.4 Planning and Design Considerations**

### **2.5.1 Planning Considerations**

The planning and architectural design should take into account a number of the following complex considerations:

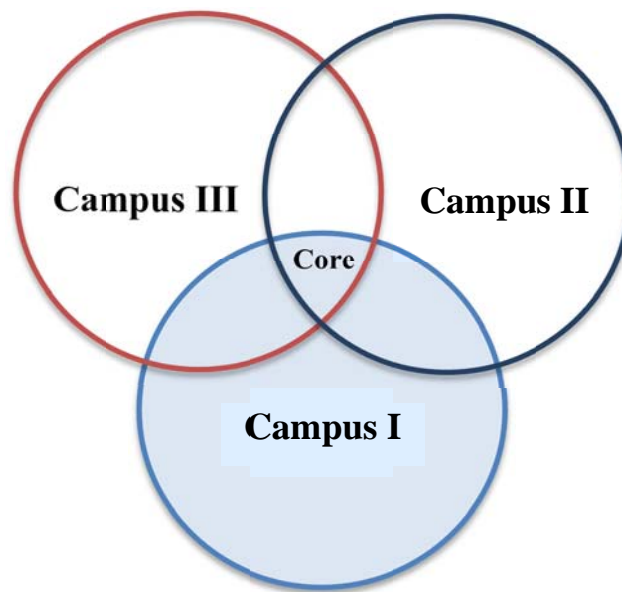
- It should be a campus of several buildings in which implementation can proceed one integrated building at a time, each building being usable for the public as soon as it is completed, but conceived in such a way that the entire complex, when completed, produces an effect where the whole is more than the sum of its parts.
- The complex should become a landmark for the 6<sup>th</sup> of October City and for the rebirth of science in 21<sup>st</sup> century Egypt.
- The buildings should themselves be “green & smart buildings” and demonstrate how environmental concerns can be an integral part of the design and not an add-on to a conventional building.
- The buildings should be flexible in their internal use, adaptable to the new and rapidly evolving technologies, such as interactive displays and virtual and real learning environments, and should facilitate interaction between the public and the staff.
- The facility should cater to all age groups.
- The landscaping of the site should not only connect all the buildings, but also interact with the evolving implementation of the complex.
- At each stage of implementation, the building(s) and land should be linked in an inviting and dramatic way facilitating functionality (e.g. parking and service facilities) and enticing visitors to use covered pedestrians walkways to explore the landscaping. Such walkways may be reduced or changed as more buildings are implemented and the complex grows.
- Access and circulation design guidelines
  - Maximum safety and efficiency.
  - Security control requirements.

- Identifications of different functional categories.
- Optimization of infrastructure works.
- Possibility of future expansion.
- Handicapped and special needs circulation fulfilment.

## **2.5 Challenges and Implementation Phases**

- Each phase shall consist of integrated elements selected from the architectural facilities list of the programme.
- The challenge of the competitors is to analyse the list of project programme needs and select the integrated elements in each phase. This could compose the three campuses, and the central core of services.
- The first phase of the project shall include the first campus and the central cores of services include the observatory tower.
- The competition has a particular and unique nature; it distincts two types of comptetions, it is a hybrid between idea master planning and project in architecture.
- Competitors must submit their proposals in planning and architecture as follows:
  1. The comprehensive master plan shall illustrate the idea.
  - 2. The conceptual design shall illustrate the project for the three campuses and the central core services include the observatory tower.

The real challenge in the competition is to accomplish the implementation of the largest center for scientific research and development in Egypt, Africa and Middle East under the auspices of the Bibliotheca Alexandrina.



### Phasing of the 3 Campuses and central Core

#### 2.5.1 Phasing and 3 Interactive Campuses

The project shall include the central core of services addition to three campuses. The implementation of the projects campuses are indicatively planned to be in three phases with approximately the following percentages:

- **Phase 1: The Campus I & Central Core** about **40%** from total Floors Area
  - **Phase 2: The Campus II** about **30%** from total Floors Area
  - **Phase 3: The Campus III** about **30%** from total Floors Area
- 
- The Observatory Tower should be in the first phase along with the central core area of services.
  - It is essential that each phase can operate independently until other phases are implemented.
  - The competitor can select any element of the **8** components, either the complete component or an element of it, to include it in the campuses of each phase, considering the above approximate percentages.



## 2.6. Building Regulations and Standards

### 2.6.1 Regulations (see original building regulation annex B)

- **Building Area Coverage** (foot print / build-up area):

Building coverage area should not exceed 30% of total plot area (Approximately 37,800 m<sup>2</sup> or less at ground floor level).

- **Buildings Height:**

Maximum building height could reach up to three floors including the ground floor. Inclusion of a basement is permitted with the proper considerations. The zero level of the elevations is to be measured from the midpoint for each elevation separately. Although the height is determined by number of floors, total height in meters might be negotiated with authorities according to project concept.

- **Setbacks:**

Setbacks are not less than 4 m from the site boundaries. Any construction in the setback area is not permitted.

- **Outdoor Green Area:**

Not less than 44.4 % (56,000 m<sup>2</sup>) from the total site area

- **Outdoor Circulation and Pedestrian Paths**

Not less than 25.6% (32,200 m<sup>2</sup>) of the total site area, including parking area.

- **Parking Area**

The parking area is required to host no less than 2,300 vehicles (taxi, buses, others) and should be divided into:

- **400 vehicles spaces** for the un-shaded areas including 10 handicapped spaces,
- 1,900 vehicles in shaded areas including 40 handicapped spaces.
- **Size of a parking space:** 2.5 x 5m regular parking, and 3.5 x 5m for handicapped parking.

- **Civil Defence Regulations**

- Direct fire escape stairways must be installed on all levels.
- Direct fire escape exit doors for each escape stair must be installed on the ground floor.
- Fire-resistant structures and materials must be used to ensure safe evacuation in the event of a fire or disaster.

## 2.6.2 Standards:

- Design calculations to the building and to the fire preservation measures shall comply with the International code; International Building Code (American code) and British Standard (British code).

## 2.7 Museology

### 2.7.1 Museology themes

The main themes in the exhibition areas will be governed and guided by certain concepts as follows;

- **Collections Exhibitions**

The Collections Exhibitions will include, but will not be limited to; Geology, Natural History, Plants, Animals, Paleontology and Anthropology. Other collections might be added depending on availability and/or need.

- **Interactive Exhibition**

The interactive exhibition hall is the hands-on science facility of the project. It should include interactive exhibits and exhibitions covering different fields of science. The interactive exhibition should encompass three museological layers and stratus; Themes, disciplines and age group. These layers will overlap and/or intersect giving maximum flexibility in organizing the exhibition tours. Concepts and topics under each layer are demonstrated in an interactive manner and will be changed frequently.

The Museology design should be subtle enough to allow visitors to reflect with their internal personal knowledge, their environment and the universe without direct facing with the intricate complexities of any particular field of science.

- **Human Body**

An example of a theme that should be tackled in the Interactive Exhibition hall is the Human Body. The design should reflect the interdisciplinary and integrative nature of the theme.

This part of the interactive exhibition should be mainly concerned with taking the visitor into an intriguing trip into the human body. The five senses, the structure and function of the DNA and

the mystery of the genes and the hereditary system are some of the sections that must be covered under this broad theme.

- Interactive exhibits covering these sections would take the young visitor into a walk-through trip into a model of the human ear to experience its mechanical function and a trip on a large model of the human tongue to see where the taste buds are located. Youth and adults may be exposed to another level of information about the structure of the DNA, with a model of the double helix present as an exhibit. The history of the discovery of the DNA by Watson and Crick can be presented on a poster or an interactive screen.
- Each section should provide different levels of information for different age groups. This could be done through various interactive exhibits, models as well as animated short movies presented on plasma screens together with educational posters and banners.
- The interior design and museology of any area should reflect the general scientific theme addressed in any particular area and should be in harmony with the items in display.

- **Science Park**

Exhibits in the landscape should introduce the visitors to how science and technology should be in harmony with nature and environment. They should be designed with nature and technology as two ends of the spectrum of human experience. The park should be a landscape for discovery and imagination. It should be a microcosm portraying potentials of nature and ingenuity of humankind.

Elements of nature should include; life, air, and water. While the manmade elements may include; wind, solar energy, canals and locks, optics, sound, and eco-garden.

Egyptian interpretations should be included in the park layout and features. And Egyptian landscape aspects should also be expressed like; Flat Plain (Delta), River Valley (Nile), Slopping land, Desert, Mountain and Urban Area.

Concepts of the Science Park are; natural elements, manmade elements, Egyptian interpretations, Egyptian landscape aspects. These would overlap in layers in an interactive way so that the

visitor can experience one natural theme e.g. water, and how man developed science and technology to exploit such a resource.

### 2.7.2 Museology Design Aspects

The museological design should consider the interdisciplinary spirit of today's sciences. It should portrait the following among other ideas that the competitor might suggest:

- **History of Science**

Since science is based on historical accumulation and development of knowledge, a historical component should be included in each theme. This allows the visitor to appreciate how very complex scientific achievements are based on simple beginnings. Elements from the Egyptian Culture should be used like the *Saqqyia*. Showing the development from the Saqqyia to the turbine, the visitor will gain an appreciation of how science develops step by step.

- **Science Theoretical Aspects**

Theories should be displayed in an attractive interactive fashion. An understanding of the main theoretical principles of a field is essential for active participation in the scientific endeavors.

- **Science, Technology and Industry**

Exhibits should explore how scientific discoveries are translated into technological applications and how such applications may then be the basis for industrial developments.

