

File Name: 1192.pdf

UNESCO Region: ARAB STATES

SITE NAME: Qal'at al-Bahrain Archaeological Site

DATE OF INSCRIPTION: 15th July 2005

STATE PARTY: BAHRAIN

CRITERIA: C (ii)(iii)(iv)

DECISION OF THE WORLD HERITAGE COMMITTEE:

Excerpt from the Decisions of the 29th Session of the World Heritage Committee

Criterion (ii): Being an important port city, where people and traditions from different parts of the then known world met, lived and practiced their commercial activities, makes the place a real meeting point of cultures – all reflected in its architecture and development. Being in addition, invaded and occupied for long periods, by most of the great powers and empires, leaved their cultural traces in different strata of the tell.

Criterion (iii): The site was the capital of one of the most important ancient civilizations of the region – the Dilmun civilization. As such this site is the best representative of this culture.

Criterion (iv): The palaces of Dilmun are unique examples of public architecture of this culture, which had an impact on architecture in general in the region. The different fortifications are the best examples of defence works from the 3rd century B.C to the 16th century AD, all on one site. The protected palm groves surrounding the site are an illustration of the typical landscape and agriculture of the region, since the 3rd century BC.

BRIEF DESCRIPTIONS

Qal'at al-Bahrain is a typical tell – an artificial mound created by many successive layers of human occupation. The strata of the 300x600-metre tell testify to continuous human presence from about 2300 B.C. to the 16th century A.D. About 25% of the site have been excavated revealing structures of different types: residential, public, commercial, religious and military. They testify to the importance of the site, a trading port, over the centuries. On the top of the 12m-high mound there is the impressive Portuguese fort, which gave the whole site its name, qal'a, meaning fort. The site was the capital of the Dilmun, one of most important ancient civilizations of the region. It contains the richest remains inventoried of this civilization, which was hitherto only known from written Sumerian references.

1.b State, Province or Region: Northern Region

1.d Exact location: N26 13 59.0 E50 31 20.0

Kingdom of Bahrain
Ministry of Information, Directorate of Culture & National Heritage

QAL'AT AL-BAHRAIN ARCHAEOLOGICAL SITE



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Nomination File

**submitted to
THE WORLD HERITAGE CENTRE, UNESCO**

January 2004

QAL'AT AL-BAHRAIN ARCHAEOLOGICAL SITE

**A Candidature submitted to
THE WORLD HERITAGE CENTRE, UNESCO**

*by
The Ministry of Information, Directorate of Culture & National Heritage
(Kingdom of Bahrain)*

– Volume I –

Nomination File

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NOMINATION FILE FOR THE INSCRIPTION OF QAL'AT AL-BAHRAIN SITE ON THE WORLD HERITAGE LIST

1. Identification of the Property

1.a Country

Kingdom of Bahrain

1.b State, Province or Region

Northern Region

1.c Name of Property

Qal'at al-Bahrain archaeological site

1.d Exact location on map and indication of geographical coordinates to the nearest second

(approx. central spot at the site)

N 26° 13' 59" E 50° 31' 20"

UTM Zone 39 Easting 452²⁵⁰ Northing ²901⁶⁰⁰

1.e Maps and plans showing boundary of area proposed for inscription and of any buffer zone

The following plans are enclosed at the end of this section :

- A — Map of the North Area of Bahrain with position of Qal'at al-Bahrain site (edition : 1977)
- B — Last edition of Survey Directorate map of the northern part of Bahrain (January 2004), with indication of boundaries of nominated site and of surrounding buffer zone.
(the non-reduced, color edition is delivered in annex to the Nomination File, 2 sheets at scale 1 : 10 000)
- C — Last edition of Survey Directorate map of the area surrounding Qal'at al-Bahrain (January 2004), with indication of boundaries of nominated site (archaeological features on the site are not up-dated).
(the non-reduced, color edition is delivered in annex to the Nomination File, 4 :sheets at scale 1 : 1000)
- D — Sketch-map of architectural features exposed at Qal'at al-Bahrain site.

1.f Area of Property proposed for inscription and proposed buffer zone

Core area :	17,5 ha.
Buffer zone :	167,5 ha.
Total :	<u>185 ha.</u>



Figure 1 – General aerial view of Qal'at al-Bahrain towards the East

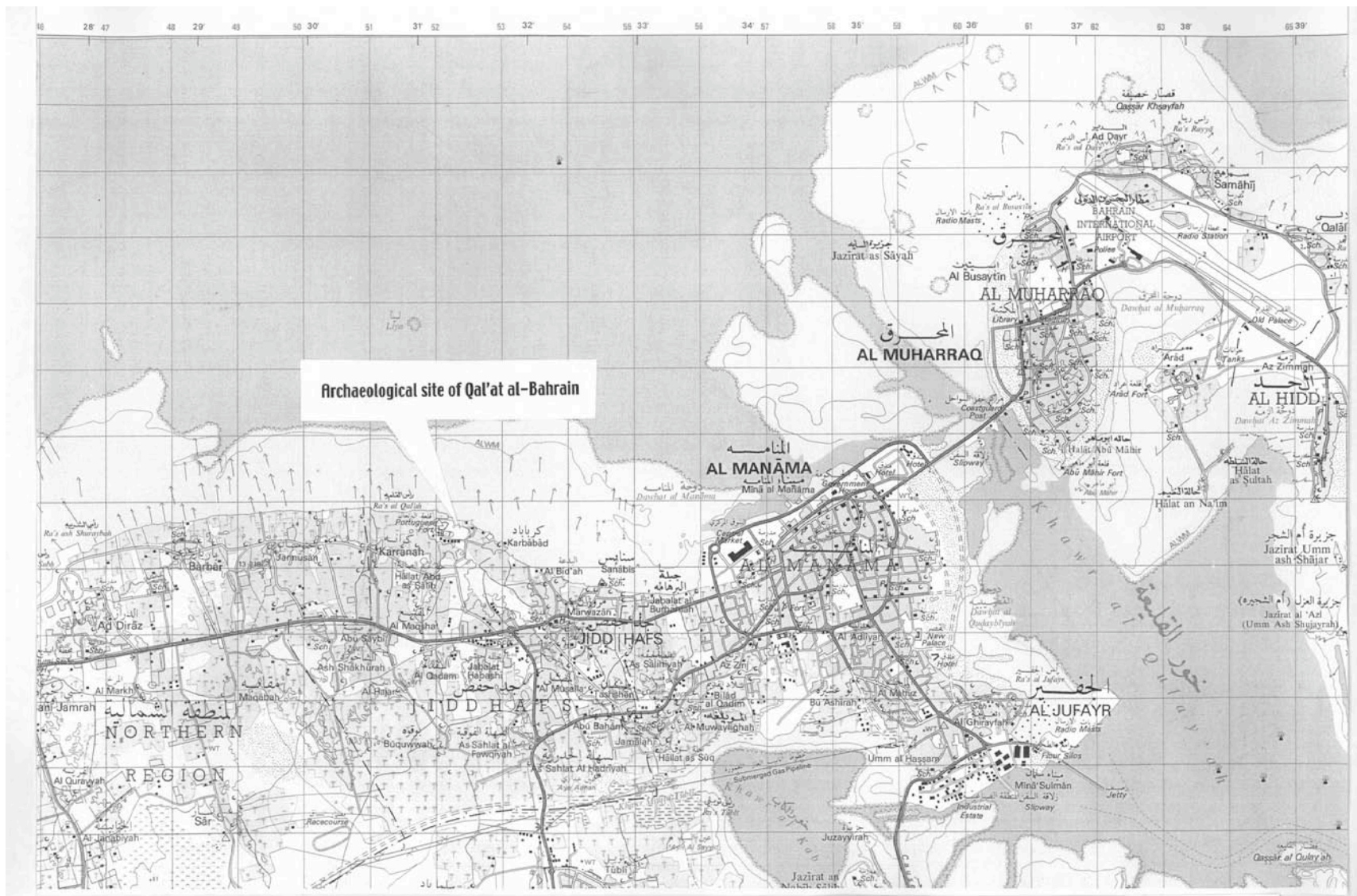


Figure 2 – Qal'at al-Bahrain archaeological site (red line) in its environment. Aerial view towards the northwest.

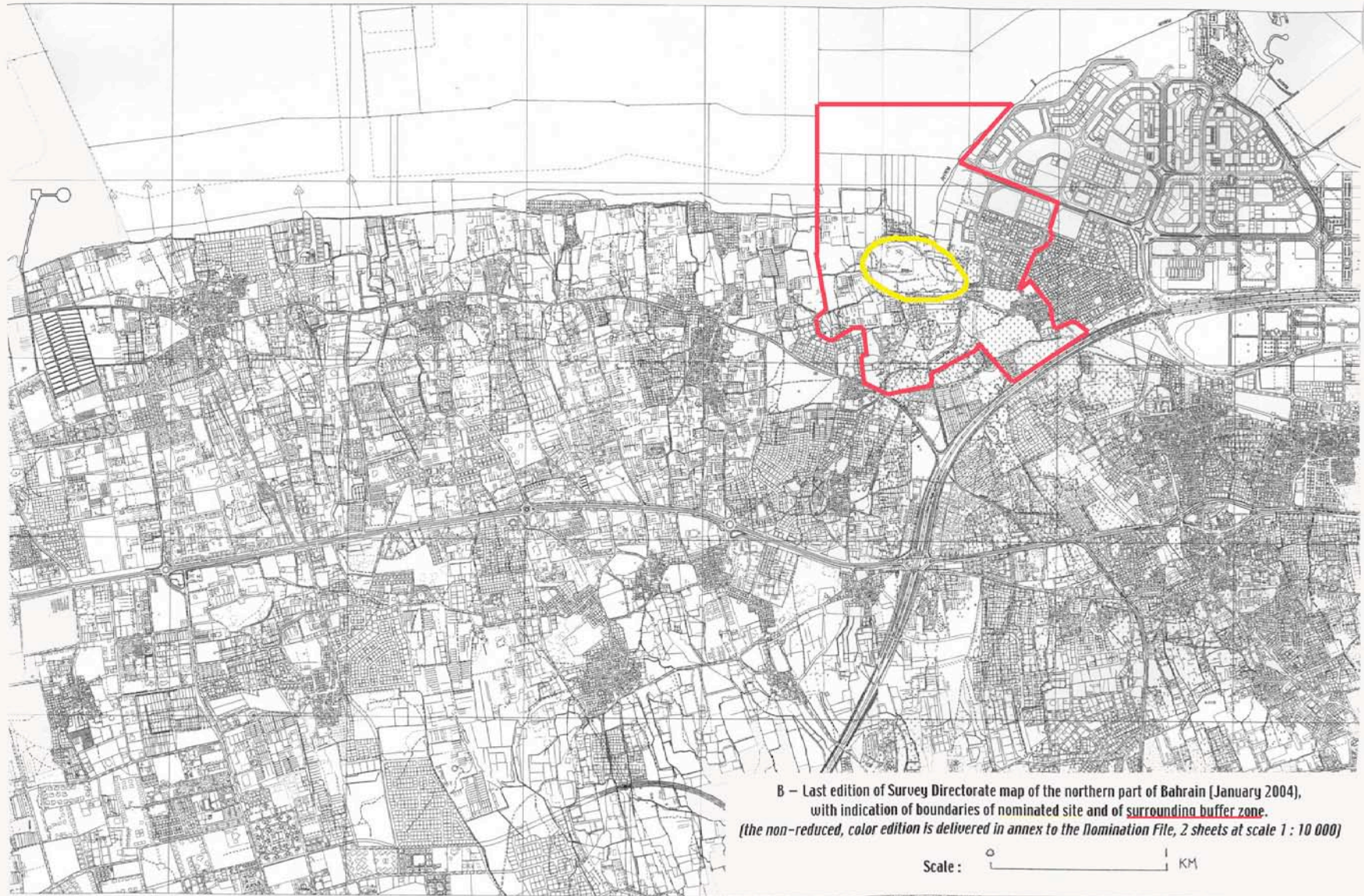


Figure 3 – General view of Qal'at al-Bahrain towards the southwest (march 2003)

MAPS & PLANS

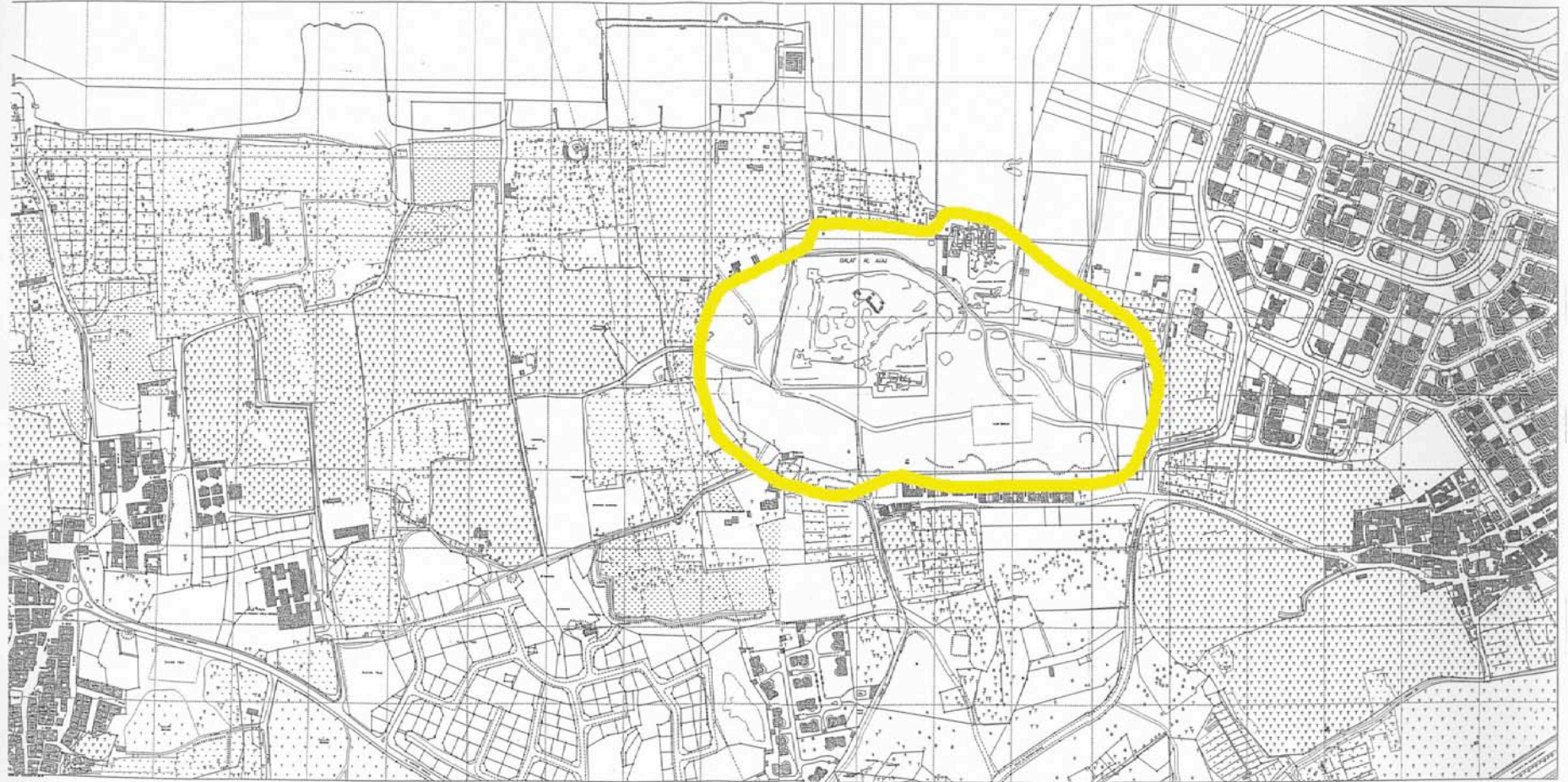


A – Map of the North Area of Bahrain with position of Qal'at al-Bahrain site (edition : 1977) 0 1 KM



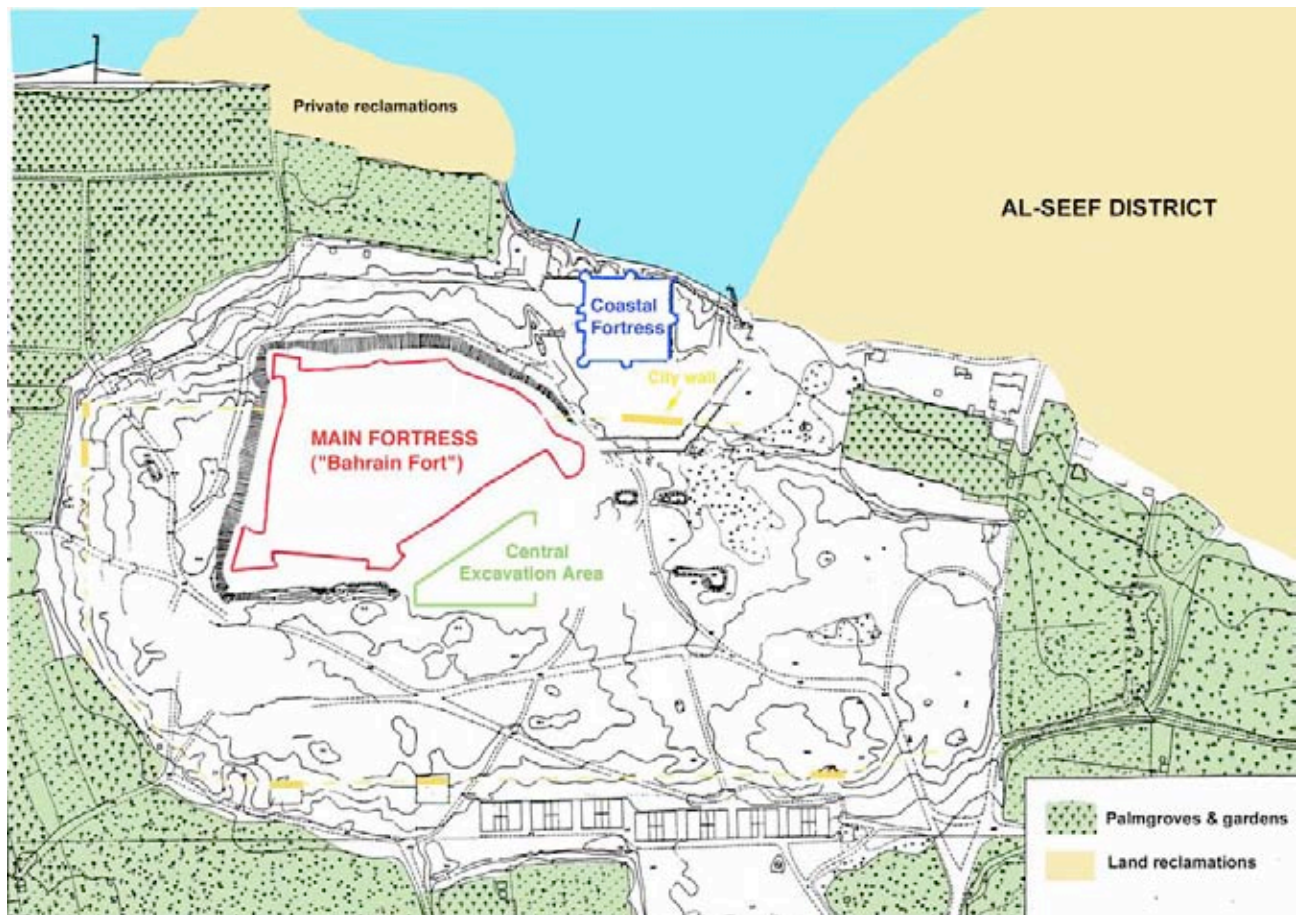
B – Last edition of Survey Directorate map of the northern part of Bahrain (January 2004), with indication of boundaries of nominated site and of surrounding buffer zone. (the non-reduced, color edition is delivered in annex to the Nomination File, 2 sheets at scale 1 : 10 000)

Scale : 0 1 KM



C – Last edition of Survey Directorate map of the area surrounding Qal'at al-Bahrain (January 2004), with indication of boundaries of nominated site (archaeological features on the site are not up-dated). [the non-reduced, color edition is delivered in annex to the Nomination File, 4 sheets at scale 1 : 1000]

Scale : 0 100 200 300 M



D – Sketch-map of architectural / archaeological features exposed at Qal'at al-Bahrain site

2. Justification for Inscription

2.a Statement of Significance

Qal'at al-Bahrain is the most important archaeological site of the Bahrain archipelago, and very probably its ancient capital during the Antiquity. Despite its somewhat confusing official name (meaning, in arabic, « the Fort of Bahrain »), Qal'at al-Bahrain is actually much more than a single fortress facing the sea : the late Islamic/Portuguese defensive building (hereafter the « Main Fortress »), which crowns the site and has lent his name to it, only represents the latest architectural testimony of a long history.

Archaeological work conducted at the site during the last fifty years has demonstrated that this artificial hill of 17.5 hectares reveals an almost continuous stratigraphy from ca. 2300 BC. to the 16th century AD, with the exception of some still enigmatic gaps in the Old Babylonian (ca. 1700-1450 BC) and Early Islamic periods (6th to 13th cent. AD.).

During most phases of its development, the city of Qal'at al-Bahrain was marked off, at the heart of the fertile zone of Bahrain, by certain elements: a rampart, which appears today to have stood for almost two millennia; the presence, in the Bronze Age as in the Iron Age, of several public buildings for economic, administrative or religious use; finally, an uncommon military and defensive architectural tradition, apparently dating back from the beginning of the Christian era (**Figures 1, 2, 3**). All these particular features, unique in Bahrain, do provide the image of an outstanding cosmopolitan merchant city, playing an essential role in the staging post and trade center constituted by Bahrain in the past between Mesopotamia, Persia, Arabia, Oman, the Indian subcontinent, and even the Far East during recent periods.

The key role played by Qal'at al-Bahrain during the regional development of the Dilmun civilization adds especially to its universal value. As soon as the first excavations were carried out by a Danish Expedition in 1954, the site yielded some of the most characteristic elements of the Dilmun culture : an impressive stone palatial architecture, distinctive pottery productions, the first specimens of the specific and famous Dilmun stamp-seals. The « discovery » of the ancient settlement of Qal'at al-Bahrain in 1954 coincide in fact with the first, concrete archaeological evidence of the Dilmun civilization which, up to this time, was rather considered as an historical and philological concept.

Beyond Bahrain and its local history, such a long occupation at the same specific location (partly explained by the local geomorphology, *cf. below § 3.b*), renders Qal'at al-Bahrain as one of the rare archaeological and historical reference sites in the whole region of Eastern Arabia. In fact, the remarkable archaeological stratigraphy preserved there (about 4500 years of history accumulated on nearly 8 m), is unique on the Arabian side of the Gulf (*cf. 2.b, Comparative analysis, below*). Acting as a genuine « memory », Qal'at al-Bahrain thus represents a unique opportunity to « read » the ancient and historical past of the Gulf region (**Figure 4**).

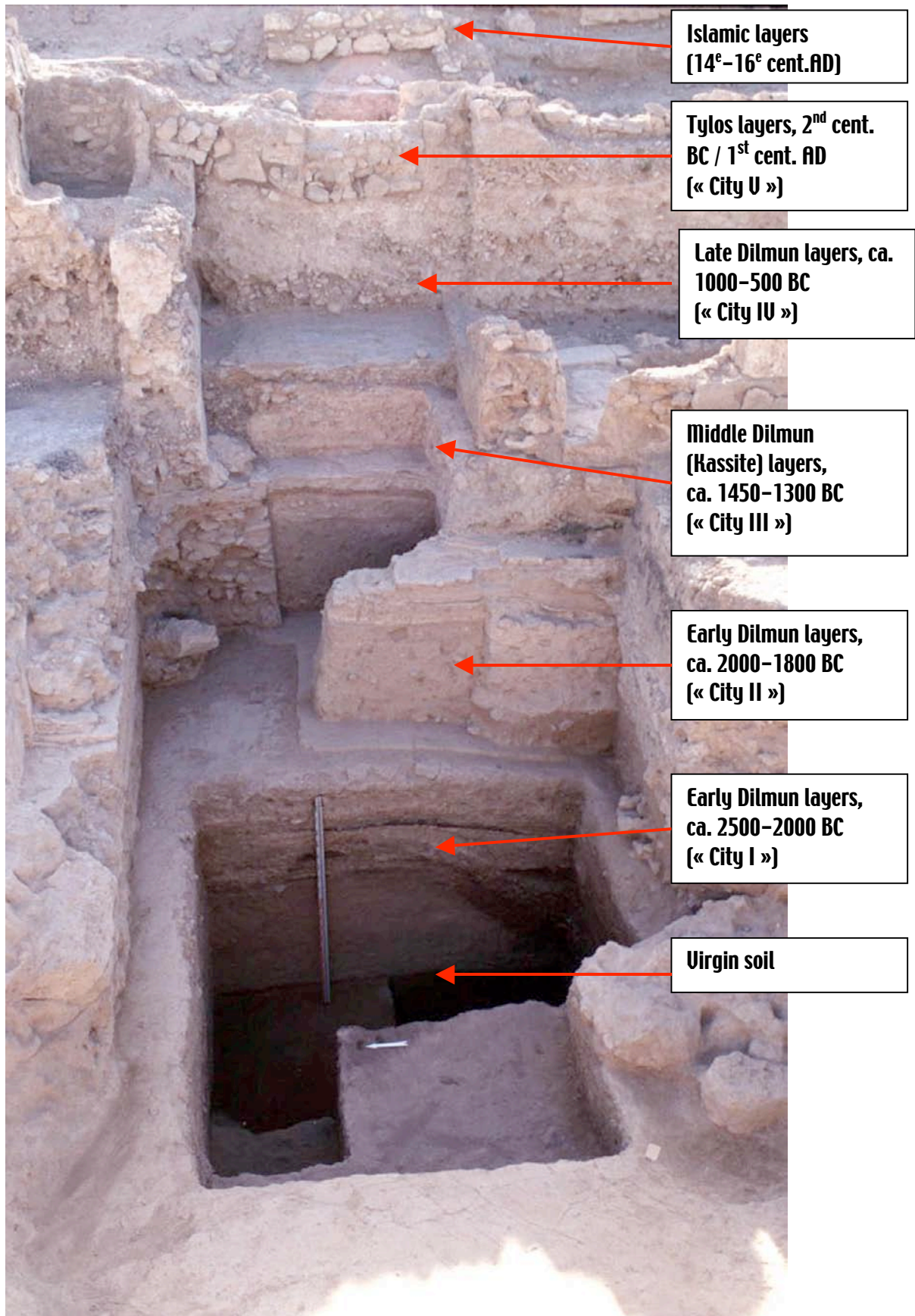


Figure 4 – The stratigraphy of Qal'at al-Bahrain
(Central excavation area)

In addition, the close interaction between the *cultural* components of the site (the ancient Dilmun settlements and rampart, the successive fortresses) and its *natural* components constitutes an important aspect of this outstanding and universal value. These latter elements include the surrounding palmgroves with traditional modes of cultivation or irrigation systems, the ancient natural access channel and moorage area found offshore, the seashore still displaying a rich biodiversity, especially in migrating birds, maritime fauna locally caught using traditional fishtraps (the *hadra*), etc.

Lastly, the potential historical and archaeological richness of such a site (75% is still unexcavated) must also be protected for the future generations : Qal'at al-Bahrain is also an important symbol for the nation of Bahrain and for building national identity.

2.b Comparative analysis (including state of significance or conservation of similar properties)

Within Bahrain :

First and foremost, Qal'at al-Bahrain is unique in Bahrain, as it displays the only archaeological stratigraphy of the island, covering nearly 3600 years. The other archaeological sites recognized in Bahrain are mostly single-period installations and, in any case, do not reveal such a long and continuous occupation, as precised below :

1) The settlement site at **Saar**, situated 6 km southwest of Qal'at al-Bahrain appears as an extensive village organized around a temple. The archaeological layers are preserved there at a maximum of about two meters and testify to a single archaeological phase, dated in the Early Dilmun period, between ca. 1900 and 1700 BC. It is not followed by any later occupation, with the exception of an isolated building, perhaps a fire temple, attributed to the later Tylos period, around 400 AD.

2) The religious architectural complex at **Barbar** (4 km west of Qal'at al-Bahrain), indeed reveals here a succession of three layers of temples, but all of which are similarly dated in the Early Dilmun Period, from about 2000 to 1900 BC. The slight elevation which covered these constructions did not exceed a height of about 3 m.

3) The last identified archaeological settlement in Bahrain, **Diraz**, also bears witness to a single phase of occupation during the Early Dilmun period, contemporary to those brought into evidence in Saar and Barbar. With the exception of the remains of a temple, this site was unfortunately totally destroyed some years ago, due to the growing urbanization in this part of Bahrain.

4) Several additional sites in Bahrain were fortified and also possess fortresses, certainly imposing (like Arad Fort, or Rifaa Fort) but not in any way comparable to the main citadel at Qal'at al-Bahrain, in terms of size, architectural quality, dating and historical evidence. The « small » **Arad Fort**, which was built in the 16th century, underwent several changes until ca. 1800 and its surface area is less than 2,000 m². The **Rifaa Fort** displays larger dimensions than Arad, but is of much more recent construction (1812). Moreover, the two above mentioned fortresses are situated on

locations which haven't reveal any anterior occupation, and thus can't be considered as « tells », as Qal'at a-Bahrain.

Within the Arabian Gulf area :

The distinct originality of Qal'at al-Bahrain site is also obvious when compared to the other main archaeological sites located in the neighbouring countries of the Arabian Gulf. Once again, no close archaeological tells can be identified in the whole region.

1) In Kuwait, the numerous archaeological sites of **Failaka** Island certainly testify to various occupational phases covering the Early and Middle Dilmun periods (Tell Sa'ad (F3), Tell Sa'id (F6), locally dated between ca. 2000 and 1200 BC), the Late Dilmun/Achaemenian period (Tell Khazneh, ca. 5th / early 4th cent. BC), the Hellenistic period (The Seleucid Fortress and temples at Tell Sa'id, between ca. 325 BC and 100 AD), the Nestorian period (Al-Qusur Church from the 6th cent. AD) and, lastly, the Early (notably at Al-Qusur village, ca. 7th to 10th cent. AD) and Middle Islamic periods. Such prolonged occupation on this island might appear *a priori* more continuous than the one revealed by the Qal'at al-Bahrain site (which contains some gaps). In fact, it is slightly shorter and, most importantly, it is not at all displayed at a single spot, which evidently confers to the Bahraini site a unique reference status for the regional archaeology.

2) A similar observation can be extended to the Eastern Province of Saudi Arabia, where only the archaeological site of **Tarut** could be eventually compared with Qal'at al-Bahrain. It does possess Early Dilmun levels (and probably older than the Bahrain evidence, due to its position on the mainland) and is similarly crowned by a medieval fortress, although much more modest in size. Nevertheless, no intermediary occupation was brought into evidence there, at least up to now. The total surface area of this settlement is also much smaller.

3) The emirate of **Qatar**, which definitely remains a less richer area in the Arabian Gulf has not yielded any settlement site which could be compared with Qal'at al-Bahrain.

4) The **United Arab Emirates**, on the contrary, has yielded during these last twenty years several archaeological sites of great importance. None of them, however, reveal the same succession of historical levels recognized at the Bahraini site. At the famous settlement of **Tell Abraq**, for instance, a reference stratigraphy was found but which only covers two millennium (ca. 2500-500 BC). No layer later than the late Iron Age was identified on this tell, whose surface area does not exceed 1,76 hectares (instead of ca. 17,5 for Qal'at al-Bahrain). A similar comment can apply to the Bronze Age **Hili 8** settlement in the oasis of Al-Ain (Abu Dhabi) or to the **Al-Khatt tell** (Ras-al Khaimah).

5) In the **Sultanate of Oman**, finally, no settlement site has yielded the same long occupation as is the case at Qal'at al-Bahrain. In this region, the situation can be compared to the archaeological evidence already mentioned for Kuwait or the Emirates. The whole country reveals a very long occupation starting from the Prehistoric periods (Palaeolithic, Epi-Palaeolithic, Neolithic) and covering the Bronze Age, the Iron Age, the Hellenistic and the Islamic phases, but no site has yielded a continuous occupation lasting more than two or and two and half millennia.

This is notably the case from the few archaeological sites of the Sultanate which are registered on the List of World Heritage. The settlement and the graves at **Bat** mainly cover the late third and the early second millennia BC ; some later traces of occupation during the 1st millenium BC were also noticed at this site. The fortress

at **Bahla**, on the other hand, is partly comparable in date to the Main Fortress at Qal'at al-Bahrain but is not situated at the top of an archaeological tell.

2.c Authenticity / Integrity

This essential aspect will be examined here from two angles : the archaeological tell in its totality and the Main Fortress (« Bahrain Fort »).

The archaeological tell

After its main abandonment at the end of the 16th century /beginning of the 17th century, the archaeological site of Qal'at al-Bahrain has not been superseded by any later urban development. Ancient descriptions and photographs testify to the existence, still in the beginning of the 20th century, of a light *barasti* village situated to the south and southeast of the main fortress. This group of poor constructions was replaced in the first half of the 20th century by a new village of traditional Bahraini houses which, in turn, was transferred to the south of the archaeological *tell* in 1976. The remains, largely ruined, of the previous village were definitively removed in 1990/91, with the exception of a small mosque which presently constitutes the only modern (though discrete) building built on the archaeological *tell* itself. In other terms, the physical integrity of the whole Qal'at al-Bahrain site has been preserved up to now ; one will note just a minor garden encroachment on its lower northern slope (on a restricted surface of ca. 3700 m²) which has not heavily damaged the complex of archaeological strata.

Archaeological excavations at the site are presently limited to the areas indicated on map D. With the exception of the main fortress, these archaeological fields (Coastal Fortress, City Wall, Central Excavation Area) have not undergone, up to now, any kind of reconstruction or restitutorial work. The future projects for improving these archaeological structures and for their presentation to the public provide only for their consolidation and protection, use being made of similar materials as those employed for their construction in order for them to remain in their present state of visibility, and finally maintenance work for their regular upkeep.

The Main Fortress (« Bahrain Fort »)

In 1987 the principal fortress had reached such a state of dramatic deterioration as to hinder its architectural interpretation, but most importantly rendered it extremely dangerous to visitors. It had reached such a point of erosion by this time that it was nearly impossible to identify anything other than the three Genoese-style bastions built in the 16th century (**Figure 5a-b**). Several photographs taken during the 1930s and 1940s clearly show that the deterioration of the fortress had accelerated dramatically in the second half of the 20th century due to the combined effects of wind and rain erosion, natural collapse and the constant wear on the ruins from visitors walking on them.

The archaeological survey and soundings conducted at the Fortress by the French Archaeological Mission between 1982 and 1988 and afterwards by the Bahrain Directorate of Archaeology from 1996 until the present time, allowed the recognition of the outlines of the enclosure wall and the determining of the different



Figure 5 – The Main Fortress (« Bahrain Fort ») in the 1980s, before its restoration

phases of its construction, as well as the identification of the inner architectural structures, the precision of their shape, and finally the nature of the building materials and their general state of preservation.

In 1987, considering the potential danger represented by the state of preservation of the fortress, and on the basis of the previous archaeological work, the Bahrain Ministry of Information took the decision to launch and finance an important program of massive clearing-out of the existing remains, followed by a progressive restoration of the defensive building.

This restoration and reconstruction work is nearly completed today (cf. **Figures 12, 13**). Such restoration work has carefully respected the integrity of the structures exposed by the archaeologists (ground plan, elevation, etc.). The materials used for this restoration were carefully chosen : original stones found during the clearing-out of the fortress, local *farush* (beach rock) ; similarly, the mortar used for the restoration was determined after previous sampling and analysis of the original ones.

As we have already noted, important reconstructions were generally founded on the strict results of previous archaeological work or on preliminary reconnaissance. In a few precise cases, however, certain reconstructions may appear excessive or based on conjecture. Naturally, the Directorate of Culture and National Heritage at the Ministry of Information in Bahrain is available for discussions and suggestions concerning improvements or modifications coming from the competent authorities at UNESCO or the ICOMOS.

2.d Criteria under which inscription is proposed (and justification for inscription under these criteria

The Directorate of Culture and National Heritage wishes to propose the inscription of Qal'at al-Bahrain site to the World Heritage on the basis of the following criteria (cf. paragraph 24a of the *Operational Guidelines for the Implementation of the World Heritage Convention*) :

- Criterion (ii), « *to exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design* »

This appears most obvious when taking into consideration its strategic position on the northern coast of the Island of Bahrain, itself a land of exchanges and a platform for the economic redistribution during the complete period of Dilmun, but also during the several historical phases which followed: the Tylos period, the « Portuguese » period, etc.

There can be no doubt that the archaeological site of Qal'at al-Bahrain testifies to an occupation on the « *longue durée* » (from the end of the 3rd millennium BC up until the 16th century AD) certainly exceptional in the region of the Gulf and more generally in Eastern Arabia. Thus, through this it takes on a singularly particular significance, in this region of the Middle East.

Each one of the levels of this ancient city (in addition one of the rare harbours in ancient Bahrain) has yielded archaeological material, which testifies to considerable economic and cultural exchanges. This very specific

material culture brings together, next to the typically local production (pottery and Dilmun stamp-seals), numerous objects or imported products from neighboring lands (copper and soft stones from the Oman peninsula, lapis-lazuli from Afghanistan, cornelian beads from Indus, glasswork from Mesopotamia and Egypt, coins and Chinese or Indochinese porcelain). Finally, several of its occupational phases (Early, Middle and Late Dilmun, Tylos and the Middle Islamic) testify to a solid architectural tradition, generally erecting monuments, whether they are defensive (successive forts, ramparts), religious (temples) or secular (tradition of building palaces).

— Criterion (iii), « bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared »

The site at Qal'at al-Bahrain appears as the only real city (and very probably the ancient capital) of the Civilization of Dilmun. Its important superficial area – almost 12 hectares inside of the ramparts – as well as a strong conviction for urbanization evident already from the 3rd millennium BC (*cf.* 3.c.5, *below*), both confirm this urban status of the Early Dilmun phase. The presence of a palace and of a Mesopotamian governor during the middle of the 2nd millennium BC (the Kassite period), mentioned in the cuneiform tablets brought to light on the site, also confirm such an identification during the Middle Dilmun phase; the same is true of the large residential and religious ensembles dating from the Late Dilmun phase.

No other city from the Dilmun period has been discovered elsewhere in Bahrain where the only other known settlement, Saar, is not larger than a simple village, with its 2.5 hectares.

— Criterion (iv), « to be an outstanding example of a type of building or architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history »

The long tradition of fortified constructions at Qal'at al-Bahrain is very uncommon. The successive fortresses of the site (3rd century AD, then 14th, 15th and 16th centuries AD) are all representative of exterior colonization, which have tried above all to protect themselves from the native population of Bahrain, rather than simply assuring the defense of the island.

The most important of these buildings, the Main Fortress (« Bahrain Fort »), which dates from the 15th and 16th centuries, can be considered as a more than remarkable example of the evolution of a military architectural construction and of its successive improvements such as enlargement, the reinforcement of the curtain walls, the creation of interior boulevards designed for circulation and the deployment of artillery, and finally the construction of modern defense bastions based on the European models, all of which were destined to constantly adapt it to the progress of weaponry and defense techniques.

3. Description

3.a Description of Property

The « *tell* » (archaeological hill) of Qal'at al-Bahrain is situated on the northern coast of Bahrain, ca. 5 km to the west of Manama, the present capital of the Kingdom of Bahrain. Rather important in dimensions (about 650 x 300m), the site appears as a wide clearing of 17,5 hectares within the neighbouring palmgrove and gardens which still surround it on its east, south and west sides. The altitude of its ground at the highest point is 11.2 m above sea level.

About 15% of the surface area of the Qal'at al-Bahrain site is occupied by a huge fortress dating from the 14th and 15th centuries A.D., partly restored by the Portuguese occupants in the 16th century. It constitutes today the most spectacular architectural monument on the site, which has lent his name to the *tell*.

In 1985 huge land reclamation (the Al-Seef district) filled the western side of the bay which previously separated the modern capital of the Island of Bahrain from the ancient site. Despite such a modern development, which has modified the original coastal landscape of the site, Qal'at al-Bahrain is today considered as the largest and most important archaeological site in the Kingdom of Bahrain (**Figure 6**).

3.b History and Development

The almost permanent human occupation in this precise location of the northern coast of Bahrain is not typical. It has already been brought to light how unique this situation actually is in Bahrain itself, given that few other sites in Eastern Arabia, from Koweit to Oman (*cf. above, § 2b*), have testified to a comparably long human presence in one same location.

This presence over the « *longue durée* » can be explained by the geomorphological configuration of the northern zone of Bahrain.

Actually, the northern coast of Bahrain is fully encircled by shallows made up of a coral reef, nearly fossilized today, at a distance running as far as two kilometers in some places. Such a situation, which prevents coastal access to boats with an excess draught, is an important element for the ancient pattern of settlement in Bahrain. Since the oldest Antiquity, the inhabitants of the island have always been able to identify the few rare channels naturally cut in this corral reef, and sometimes even enlarged them to allow boat traffic and create moorage areas as close as possible to the coastal line.

Geomorphological and archaeological studies have proved the existence of one such channel, enabling deep-water craft to approach the site of Qal'at al-Bahrain. Within this context, this discovery was of great importance in explaining the emergence of the site.



Figure 6 – General view of Qal'at al-Bahrain, towards the north

Since 1954, several expeditions from Denmark (1954-1970), France (since 1978) and Bahrain (since 1987) have launched various excavation programs at distinct spots of the site, some focusing on specific periods of Qal'at al-Bahrain history.

These almost fifty years of archaeological research were mainly able to :

- fix the chronology of occupation at the site ;
- discover and clear out four major architectural areas or monuments ;
- undertake restoration work on the Main Fortress (« Bahrain Fort »)

3.c Main features or monuments found today at Qal'at al-Bahrain site

With the exception of the main excavation area in progress (where the whole stratigraphy of the *tell* is presently under study), the existing components (architectural or natural) will be presented here following a chronological order :

- The Earliest occupation layers,
- The City Wall,
- The Coastal Fortress,
- The Main Fortress (locally known as « Bahrain Fort »),
- The Central Archaeological Area,
- The other components :
 - . The access channel and its entrance tower,
 - . The surrounding palmgrove.

3.c.1 *The earliest occupation layers*

The earliest remains of human occupation found at Qal'at al-Bahrain date back to ca. 2300 BC and were mainly located close by the northern side of the tell facing the sea. These few architectural remains, the most important having been excavated at the southern side of the rampart, are no more visible at the moment than they were at the time of their discovery, due to the partial natural refilling of this dig. Plans will be eventually launched in the near future to clear out once again the remains of this early settlement, unfortunately preserved at a very reduced height (15 to 20 cm). It was composed of small houses of several rooms with plastered floors. The walls were built of rough stone set in clay or mortar. There are indications that groups of houses were separated by streets. Traces of industrial (copper) activities were also found at this spot. The pottery consisted mostly of local, hand-made cooking pots, supplemented by storage vessels and pots for eating and drinking, imported from Mesopotamia and Oman. A number of other objects also indicate connections with Mesopotamia and Oman as well as the Indus region.

3.c.2 The City Wall

Description

The settlement at Qal'at al-Bahrain was surrounded by a stone wall during the early phases of its history. Archaeological soundings located this rampart in several spots on the northern, western and southern slopes of the tell. Up to now, no excavations have been carried out to locate it on the eastern slope of the hill. These portions of walls follow the cardinal directions and are at right angles to each other; they enclose an area of about 12 hectares but, due to the present state of excavation, nothing proves that this entire enclosed area was built up in the Early Dilmun phase of the site.

The wall has been only closely investigated on the northern side. Due to the refilling of several of the mentioned soundings, this northern portion is actually at the moment the only visible part of this long enclosure ; it is exposed on a length of 46 m, in an area situated ca. 30 m to the South of the Coastal fortress. This visible part is actually the result of successive periods of construction or rebuilding (Figures 7, 8).

History and Development

Two main phases can be distinguished easily in this city wall. *Wall I* is assigned to the Early Dilmun period, while *Wall II* was constructed during the Kassite occupation of Qal'at al-Bahrain (Middle Dilmun Period, around the mid-second millennium BC.).

The erection of a first fortification wall around the Early Dilmun settlement, which took place by the end of the 3rd millennium BC (*Wall I*), represents an important event in the history of Qal'at al-Bahrain. As can still be seen at the site, it was constructed of rough stones mostly laid in clay. The front was built of larger blocks than the rear. Originally, it had a thickness of 2.30 m, but everywhere it has been enclosed in later reinforcements. There was a 1.25 m wide gate through the wall, large enough to allow a loaded donkey or even a camel, but not the entrance of a vehicle

Owing to occupation deposits the building level rose inside the walled city, and this first rampart was therefore rebuilt several times, so that four different successive gates can be distinguished. In the latest one (dated around 1900-1800 BC), the door, probably wooden, was composed of two panels, with a total width of 2.30 m, more usual dimensions for such ancient Near Eastern devices. We know from the information provided by the sounding (now refilled) where the western section was found that certain portions of this rampart were built of large square stones, regular and well laid. Obtaining the stone material for such a monument and its construction obviously entailed a very substantial input of labour that was likely to have been mobilized through some form of public organization.

Wall II, probably constructed around 1450/1400 BC, can be considered as an outside reinforcement of the first structure. It differs technically from *Wall I* in its extensive use of mortar and the systematic use of plaster on both vertical and horizontal surfaces. The plaster used was extremely strong, lasting even today, and it gave *Wall II* an almost concrete-like hardness. This second wall remained in use for an indetermined period of time, possibly until the Late Dilmun occupation phase of Qal'at al-Bahrain (ca. 900-500 BC.) During the Tylos/Hellenistic period, it appears to have been no longer in use, at least as a defensive rampart ; it is most likely that its ruins subsisted in the landscape of the city : confirmation appears to come from the fact that the construction of several dwellings from this Tylos period apparently « reused » them, building against them as supportive structures. One of these habitation yielded in 1970 a coin hoard, contained in a jar, and composed of 310 silver tetradrachmas of Alexander type, probably minted in the second half of the 3rd century BC.



Figure 7 – Current aerial view of the Dilmun rampart



Figure 8– View of the Dilmun rampart in 1970 (Danish Expedition)

Preservation

The state of preservation of *Wall I*, made almost completely of dry-stones (with only rare use of clay), is heavily deteriorated since its excavation in 1957-1959 (cf. **Figure 8**). Restoration to its original aspect at the time of discovery will be launched in the near future. *Wall II*, on the contrary, is rather well preserved due to its particular construction.

Due to a long history of consolidation, rebuilding and the constant elevation of this rampart during its long period of use (approx. 1500 years), this area of the site still remains an architectural complex difficult to understand and therefore to explain coherently to visitors.

A new portion of the wall was recently exposed near the new strip of housing bordering the archaeological tell at the South (works carried out by the Directorate of Archaeology) ; very few information is presently available on this operation.

3.c.3 The Coastal Fortress*Description*

The coastal fortress appears as a stone square building of perfect North-South orientation, with a main enclosure wall measuring 51,5 m on each side. The building is equipped with three-quarter-circular towers in the North-West, North-East and South-West corners (the South-East corner has been destroyed), as well as semi-cylindrical towers in the middle of each facade. On the middle on the East wall are two quarter-circular towers flanking the entrance of the fortress (**Figures 9, 10**).

The interior of the fortress was symmetrically laid out around a central square courtyard of fairly modest dimensions (12,5 x 12,5 m). From the corners of this paved courtyard, walls divide the interior of the building into four architectural quadrants, separated by four circulation areas, shaped as cross-arms, and converging towards the central main central open space. Each of these built quadrants appears as a dwelling ensemble set around an individual small square courtyard. The rigorous symmetry of the building layout is striking. The inner area of the Coastal fortress covers a total surface of ca. 2,260 square metres. This surface area is divided into ca. 1,900 sq. m. of originally covered areas and ca. 360 sq. m. of open spaces (courtyards, cross-arms alleys), representing some 20% of the inner surface.

The building's structure reveals its double defensive and residential function. The *defensive function* is essentially represented by the enclosure of the building. This construction, 2,35 m thick, is transpierced by a line of loop holes with either simple or double embrasures (20 to 25 along each façade). The entrance at the West was defended by two flanking towers ; next, a security postern opening onto the beach, was concealed at the base of the North tower. The fortress was finally protected on the South and Southeast (the inland side) by a dry moat 7 m wide and more than 5 m deep.

Interpreting the *residential function* appears equally obvious. With its narrow entrance (1,5 m) not allowing carts and livestock to enter, its courtyards of reduced dimensions acting primarily as shafts for bringing in daylight and assuring air ventilation, the essential function of the fortress was to lodge a small garrison. With an interior surface around 2200 m² it could accomodate roughly 50 soldiers. Research centered on the construction of the dwellings (small courtyards with porticos, for example) confirms this monument's residential function : undoubtedly the residence of an important person on the island.

History and Development

The original construction of the Coastal Fortress is not easy to date.

Several elements seem to prove that the fortress was not built before the 3rd century AD. : archaeological stratigraphic observations (which demonstrate that it was built on the ruins of the former Tylos settlement), analysis of the ceramics found inside the building, and at last the particular form of the round corner-towers which seem to bear strong Sasanian features.

It is also clear that the edification of such a strong defensive construction is likely associated with some important local historical events. It could coincide with the attack of Bahrain by the Sasanian king Ardashir around the year 240 AD and his victory over the local king Satirun (said to have resisted Ardashir in the « old oppidum of Tylos »), thereafter destroyed by Ardashir. Before returning in Iran, it is likely that the Sasanian king ordered the building (or the rebuilding) of a fortress to station a garrison or even install an administrative centre.

Archaeological evidence also demonstrates that the Coastal Fortress was more or less abandoned from the end of the 5th century to the the period *ca.* 1250/1300 when the Salgharid *atabak* of Fars, Abu Bakr restored the buiding for the purpose of using it as a location for its commercial interests. The defensive function of the fortress was partially maintained, while eight of his rooms were tranformed into workshops for producing date syrup («*madbasa* »). During this 13th century, trade items from China arrived in abundance at Qal'at al-Bahrain. However, by the end of this century or at the beginning of the 14th century, the Coastal Fortress was abandoned again and crumbled naturally, because of tide erosion and due to a slight modification of the shore line. Its location was partially covered by a cemetery belonging to the village that developed in the southern section of the site inland.

Preservation

The present appearance of the Coastal fortress is the result of the excavations conducted by the French / Bahrain Archaeological mission between 1978 and 1986. The total ground plan of the building is presently exposed and well understandable. It displays the last stage of the occupation of the fortress, *i.e.* its 13th century AD. restoration, notably with the *madbasa* (date-juice devices) clearly visible. The preservation in height is highly variable all over the building. The southern, western facades and towers are only preserved up to a height varying from 0.20 to 0.70 m. The northern facade still rises to 2.50 m over the floor surface of the rooms (**Figures 10-11**).

During its excavation, the Coastal fortress was found to have been heavily plundered and was covered by a meter-thick layer of sand. This building, partially constructed of material recovered from older constructions from the site (including a stone bearing a Middle Dilmun cuneiform inscription), was intensely pillaged each time it was abandoned. The southern and western facades, most accessible to the inhabitants of the later settlements, were thus destroyed almost completely. As a general rule, only the inside base of their walls remained. Moreover, subsequent fort construction on the site (cf. the Main Fortress) provides a ready explanation for the robbery of the best cut stones.