- **Science and Society**

It is essential to highlight how scientific discoveries and new technologies influence and change societies. Current examples include the impact of television and mobile phones on social relations.

- **Future of Science**

The exhibits in the Science City should consider future possibilities of science and engage the visitors in visioning of science and technology. The future of science is rich of possibilities ranging from nano-technologies to cloning.

- **Exploration and Discovery (Interactive Exhibits)**

Exhibits should be designed to encourage exploration and discovery. Exhibition should be “interactive” engaging the visitor in experimentation and discovery by themselves.

- **Visitors Paths**

The arrangement of the interactive exhibition according to the themes, disciplines, and age group, portrays the dynamism inherent in science and discovery. Circulation should allow for different combination of visit paths and easy access to special areas and exits. Visitors Paths should encourage visits to research labs and activities.

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## Section 3: Competition Procedures and Regulations

### 3.1 Rules and Regulations

- 3.1.1 Competition Objectives
- 3.1.2 Definitions
- 3.1.3 Organization of the Competition
- 3.1.4 Language of the Competition
- 3.1.5 Site Visit and Answer to Queries
- 3.1.6 Jury
- 3.1.7 Awards
- 3.1.8 Method of the Competition
- 3.1.9 Eligibility
- 3.1.10 Drawing/Document and Forms Supplied to the Competitor
- 3.1.11 Competition Timetable
- 3.1.12 Competition Registration and Submission
- 3.1.13 Preservation of Anonymity
- 3.1.14 Disqualification
- 3.1.15 Evaluation Criteria and Acceptance of Proposal
- 3.1.16 Disputes
- 3.1.17 Publication and Exhibition
- 3.1.18 Copyright and Authors' Rights
- 3.1.19 Publishing
- 3.1.20 Official Website and E-mail
- 3.1.20 Registration and Registration Fees

### 3.2 Submission Requirements and Deliverables

### 3.3 Submitted Forms

- 2.2.1 Registration Form
- 2.2.2 Identification Code Form
- 2.2.3 Signed Acceptance Form of Promoter's Terms

### **3.1 Rules and Regulations**

The following rules and conditions govern the competition. Participants must comply with the rules stated here. Infractions of the rules may result in disqualification from the competition.

#### **3.1.1 Competition Objectives**

The objective is to select a “Comprehensive Master Plan and Architectural Design” through which the selected architect(s) and the promoter may jointly create an innovative space that serves the Science City functions while allowing the expansion of the buildings and the accommodation of new trends in science, technology and communication. The buildings should be “green” and flexible in their internal use.

#### **3.1.2 Definitions**

The terms defined in this document shall have the meaning described from herein whenever they are used within these rules, unless otherwise clearly indicated by the context.

- **Architect:** shall mean architects or teams led by architects licensed to practice architecture in their own countries, and have no restriction that prevents their practice in Egypt.
- **Promoter:** shall mean the Library of Alexandria, “Bibliotheca Alexandrina”.
- **Competition:** shall mean the international competition to be held in order to select the best design for the construction of the Science City in the 6<sup>th</sup> of October City, The Arab Republic of Egypt.
- **Rules:** shall mean the regulations established to govern the competition. The competition document conforms to the UNESCO regulations upheld by International Union of Architects (UIA).
- **Technical Advisor:** shall mean the individual responsible for coordinating through competition procedure (receiving the queries, the submitted documents, etc.).
- **Technical Committee:** shall mean the technical committee established and organized by the promoter.

#### **3.1.3 Organization of the Competition**

This competition is a one-stage open international competition for a master plan and conceptual design; organized in accordance with the UNESCO regulations for international

competitions in architecture and town-planning upheld by the International Union of Architects (UIA).

### 3.1.4 Language of the Competition

The official language shall be English for the “Architectural Brief and Competition Terms” and “Submitted Documents”.

### 3.1.5 Site Visit and Answers to Queries

The competitors may visit the site during the last two weeks of May, 2016 in the company of the competition technical advisor. Details for the site visit will be communicated to all competitors. The travel and accommodation expenses for competitors will be financed by the competitors.

Inquiries regarding the regulations and program of the competition must be submitted to the technical committee by e-mail. Only queries received within the designated period, stated in the competition timetable, shall be answered and all competitors will receive a copy of the answers.

Answers will be given by e-mail to all registered competitors, listing the entire question raised and giving the replies provided by the organizers of the competition. Answers to queries shall be regarded as additions to, or corrections of, the Terms of the Competition.

### 3.1.6 Jury

The jury shall consist of:

- **Ismail SERAGELDIN**, Director of Bibliotheca Alexandrina, (Egypt)
- **Odile DECQ**, Award-winning French Architect and Academic, (France)
- **Seif Allah A. ALNAGA**, UIA Egyptian National Section President, (Egypt)
- **Nikos FINTIKAKIS**, UIA Representative and UIA Council member, (Greece)
- **Süha ÖZKAN**, Founder and President “World Architecture Community”, (Turkey)
- **Mohsen MOSTAFAVI**, Professor at the Harvard Graduate School of Design, (USA)
- **Claudie HAIGNERÉ**, President of Cité des Sciences et de l’Industrie, Former Minister Delegate in charge of Research and New Technologies, (France)





- Name, address and country of origin of the architect or team of architects.
- Documentary evidence of the architect's or team leader's right to practice the profession in his or her own country. In case of countries that do not have mandatory registration, it is accepted that the competitor provides a self-declaration.

The individuals listed below are prohibited from participating in the competition or contacting the competitors:

Individuals who have taken part in the organization of the competition or the writing of the competition brief, individuals who have been involved in the establishment or in the preparation of the program, members of the technical committee, members of their families whether ascendant, descendant or collateral, their partners or individuals sharing their professional interests, and members of the jury shall not be eligible to take part in the competition design, directly or indirectly.

### **3.1.10 Drawings/Documents and Forms Supplied to the Competitors**

The following material will be given to the competitors within the Project Brief, Terms and Conditions document (this document):

- Competition brief
- Context (location map showing traffic access to the site and contextual map showing existing buildings around the site)
- Topography of the site
- Climate information of the site
- Photographs of the site
- Museology ideas
- Organization chart and building code analysis
- Rules and competition timetable
- Forms:
  - Identification form to be included at the time of submission
  - Acceptance letter of Promoter's term

### 3.1.11 Competition Timetable

1. Competition Announcement	<b><u>15 April, 2016</u></b>
2. Registration Deadline	<b>15 May, 2016</b>
3. Opening Q&A	<b>12 May, 2016</b>
4. Site Visit for Participants	<b>22 May, 2016</b>
5. Closing Q&A	<b>09 June, 2016</b>
6. Final Collective Q&A	<b>16 June, 2016</b>
7. Submission Deadline*	<b><u>17 August, 2016</u></b>
8. Technical Preparations	<b>18-23 August, 2016</b>
9. Jury Sessions	<b>23-28 August, 2016</b>
10. Public Announcement for Winners, Press Conference and Opening Exhibition	<b>29 August, 2016</b>
<b>Total days from Announcement till Submission</b>	<b><u>122 Days</u></b>

\*The deadline of submission means the receipt of all packages at the organizer's address

### 3.1.12 Competition Registration and Submission

Deadline for registration will occur along with the final date for Q & A receipt.

Deadline for submission will be 122 days after the announcement date.

- **Submission:**

The deliverables shall be freight on the following address to:

<p style="text-align: center;"><b>International Competition for A Comprehensive Master Plan &amp; Architectural Design of <u>THE SCIENCE CITY</u> <b>The Bibliotheca Alexandrina</b> Planetarium Science Center Chatby, Alexandria, 21526 <b>Egypt</b> Telephone number: +203 4839999 Fax Number: +203 4820464</b></p>
--

From 9:00 a.m. to 4:00 .p.m. - Egypt local time

Deadline to receive documents at the Bibliotheca Alexandrina premises is  
**17 August, 2016 at 2 pm UTC/GMT (4 pm Egypt Local time).**

- **General rules for submission**

- 1) Any material delivered after this date will not be considered part of the submittal.
- 2) Competitors should make every effort to submit the material on the specified date and time.
- 3) Submissions may be in person or by entrusted private mail courier.
- 4) The competitors shall be responsible for the cost of sending their submissions to the address specified above.

### **3.1.13 Preservation of Anonymity**

Anonymity of submitted materials shall be maintained until the final decision of the jury.

A notary shall retain the identified envelopes.

Submission will be in a sealed package without any labels and will include two envelopes and a package of drawings. One envelope will include reports and CDs, etc. The other envelope will include the identification and the signed and stamped submission forms, as required. Both envelop and the drawing package will carry the identification code chosen by the competitor.

The identification code consists of **six** characters **two** letters and **four** numbers in any combinations. The identification code should be written on all the documents, drawings, reports, envelops and CDs submitted by the competitor. The code should be placed in the lower right-hand corner and in 1 cm high characters. When the documents are received, they will be given a serial number and the envelope containing the identity code will be retained until the evaluation of proposals is finalized, e.g.

<b>A</b>	<b>B</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
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Disrespect of anonymity will result in disqualifications. The Technical Committee shall check such cases in their report.

### 3.1.14 Disqualification

The Jury shall have the sole responsibility for disqualifying any competitor project for any of the following reasons:

- a. If received after the relevant deadline for submission of entries;
- b. If the Competitor's proposal does not meet the building regulations;
- c. If any of the conditions or instructions are breached or disregarded;
- d. If any entrant improperly attempts to influence, directly or indirectly, the decision of the Jury, Technical Committee, or any consultant of the Promoter.

### 3.1.15 Evaluation Criteria

The submitted comprehensive plans and conceptual designs shall be evaluated by the jury. Accordingly, the evaluation criteria shall be based on the following parameters (not listed in order of importance):

- 1- Concept and philosophy of the master plan
- 2- Urban design proposal and landscaping approach for concept and outdoor spaces
- 3- State of the art and technology of the architectural proposal (eco-planning and design)
- 4- Ability of future expansion and flexibility
- 5- Respect and harmony with environmental conditions and climate
- 6- Construction system and materials
- 7- Sustainability and cost effectiveness of the proposal
- 8- Functionality of the proposed complex
- 9- Possibility to realize the project in stages
- 10- Adequacy of the overall concept

The winner will be invited to discuss, negotiate and finalize the agreement after the competition is over.

The jury is sovereign and independent in its decision. Organizers and participants must respect its decision.

### **3.1.16 Disputes**

The competition procedures, regulations and results are guided and applicable under Egyptian jurisdiction and Egyptian law. Any dispute or differences between parties in connection with this competition that cannot be settled amicably, or by arbitration, it shall be submitted to the exclusive jurisdiction of the Egyptian Syndicate of Engineers regulations and Egyptian courts.

### **3.1.17 Publication and Exhibition**

The Competition results will be sent to all competitors together with copy of the Jury report. The results of the Competition shall be the subject of a widely distributed publication.

### **3.1.18 Copyright and Authors' Rights**

The Promoter shall retain ownership of the documents sent in by competitors; however, the competitor shall retain the copyright and all authors' rights on / off his work; no alterations may be made without his formal consent.

The Promoter may use the designs of the winner of the competition only on condition that the latter commissions the winner to conduct a study or to put the project into effect. The Promoter may not use the work of the other prize-winners, in part or in whole, without their agreement.

On the issue of copyright authors' rights, the promoter agrees to apply the UNESCO regulations in accordance with the policies upheld by the UIA.

### **3.1.19 Publishing**

All competition entries, including those disqualified by the jury, with the names of their authors, shall be exhibited publicly for a specified time (usually 10-30 days). Online exhibitions can also be considered. Competitors have the right to remain anonymous if their projects are not amongst the prize-winners, or those, which have received a mention. Competitors should indicate such a wish in the envelope containing their identity. The Promoter and the UIA have the right to publish all submitted and awarded projects, alongside the names of their authors without previous agreement with their authors.

### 3.1.20 Official Website and E-mail

The official Competition website can be found at:

[WWW.bibalex.org/sciencecity](http://WWW.bibalex.org/sciencecity)

Official email of the competition is:

[WWW.science.city@bibalex.org](mailto:WWW.science.city@bibalex.org)

### 3.1.21 Registration and Registration Fees

- Every competitor shall be required to register for their participation in the Competition according to the deadline stated in the competition timetable (Page 45).
- Competitors should register online through the following link:  
[www.bibalex.org/sciencecity](http://www.bibalex.org/sciencecity)
- Registration fee is USD 100.  
(Only Egyptian participants can pay the equivalent in Egyptian Pounds according to the official exchange rate at the date of payment).
- The competitor can pay either by credit card online or by bank transfer.
- The registration fee is non-refundable.
- The competitor should also include the registration confirmation (received after online registration and payment). In case of payment with bank transfer, the competitor should include the registration confirmation and the original bank transfer receipt.

#### **Important notice:**

For competitors who will pay by bank transfer, a copy of the registration form and a copy of bank transfer receipt should be scanned and sent to the before the registration deadline.

In the case of the Bank Transfer competitors should transfer a net of USD **100**, excluding any transfer fees (which will be bared by the competitor).

**Bank account information: (USD)**

Beneficiary's Bank Name: Central Bank of Egypt, Cairo.  
Full Address: 54 El Gomhoria st, Cairo, Egypt  
Swift Bank Code: CBEGEGCXXXX  
Beneficiary Account No.: 4082191768  
Beneficiary Cust Name: Alexandria Bibliotheque

**Bank account information: (EGP)**

Beneficiary's Bank Name: Commercial International Bank  
Branch: Kafr Abdou  
Beneficiary Account No.: 4189000005  
Beneficiary Cust Name: Bibliotheca Alexandrina



## 3.2 Submission Requirements and Deliverables

### General requirements

- 1- Each competitor should make sure that his all submitted materials follow the regulation of identifications.
- 2- All submitted materials shall be presented according to the metric system and in eligible English.
- 3- The submitted materials will not be returned to the competitors.
- 4- Submissions are either by hand or by mail on the specified date time and in the specified place.
- 5- The packages should include a list of content and any specific instructions for unpacking the materials should be stated clearly.
- 6- Drawings sheets preferably are mounted on a light weight board with a size of A1 size (841 mm x 594 mm).
- 7- Entries may be in black or white or in color.
- 8- A portfolio of the report should describe the planning and design criteria, description of the project and reduced drawings in A4 format.

### Deliverables:

#### a. Document Envelope

- Identification Code Form
- Signed Acceptance Form of Promoter's terms
- Signed Registration form
- Registration confirmation
- Proof of payment (for competitors who made payment by bank transfer)
- Copy of the competitor's proof of practice of architecture

## **b. Package Envelope**

### **1. Design report**

This report explains the concept and philosophy of planning, urban design, architectural concepts and architectural components, etc. It should also explain the landscaping considerations and design criteria. The following considerations should be followed:

- The size of the Design Report is A3 landscape formats.
- 5 copies should be submitted
- Number for sheets in the reports should not exceed 20 sheets, excluding the drawing panels of the project.

### **2. CD or DVD (3 CD's)**

- The CD should include:
  - o Drawing panels in 300 dpi or higher resolution image (for publication)
  - o Digital copy of the design report in Micro soft word Format
  - o Any other material such as images, animations, Power Point presentation...etc.
- The competitors can also send a flash memory instead of the DVD-CD

## **c. Drawings Panels**

Maximum 8 Panels, A1 size (841 mm X 594 mm) landscape format; preferably mounted on a lightweight board.

Drawing sheets should exhibit the following:

1. Master plan of the whole site with a scale of 1:750 illustrating the master plan of the whole site. The master plan should illustrate the land uses, massing of buildings, open spaces and landscape, access points, parking, road networks, pedestrians' areas.
2. Illustrative thematic diagrams of the whole site illustrating planning aspects in a proper scale.

3. Proposal of urban design and landscaping and spaces between buildings.
4. Illustrations and renderings of the whole project, buildings and interior that convey the feel, character and general image of the buildings and spaces. They should illustrate enclosures treatments, colors and materials. In the form of sketches, perspectives, illustrations or scaled drawings, etc.
5. Architectural design proposal for buildings of the Science City. The submitted drawings should include plans, elevations and sections of the specified buildings in an appropriate scale, preferably 1:400 for plans, and 1:200 for sections and elevations.

**Summary of materials to be submitted:**

- |  |  |
|--|--|
| 1) Drawing Boards  | <b>8</b> Panels, <b>A1</b> landscape formats |
| 2) Report  | <b>A3</b> landscape format - <b>3</b> copies |
| 3) CD, DVD or Flash memory   | <b>3</b>                                     |
| 4) Signed Acceptance Form of Promoter's terms                                  | Original and copy                            |
| 5) Signed Registration Form and registration confirmation and proof of payment | Original and print out                       |
| 6) Identification envelop  | <b>1</b>                                     |
| 7) Documents proofs practicing architecture                                    | Copy   |

### 3.3 Submitted Forms

#### 3.3.1 Registration Form

The following registration form should be filled online at the registration webpage. Participants are kindly requested to print the registration confirmation, as well as proof of payment, signature, if possible stamp, and include them with the submitted documents, along with a copy of the competitor's licence or proof of practice of architecture in own country.

<b><u>Registration Form</u></b>	
<p>The undersigned hereby acknowledges comprehending the “Architectural Brief and Competition Terms” document, affirms his/her understanding of the rules and regulations of the Science City comprehensive master plan and architectural design competition and signifies with his/her signature, their:</p>	
<ul style="list-style-type: none"><li>▪ Acceptance of the rules, regulations and terms stated in the competition documents.</li><li>▪ In case the competitor decides to participate in the competition, he/she shall confirm submitting the required documents by the date stated in the competition time table.</li></ul>	
Name of firm or applicant(s): ..... .....	
Name of responsible person: ..... .....	
Full Contact: ..... .....	
Address: .....	
Country: .....	
E-mail: .....	
Tel.: ..... ; Fax: .....	
Signature	Date .....

### 3.3.2 Identification Code Form

This identification code form should be printed on the office letterhead (if possible) and signed. The original and a copy should be included with the submitted documents.

#### Identification Code Form

A	B	1	2	3	4
---	---	---	---	---	---

Identification code

Name of Firm/Applicant(s) : .....

Responsible Person : .....

E-mail Address : .....

Full Address : .....

City : .....

State (optional) : .....

Postal Code : .....

Fax and Telephone : .....

Country : .....

Country of License : .....

Team Members 01: .....

02: .....

03: .....

(more names can be added)

### 3.3.3 Signed Acceptance Form of Promoter's Terms

The following acceptance form should be printed on the office letterhead and signed (if possible stamped) by applicant and should be included with the submitted documents.

#### Acceptance Form of Promoter's Terms

I (We), the undersigned competitor(s), accept the terms of the Promoter, Library of Alexandria, "Bibliotheca Alexandrina", and Egypt written below:

- a. The Competitor abides by the decisions of the Promoter and the Jury decisions.
- b. The Competitor retains all authors' right of the submitted comprehensive master plan and architectural design.
- c. The Competitor permits the Promoter and UIA to exhibit, publish or otherwise publicize the submitted master plan and conceptual design in the media.

Date: .....