The Coastal fortress is regularly cleaned by the Directorate of Archaeology ; some minor restoration work was carried out in 1980, in 1982 (quarter-towers flanking the gate and gate itself) and in 1983 (northwestern sector and some *madbasa*) (cf. UNESCO technical reports 1980, 1983). Further restorations planned in the future will be mainly aimed at the existing structures and will be limited to clearing out, consolidation and above all avoiding any new *reconstruction*.

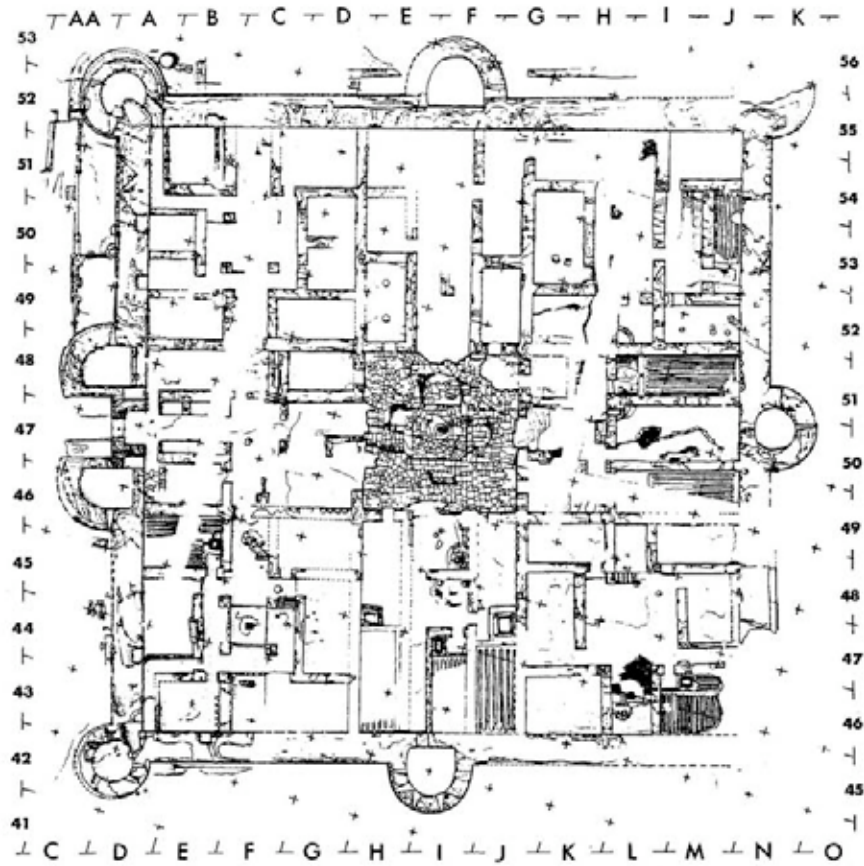


Figure 9 – The Coastal fortress. Groundplan



Figure 10 – Current aerial view of the Coastal Fortress, towards the northwest.



Figure 11 – Current aerial view of the Coastal Fortress, towards the northeast.

3.c.4 The Main Fortress (« Bahrain Fort »)

Incorrectly called for years in Bahrain « the Portuguese fort », the most impressive building from the site by its massiveness alone, will be qualified here as « the Main Fortress », by opposition to the « Coastal Fortress » previously described.

Generally, this building is often locally known under the popular name of « Bahrain Fort ». Unfortunately in fact, this does not help the visitors to clearly establish the distinction between this defensive building and the whole archaeological surrounding site : the Bahraini or expatriate residents who frequently hear or read about the pre-Islamic levels excavated at « Qal'at al-Bahrain » are often convinced that they only represent early architectural stages of the Main Fortress...

This huge architectural complex, surrounded by a wide and deep moat, occupies 2,6 hectares of the whole surface of Qal'at al-Bahrain archaeological tell. Its present aspect is the result of a long architectural development between the 15th and the early 17th century AD., which now clearly appears to the visitors, due the long and heavy restoration work carried out by the administration of the Kingdom of Bahrain between 1988 and 2004 (**Figures 12, 13, 14**).

History and Development

The historical and architectural survey previously and parallelly conducted by Dr. Monik Kervran (the founder and former Head of the French Archaeological Mission in Bahrain) as well as the research of current missions have shown that this building displays three main stages of construction (the description of each will be outlined in the next section) (**Figure 15 a, b, c**) :

- a simple fortified enclosure built at the beginning of the 15th century, under the inspiration of the Princes of Hormuz, a new dynasty from the South of Iran ;

- a first enlargement in 1529 under the governorship of Badr el-Din (nephew of the vizir of Hormuz and in rebellion against the later's sovereignty), which adapted the first building to modern artillery action, mostly by the addition of a new surrounding enclosure and boulevards, and the probable enlargement of the moat ;

- a last reinforcement of this enlarged fortress dating from 1561 and ordered by the Portuguese administration (which several years earlier had already taken control of the Hormuzi) in order to withstand the assault of the Ottoman Turks. The architect Inofre de Carvalho built at that time several corner-bastions in the Genoese style and enlarged again the surrounding moat.

All these developments took place during an essential period in the history of Bahrain island. Notably during these 15th and 16th centuries, the fortified site of Qal'at al-Bahrain became a crucial strategic location along the trade routes leading to India and China. The architectural history of the Main Fortress perfectly reflects the complex local rivalries of this period between the Principality of Hormuz, the Portuguese, the Safavid Persians and the Ottoman Turks. Each stage of its construction or rebuilding is actually closely linked with precise events of this regional history.

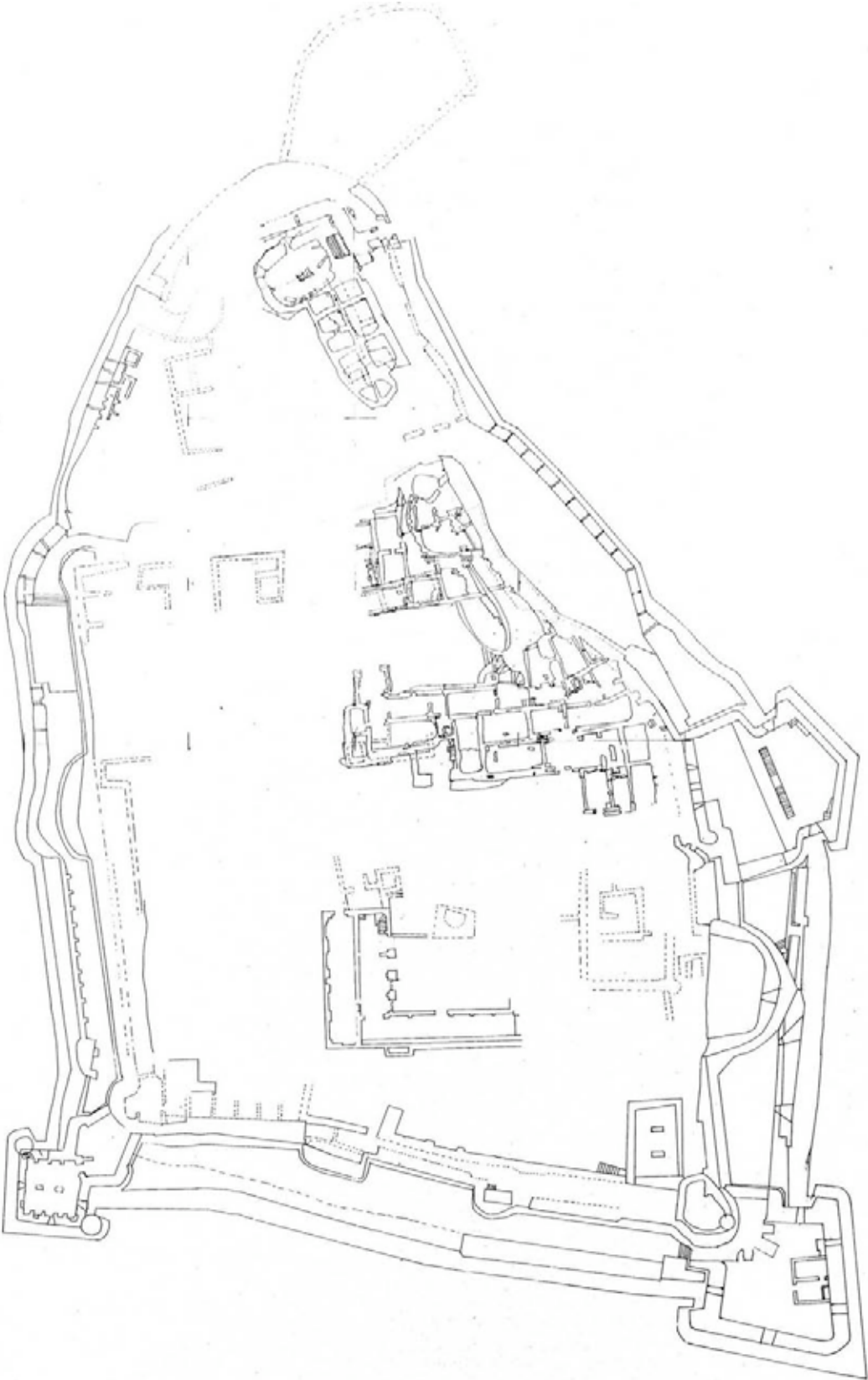
In essence, the narrative or more rare iconographical sources available revealed the importance of the fortress in the 16th and early 17th centuries. As far as we know presently, no documentation prior to 1520 mentions the existence of such a defensive building in Bahrain. The single reference is a brief allusion by the Cairoite chronicler Ibn Iyas, who speaks about « *Europeans (= Portuguese) (who) took over the island and occupied its fortress...* » It is likely that this same building was some years later described by the Hormuzi to their Portuguese allies as a « *fortified enclosure mostly made of coral* ». Both descriptions correspond, admittedly, to the first architectural stage of the Main Fortress. (cf. **Figure 15a**)



Figure 12 – The Main Fortress (« Bahrain Fort ») under restoration in 2002, towards the west



Figure 13 – Current aerial view (2004) of the Main Fortress (« Bahrain Fort »), towards the south



**Figure 14 – The Main Fortress (« Bahrain fort »)
Current groundplan**

The Qal'at al-Bahrain building appears again in a chronicle of 1529. It is rather precisely described by the Portuguese historiographer Joao de Barros who clearly refers to Badr ed-Din's first enlargement of the construction (cf. **Figure 15b**) : « (...) *On the perimeter (circuito) of this fortress there were seventeen towers (cubellos) built of stones and lime, an a barbican (barbacane). All these constructions had crenellations and loopholes. There was a very beautiful keep and in one of its towers was the gate of the fortress, very well fortified. The barbican was surrounded by a large moat with its drawbridge (...)* »

We know through the same chronicle that Badr ed-Din barricaded himself in this building with 800 men (mostly riflemen) joined by some 600 Persian crossbowmen to sustain the siege organized by the Portuguese captain Simao de Cunha. The same stage of Qal'at fortress, finally, is rather accurately portrayed, with its five-sided outside wall, in a miniature of the Island of « Barem » (Bahrain) drawn in 1538 by an anonymous Portuguese during a visit to the Gulf (**Figure 16**).

No available narrative or iconographical historical documentation seems to be directly associated with the last architectural stage of the Main Fortress (cf. **Figure 15c**). Several Portuguese sources clearly mention that Inofre de Carvalho had been, since from 1551 onwards, the « Master of Royal works » in India under King John III of Portugal. They also confirm that this brilliant architect (but also a reputed siege engineer) accompanied in September 1559 the Portuguese Captain of Hurmuz to Bahrain, in order to provide his professional experience during a new siege of Qal'at al-Bahrain conducted by the Ottoman Turks from Al-Qatif.

It is very probably at this occasion that he finalized the plans for the restoration of the local fortress, which lead to the construction of the impressive corner-bastions (**Figures 17, 18**). The only written testimony of this important addition is the order of Governor Murad of Bahrain for the delivery of 100,000 stones extracted from the quarries at Jidda, a small island located some kilometers to the West of Qal'at al-Bahrain. This order, preserved as an arabic inscription carved at the quarry itself is dated in the year 968 of the Hijra (= 1561) ; such a precise date indicates the beginning of the Portuguese restoration of the fortress. This particular restoration phase probably lasted for several years.

As will be seen below, the huge restoration of the fortress undertaken by Inofre de Carvalho revealed useless. Although this outstanding architect mastered the art of military construction, he definitely ignored the island's particularly difficult navigational conditions, especially in its northern area. With the almost completed silting-up process of the access channel during this second part of the 16th century, and the subsequent impossibility for the Portuguese vessels, with their important draught, to moor less than two kilometres away from the site, Qal'at al-Bahrain quickly lost its strategic position and importance. A letter from the King of Spain and Portugal to Ruy de Tavora, the Vice-Roy of India, represents the latest historical document directly connected with the Main Fortress. Dating from 1610, it quotes a report by a certain A. Pinto de Fonseca, which perfectly describes this situation : « *The fort is totally useless because it is far from the sea of a shot gun and it is surrounded by reefs which make it impossible for ships to land there. It is accessible, and only at high tide, to small crafts which fish and ferry goods to the main town, Benamar (Manama, the present capital of Bahrain), half a league away from the fort which is nothing but an armoury (case forte). It is only strong for its foundation and for its wall. Since, in the channels which surround it, only small crafts can sail and not the ships which could represent a real help (...). If a landing were to be made in Bahrain, this fort should be overlooked...* ».

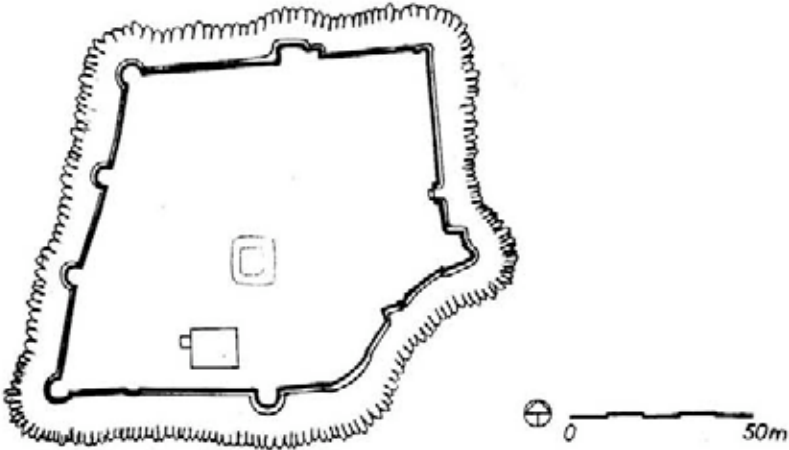


Figure 15 a – The Main Fortress (« Bahrain Fort »). Plan of phase I

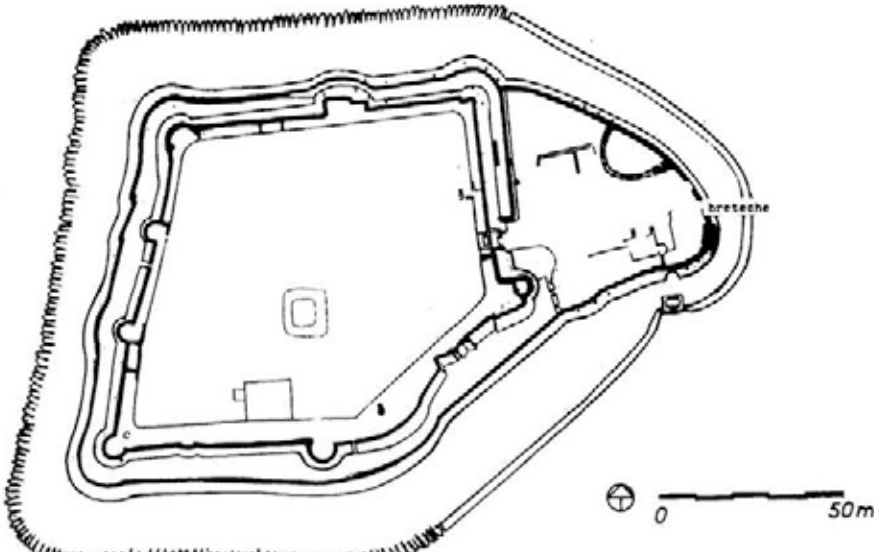


Figure 15 a – The Main Fortress (« Bahrain Fort »). Plan of phase II

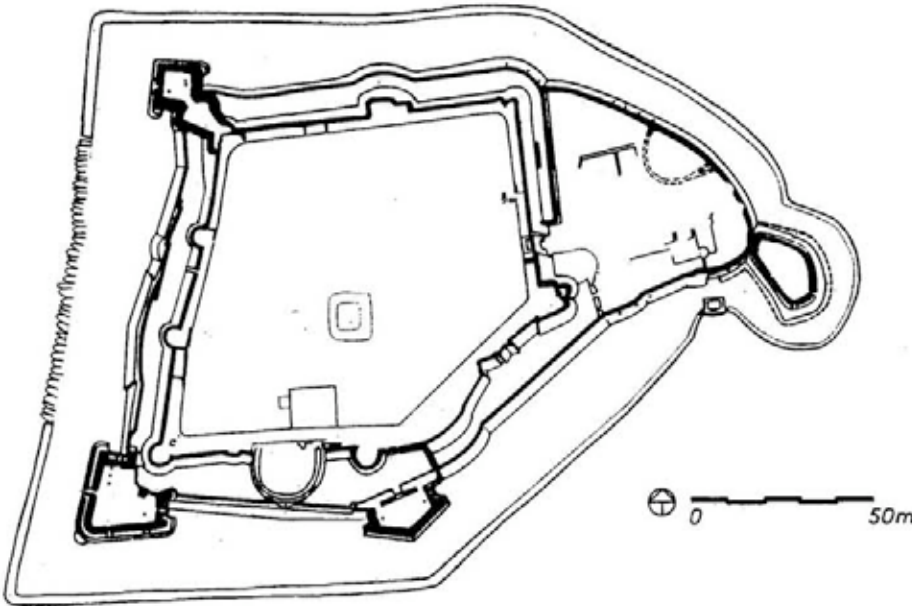


Figure 15 a – The Main Fortress (« Bahrain Fort »). Plan of phase III

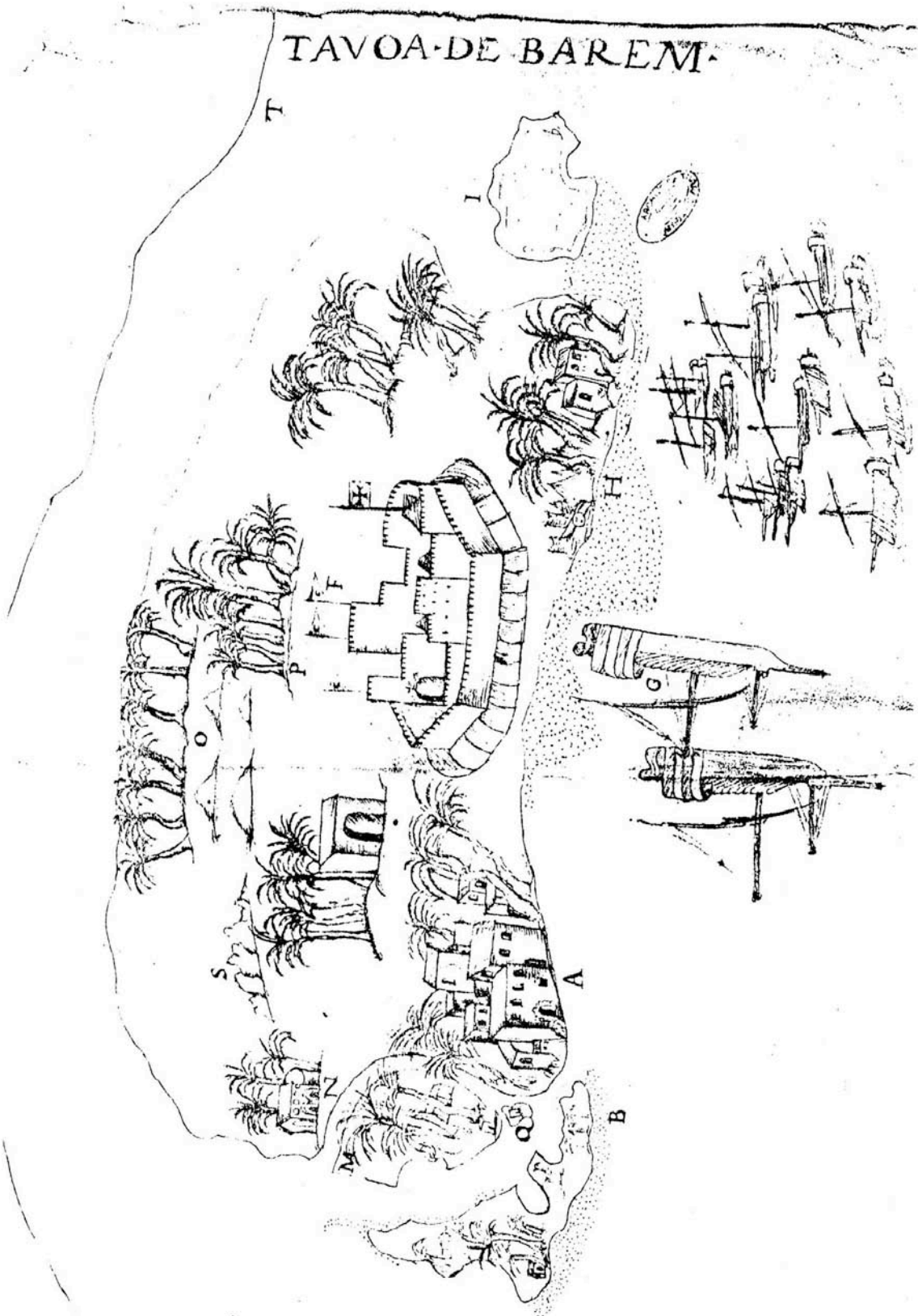


Figure 16 – Ancient Portuguese map from 1538 featuring the Island of Bahrain and showing a representation of Stage II of the Main fortress (« Bahrain fort »). The access channel (with boats inside) is clearly marked, offshore the site.

Description of the main visible structures

—Remains of the first fort

This first fort has an irregular pentagonal outline, enclosing a surface of 8,500 square meters (**Figure 15 a**). Its two most exposed sides, on the West and on the South are flanked by almost perfect semi-circular towers, while on the North side facing the sea, there is only an oblong tower. The gate opens on to the East side, defended by an irregular-shaped construction. One of the best preserved towers, the South-West one, is completely restored today with its partially crenelated parapet and its watch-tower, the base of which appeared clearly at the time of the excavation of this sector. The walls of the towers and the curtains (later reinforced during the second stage, cf. below) were made of diverse roughstones taken from the coral plate and set into a thick mortar. In several places, the original layers of plaster are still visible.

The complete disappearance of the whole lower part of this first architectural stage, obliterated by the enlargements of the second phase, does not allow a reconstruction of the plan of the first fort below the level of the parapets. It is therefore impossible to evaluate precisely the thickness of the enclosure wall (presently varying, from the top to the preserved bottom, between 2 to and 4 m) nor to prove the definite existence of a moat ; such a device, nevertheless probably existed ever since this first architectural stage.

At last, it is difficult to describe the inside organisation of the fortress at this stage, since all the constructions presently visible within the enclosure are not easy to date accurately : most of them (stables, casemates etc.) seem to belong to the second stage. This first fort, however, did have a cistern, as well as a keep, probably located at the same place as the present one, which actually is likely to be a reconstruction or perhaps an extension of the original one.

— Constructions associated with the second fort

This important and careful restoration undertaken by the Hormuzi governor Badr ed-Din in 1529 gave the fortress its definitive outlines and equipped it with defense works adapted to artillery. The total surface of the building was considerably enlarged up to 12,000 square meters, notably by the addition of a new enclosure (curtain) wall, completely surrounding the previous one (at a distance varying from 3 to 6 m) and by the addition of a wide, roughly triangular courtyard at the East (**Figures 12, 13 and 15 b**). These structures, 4 to 5 meters lower than the original fort, form a ring counterbutting it, and transforming it into a authentic security enclosure. The newly created circulation boulevards around the first fort (South, West and North sides) allowed the use of heavy artillery, and the low courtyard acted as a shield protecting the East front of the new citadel. A gate placed at the south end of the courtyard constituted the new and unique access to the building, opening onto the moat which was also considerably enlarged at this period.

During this phase, the earlier fort, transformed into a security enclosure, underwent some modifications : the walls, too weak and certainly ruined after the neglect into which the fort had fallen before the 1529 restoration, were doubled outwards by a second masonry, up to 3,30 m thick in the South front. This second masonry is the one which can be observed today when walking along the circulation boulevards of this newly enlarged fort : it includes most importantly several distinctive square dressed stones, plundered from the ruins of the Coastal fortress at this time.

It is during this second stage of construction/occupation of the Main Fortress that most of the inner structures, presently visible inside the enclosure, were edified. In the low courtyard, an imposing defensive bastion is situated immediately behind the access gate, protecting it efficiently ; in the security enclosure (the original fort) several massive buildings are preserved today at various heights (from 1 to 4 m, approx.), as well as a wide quadrangular complex of stables, measuring 22,50 m from East to West, and 10,50 from North to South. This latter architectural device is still

well preserved today at a height of ca. 1.5 to 2 m ; it had been pillared and at the time was equipped with rows of mangers and a stairway probably giving access to a terraced roof. Finally, the cistern, as well as the keep of the previous fort were still present in this second stage, the keep having probably been heavily restored and enlarged : like the rebuilt walls of the first fort, it clearly shows the reutilisation of the typical square ashlar plundered at this period in the ruins of the Coastal fortress.

— *Constructions associated with the last stage of the Fortress : The Portuguese bastions and other defensive structures.*

This last restoration is the best known historically (date and context of the works, name of the architect, cf. above) and the most easily recognizable in the Main Fortress (« Bahrain Fort »). With the difference of the previous works of 1529, this restoration does not appear as a deep restructuration of the fortified perimeter. Inofre de Carvalho mainly added new elements to the most exposed fronts : a slight enlargement and elevation of the boulevards as well as reinforcement of their outer walls ; the construction of the four massive corner-bastions and of the « spur tower » in the middle of the South curtain wall ; finally the reconstruction and enlargement of the keep (**Figure 15 c**). In addition, the moat reached at this time its present aspect and proportions, and its natural counterscarp was reinforced by a continuous plastered wall, still visible today along its whole length.

The corner-bastions (Figures 15 a, b, c and 16)

The East, Southwest and Northwest bastions are of a fine architectural quality. They made possible a coherent defense of the whole site by their two levels of defensive power or fire power. On the one hand, *cross-fire* from the inner casemates allowed the elimination of any blind spot inside the moat ; on the other hand, the upper guns placed on the terraces of these bastions, efficiently covered by *grazing fire*, the entire surface of the Qal'at al-Bahrain tell. This last technique and its military advantage are notably evident when one looks at the upper platform of the Southwest bastion (the most important in size and volume, as well as the lowest in the moat), the altitude of which is just some meters higher than the site area facing it. These three corner-bastions possess a system of two inner casemates, with gun ports strictly oriented according to the axis of the moat section they are protecting. These lowly placed casemates are accessible by rather steep stairways and generally covered with cupolas on squinches or on pendentives, provided with a vent at the keystone to evacuate the firing smoke. In the particular case of the Southwest bastion, its western casemate displays, instead of a cupola, a semi-circular vault borne by two ceiling-beam arches. All these bastions, at last, are equipped with « ears », a jutting-out masonry protecting the gun ports from the famous « embrasure shot » (an oblique shot in which the attacker's projectile can ricochet off the cheek of the gun port and thus enter the casemate).

According to the specialists who studied them, these three massive buildings, although designed and edified by a great Portuguese architect, also reflect the traditional Italian (and more particularly Genoese) influence of that time. They actually represent a remarkable adaptation of the theoretical principles outlined in the Italian treatises of the mid-16th century as applied to the complex fortress which crowned the Qal'at al-Bahrain site at this period.

A fourth bastion, placed in the prolongation of Southeast salient of the eastern courtyard is of lesser architectural quality. Its shape is roughly elliptic (cf. **Figures 12, 13, 14**) and this construction rather appears as a massive gun platform, without any inner casemates. It is slightly higher than the courtyard ground level, to which it was connected by a ramp. Such irregular construction appears obviously very different from the other finely designed quadrangular bastions, and one generally considers that it was not the production of Inofre de Carvalho. Such a device could have been hastily realized before the first Turkish siege of 1559, as an urgent addition to better defend the eastern courtyard of the fortress.

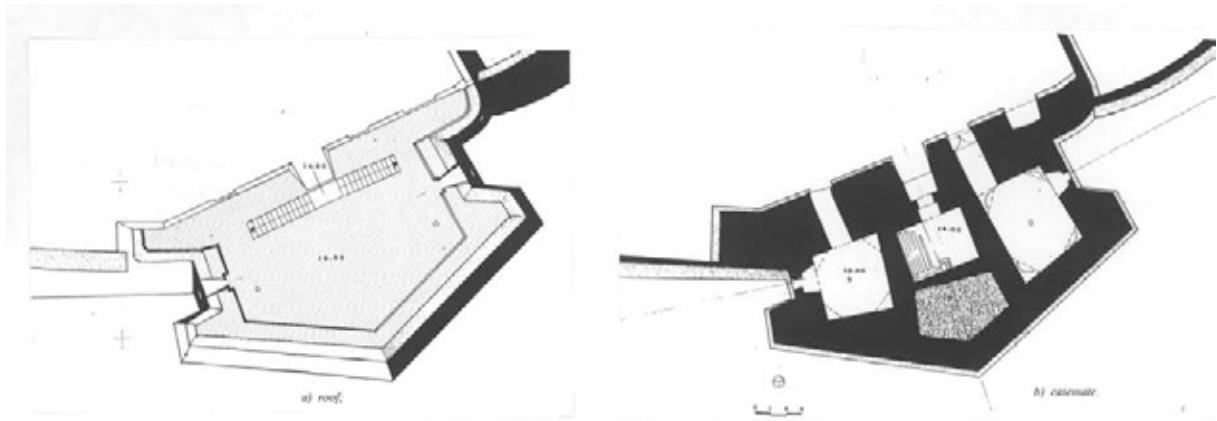


Figure 17a – Plan of South Bastion

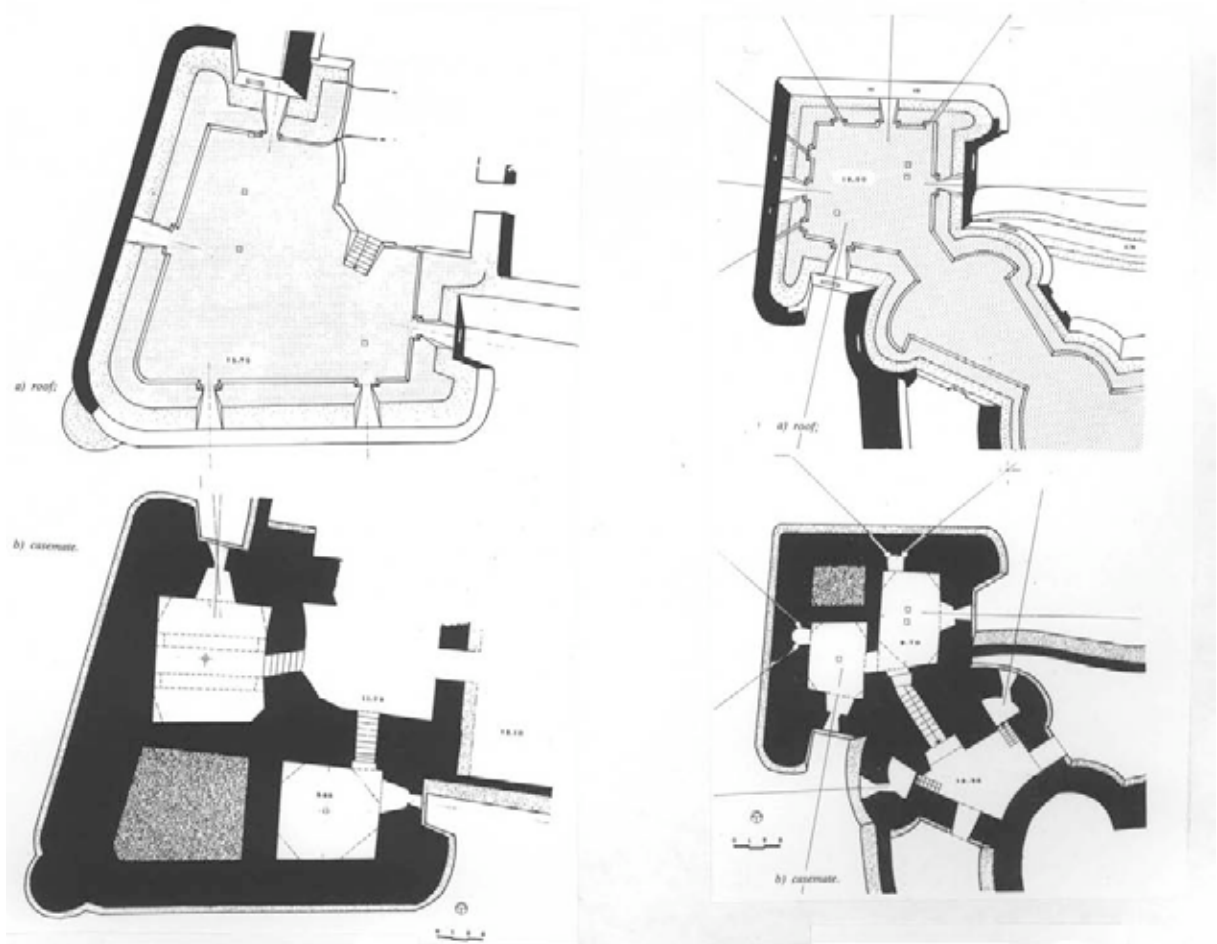


Figure 17a – Plan of Southwest Bastion

Figure 17a – Plan of Northwest Bastion

**Figure 17 – Phase III of the Main fortress (« Bahrain Fort »):
The defensive bastions built in the Genoese style
by the Portuguese Architect Inofre de Carvalho**



A – Aerial view of northwestern Portuguese bastion



B – The southeastern bastion, towards East

Figure 18 – Portuguese bastions of Stage III of the Main Fortress

The spur tower (Figure 19)

At the center of the South front of the Main Fortress is a very original and massive tower, the upper terrace of which constitutes the highest level of the entire fortified building, at nearly 24m. It curiously occupies the entire width of the southern boulevard and thus possesses a corridor at its base to allow circulation between the South and Southwest bastions. Such a construction, whose jutting spur looks like the beak of a parrot, mainly aims at the protection of the fortress keep, acting as a shield for it). Its elevated upper platform was also an excellent look-out post, with an excellent overview toward the interior of the island.

The keep (Figure 20)

The ancient keep of the fortress, already enlarged during the previous restoration conducted by Badr ed-Din from 1529, was apparently transformed again during this third architectural phase. Up to now, this structure remains the lesser known of the fortress as no real archaeological excavation nor modern restoration work was undertaken there (cf. below, *Preservation*). It has an almost perfect irregular quadrilateral shape and is approx. 20 x 20,50 m. It is presently preserved at a level corresponding to the middle of the second floor, at a total height of ca. 11.50 m. In this second half of the 16th century, the keep was therefore a little bit higher. Nevertheless its maximal height in all probably did not exceed the surrounding defensive constructions (Southwest Bastion, Spur Tower) which dominated, and thus protected it.

The moat and its counterscarp (Figure 21)

The present aspect of the dry moat surrounding the Main Fortress (« Bahrain Fort ») is the result of the work which accompanied the Portuguese rebuilding of the citadel which took place starting in 1561. The width of the moat was enlarged eventually reaching more than 10 m in its southeastern portion, between the South and East bastions. It is also apparently during this phase that the counterscarp (the side of the moat facing the fortress) was faced with a wall of varied thicknesses, materials and quality according to its location, very often bonded with the archaeological structures cut during the digging of this ditch.

Preservation

The dramatic state of deterioration of the fortress during the last years of the 1980s (cf. **Figure 5a**) as well as the need for a complete restoration have already been mentioned at length in paragraph 2.C. (*Authenticity/Integrity - cf. pages 14, 16*).

As of January 2004, the totality of the surrounding dry moat has been cleared out down to its original base level which, in most locations, coincides with the bed-rock level ; the counterscarp wall was restored and reconstructed in the few sections where it has almost completely disappeared (due to the permanent local stone plundering after the abandonment of the fortress in the 17th century).

In addition, the enclosure of the first fort with its flanking towers, the enlarged curtain walls of the second stage, as well as the bastions and the Spur Tower of the third stage, have all been restored or reconstructed in their totality. The inner structures (stables, the fortified bastion behind the gate, the group of dwellings alongside the inner southeast and northern curtain walls, the *madbasa* (date press) devices laterly built in the central courtyard, etc.), were partly restored but not reconstructed and are thus preserved at the height of the time of their discovery.

One must recall that such restoration work has carefully respected the integrity of the ground plan and structures surveyed or exposed by the archaeologists. Similarly the restoration materials (stones, mortars and plaster coatings) were carefully chosen (cf. § 2.c.).



Figure 19 – The « Spur Tower » on the south side of the Main Fortress (« Bahrain Fort »)



Figure 20 – Remains of the still unexcavated keep of the Main Fortress (« Bahrain Fort »)



Figure 21 – Western section of the dry moat of the Main Fortress (« Bahrain Fort »), towards the north.

3.c.5 The Central Excavation Area

Description

With the remains of the ancient enclosure wall of the city (cf. above) and the Coastal Fortress, the Central Excavation Area (sometimes called « Palace of Uperi » area) represents today the only visible part of the archeological levels forming the Qal'at al-Bahrain tell (**Figures 22, 23, 24**). Located at the southeast of the Main Fortress (« Bahrain Fort »), directly touching its moat, the work site, still actively exploited today, extends over approximately 3900 m². The south bastion of the fortress makes up an excellent observation point for this architectural group, which is certainly impressive ; however, once it is completely uncovered it will need at least partial restoration and more importantly it will need proper arranging so as to become comprehensible and educational for the visitors to the site.

The excavation conducted by the Danes between 1954 and 1966, as well as the current digs carried out by the Franco-Bahraini archeological mission don't yet permit, for the time being, the finishing touches needed to enhance public viewing. Meanwhile, this last stage of work has been programmed to begin in the next few years and this particularly representative grouping of the tell's stratigraphy will make up, with the successive fortresses of the site, a major viewing point for the visitors at Qal'at al-Bahrain. The architectural structures presently visible are from ca. 2000 B.C. to the 15th/16th centuries.

History and development

The Early Bronze Age buildings (Early Dilmun phase, ca. 2200-1800 BC.)

The same organization which ordered the construction of the first rampart by the end of the 3rd millennium BC. may have been responsible for the lower (and oldest) complex of monumental buildings that were edified here, at the centre of the city. The later restoration and likely slight modification of them (cf. *Middle Dilmun phase, below*) render the original plan still not very clear. In addition, these imposing ruins were even reused in the first millennium BC, which result, in some places in a preservation of the walls up to 4.5 m.

According to the present state of interpretation, several buildings of apparently identical ground plan and construction were erected on both sides of a 12 m wide, north-south oriented street. The ground plan of one building has been established in its entirety : its entrance faced the street, and it had eight rooms arranged on both sides of a central hall. Another one is presently in the process of digging by the French/Bahraini archaeological team. The walls are about 1.1 m thick, generally built of limestone ashlar. All these apparently separated warehouses (?), seem to have been laid out according to an overall plan and could have constituted a single entity, which is presently interpreted as part of a palace, representing probably the centre of the economic organization of the kingdom of Dilmun.

A large part of this major complex disappeared when the surrounding moat of the neighbouring Main Fortress was dug in the 15th and 16th centuries AD.



Figure 22 – General view of the Central Excavation Area, towards the south



Figure 23 – Current aerial view of the Late and Middle Dilmun constructions in the Central Excavation Area

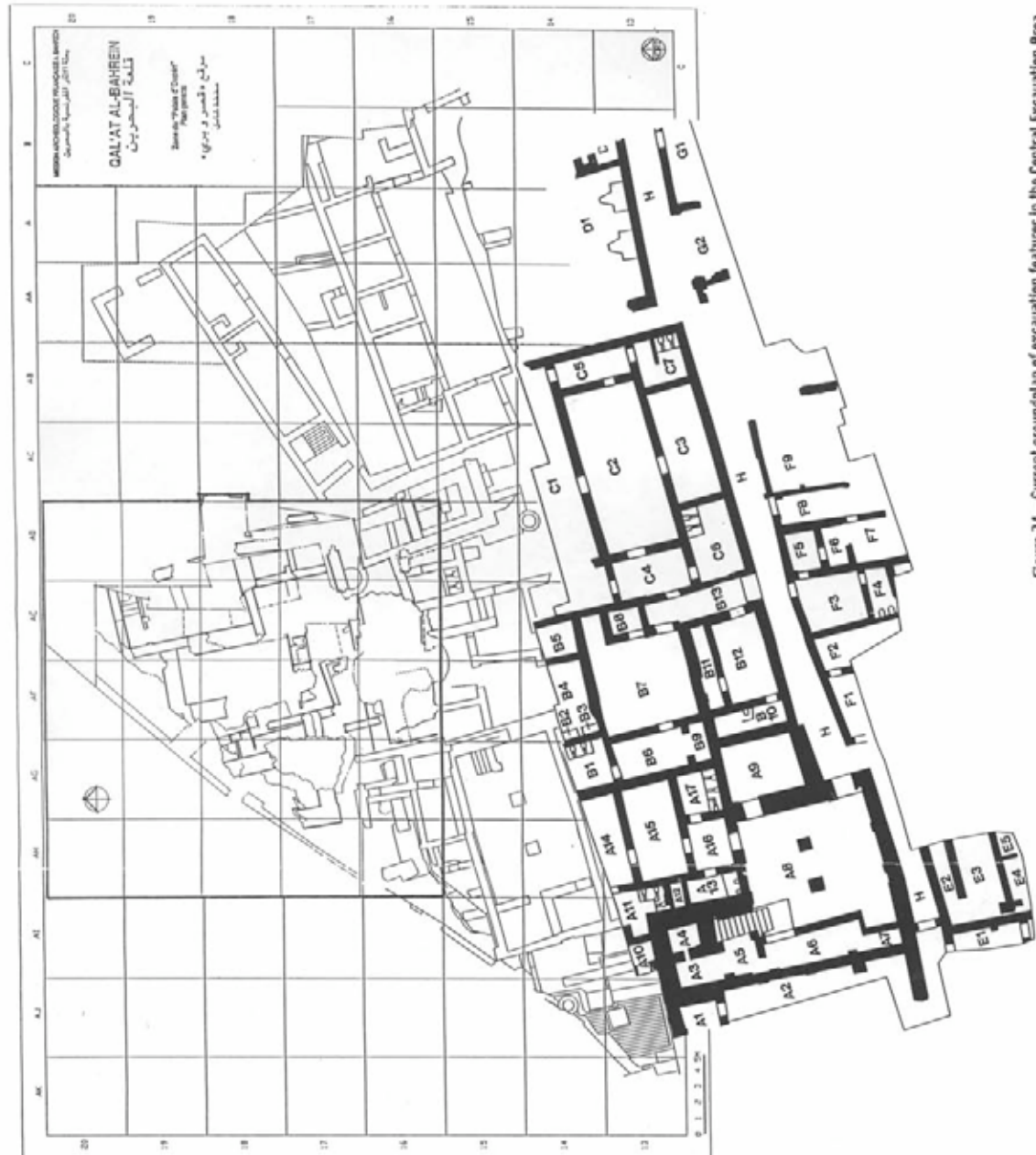


Figure 24— Current groundplan of excavation features in the Central Excavation Area. (In black : Danish excavations, 1954-1965 ; in white, French excavations, 1989-2002)

The Middle Bronze Age buildings (Middle Dilmun phase, ca. 1450-1300 BC.)

Due to the main epigraphic discovery made at this spot, at first in 1995, it is now demonstrated that the Kassite colonisers from Mesopotamia chose the city of Qal'at al-Bahrain to establish their administration and, undoubtedly, their governor's residence. A major building programme began, which consisted of the restoration of the Early Dilmun Palace mentioned above. The choice of this precise location and edifice by the Kassites is a likely confirmation of the interpretation of this ancient Early Dilmun construction as a palatial structure. The old complex was repaired and probably enlarged. The main gate of this new architectural device was located and still possess its large threshold measuring 3.60 x 1.30 (one of the largest ancient monolithic stone slabs on the island, made from conchiferous limestone).

As previously mentioned, the discovery between 1995 and 2002 of about 100 cuneiform tablets in several rooms of this building confirmed that this new « palace » (this designation —« E-GAL » in Sumerian language— being clearly quoted on several documents) was used for administrative purposes. It housed, in particular, a series of *madbasa*, a sort of date-press designed to accelerate the maturation of the fruit and recover its juice (**Figure 25**). So this typical local equipment, still used in Bahrain not long ago, made its earliest appearance in the Kassite Palace at Qal'at al-Bahrain.

At last, evidence has been found in this monumental building of a violent fire that destroyed it, at the beginning of the 13th century BC, according to a radiocarbon datation. Largely in ruins, it was visibly re-occupied by « squatters » for a short time, but was never rebuilt.

The Iron Age buildings (Late Dilmun phase, ca. 1000-450 BC.)

The levels of this phase (labelled « City IV » in the Danish chronology) illustrates several stages of occupation that cannot always be dated with accuracy.

The oldest (which could correspond to the era of the famous king Uperi of Dilmun, mentioned in 709 BC on the bas-reliefs from the palace of the Neo-Assyrian king Sargon II, in Khorsabad, Iraq), shows here an impressive monumental architecture, possibly a restoration of a partly preserved section of the previous « palaces » (**Figures 26-27**). This new architectural structure, notably composed of two large pillared halls (**Figures 28-29**) could be interpreted as a place of worship, due to several particular discoveries found there: particular ceramic stand identical to specimens found in numerous temples in the Ancient Near East, numerous male votive figurines as well as snake sacrifices.

Under the later influence of the Achaemenids from Persia, a new and wide residence was built on the top of the ruins of the previous Kassite Palace (which were used as foundations for this new building). Nothing indicates up to now that it was used as an administrative place, or for the residence of a leading elite. Its eastern ground plan is, however, characteristic of the luxurious residences found in numerous regions of the Near East at this period. In the same way as examples from Ur or Babylon in Mesopotamia, it is divided into public and private areas, organized around a central courtyard, and disposed of a very elaborate sanitation system.

During this same phase, several graves, notably containing earthenware sarcophagi, have been discovered under the floors of dwellings: such a practice is totally alien to Bahraini burial traditions in the Late Dilmun period. This was, however, common practice in Mesopotamia around the middle of the 1st millennium BC, and could give therefore another indication that a Babylonian colony was probably living in Qal'at al-Bahrain at this period.



**Figure 25 – Central Excavation Area.
Madbasa belonging to the Middle Dilmun (Kassite) palace**



Figure 26– Central Excavation Area. Monumental walls of the Late Dilmun residence, towards the west



Figure 27 – Central Excavation Area. Monumental walls of the Late Dilmun residence, towards the north



Figure 28 – Central Excavation Area. Southern pillared hall of the Late Dilmun residence, towards the south



Figure 29 – Central Excavation Area. Northern pillared hall of the Late Dilmun residence, towards the south

The Tylos phase building (ca. 250 BC. –250 AD.)

The archaeological levels dated to the so-called "Tylos" (sometimes qualified as « Hellenistic » or « Seleucid-Parthian ») period have no direct relation with the previous structures from the Early to Late Dilmun phases. Nevertheless, these levels cover and seal these older architectural remains at an altitude comprised between 8.5 and 11 m.

The poorly preserved walls and disturbed floors associated with this phase at this spot of Qal'at al-Bahrain probably testify of a heavy destruction and likely plundering of the Tylos city which extended there between the third century BC. to, apparently, the 2nd century AD., as indicated by two silver coins found in the area. (cf. 3.c.2, above, about the discovery of a hoard of silver coins from the Tylos period in the City Wall area).

The Middle Islamic phase (13th to 16th centuries AD.)

The last remains visible at this spot of the site are associated with the agglomeration that developed all over Qal'at al-Bahrain after the occupation of the site by the Salgharids of Persia and their restoration of the Coastal fortress. These constructions, generally situated immediately below the surface of the site, represent the latest occupation in the history of Qal'at al-Bahrain. At the current excavation spot, the French/Bahraini team notably found distinctive layers of buildings (**Figure 30**).

The earliest one is apparently set in a dense urbanization. The presently visible construction, excavated in 1989-1993 appears to be the northern prolongation of the group of buildings excavated by the Danish team in 1962. It can be interpreted as a little souq or caravanserail, where most of the rooms opening onto a circulation space contained very distinct activities (copper working, pottery vessels storage and likely sale, fish-scaling, etc.). Local pottery found in this building, as well as imported categories so far identified (Julfar pottery, Iranian frit, crockery from northwest India, Chinese celadon from Longquan and other Indochinese productions) have allowed to establish a quite refined dating from the 13th to the beginning of the 15th centuries.

The second, upper layer is represented by a long narrow domestic construction, surrounded by mainly uncovered spaces, which have produced numerous hearths. Very little preserved in elevation (0.20 to 0.40 m), the walls of this house reveal an architecture of mediocre quality; the materials employed are very heterogeneous (limestone or sandstone, rounded pebbles, slabs of *farush*, fragments of render or re-used mortar, blocks of coral, little worked blocks coming from the ruins of the Coastal Fortress). This very modest construction is evidence of the very last "concrete" occupation of this zone of the tell.

Preservation

Constructed from generally solid materials (local limestone and highly resistant gypseous mortars or plasters) and assembled with dexterity of an evident quality, the totality of the structures anterior to the Tylos and Islamic phases shows an overall remarkable preservation. The structures of the Late Dilmun phase (themselves rebuilt from older structures) of the southern portion of the work site are often conserved at a height of 4,50 m, which is considered to be very exceptional in the Middle-East region (cf. **Figures 26-27**). Certain remains have been uncovered for over 50 years, and none have needed restoration, having undergone no major deterioration. One will note that meanwhile it has been considered necessary in the near future to apply a protective treatment to the summit of certain walls and pillars in order to avoid too much absorption of the winter rains or more generally the ambient humidity.

(



Figure 30 – Central Excavation Area. Middle Islamic buildings from the 14th to 16th cent. AD

The rare constructions from the Tylos period are less well preserved, even if the original quality of their edification was undoubtedly of a high level. This is mainly due to the important destruction and certain plundering of the city of Qal'at al-Bahrain after the probable raid by Ardashir in 250 A.D.

The constructions corresponding to the various stages of the Islamic period agglomeration are certainly the least well preserved. Beyond the simple fact that they were generally built with materials of lesser quality (small stones and previously used fragments of mortar, coral, etc...) we know that they suffered considerable damage from military improvements linked to the second and third stages of the Main Fortress in the 15th and 16th centuries. The development of new artillery techniques during this period actually forced the military to completely destroy part of these constructions in order to clear out large virgin zones and create glacis from the surface of the archeological tell. The site was also the scene, at the time, of several sieges or combat actions.

Besides, one can generally consider that all the builders, at each period of important architectural activity on the site, abundantly « dug into » the former layers in order to extract the construction materials of the best quality, most importantly the ashlar which characterize the oldest phases. It is thus that the area of the palatial zone from the Early and Middle Dilmun excavated at the south by the Danish expedition has remained intact ; the area, farther north, excavated by the Franco-Bahraini mission has been greatly damaged by this plundering : several sections of walls were entirely dismantled and large areas of floors, broken up by the pits from this plundering, have totally disappeared.

Finally, one must not lose sight of the fact that this zone of the Qal'at al-Bahrain site is still under excavation and will be for numerous years to come. That which has been described here represents the state of the architectural structures uncovered and visible at the date of the presentation of the Nomination File. This situation will naturally evolve in the very near future with the expansion of the archeological work (the removing of certain structures or the clearing out of new buildings).