Authorized Individual

.....

Authorized Individual

.....

---

## Section 4: Appendices and Supporting Data

Appendix (A) Geotechnical Soil Report

Appendix (B) Building Code

Appendix (C) Property Division Layout

Appendix (D) Site Coordinates

Appendix (E) Site Topography

Appendix (E) Site Photos

Appendix (G) Climate Data

Appendix (H) Infrastructure

## Appendix (A)

### Geotechnical Soil Report

*Note: Competitors are advised to disregard item # 2 of the report “The Project and the Site”.  
The site is clear from any buildings. All remaining information are correct and to be considered*



مركز الأبحاث الهندسية  
BK ENGINEERING CONSULTING CENTER

GEOTECHNICAL SOIL REPORT  
Science City  
Academy of Science Research & Technology  
6<sup>th</sup> of October City



1. Introduction

This report is presented at the request of the Academy of Science Research & Technology. for the investigation of the soil conditions at the proposed site of Science City, 6<sup>th</sup> of October City.

The soil investigation was carried out by drilling no. 66 boreholes . Soil boring was carried out using mechanical rotary drilling, by Misr-Geotechnique company.

Visual inspection of soil samples recovered from different boreholes together with required in-situ and laboratory tests were performed. Based on the outcome of the geotechnical investigation, our recommendations for foundations and other geotechnical construction considerations are presented.

2. The Project and the Site

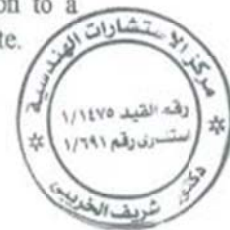
The main building of the Science City project is basically a steel building which rise 16 m. above final ground level and extends 16 m. below final ground level at elevation ( 88.0 ). A four-storey building, annexed to the main building, extends 16 m. below final ground level for car parking.

The natural ground surface elevation at the west boundary of the site is (85.0 ). with a natural mild slope in the North -East direction to a maximum elevation ( 95.0 ). at the North - East boundary of the site.

مركز الأبحاث الهندسية  
شركة مساهمة مصرية



٦ ش الدقي شقة ٣١ - ج ٢  
تلفون ٣١٨٩٧٢٤ - فاكس ٣١١١٨٢٦  
doow/berif Science academy



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### 3. Site Geology

The site under investigation is belonging to the Oligocene age in which the deposits of this age are known in the northern part of Egypt in the form of "fluvialite " sands that overlie almost the upper Eocene beds with angular unconformity.

Oligocene sediments in this area are almost clastic sediments ( sand ) that underlie the basalt flows on zone of intensive silicification while that above are considered of lower Miocene age.

The most famous Oligocene outcrops in Egypt is the clastic section to the north of Egypt which is composed of variegated sands, sandstones with alternating beds of shale ( clay & silt ). This section was termed by Bendnell ( 1905 ) as Qatrani beds or formation.

Towards the close of the Oligocene and after the deposition of fluviomarine deposits, Egypt & whole of the North Africa were in a state of tension and under the influence of this tension fissures were opened and allowed the flow of the hydrothermal solution through the Oligocene sands.

Basaltic flows are known extensively in many parts of northern Egypt as in the Cairo-Fayum desert road & extending continuously to Bahariya Oasis (our site ) to the north of pyramids of Giza.

The richly -colored and variegated sands explain this hydrothermal solution which give evidence that flows were formed by uprising fluids carrying Iron, manganese and sulphur oxides in the form of hot mineral springs. Closely connected with this thermal activity was the silicification process of the sediments.

### 4. Soil Boring

Sixty five boreholes were carried out, 10 to 30 m. deep. Soil boring was carried out by Misr - Geotechniques using mechanical rotary drilling. The location of different boreholes are shown in fig. (1).



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مطابق شريفة ١٠٠٩٣٠ عمكات مساهمة  
سجل تجاري ٤٢٠٠٠ حيزة



### 5. Laboratory Testing

An extensive laboratory testing program was carried out to evaluate the physical and mechanical characteristics of the soil prevailing at the site. The testing program included:-

- Gradation tests were performed to the soil layers encountered at the site. The grain-size distribution curves are included in attachment (6).
- Compression tests were performed on undisturbed samples of the cemented sandy soil encountered at the site to evaluate the susceptibility of the cemented soil for collapsing on inundation under applied stresses. The results of the tests are given in figures (3-9).
- Evaluation of the swelling pressure for the expansive clayey silt soil prevailing at the site was carried out on undisturbed soil samples in the Oedometer apparatus using the constant-volume technique. The results of the tests are tabulated in table (1).
- Chemical analysis was run on 11 samples of different soil layers prevailing at the site. The results of the chemical analyses are tabulated in table (2).

### 6. Subsurface Soil Formation

The subsurface soil profile has been interpreted from the borings and the detailed boring logs are included in Attachments (1 to 5 ). Based on the boring soil logs five longitudinal stratigraphic sections were prepared and are shown in figures ( I - I to V - V ). The soil formation at the site is mainly successive layers of cemented sandy soil with variable percentages of silt, i.e. some silt to silty, and with variable colours. The cementation ranges from lightly cemented to highly cemented to petrified. The cemented soil is not susceptible to collapsing on inundation under applied stresses according to results of compression tests carried out in the Oedometer. The layers of cemented sandy soil extend to variable depth as deep as elevation ( 62.00 ). The layers of cemented sand are succeeded by very dense medium to coarse sand. An inclusion of a big body of expansive clayey silt ( shale ) is encountered within the formation of cemented sand. The extension of the expansive clayey silt inclusion is irregular in the vertical direction; it is bounded between elevation ( 67.0 ) and elevation ( 83.0 ). According to the

docto/sherif/ Science academy

د. شريف

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results of the swelling tests, the swelling pressure is found to range between 1.6 kg/cm<sup>2</sup> to as high as 3.85 kg/cm<sup>2</sup>, refer to table (1). Within the inclusion of the expansive clayey silt a sub-inclusion of sandstone formation is encountered at the location of boreholes A - 8, B - 27, B-11, A - 12, A - 7, B- 9, A - 10., refer to fig. ( I - I, II - II ).

The subsoil water was not encountered during soil boring.

### 7. Recommendations

The recommendations presented in this report are based on the analysis of field data and laboratory test results revealed at the boreholes location. The recommendations presented do not reflect any horizontal or vertical stratigraphic variations which may occur between the borings of this investigation. During the course of construction if any variations then appear evident it will be necessary for re-evaluation of the recommendations presented in this report in light of the characteristics of these variations.

#### 7.1 Recommendations for Excavation and soil replacement

- a) The designated zero level for the main building is at elevation (88.0 ). The building and the annexed car parking building extends 16m. below the designated zero level. Accordingly, the foundation level is chosen at elevation ( 70.0 ). The soil formation down to elevation ( 70.0 ) is mainly layers of cemented sandy soil which suggests that soil excavation down to foundation level shall be carried out at a steep slope. Figure (2) outline zone A in which the inclusion of expansive clayey silt is encountered within the chosen foundation level at elevation ( 70.0 ). Within zone (A), soil excavation shall be continued down to elevation ( 68.0 ). At that elevation soil replacement shall be carried out in compacted layers according to specifications for soil compaction up to the specified foundation level at elevation ( 70.0 ). Clean graded sand shall be used for soil replacement.
- b) Soil backfill shall be carried out in compacted layers according to specifications for soil compaction. Clean graded sand shall be used for soil compaction.

د. محمد الشريف Sciences Consultant  
شركة استشارات مصر  
6 من الطابق الثالث - حيزة  
التل الكبير - ١٩٨١٦٦٤  
١٩٥٣٨٠٩  
٢٠٢٥

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## 7.2 Recommendations for foundation

### 7.2.1 The main building and annexed car parking building

- At the designated foundation level at elevation (70.0 ) isolated footings or strip continuous footings shall be used.
- The allowable net bearing capacity for the soil on top of soil replacement shall not exceed 150k.Pa. Should the applied external pressure exceeds 150k.Pa. stabilized sand ( 150kg cement per cubic meter of sand ) shall be used for soil replacement. The allowable net bearing capacity on top of the stabilized sand should not exceed 500 k.Pa.
- At locations where soil replacement is not required, the allowable net bearing capacity for the natural soil at the foundation level ( elevation 70.0 ) should not exceed 500 k.Pa.

7.2.2. Should the designated foundation level for other buildings is located at a depth near the existing ground surface, soil replacement is required to a depth 1.0 m. below designated foundation level. Clean graded sand is used for soil replacement which is compacted in layers according to specifications for soil compaction. The allowable net bearing capacity for the soil on top of replacement should not exceed 150 k.pa.

7.2.3. For the design of retaining walls, the following soil parameters shall be adopted :-

Bulk density for soil : 2.1 ton/m<sup>3</sup>

Angle of internal friction (  $\Phi$  ) : 40° .



*[Handwritten signature]*



doos/herif/ Sofistic academy

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شركة مساهمة مصرية  
٦ ش الدقي شقة ٣١ - جيزة  
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بمشاركة شريفة ، ١٢٩٣٣ شركات مساهمة  
سجل تجاري : ٤٣٠٠٠

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## 7.3. General Recommendations

- 1) Outside zone A, it is recommended that open test pits are excavated 2.0m. below the foundation level to confirm the non existence of expansive clayey soil. Should the expansive soil is encountered, soil replacement according to item ( 7.1 ) shall be required.
- 2) Portland cement type II ( أسمنت عمال الخبث ٨٥% م.ق.م ٢٧٩٦/١٩٩٥ ) shall be used for concrete elements embedded in soil. The outer surface of these elements shall be coated with two coats of oxidized bituminous material. The cement content shall be :-  
350 kg/m<sup>3</sup> for reinforced concrete.  
250 kg/ m<sup>3</sup> for plain concrete.
- 3) Concrete cover in R.C. footings shall be minimum 5.0 cm.

Consultant Engineer

Dokki in 14/05/2004

Dr. M.C. Elkhoraibi

مركز الاستشارات الهندسية  
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بطاقة تربية : ١٢٩٣٣ شركات مساهمة  
سجل تجاري : ١٣٠٠ جيزة



د. م. ح. الخوري



doi/c/ker/ Science academy

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٦ ش الدقي شقة ٣١ - حيزة  
تليفون - ٣٤٨٩٧٦٦ - فاكس ٣٦١٣٨٠٧  
بخطات شروعية ١٢١٣٣٠ شركات مساهمة  
سجل تجاري ٤٣٠٠ - حيزة

### 8. TECHNICAL SPECIFICATIONS FOR SOIL COMPACTION

- 1) Sheep's foot or pneumatic tired rollers shall be used to compact cohesive Class B and Class C fill soils and vibratory rollers or vibrating plate compactors shall be used to compact Class A fill and other granular materials.
- 2) Compaction shall be uniform within a layer over the entire area. The surface of each lift shall be kept reasonably smooth and free of ridges of ruts which might affect the compaction of later lifts.
- 3) The minimum backfilling requirements for the areas mentioned shall be as follows :

Class	Fill Area	Max Uncompacted Layer Thickness ( centimeters )		Percent Modified Proctor Max. Dry Density
		Power Equipment / Rollers	Hand Held Equipment	
A	Below Structural Foundations	25	10	95 %
B	Roads, Shoulders, Paved Areas, and Backfill Surrounding Structures.	25	10	92 %
C	General Backfill ( all other areas )	30	15	90 %

- 4) It is strongly recommended to set up a programme for determination of in-situ dry densities for the various compacted layers so as to ensure that the required degree of compaction is satisfactorily attained.

Consultant Engineer  
Dr. M. C. EL-Khoraibi

  
doc/c/sheriff/technical



Table ( 1 ) : Swelling pressure for the different  
expansive clayey soil prevailing at the site.

BH. No.	Depth	Bulk density T/m <sup>3</sup>	Swelling Pressure kg/cm <sup>2</sup>
A 5	11.5 - 13	2.1	3.4
A 6	11.5 - 13	2.2	3.35
A 14	14.5 - 16	2.1	2.6
A 15	14 - 16	2.1	2.35
A 16	16 - 17.5	2.2	3.85
A 18	15 - 16	2.2	1.6
B 13	2.0 - 3.0	2.2	1.6
B 23	17.5 - 19	2.1	1.85
B 24	17.5 - 19	2.2	2.35
D 1	19 - 20	2.1	4.6
D 2	17.5 - 19	2.1	2.85

د. عبد الله داود



مركز الاستشارات الهندسية  
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٦ ش. القدس شقة ٣١ - جيزة  
تليفون : ٣٤٨٩٧٢٤ - فاكس : ٣٦١٣٨٠٧  
بطاقة ضريبية : ١٢٩٣٣ شركات مساهمة  
سجل تجاري : ١٣٠٠٠ - جيزة





**GEOMECC**  
Soil & Material Investigation

7 Mostassar Bldg. - Arizona - Elharam  
Tel & Fax: 5868251



جيوميك  
لأبحاث التربة والمواد

٦ عمارات مناصر - الأزينا - الهرم  
تليفاكس: ٥٨٦٨٢٥١

**INJURIOUS CHEMICAL COMPOUNDS IN SOIL**

Client : Dr/ Shereif Elkhorbie  
Project: Science city  
Location : 6 of October city

**LABORATORY TEST SUMMARY:**

Table No. ( 2 )

SNO	BH. No.	Depth in meter	Water soluble sulphate as sulphur trioxide (SO <sub>3</sub> ) (in weight %)	Chlorides as Sodium Chloride (NaCl) (in weight %)	Total water soluble salts (in weight %)	pH value. Log 1/(H <sup>+</sup> )
1	2D	10.00 to 11.00	0.012	0.056	0.082	7.20
2	14A	2.70 to 2.95	0.066	0.117	0.259	7.20
3	15A	1.00 to 1.40	0.020	0.082	0.125	7.10
4	15B	2.70 to 2.90	0.014	0.047	0.077	7.20
5	17	1.00 to 1.40	0.017	0.059	0.096	7.20
6	17B	1.10 to 1.40	0.014	0.047	0.077	7.20
7	18B	2.50 to 2.80	0.014	0.070	0.100	7.10
8	19B	1.10 to 1.40	0.060	0.140	0.269	6.90
9	20A	8.50 to 10.00	0.040	0.082	0.168	7.10
10	20A	29.00 to 30.00	0.026	0.246	0.302	6.80
11	23B	19.00 to 20.00	0.022	0.117	0.164	7.00

مكتب الاستشارات الهندسية  
شركة نساء المصرية  
7 ش العنابي شقة ٢١ - جيزة  
تليفون: ١٨٨٩٩١ - فاكس: ٣٦١٣٨٠٧  
محافظة شبراخية - ١١٩٣٣ - شوكات مستقلة

د. شريف الخوربي







## Appendix (B)

### Building Code



وزارة التخطيط والمراقب والتنمية العمرانية  
هيئة المجتمعات العمرانية الجديدة  
مكتب نائب رئيس الهيئة

السيد المهندس / رئيس جهاز مدينة أكتوبر

تحية طيبة وبعد ...

بالإشارة الى كتاب المسادة / معمار للاستشارات الهندسية الصادر اليك برقم ٨٧٤٩ بتاريخ ٢٠٠٧/١٢/٣١ بشأن المشروع الابتدائي لمدينة العلوم ملك أكاديمية البحث العلمي والتكنولوجيا على قطعة الأرض بالمنطقة العمرانية الواقعة جنوب الاحياء السكنية بالقطعة رقم (٨) على طريق الواحات بالمدينة وبالمرجعه الفنيه نفيد سيادتكم انه لامانع من الموافقه المبدييه على المشروع المقدم (مرفق) بشرط الالتزام بالقرار الوزارى الصادر لذات الشان برقم ١٦٧ بتاريخ ٢٠٠٢/٦/١٩ .

والذى جاء فيه الشروط البنائيه :-

- يتم الالتزام بالاشتراطات البنائيه التاليه :-

- ١- النسبه البنائيه لاتزيد مجموع المسطحات المبنيه بالدور الارضى بقطعه الارض المخصصه للمشروع عن ٣٠% من المساحه الاجماليه للمشروع .
  - ٢- الردود يتم ترك الردود الجانبيه والاماميه والخلفيه طبقا للمخطط المعتمد .
  - ٣- الارتفاع : ارضى + دورين (اول + ثانى) .
- وعلى ان يقاس الصفر العمارى لكل مبنى من منتصف واجهه كل مبنى على حده .  
برجاء التكرم بالاحاطه والتنبيه بما يلزم طبقا للقواعد المعمول بها بالهيئه ...

وتفضلوا بقبول فائق الاحترام ...

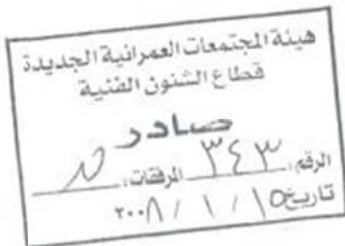
مساعد نائب

رئيس الهيئه للشئون الفنيه

اشرف كمال

f

ع



رضا  
- صورة مرسله مع التحيه للمساده / معمار للاستشارات الهندسيه  
٦ش - الدقى - الجيزه - القايره

للتفضل بالاحاطه ..

## Translation

Ministry of Housing  
New Urban Communities Authority  
Deputy Office

Dear Chairman of the City Authority, the 6<sup>th</sup> of October City,

This is in reference to the Mimar Engineering Consultancy correspondence No. 8749, 31 December 2007, concerning the provisional project of the Science City—an Academy of Scientific Research and Technology (ASRT) project on a piece of land in Al Omraneyah, located south of the residential neighborhoods in area 8, Al Wahat road—and in reference to the project's technical review. We would like to inform you that the proposed project (enclosed) has been granted a preliminary approval, on condition that the germane ministerial decree No. 167, issued on 19 June 2002, is complied with.

The decree states the following structural conditions:

- It is required to abide by the following structural conditions and regulations:
  - 1- Floor Area Ratio (FAR): the total floor area of the surfaces built on the ground floor of the land, allocated for the project, should not exceed 30% of the project's gross area
  - 2- Recesses/setbacks: the recesses on the sides, front, and back should be executed according to the approved blueprint
  - 3- Height: a ground floor + two floors (first and second)

The datum point of each building should be measured individually from the middle of the building's façade.