3.c.6 The other components of Qal'at al-Bahrain site

The access channel to the site and the Sea Tower

The intertidal space extending North of Qal'at al-Bahrain, an old coral plate nearly 1,5 km long, is cut out of the North-West of the site by a large notch that lengthens into a natural channel running NorthWest/Southeast, today erased by centuries of silting, partially due to its abandonment and, more recently to the effect of neighbouring land reclamation work.

This channel was revealed at first by aerial photographs and by air survey of the zone. Its opening to high sea is still very clear (**Figure 31**). The North section of its oblique outline (covered by sea at high tide) was still well marked in 1980. Its complete outline is also partly visible from the coast, since fishermen set their traps (*hadra*) right out to the edge of the channel on the solid section of the coral plate.

On the western edge of the rather large entrance of this sea corridor (a deep indentation creating a basin of some 50 m wide), are the remains, visible and accessible at low tide, of the lower portion of a rectangular building constructed of two courses of large ashlar stones set directly on the uneven surface of the coral (**Figure 32**). This construction is 9.10 m from east to west and 10.70 m from North to

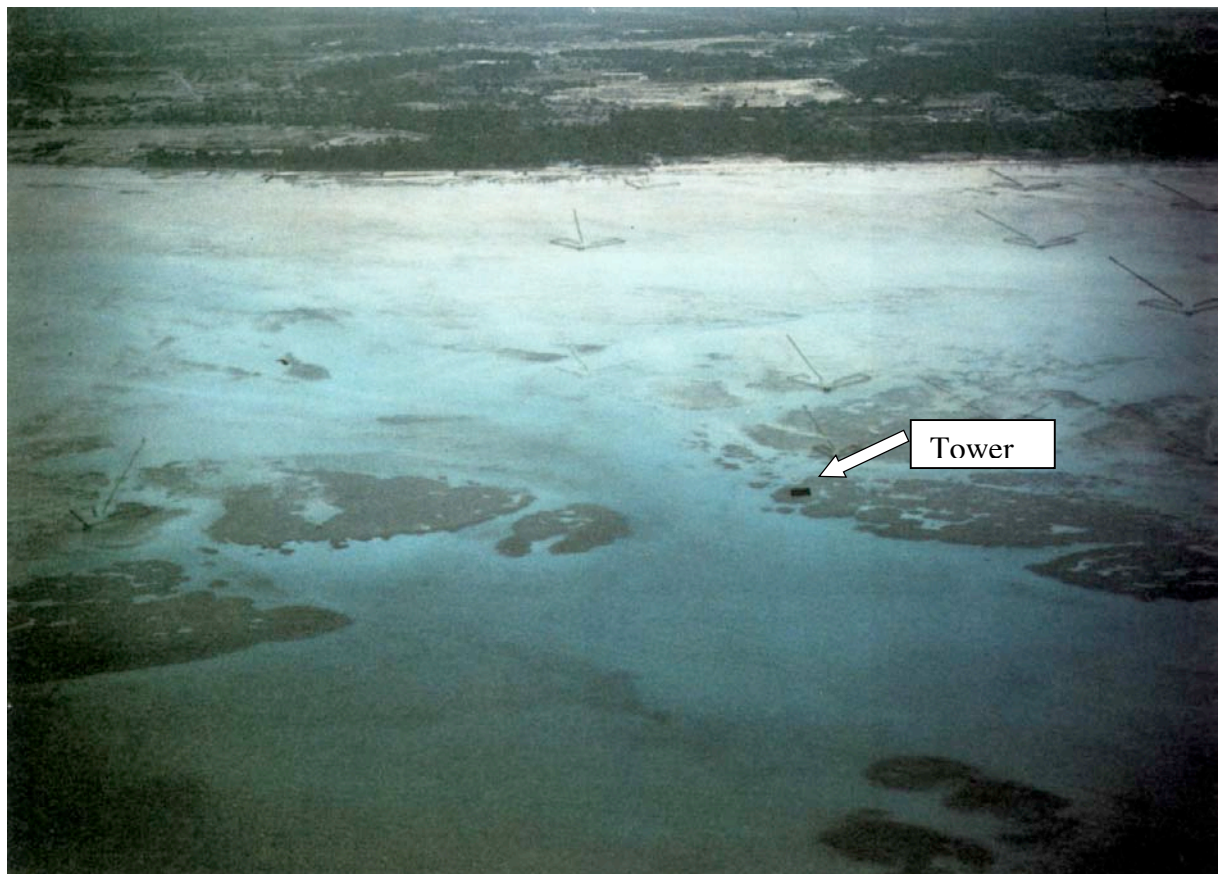


Figure 31 – Entrance of the channel leading to Qal'at al-Bahrain site, with position of tower



Figure 32 – Base of the tower (ancient lighthouse ?) at the entrance of the access channel to the site

South, and is preserved for about 2 m. Its inner fill is made of various kinds of stones embedded in a mortar to which highly concreted potsherds are attached. Marine concreting has thoroughly bonded the coral base and the lower part of the building, as well as its individual blocks to one another.

Such a construction is interpreted as the base of a tower, possibly used in the past as a lighthouse (or even a simpler landmark) for indicating the entrance of the access channel. It could have also used as a guard tower, aiming at the surveillance of immediate maritime traffic and control of the access to the channel.

It is probable that this construction was previously higher. It is difficult to date accurately, but some of potsherds trapped in the mortar could date back at least to the Tylos/Hellenistic phase of the site, which could establish a connection with the building of the Coastal Fortress. It could also date back to much more ancient periods, as the size and way of cutting of the construction stone blocks is close to those observed on the Early and Middle Dilmun buildings of the site.

Due to the gradual silting-up process since at least the beginning of the 16th century A.D., the exact shape of this channel is not easy to fix with accuracy. It is nevertheless clear that its southern limit has constituted the main harbour of Qal'at al-Bahrain, a moorage which guaranteed the continuing success of the site since its earliest history. The channel itself is first mentioned during the Hellenistic period, by Pliny the Eldest, who described it as the « unique » and « narrow » access to the « oppidum of Tylos »¹, this last name evidently pointing to the Qal'at al-Bahrain site. The recurrent mention of a « Portuguese harbour », which appears on some Bahrain maps from the 19th century could indicate, at first sight, that such a facility was used until a relatively recent time. In reality, as previously mentioned (cf. 3.c.4., *Historical development*), this channel and its associated « harbour » had become totally useless at least from the very end of the 16th century, as mentioned in Portuguese sources.

The surrounding palmgrove

As distinctive as its coastal façade and its opening towards the high sea, the neighboring palmgrove is an indissociable element of the Qal'at al-Bahrain site, whether it be concerning the actual landscape or its ancient economy. With the same importance as the maritime component, the palmgrove, directly linked to the archeological tell, contributes to its specific cultural identity and is definitely an important element of its cultural landscape (**Figures 33 to 38**). This is the principal reason that a portion of this individualized agricultural zone, currently in the hands of private owners, has been placed in a *buffer zone* delimited around the site. It cannot be excluded that in the future this *buffer zone* could be expanded towards the west in order to guarantee with even better results not only the integrity of the immediate area bordering the site but also the protection of its particularly strong economic link.

The archeological studies, and more particularly the archeo-botanic analyses, easily show that this palmgrove has more likely than not evolved very little since the Antiquity, especially in its agricultural characteristics (the surface area of the northern palmgrove of Bahrain has, however, been reduced from 746 ha in 1977 to less than 350 ha today).

The presence of wood from the date-palm tree (*Phoenix dactylifera*) or the pits from the dates themselves in practically all the samples collected in the archeological work sites at Qal'at al-Bahrain, regardless of the period in consideration, testifies to the importance of this species in the local economy. In the past, as well as today, the date-palm tree makes up the principal element of the palmgrove or the neighboring

¹ Pliny, Natural History, VI, 148.



Figure 33– The palmgrove at the west of Qal'at al-Bahrain site



Figure 34– The palmgrove at the northwest of Qal'at al-Bahrain site



Figure 35– *Bustan* (gardens) at the west of Qal'at al-Bahrain site

bustan, traditional agro-systems which allow the cultivation of an important number of plants in a relatively confined space while at the same time saving water. The archeological site has rendered as well numerous other fruit, vegetable, cereal or fodder species cultivated in the Antiquity (notably, pomegranate (*Punica granatum*), jujube (*Ziziphus spina-christi*), grape (*Vitis vinifera*), coriander (*Coriandrum sativum*), barley (*Hordeum vulgare*), wheat (*Triticum durum/aestivum*), sesame (*Sesamum indicum*), lucern (*Medicago cf. sativa*), etc.). These species, which made up the basis of the local economy, show how well the ancient palmgrove was organized, just as it still is today, according to a multi-level system where the date-palm trees, thanks to their foliage, gave enough shade to the other cultures. Similarly, the cultivation of lower plants took place in smaller plots, separated one from another in order to better regulate the irrigation. The same techniques are still employed today.

This shows, on the one hand the authentic character of the current palmgrove and on the other hand its evident complementary link to the site of Qal'at al-Bahrain, which these studies are trying to underline.

From the strictly archaeological point of view, finally, one cannot exclude that a late Tylos necropole (ca. 2nd / 3rd century AD.), connected with the settlement of this phase at Qal'at al-Bahrain, could have been located in the neighbouring palmgrove at the northwest of the *tell*. An exceptional series of fifteen figured steles discovered there in June 1991 seem to corroborate this hypothesis. In the light of other discoveries on the island of Bahrain, they appear to be funerary steles, obviously of the same Parthian iconographical tradition known from Syria to Iran between the end of the 1st and the end of the 3rd century.



Figure 36 – *Bustan* (Gardens) at the west of Qal'at al-Bahrain site.



Figure 37 – *Bustan* (Gardens) and palmgrove at the west of Qal'at al-Bahrain site.



**Figure 38– *Bustan* (gardens) at the west of Qal'at al-Bahrain site.
The Main Fortress is seen in the background**

3.d Form and date of most recent records of property

The property of Qal'at al-Bahrain site to the government of the Kingdom of Bahrain (Ministry of Information) is attested in the records of the *Directorate of Real Estate Registration*, under the following references :

- Year : 1993
- N° of Muqademah : 6061/1984
- N° of document : 78263

Cf. annexed Management Plan for copy (and translation) of the official ownership document.

3.e Present state of conservation

The state of preservation of the main features of the site has already been discussed in each specific description (cf. above, 3.c.6).

As far as the whole site of Qal'at al-Bahrain is concerned, one must not lose sight of the fact that the tell is still only slightly excavated, and that about 75% of its surface area is still virgin from the archaeological point of view, as of the present date (cf. Figure 39).

The modern village which was situated in the southwestern corner of the site has been demolished and rebuilt more than twenty five years ago at the bottom of the archaeological tell, to the south of it^{***} ; only the little mosque of the former village is still standing on its original location, and constitutes the only modern building present on the site itself.

With the exception of a narrow strip of private land bordering the site to the north of the Main Fortress (« Bahrain Fort »), which was transformed into a garden some years ago, we can consider that the whole original tell of Qal'at al-Bahrain is more or less intact, and that its historical remains are preserved in the best state possible for the future generations.

3.f Policies and programmes related to the presentation and promotion of the property

There is no specific policies or programmes implemented at the moment, as far as all the actions conducted up to now by the Directorate of Archaeology and National Heritage focussed on the restoration/conservation of the Main Fortress (« Bahrain Fort »), as well as on the archaeological excavations in the Central Area (in collaboration with the French Archaeological Mission to Bahrain).

^{***} In order to totally preserve the integrity of the immediate surrounding landscape of Qal'at al-Bahrain site, the demolition and shifting of this « new » village is in turn planned for 2006/2007 by the authorities of the Northern Governorate of Bahrain.



Figure 39– Qal'at al-Bahrain archaeological tell, towards the northwest

However, the Management Plan annexed to the present Nomination File constitutes a first step regarding the presentation and promotion of Qal'at al-Bahrain site.

Such Management Plan notably includes :

- . Continuous conservation/consolidation works and future excavations ;
- . Project of a Visitor Center / Site Museum ;
- . Project of an Heritage Path inside and outside the site ;
- . Publication of brochures and other promotional materials ;
- . Promotion of traditional crafts and agricultural industries specifically produced in the surrounding buffer zone of Qal'at al-Bahrain site ;
- . Organization of specific events at the site (Main Fortress, notably) ;

Cf. § 4.i of the present document, and section 3.b.viii of the annexed Management Plan.

4. Management

This section will summary the main dispositions exposed in the annexed *Management Plan* in which complete and detailed information is available.

4.a Ownership

The site of Qal'at al-Bahrain together with its immediate surroundings demonstrates three major categories of land ownership :

(1) the land own by the Government of the Kingdom of Bahrain through its agency with the management authority (in this case, the Directorate of Culture & National Heritage at the Ministry of Information) : it represents ca. 70% of the area proposed for inscription (excluding any future buffer zone).

(2) the land that is privately owned : this represents the remaining part of the archaeological site *stricto sensu*, and the majority of the palmgroves around the site (included in the proposed buffer zone).

(3) the land adjacent to the site (mainly at the east of it) in process of acquisition by the Ministry of Information to add to its ownership ; this future land includes the sector where the Visitor Center (Site Museum) is planned for 2004.

4.b Legal status

The Qal'at al-Bahrain archaeological site is presently placed under the protection of Law n° 11 of Year 1995 (« Law for the Protection of Archaeological Sites »).

According to the Article 1 of this law, the supervision, protection, and management of the site is the responsibility of the Ministry of Information. The Ministry of Information and its Directorate of Culture & Heritage is thus the agency responsible not only for general management and protection of the site, but also for archaeological excavations (including the delivery of excavation licences to foreign scientific expeditions) as well as gestion and protection of archaeological findings either on the site itself or in designated museums.

Cf. also section 3.b.ii of the annexed Management Plan.

4.c Protective measures and means of implementing them

The above mentioned law includes protective measures or designation processes for the Qal'at al-Bahrain site, as well as for any other potential archaeological site. Article 5 of the law notably specifies that ownership of land does not give the right to its legal proprietor to own the archaeological remains on the land or underneath it.

The Management Plan prepared at the end of 2003, will now provide the Qal'at al-Bahrain site with an adequate long-term legislative, regulatory and institutional effective management to ensure its continuity into the future.

Cf. sections 3.b.iv, v, vi, vii and viii of the annexed Management Plan.

4.d Agency with management authority

Ministry of Information of the Kingdom of Bahrain (*cf. 4.b, above*).

4.e Level at which management is exercised and name and adress of responsible person(s) for contact purposes

– *Ministry of Information :*

Assistant-Undersecretary for Culture and National Heritage :

Shaikha Mai bint Mohammed bin Ibrahim Al-KHALIFA,
Ministry of Information
P.O. BOX 2199
Manama
Kingdom of Bahrain
[Tel : (973) 290 210 ; Fax : (973) 292678]

– *Directorate of Archaeological Heritage :*

Director of Archaeological Heritage :

Mr. Abdul Wahab AL-KHAJAH
Bahrain National Museum
P.O. BOX 2199
Manama
Kingdom of Bahrain
[Tel : (973) 293300 ; Fax : (973) 292820]

4.f Agreed plans related to property (regional, local plan, conservation plan , tourism development plan)

Only the Qal'at al-Bahrain Management Plan (with its main Statements of Objectives) (*cf. 4.j and document in annex*) exists as of date. Since 2003, the Physical Planning Directorate (Ministry of Housing, Municipalities & Environment) is working on a Development Plan concerning the Northern Area of Bahrain, to the north of Budaiyah Road. (*cf. Map 4o of the annexed Management Plan*).

Moreover, the project for the construction of a new « North City » is notably proposed on reclaimed land areas planned offshore of the northern coastal line of the island. Nevertheless, coordination had already been established between the Ministry of Information and the Ministry of Housing in order to avoid any visual damage to Qal'at al-Bahrain site ; in particular, it was agreed that the eastern borders of the planned city would be at least 5 km west of the archaeological site (*Cf. Map 4m of the annexed Management Plan*).

During the few weeks preceding the delivery of the present Nomination File to the World Heritage Center at UNESCO, a new project of construction of an artificial island, offshore of the northern coast line of Qal'at al-Bahrain, has been brought to the attention of the Directorate of Culture. Such project is definitely planned beyond the limit of the proposed buffer zone but its general extension is worrying as such an island could constitute a new threat for the cultural landscape of the site. (*cf. Map 4r of the annexed Management Plan*). The Bahrain authorities are presently looking for the best solutions in order to reduce at the maximum any potential visual or environmental damage to the whole area submitted for nomination to UNESCO.

Cf. section 3.b.iv of the annexed Management Plan.

4.g Sources and level of finances

Up to the present date, the Ministry of Information only provided budgets for conservation and consolidation works, mainly at the destination of the Main Fortress (« Bahrain Fort »). One must also add the regular co-funding of the archaeological excavations carried out at the site, together with the French Archaeological Mission to Bahrain to which an excavation licence is regularly –and exclusively- delivered by the Ministry since 1978.

Once the Qal'at al-Bahrain Management Plan implemented, funding will be available to the site on an annual basis, still budgeted by the Ministry of Information.

Cf. section 3.b.v. of the annexed Management Plan.

4.h Sources of expertise and training in conservation and management techniques

At the moment, the only local expertises available for the site (and directly in contact with it) are at both technical and professional levels. They essentially include :

- several archaeologists belonging to the Directorate of Archaeological Heritage of Bahrain or to the French Archaeological Mission to Bahrain led by Dr. Pierre Lombard) ;

- a site superintendant (Directorate of Culture & Heritage) ;

- two architects/conservationists (Directorate of Culture & Heritage)

One must add the group of workers engaged in the restoration work, mostly at the Main Fortress (« Bahrain fort ») which includes some traditional builders with knowledge about local materials and traditional building techniques, but with little knowledge about different conservation mechanisms and levels of interventions or issues of authenticity.

The establishment of a more diversified and experimented staff is one of the main objectives of the Management Plan for the site.

Cf. section 3.b.vi of the annexed Management Plan.

4.i Visitor facilities and statistics

The site presently lacks proper access roads, as well as other needed infrastructures : signboards for interpretation and description, a visitor's center (Site Museum), a cafeteria, public toilets, etc... as well as more general information delivered in written form.

The official celebration of the 50th Anniversary of the discovery of Qal'at al-Bahrain site and of the Dilmun civilization, planned at the end of November 2004 will provide a first opportunity to remedy such a situation. All site management efforts together with planned visitor facilities should aim to convey to the public the complex and diverse level of significance of the site concentrating not only on its cultural values but on interconnections with the sites's natural realities as well.

Notably, detailed plans for a site museum («Visitor Center ») have been ready since December 2003, and the building itself is supposed to be edified by the end of 2004 (*cf. annexed Management Plan, § 3.b.vii*). It will be built on an existing reclaimed land area at the north east of the site, at the bottom of the archaeological hill ; such a location will avoid any physical damage to the archaeological layers of the site. With its associated public parking lots, this site museum /visitor center will provide the official entrance to the whole site. The exhibition areas will provide the visitors with full information on the historical development of the Qal'at al-Bahrain site, and will display some of the major archaeological finds from the current excavation areas. It will also include a cafeteria and other facilities for the public.

In addition, a common reflexion is in progress regarding the future use of the Main Fortress, which possesses an evident potential for public gathering and/or cultural events (concerts, theater shows, etc.).

The official table of statistics for Qal'at al-Bahrain visitors (*cf. below for the period 2001-2003*) is largely underestimated and unfortunately reflects the lack of an adequate system of collection of such data up to now. According to other specific sources (e.g. visitor's register book at the entrance of the Main fortress (« Bahrain Fort »), the appropriate average number of visitors ranges in the hundreds weekly, while during some week-ends or special vacation days it can reach up to 500 individuals. The future Management Plan for the site will obviously take into consideration this important question of statistics collection.

*Statistics of Qala'at al-Bahrain Visitors
From January 2001 to August 2003*

Year	Month	No. of Tourists
2001	January	395
2001	February	159
2001	March	98
2001	April	117
2001	May	113
2001	June	97
2001	July	119
2001	August	35
2001	September	112
2001	October	97
2001	November	212
2001	December	195
2002	January	129
2002	February	121
2002	March	112
2002	April	116
2002	May	167
2002	June	193
2002	July	195
2002	August	74
2002	September	119
2002	October	97
2002	November	57
2002	December	57
2003	January	119
2003	February	97
2003	March	397
2003	April	96
2003	May	119
2003	June	115
2003	July	119
2003	August	161
Total		4409

Cf. sections 3.b.vii. of the annexed Management Plan.

4.j Property management plan and statement of objectives (copy annexed)

Cf. annexed Management Plan.

4.k Staffing levels (professional, technical, maintenance)

Cf. annexed Management Plan, section 3.b.ix, and Chart 4p.

5. Factors Affecting the Property

5.a Development Pressures

The area proposed for nomination to the World Heritage, which coincides with the archaeological limits of the historical tell of Qal'at al-Bahrain, is not directly threatened in itself. The site, with the exception of some minor plots, belongs to the Ministry of Information. Its physical integrity is guaranteed by the protection measures edicted by the Law n°11 of Year 1995.

However, the immediate environment of Qal'at al-Bahrain has largely evolved for about the last twenty years. Until this date, the whole site has almost totally preserved its original environment and was still inscribed in a landscape that has remained almost unchanged since Antiquity. (cf. photographs). From 1986 onwards, irregular but constant development of land reclamations alongside of the northern coast of Bahrain has greatly changed this situation. Notably the huge Al-Seef reclamation, which has partly filled the western side of the wide bay separating the site from Manama, the present capital of the Kingdom, has considerably reduced the access of Qal'at al-Bahrain to the sea (cf. maps and **Figure 40**).



Figure 40 – Land reclamation areas at the east of Qal'at al-Bahrain

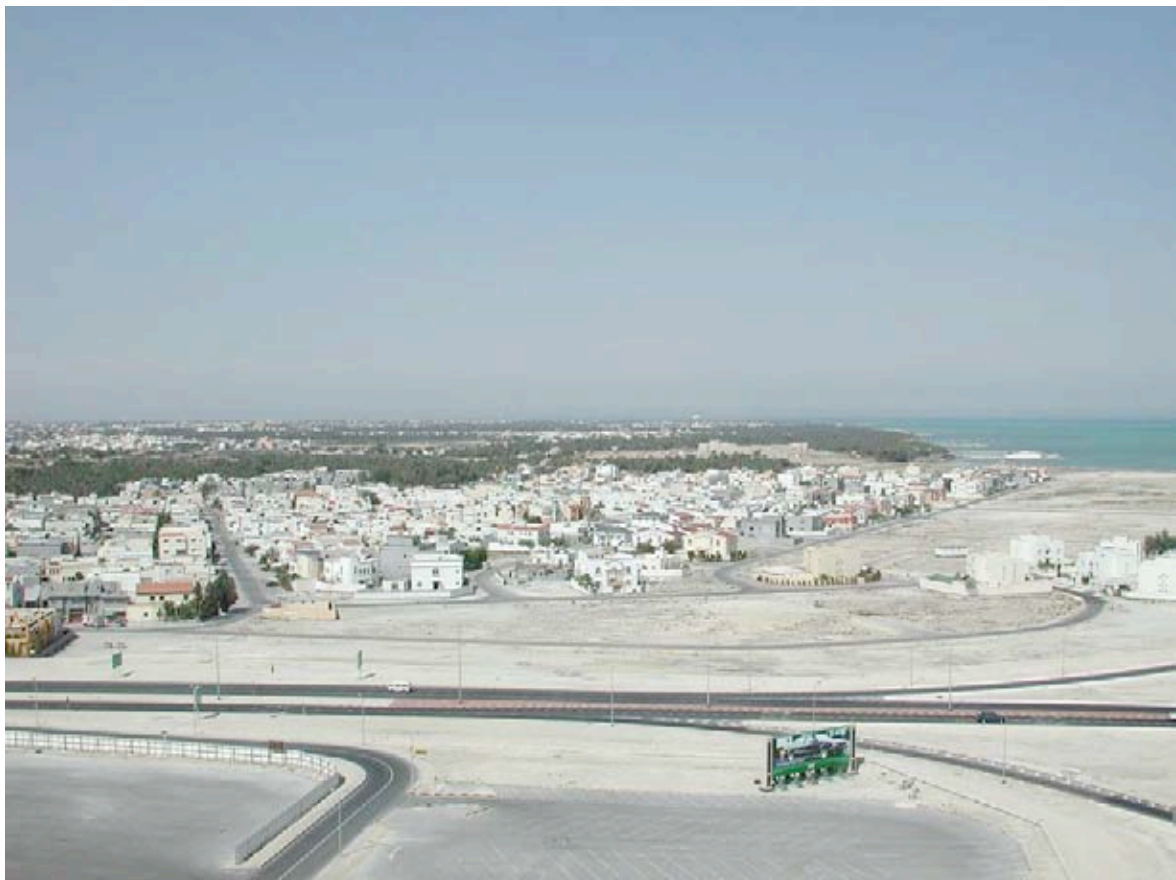


Figure 41 – Growing urbanization around the site of Qal'at al-Bahrain

These land reclaiming activities certainly have indirect consequences on the site itself. Some of these can be considered minor. One takes note thus of a slight filling of the water table level in the deepest layers of the site (generally anterior to the first levels of archeological occupation), as a result of a blocking in the natural opening of the flow of water drainage towards the sea.

The most important consequences concern, on the other hand, the progressive transformation of the « cultural landscape » where the archeological tell is located. Its north-oriental border has thus been progressively and densely urbanized (cf. maps and **Figure 41**) ; this situation is particularly disturbing today and the project of a buffer zone is of the utmost importance, as outlined in the World Heritage nomination procedure of the Qal'at al-Bahrain site.

Moreover, the historical link maintained between the site and its maritime counter-part is less obvious today, since its coastal border has been reduced in 1986 to about 130 m. In 2003, the clearing of debris from the intertidal space facing the site, (work undertaken by the Direction of Archeology) has fortunately allowed the flow at high tide to attain once again the level of the natural beach. The future project proposing to dig out the original access channel to the ancient moorage zone should also permit the rediscovery, at least partially, of several elements of the original maritime landscape of Qal'at al-Bahrain.

5.b Environmental Pressures

As opposed to the deep, neighbouring development pressures mentioned above, the area of Qal'at al-Bahrain is free of any particular pollution. No industrial activity is reported near the site and no specific project is planned for the future. In general, the dominance of agricultural activities around the site keeps it away from industrial emissions.

No industrial or sewage outlets exist in its immediate vicinity. Moreover, traffic density in the relevant area is insignificant at the moment, due to the nature of the present road network leading to the site, which is currently used only by farmers and archaeological site or Fort visitors.

Hence, air quality within Qal'at al-Bahrain is thought to be less contaminated compared to other parts of Bahrain, due to the geographical location which faces the prevailing North-Western Wind, known locally as *Shamal*.

The specific sandy character of the soil of this artificial hill (archaeological tell) gives it a rather bare aspect (especially during summertime) which is obviously not connected with any pollution process.

The tell is presently covered by sparse vegetations, comprised of many plant species which usually dominate the vicinity of palm trees farms in Bahrain, such as : Caper Plant (*Capparis spinosa*), Sea Blite (*Suaeda vermiculata*), Egyptian Sea Blite (*Suaeda aegyptiaca*), Camel Thorn (*Alhagi maurorum*), Common Reed (*Phragmites australis*), Sesuvium (*Sesuvium verrucosum*), Saltwort (*Salsola baryosma*), Heliotrope



A – Isolated tree on the top of the archaeological tell



B – Trees at the contact of the coastal lagoon



C – Wild Heliotrope (*Heliotropium ramosissimum*)



D – Camel Thorn plant (*Alhagi maurorum*)



E – Sesuvium plant (*Sesuvium verrucosum*)



F – Capper plant (fruit) (*Capparis spinosa*)

Figure 42 – Qal'at al-Bahrain site environment. Botanical features.

(*Heliotropium ramosissimum*) and Thorn Bush (*Prosopis farcta*) (**Figure 42**). Thus, the plant cover in the concerned area is diverse, but most of the recorded species are common in Bahrain ; some rare annual species might also grow in the area during winter months.

As for the marine habitat, and exception made of the neighbouring al-Seeef reclamation which is in close contact with the archaeological tell at the North-East, the beach adjacent to Qal'at al-Bahrain is still composed of a shallow lagoon, and extended tidal pools situated in the backshore area (**Figure 43**).

The width of the intertidal zone is about 4 m and its substrate is still composed of natural gravel and seashells. The hard substrate gradually changes into coarse sand within the subtidal area. This type of relatively preserved marine habitats must be underlined : it is presently not so common on the northern shoreline of the Kingdom of Bahrain due to the reclamation operations which have modified most parts of the above-mentioned shoreline.

Consequently, and despite the non-appearance of clear evidence of distinguished primary production of the local shore (with the exception of piles of dead sea grasses drafted from the subtidal area), a large number of seabirds can be regularly observed feeding in the lagoon and tidal pools.

This, in turn, shows the remarkably secondary production of the relevant shore, and one may anticipate that small fish shoals may play a critical role in shaping this local faunal community structure. Many bird species were recorded in the area facing the site, *inter alia* : Western Reef Heron (*Egretta gularis*), White-Cheeked Tern (*Sterna repressa*), Redshank (*Tringa totanus*), Curlew (*Numenius arquata*), Sandplover (*Charadrius* sp.) and Gull (*Larus* sp.) (**Figure 44**). More generally, the large number and diversity of waders recorded within the lagoon adjacent to the site shows the significant importance of that precise shore to seabirds, especially if we take into consideration the rarity of migratory birds in Bahrain during the summer period (such observations carried out in 2003).



A – Qal'at al-Bahrain. Intertidal area of the lagoon facing the site, towards the north east.



B – Qal'at al-Bahrain. Intertidal area of the lagoon facing the site, towards the south west.



C – Gravels and sea shells on the intertidal area of the lagoon



D – Traditional fish trap (*hadra*)

Figure 43 – Qal'at al-Bahrain site marine environment.



A – Redshank (*Tringa totanus*) in the intertidal area



B – Curlew (*Numenius arquata*) feeding in the lagoon



C – Western Reef Heron (*Egretta gularis*)



D – Sandplover (*Charadrius* sp.) roosting in the lagoon



E – White-Cheeked Tern (*Sterna repressa*)



F – Various seabirds feeding in the lagoon

Figure 44 – Qal'at al-Bahrain site marine environment. Resident or migrating seabirds

5.c Natural disasters and eventual risk

None

5.d Visitor / tourism pressures

As of date, the site is free to any significant pressures issued from the tourism activity. The Management plan should control any further developments regarding this specific point.

5.e Number of inhabitants within property, buffer zone

Estimate population located within :

Nominated area : **none**

Buffer zone : **3500 to 4000 (estimation)**

Total : **3500 to 4000 (estimation)**

Year : **2004**

6. Monitoring

6.a Key indicators for measuring the state of conservation

The following are key indicators that have been chosen to measure the state of conservation at the site:

— Measuring the State of conservation through the investigation of state of the major ruins and features of the site through the production of measured drawings (documentation of evolution of the site), photographs, and material testing. Such measures will be notably applied on specific spots chosen in the Coastal Fortress (e.g. general state and aspect of the *opus incertum* pavement in the central courtyard) as

well as in the Central Excavation Area (preserved height of the central pillar in the Late Dilmun Northern Pillared Hall).

— Urban growth and encroachment within the Buffer Zone and beyond: to measure the rate at which encroachment of any kind on the property and on the Buffer Zone ; such controls will be achieved by regular cartographical survey and inspection of aerial photographs.

— Tourist and visitor satisfaction: to conduct periodical surveys eliciting tourists and visitors opinion on the level of services and quality of the experience within the site.

— State of the environment reporting: to conduct thematic surveys concentrating on the number and characterization of different species (fauna and flora) with emphasis on the number of Palm Trees within the palmgroves.

It has been agreed that for the first couple of years, the periodicity of the review of these indicators will be every year (once annually).

6.b Administrative arrangement for monitoring property

Cf. annexed Management Plan, section 3.b.x.

7. Documentation

7.a Photographs, slides and other audiovisual materials

N°	Support	Year	Author / Credit	Caption
S01	slide	2004	Bahrain Directorate of Culture and National Heritage	Aerial view of Qal'at al-Bahrain site in its marine and agricultural (palmgrove) environment, towards the north west. The new Al-Seef district (reclaimed on sea) is on the right.
S02	slide	2004	Bahrain Directorate of Culture and National Heritage	Id. (top view).
S03	slide	2004	Bahrain Directorate of Culture and National Heritage	Qal'at al-Bahrain site, at the eastern end of the northern palmgrove of Bahrain Island, towards the east. Al-Seef district (reclaimed on sea) in the background.
S04	slide	2004	Bahrain Directorate of Culture and National Heritage	Id., lower aerial view.
S05	slide	2004	Bahrain Directorate of Culture and National Heritage	Coral reef offshore Qal'at al-Bahrain site with entrance channel almost silted up, towards south west.
S06	slide	2004	Bahrain Directorate of Culture and National Heritage	Aerial (top) view of Qal'at al-Bahrain site with main architectural / archaeological features (Coastal Fortress, City Wall, Main Fortress (« Bahrain Fort »), Central Excavation Area.
S07	slide	2004	Bahrain Directorate of Culture and National Heritage	Id., lower aerial view.
S08	slide	1994	French Archaeological Mission in Bahrain	Aerial view of the Dilmun City Wall at the north of Qal'at al-Bahrain archaeological tell, towards the south east.
S09	slide	2004	Bahrain Directorate of Culture and National Heritage	Aerial (top) view of the Coastal Fortress.
S10	slide	2004	Bahrain Directorate of Culture and National Heritage	Aerial view of the Central Archaeological Area, at the bottom of the southeastern Portuguese bastion of the Main fortress. Towards the south east.
S11	slide	2001	French Archaeological Mission in Bahrain	Aerial view of the Middle Dilmun (mid-2 nd . millennium BC) and Late Dilmun (1st millennium BC) architectural remains in the Central Excavation Area, towards the south.
S12	slide	1994	French Archaeological Mission in Bahrain	Central Excavation Area. Late Dilmun northern pillared hall, towards the south.
S13	slide	2001	French Archaeological Mission in Bahrain	General view of the Central Excavation Area in the process of digging, towards the south east.
S14	slide	2002	French Archaeological Mission in Bahrain	Id., towards the east.
S15	slide	2002	French Archaeological Mission in Bahrain	Aerial view of the palmgrove bordering Qal'at al-

				Bahrain site at the west. Towards the west.
S16	slide	1997	French Archaeological Mission in Bahrain	<i>Bustan</i> (gardens) within the palmgrove surrounding Qal'at al-Bahrain site. Towards the south.
D01	digital	2004	P. Lombard	Qal'at al-Bahrain site in its palmgrove and marine environment, towards north west.
D02	digital	2004	id.	Qal'at al-Bahrain and Seef Distric (reclaimed on sea), towards East.
D03	digital	2004	id.	Aerial view of Qal'at al-Bahrain archaeological site, from top.
D04	digital	2004	id.	id., from top
D05	digital	2004	id.	id., towards the east, with Manama city in the background.
D06	digital	2003	id.	Qal'at al-Bahrain towards the west. The Main Fortress is still under restoration.
D07	digital	2004	id.	Qal'at al-Bahrain towards the north west, with detail on the Main fortress (« Bahrain Fort »)
D08	digital	2001	French Archaeological Mission in Bahrain	General view of Qal'at al-Bahrain site, towards the west.
D09	digital	1994	French Archaeological Mission in Bahrain	Aerial view of the Dilmun City Wall at the north of Qal'at al-Bahrain archaeological tell, towards the north east.
D10	digital	2004	id.	Aerial view of the Coastal Fortress, towards the north west
D11	digital	2001	id.	The Coastal Fortress, towards the north east
D12	digital	1981	id.	The Main fortress (« Bahrain Fort ») before any restoration, towards north east
D13	digital	2004	id.	The Main Fortress ("Bahrain Fort") and the Central Excavation area
D14	digital	2004	id.	The Main Fortress ("Bahrain Fort"). Western exterior side.
D15	digital	2004	id.	The Main Fortress ("Bahrain Fort"). Southern exterior side.
D16	digital	2004	id.	The Main Fortress ("Bahrain Fort"). Northwestern Portuguese bastion, towards the north.
D17	digital	2004	id.	The Main Fortress ("Bahrain Fort"). Northwestern Portuguese bastion, from the top.
D18	digital	2004	id.	The Main Fortress ("Bahrain Fort"). Inner casemate of the southwestern bastion.
D19	digital	2004	id.	The Main Fortress ("Bahrain Fort"). Arches restored in the Entrance Tower.
D20	digital	2004	id.	The Main Fortress ("Bahrain Fort"). Arch restored in the First Enclosure (Stage I of the building).
D21	digital	2004	id.	The Main Fortress ("Bahrain Fort"). Inner courtyard (with <i>madbasa</i>) of the First Enclosure (Stage I).
D22	digital	2004	id.	The Central Archaeological Area, from top
D23	digital	1996	id.	The Central Archaeological Area, towards the south
D24	digital	1996	id.	Architectural details of the Central Archaeological area, from top.
D25	digital	1994	id.	Middle Dilmun <i>madbasa</i> in the Central Archaeological Area.
D2	digital	1993	id.	Late Dilmun monumental buidings in the Central Archaeological Area, towards north.
D27	digital	1993	id.	Late Dilmun monumental buidings in the Central Archaeological Area, towards west.
D28	digital	1993	id.	Northern pillared hall (Late Dilmun) in the Central Excavation Area, towards south
D29	digital	1993	id.	Remains of Islamic houses in the Central Archaeological Area, from top.
D30	digital	2004	id.	Palmgrove surrounding Qal'at al-Bahrain site
D31	digital	2004	id.	Palmgrove surrounding Qal'at al-Bahrain site
D32	digital	2004	id.	Palmgrove surrounding Qal'at al-Bahrain site
D33	digital	2000	id.	Tower at the entrance of the access channel to Qal'at al-Bahrain.

7.b Copies of property management plans or documented management systems and extracts of other plans relevant to the property

— Annexed (Volume II) to the present Nomination File

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7.d Address where inventory, records and archives are held

General :

— Directorate of Culture and National Heritage, Ministry of Information, PO. Box 2199, Manama (Kingdom of Bahrain).

Specifically archaeological :

— Supertintendance of Archaeology, The Bahrain National Museum, PO. Box 2199, Manama (Kingdom of Bahrain).

— Gulf-Danish Archaeological Expedition, Prehistorical Museum, Moesgård, DK-8270 Højbjerg (Denmark).

— French Archaeological Mission in Bahrain, CNRS - Maison de l'Orient et de la Méditerranée-Jean Pouilloux, 7 rue Raulin, F-69007 Lyon (France).

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Note :

This document has been prepared with the collaboration of the
FRENCH ARCHAEOLOGICAL MISSION IN BAHRAIN

and is mainly based on the scientific work carried out by this team between 1978
and 2003.

The main scientific works which constitute the scientific argumentation of this
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Kingdom of Bahrain
Ministry of Information, Directorate of Culture & National Heritage

QAL'AT AL-BAHRAIN ARCHAEOLOGICAL SITE



– II –

Site Management Plan

**submitted to
THE WORLD HERITAGE CENTRE, UNESCO**

January 2004

QAL'AT AL-BAHRAIN ARCHAEOLOGICAL SITE

A Candidature submitted to
THE WORLD HERITAGE CENTRE, UNESCO

by
The Ministry of Information, Directorate of Culture & National Heritage
(Kingdom of Bahrain)

– Volume II –

Management Plan

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Management Plan for the Site of Qal'at al-Bahrain

1. Introduction

The Management Plan will offer a collective vision and provide a decision making tool that would guide future excavations, conservation and intervention on the site. It is value-driven and through a participatory and interdisciplinary process will balance conservation needs and tourism development demands. Being a collective vision to the management of cultural and natural sites, the management plan provides an anchor to accommodate how different stakeholders relate to the site and to its management.

A — A Brief Introduction of Site & Context

The site of Qal'at al-Bahrain is considered Bahrain's most ancient and largest site. The site demonstrates a rich diversity of mainly cultural and archaeological but also natural resources as well. Main features include the Ancient remains from the Early Dilmun (c. 2500 B. C.), Middle Dilmun (c. 1400), Late Dilmun (c. 800) cultures, Tylos (Classical) periods around the turn of the First Century, Islamic periods, and up to the Bahraini contemporary periods. In addition to the main Qal'at al-Bahrain and the ongoing excavation of the ancient Dilmun, Tylos and Middle Islamic levels at the foot of the Main Fortress ("Bahrain Fort"), the site also includes the Coastal Fortress as well as disconnected remains of the ancient Dilmun City Wall. The local village and community adjacent to the site, Palm Tree groves (*Bustans*), nearby communities living in the traditional villages of *Karbabad* and *Karranah*, and the distinctive shore line that extends for miles with continuous traditional fishing activities, movement of migrant birds and other significant flora and fauna, can be also closely associated with Qal'at al-Bahrain site.

B — Nature of a Management Plan

An effective Management Plan should be capable not only of guiding policy makers and planners involved with the site but should also engage with the fullest variety of stakeholders in order to secure a long term and sustainable future for the site of Qal'at al-Bahrain. While internationally recognized for its significance, the site also needs to be treasured at the local level as emblematic of civic pride. This locates

the site between both global (external) and local (internal) stakeholders. The former would include tourists, visiting researchers and students, while the latter would include the neighboring local communities and relevant landowners in addition to local authorities and agencies responsible for its management. Thus in drawing up the Management Plan for the site the following 3 broad principles should be adhered to:

- (1) The Plan allows each stakeholder group to **engage** constructively with the site while recognizing the overall need to protect, enhance and inform. The Plan will require the backing of all stakeholders.
- (2) The Plan takes an **integrative approach** to the management of the site recognizing that its value lies in the relationships between the built environment, the natural environment, and local cultural practices.
- (3) The site represents over 5,000 years of change and is still evolving. The Plan should seek to **sensitively manage the change process** not drive it.

It is obvious that the site exhibits an important interchange of human values and demonstrates outstanding universal values over a span of ca. 4500 years within a certain cultural area of the World (The Arabian Gulf). It bears a unique and exceptional testimony to a cultural tradition (Dilmun culture and beyond). The site also represents an outstanding example (which could be under the impact of irreversible change due to urban growth and development) of a traditional land and sea uses and interaction with the environment (e.g., Palm Tree Groves and the various crafts and local industries associated with the most valuable Palm tree (extracting water for drinking "*Lugah al Maa'a*", food, cloth, and shelter), and their links to the surrounding sea environment and traditional fishing (the Hadra). The site's importance and universal value makes it significant not only for Bahrainis and for Bahrain but for the whole region as well (Cf. main Nomination File).

* *
*

2. In Preparation of a Management Plan for the Site of Qal'at al-Bahrain (*Management Plan Process Methodology*)

A — Identification, Observations, & Description

The following are observations and notes about the site in general:

— *Significance of the site (recall, cf. §2a and 2b of the Nomination File):*

The site of Qal'at al-Bahrain is the most important archaeological site of the Bahrain archipelago, and very probably its ancient capital during the Antiquity. It is generally considered by researchers and archaeologists as one of (if not) the most ancient and the largest of all archaeological tells, not only in Bahrain, but in all over the Gulf region. Such a unique site provides a unique opportunity to "read" the ancient and historic past in the Gulf region.

The site is important for being a symbol for the nation of Bahrain and is definitely linked to the construction of national identity. It testifies to the essential role played by Bahrain as a center for trade (export & import) and cultural exchange between Mesopotamia and the Indus Valley since ancient times (Early Dilmun cultures since ca. 2350 BC) until the present (e.g., Bahrain attempting to become a regional financial and trade center). In addition, the interaction between the cultural components of the site (various levels of ancient archaeological occupation and City Wall, succeeding fortresses, natural access channel and moorage area found offshore, etc.), and its natural components (surrounding Palm-groves, traditional modes of cultivation and irrigation systems, rich ecosystem and biodiversity) clearly add to its unique universal value. Qal'at al-Bahrain.

— *The Spirit of the Place (nature of the site):*

The site seems to be still isolated, somehow, from dense urban growth and away from fast highways and shopping malls (even though they are seen in a distance) but the future urban growth might jeopardize this reality. The site is now approached from the East and South through narrow unpaved winding roads. This reality, and to a certain extent, should be preserved and urban growth around the site should be controlled and graduated in order not to end up with two extremes next to each other. The Management Plan and the coordination between the different Bahraini governmental agencies will work to insure this.

— *Nature of the Management Plan:*

It is very important to integrate such values and such holistic understanding of the site's significance into conservation planning and management. In addition, the Management Plan should serve as a decision making tool to guide future excavations, conservations, interpretations, and other interventions. The Management Plan would balance conservation needs and tourism and development demands. It should be a value-driven, interdisciplinary, and participatory process.

— *A Place of Continuous Evolution:*

The site of Qal'at al-Bahrain represents a distinctive place of continuous evolution, as soon as a reduced portion of its superfcy has been excavated up to now. It is thus obvious that archaeological excavations at the site will continue for a

number of years, if not decades; in addition, conservation/consolidation/interpretation works will have to continue as well. Therefore, the site Management Plan should take into consideration this important concept of continuous evolution

– *Visitation to the site:*

Based on collected tourism statistics, it is noticed from a brief glance that the number of visitors to ancient archeological sites (including Qal'at al-Bahrain), or even to heritage sites is by far much less than the number of tourists visiting the Bahrain National Museum or other attraction sites such as shopping malls, resorts, etc.. It is either that these sites lack considerable tourist infrastructure (e.g., proper conservation, site interpretation and representation techniques, visitor centers/site museums, etc.) or that they have not been properly incorporated into tourism promotion, and it could often be both. The Management Plan should address this reality in its various final strategies. Nevertheless, it has been noted that gradually, the number of visitors to the site of Qal'at al-Bahrain is increasing to the extent that it sometimes reaches between 500-600 visitors during some weekends, as reported by the archaeologist superintendent.

– *Future Threats:*

Due to the threats of the planned Northern City (and other recently announced projects, cf. below, §2.b.ii), the site and its immediate surroundings should be protected and excluded from future expansion into the sea (which is now planned for the Northern City about 4 km West of the site); The Management Plan should address sustaining the "setting" authenticity of the site and surroundings as will be explained in further sections of this document.

Moreover, related to the future plans of the North City planned to the west of the site, one cannot help by notice an accelerated increase in the prices of properties (e.g., land planned now with palm trees); this will affect the nature of investments around the site. In addition, an investigation of property ownership is very crucial to understand nature of property ownerships and future measures regarding this issue. In addition, the Management Plan will address mitigation measures to control anticipated urban growth around the site.

– *Local Traditional Crafts:*

The immediate area surrounding the site is very rich with popular local crafts such as traditional fish traps (*Hadra*), palm leaves houses (*Barastaj*), basket weaving, herbal and traditional medicine such as *Ma'a al Luqah* (water from Palm Leaves), indigo dyeing, weaving, production of *dibs* (treacle extracted from dates), etc. In fact, there are several distribution centers around the site that work to promote these local and traditional products. This reality should be taken into consideration when designing the tourism promotion plan for the site and its surroundings. One important observation related to the development of crafts in the region is the recent developments in *Beit al Jasrah* (amalgamation of all crafts in one central area) which presents competition for future developments of a rich and diverse craft industry near the site and in the surrounding areas as well. This needs to be investigated and addressed through the Management Plan.

– *Tourism Development:*

Development of a professional tourism promotion campaign is crucially needed for Bahrain. This campaign might look at tourist site orchestration where different sites of various nature are promoted together (with emphasis on both heritage and archaeological sites as opposed to only sites that are directed to shopping and

entertainment). The Management Plan should further outline this concept of tourist site orchestration, and how Qal'at al-Bahrain should be promoted.

i. Identification of Key Players and Actors (Stakeholder Analysis)

It is very important at first to understand and to identify the different stakeholders associated with the site at different levels. Not only different stakeholders might contribute to understanding the significance of the site, but also the management plan should take into consideration their different interests and perspectives.

— The local authorities and the agency responsible for the site (Ministry of Information / Directorate of Culture and National Heritage) are evidently among the main stakeholders involved in the management of the site. Other governmental agencies are also important stakeholders such as the Directorate of Planning within the Ministry of Municipal Affairs & Agriculture.

— One second important group of stakeholders in the Bahrain case is the group of Bahraini and foreign archaeologists, experts, conservationists who had spent a long period of time working on the site. The history of excavations/conservation of the site is a long and one must mention the Danish Team of the 1950s (P.V. Glob, G. Bibby), but also members of the French Team (M. Kervran until 1988, P. Lombard from 1989), and also a group of local archaeologists and conservationists, mainly in charge of the Main Fortress at the moment (e.g. A. Al Yehia, S. Bel Hajj). It is worth adding, too, a group of masons and traditional builders who have worked on the site for years now. Many of these individuals have dedicated a considerable number of their lives to the site and are as connected to it as its local community; they definitely have a stake in what development occur on the site in the future and would definitely like to see it protect it and conserved for future generations. Any management plan should address the aspirations of such stakeholders into its various mechanisms and future visions.

— A third group of evident, present stakeholders is represented by the local community who reside next to the site (in the housing strip). Recent research conducted with these people had shown that they are willing to be relocated to near-by villages (e.g., *Karbabad*, *Karranah*, *Maqsha'*), as long as they stay together. They have developed through the years a beautiful sense of communal feelings and behaviors (e.g., communal buildings, shared problems and aspirations, shared endowment structures, other). One major factor for leaving the site is the continuous flow of dust from the near-by archaeological site causing continuous health hazards to the community and deterioration of their property. But, if this community was removed from its current location, it is extremely crucial that all effort should be made to first relocate them in a near-by location, and second, that they should stay together, thus sustaining their communal ties that they have developed over the years. The local community is a potential source of employment for the continuous conservation, excavations, and management of the site in addition to being willing to be part of craft and tourism development within the site and its extended domains.

— Other stakeholders would be the private owners of land around the site, communities who reside adjacent or in near by villages but who are directly concerned with the establishment of and the necessary regulations imposed of the buffer zone defined around Qal'at al-Bahrain site, and even also the Bahraini society at large. Included in the stakeholders are, at last, non-governmental societies dealing with the history and archaeology of Bahrain such as the Bahrain Historical & Archaeological Society but also tour operators and businesses dealing with tourism who might be engaged with the site in one way or another.

ii. The Need for Continuous Documentation

The site of Qal'at al-Bahrain represents a distinctive place of continuous evolution, as soon as a reduced portion of its superfcy has been excavated up to now. It is thus obvious that archaeological excavations at the site will continue for a number of years, if not decades; in addition, conservation/ consolidation/interpretation works will have to continue as well. Therefore, the site Management Plan should take into consideration this important concept of continuous evolution

We have already mentionned how Qal'at al-Bahrain is continuously evolving and changing. It is expected that excavations will last for a long period which means that "conservation" and "consolidation" works will be developped simultaneously. Therefore, it is very important to carefully establish continuous documentation for the site and its evaluation in terms of measured drawings, archival reporting (progress reports) and other forms of documentation. In addition, the various conservation works on the site had not been properly documented up to now, and it appears most important to attempt as soon as possible to document previous conservation works. This would be the first opportunity to critically analyze such works and decide if they can be accepted as part of the evolution of site or otherwise be modified or removed.

Obviously, all books and research journal articles published on the site should also be collected and kept for future referencing. Similarly, all kind of technical reports prepared by conservationist, archaeologists, and other experts in addition to newspapers or magazines articles on the site should be recorded as well and kept for future research.

The research facility at the planned Visitor Center/ Site Museum (*cf. below, § 3.vii.1*) would be a suitable place to archive all this documentation. In addition to the measured drawings and sketches, it is very important to provide a continuous photographic record (regular argentic, digital or videographic covering) for the site. This record should also document the events (major public events, tourism activity) that regularly take place in the site.

B — Assessment & Analysis

i. Continuous Assessment of Significance

It is believed that an understanding of the complexities of values and significance of this site (and surroundings) is of ultimate importance that might affect the various components of the management plan (e.g., future conservation work, interpretation and presentation of the site, visitor management, other). A value-based approach to conservation and site management is needed at a site as complex as the site of Qal'at al-Bahrain. Significance of the site is a multi-level, supra-disciplinary reality; it should be based on an in-depth discourse and stakeholder analysis (e.g., significance to whom and why). The statement of significance should be also addressing an assessment of authenticity (e.g., setting authenticity, form and material authenticity, other), taking into consideration that authenticity as a concept depends greatly on the cultural context and on the *locale* being investigated.

As previously mentionned, Qal'at al-Bahrain amply testifies to the role played by Bahrain as a center for trade (export & import) and cultural *regional* exchange between since the Early Bronze Age period until the present. The fact that the site had been continuously occupied adds to its significance. The ancient "cities" at the foot of the Fort (Central Archaeological Area) had provided ample evidence (e.g., through pottery from Early, Middle, and Late Dilmun phases, cuneiform clay tablets referred to Iraq (Mesopotamia), terracotta figurines in the shape of humans and animals, Islamic coins, Chinese coins, Islamic glazed ware, and Chinese celadon & Ming, etc.) that ancient

Bahraini merchants worked to transform Bahrain into a center for trade between Mesopotamia, South Arabia, Persia and India. Ivory, pearls, semi-precious stones, lapis lazuli, costly woods, copper, and many other goods were traded back and forth. The site is considered the most ancient and the largest site of *Dilmun* culture and civilization not only in Bahrain but in the Arabian Peninsula in general.

It is obvious that the site exhibits an important interchange of human values over a span of 4500 years within a certain cultural area of the World (The Arabian Gulf). It bears a unique and exceptional testimony to a cultural tradition (Dilmun culture and beyond). The site also represents an outstanding example (which could be under the impact of irreversible change due to urban growth and development) of a traditional land and sea uses and full interaction with the environment.

Some local Bahrainis have added that the site in general is also very significant to them for being their "First Capital." P.V. As a fact, the Danish archaeologist P.V. Glob interpreted the tell as Bahrain's ancient capital, and from there, the Bahraini's capital moved south to the village of Al-Khamis, and finally moved to Manama more recently. So, the site's significance is extended to be linked with the whole broader history of the country as well.

Beyond Bahrain and its local history, the remarkable archaeological stratigraphy (4500 years of history) displayed at the same locale makes the site of Qal'at al-Bahrain one of the most rare archaeological and historical reference sites in all of the Gulf Region with definitely universal outstanding values and significance. In other terms, the site's importance and universal value makes it significant not only for Bahrainis and for Bahrain but for the whole region as well. With continuous change and excavations, significance assessment should be a continuous process that continues into the future.

ii. Assessment of Potential Future Threats & Challenges

(1) Development Pressures

The north eastern boarder of the site had witnessed land reclamation activity during the 1980s. Notably, Al-Seef reclamation have already exerted adverse effects on the maritime environment near the site. Part of that reclamation land is where the Visitor Center/Site Museum will be erected. These land reclaiming activities certainly have indirect consequences on the site itself. As already stressed in the Nomination file (cf. §5a), the most important consequence is the transformation of the cultural landscape where the archeological tell is located; notably, the historical link maintained between the site and its maritime counter-part is less obvious today, since its coastal border has been reduced in 1986 to about 130 m. Moreover, its north-eastern border has thus been urbanized, and the establishment of the Buffer Zone will attempt to take on mitigation measures so as to control further urbanization projected for the lands around the site.

It is very important to understand the potential future effects of the development of the planned North City (or of the recently announced artificial island placed at one kilometer offshore the site's coastline, but still at the project step up to now) on the site. Encroachment can happen quickly under pressures of unsympathetic growth of cities and rural areas unless certain mitigation measures are put into implementation (e.g., inclusion of Buffer Zone with special regulations).

The area around the site had witnessed a remarkable increase in the prices of land from 2 Bahraini *Dinars* for each square feet in around 2001 to about 6-8 Bahraini *Dinars* today. This increased pressure will tempt property owners of the Palm Tree Groves to change from agriculture and up keeping of the groves

"Bustans" to shifting to prime investment unless certain heritage tools (e.g., control without ownership, systems of easements, economic incentives, other) attempt to mitigate such a shift, together with the establishment of the proposed Buffer Zone.

(2) Environmental Pressures

As already mentioned in the Nomination File (§5b) the site of Qal'at al-Bahrain is free of any particular industrial atmospheric or sewage pollution.

Of course, one main potential environmental pressure will come from the plans to develop new housing projects in the near vicinity of the site ("North city project", recent artificial island project mentioned just above). One major environmental threat is the disturbance of maritime biodiversity and life due to processes of dredging to create the reclaimed land. This will have an adverse effect not only on maritime life but also the migrating birds finding refuge in this precise location on their journeys north to south.

Furthermore, we must always keep in mind that any close urban growth and encroachment will have an adverse effect on the site. Date palm trees (*Phoenix Dactylifera*) makes up the principal element of the palm-groves in the Kingdom. The surface area of the northern palm-grove of Bahrain has, however, been reduced from 746 hectares in 1977 to less than 350 hectares today, so land around the site is important. Uncontrolled urban growth around the site, especially with increasing land prices, will definitely have an adverse effect not only on the environmental condition and biodiversity of the region, but on the site and its setting authenticity as well. The establishment of the Buffer Zone will help reduce the effect of uncontrolled urban growth. This will be discussed in details in the next sections of this document.

iii. Assessment of Previous Conservation Work (state of conservation & consolidation)

Main Fortress ("Bahrain Fort")

This Late Islamic/Portuguese defensive Fortress was physically and historically described at length in the Nomination File (§ 3.c.4.). Its recent restoration was also largely evoked in the section "Authenticity/Integrity" (§ 2.c) of the same Nomination File.

Some complements to the general assessment of the conservation work on this precise building will be delivered there.

(1) During the decade of the 1980s, and driven by a need to "reconstruct" this Main Fortress (the local and popular "Bahrain Fort"), it can be admitted that, in certain cases or locations, excessive conservation activities or conjecture reconstructions took place. This was more at this time a political decision rather than an expert opinion, that was linked with an official vision of a "finished product" as far as the Fort itself is concerned. Some of these "reconstructions" might be irreversible and might be in certain cases historically or archaeologically incorrect.

Interventions carried out at this period ranged from reconstruction of South-East Bastion, facing of the Fort exterior wall with stone, to complete reconstruction of whole sections of the building. For the most part, they were based on true and good knowledge of the traditional building techniques and materials, but sometimes leading to conservation in conjecture as they are not always based on ample historic evidence and knowledge of previous layers of the site. *Complete reconstruction* seemed to be the

driving force for such conservation attempts without fully exploring other conservation treatments and levels of interventions.

(2) This approach to "conservation" had stopped from a few years and now experts and conservationists are rethinking the past decade of conservation efforts. In certain parts, certain interventions will be eventually reversed (e.g. look-out turret on the North West Bastion). While, and in other cases, certain interventions (e.g., facing of the exterior wall with stone) can be accepted as part of the evolution of the site through time especially that it did lead to structural stabilization.

Currently, conservation works exclusively center on consolidation of existing walls & features in addition to clearing of sand and earth from the building. Traditional mixtures of materials are used for the mortars composed of white sand (cleaned rough sand), traditional materials that gives the mortar moisture, gypsum from Saudi Arabia, local lime (*al nora*), and other materials as well. In general, most of the consolidation work was an immediate response after the excavations (post-archaeological excavation conservation). Also, in certain cases, the conservation work is simply based on stabilization and protection. In addition, traditional *Danshal* Wood that is imported from India and also local Bamboo for the roofing system was also used. For example, there is archaeological evidence that this structure had been used for housing during the 17th century, eventually in several *madbasa* (dates press) found in the building and proved to have been still in use up until the 17th century. Many of these *madbasa* located on the Upper Level Court of the Fortress are nevertheless now simply covered with sand and gravel to protect them and stabilize them until further conservation / site presentation work is possible.

Finally, it is important to mention that this monument is unique by the different layers of occupation and evolution; any conservation / building presentation approach should thus take this reality into consideration through the respect of all different periods of significance and through the conveying to the public at large this multi-level significance of this place.

The Central Archaeological Area:

This Central Archaeological Area witnessed archaeological excavations and research of different periods since the mid 1950s and the different layers of the site were explored (Early Dilmun, Middle Dilmun, Late Dilmun, Tylos, Islamic). More recently, and since 1989, the French Mission has undertaken to complete the clearing of a very significant architectural complex within the Central Archaeological Area known as the "Assyrian Palace" or "Palace of Uperi" dating to Middle and Late Dilmun Phases. In addition, the Central Archeological Area has also provided evidence of later occupation (Islamic Periods) in the form of domestic construction with very little preserved in elevation.

In general, the archaeologists and conservationists treated this Central Archaeological Area with utmost care. Post-excavation conservation and consolidation works started immediately after excavation seasons with maximum efforts to retain form, material, and setting authenticity. Consolidation work in general was all done in gypsum. Currently, there is a simple, also not intrusive, pedestrian paved path that goes around this Area at the upper level. Of course, there is still need for future site presentation and interpretation interventions.

The Ancient Remains of the City Wall:

All through the years and since the middle of the 1950s, different soundings and trenches were done on different locations on the archaeological tell (*cf. Map 4e*). The Dilmun City Wall, south of the Coastal Fortress was notably investigated by different expeditions in 1975, 59, 64, 65, and 1970.

In addition, other City wall excavations took place more recently in the southern part of the Tell (near the Strip of Housing scheduled for removal and near the Old Village of Qal'at al-Bahrain which demolished in the 1970s. The western part of the City Wall was investigated in several trenches in the 1960s. In general, many of these

trenches have been recovered until further opportunities for future research. Yet, also parts of the remains of the City Wall are still present especially in the southern parts of the site. These different City Wall excavations should be part of an overall site management and presentation plan of the overall site in the near future.

The Coastal Fortress (Hellenistic/Islamic Fort):

This very important Fort located at a lower level from the main Portuguese-Islamic Fortress was totally exposed in the early 1980s by the excavations of Dr. M. Kervran and her colleagues from the French archaeological Mission to Bahrain.

In general, the archaeologists and conservationists treated this very significant part of the site with utmost care. Post-excavation conservation and consolidation works started immediately after excavation seasons with maximum efforts to retain form, material, and setting authenticity. Consolidation work in general was all done in gypsum. Currently, many of the surfaces and mosaics floors that are exposed to the sun are covered with sand for their protection until further conservation/site presentation works are scheduled. Of course, there is still need for future site presentation and interpretation interventions.

iv. Environmental Impact Assessment

Doing an Environmental Impact Assessment (EIA) for this Qal'at al-Bahrain Nomination Project to the World Heritage is very important especially when its features and components (cultural, natural, human and ethnographic) are very interrelated. The EIA would be very helpful in addressing and mitigating any adverse effect resulting from unplanned urban growth, environmental pollution, environmental degradation due to reclamation activities, other. Sections §5 of the Nomination File and §2b.ii of the present document discussed in details the main characteristics of the environment and general environmental conditions and threats. The establishment of the Buffer Zone will help reduce the effect of uncontrolled urban growth. This will be discussed in details in the next sections of this document.

Furthermore, conducting an EIA would also highlight the positive impact on the environment that would result out of the implementation of the Management Plan. This aspect is very important and could endorse this implementation of this Management Plan and encourage monetary donations from local, regional, and international donors. An EIA should also take into consideration conducting a thorough stakeholder analysis at a wider spectrum where not only the cultural values of the site are considered but also its natural values and socio-economic realities (relationships between the local communities and the site, current ramifications of the agricultural economics). The biodiversity within the site and the surrounding area is of utmost importance. The Palm Tree Groves with their distinctive features, corals and other sea creators, migrant birds, and other different types of fauna and flora are important and significant to this integrative and holistic approach to the management of this site.

v. Management Context Assessment (Constrains & Opportunities)

The site is in need of a legal and management protection system to ensure its safeguarding and continuity for future generations. The Management Plan will provide ideas for different tools and strategies to address this lack of appropriate legal and legislative context. Under the Law number 11 of the year 1995 (article 1 of the law), the supervision, protection, management, other of all archaeological sites is the responsibility of the Ministry of Information (which includes directorates of heritage/antiquities and of tourism). The Ministry of Information owns the site.

Based on Law 11 of 1995 (article 5), ownership of land does not give the right to its owner to own the archeological sites or remains on the land or underneath (see below, § 3.B.ii). But the Law does not provide illustrations for different tools to manage the sites and protect them while respecting and sustaining private ownerships. And the Law does not provide any protective implemental measure, the laws are not implemented, and even if they were, they are very abstract and only provide penalties for transgressors. Therefore, the Ministry of Information should make all efforts to coordinate with other governmental agencies to insure the protection and sustainability of the site, being the key-participant in the future management of the site and in drafting and implementing the Management Plan.

3. The Management Plan for the Site of Qal'at al-Bahrain

A — Defining of Management Policies for the Site of Qal'at al-Bahrain

All the aspects previously discussed lead to these two obvious policies :

(1) The Cultural site Management should take into consideration the fact that the site is in a state of continuous evolution into where conservation, consolidation, excavation, and visitation activities are simultaneously taking place.

(2) The various relationships (historically, geographically, culturally, naturally) between the different components of the site dictates that any management plan should attempt to treat the site as an integrated whole. The main objective is to gain a deeper understanding of the site and make its significance accessible to the public, while maintaining a strong link between Qal'at al-Bahrain and its interrelated communities and stakeholders.

(3) The Management Plan should serve as a decision making tool to guide future excavations, conservations, interpretations, and other interventions. The Management Plan would balance conservation needs as well as tourism and development demands.

B — Management Plan Strategies & Mechanism

i. Ownership

The site of Qal'at al-Bahrain together with immediate surrounding demonstrates three major categories of land ownerships:

— The first category would be the land owned by the government agency with the management authority (Directorate of Culture and National Heritage of the Ministry of Information).

— Another category would be the land that is privately owned (mainly the palm tree groves around the site), several of the Palm Tree Groves are owned by members of the Royal Family (e.g., Palm Grove on the western part of the site).

— A third category is the land adjacent to the site of which the Ministry of Information is in the process of acquiring to add to its ownership and to use for the planned Visitor Center (planned for 2004).

For more details on ownerships, please refer to Maps 4g, 4h, 4i, and 4.

Having said this, the Management Plan should attempt to mediate and coordinate between the landowners (when needed) and the government agency with the management authority for the best interest of the site, but also keeping in mind the respect for private ownership. Details for this coordination will follow in the proposed management strategies.

ii. Legal Status

Under the Law number 11 (Law for the Protection of Archaeological Sites) of the year 1995 (article 1 of the law), the supervision, protection, management, other of all archaeological sites is the responsibility of the Ministry of Information. The Ministry of Information owns the site of Qal'at al-Bahrain is the agency responsible of archaeological excavation, management, and protection of the site and its archaeological findings either on site or in designated museums.

There are protective measures or designation processes outlined in the Law of Archaeological Sites (Law 11 of 1995). The Minister can simply choose any site for designation. Article 3 of the same Law identifies two different types of archaeological entities into two main categories: 1. Fixed and 2. Movable. What is interesting is the details in the definition of the first category where it is defined as the archaeological sites such as hills (tells) remains of human settlements, burial grounds, forts and fortifications, historic and heritage houses and complexes, water wells, channels and springs, religious buildings such as mosques, and other sites on the ground or buried underneath, or in the regional sea waters of the Kingdom of Bahrain. Such a definition is of interest to the site of Qal'at al-Bahrain with its diverse features on ground, beneath ground and in the sea.

Article 5 of the same Law indicates that ownership of land does not grant the owner the right to own archaeological findings on or beneath ground. In addition, Article 7 of the Law calls for mandatory coordination between governmental agencies when planning development projects to take archaeological & heritage sites into consideration. Ministry of Information is responsible of informing other agencies of the location and details of such sites all over the Kingdom. Article 7 of the same Law calls for controlled urban growth in lands adjacent to sites with valuable archaeological remains. And finally, Article 9 of the Same Law grants the Minister of the Ministry of Information the right to acquire any land for purposes of public good (e.g., archaeological site, urban beautification, other). All these protective measures will be used in the case of the Management Plan for the site of Qal'at al-Bahrain when deciding on the Buffer Zone around the site.

iii. Protective Measures and Means for Implementing Them

The above mentioned law includes protective measures or designation processes for the protection of the site of Qal'at al-Bahrain. The Minister can simply choose any site for designation.

The site is provided, and through the Management Plan (*Site of Qal'at al-Bahrain Management Plan of 2003-4*), with an adequate long-term legislative, regulatory and institutional management to ensure its continuity into the future. Within section iv, v, vi, vii, viii this document provided ample information regarding the different components of the site's Management. The agency with the management authority is:

The Ministry of Information
 Directorate of Culture & National Heritage¹
 Kingdom of Bahrain
 P. O. Box 2199
 Manama, Bahrain
 Kingdom of Bahrain
 Tel: (+973) 292977 – or 293300 – or 290210
 Fax: (+973) 292678

Contact Person is:

HE Shaikha Mai bint Mohammad bin Ibrahim Al-KHALIFA,
 (Assistant-Undersecretary for Culture and National Heritage)

&

Mr. Abul Wahab Al-KHAJAH
 (Director of Archaeological Heritage)
 Directorate of Archaeological Heritage
 Bahrain National Museum
 P. O. Box 2199
 Manama, Bahrain
 Kingdom of Bahrain
 Tel: +9973) 293300
 Fax: +(973) 292820

It is important to add here that all Bahrainis individuals, experts, royalties, and groups working or concerned with the cultural and environmental heritage in Bahrain are very much looking forward for UNESCO to recognize this site and its distinctive universal value. They all view UNESCO's recognition not only as an additional "future protection mechanism" but also as an "umbrella of protection and empowerment" for all working on the cultural and environmental heritage in Bahrain and the Gulf Region.

iv. Existing "Development" Plans Related to the Site (protective and mitigation measures)

(1) The "North City" and Negotiation and Coordination Mechanisms

The Physical Planning Directorate of the Ministry of Housing, Municipal Affairs and Agriculture is working on a Development Plan concerning the Northern Area of Bahrain, to the North of *Budaiyah*. The Development Plan notably centers on the construction of a new "North City" on reclaimed land from the sea planned offshore of the northern coastal line of the island west of the site of Qal'at al-Bahrain.

¹ In the future the Directorate will be upgraded into a Higher Council for Culture and National Heritage

Coordination had already been established between the Ministry of Information and the Ministry of Municipal Affairs in order to avoid any environmental or visual adverse effect of such a new development on the site of Qal'at al-Bahrain. After deliberations, it was agreed that the eastern borders of the planned City would be at least 4 km west of the protected archaeological site.

Cf. Map 4m and Document 4n, below.

Important note:

During the few weeks preceding the delivery of the Nomination File + Management Plan to the World Heritage Center (UNESCO), a new project of construction of an artificial island, offshore of the northern coastline of Qal'at al-Bahrain site, has been brought to the attention of the Directorate of Culture. Such project is definitely planned beyond the limit of the Buffer Zone proposed below but its general extension is worrying as far as such an island could constitute a new threat over the cultural landscape of the site (cf. *Map 4r of the present document*). The Bahrain authorities from the Directorate of Culture & National Heritage are presently looking for the best solution in order to reduce at the maximum any potential visual damage to the whole area submitted for nomination to UNESCO.

(2) Establishment of a Buffer Zone (Controlled Urban Growth) as a Mitigation Measures

In the case of the site of Qal'at al-Bahrain, it is needed to establish a buffer transitional zone to insure the conservation and continuity of the site for future generations and in its totalities. This buffer zone can be defined as an area surrounding the property (e.g., in the sea and land as well) with restrictions placed on its use to give an added layer of protection to the property (please refer to *Map 4o: Proposed Management Plan Zoning with Buffer Zone*).

Coordination Processes (Achieving the Buffer Zone):

It took a lot of coordinating between The Physical Planning Directorate of the Ministry of Housing, Municipal Affairs and Agriculture and the Ministry of Information (agency with management authority) to finalize the details of the Buffer Zone and decide on its heritage / planning tools and mechanisms. This coordination will of course continue into the future during the implementation phase of the Management Plan.

Controlled Urban Growth and Integration of Planning & Heritage Tools:

The Management Plan is utilizing different heritage & planning tools to insure achieving the controlled Urban Growth within the Buffer Zone (Illustrated in Map 4o). Different heritage tools (e.g., control without ownership, economic incentive, designation and listing, etc.) should be integrated with other tools used in planning (e.g., regulatory control, transfer of investment rights, regulated zoning, etc.) to insure the protection of the site in both of its components: 1. the part owned by the Bahraini Government (or is in progress of acquisition) by the Ministry of Information, 2. and also the proposed Buffer Zone to be designated on privately owned land.

It would be clear that by no means the Bahraini Government should attempt to own the lands located in the Buffer Zone, this would be an extremely unaffordable, costly and impractical mechanism. What is encouraged by the Management Plan instead is the incorporation of the

various other management tools listed above. Having said this, it is very important to mention that the Ministry of Information is yet working, in progress, to own certain plots to expand on the Ministry's owned protected site (mainly to the East) and to facilitate the establishment of the Visitor Center. Please refer to Map (4j) to illustrate ownerships by the Ministry in progress, and also please refer to Map (4i) to illustrate the exact location of the Visitor Center.

Illustrating Details of the Buffer Zone:

The following is an illustration of the area within the Buffer Zone illustrated in Map 4j in more details:

First: Land that is owned by the Ministry of Information (Protected Site):

- *Archaeological Site Owned by the Ministry of Information* (Shaded Golden Brown) in the Map.
- *Archaeological Site Expansion* (Acquisition by Ministry of Information) in Progress) (Golden Brown Strips).

Second: Lands in Private Ownerships around the Protected Site within the Buffer Zone:

– *Unplanned Area (Agricultural Land and Palm Groves Around the site:*

The agricultural land and palm grove around the ancient and archaeological site (but mainly to the West and North of the site) are as distinctive and as significant and represents an indispensable element of the site of Qal'at al-Bahrain with its unique cultural landscape and agricultural traditional economy. The Palm Groves directly linked to the archaeological *tell* (currently zoned Unplanned Area), contributes to its specific cultural identity and landscape. This is the main reason that this individualized agricultural zone, currently privately owned, is included as part of the Buffer Zone to insure that not only the integrity of the immediate area bordering the site is protected, but also this surrounding/integrative and distinctive cultural landscape.

Currently this area is zoned & coded as Unplanned Area (white with a dark thick dotted line). But in fact it is mostly agricultural land and Palm groves. Now, and by Law owners can only built up to 5% of their plots. These lands are divided into approximately not less than 6000m² each. After deliberations and coordination, and taking into consideration that there is immense pressure to end the agricultural use of the land and use it for real state development; it was agreed with the Directorate of Planning to enforce the following:

1) For the time being, maintain the exact current codes (Unplanned Areas: for agricultural use), and also maintain the same restrictions of allowed 5% built up area in the form of a small farm house and services for the agriculture.

(2) Most of these lands are owned by members of the Royal Family. It was agreed to start implementing different forms of incentives and heritage/planning tools that will encourage the continued character of this agricultural land and encourage people to maintain their Palm groves. Different forms of incentives that will used include: assistance from the Directorate of Agricultural Guidance and Awareness; providing free pumped treated water for irrigation; and also, an hourly recognition and mention in the Visitor Center as "Patrons of Heritage and the Environment" for such owners who maintain their agricultural land and their associated functions and activities.

(3) It was also agreed that under any exerted pressure excersized over the Directorate and the Ministry of Municipal Affairs; the Maximum

Allowed built up area in these plots will not, under any circumstances exceed 15%. This will allow farmers to built a farm house, some sheds for agricultural products/storages, and accommodations for the cultivators and workers.

– *Unplanned Area East of Site (Residential Area Zoned RB: Private Residential B):*

Even though this area is shown in the zoning maps to be coded (Unplanned Area: white with a dark thick dotted line); in fact it has been zoned at (RB: Private Residential), this translates into low rises of 2-3 storey houses culminating in a low dense/low traffic residential neighborhood. It is included in the Buffer Zone and it means that the area will remain of low density and calm in comparison to other zoned areas. This proposed zoning is very suitable for a land that is right next to the site to the East and is compatible with visions of maintaining a tranquility to the whole site and its immediate surroundings.

Also, and in order not to block the Sea View, along the Shore (from the East), and beyond the extension of archaeological site on the reclaimed land, the Ministry had allowed functions & activities such as sea boat stations, fishing harbor, marina, or other suitable functions with a depth of total (previous & proposed together) reclamation not exceeding 60 meters, subject to approval, in order not to block the Sea View and to maintain a low dense milieu in the vicinity of the Buffer Zone and beyond to the East of the site.

– *Compound (Garden/Residential):*

This small area to the south west of the site is part of the Buffer Zone and is currently zoned "Garden/Residential" and will actually stay the same as this zoning provides a very low dense residential neighborhood with only 35% built up area in a compound spatial organization with only 2 storey buildings allowed.

– *Core of Historic Villages (Karbabad):*

There are different historic village cores around the site (e.g., *Karraneh*, *Maqsha'a*, and *Karbabad*). Only one of them (Karbabad) is included within the Buffer Zone to the south of the site. This area might house a lot of traditional craft activities. It enjoys two zoning ordinances (RHA (houses) and RHB (apartment) with only 3 story buildings allowed.

– *Buffer Zone in the Sea:*

Part of the extension of land in the Sea is owned by the Ministry of information (a land extending about 460 m and is about 210 m wide), but it was agreed with the Directorate of Planning to extend the Buffer Zone further north approximately 400 meters more on privately owned land (*cf. map*). Also, the Buffer Zone extends to the West approximately 1.4 km. The Buffer Zone will only allow functions that are acceptable to the protection of the site such as fishing, the use of the traditional fish traps (*Hadra*), fisheries, and sailing.

For details of Lands beyond the Buffer Zone, please refer to Map (4o)

(3) Environmental Mitigation Measures

The establishment of the Buffer Zone will help reduce the effect of uncontrolled urban growth and environmental degradation. One only has to make a quick comparison of the surface area of the northern palm-grove of Bahrain which has, however, been reduced from 746 ha in 1977 to less than 350 ha today. Therefore, the Buffer Zone will be considered a very important mitigation measure to protect the site and its surroundings for future generations.

But other mitigation measures (recommended by the Environmental Affairs Section) are also included in the Management Plan such as:

- Conserving the coastal area adjacent to Qal'at al-Bahrain, considered of significant environmental importance for seabirds;
- Putting a stop (as much as possible) to neighbouring reclamation activities, and attempting to supervise and control such activities if they were unavoidable.
- Cleaning up the shore from the deposited wastes, and take all necessary measures to stop any waste disposal in the future.
- Carrying out of periodical environmental surveys and State of Environment Reporting.

v. Sources and Levels of Finance

Once this Management Plan is implemented, funding available to the site on an annual basis will be budgeted by the Ministry of Information (agency with management authorities). Before the Management Plan was drafted, there were only budgets for conservation and consolidation works.

Moreover, the Directorate of Culture and National Heritage have already applied to different private sources and donors such as the philanthropist *Abdul Rahman Kanoo* Family and to different local and regional financial institutions and banks. In the past, the following institutions had provided funding for other projects managed by the Directorate of Culture and National Heritage such as:

- Bahrain & Kuwait Bank
- Bahrain National Bank
- Bahrain/Kuwait Insurance Company
- BATELCO: Bahrain Telecommunication Company

Finally, there will be major fund raising activities before, during, and after the Jubilee Celebrations of the Discovery of the Dilmun Civilization scheduled to be held on the site in October/November of 2004.

vi. Sources of Expertise & Training in Conservation & Management Techniques

At the moment, the only local expertise available (and directly in contact with the site) are at both technical & professional levels. They include archaeologists from Bahrain such as professional staff from the Directorate of Archaeological Heritage of Bahrain of the Ministry of Information (specialized in Museums and Heritage Management, museum studies, and archaeology), a site superintendent (Archaeologist *Abdullah Yehia Hassan*), a conservationist (*Dr. Salem Bal Hajj*), and an architect/conservationist (Mr. *Haytham Sheroogi*).

They also include groups of professional researchers (mainly archaeologists) making up foreign archaeological missions to Bahrain (On the site, exclusively the French Archaeological Mission (*Dr. Monik Kerwan* from 1978 to 1988; *Dr. Pierre Lombard* since 1988). In addition, there is a certain number of workers (craftsmen & masons (traditional masons) together with unskilled laborers). Some of the skilled masons are traditional builders with knowledge about local materials and traditional building techniques, but with little knowledge about different conservation mechanisms and levels of interventions and issues of authenticity. The various strategies will address the need for a diversified staff for the implementation of the Management Plan for Qal'at al-Bahrain. Finally, in addition to planned future hiring in different areas, the Directorate is planning

to hold training sessions and workshops on issues related to heritage conservation and cultural site management.

vii. Visitor Facilities & Experience at the Site

The site presently lacks proper access roads, as well as other needed infrastructure: signboards, site interpretation mechanisms, publications, coffee shop, public toilets, other. All site management efforts together with all visitor facilities should aim to convey to the visitors the complex and diverse level of significance of the site concentrating not only on its cultural significance but on interconnections with the site's natural realities as well. The planned interpretation and presentation mechanisms for the site will be discussed in more details in section 3.b.viii. Also, the different facilities provided by the Visitor Center will be discussed in the next section.

(1) The Planned "Visitor Center" (Site Museum)

The Visitor Center will be built on an existing reclaimed land area at the north east of the site, at the bottom of the archaeological hill. With its associated public parking lots, it will provide the official entrance to the whole site. The exhibition areas will provide the visitors with full information on the historical development of the site of Qal'at al-Bahrain, and will display some of the major archaeological finds from the current excavation areas. It will also include a cafeteria and other facilities for the public. The Visitor Center was designed by *Wohlert Architects* of Denmark (*Claus Wohlert*) for the Directorate of Culture and Heritage of the Ministry of Information, in close collaboration with *Dr. P. Lombard* (French Mission) and *Dr. F. Hojlund* (Gulf Danish Expedition, Moesgaard Museum, Denmark). The Visitor Center is laid out as an elongated two storey building facing the sea, with the supporting functions placed in a single storey building encompassing a private courtyard/garden. In the building's northern part, a partially open courtyard provides access to the building.

The idea for the layout of the Site Museum (Visitor Center) Interior is to illustrate the archaeological layers through a succession of planes/floors, rising along and around an "archaeological wall" – the "tell wall". The tell wall is intended to be an informative representation of typical and identifiable archaeological strata, and will, through its roughness, create a strong contrast to the smooth surfaces of the museum. The tell wall will be mirrored by two ceiling skylights, which will expose its rich texture.

The Visitor Center will contain in addition to the Parking and the Podium, a Shaded Courtyard, Foyer, Ticketing, a Gift Shop, Exhibition Spaces (Early, Middle, and Late Dilmun, Tylos, Islamic, Portuguese, and other exhibition areas), Coffee Shop, Shaded outdoor areas, Lecture Hall, Audio-Visual Hall, Reception Hall, Director & Secretary Offices, Conference Room, Rooms for Staff and Researchers & Guest Archaeologists, Storage Area, Rooms for Technical Staff, Kitchen, Public Restrooms, and many other minor spaces.

(2) Other Facilities & Programs (Tourism Promotion & Visitor Management)

A tourism management plan is crucial for the site. Currently, the site receives sporadic visits ranging in the hundreds weekly (while sometimes during the weekends, numbers reaches into the 500s and 600s based on the visitor's register book). Based on collected tourism statistics, one can notice from a brief glance that the number of visitors to ancient archeological sites, or even to heritage sites is less than the number of tourists visiting the Bahrain National Museum or other attraction sites such as shopping malls, resorts, or other (please refer to tables on tourism statistics). It is because these sites lack considerable tourist infrastructure (e.g., proper conservation, site interpretation and

representation techniques, visitor centers, other) and that they have not been properly incorporated into a well thought of tourism promotion plan.

The Management Plan is addressing this reality and works to center on:

— Promotion of the site at unpredicted scales: by the production of brochures, documentaries, and other promotional material.

— Development of tourism infrastructure (including interpretation, and presentation techniques) on site (this will be addressed in section 3bviii of this report).

— Study the relationship between this site and other related archaeological sites (e.g. *Saar, Barbar, Historic Muharraq*), and propose a tourist site orchestration approach where the tourism itinerary for a certain day will have different stops where Qal'at al-Bahrain becomes one of these major stops, but a major one of course where the visit to the whole extended site might last from a couple of hours to a whole half a day.

viii. Policies & Programs Related to the Presentation, Conservation, and Promotion of the Site

The Management Plan accommodates different levels of intervention regarding conservation, interpretation, and management of the site. It is important to mention that conservation, for example, is a very contextual process that is:

- Value-driven,
- Context based, and
- Culturally specific

Of course, one of the conservation mechanisms and levels of intervention is the representation and interpretation of the site; this issue will be discussed separately for its diversity and value.

(1) Continuous Conservation/Consolidation Works & Future Excavations

The site had been through and is still going through different periods of "conservation," "consolidation," and "reconstruction". All previous efforts of such nature should be assisted and reevaluated. Keeping in mind that complete reconstruction is not always the best alternative or the best conservation mechanism, the decision process should be based on a thorough understanding of the significance of the site and its relationship with other sites around it.

Now, the experts (e.g., conservationists, archaeologists) have stopped all conservation works (with the exception of consolidations of walls, clearance of dump earth) and are considering a new agenda of work based on the Management Plan where a comprehensive conservation/interpretation Plan is being sought out. Conservation in conjecture will be reversed (when possible and/or collectively decided). The Plan will explore different levels of interventions (and will not only be based on "reconstruction"). Such new different levels of interventions and approaches will explore site interpretation, presentation, and protection. The Research Unit at the Visitor Center/Site Museum (to be elaborated upon in the following sections of this document) will facilitate such interventions and approaches.

In certain cases (and all depending on a contextual ethics), different interpretation and representations techniques can convey the significance of the site to the public while sustaining its authenticity; notably at the site of Qal'at al-Bahrain, developmental authenticity (how the site evolved through the time) is of ultimate importance. Reconstruction is acceptable only on the bases of complete and detailed documentation and to no extent on conjecture.

In certain locations on the site, protective shelters, of suitable design, will be used to protect fragile remains that have to stay in situ so as their significance is conveyed to the public. For example, protective shelters might be used over the excavated *madbasa* (places where juices from dates are extracted). Currently, the different channels of the *madbasa* that are exposed (either in the Coastal Fortress or in the Main Fortress) are covered with sand or gravel for protection until further interventions are designed, managed, and implemented.

It is important to mention that archaeological excavations will continue for a long period of time (approximately 75% of the site is still unexcavated). The land around the Main Fortress, which extends to the Palm Groves and the edges of the site covers potentially very valuable archaeological remains. There have been several trenches in that particular area (e.g., alongside the external wall of the Early Dilmun settlement, trenches all over this plateau that is now covered with sand and earth), and findings have confirmed the great potential significance of the whole area from an archaeological point of view. In addition, archaeological excavations will also continue in the already excavated sites such as the Coastal Fortress, the Central Archaeological Area, and eventually in places even beyond the site into the Buffer Zone (e.g., Palm Groves). In the early 1990s until now, for example, there was a concentration by the French Mission in Bahrain (lead by Dr. Lombard) on the Late Dilmun period (First Millennium B.C.) which have been predominantly marginalized by previous archaeological excavations.

(2) Interpretation & Presentation Mechanisms

Any interpretation in a site as diverse and significant as the site of Qal'at al-Bahrain should make all efforts to convey its diverse and multi-level of significance to the public and address the complexity of values present in the site (cultural and other). It should address the different and multiple periods of significance that the site had went through (e.g., Dilmun, Tylos, Classical, Islamic, contemporary). The contemporary period should not be under-represented due to the extreme archaeological value of the site since it is crucial for the visitor to understand human-site relations even today. This will be explained not only in the Visitor Center/Site Museum but also throughout the site as well.

(a) Interpretation/Presentation Techniques & Promotional Material

Interpretation techniques must explore different approaches and techniques (e.g., guided tours, drawings and interpretations, virtual reconstructions, brochures, dioramas, models, other). Due to the size of the site and to its integrative and integrated whole, the following interpretation mechanisms are implemented for the better future management of the site. The main objective is to gain a deeper understanding of the site and make its significance accessible to the public:

The Concept of the Interpretive Path (Site of Qal'at al-Bahrain Heritage Path):

Due to the nature of the site (several features and attractions) and the proposed integrative/holistic management approach, it is suggested to incorporate, as part of the interpretation techniques, an interpretive path (*Site of Qal'at al-Bahrain Heritage Path*). It would appear as an interactive journey through the different features on the site with appropriate explanations, drawings (on plaques), eventual models or dioramas, as well as any methods of conveying the site significance to the public and its relationships to other times and places.

In addition, this interpretive path should convey to the public, not only the developmental authenticity (how the site evolved through time) but also the interrelationships between the near-by community and its cultural and natural components. Therefore, this Path might (in certain cases) extend beyond the site's physical boundaries into near-by Palm Groves or other features. This path does not have to manifest itself in physical presence in all areas of the site, but the design of the Path should take into consideration as not to induce any adverse effect on the site or on its authenticity. This Path will be supported by additional exploratory materials such as maps or pamphlets with explanations regarding the route and different stops along the path.

Brochures & Promotional Materials:

There will be brochures and promotional materials developed for the site. These will take the form of general maps, maps with explanations to illustrate the Heritage Path explained earlier, booklets and pamphlets, and many other promotional materials. The Gift Shop at the Visitor Center/Site Museum will also sell books in general on Bahrain archaeology, history, and heritage. In addition, the Marketing Unit will design and manufacture several souvenirs in the form of toys, stationary, cloths, and other that are trade marked: site of Qal'at al-Bahrain. Revenue from the Gift Shop will be directed to future research, conservation, and protection on the site.

Hosting of Events:

The "Golden Jubilee Celebration" for the Discovery of the Dilmun Civilization" is the first event that is scheduled on site, this will be a major event with a lot of ramifications and consequences (discussed in the next sections of this document).

The Directorate of Culture and National Heritage will of course plan other different events that are related to the site or will be organized at the site in an effort to promote it locally and internationally. The wide, inner space of the Main Fortress notably represents a strong potential location for such purposes.

Promoting the Site (getting connected):

Also, part of the major efforts to promote heritage tourism in Bahrain, heritage tourism experts will attempt, and part of the Management Plan for the site, to promote the site for regional and international tour operators. The site will be featured in tourism advertizing and also introduced as a major Archaeological site of Antiquity in the whole Gulf region.

(b) The Visitor Center & Its Role in Site Presentation and Interpretation

The Visitor Center (Site Museum) is situated on the beach to the north-east of the main Fort. It is placed on a podium, which functions as a jetty towards the sea. It is expected that this will facilitate future access by tour boats from Manama. The Visitor Center / Site Museum will act as a starting "initiation" point for the visitor or participator visiting the site. Yet, the Visitor Center will be careful as not to duplicate the site own experience (nor the National Museum in Manama) but complement it through the different exhibits and provides a different angle to the understanding of the site.

It is very important to study and research both the site experience (through the interpretive Path) and the Visitor Center experience so as not for one of them to duplicate the other. The Visitor Center/Site Museum will have the possibility to exhibit many of the archaeological findings and explain about the unique stratigraphy and different layers

of occupation at Qal'at al-Bahrain in more details. In addition, the Visitor Center will be a place to conduct research about the site.

(c) Promotion of Traditional Crafts & Agricultural Industries

The contemporary period should not be under-represented due to the extreme archaeological value of the site since it is crucial for the visitor to understand human-site relations even today. This will be explained not only in the Visitor Center / Site Museum but also throughout the site as well. Traditional crafts will be encouraged and welcomed on site (in certain designated locations, including eventually the Main Fortress, "Bahrain Fort") and off site in the near-by village of Karbabad as well. This will have a positive impact on the villages and on the continuity of the crafts themselves for next generations.

A previous amalgamation of traditional crafts in the area of Beit al Jasra (at the North-West of Bahrain island) proved to be not very successful, not only it took the traditional crafts from their own context (each area in Bahrain is usually famous for a particular type of crafts²), but also, it broke the continuity between the craftspersons and their immediate environment displaying the traditional crafts in a very unauthentic manner. This project will attempt to remedy that by bringing crafts back to their original context.

As already mentioned, the site is very rich with popular local crafts such as such as traditional fish traps (*Hadra*), palm leaves houses (*Barastaj*), basket weaving, herbal and traditional medicine, production of *dibs*, etc. For instance, there are several distribution centers around the site that work to promote these herbal and traditional medicines or medicinal waters (*Al Jisr Factory* near the site).

Lugah al Ma'aa is exerted from the pulp of the Palm trees when they are not fully ripe yet. A bottle can be sold from about 1 BD to 12 BD depending on quality. Manufacturing of *dibs* (honey treacle from dates) can be another traditional craft that is encouraged in the region around the site. The site surroundings also develop a very authentic old craft tradition that manufactures and sells traditional baskets located on the immediate neighbouring road to Karbabad. All these products can also be displayed and marketed within the Gift Shop of the Visitor Center / Site Museum.

(3) The "Golden Jubilee Celebration" for the Discovery of the Dilmun Civilization

The year 2004 marks the passage of 50 years since the discovery of the Dilmun Civilization in Bahrain. The discovery was a unique cultural event on both the regional and international levels. For this reason, the Cultural and National Heritage Directorate at the Ministry of Information finds it necessary to celebrate the occasion through the organization of a number of cultural activities to show the importance of the discovery of the Dilmun Civilization as an outstanding occurrence in the field of World archaeological discovery as before 1954, the Dilmun Civilization was uncovered news. Dilmun civilization represents one of the great Ancient Near East civilizations, together with the ones of the Tigris and Euphrates Valley, the Nile Valley, Indus Valley, as well as the ancient Persia. The Danish Archaeological Mission to Bahrain since the 1950s mainly through Dr. Geoffrey Bibby, and Professor P.V. Glob contributed immensely to the unearthing of this significant civilization. They both have also

² For example, *Karbabad* is famous for basket weaving, *Bani Jamra* for weaving the *Khalq*, *Ali'* for pottery, *Karranah* for the production of *Samim*: a type of cloth to store dates in, etc.

contributed to the founding of the Bahrain Historical and Archaeological Society, the first one of its kind in the Kingdom.

The Golden Jubilee celebrating the discovery of the Dilmun Civilization in Bahrain shows a strong desire to personify the following meanings and goals (as quoted from the Planning Committee and the Technical Committee):

- Uncover the deep-rooted role of the Kingdom of Bahrain among other countries of the World as an original center of civilization that played an outstanding role in enriching the progress of human civilization through the ages.

- Acknowledge the good deeds and actions of a number of persons such as the late Shaikh Sulman Ibn Hamad Al Khalifa who encouraged and supported archaeological discoveries in Bahrain as well as some members of the Danish Expedition who played a major role in the discovery of the Dilmun Civilization on the land of Bahrain and neighboring areas.

- Increase archaeological awareness among citizens through a number of celebration activities especially among the cultured and the new generation of the Kingdom of Bahrain.

- Re-attract attention to the importance of this historical, archaeological, and cultural event on regional, Arab, and international levels.

- Encourage research and study work on the topic of the Dilmun Civilization and its distinctive place among civilizations of the ancient World.

An implementation committee for the planning of this huge event was formed; the committee is headed by the Assistant Undersecretary for Culture and National Heritage. In addition, a technical committee was formed to prepare for a scientific symposium entitled: "Fifty Years of Bahrain Archaeology". In addition, a celebration exhibition at the Bahrain's National Museum will be organized in addition to several activities to be held at the site of Qal'at al-Bahrain.

ix. Staffing Levels (Professional, Technical, Maintenance)

The agency with the management authority (Ministry of Information) is working on addressing the notion of human resources development in relation to the site. Taking into consideration the proposed Visitor Center / Site Museum and the site, the Ministry will implement the hiring of experts, professional, technical, and maintenance staff to fill in the gaps needed for the proper management of the site, including conservationists, archaeologists, cultural site managers (with explicit experience in site interpretation and presentation), museum curators/managers for the Visitor Center / Site Museum, tourism promotion specialists, property managers, administrative and secretarial staff, in addition to maintenance and unskilled laborers. The following section will explain further the details of the Staffing Levels at the site.

(1) Staffing Levels & Job Description (cf. Map, § 4p)

The following is details of levels of staffing for the site of Qal'at al-Bahrain and for the Visitor Center / Site Museum:

- **Administration Unit:** composed of the following,
 - o Site Supervisor (1),
 - o Secretary (1),

- o Receptionist (1),
 - o Ticket Seller (1).
- **Cultural Site Management / Education Unit:** composed of the following staff,
- o CRM Specialist/Site Interpretation & Presentation Specialist (1),
 - o Museum Curator (1),
 - o Material Conservation Specialist (1),
 - o Education Supervisor (1),
 - o Guides (5),
 - o Researcher Position (2),
 - o Exhibition Coordinator (1),
 - o Technician (1).
- **Conservation & Maintenance Unit:** composed of the following,
- o Conservation Specialist (1),
 - o Archaeological Superintendent (1),
 - o Architect (1),
 - o Traditional Mason Builder (2),
 - o Laborer unskilled/Skilled(4),
 - o Air Conditioning Technician (1),
 - o Electrical Technician (1)
- **Tourism Promotion, Marketing, and Public Relations Unit:** Composed of the following,
- o Heritage Tourism Expert (1),
 - o Public Relations Supervisor (1),
 - o Data Information Management Specialist (1),
 - o Marketing Specialist (1)
- **Security Unit:** composed of the following,
- o Security Supervisor (1),
 - o Security Guard (5),
 - o Attendant (3),
 - o Watchmen (3).

Please refer to Flow Chart (4p, below): Details of Staffing Units Proposed for the site of Qal'at al-Bahrain & the Visitor Center / Site Museum), which provides more information as to which staff members are already available and which are in progress of being hired by the Ministry. Flow Chart (4p) also provides information as to which staff members are appointed jointly with the National Museum of Bahrain and which are full time employees working at the site and at the Visitor Center.

(2) Research & Assessment

The Visitor Center / Site Museum and the site itself will provide ample opportunity to conduct research on the site or beyond. The Visitor Center / Site Museum will attempt to store all books, articles, research reports, and progress reports written or published on the site and its related archaeology and heritage. In addition, there will be future opportunities for training in areas such as archaeology, heritage conservation, heritage tourism, cultural site management, and other related areas and topics.

(3) Coordination

In addition, it is very much recommended to establish a coordinating committee composed from representatives from the different stakeholders to foresee the implementation of the Management Plan keeping in mind that the Ministry of Information is the agency with management authority. This committee will serve as a scientific committee that provides guidance to the Ministry and insures coordination at all levels. This committee should arrange for public awareness sessions and should promote tourism to the site. In addition, this committee should supervise the work of the implementing agency.

x. Future Monitoring

The Management Plan should be considered a decision making tool to help with future excavations, conservation, and site interpretation and representation. It is expected that the Ministry of Information / Directorate of Culture and Heritage will work to implement periodical future monitoring for the site and the conservation of its various cultural and natural environments.

(1) Key Indicators for Measuring State of Conservation

The following are key indicators that have been chosen to measure the state of conservation/consolidation at the site:

- Measuring the State of Conservation through the investigation of state of the major ruins and features of the site through the production of measured drawings (documentation of evolution of the site), photographs, and material testing. Report on the development and implementation of different interpretation and site presentation techniques.
- Urban Growth and Encroachment within the Buffer Zone and Beyond: to measure the rate at which encroachment of any kind on the property and on the Buffer Zone.
- Tourist and Visitor Satisfaction: conduct periodical surveys eliciting tourists and visitors opinion on the level of services and quality of the experience within the site.
- State of the Environment Reporting: conduct thematic surveys concentrating on the number and characterization of different species (fauna and flora) with emphasis on the number of Palm Trees within the Palm-groves.

It has been agreed that for the first couple of years, the periodicity of the review of these indicators will be every year (once annually).

(2) Administrative Arrangement for Monitoring of the Site

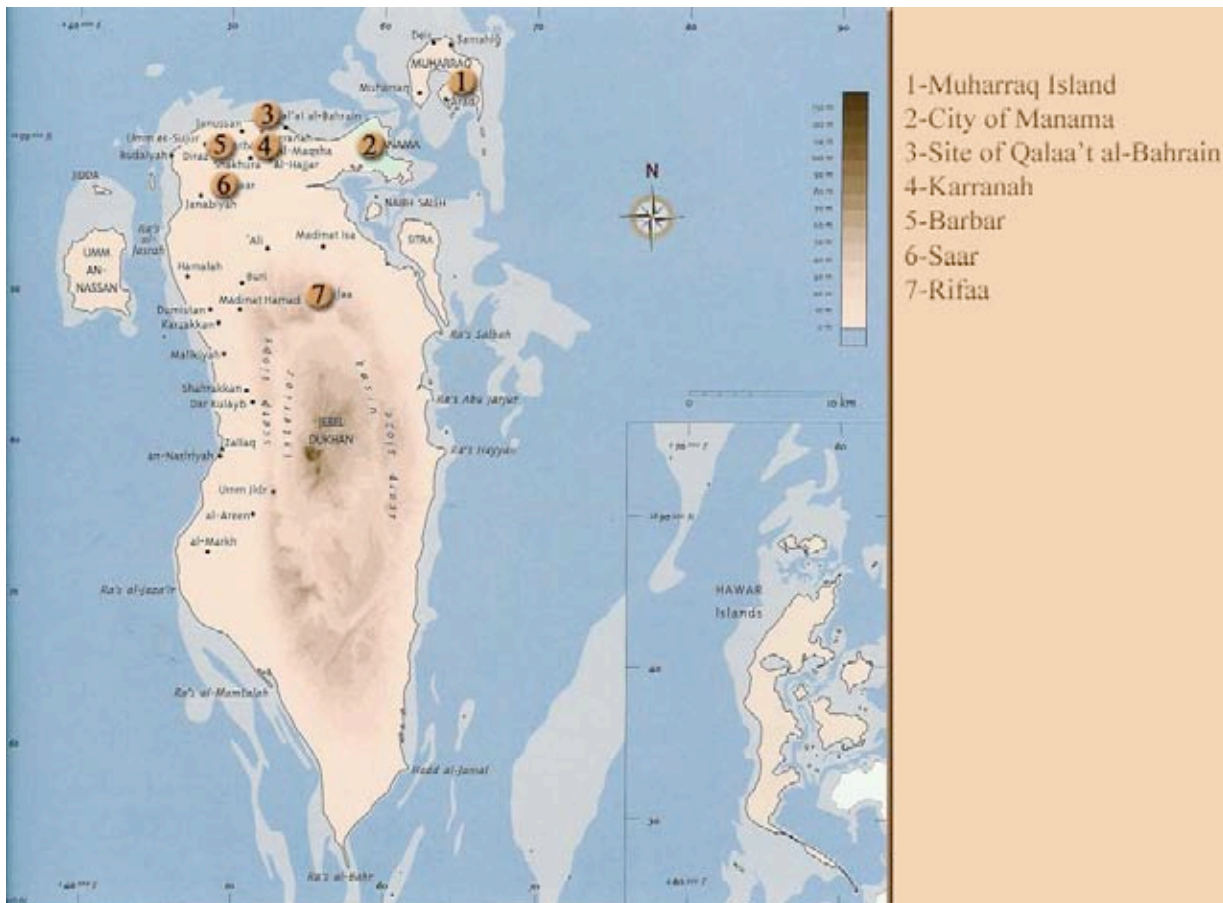
The Ministry of Information will be able to hire experts or use its own staff to conduct the yearly monitoring of the site. Results of the monitoring will be deposited at the Visitor Center and will be available for review by any local or international agency.