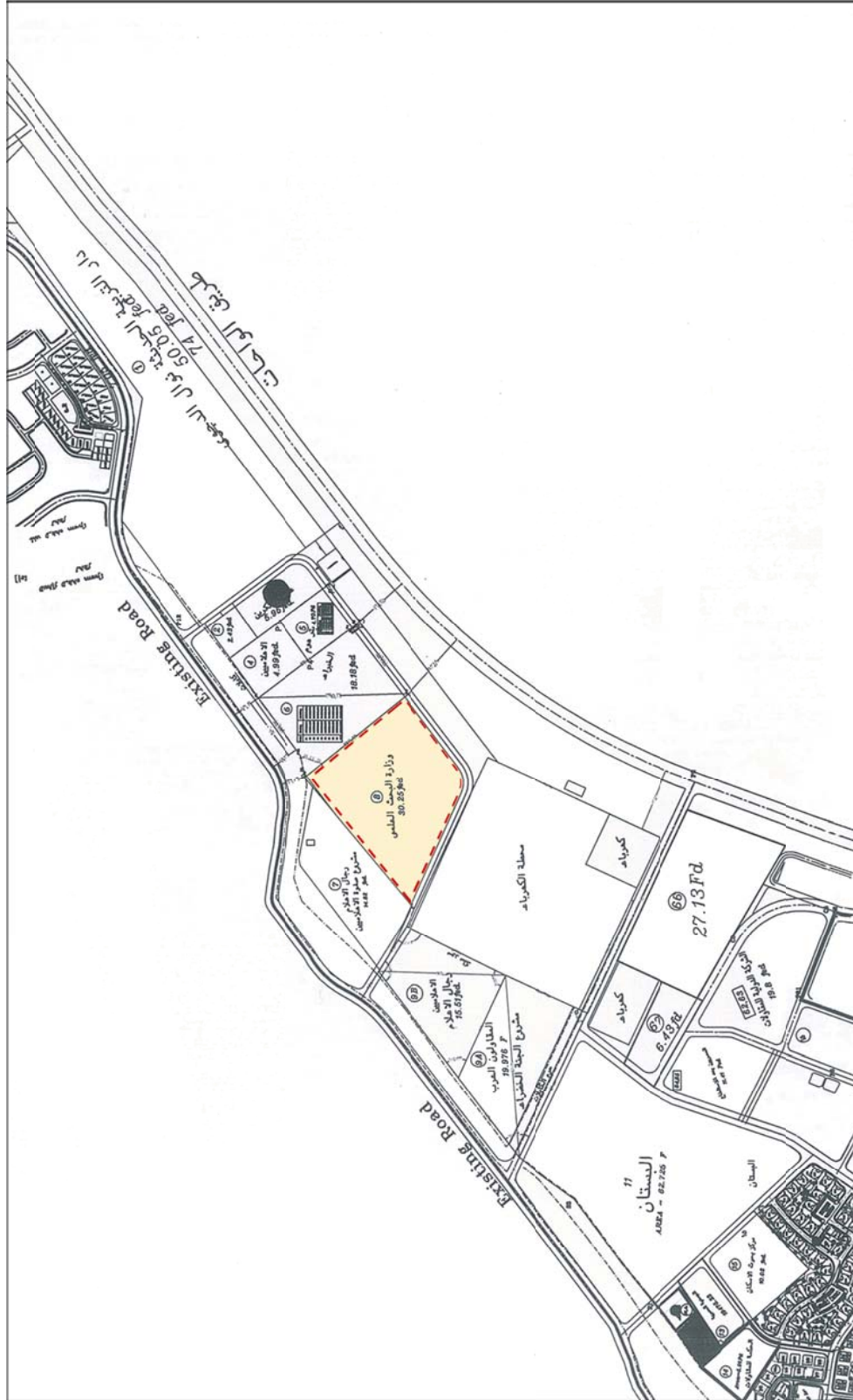
Kindly confirm upon receipt and send the necessary updates in accordance to the regulations of the authority.

Best regards,  
Assistant to the deputy of the Authority of Technical Affairs  
Ashraf Kamal

Copy sent to Mimar Engineering Consultancy  
6 Dokki Street, Giza, Cairo

## Appendix (C)

### Property Division Layout





## Appendix (D)

### Site Coordinates

City Authority, 6<sup>th</sup> of October City,

جهاز مدينة السادس من أكتوبر

City Garden Zone

منطقة حديقة المدينة

Ministry of Scientific Research

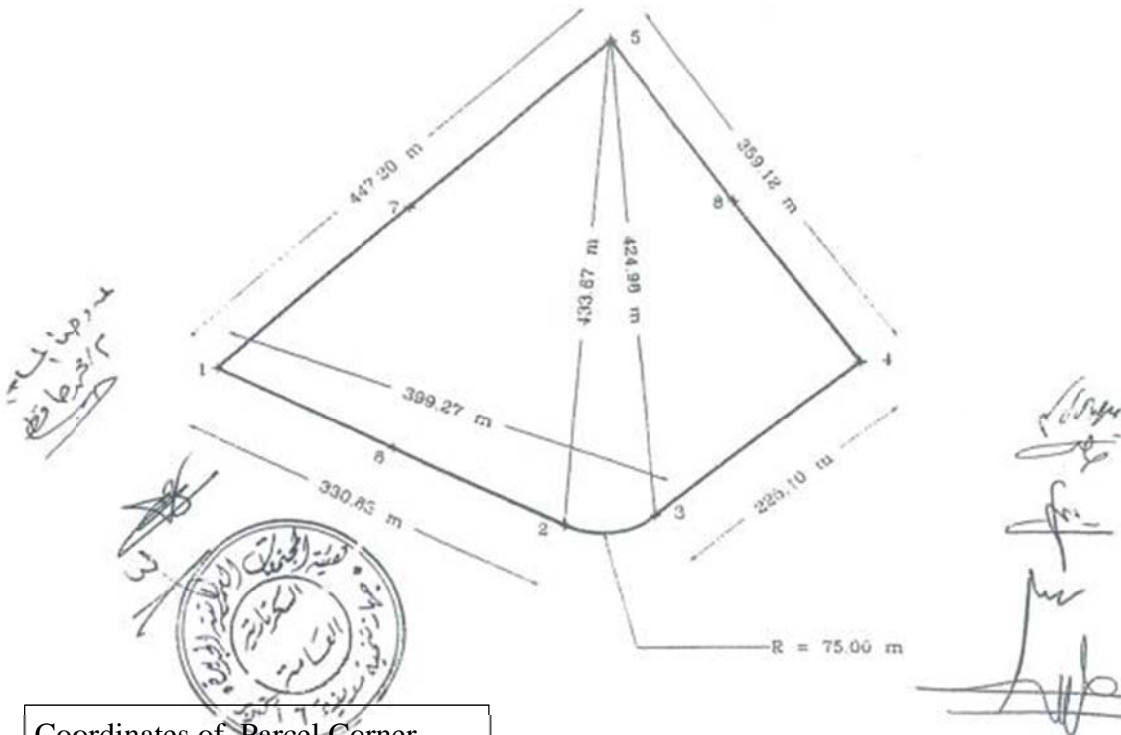
وزارة البحث العلمى

المساحة 124994.80 متر مربع

Parcel no. 8

رقم القطعة 8

Area: 124994.80 m<sup>2</sup>



Coordinates of Parcel Corner

إحداثيات أركان القطعة

NO	E (m)	N (m)
1	609622.169	804646.911
2	609921.580	804506.670
3	609999.100	804515.240
4	610177.820	804652.090
5	609961.210	804938.530

Coordinates of Parcel Corners

إحداثيات أركان القطعة

NO	E (m)	N (m)
6	609775.588	804575.050
7	609789.857	804791.141
8	610069.214	804795.785

Scale 1:500

Studies and Engineering  
Consultation Unit

## Appendix E

### Site Topography

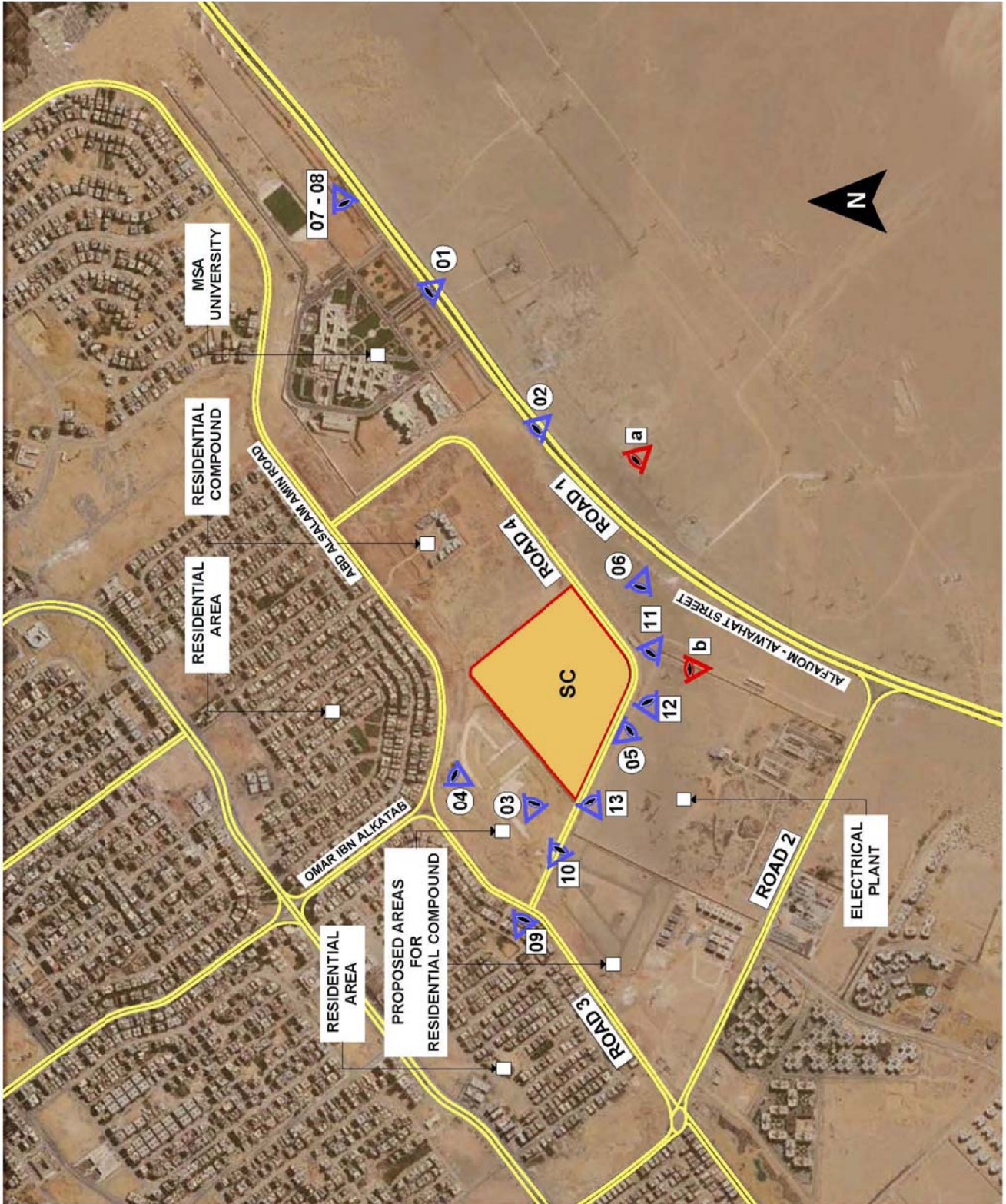
#### **Typology (Site Contour and Levels):**

The natural ground surface elevation at the west boundary of the site is (85.0), with a natural mild slope in the North-East direction to a maximum elevation (95.0) at North-East boundary of the site.