4. List of Maps, Charts & Other Documents

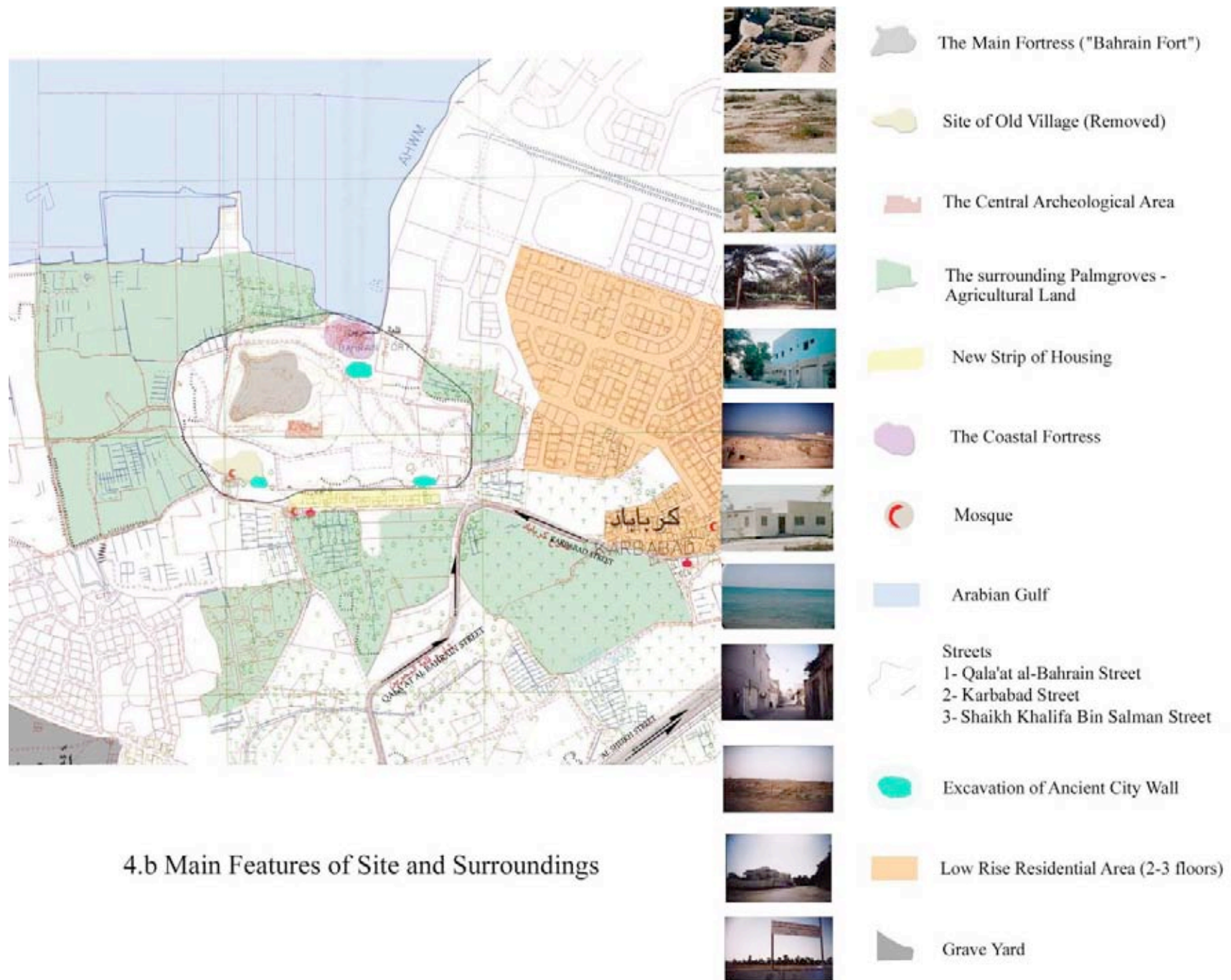
- a — Map Showing Bahrain with Main Locations
- b — Main Features of Site & Surroundings
- c — Aerial Photographs from the 1960s with Site Features
- d — Aerial Photographs from the 1970s with Site Features
- e — The Qala'at al-Bahrain *Tell*, and the Location of Different "City Wall" Excavations
- f — Existing Zoning & Land-use
- g — Ownership Document of 1993 (with English Translation)
- h — Ownership Map of the Site Owned by the Ministry of Information
- i — Ownership Map Juxtaposed on "Site Features" Map
- j — Ownership Map Showing Future Land Acquisition Planned by the Ministry of Information
- k — Illustrating the Planned Visitor Center / Site Museum (Exterior and Interior Shots)
- l — Illustrating the Planned Visitor Center / Site Museum (Two-Dimensional Drawings)
- m — Geographical Relationship between the Site & the Planned "New North City"
- n — Letter of Assurance from the *Northern Area Municipality* Regarding Impact of the Planned North City on the Site (with English Translation)
- o — Proposed Management Plan Zoning with Buffer Zone
- p — Flow Chart: Details of Staffing Units Proposed for the Site of Qal'at al Bahrain and the Visitor Center / Site Museum
- q — Flow Chart: Management Plan for the Site of Qal'at al-Bahrain
- r — Recently new project of an artificial island offshore Qal'at al-Bahrain.

4. List of Maps

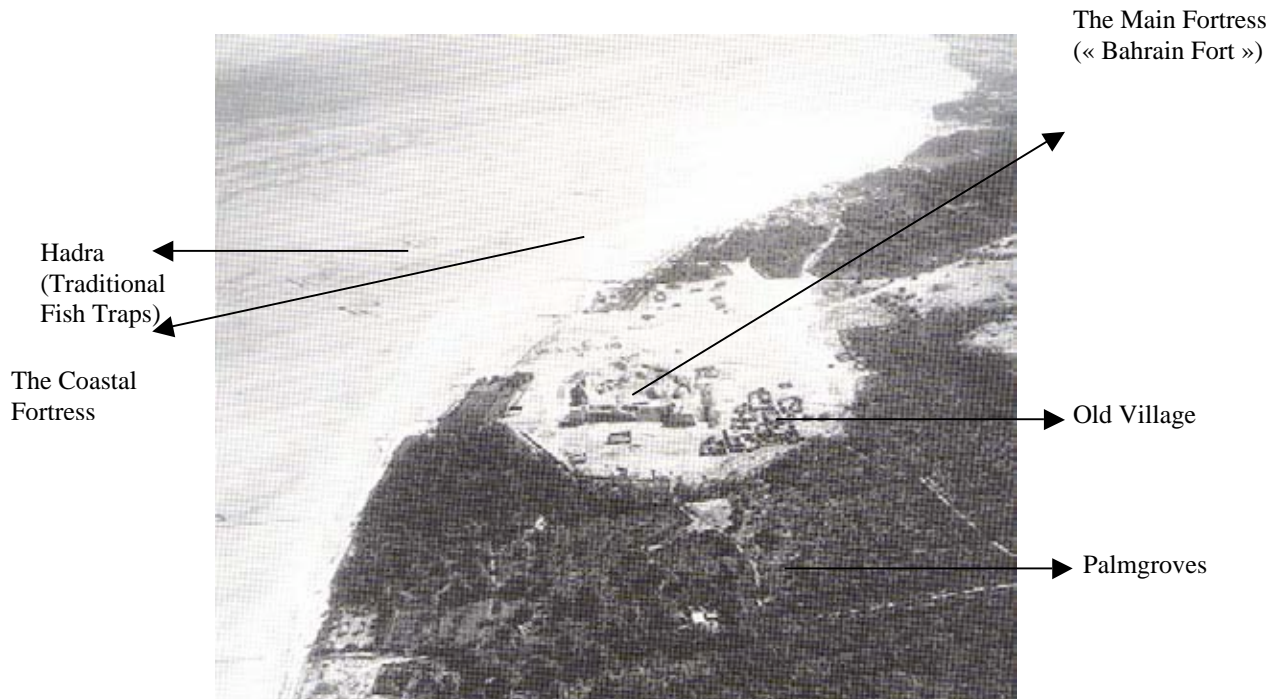
4.a Map Showing Bahrain with Main Locations



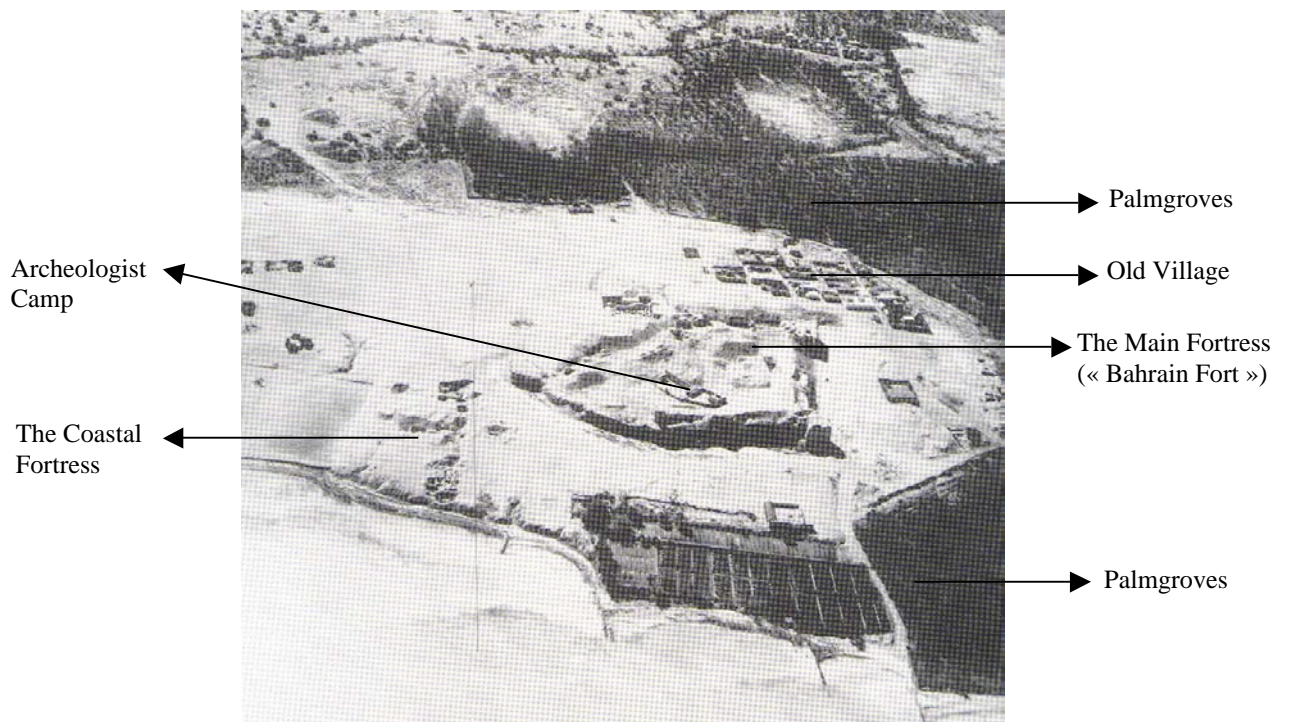
(Source: Institut du Monde Arabe (P. Lombard, éd.), 1999 : 29)



4.c Aerial Photographs from the 1960s with Site Features



Aerial photograph of the *tell* of Qal'at al-Bahrain surrounded by Palmgroves agricultural lands, view towards East (RAF photograph 1962)
 (Source: Højlund F. & Andersen H., 1994 : 8)



Aerial photograph of the *tell* of Qal'at al-Bahrain surrounded by Palmgroves agricultural lands, view towards South (RAF photograph 1962)
 (Source: Højlund F. & Andersen H., 1994 : 8)

4.d Aerial Photographs from the early 1980s with Site Features

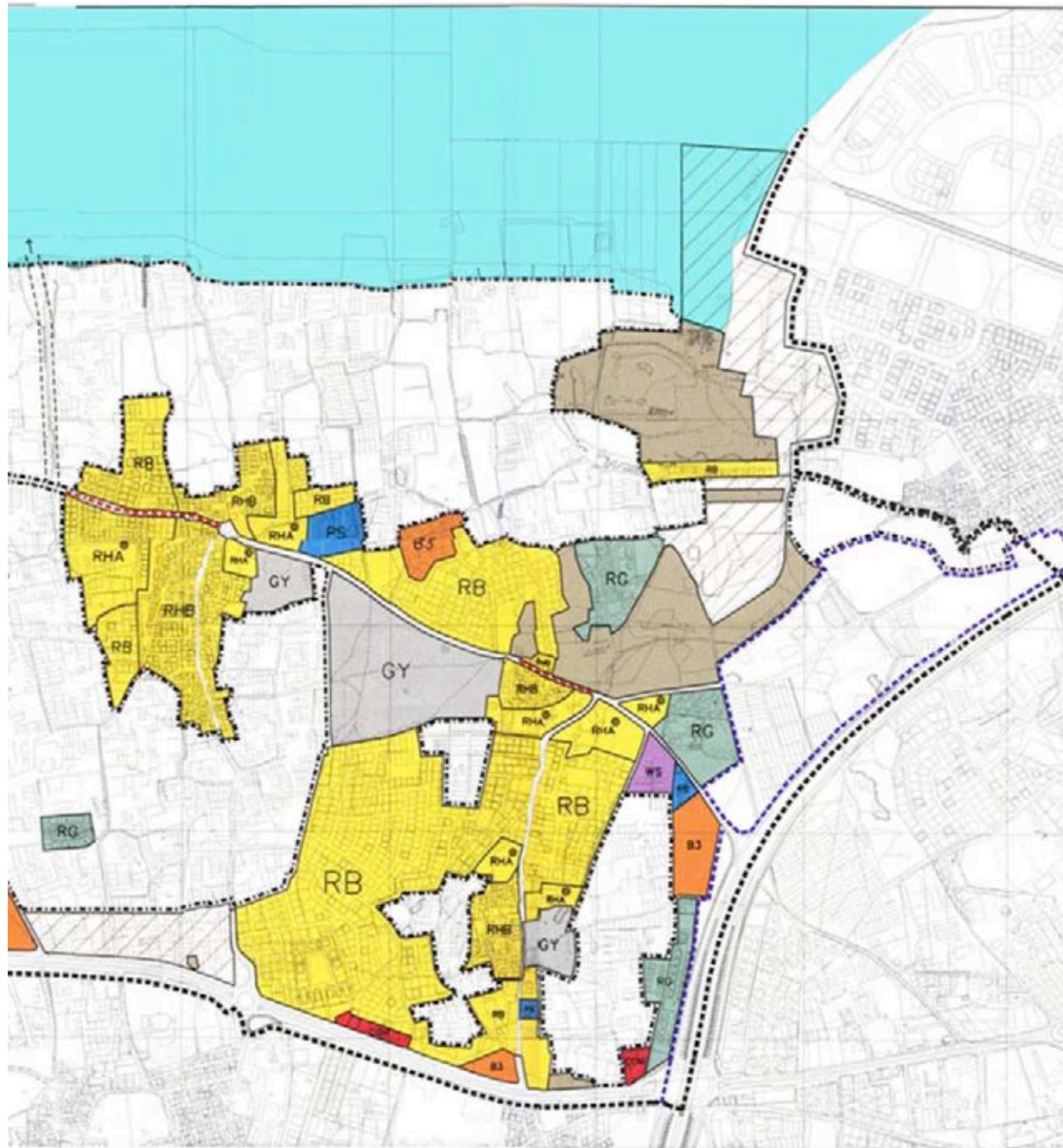


- 1 — The Main Fortress (“Bahrain Fort”)
- 2 — The Central Archaeological Area
- 3 — The Coastal Fortress
- 5 — The Surrounding Palmgroves
- 6 — Temporary Workers Structures
- 7 — Site of Old Village (now removed)
- 8 — New Strip of Houses (“New Village”)

4.e The Qal'at al-Bahrain Tell, surveyed by O. Brande-Lauridsen 1960; contour equidistance 0.5 m above sea level.
The map shows the location of the different "City Wall" excavations

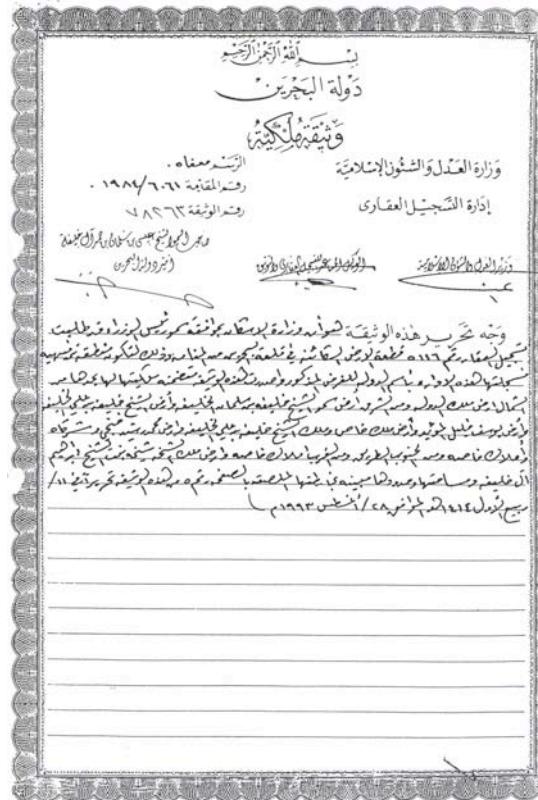


4.f Existing Zoning and Land-Use



- Private Residential (A)
- Private Residential (B)
- Row Housing (A)
- Row Housing (B)
- Compound / Garden Residential
- MOH Projects
- Bldgs 5 Storey
- Bldgs 3 Storey
- Commercial Zone
- Workshops
- Light Industrial Area
- Services Area
- Public Services
- Graveyard
- Archeological Site
- Archeological Site Expansion
- Unplanned Area
- Free Zone Boundary
- Study Area
- Commercial Road
- Services Road
- Arabian Gulf

4.g Ownership Document of 1993 (with English Translation)



In the name of God, the Most Merciful, the Most Beneficiary

The Kingdom of Bahrain

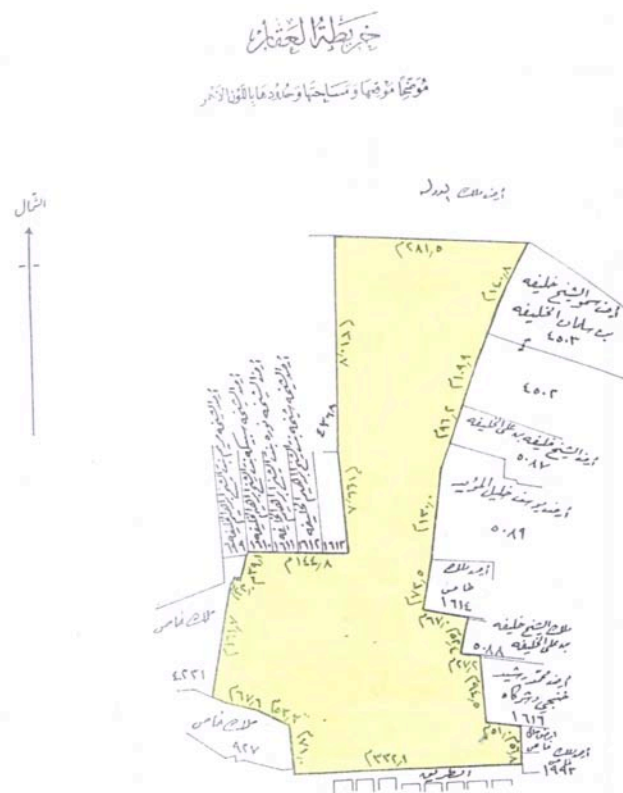
Ownership Document

Ministry of Justice and Islamic Affairs	Fee: no fee	
Directorate of Real Estate Registration	Number of Muqademah: 6061/1984	
	Number of Document: 78263	

Minister of Justice and Islamic Affairs	Assistant to Real Estate Registration & Documentation	His Royal Highness Skheikh Isa Bin Salman bin Hamad Al Khalifa
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Main topic of this document: is that the Ministry of Housing and Municipal Affairs and after the approval of HH the Minister has requested the registration of the Land number 5116 (land plot located in Site of Qal'at al Bahrain in Manama) so it can be an area of general public good. These documents have registered this Land in the name of the State for the purpose mentioned, and this document was issued to grant ownership as stated. Borders from the north include government land, and from the east a land owned by HH Sheikh Khalifa bin Salman Al Khalifa, and the land of Sheikh Khalifa bin Ali Al Khalifa, and the land of Youseff Khalil al Muayyad, and a private land, and a land owned by Skheikh Khalifah Bin Ali Al Khalifah, and the land Mohammad Rashid Fethi and his partners, and other private land. And from the South, there is the Road, and from the West, there are the ownerships of Al-Sheikha Sheikha Bint Sheikh Ibrahim Al Khalifa. The area and boundaries of the land is as indicated in the enclosed map number 5 of this document which was issued on the 11th of Rabi'e Awal conciding with the 28th of August, 1993.

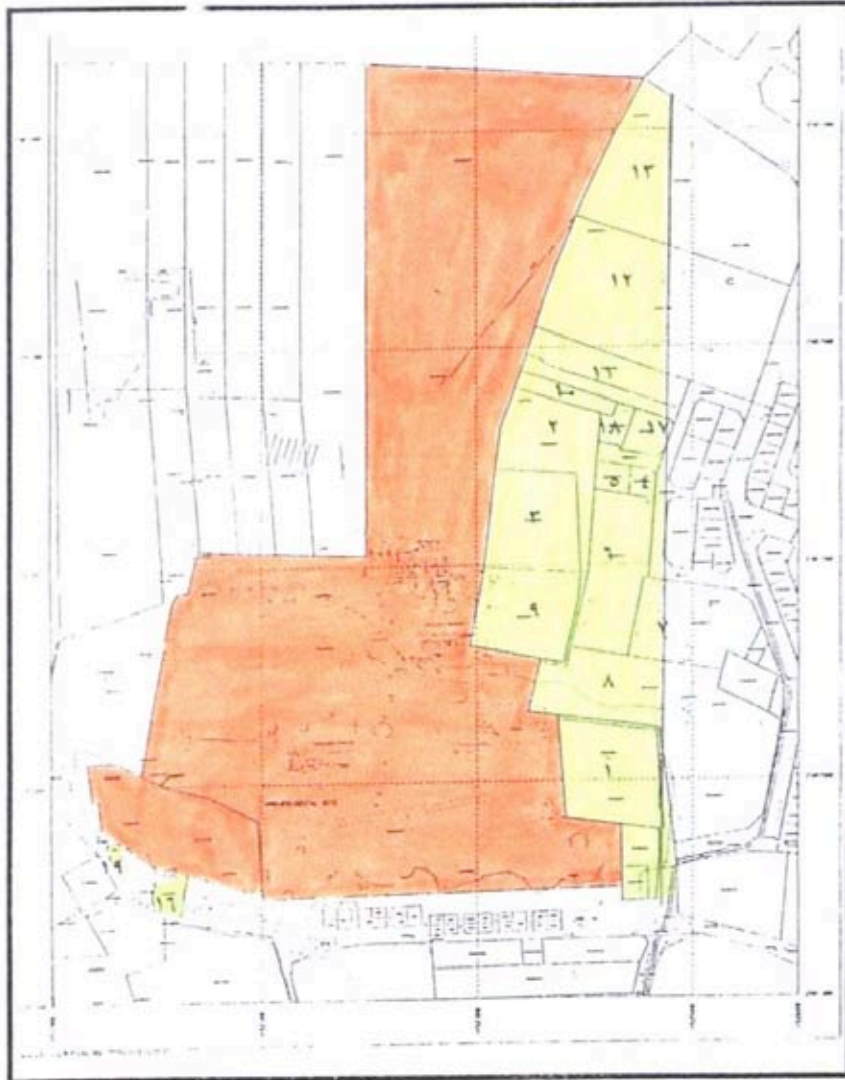
4.h Ownership Map of the Site Owned by the Ministry of Information





4.i Ownership Map Juxtaposed on "Site Features" Map

4.j Ownership Map Showing Future Land Acquisition Planned by the Ministry of Information



- | | | |
|--|---------------------------------------|--|
| ١٤- إدارة الأوقاف السنية | ٨- الشيخة منيرة بنت راشد آل خليفة | ١- محمد رشيد خلجي |
| ١٥- إدارة الأوقاف السنية | ٩- يوسف خليل المؤيد | ٢- عائشة بنت أحمد بن إبراهيم المؤيد |
| ١٦- إدارة الأوقاف الجعفرية | ١٠- الشيخ نواف يوسف آل خليفة | ٣- عائشة بنت أحمد بن إبراهيم المؤيد |
| ١٧- الشيخة مريم بنت الشيخ محمد بن إبراهيم آل خليفة | ١١- الشيخة منيرة بنت راشد آل خليفة | ٤- الشيخ سلمان بن علي آل خليفة |
| ١٨- الشيخة لؤلؤة بنت الشيخ راشد بن علي آل خليفة | ١٢- سمو الشيخ علي بن خليفة آل خليفة | ٥- الشيخ أحمد بن علي آل خليفة |
| ١٩- عبدالله وأحمد لبي مدن | ١٣- سمو الشيخ سلمان بن خليفة آل خليفة | ٦- الشيخة مريم بنت محمد بن علي آل خليفة وأولادها |
| | | ٧- الشيخ نواف والشيخ راشد لبي يوسف بن علي آل خليفة |

أراضي خاصة مطلوبة للإستثمار



Ownership by Ministry of Information is in Progress

مسجل باسم المملكة لصالح الآثار



Property Already Owned by Ministry of Information

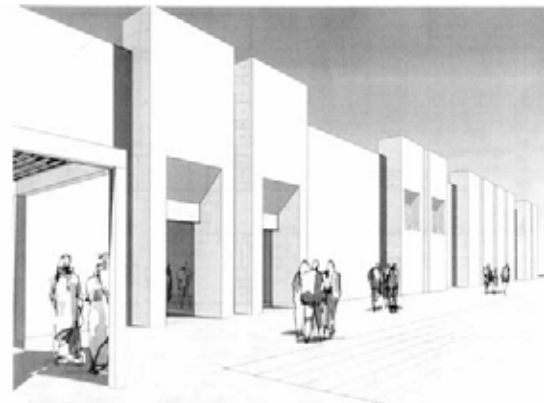
4.k Illustrating the Planned Visitor Center (Site Museum)
(Exterior and Interior Shots)



Exterior View of Planned Visitor Center (Site Museum)
(Ministry of Information, Kingdom of Bahrain & Wohlert Arkitekter A/S, 2003)



The Coastal Fortress (view of the sea)
(December 2003)

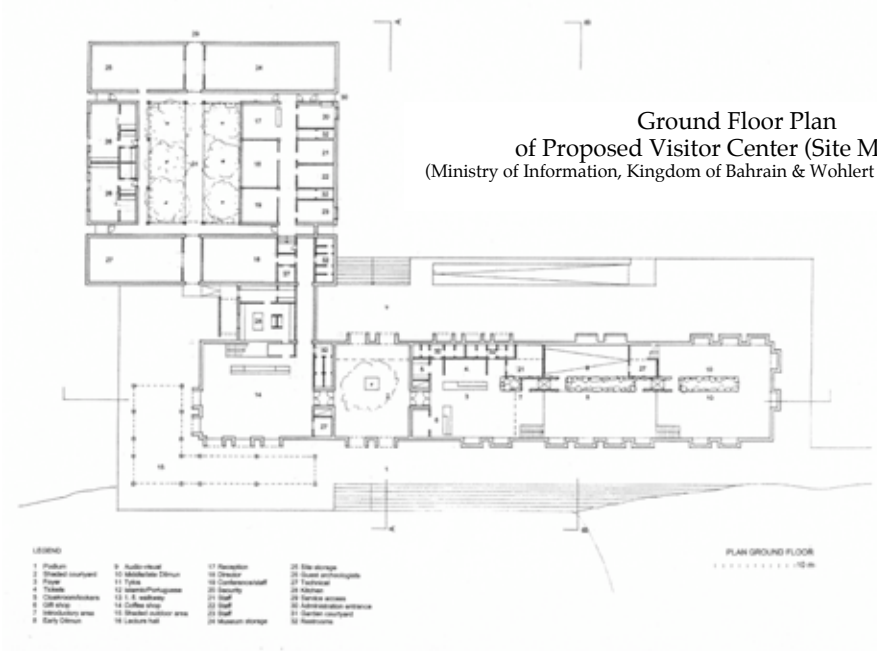


Main Entrance of Planned Visitor Center (Site Museum)
(Ministry of Information, Kingdom of Bahrain & Wohlert Arkitekter A/S, 2003)

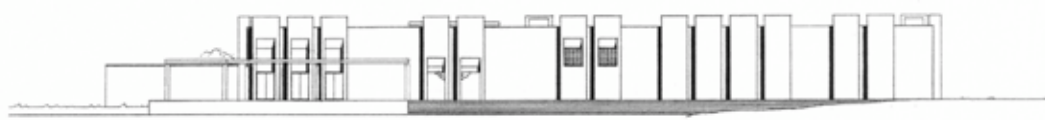


Components of Planned Visitor Center
(Ministry of Information, Kingdom of Bahrain & Wohlert Arkitekter A/S, 2003)

**4.L Illustrating the Planned Visitor Center (Site Museum)
(Two-Dimensional Drawings)**



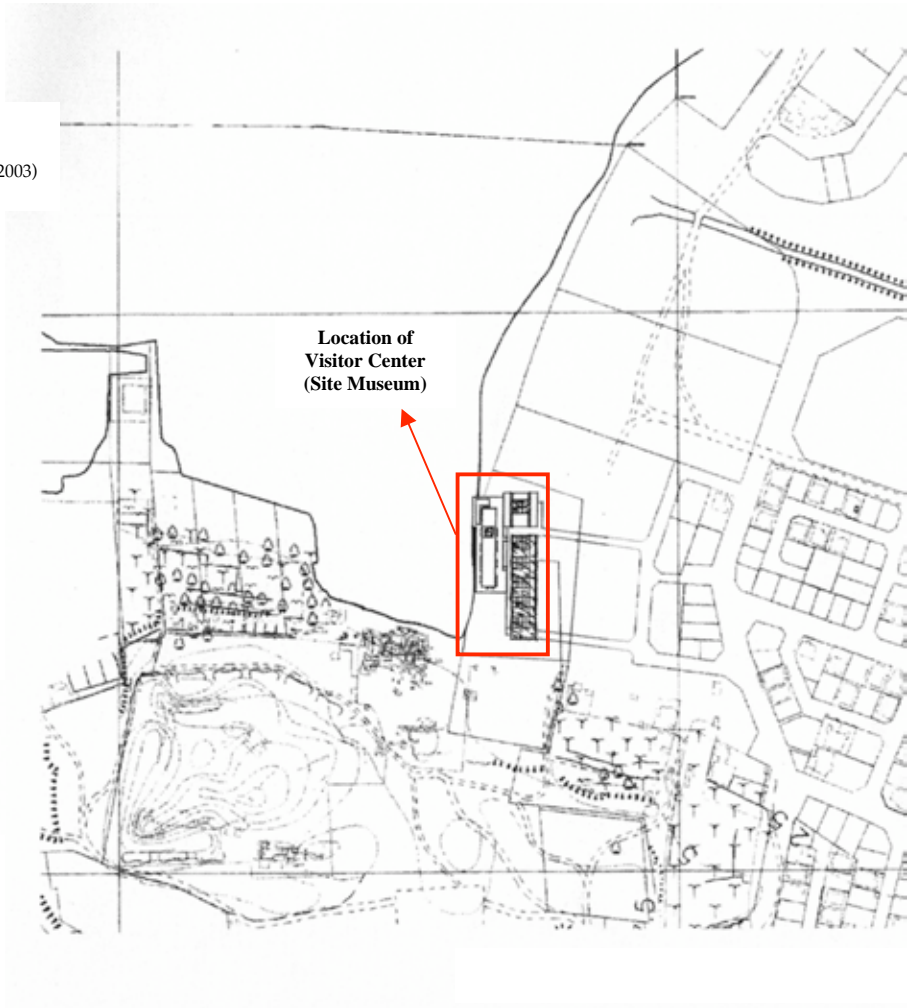
**Ground Floor Plan
of Proposed Visitor Center (Site Museum)**
(Ministry of Information, Kingdom of Bahrain & Wohlert Arkitekter A/S, 2003)



West Elevation of Proposed Visitor Center (Site Museum)
(Ministry of Information, Kingdom of Bahrain & Wohlert Arkitekter A/S, 2003)

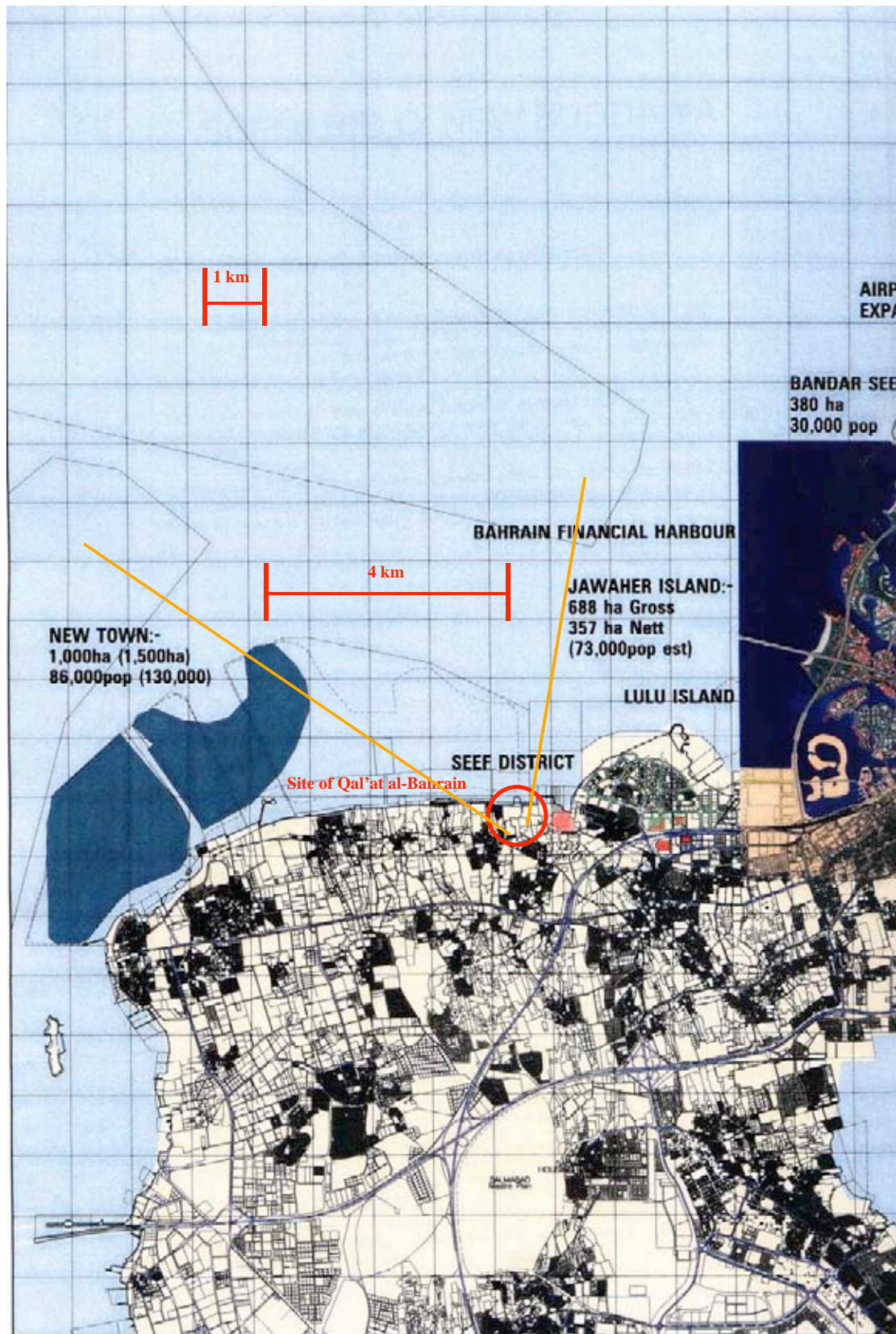


Section of Proposed Visitor Center (Site Museum)
(Ministry of Information, Kingdom of Bahrain & Wohlert Arkitekter A/S, 2003)



Site Plan of Proposed Visitor Center (Site Museum)
(Ministry of Information, Kingdom of Bahrain & Wohlert Arkitekter A/S, 2003)

4.m Geographical Relationships between the Site and the Planned “New North City”



4.n Letter of Assurance from the Northern Area Municipality Regarding Impact of the Planned North City on the Site (with English Translation)



Kingdom of Bahrain
Northern Area Municipality
Municipal Council

Number: m.b.sh. / s.m- 38/2003
Date: 27/10/2003

To: Mr. Khalid Mohammad Al-Sindi
Superintendent of Archaeology and Heritage

According to your document no. 151/2003 dated October 4 2003, we would like to outline the following issues:

The Northern Municipal Council has already made all efforts to protect and conserve all archaeological sites located in the Northern area, of which Qal'at al-Bahrain is one of the most important.

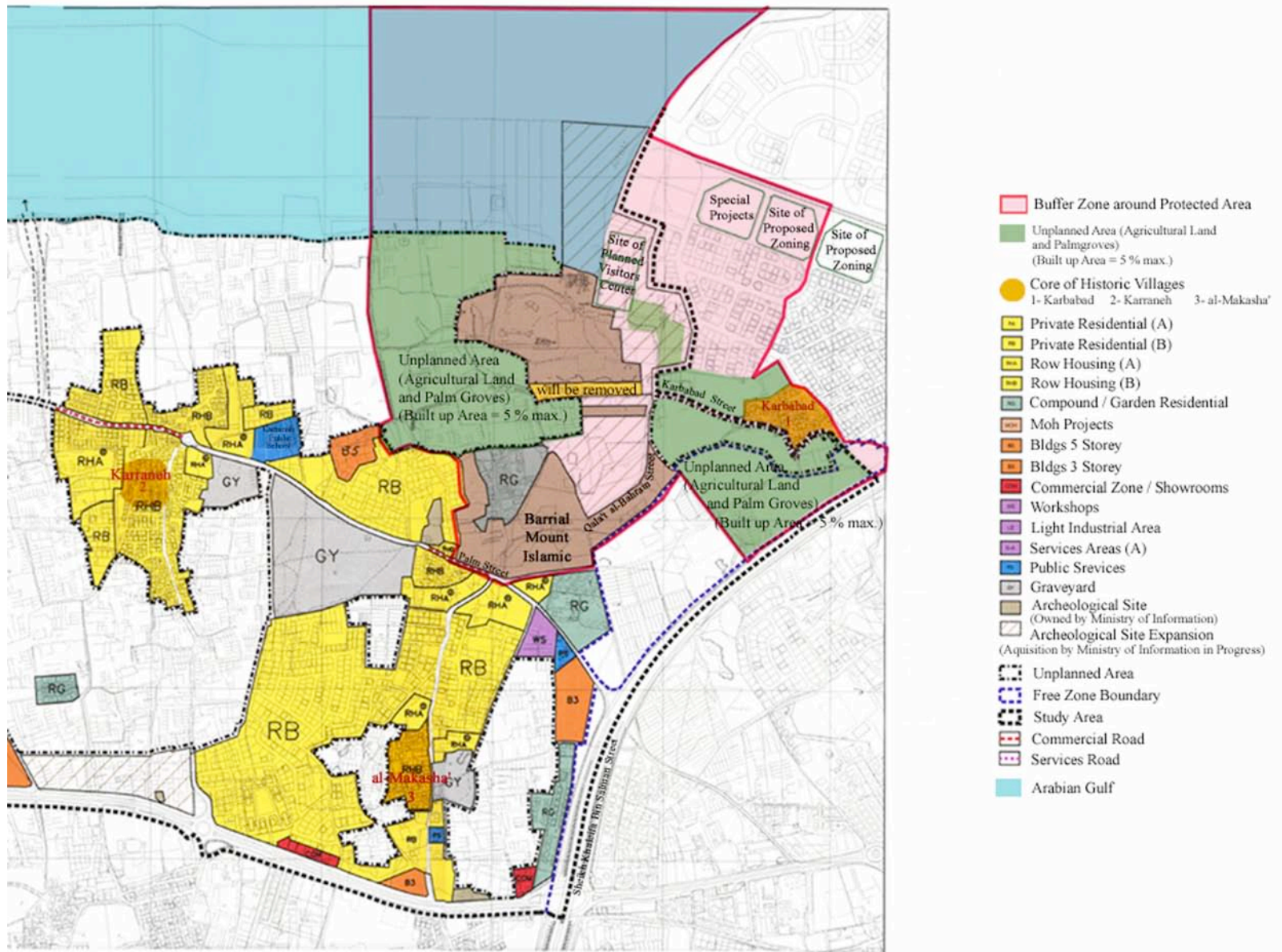
Based on this, the Municipal Council had already adopted a Plan aimed at the conservation of this important archaeological Site. We have come forward with a plan to the Committee of Housing and Development to relocate the residents within the Site to another location nearby so as to be able to protect the Site and prepare it for future investigations and developments. We have also made all efforts to clean up and clear the area around the Site from any wastes that could have had an adverse effect on the Site. In addition, we have worked on a Project that aimed to the protection of coastal lines from private ownerships and kept it within public domain, while keeping it clean and green for the benefit of the Site and the environment.

Regarding new development/construction projects of the Planned North City, the Municipal Council had agreed on the location of such a Project which would extend from the Village of Budaiya until the Village of Barbar. Therefore, the North City would be further to the West of the Site and would not have an impact on the Site, and also, the cone of vision from the Site to the Sea would be maintained without any obtrusive objects.

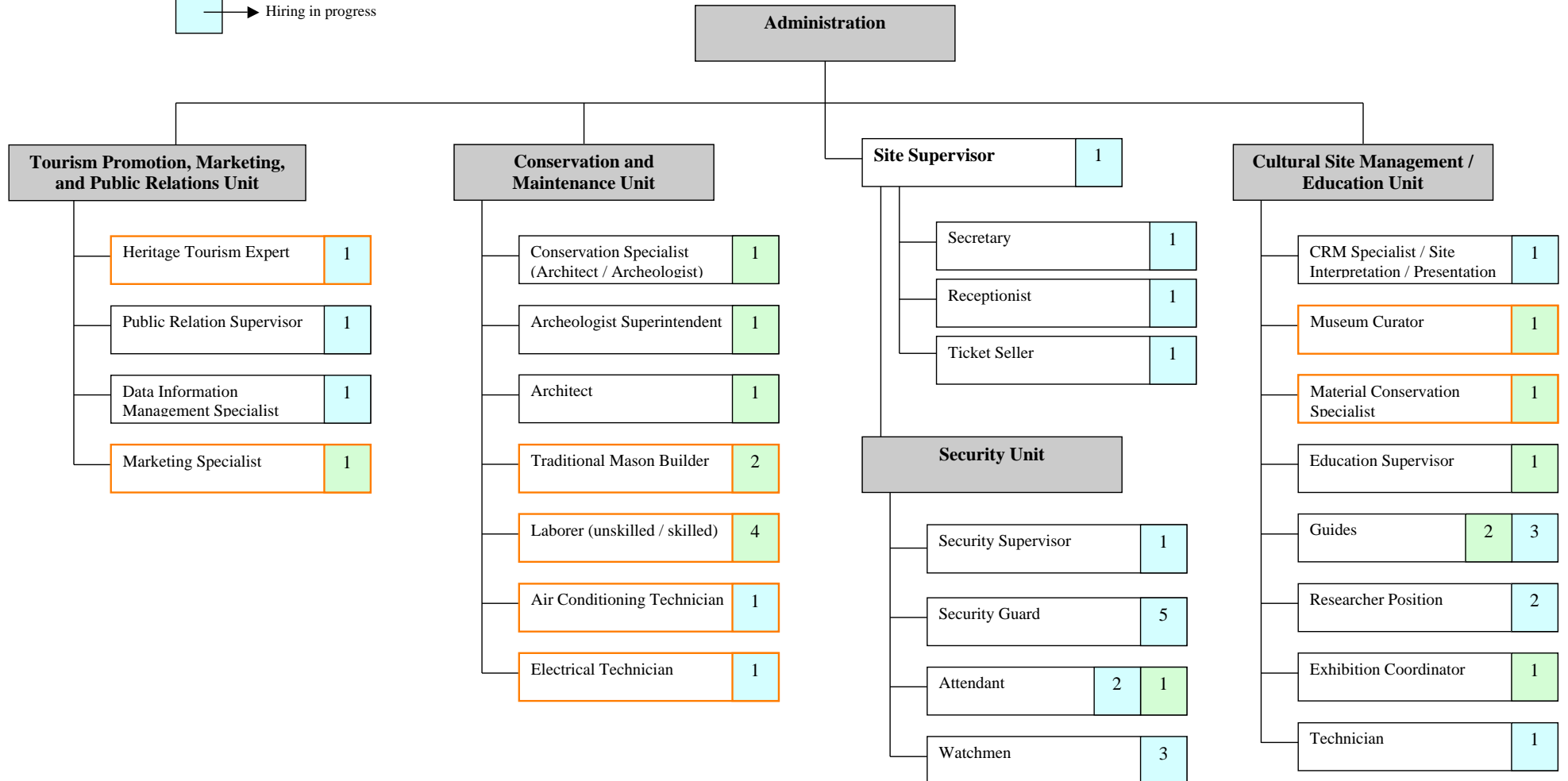
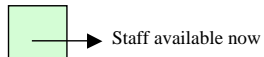
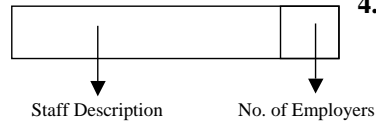
We will keep you informed of any future developments related to the Site and this issue, or related to any other archaeological sites in the northern region.
Best regards.

Majeed Sayyed Ali
The Head of Municipal Council

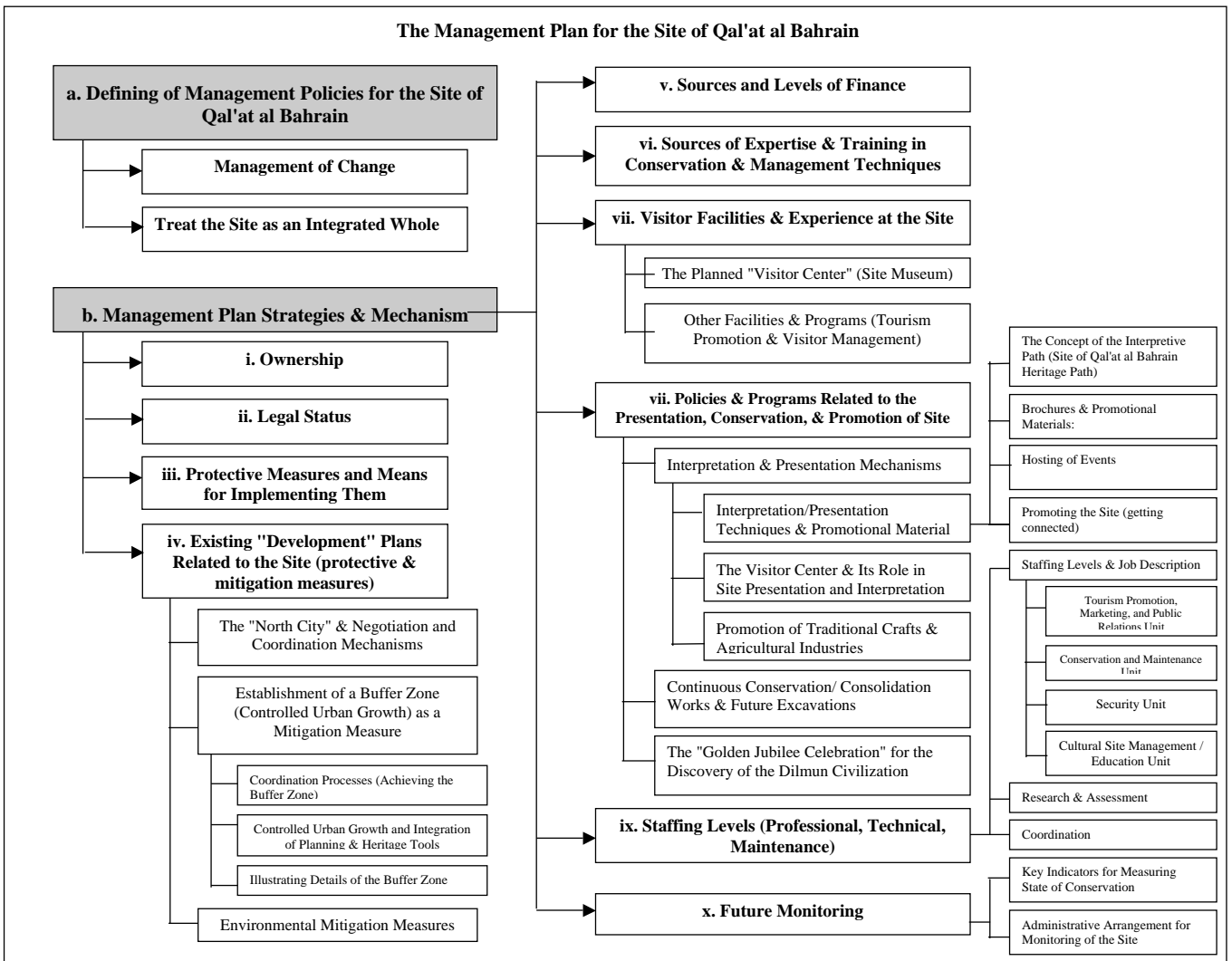
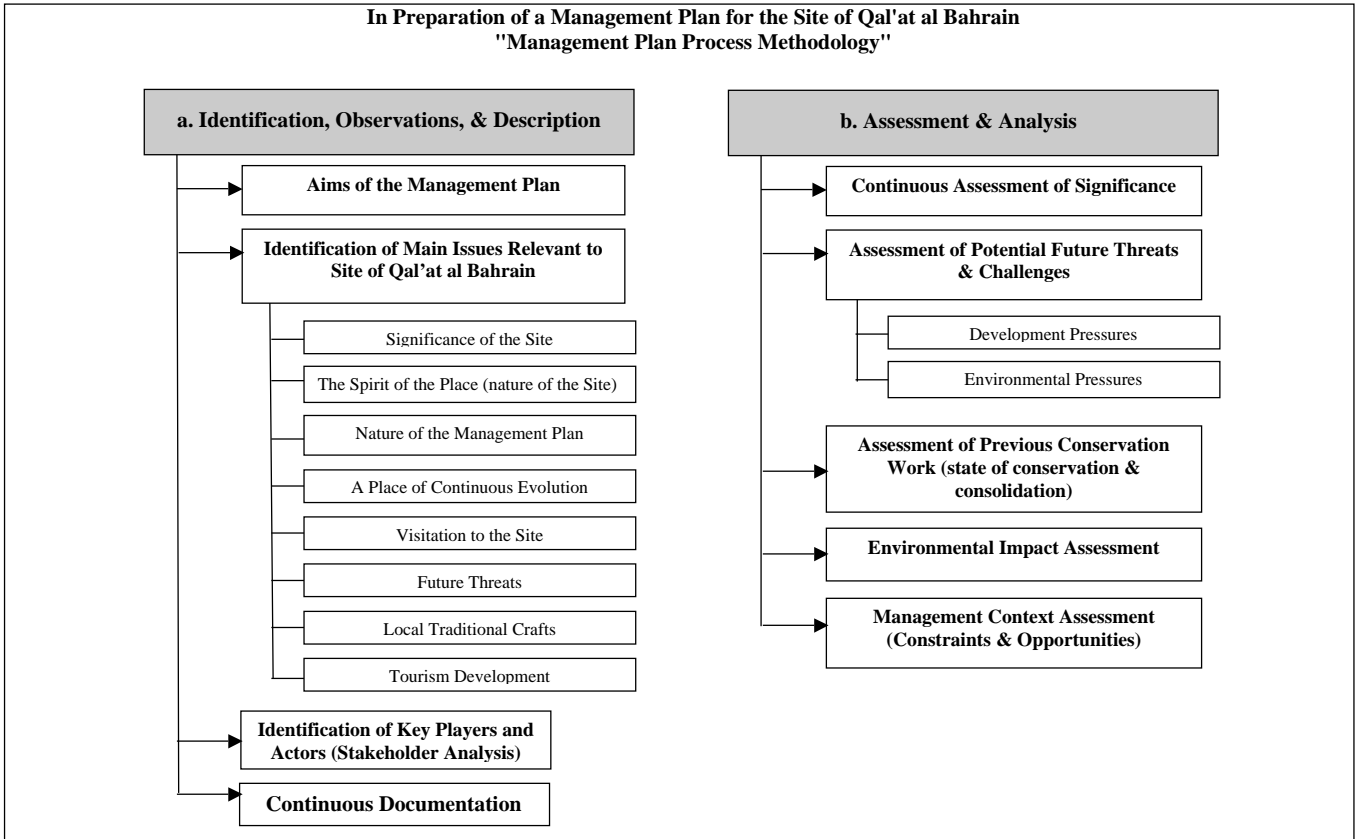
4.0 Proposed Management Plan Zoning with Buffer Zone



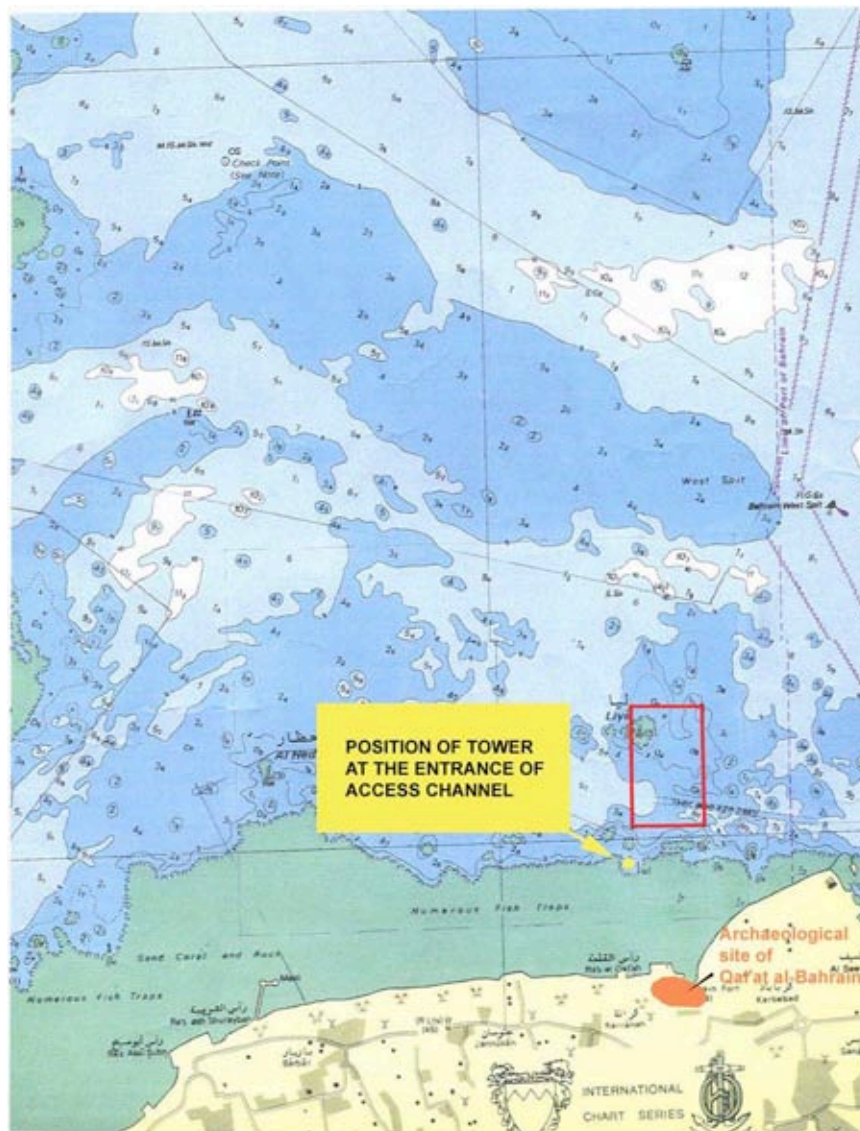
4.p Details of Staffing Units Proposed for the Site of Qal'at al-Bahrain and the Visitor Center (Site Museum)



4.q The Management Plan Process Methodology



4.r Project of an artificial island offshore Qal'at al-Bahrain



Location of the proposed artificial island

Note : A brief description of the project, available a few days before the delivery of the present document, mentions : « *In particular, the project will address concerns regarding Qal'at al-Bahrain site (...). Not far from the fully developed Seef District, the project will not infringe on the legal boundaries (« buffer zone ») set for the cultural site of Qal'at al-Bahrain, as it will be more than one kilometer away from it. Buildings will be low-rise structures with an amalgam of traditional Arabic and modern architectural designs ; it will be appointed with carefully greeneries, parks, lagoons and streams. As the « Bahrain Fort » has a higher elevation, visitors to the Fort will have a breathtaking and unobstructed view of the development and of the Arabian Gulf. Residents and visitors to the development on the other hand will have a clear view of the « Bahrain Fort » (...)* »

5. List of images and Photographs

- a — Group 1: Panoramic Views of the Overall Site
- b — Group 2: Approach to the Site
- c — Group 3: Main Site Features
- d — Group 4: Near-by Local Community (Strip of Housing)
- e — Group 5: Conservation/Consolidation Work
- f — Group 6: Features from within the Buffer Zone
- g — Group 7: Features from Beyond (outside) the Buffer Zone
- h — Group 8: Traditional Arts & Crafts From Around the Site
- i — Group 9: Tourists Visiting the Site
- j — Curatorial Management of Archaeological Findings at the Material Conservation Lab of Bahrain National Museum.

a. Group 1: Panoramic Views of the Overall Site



General Panoramic View of Site, towards the West
(October 2003)



General Panoramic View of Site, towards the West
(October 2003)



General Panoramic View of Site towards the West – Site of Potential Continuous Excavations in front of the Main Fortress (“Bahrain Fort”) (October 2003)



Panoramic View on the Upper Level of the Main Fortress (“Bahrain Fort”), toward the West (December 2003)

b. Group 2: Approach to the Site



Approach to the Site from the East
(December 2003)



Approach to the Site from the East and View of the Site at Sunset

(December 2003)



Site Sign Approach from Karbabad and Qala'at al Bahrain Street
(December 2003)



Access to the Site from Karranah Street and Qala'at al-Bahrain Street
(December 2003)

b. Group 3: Main Site Features



City Wall Excavation and border between Site and Local Community Houses (October 2003)



Excavations of The Central Archaeological Area (October 2003)



Excavations of The Central Archaeological Area (October 2003)



The Main Fortress (“Bahrain Fort”). South-East Boulevard overlooking the Central Archaeological Area) (October 2003)



The Main Fortress (“Bahrain Fort”) (View of Moat) (October 2003)



View of Moat (October 2003)



The Main fortress (“Bahrain Fort”), inside the First Enclosure (October 2003)



The Main Fortress (“Bahrain Fort”) – First Enclosure – Water Cistern (October 2003)



TheMain Fortress (“Bahrain Fort”) — First Enclosure — Stables (October 2003)



The Main Fortress (“Bahrain Fort”) – First Enclosure – *Madbasa* covered for protection (October 2003)



The Main Fortress –“Bahrain Fort” - *Madbasa* - (Interior) (October 2003)



The Main Fortress (“Bahrain Fort”). Original wall layer from second and third stages (December 2003)



The Main Fortress (‘Bahrain Fort’) – First Enclosure Conservation (October 2003)



Reconstructed Arcades near the entrance gate of the Main Fortress (‘Bahrain Fort’) (October 2003)



The Main Fortress (‘Bahrain Fort’) Location with possible excessive conservation (October 2003).



The Main Fortress (‘Bahrain Fort’) Location with possible excessive conservation (October 2003).



The Coastal Fortress (View of Corner Tower)
(October 2003)



The Coastal Fortress – *Madbasa*
(October 2003)



The Coastal Fortress – Central Courtyard with sand covering for protection
(October 2003)



The Coastal Fortress – Central Courtyard
Covered Floor Pattern
(October 2003)



Sea Coral Stone used for conservation/restoration
(October 2003)



Agricultural Land to the West of the Site
(Part of the Buffer Zone) (December 2003)



Agricultural Land to the West of the Site with View of the Site
(Part of the Buffer Zone) (December 2003)



Agricultural Land to the West of the Site
(Part of the Buffer Zone) (December 2003)



Horses Stables (Part of the Palmgroves and of the Buffer Zone) (December 2003)



Hadra (fish trap) in the Sea, offshore the site (Part of the Buffer Zone) (October 2003)



Location of the old Settlement & Houses (with Mosque Remaining)
removed in 1990/91 (October 2003)

d. Group 4: Nearby Local Community (Strip of Housing)



Near by Community (Strip of Housing)
(Scheduled to be relocated in near by Village) (October 2003)



Strip of Local Community
(Scheduled to be relocated in near by Village) (October 2003)



Near by Community (Strip of Housing)
(Scheduled to be relocated in near by Village) (October 2003)



Border Between Qal'at al-Bahrain Site and Local Community Houses (Strip of Housing)
(Scheduled to be relocated in near by village) (October 2003)



Ma'atam/Local Community Council Houses (Strip of Housing)
(Scheduled to be relocated in near by village) (October 2003)



Qal'at al-Bahrain Women *Ma'atam*, and present Mosque
(October 2003)



Problem of Dust from neighbouring Archaeological Site (October 2003)



Problem of Dust from neighbouring Archaeological Site (October 2003)



Problem of Dust from neighbouring Archaeological Site (October 2003)

e. Group 5: Conservation/Consolidation Work



Current Conservation / Consolidation works at the Main Fortress (“Bahrain Fort”) (December 2003)



Different Layers/Periods of Occupation and Restoration Works at the Main Fortress (“Bahrain Fort”) (December 2003)



The Main Fortress (“Bahrain Fort”). Showing Original Wall (October 2003)



Conservation / Consolidation on the Outer Wall of
the Main Fortress (“Bahrain Fort”)
(December 2003)



The Main Fortress (“Bahrain Fort”)
(Original Wall)
(October 2003)



The Main Fortress (“Bahrain Fort”)
Traditional Roofing System
Used in Conservation
(October 2003)



Traditional Structural Wood (*Danshil*) for Conservation/Restoration
(October 2003)



The Main Fortress (“Bahrain Fort”) – Local Men at Work
(October 2003)



Workers Shed near the Main Fortress (“Bahrain Fort”)
(October 2003)

f. Group 6: Various Features within the Buffer Zone



Karbabad Street (Part of the Buffer Zone) (December 2003)



Old buildings in Karbabad Street (Part of the Buffer Zone) (December 2003)



The Low Rise Residential Neighborhood East of the Site
(Part of the Buffer Zone) (December 2003)

g. Group 7: Various Features Beyond (outside) the Buffer Zone



Public School of Karranah Village (Nearby Location West of the Site) (December 2003)



Graveyard within the Village of Karranah (December 2003)



Nearby "Luqah" Water Factory Shop (December 2003)



"Luqah" Water Advertisement (December 2003)



Illustration Showing Benefits of "Luqah" Water

h. Group 8: Traditional Arts & Crafts From Around the Site



Traditional Basket Weaving Shops very close to the Site On Karbabad Street (December 2003)



Traditional Basket Weaving Shops very close to the Site On Karbabad Street (December 2003)



Traditional Basket Weaving Shops very close to the Site On Karbabad Street (December 2003)

i. Group 9: Tourists Visiting the Site



Tourists on Horseback at the Site
(October 2003)



School Buses (visitors) to the Site
(October 2003)

j. Group 10: Curatorial Management of Archaeological Findings at the Material Conservation Lab of Bahrain National Museum.



Classification and Conservation of Pottery & other Archeological Findings from Different Sites at the National Museum of Bahrain (December 2003)



Classification and Conservation of Pottery & other Archeological Findings from Different Sites at the National Museum of Bahrain (December 2003)



Classification and Conservation of Pottery & other Archeological Findings from Different Sites at the National Museum of Bahrain (December 2003)



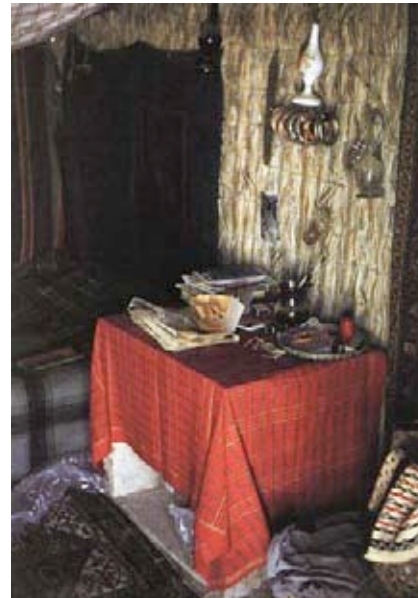
Classification and Conservation of Pottery & other Archeological Findings from Different Sites at the National Museum of Bahrain (December 2003)



Classification and Conservation of Pottery & other Archeological Findings from Different Sites at the National Museum of Bahrain (December 2003)



THE ARCHEOLOGISTS CAMP
(SOURCE: GLOB P.V., 1999)



A LOOK INTO THE ARCHEOLOGIST ELSE
ROESDAHL'S CELL, 1965
(SOURCE: GLOB P.V., 1999)



F11- P29- CONSERVATION OF THE TRADITIONAL
BARASTAJ ON THE UPPER LEVEL OF THE MAIN
FORTRESS ("BAHRAIN FORT")
(DECEMBER 2003)



WORKERS IN THE YARD FOR THE WEEKLY
PAYMENT OF WAGES
(SOURCE: GLOB P.V., 1999)



F11- P30- CONSERVATION OF THE TRADITIONAL BARASTAJ
ON THE UPPER LEVEL OF THE MAIN FORTRESS
("BAHRAIN FORT")
(DECEMBER 2003)



F11- P33- CONSERVATION OF THE TRADITIONAL
BARASTAJ ON THE UPPER LEVEL OF THE MAIN
FORTRESS ("BAHRAIN FORT")
(DECEMBER 2003)



F11- P31- CONSERVATION OF THE TRADITIONAL
BARASTAJ ON THE UPPER LEVEL OF THE MAIN FORTRESS
("BAHRAIN FORT")
(DECEMBER 2003)

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Existing road corridors surrounding the Fort, “2003”.

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NOTE ON CONSERVATION PROBLEMS
IN THE COASTAL FORTRESS AND IN THE CENTRAL EXCAVATION AREA :
PLANS AND TIMING FOR IMPLEMENTATION

The Directorate of Archaeology of Bahrain is aware of the necessary conservation plans to be applied both to the Coastal Fortress (« Islamic Fort ») and to the Central Excavation Area.

We also wish to inform both ICOMOS and the World Heritage Center that, since the ICOMOS expert's evaluation visit in November 2004, several actions have already been launched.

1 — Coastal Fortress (« Islamic Fort »)

The conservation work has already started there.

The following information was submitted in January 2005 by Mr. Salem Belhadj' (former *Architecte des monuments historiques* and *chef des services de restauration et de classement, Institut National du Patrimoine, Tunis*), presently in charge of the conservation of the Coastal Fortress (« Islamic Fort »).

Since the end of the digging of this building by the French Archaeological Mission (1985, by Dr. Monik Kervran, CNRS), a slow degradation of the walls has occurred : several have progressively lost their original height (present average height : 0,80m, with the exception of the Northeastern part where the preservation is better), and some of them even disappeared totally. In addition the whole area was partly filled again with eolian sand and material from the outside vertical sections.

The wall construction technique in the fortress is similar to the one generally observed in most of the defensive buildings found in the Arab world. The outside part of the walls consist of a dressing of fine ashlar limestone blocks coming from Jidda Island, at the West of Bahrain ; the inner filling consists of local rubble-stones assembled with mortar.

During Dr. Kervran's visit at the site in November 2003, a preliminary conservation and restoration plan was established with her to urgently save the existing remains :

(a) to clear the whole monument ;

(b) to trace the exact limits of the 1978-1985 excavations ;

(c) to systematically gather the scattered dressed stones in the immediate vicinity of the building for its next restoration.

The conservation operations started in September 2004 in the North and Northwestern sectors of the fortress, with a group of archaeologists from the Directorate of Archaeology of Bahrain, and where progressively extended to the Southwest sector. All the consolidation works were performed using a specific, traditional mortar composed of :

- plaster
- « *noora* » (aerial lime)
- sand
- clay (from Rifa'a, Central Bahrain)

The proportions used in such mortar may vary from one place to another, according to the humidity present inside the walls. This mixture was previously used in Bahrain, twenty years ago, in the conservation of Shaikh Isa bin Ali's house in Muharraq and still present a good state of conservation ; moreover its composition was approved by several visiting experts in the field of conservation/restoration, from various countries.

These works last for about two months (until the end of October 2004), and a programm was submitted to the Directorate of Archaeology to resume them in 2005 and 2006. In any case, as previously stated in the Nomination File, they will be limited to cleaning, consolidation/conservation (re-setting of fallen stones), setting of waterproof coatings in some places, renovation of the outside plastering of the madbasa devices (date-incubators), restoration of the pavement of the central courtyard (re-setting of existing slabs) and, above all, will avoid any *reconstruction*.



A — Situation in December 2003, before conservation/restoration works



B. The building in the process of conservation/restoration (October 2004)



C— Southwestern sector of the building after conservation/restoration (January 2005)



*D— Northwestern sector of the building
in process of conservation/restoration (January 2005)*



E — One of the madbasa (date-incubator), with renovated coating (January 2005)

2 — Central Excavation area

With the exception of the counterscarp wall (wall bordering the outside part of the moat, in contact with the archaeological area), no conservation has been undertaken there to this date.

Most of the exposed constructions (Early, Middle and Late Dilmun periods, Tylos periods) are very massive structures made of ashlar or smaller blocks set with a particularly strong mortar.



The Central Excavation Area. Above, structures excavated in 1954-56 (Danish Expedition) ; below, structures excavated by the French Mission (1991-1992)

With the exception of the tops of the walls where coatings must be applied in order to prevent a too important penetration of water (rain) or humidity, there is no other particular treatment necessary for their preservation. The remarkable conservation of the constructions excavated at the south part of this sector by the Danish Expedition nearly 50 years ago amply demonstrates this situation.

In fact, the conservation problem in the Central Excavation Area concerns two aspects :

(a) The high vertical sections bordering this excavation area, notably the ones oriented to the North, East and South ;

(b) The very bad state of preservation of the immediate sub-surface level, of Islamic period (14th-16th cent. AD).

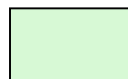
CENTRAL EXCAVATION AREA, PRESENT SITUATION (JANUARY 2005)



Present limit



Main vertical sections in process of erosion



Islamic sector poorly preserved, in process of erosion

Concerning the first aspect (vertical sections), it is true that there is a slow, but regular process of erosion/destruction, partly due to the gullies generated by the annual rains, but above all by the wind action.



Section at the South of Islamic sector, facing South (approx. height : 4 m)



Southern section of Central excavation area, facing North (approx. height : 5 m)

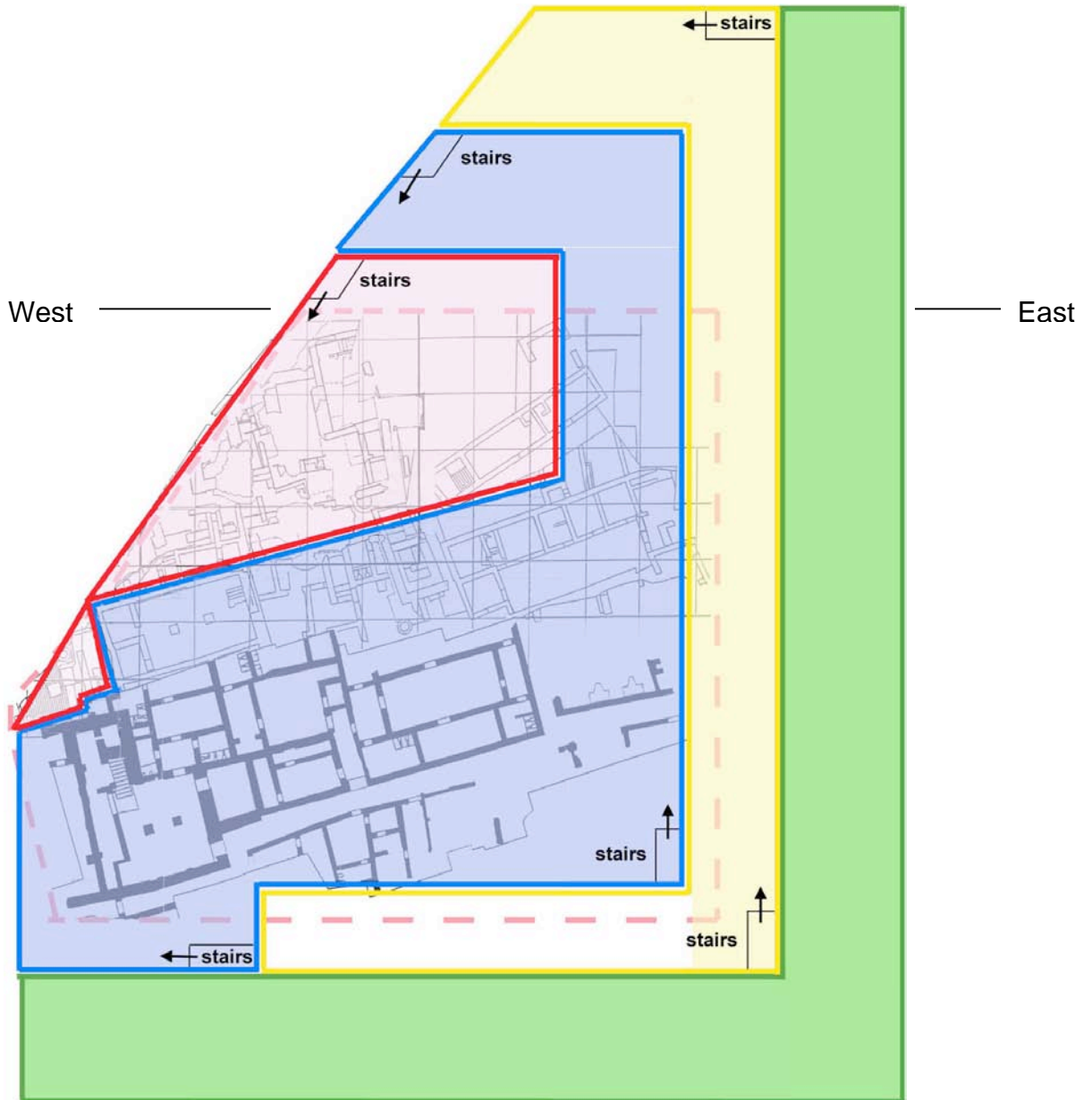
The only solution proposed at the moment by the Directorate of Archaeology is to progressively remove these sections and to create instead a succession of large steps, corresponding to the historical /architectural phases displayed (see *attached sketch-map*), and accessible through successive stairways. Such a project would present several positive points :

- to allow only low sections (not exceeding ca. 1.5 m in height), between each step, for a more easy maintenance ;
- to offer the possibility to expose, in a very pedagogical way, all the architectural phases revealed by the stratigraphy ;
- to provide easy access to the inner part of the Central Excavation Area.

QAL'AT AL-BAHRAIN, CENTRAL EXCAVATION AREA

PROPOSAL FOR FUTURE EXTENSION AND CONSERVATION OF VERTICAL SECTIONS

(Theoretical sketch-plan : the precise extension of each « period step » is not defined)



Theoretical West-East Section

- | | |
|---|---|
| <ul style="list-style-type: none"> Islamic structures (14th-16th) Tylos (Hellenistic) | <ul style="list-style-type: none"> Late Dilmun structures (1st millennium BC.) Early and Middle Dilmun structures (3rd and 2nd millennium BC.) |
|---|---|

We are conscious that this solution does not totally resolve the problem, as vertical sections will still remain. Nevertheless their reduced height will allow various devices to protect and/or consolidate them. We suppose that this kind of problem has been raised in many other archaeological places (including some registered to the World Heritage), and the Directorate of Archaeology is willing to collaborate with the UNESCO on this precise aspect and is ready to accept any external expertise or advice.

In any case, this means of conservation could only be implemented **after the end of the diggings in this sector** (not planned before several years).

On the other hand, the problem raised by the very bad preservation of the Islamic structures situated at the top of the eastern part of the Central Area, will not be solved before the continuation of the diggings by the French Mission there in 2007-2008. In fact, if for scientific reasons a decision is made to privilege the comprehensive excavation of the underlying Kassite Palace (*see our note on the future archaeological projects*), the present remains will be removed.



*Islamic buildings from the 16th cent. AD. excavated in 1991-92
in the Central Excavation Area*

*The Directorate of Archaeology and Heritage,
Manama, Bahrain, 20th January 2005*

NOTE ON FUTURE EXCAVATION PLANS AT QAL'AT AL-BAHRAIN SITE

Even if Qal'at al-Bahrain site offers a splendid potential for archaeological excavations in terms of superficity and access facility to the sub-surface remains and construction structures, it is definitely not in the intentions of the Directorate of Archeology to carry on indefinitely the diggings at the site.

We are perfectly (conscient) conscious of the problems set by the necessary conservation of newly exposed remains, which must be carried out as soon as possible after the end of the diggings. More generally, we admit that plans for future excavations must be limited to a minimum.

At the same time, a balanced solution must be found, which should take into consideration :

(a) the duty of the Bahrain Kingdom to **rightly preserve the site for the coming generations** ;

(b) the **necessary needs of the worldwide community of professional archaeologists**, for which Qal'at al-Bahrain's unique stratigraphy in this part of the Near East is considered as **an essential reference source of material and chronological informations** ;

(c) **the wish of the Directorate of Archaeology to expose for local citizens and foreign visitors a representative and significative view of the various historical phases of the archaeological tell**. To limit the presentation of Qal'at al-Bahrain site only to the 14th-16th cent. AD main fortress (« Bahrain Fort ») which crowns the site would be an error, or a pity.

The future plans for appropriate new diggings have been discussed with the French Archaeological Mission in Bahrain which, in close collaboration with the Bahraini Directorate of Archaeology, is presently entrusted with a major excavation project at the site (« Central Area »). They consist of four main programs, of different importance and urgency, which are presented below. In addition, the feasibility of a general field survey of the site using non-intrusive geophysical techniques (as suggested during the ICOMOS evaluation visit in November 2004) was also discussed, and will be implemented before any new diggings at a virgin part of the tell (*see below*).

A — Present situation

No more excavation work is planned at Qal'at al-Bahrain site for the next two years, at the minimum. The French Archaeological Mission has expressed to our Directorate its wish to stop the diggings until 2007 (at the earliest) in order to publish the results of the 1989-2003 seasons of works¹. In the near and far future, the main efforts of our directorate will thus focus on the maintenance of the main fortress and on conservation work applied to existing excavation areas.

B — Projects

B1. Geophysical survey of the site.

The general extension of the archaeological remains at the site is broadly known by previous test soundings (carried out by the Danish Expedition from 1954 to 1970) as well as by previous field surveys by the French Archaeological Mission (1978-1988). The topography itself of the archaeological tell clearly reveals the limits of the ancient Qal'at al-Bahrain settlement, with the exception of its Northeastern side, partially affected by erosion, and where a garden prevents visual control. We nevertheless agree that a general geophysical survey of the tell, using adapted techniques, can provide us additional information, at least about the upper levels.

It must be recalled that a tentative electro-magnetic survey, was already tested at Qal'at al-Bahrain site (by Dr. Bruno Frølich, of the Smithsonian Institution, Washington), in the beginning of the eighties : this test did not yield significant results, apparently due to the huge amount of stone structures piled up in the stratigraphy².

Fortunately, such techniques have largely improved since that time. Dr. Pierre Lombard, present head of the French Archaeological Mission, has proposed to launch, probably at the end of 2006, a comprehensive survey of the whole site, using a cesium gradiometer, a much more up-to-date methodology, currently used in his archaeological department at Lyons University. (*cf. his letter annexed to this document*).

B2. New excavation projects

We must obviously wait for the results of this geophysical survey before planning new excavations. Nevertheless, the Directorate of Archaeology of Bahrain

¹ The results of the previous project carried out by the French Mission at the Coastal Fortress (« Islamic Fort » and its surroundings as well as at the Main Fortress (« Bahrain Fort »), will be published in the following months (2005). This monography, edited by Dr. Monik Kervran, former head of the French Mission, is entitled « *From Mercantile Cities to Fortified Outposts : Qal'at al-Bahrain from the Iron Age to the Portuguese Periods* », and is currently under printing in the collection *Indicopleustoi* of the editing company Brepols (Turnhout, Belgium).

² These results have been published as part of a general paper : FROHLICH (B.), LANCASTER (W.J.), 1986, « Electromagnetic surveying in current Middle Eastern archaeology. Application and evaluation », *Geophysics*, 51/7, pp. 1414-1425.

and the French Archaeological Mission have agreed on a minimum of 4 field operations to be carried out in the future at the site.

These 4 programs, planned in the near to far future are proposed as an answer to points (a), (b) and (c) mentioned above. Their exact location is indicated on the *annexed sketch-map of the site*.

According to us, the first two points have a necessary **priority** :

1) Complementary digs (and conservation) in the Central excavation area.

The northern sector of this area has not yet been totally excavated and is regularly threatened by the consequences of the annual rainfall, as it is situated on a particularly eroded slope, at the contact of the moat of the Main Fort. The important stratigraphy there must be studied imperatively in the coming years (*French Mission proposal : from 2007*)

In addition, one must recall that the sector at the eastern part of the area, presently displaying a poorly preserved islamic level, covers the remaining part of the Kassite palace where, between 1995 and 2003, the French Mission, discovered more than 100 cuneiform Akkadian tablets, which constitute part of the archives of this palace. These documents represent the southernmost evidence of the cuneiform writing in the ancient Near East, as well as one of the oldest Kassite archives ever found (dated ca. 1450 BC.). A next excavation of this sector, in order to complete the exploration of this important building and its rich epigraphical content appears as a real scientific necessity (*French Mission proposal : from 2007-2008*).

2) Final excavation and restoration of the keep (Main Fort)

The keep (« Captain Tower ») of the Main Fort is today the only element of this building which has been left unexcavated and unrestored up to now. This construction, which was the main dwelling-place inside the fortress, is preserved up to the second floor but represents a technical challenge for an appropriate digging. Discussions are in progress with the French Mission for a next intervention (*from 2008 ?*) on this structure, with immediate conservation solutions.

There is no present planning for the two last programs which follow. They appear **less urgent**, and should eventually be reconsidered in the light of the geophysical survey of the site :

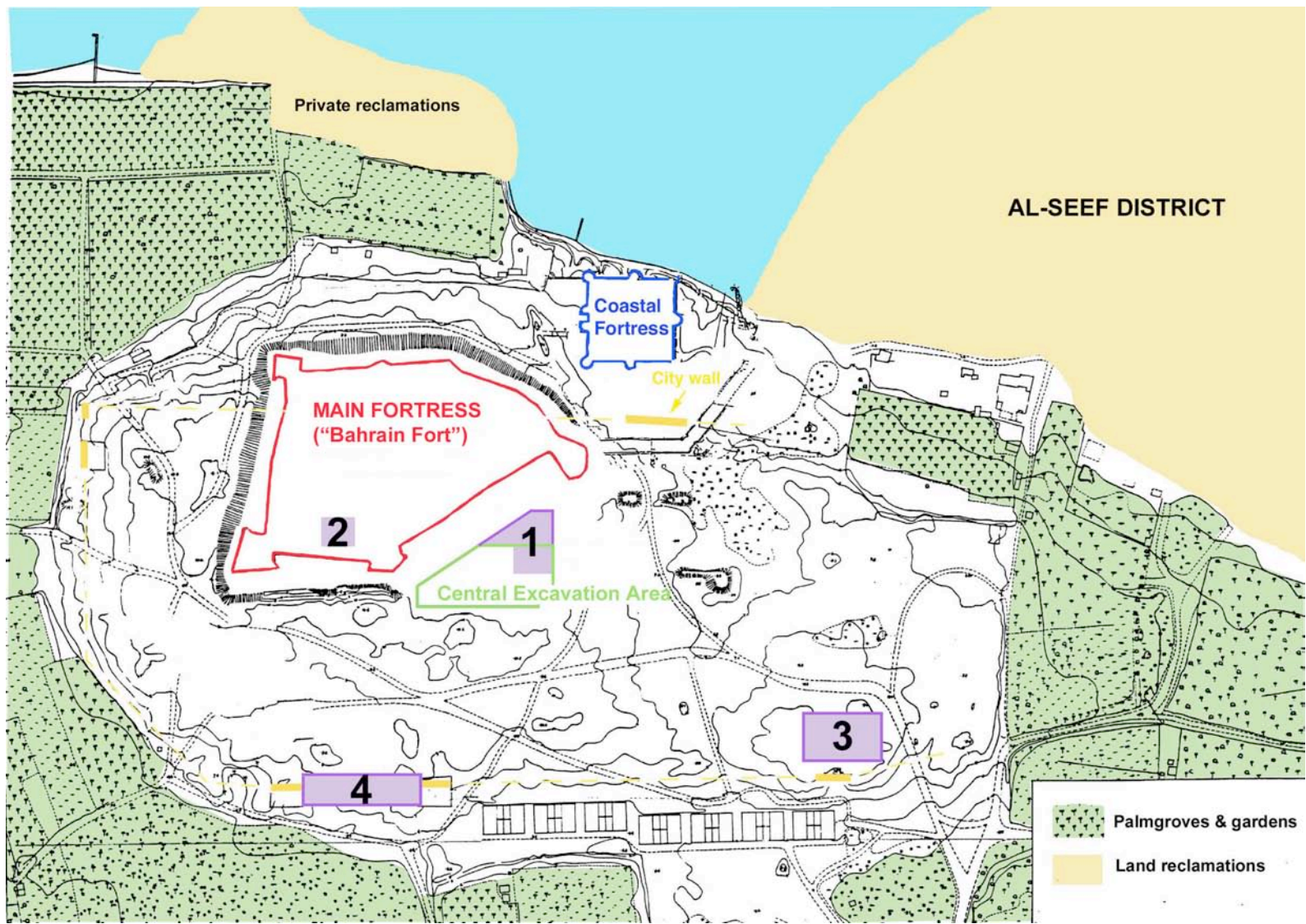
3) Excavation (and conservation) of a representative sector of the Islamic settlement (14th/15th cent. AD)

In this area at the South East of the tell, preliminary reconnaissance and observations revealed the existence of an apparently well preserved sector of the Islamic settlement of Qal'at al-Bahrain. The preservation of the structures there appears much better than in the Central Excavation Area. Due to the possible removal of the upper Islamic layer in the latter spot (*see above*), an excavation project there, limited to the clearing out of the Islamic structures (apparently including a mosque, according to surface observations) and their conservation could represent an opportunity to better display this phase to the visitors.

4) Excavation (and conservation) of a section of the South part of the Dilmun rampart

There is also the possibility, in this sector, to excavate a section of the Dilmun rampart, which, according to the previous Danish soundings there, seems in a rather good state of preservation. Bordering the Southern limit of the archaeological tell, such a major element of Qal'at al-Bahrain site could also be displayed in a very positive and pedagogical way.

*The Directorate of Archaeology & Heritage
Manama, Bahrain, 20th January 2005*



Future excavations in project :

- 1 — Central excavation area (complementary digging) (From 2007-2008)
- 2 — Keep of the Main Fortress (« Captain Tower ») (from 2008 ?)
- 3 — Islamic City (long-term)
- 4 — South Dilmun rampart (City wall) (long-term)

Plans for future archaeological excavations at the site of Qal'at al-Bahrain

FRENCH ARCHAEOLOGICAL MISSION TO BAHRAIN

To : Mr. Khaled AL-SINDI
Acting Director of Archaeology & Heritage
The Ministry of Information
National Museum,
Manama
Kingdom of Bahrain

Lyon, 6th January 2005

Dear Mr. Al-Sindi,

Regarding your recent concern about carrying out a comprehensive geo-physical survey at the Qal'at al-Bahrain site, I would like to express you the following :

- It was already in the projects of our archaeological team to propose such an investigation there. Up to now we have delayed this operation, in search for the most adapted techniques and people to implement them.

- I have the pleasure to announce you that I recently discussed at length this point with the specialist Qal'at al-Bahrain, we suggest to realize a geo-physical covering of the archaeological tell, using the Cesium gradiometer technology at first, eventually followed by the GPR (Ground Penetrating Radar) technique.

We dispose in Lyon of the tools as well as of the specialists for carrying out such a survey.

Due to an already busy planning, this project could be implemented at the end of 2006.

I remain at your disposal for any complementary information.

Yours sincerely,



Dr. Pierre LOMBARD
Director, French Archaeological Mission in Bahrain

NOTE ON MANAGEMENT PLAN AT QAL'AT AL-BAHRAIN SITE

ACHIEVED RESULTS, PLANS AND TIMING FOR IMPLEMENTATION

The proposed Management Plan contained in the Nomination Report submitted to the World Heritage Center in January 2004 is still in active preparation and a complete up-to-date version will be presented before the end of 2005 to the WHC, which will include some changes regarding the location of the main access gate to the site and, probably, the visitor car park, and the Site Museum.

In addition, the Directorate of Archaeology wishes to announce to ICOMOS and the WHC that, since the submission of our previous report, several steps were effectively completed during the period from October 2004 to January 2005. These are detailed below and several illustrations of the main aspects (including a provisional site development plan) are provided at the end of this note.

1 — Human means :

A first technical management team has been appointed to follow up and control the site, the organization of which comprises :

- Site supervisor (1)
- Renovation and Maintenance expert (1)
- Site attendants (2)

A private Security Agency has been entrusted with the security of the site.

2 — Main actions and constructions accomplished so far in 2004-2005 at the Qal'at al-Bahrain archaeological site :

- Improvement of the main access road from Manama, the capital, to the site, from the Northern Highway and the local southern road : edification of a roundabout near the main entrance, new signalisation for the archaeological site. In addition, a meeting with the Northern Governorate Administration, led to the decision to erect a symbolic monument on the Northern Highway, at the entrance of the access road to the site (ca. 1 km), and presently in the process of building.

- Complete fence around the limit of the proposed nominated site to secure it against vandalism. A main gate has been installed on the South-East edge. A secondary access, situated on the South-West, allows access for the private owners of the palmgrove situated between the North-West sector of the site and the sea. With this only exception, no visitors' cars or buses are presently allowed to enter the site and must use the outside parking (*see below*).

- Provisional parking lot (capacity : 150 cars), at the end of the access road and close to the Main Gate.

- Visitor pathway through the site and its main features. Alongside this pathway, guide signs and several information boards have been installed (introductory texts, pictures and explanation plans or maps).

- Other visitors' facilities :

- information office (temporarily located inside the Main Fort),
- edition of several brochures and maps for the visitors (bilingual Arabic & English brochure on the site, a special issue about Qal'at al-Bahrain published by the Bahrain Cultural Journal (Al-Taqafiya), a new book on the Portuguese influence by Dr. Fawziya Al-Jeeb, an Arabic/English CD on the history of the excavations at the site, special 2005 calendars and commemorative stamps, etc.),
- visitors toilets (at the main gate),
- wooden security barriers on the Northern and Western balconies of the Main Fort for visitor safety,
- small podium (built in the same material used for the restoration of the Main Fort) erected nearby the Coastal Fortress in order to enhance visitor viewing
- benches and traditional palm-leaf parasols in the sector close to the sea-side.

- Lighting installation : the site was provided with a good lighting system (Main Fort walls and inner courtyards) for visitors at night time and for cultural activities taking place inside it.

- In addition, a comprehensive cleaning of the site was realized which consisted of :

- Cleaning of the Northern coastal area,
- Removal of all temporary material stores, portable offices and barracks and provisional transfer at the exterior of the site, on the edge of the present car parks,
- Removal of all restoration or excavation detritus (rubble materials, refused sand heaps, etc.).
- Encouraging owners of neighbouring gardens to properly fence their properties.

3 — Additional projects and actions planned for 2005 :

- To develop the general lighting on the remaining sectors of the tell.
- To carry on the preparation of the Site Museum Project.
- To determine a special area for visitor's cafeteria and gift shop.
- To organize the participation of craftsmen from neighbouring villages to practice their professions and sell products to visitors at a special sector of the site.
- To produce additional booklets for visitors :
 - Special educational booklet for local school visitors,
 - 3 booklets, by a local artist, about the Dilmun Period influence on contemporary artists.

- To help the diffusion at the site's gift shop of existing or forthcoming publications by previous Danish, French or British teams on their archaeological work at Qal'at al-Bahrain or elsewhere in Bahrain (Saar Settlement, for example).

- To develop a general policy of translation into Arabic of the available non-Arabic works (generally English or French) about the site :

→ Translation of historical articles on the previous Danish and French archaeological excavations at the site (Danish *Kuml* magazine, Monik Kervran's *Bahrain in the 16th century: an impregnable island* - French/English book about the defensive aspects of Qal'at al-Bahrain, P.V. Glob's *Bahrain* Danish book, etc.).

- To develop coordination with the Ministry of Education and private schools to include information on Qal'at al-Bahrain site in the educational cursus, and to arrange special visits at the site.

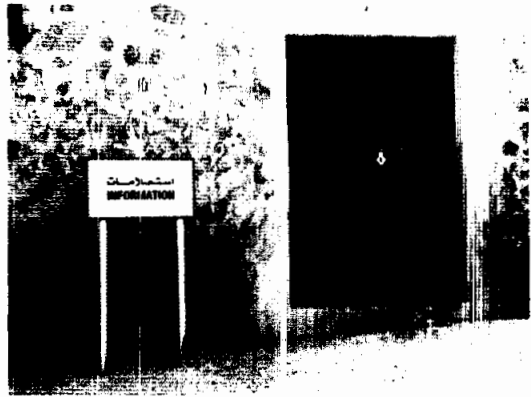
- To celebrate, notably at the Qal'at al-Bahrain site, the Golden Jubilee of the discovery of the Dilmun civilization (official visit and official opening of the restored Main Fort by H.H. Shaikh Hamad al-Khalifa, King of Bahrain, showing of an historical play, « The lands of the Kings ») [*this event was planned in November 2004 and was postponed due to UAE Shaikh Zayed's death and mourning*].

- Holding a temporary exhibition (at Bahrain National Museum) on the 50th anniversary of the Danish Archaeological Expedition, with special emphasis on the discovery of Qal'at al-Bahrain site, center of Bahrain's civilization. [*this exhibition was planned in November 2004 and was postponed due to UAE Shaikh Zayed's death and mourning*]

- Holding a local music concert, derived from the Danish Expedition's ethno-musical research in the fifties in Bahrain

- Preparation of an international symposium at the site.

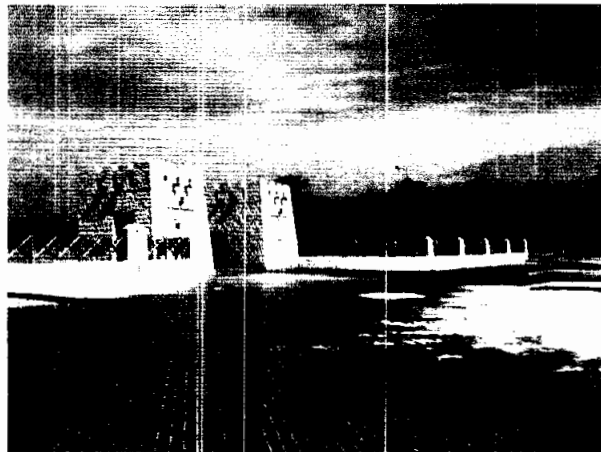
*The Directorate of Archaeology & Heritage,
Manama, The Kingdom of Bahrain,
20th January 2005*



Temporary information office, security attendant, and closed-circuit video surveillance system



Signalisation monument on Northern Highway



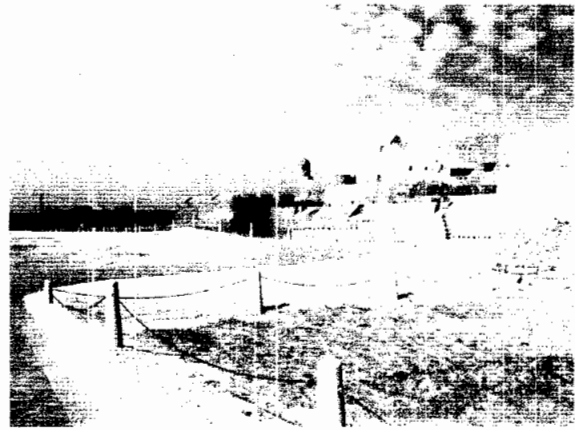
Main entrance gate at the South side of the site



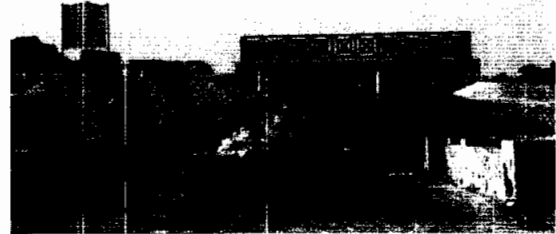
Roundabout in construction in front of the main gate, on the South side of the site



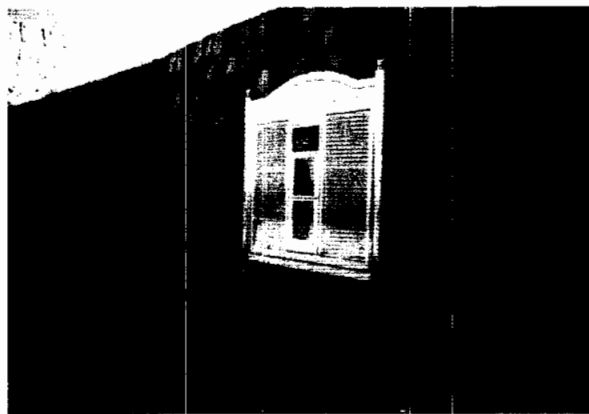
New parking, near the main entrance



Pedestrian pathway alongside the major features of Qal'at al-Bahrain site



Visitor podium overlooking the Coastal Fortress



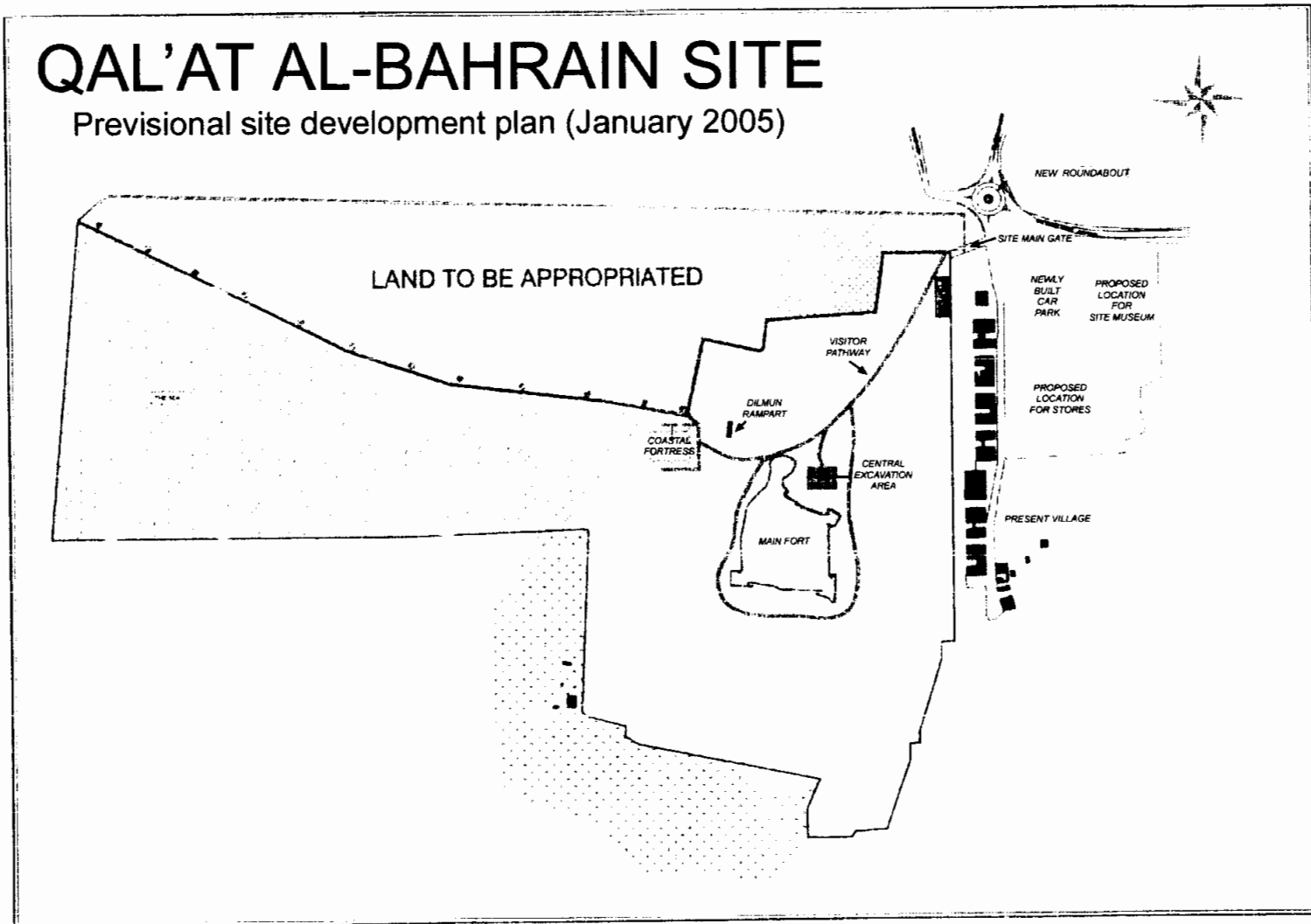
Information board placed alongside the visitor pathway



The Main Fort at Qal'at al-Bahrain illuminated at night

QAL'AT AL-BAHRAIN SITE

Previsional site development plan (January 2005)



WHC REGISTRATION	
Date	31.01.05
Id N°	1192
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**CONSERVATION AND RESTORATION WORKS CARRIED OUT
AT THE MAIN FORTRESS OF QAL'AT AL-BAHRAIN
SINCE DELIVERY OF THE NOMINATION FILE
TO THE *WORLD HERITAGE CENTRE (UNESCO)*
(from January 2004 to January 2005 + previsual works for 2005)**

A — OPERATIONS ACHIEVED IN JANUARY 2005 :

These operations have required 30 labourers, as follows :

- 23 workers
- 7 masons

These labourers were divided into 7 groups, which have evolved according to the nature of the work which included the following tasks :

1. Completion of the excavation at the main entrance of the fortress ;
2. Continuation and completion of the last phase of the renovation ;
3. Organizing the main entrance of the fortress ;
4. Electric cable extension into all fort sectors for closed circuit video security system ;
5. Leveling the fort's floor and constructing rain drainage systems ;
6. Reconsidering earlier renovations at some places ;
7. Development of a tourist system for the fort ;
8. Lighting installation in all areas of the fort ;
9. Installation of doors to several rooms in the fort ;
10. Finishing touches

1. Completion of the excavation at the main entrance of the fortress :

- Proceeding with the excavation work at the main entrance at the Southern side, and renovating existing walls.