## Appendix (F)

### Site Photos





**a Site Panorama View, North West Direction**



**b. Site Panorama View, North Direction**



**01** Modern Science and Art University (MSA)



**02** Highland Park Compound



**03** Vacant land northwest of the site



**04** Residential area at the northwest in Proximity to the site.



**05** Electrical plant area



**06** Electrical plant facing the site





**07** Al Wahat – A IFauom Road



**08** A IWahat – Al Fauom Road



**09** Internal Road #4



**10** Internal Road #4



**11** Internal Road #4



**12** Internal Road #4



13 Site gate at the northeast



14 Site at the northeast



15 Fence detail at the northeast



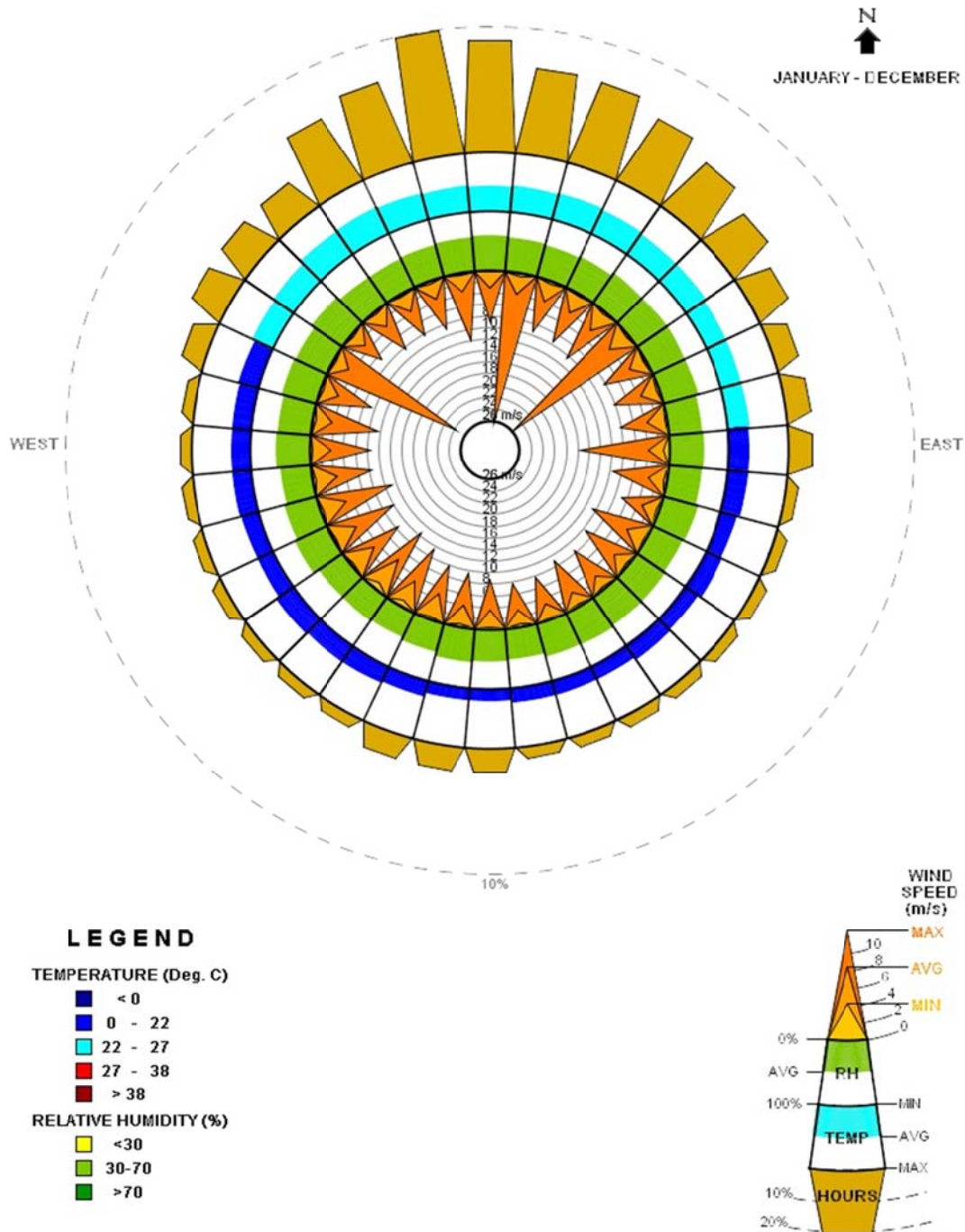
16 Fence at the northeast

## Appendix G

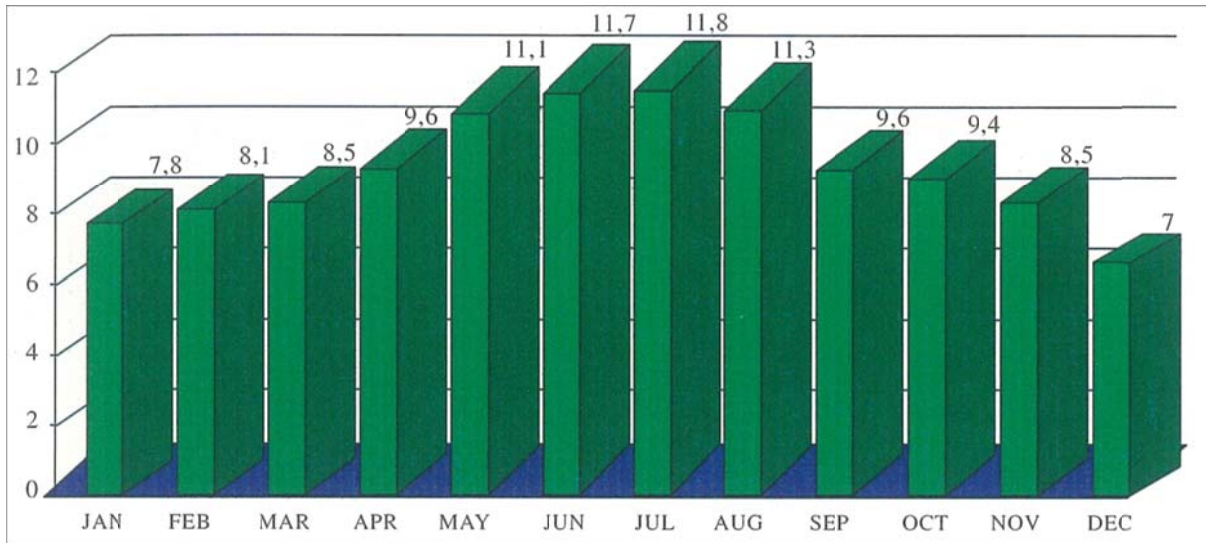
### Climate data

**Climate data:**

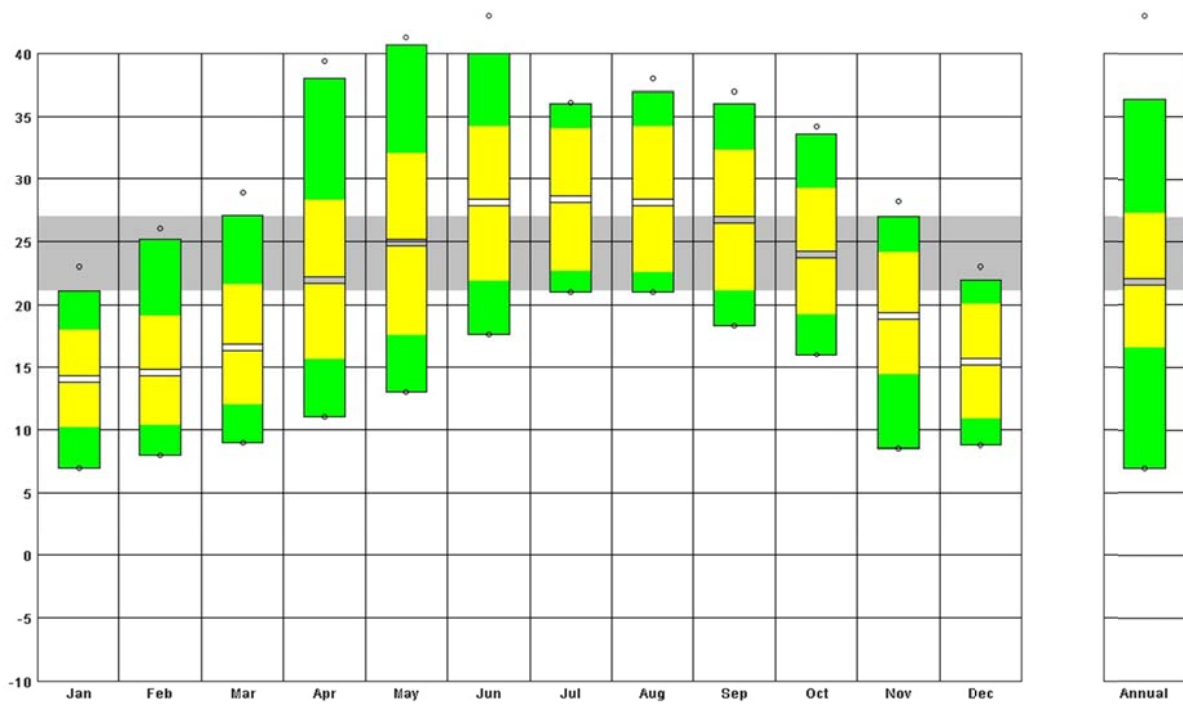
Wind conditions are presented as wind roses showing the existing wind patterns in terms of frequency and direction. The Khamasine wind occurs during the period from mid-March through mid-May, in intervals of two to three days approximately four times throughout this two month duration