2. Continuation and completion of the last phase of the renovation

- These conservation works mainly consisted of :
 - . consolidating the existing vaults of the inner casemates of the bastions,
 - . rebuilding the fallen arches in the left access corridor to the courtyard of the fort.
 - . Renovating or partially rebuilding the South-Eastern section of the counterscarp wall (outside wall of the fortress moat).

3. Organising the main entrance of the fortress

- Due to the fact that the unique entrance to the fort exists at the Southern side and opens on a bridge, this bridge was rebuilt to resemble the latest stage of its

construction. This work was done using the comparative study of other existing contemporary fortresses in the Arabian Gulf and elsewhere. A wooden pathway was set up.

At the same time, the artificial access ramp built across the northern side of the fortress moat for the use of heavy equipment (trucks, bulldozers, etc.) was removed. The section of the outside wall that it covered was finely excavated and restored.

4. Electric wiring and closed circuit video surveillance cable extensions

This very technical job, which required special expertise, was carried out by a specialized company, after submitting a study in due course. Surveillance cameras were notably placed inside the bastions casemates, as well as in various strategic locations in the Main Fort.

All cables were imbedded inside the existing masonry, and new coatings were installed or restored.

5. Leveling the fort's floor and constructing rain drainage systems

Drainage systems were notably set up in the upper and lower courtyards of the fort ; following this operation, a general floor levelling was made at its current level ; all floors were covered with small-sized gravel, in order to prevent sand dispersion due to wind action ; it is planned to renew periodically this gravel covering.

6. Reconsidering earlier renovations at some places

Such work mainly consisted of new conservation applied to the sectors primarily restored at the beginning of the project (1988-1990).

7. Development of a tourist system for the fort

It notably consisted of installing wooden barriers alongside the tourist path. Information boards were also installed ; traditional benches will also be installed after a few months.

8. Lighting installation in all areas of the fort

After comprehensive installation of invisible electric cables in all sectors of the fort, a complete lighting system is presently in activity. It includes adapted projectors to illuminate both the outside and inside walls, as well as smaller wooden lanterns in the inner rooms.

9. Installation of doors to several rooms in the fort

Several wooden doors, similar to the ones used in the old traditional Bahraini houses have already been installed in two sectors (Southeast and Northwest bastions). Additional doors will be installed in the future at the entrance of the bastions casemates which will eventually house displays for visitors.

10. Finishing touches

Such a task, which concerns the whole structure, has just started at the end of 2004. In addition, this phase will also include several accurate engineering drawings and new plans of the restored Main Fort at the 1 :50 scale ; this up-to-date documentation is intended both for published documentation and for display in several rooms of the fort.

B — PREVISIONAL OPERATIONS IN 2005

1. Renovating the fort's bastions roofs.

This renovation, carried out, at the beginning of the restoration project about fifteen years ago, has to be redone urgently.

2. Cleaning of all of the fort's walls

Such work which consisted of removing salt as well as aeolian sand has always been systematically carried out, and will have to be programmed regularly.

3. Maintenance of the outer elevation fronts of the fort

This work includes regular interventions on a total of 850 m of walls. Materials will be the same as those used previously in the 1988-2002 renovation phase.

4. Completion of the cleaning of the surrounding moat of the fort, and associated slopes.

5. Additional conservation work to maintain the keep of the fort (« Captain Tower »).

One must recall that this building is the sole structure of the fortress which is not properly excavated at the moment, and which will require a specific expertise (project proposed for 2008, probably in collaboration with the French Archaeological Mission)

6. General maintenance in the inner parts of the Fort

It concerns : floor renovation, installation of additional traditional wooden doors. Beams made with palm-trees trunks have to be pest-controlled, and other traditional ones have to be renovated and painted with plant dye. In addition, electric and electronic security equipments will be regularly checked.

*The Directorate of Archaeology & Heritage,
Manama, The Kingdom of Bahrain,
20th January 2005*

KINGDOM OF BAHRAIN

**COLLECTION OF LEGISLATIVES
PROMULGATED IN THE KINGDOM OF
BAHRAIN DURING THE PERIOD 1998-2001**

DIRECTORATE OF LEGAL AFFAIRS

2002 Gregorian – 1423 Hijra

SECTION FIVE

مملكة البحرين



مجموعة التشريعات

الصادرة في مملكة البحرين

خلال الأعوام ١٩٨٨ - ٢٠٠١ م

دائرة الشؤون القانونية

٢٠٠٢ م - ١٤٢٣ هـ

القسم الخامس

مرسوم بقانون رقم (٢١) لسنة ١٩٨٣ في شأن حماية النخيل

- نحن عيسى بن سلمان آل خليفة أمير دولة البحرين
- بعد الاطلاع على الدستور .
- وعلى الأمر الأسمى رقم ٤ لسنة ١٩٧٥ .
- وبناء على عرض وزير التجارة والزراعة .
- وبعد موافقة مجلس الوزراء .

رسمنا بالقانون الآتي :

مادة - ١ -

- يحظر قطع النخيل او التسبب بأية صورة في وقف نموه .
- ويحدد وزير التجارة والزراعة بقرار منه حالات الترخيص بقطع النخيل .

مادة - ٢ -

- على ملاك النخيل العناية بخدمة النخيل المملوك لهم ومراعاة ربه على نحو يكفل استمرار بقائه والمحافظة على بهائه .

مادة - ٣ -

- يصدر وزير التجارة والزراعة قرارات تنظيم ما يلي :
- ١ - تحديد العدد الانسب من النخيل الممكن زراعته في الموسم الواحد للأرض الزراعية الجديدة .
- ٢ - وضع نظام للحوافز للمزارعين بقرض تشجيعهم على الاكثار من زراعة الاصناف الجديدة من النخيل .
- ٣ - تنظيم استيراد وتصدير فسائل النخيل واجزائها ومنتجات النخيل .
- ٤ - تنظيم عمليات تسويق النخيل واجزائه ومنتجاته وعلى الاخص تنظيم العلاقة بين المنتجين والجهات المهتمة بشؤون تصنيع وتسويق التمور .
- ٥ - وضع نظام لتشجيع زراعة النخيل في الحدائق المنزلية والعمامة .

مادة - ٤ -

- يعاقب كل من يخالف احكام المادتين الاولى أو الثانية من هذا القانون بالحبس مدة لا تزيد على ثلاثة اشهر وبغرامة لا تتجاوز خمسمائة دينار أو باحدى هاتين العقوبتين .

مادة - ٥ -

- يكون لموظفي ادارة الزراعة الذين ينصهم وزير التجارة والزراعة لهذا الغرض سلطة دخول المزارع للتحقق من تطبيق القانون كما يكون لهم سلطة ضبط ما يقع مخالفا لأحكامه وتحرير المحاضر اللازمة واحالتها الى الادعاء العام .

مادة - ٦ -

لوزير التجارة والزراعة اصدار القرارات اللازمة لتنفيذ هذا القانون .

مادة - ٧ -

على وزير التجارة والزراعة تنفيذ هذا القانون . ويعمل به بعد ثلاثة شهور من تاريخ نشره في
الجريدة الرسمية .

أمير دولة البحرين

عيسى بن سلمان آل خليفة

صدر في قصر الرفاع :

بتاريخ : ٦ ربيع الاول ١٤٠٤ هـ

الموافق : ١٠ ديسمبر ١٩٨٣ م

Legislative Decree No. 21 of 1983
With Respect to Protection of Palm Trees

We, Isa Bin Sulman Al Khalifa, Amir of the State of Bahrain;
Having reviewed the Constitution; and
Amiri Order No. 4 of 1975; and
Upon the submission of the Minister of Commerce and Agriculture; and
Following the consent of the Cabinet of Ministers

HEREBY DECREE THE FOLLOWING LAW:

Article 1

Cutting palm trees or causing the cease of its growing in any manner is prohibited.

The Minister of Commerce and Agriculture shall determine, by an order from him, the cases permitted for cutting palm trees.

Article 2

Owners of palm trees shall provide care to the palm trees owned by them and irrigate them in a manner that contributes in the continuity of their existence and maintaining their beauty.

Article 3

The Minister of Commerce and Agriculture shall issue orders to regulate the following:

- 1- Specify the appropriate number of palm trees that could be planted in each 1000 square meter of new agricultural lands.
- 2- Establish an incentive scheme for farmers to encourage them increase planting new types of palm trees.
- 3- Regulate the import and export of palm shoots, their parts and palm trees products.
- 4- Regulate the marketing of palm trees, their parts and products, and particularly to regulate relation between the producers and the bodies involved in manufacturing and marketing of dates.

- 5- Establish a programme to encourage planting palm trees in domestic and public gardens.

Article 4

An person who contravene the provisions of Articles 1 and 2 of this Law, shall be guilty of an offence punishable by a term of imprisonment of not more than three months and a fine not exceeding five hundred dinars or to either of these penalties.

Article 5

The employees of the Directorate of Agriculture who may be appointed by the Minister of Commerce and Agriculture for such purpose shall have the authority to enter farms and gardens to ensure that this Law is applied. They shall have also the power to record any offences that may be occurred and make the necessary report and submit it to the Public Prosecutor.

Article 6

The Minister of Commerce and Agriculture may issue the necessary orders for the implementation of this Law.

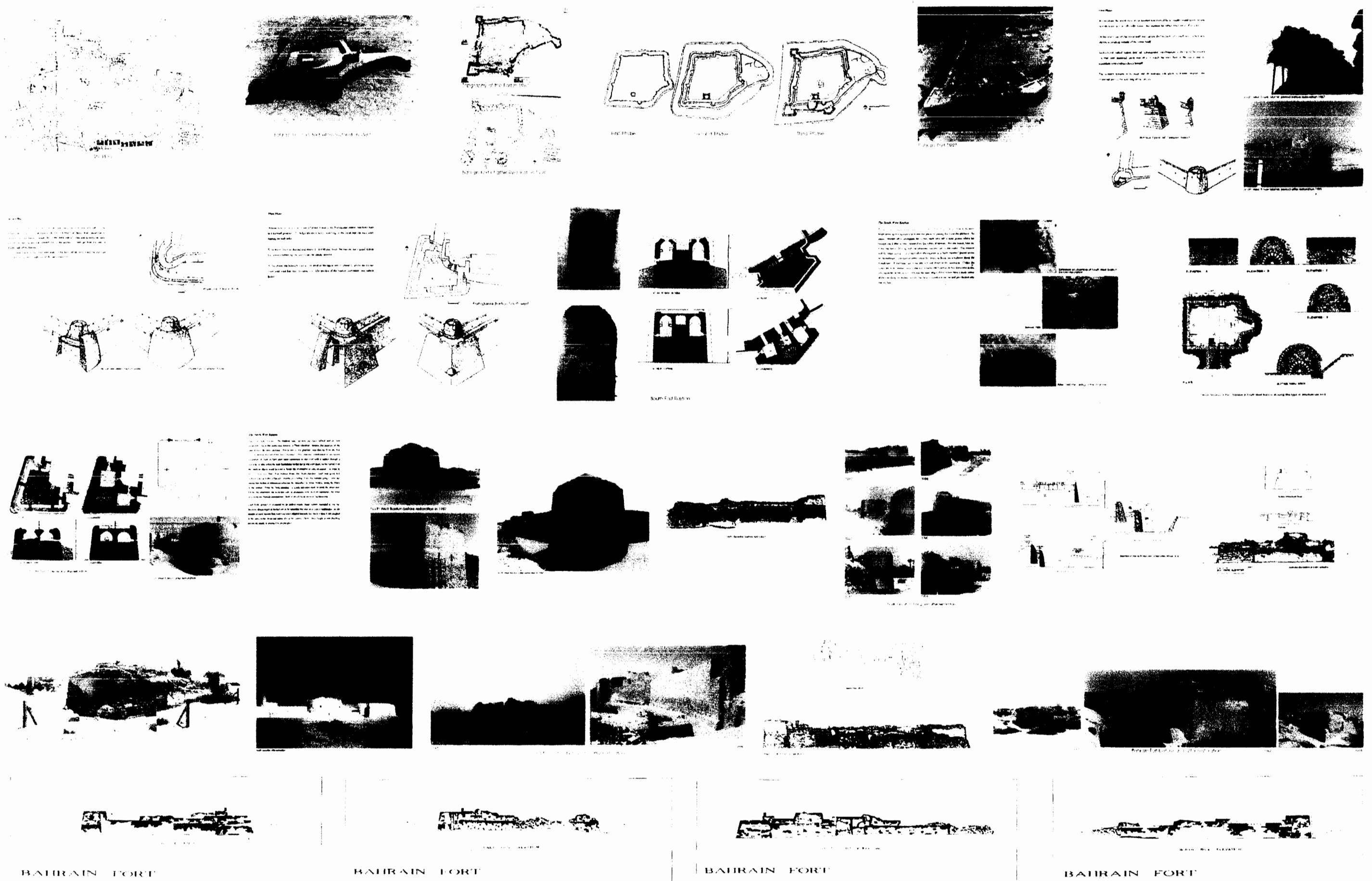
Article 7

The Minister of Commerce and Agriculture shall implement the provisions of this Law which shall be come effective after a period of three months from the date of its publication in the Official Gazette.

Amir of the Sate of Bahrain
Isa Bin Salman Al Khalifa

Issued: at Rifaa Palace
On 6 Rabi'e Al Awwal 1404 H
Corresponding to: 10 December 1983

Bahrain Fort Project



BAHRAIN FORT

BAHRAIN FORT

BAHRAIN FORT

BAHRAIN FORT



Architect : Ms. Khatoon Al Ansari - State of Bahrain

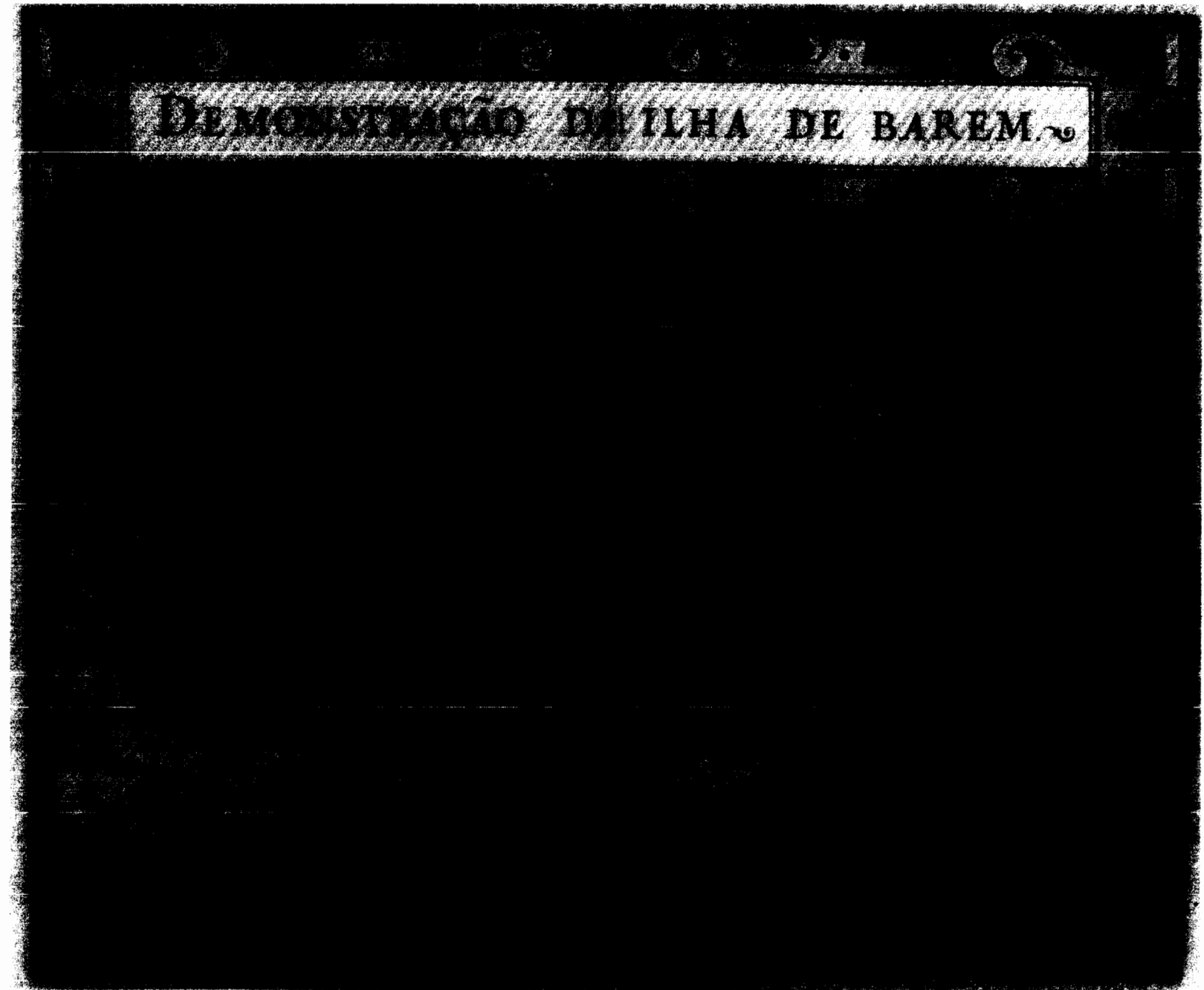
The Bahrain Fort

History

A detailed history of the building is known. The Portuguese ruled Bahrain for 80 years from c. 1517 A.D. . But two factors in particular probably led to the erection of such a giant fortress there. First was the uneasy hold of the Portuguese over the allegiance of the Bahrain's. Second the increasing conflict with the Ottomans for hegemony of the Gulf after 1550 A.D. . By 1590 Persian strength had grown so much that they, in turn, were posing a serious challenge to the Portuguese in Bahrain, finally taking the island in 1602. There is distinct possibility that the Portuguese built the fortress on the site of an earlier Bahrain castle.

Drawings survive in the Archives in Lisbon showing a five-sided fortress in a somewhat simpler form than the surviving building with three or four circular bastions, and several higher towers. Although these are said to date from early seventeenth century, it seems likely that they represent the fort in the form it assumed after being strengthened c.1550, and before the final remodeling all Portuguese forts in the east received under the direction of leading Italian and Spanish military engineers brought out for the purpose c.1590. As far as is known, no Portuguese plan or drawing of the building in its final form is in existence.

It is likely that the Persians used the fortress, as they are known to have done Hurmuz, during the succeeding period of their rule of Bahrain, which lasted until c.1750. But as the Persian hold on the island loosened in the 18th century, its seems that maintenance of the fortress diminished, allowing the onset of the decay which has destroyed the curtain walls and the interior courtyards. The great bastions, being composed of work done in ashlar under strict supervision of skilled military engineers, have fared best with time. There does not seem any evidence of Persian alterations to the bastions.



Old painting from the Portuguese archive in the early sixteenth century

Before proceeding further with the digging, which will add to the present architectural heritage, it seems advisable to protect quickly what has already been dug out, and to make it an attractive site understandable for the visitors.

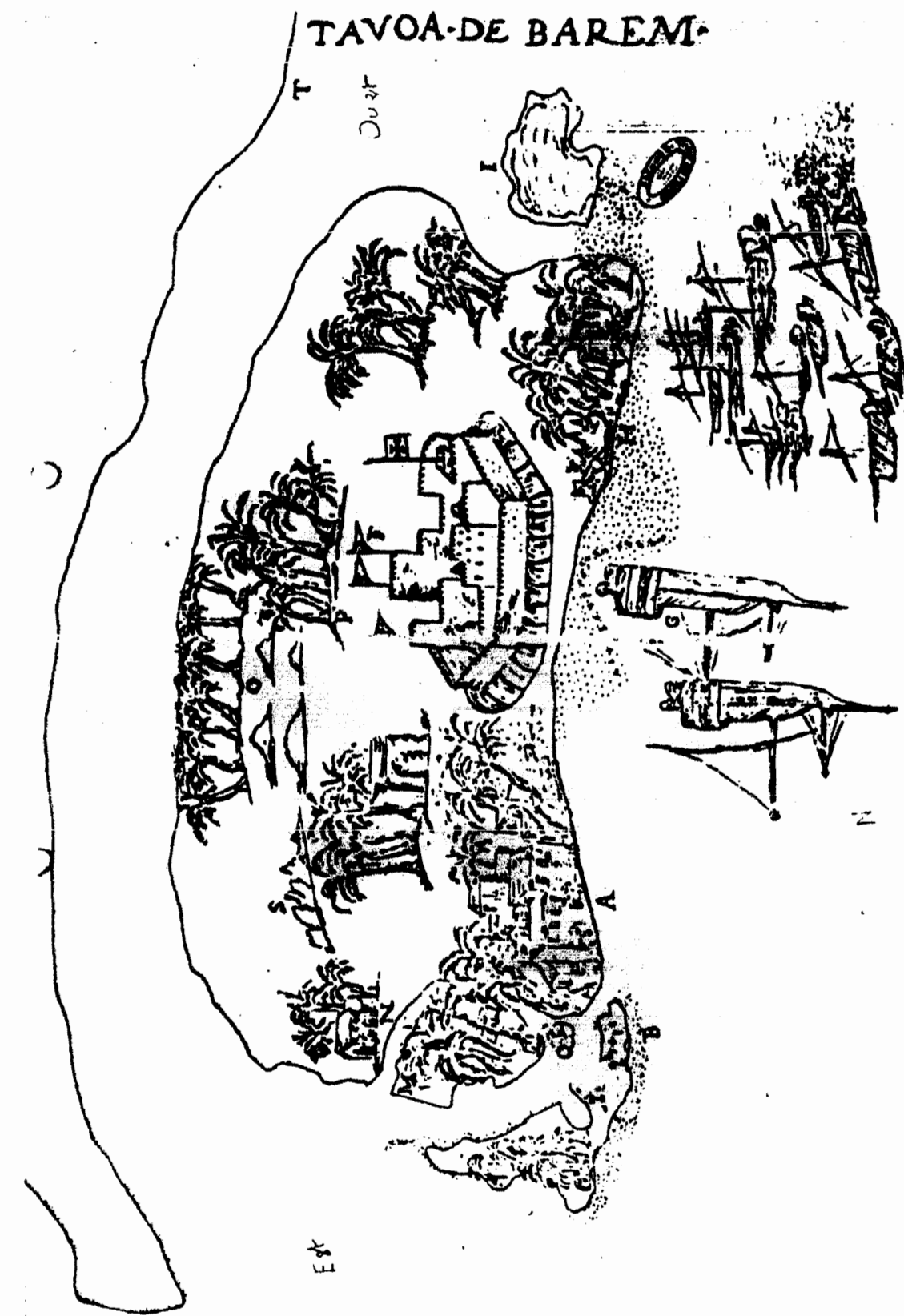
Being ware of their having with this site a unique source of cultural and tourist riches, the government of Bahrain decided, in the years 1986-1987 to set up a program for restoration of Bahrain Fort. Most fortunately in the case of Qalat Al-Bahrain, the cultural interest does not conflict with economic interests. The appeal for Tourism will ended depend largely on the quality of rehabilitation of this unique architectural heritage.

Two aspects of the site rehabilitation will be examine in the present report :

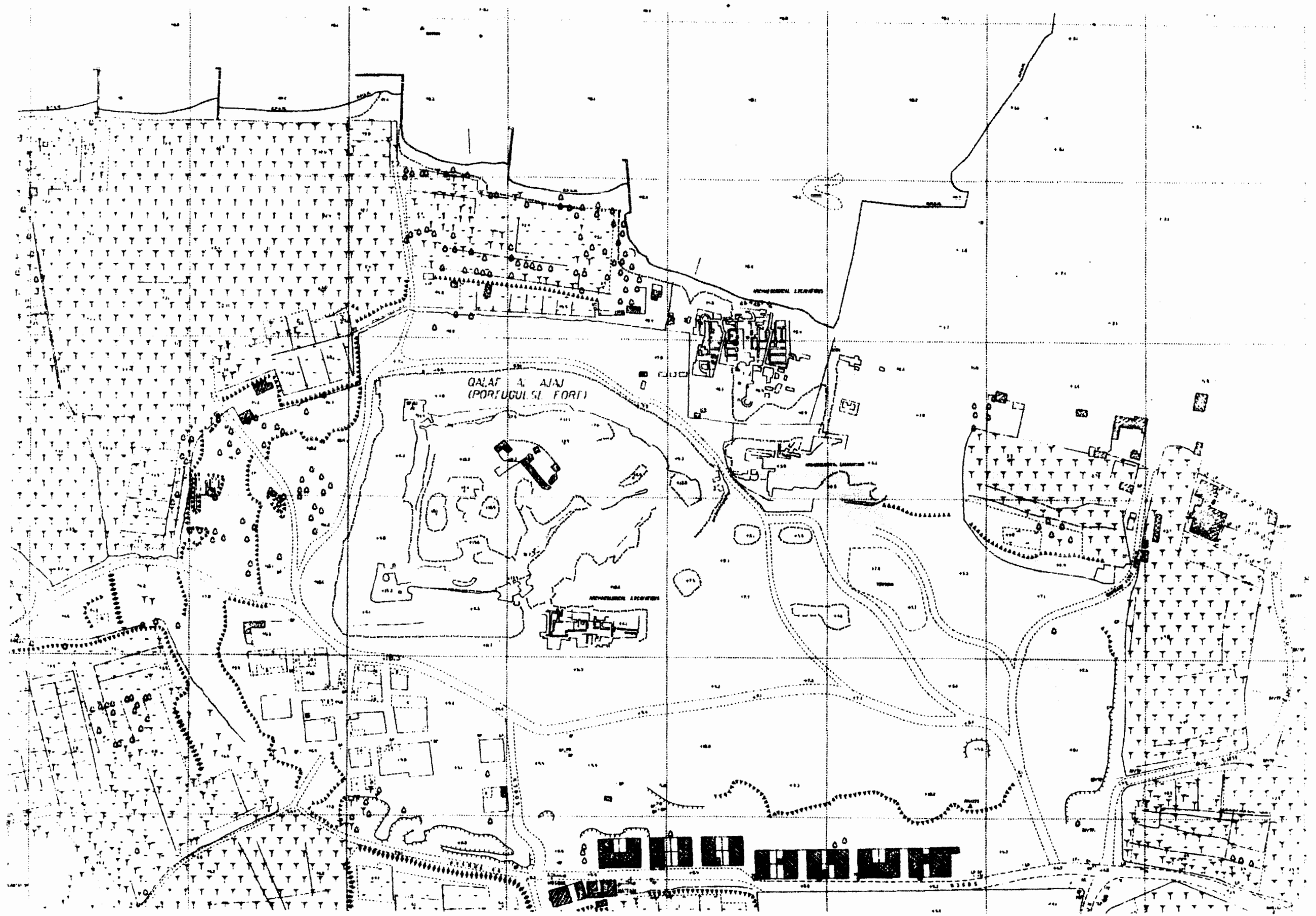
- The safeguard of the site
- The preservation of the monuments which have been found on it.

Four thousand and five hundred years of uninterrupted human occupation of the Qalat Al-Bahrain site have left us impressive remains, some of them nearly intact. Not more of one third of this magnificent heritage has been dug up. What has already been founded is most spectacular :

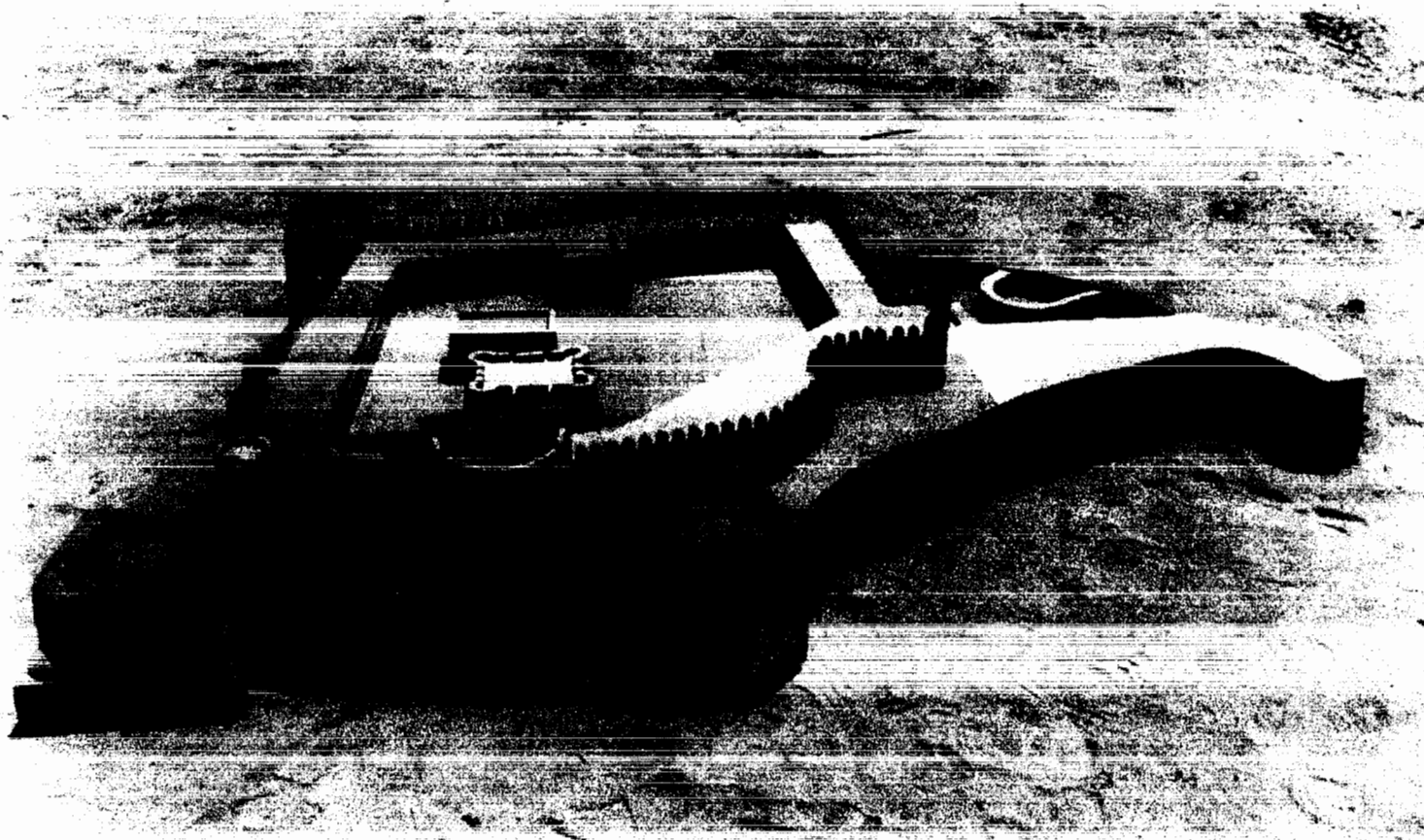
- The Delmon city wall (3rd millennium B.C)
- The Kassite warehouse and place (2nd millennium B.C)
- The Tylos period coastal fortress (C. 100BC) reused during the 13th century as a warehouse for overseas trade with China.
- And lastly touring above the whole scene, the magnificent medieval fortress which was restored by the Portuguese in 1561.



Bahrain Islands in 1538



Site Plan



Bahrain Fort model before restoration 1987



Town and Fortress

Since the early centuries of Islam, the main settlement of the island had developed around the mosque of Suq al-Kahamis, a situation completely altered by the 14th century. In an inscription of 1374, that original town is called Bilad al_Qadim (the old country or town), meaning that a new town had replaced it. The new town, Manama, situated close to deep sea harbour, was the town known to the Portuguese whose name they had deformed into Benamar, as reported in some chronicles. But the appellation they used more often was "the town" or "Bahrain", which proves that at that period Manama was the uncontested main settlement of the island.

As for the location of the fortress, that can also pose a problem. One of the better known Portuguese miniatures of Bahrain shows two fortress at the beginning of the 17th century : one to the North of the Bahrain island, and another to the South of Muharraq island. There are no sources that date the construction of either. One Arabic inscription, still in place in the islet of Jidda which mentions the restoration of "the Bahrain fortress" in 1561, without specifying its exact location. Nevertheless the name "Portuguese Fort" has been traditionally linked to the Bahrain Fortress, and also the European design of its bastions suggests that the fortress mentioned by the Portuguese sources of the 16th century is certainly the one situated on the Northern cost of the Bahrain island.

With such a confirmed location, this fortress still poses one further problem. Why was it that in 1529 and 1559 both Badr al-Din and Murad successively entrenched themselves in the Bahrain fortress, while in 1521, Muqrin faced the Portuguese in the fortified town of Manama? Having transformed the town into a military target, he had exposed it to pillage and massacre. His successors, by enclosing themselves in the fortress, limited the consequences of the attacks to the fighters only. The thought that comes to mind is that during Muqrin's time there was no fortress at Bahrain, but it came to be only some years later. This hypothesis is disproved by archaeological evidence, as will be shown further in the script, and also by two written sources. One is by the Caireen historian, Ibn Iyas, who informs us that in 1521, the Bahrain Fortress fell into the hands of Europeans. Also a few



Bahrain Fort In 1987

years later, but prior to the Portuguese siege of 1529, a Portuguese document also mentions the existence of a fortress, of inferior quality, in Bahrain. If this fortress existed at the time of Muqrin, how can we explain, that he like the Bahrain governors who followed him, did not entrench himself in it at the time of the Portuguese Attack?

A possible explanation could be as follows: it is most probable that the princes of Hurmuz built the Bahrain fortress at the end of the 14th or beginning of the 15th century, at the time when their influence extended over the island. Similar to other areas under their control on the coast of the Gulf and of the Oman sea, they had established a Baluchi garrison there, which was mentioned in 1529 and 1559. During the years when Ajwad ben Zamil and his son Muqrin, member of the powerful Banu Jaber Arab family, were trying to free themselves from Hurmuz influence, the Bahrain fortress had either escaped their control or, more probably, had been abandoned by its garrison and fallen into ruin. In both cases, Muqrin could not make use of the fortress and, therefore, it was from his town and with his people that he attempted to resist the Portuguese landing.

In 1529, both the context and the protagonists were different. Badr al-Din, Governor of Bahrain, rebelled against the Hurmuzi-Portuguese power, responsible for exorbitantly raising the tribute imposed on the island. The Baluchi garrison assigned to keep the fortress refused to be implicated in his rebellion and abandoned its post. This rebellion by Badr al-Din seemed, however, to be a defence of his personal interest rather than the protection of the inhabitants of the island. He did not seem to be very popular since he needed to take hostages from the town and lock them up with himself in the fortress.

Each of the protagonists in this conflict, held an ambiguous role: the Portugueses, on the one side, pretended to be repossessing the fortress for the Prince of Hurmuz, while in reality they intended to control the revenues of Bahrain Badr al-Din, for his part, defended the island fortress while in reality he hoped to leave with all the wealth he could lay his hands on. And finally, the Baluchi garrison ought to have followed orders of the fortress governor, but anxious lest they should follow a rebellious governor, and unsure of the real issue behind the fight, preferred to leave the scene.



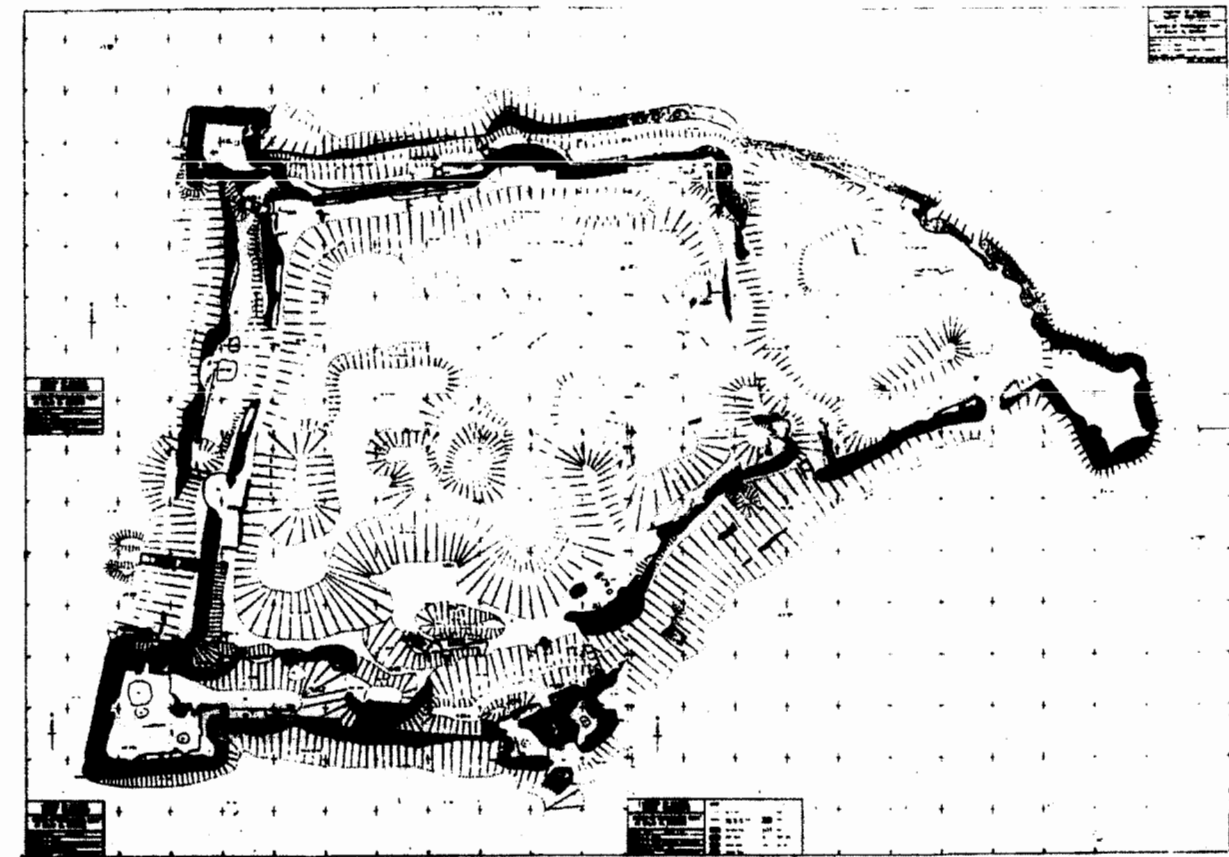
Bahrain Fort In 1987

It was finally in 1559 that the Amir of Bahrain, Murad, a loyal tributary of Hurmuz, defended the fortress against the Turks and naturally he was helped in the task by the Portuguese and the Hurmuzi. In all three cases it seems that the fortress was being used for the protection of Bahrain by the Hurmuzi princes.

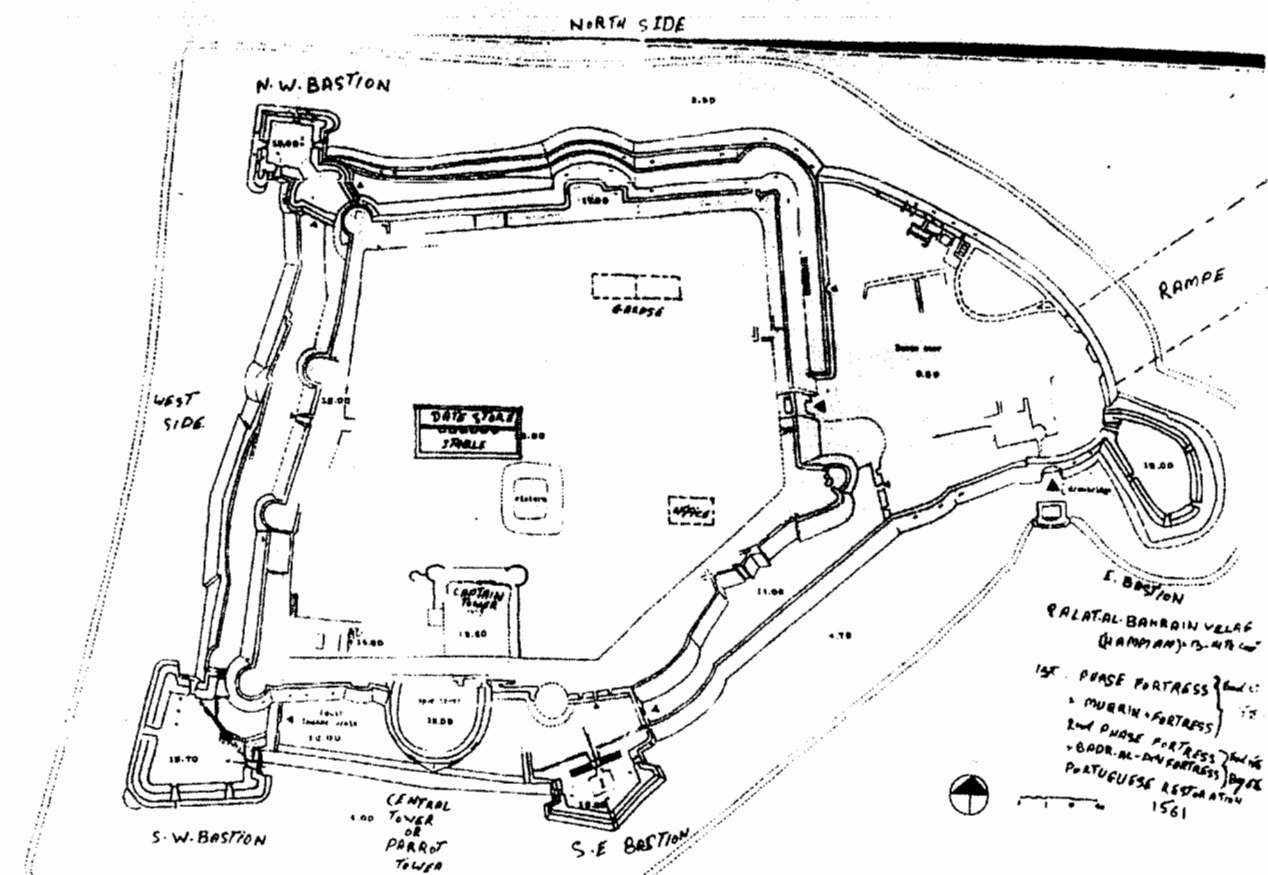
Archaeology offers the irrefutable proof that there was a fortress at Qalat al-Bahrain before the siege of 1529, during the lifetime of Muqrin and probably before that. When the French Archaeological Mission made various soundings in the fort, know as the Portuguese Fort, between 1980 and 1985, it discovered that in the interior of its partially collapsed walls there existed a much more ancient fortress. The latter fortress had medieval features and was badly adapted to artillery warfare; it also fitted the term "corral" as the Portuguese called it. In contrast, the fortress from which Bard al-Din resisted the Portuguese attack which was an enlargement of the former fortress, was stronger : its exterior walls and boulevards could well resist the Portuguese of 1561 that finally adapted the medieval fort to the war technology of the 16th century. Before examining the three phases of construction, let us review what archaeology has revealed concerning the site prior to the construction of the fortress.

Qalat Al-Bahrain is a slight elevation above the surrounding palm-tree. Its altitude is due to the accumulation of archaeological vestiges, super-imposed one on the top of the other since the third millenium B.C. Overlooking the most ancient of these vestiges, let us concentrate on the one monument which occupied the northern part of the site area form a few centuries before Higr. It was a small square fort, each side extending 52 metres and surrounded by a large and deep dug out moat. Being situated between this moat and the sea, and also protected from unwanted landing by a coastal wall, this citadel was impregnable.

In the 13th century, these ruins had been restored by a governor of Fars, for the purpose of using the fort as a ware-house for his commercial interests: at that time, Chinese products arrived in abundance at Qalat al-Bahrain. However, by the end of that century or



Topography of the Fort in 1987



Bahrain Fort of after Restoration 1999

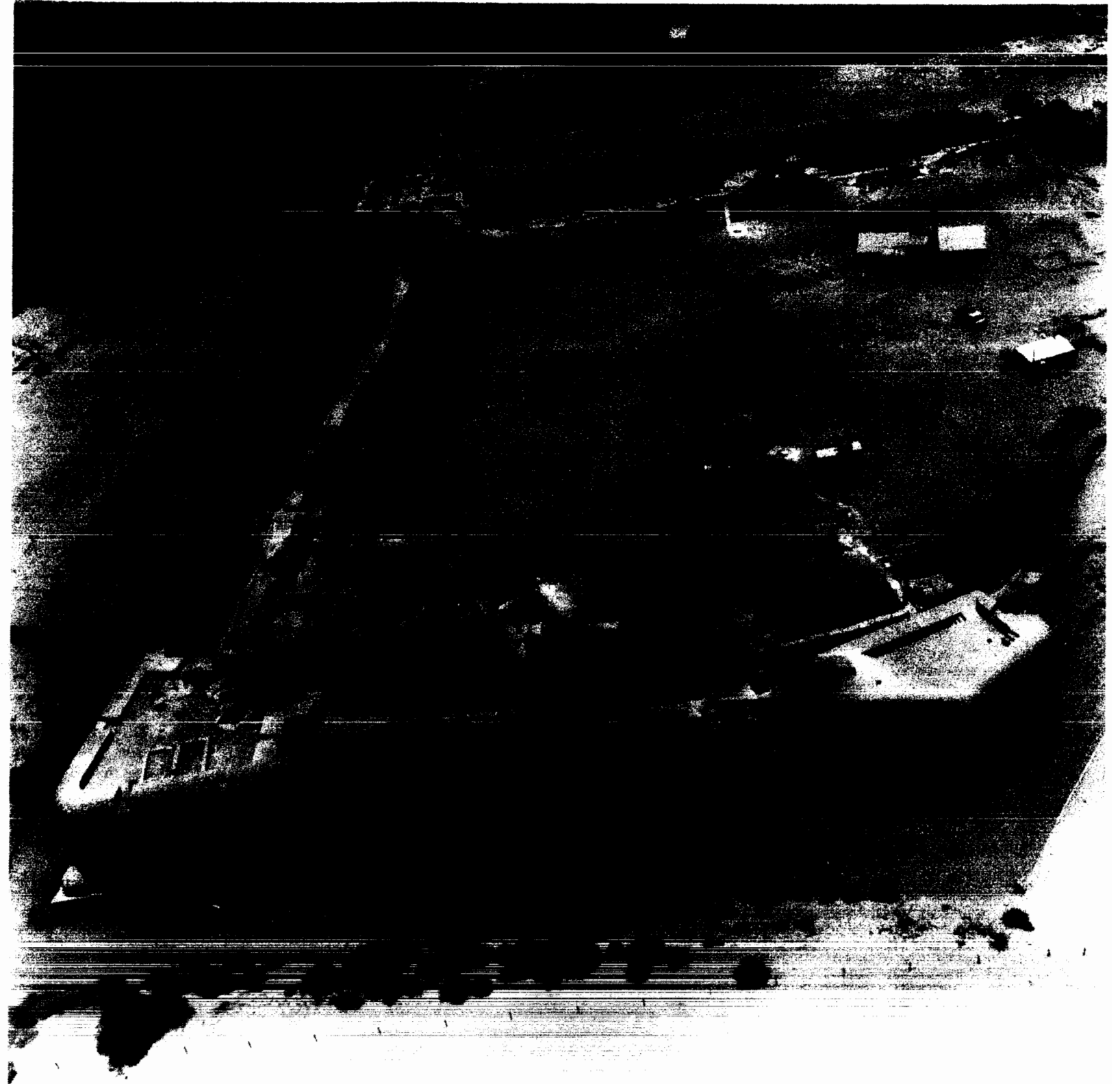
the beginning of the 14th century, the fortress was abandoned and crumbled naturally, because of the tide erosion and due to a slight modification of the shore line. The site was partially covered by a cemetery belonging to the village that developed in the southern section of the site. Whether little or naught had remained of this original construction by the end of the 14th century, a tradition lasting long centuries surrounding this fortress at this particular site remained alive, especially to governors and influential merchants of the Gulf area, who have close contacts with Bahrain, at the end of the Medieval period. It was at the hands of Gulf governors that the new fortress was rebuilt, a short distance from the ancient one, further inland.

At this period, the site still provided various advantages : it was the most elevated point on the coast (9 metres), from which one could advance to the high seas through a controllable channel, the larger part of which could serve as a mooring when the North-West winds were wild. There still exists today, at the North-West edge of the channel, the base of a tower, built of ashlar and measuring 9 metres each side. Facing this tower, all along the eastern side of the channel, at depth of two metres at low tide, a large number of pottery fragments dating from the 14th - 16th centuries were discovered : this was, in front of the fortress, the harbour mentioned several times by the Portuguese chronicles.

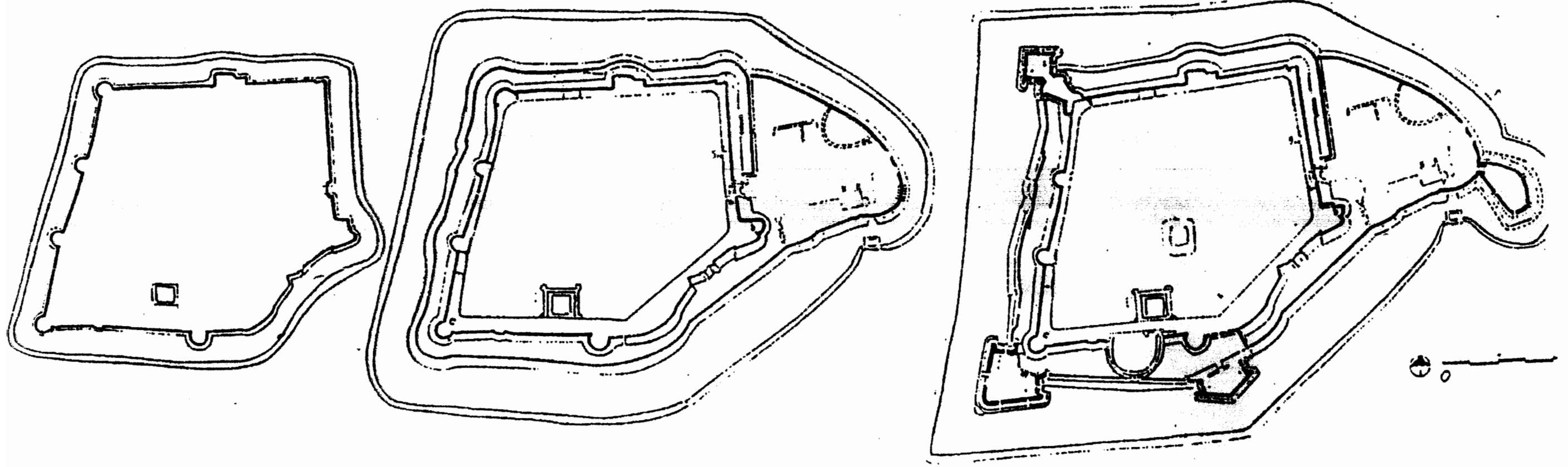
We should finally add that this site, which had been occupied for millennia, represented an enormous quarry for stones. The digging out process of the moat for the new fortress must have provided a huge amount of good quality stone and contributed to the material construction of the fortress. This moat had a probable depth of 5 to 6 metres, a perimeter of 110 x 110 metres and width of 6 to 7 metres.