**Wind Conditions**

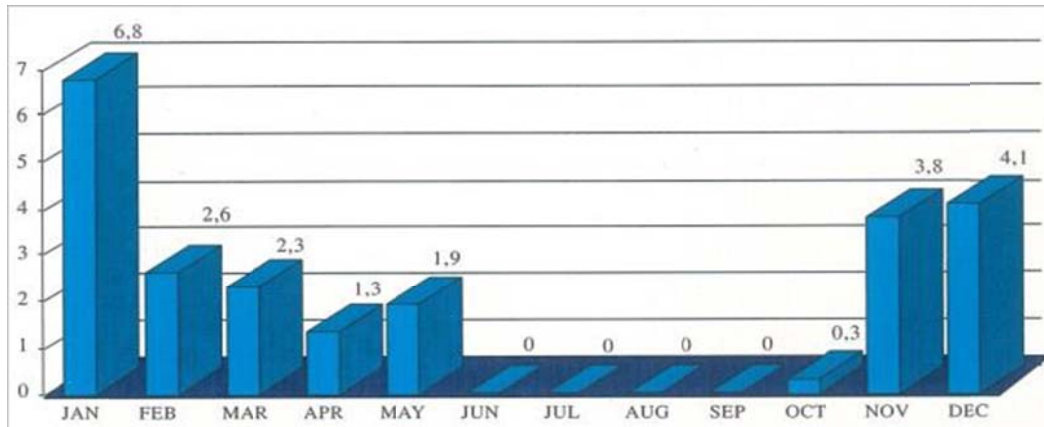


**Average Hours of Sunshine per Day**

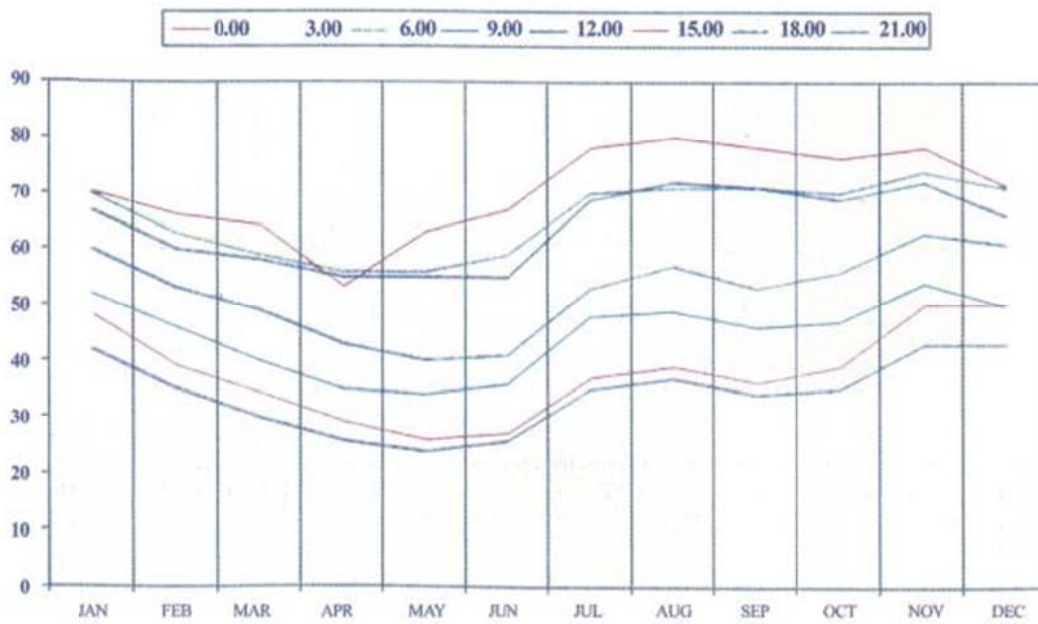


RECORD HIGH - ○  
 DESIGN HIGH - ■ (dark green)  
 AVERAGE HIGH - ■ (yellow)  
 MEAN - ■ (white)  
 AVERAGE LOW - ■ (yellow)  
 DESIGN LOW - ■ (dark green)  
 RECORD LOW - ○

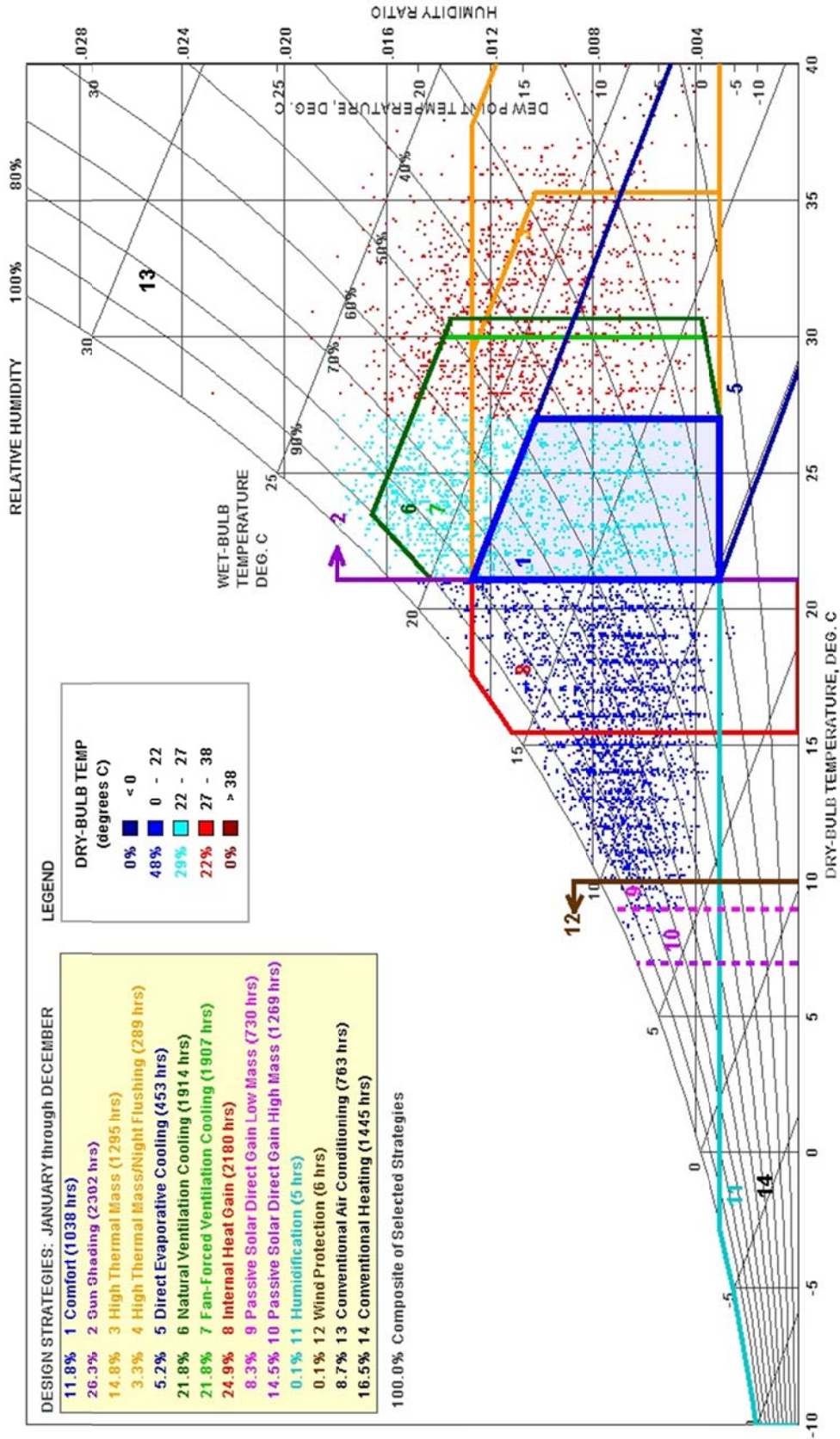
**Average Air Temperature**



**Average Rain Fall (mm)**



**Relative Humidity (%)**



Psychrometric Chart

## Appendix H

### Infrastructure



## Infrastructure

Infrastructure main sources are located at the northern section of the site as shown below.