Therefore the site where the fortress of Bahrain was going to be built had advantages which had been recognised since the time when, a thousand years earlier, the ancient fort was raised and when, in the 13th century, it was restored.

The circumstances in which this new fort was built are, as we have seen, still unclear, as unclear are the features of the monument itself. No representation, either literary or iconographical, survives. Nothing but the observation of the vestiges of the building, made difficult by the following restorations which concealed, almost entirely, this first phase.



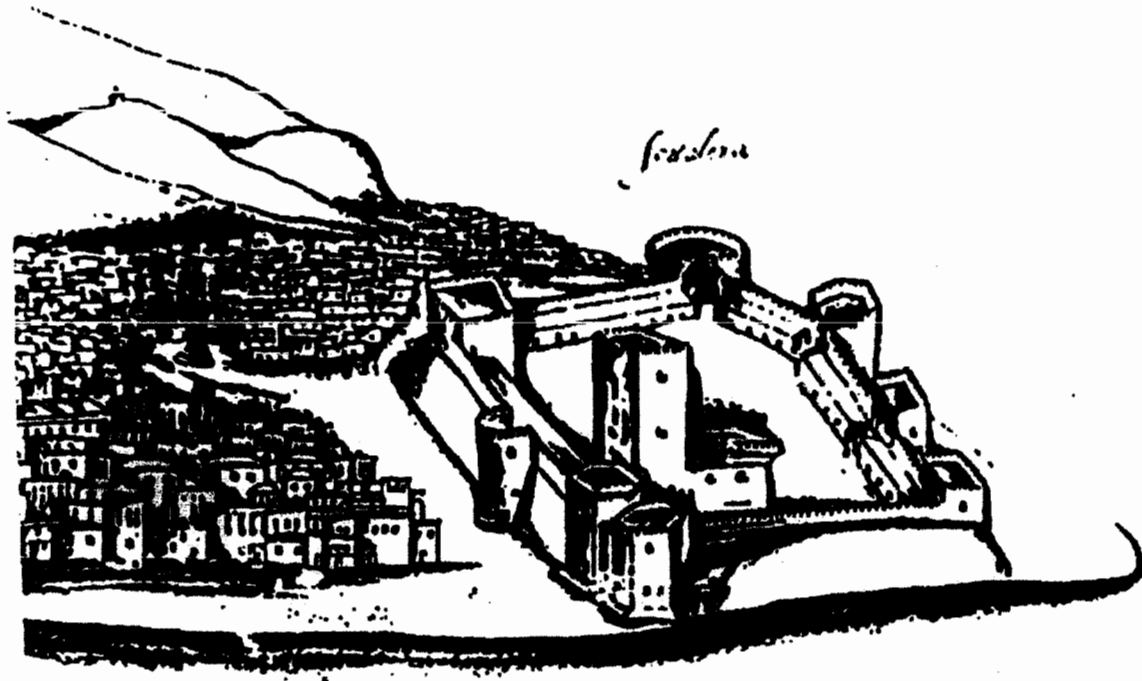
Bahrain Fort 1997



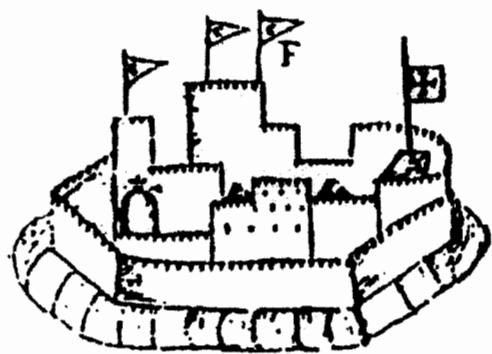
First Phase .

Second Phase

Third Phase

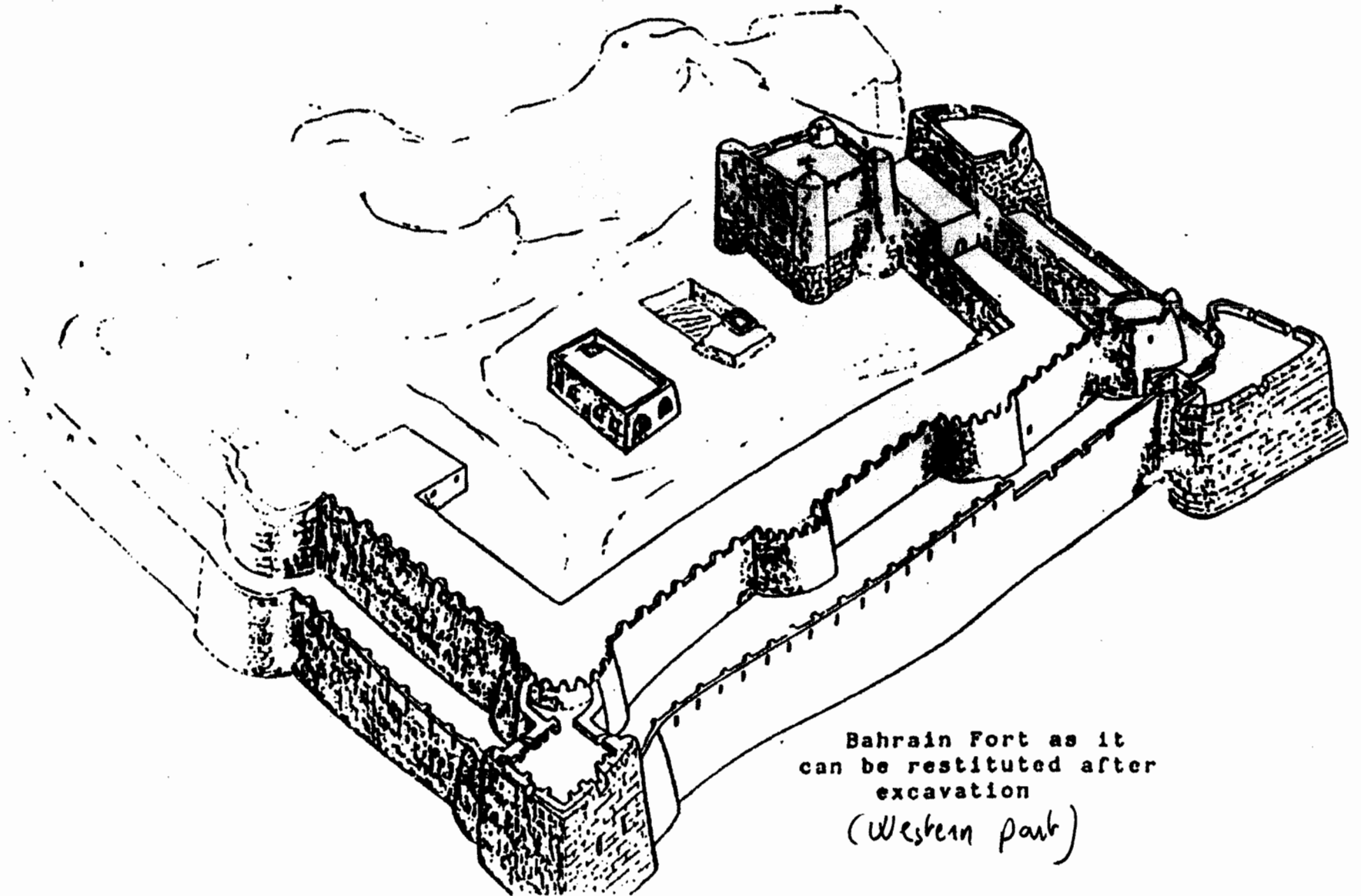


The contemporaneous
fortress of Rumuz



"Badr al Din's fortress was situated on a rise above the harbour which was protected by a very small island on which fishermen used to shelter. On the perimeter (circuito) of this fortress there were seventeen towers (cubellos) built of stones and lime, and a barbican (barbacane). All these constructions had crenellations and loop holes. There was a very beautiful keep and in one of its towers there was the gate of the fortress, very well fortified. The barbican was surrounded by a large moat with its drawbridge. There were some houses of poor people within the wall, and Rais Barbadin ordered them demolished and burned before Simao de Cunha came."

Bahrain Fort. In Portuguese documents



Bahrain Fort as it
can be restituted after
excavation
(Western part)

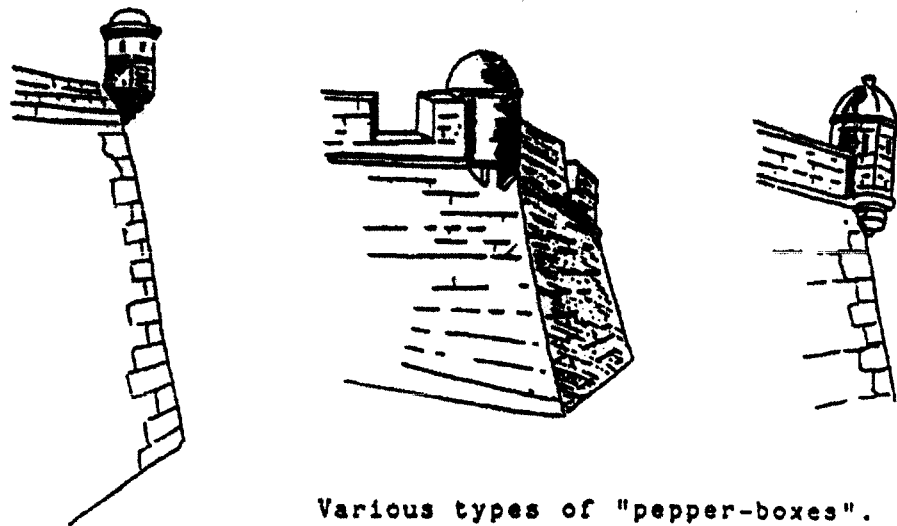
First Phase :

At this phase, the south-west of the fortress was marked by a roughly round tower whose only the upper part is still visible today : this explains the rather small width of its wall.

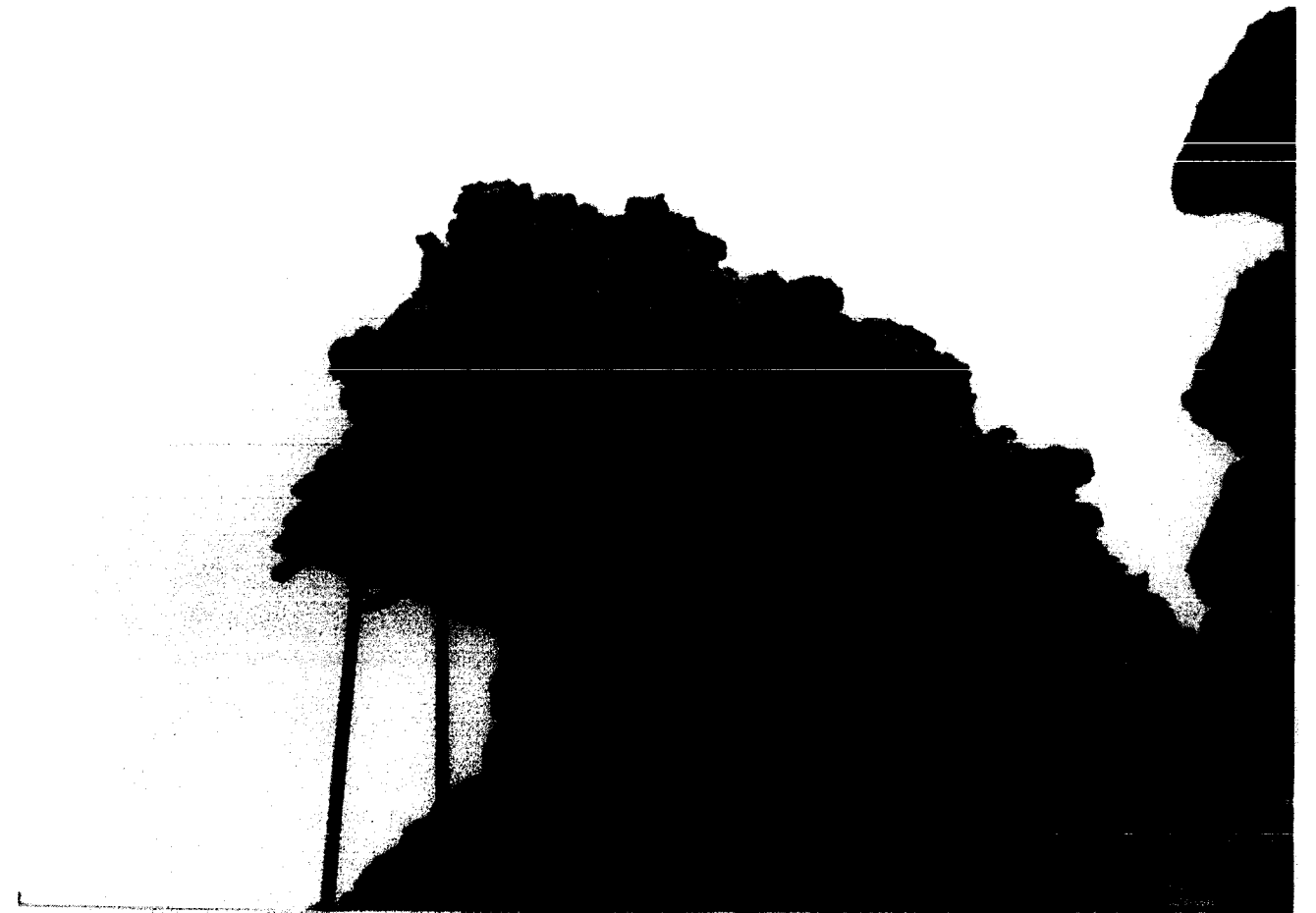
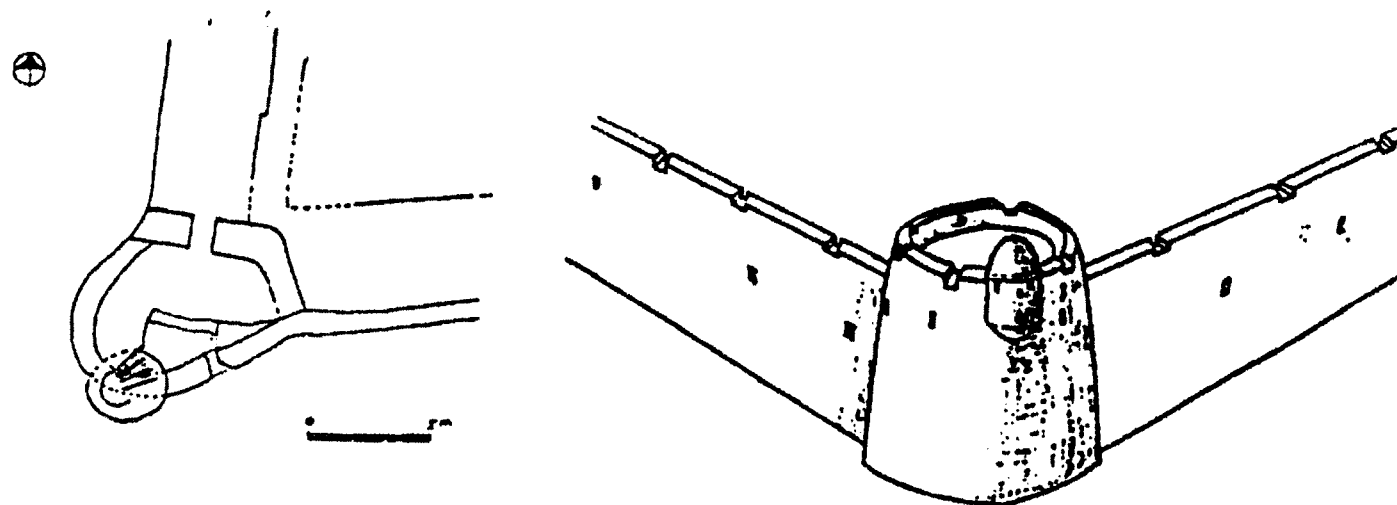
On the south part of the tower-wall one can see the basement of a small turret which was slightly protruding outside of the tower itself.

Such a turret, called "pepper-box" or "echaugette" was frequent on the top of the towers : a man well sheltered inside was able to watch the very foot of the tower and its immediate surroundings down himself.

The wooden remains of its floor and its staircase will allow to restore properly this important part of the watching of the fortress.



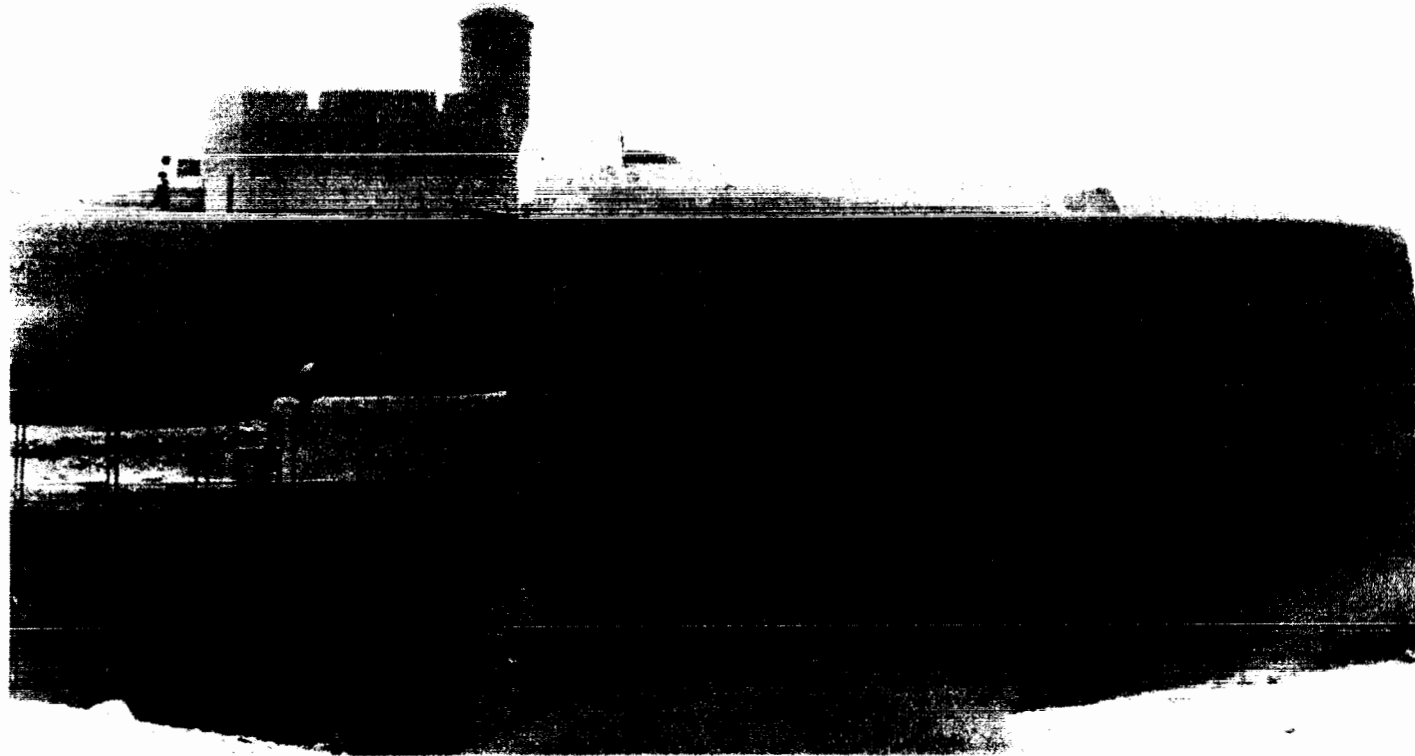
Various types of "pepper-boxes".



South West Tower Islamic period before restoration 1987



South West Tower Islamic period after restoration 1995



South West Round Tower Islamic period during restoration

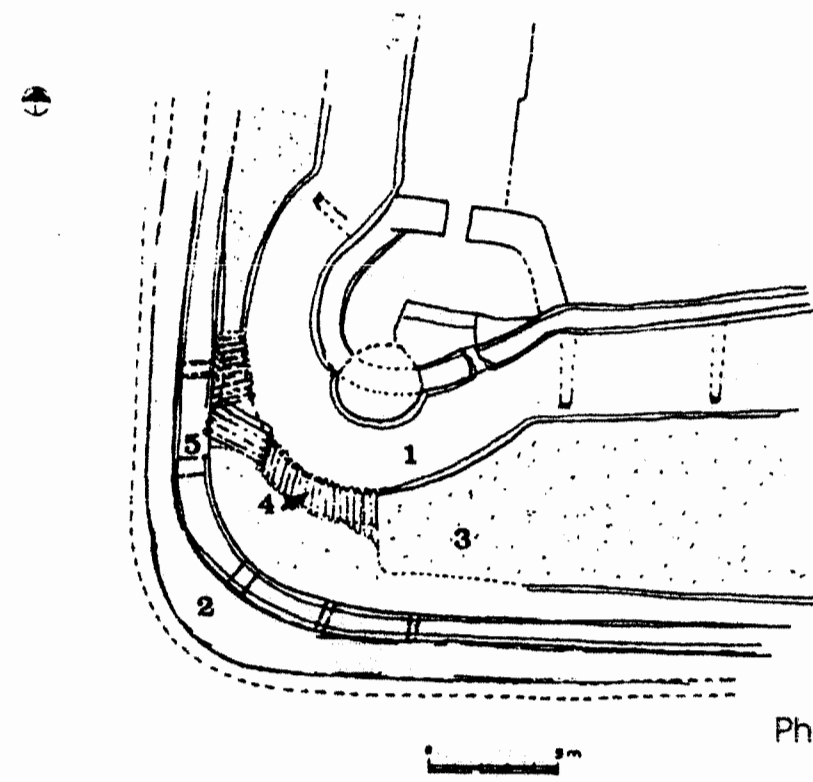


South West Round Tower Islamic period after restoration

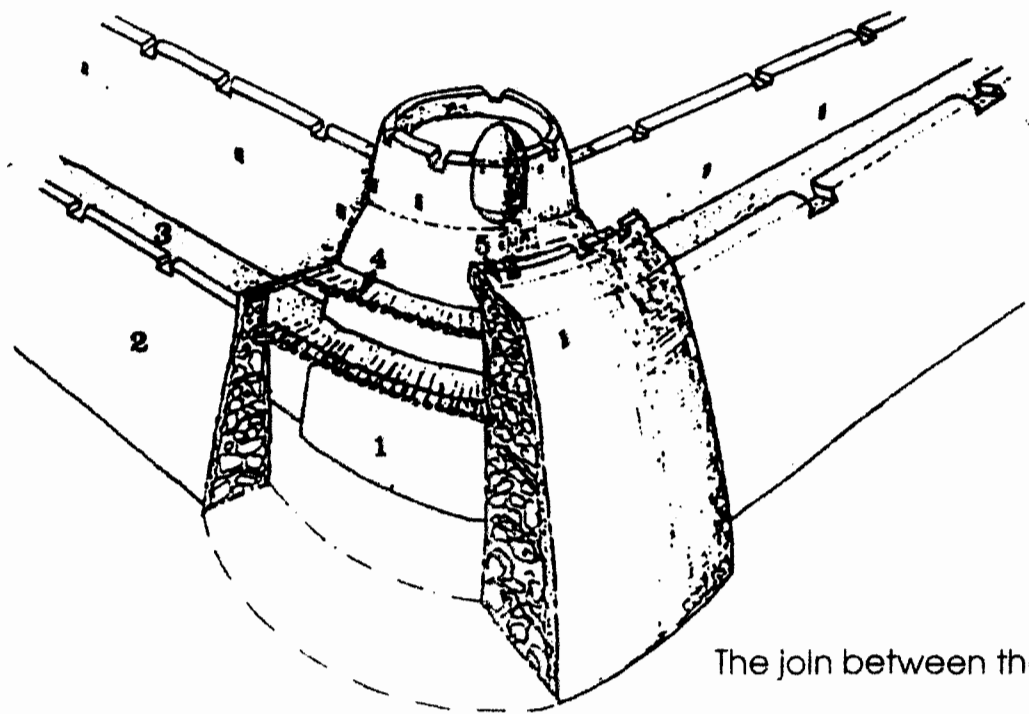
Second Phase :

this phase, the wall of the old tower has been reinforced by a thick new wall (1). All around the corner-tower has been established a bulwark of "fausse-braie" supported by rammed earth and limited, outside, by another thick wall (2). This wall protects the lower part of the building and the bulwark allows the soldiers to easily go from one side to another side of the fortress (3).

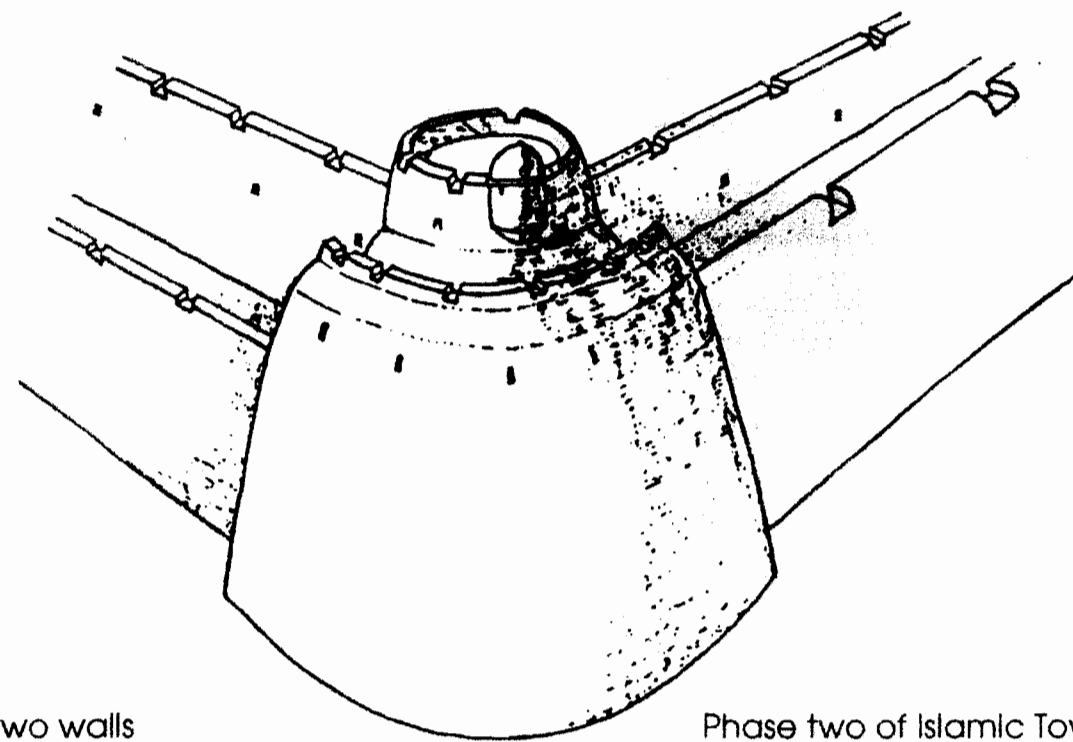
For a better watching, an upper wall-walk (4) has been set-up, from which the gun-men can shot through the crenellation of the outer tower (5).



Phase one of Islamic Tower



The join between the two walls



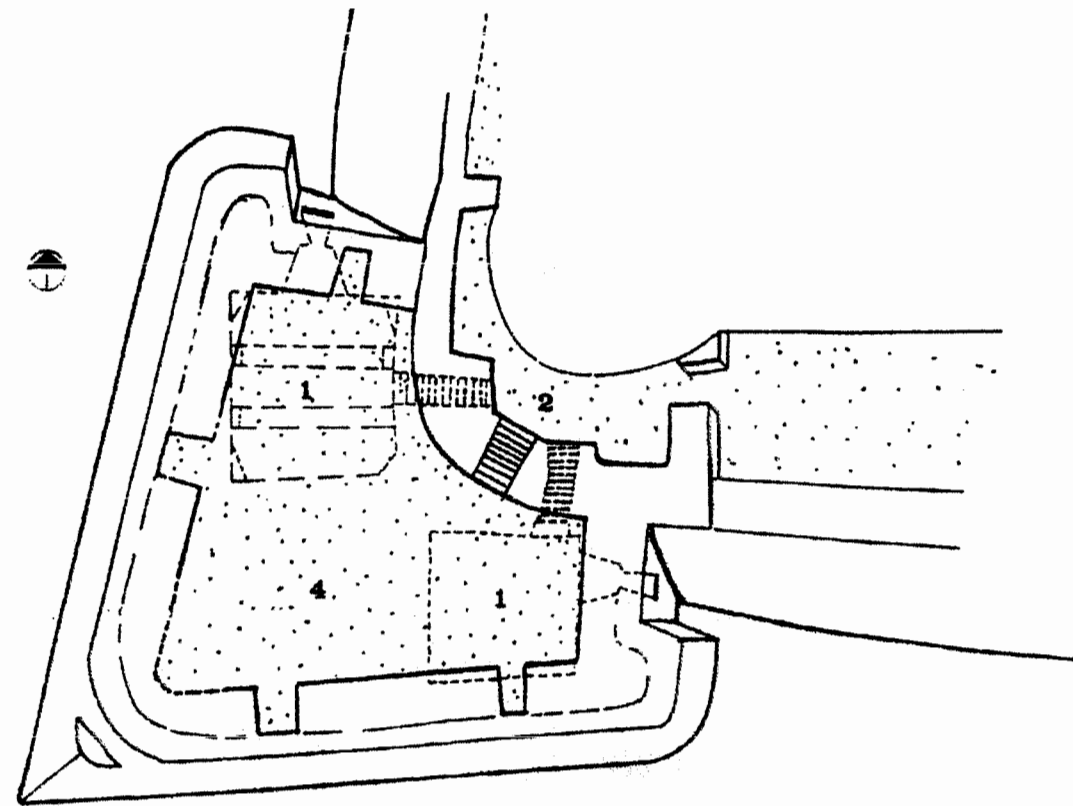
Phase two of Islamic Tower

Third Phase :

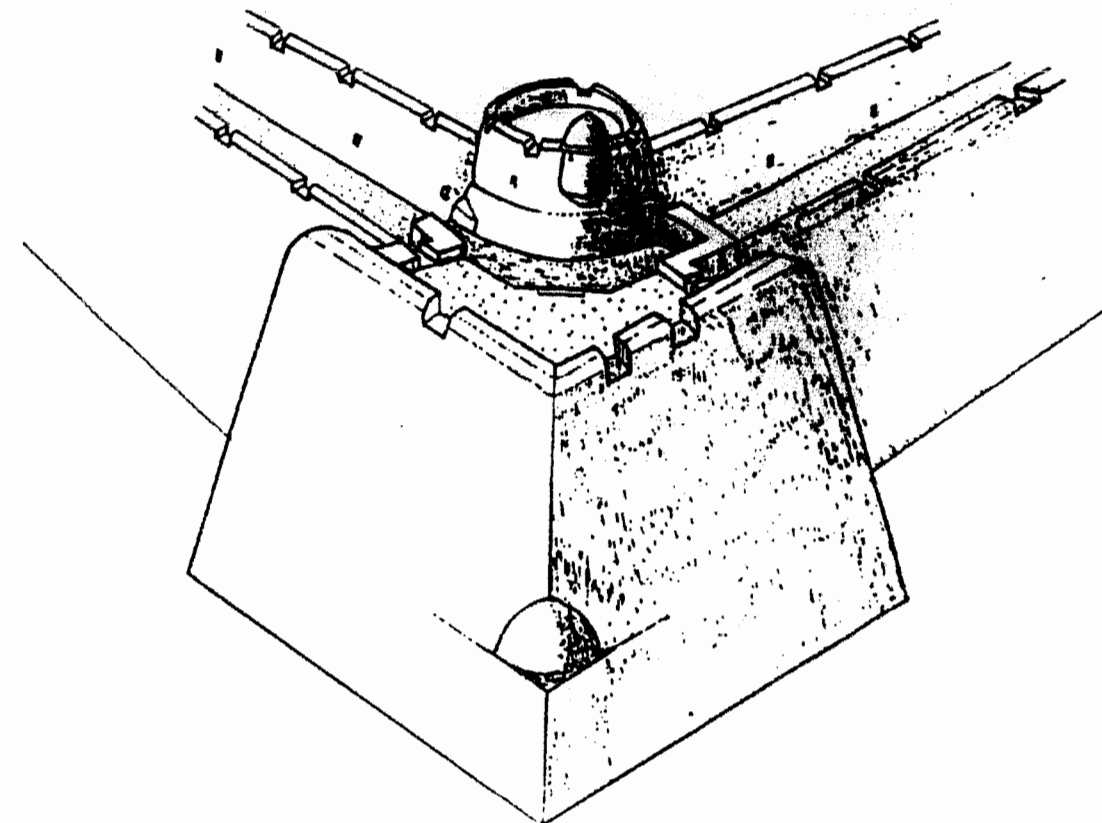
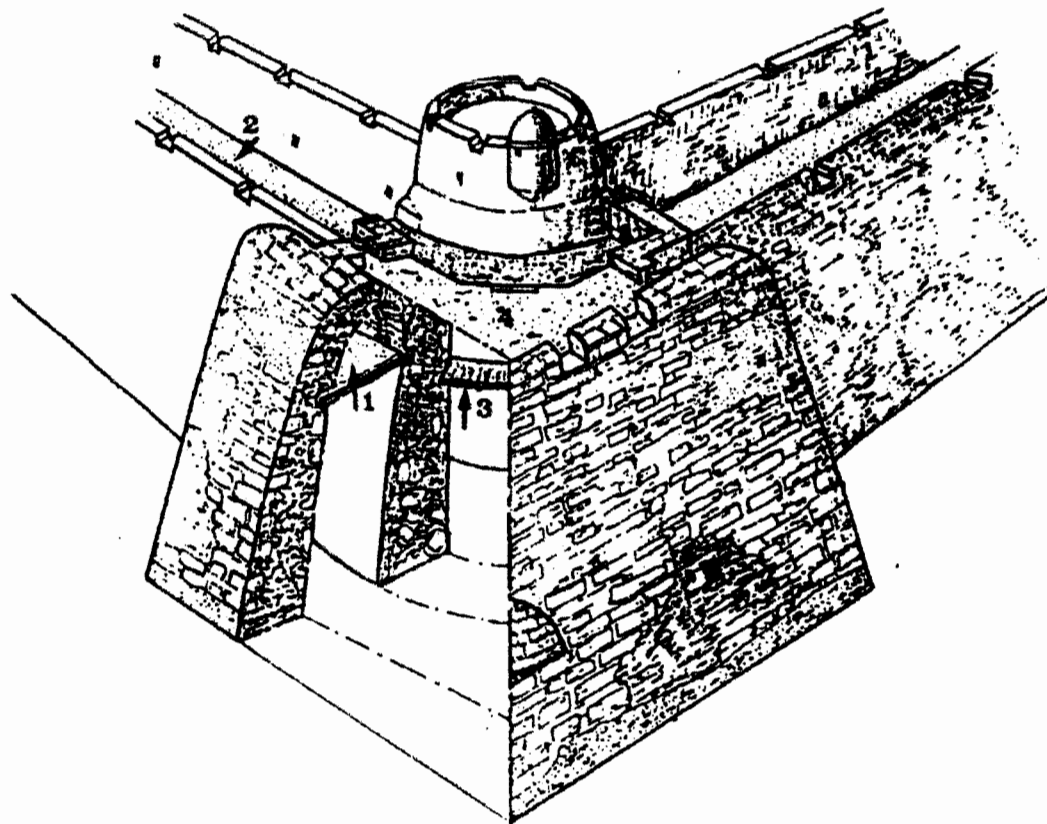
Without destroy the corner-tower of phase 1 and 2, the Portuguese bastion has been built in a forward position. Its bulge allows a better watching of the moat and the two walls running on both sides.

furthermore, the two domed chambers (1) distributed inside the bastion are a good shelter for cannons defending the wall from the enemy attacks.

At this phase, the bulwark runs at the level of the upper one of phase 2, whilst the former lower wall-wald has been blocked. (3). The terrace of the bastion dominates two meters higher.



Portuguese Bastion South west



The Bastions

They are of high architectural quality. They enable complete defense of the whole site : the cross fire from the casemates does not leave any dead angle in the moat, and the upper guns are in a position to sweep in grazing fire all the surface of the tell. Each bastion therefore, performs a task which in turn, determines its structure.

The South Bastion

The south bastion is obtusely shaped, so that its two faces are completely inflated from the casemates of the collateral bastions. Moreover, to absorb the frontal flat shots, a "bufer" of rammed earth was created in the core of its salient.

At the lower level, two doors to be locked from the outside led through the gorge wall down to the flank casemate. These are both roofed with domes on squinches, with a vent at the keystone to evacuate the firing smoke. Each gunport is protected, on the outside, by a member masonry protruding from the bastion, the orillon, meant to prevent the "coup d'embrasure" : an oblique shot where the enemy bullet can ricochet off the gunport's cheek and get into the casemate. To widen as much as possible the firing angle, the orillon's inner flanks have been built parallel to the gunport's cheeks; and to reduce the weakness of the corner, the edges facing the besieger, square at the base, are rounded in the upper portion.

At the center of the gorge, a stair leads to an intermediate landing and then up to the platform. At the landing level, in the axis of the bastion, a small room, once probably roofed, was used as a date-press (or *matbasa*), maybe in a later period. On the platform, the parapet was pierced along the flanks, by two gunports, whereas the frontal defense relied on armies d'epaule, firing in *barrette*, i.e. over the parapet itself.

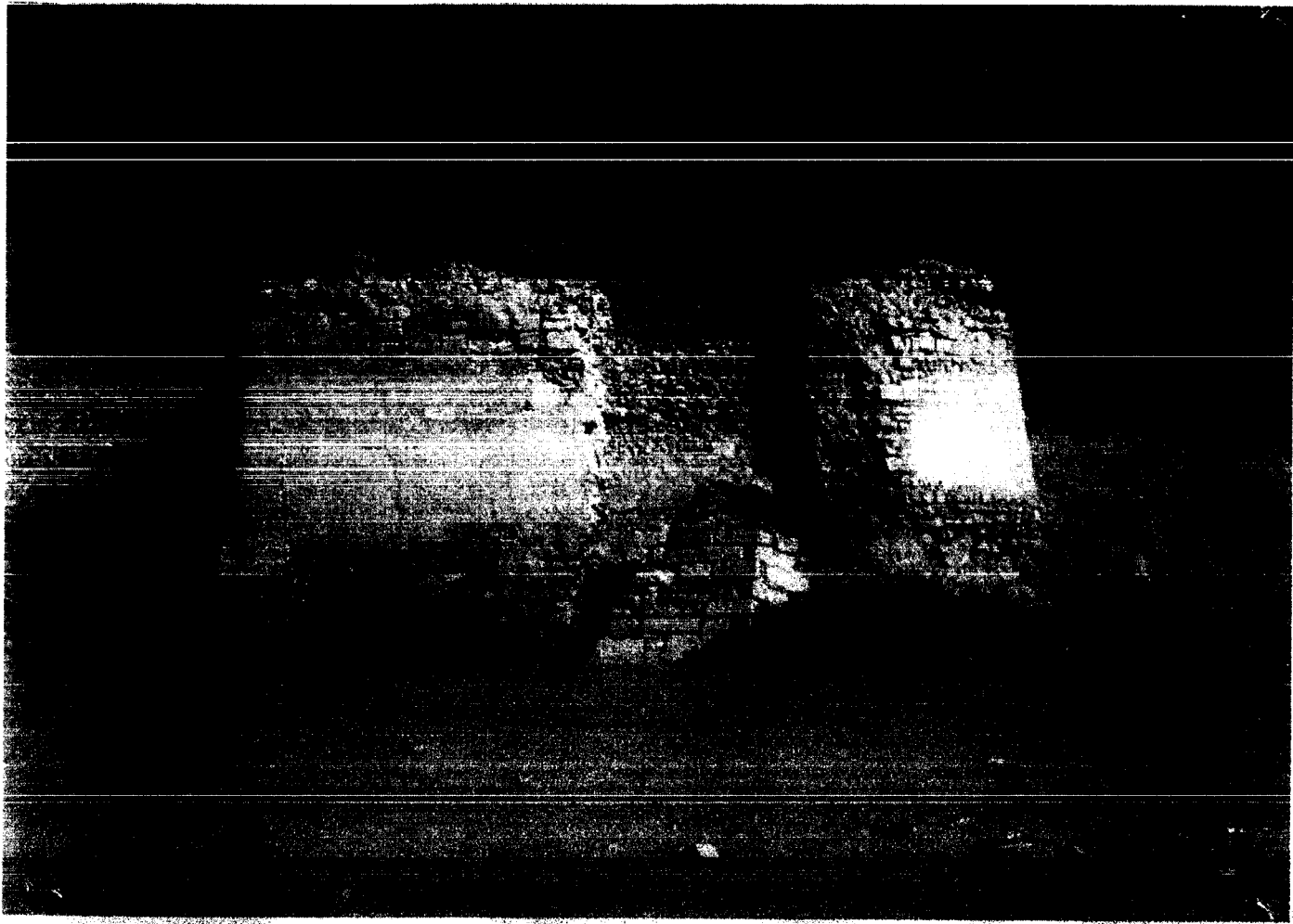
On the east flank, the bastion was linked to the first enceinte by a wall in which a gunport is likely to have existed, to cover the south portion of the *faussebraie*. If the niche at the gorge would have shielded the artillery-men at the moment of the shot.



South East Bastion before restoration 1987



South East Bastion after restoration 1994



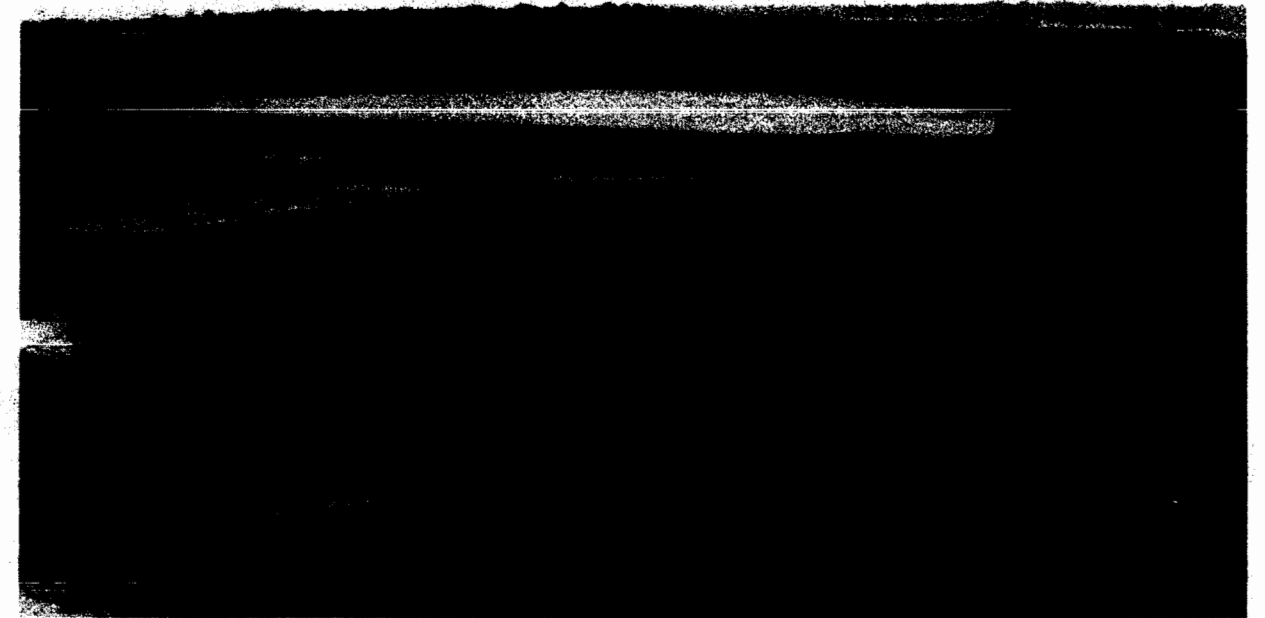
South East Bastion before restoration 1987



South East Bastion after restoration 1994



1987

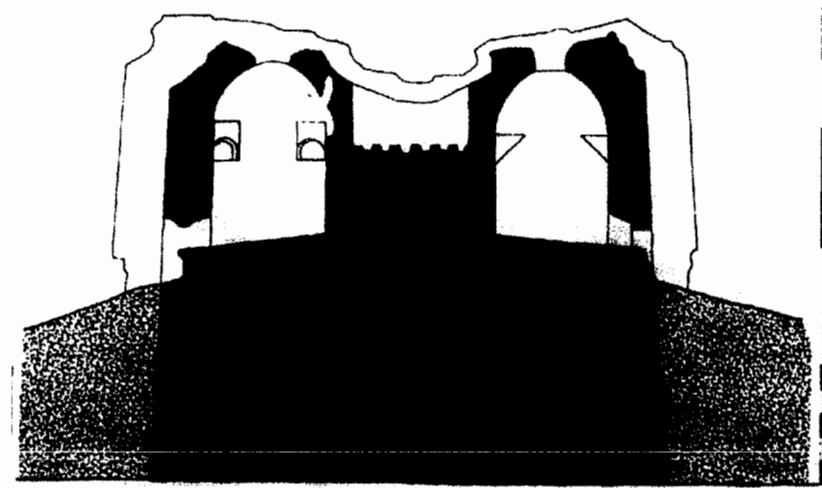


1990

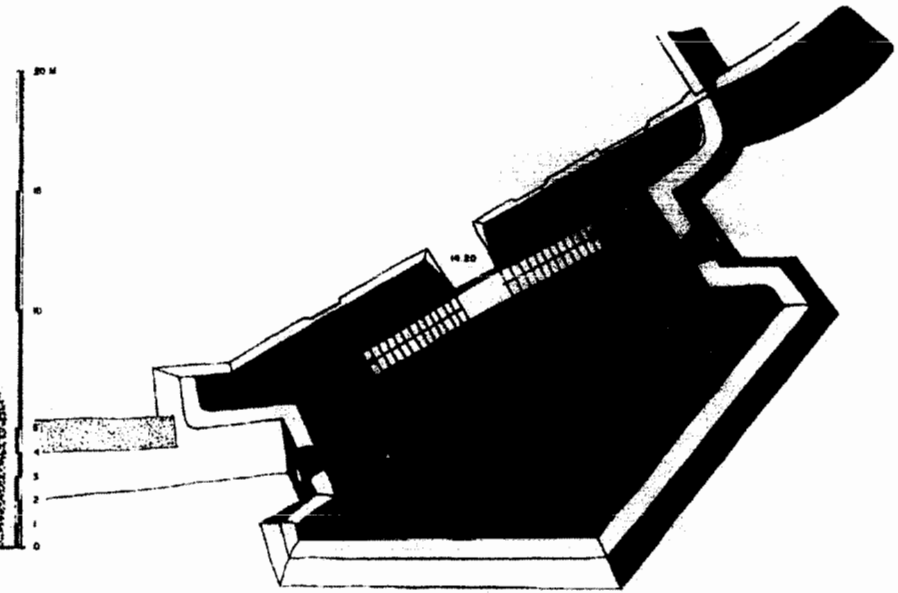
South East Bastion from inside the Fort before and after restoration



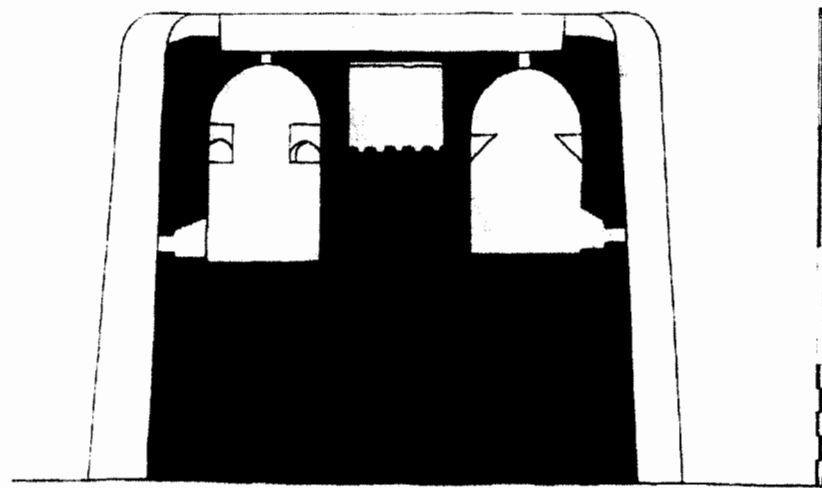
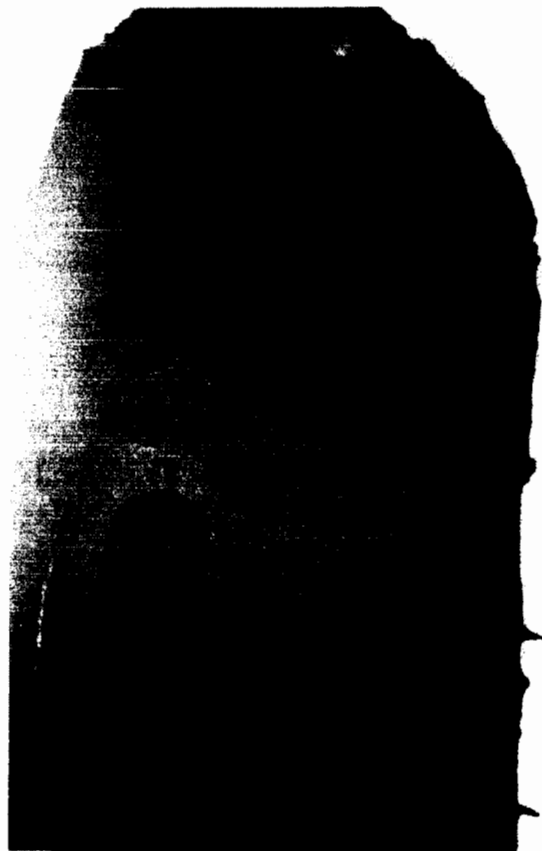
1998



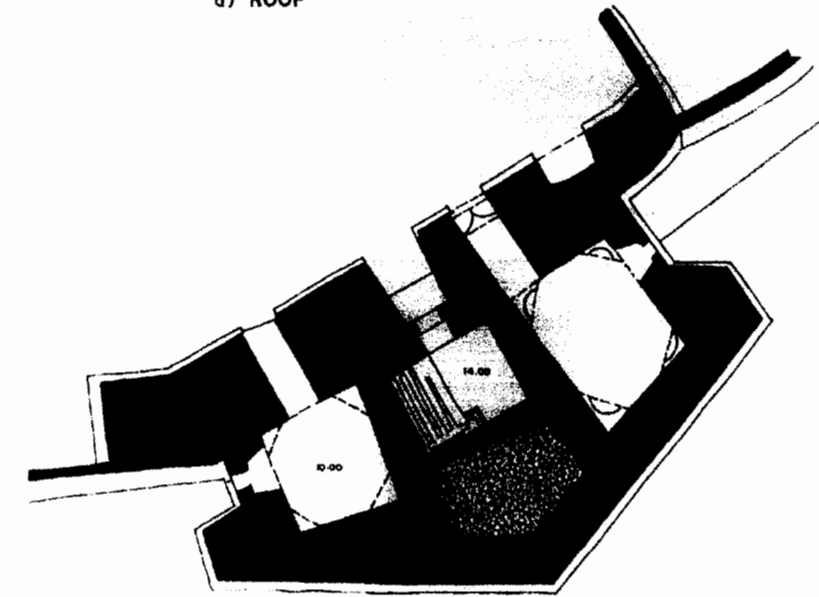
a) AS IT WAS IN 1986



a) ROOF



b) RESTITUTION



b) CASEMATE

South East Bastion



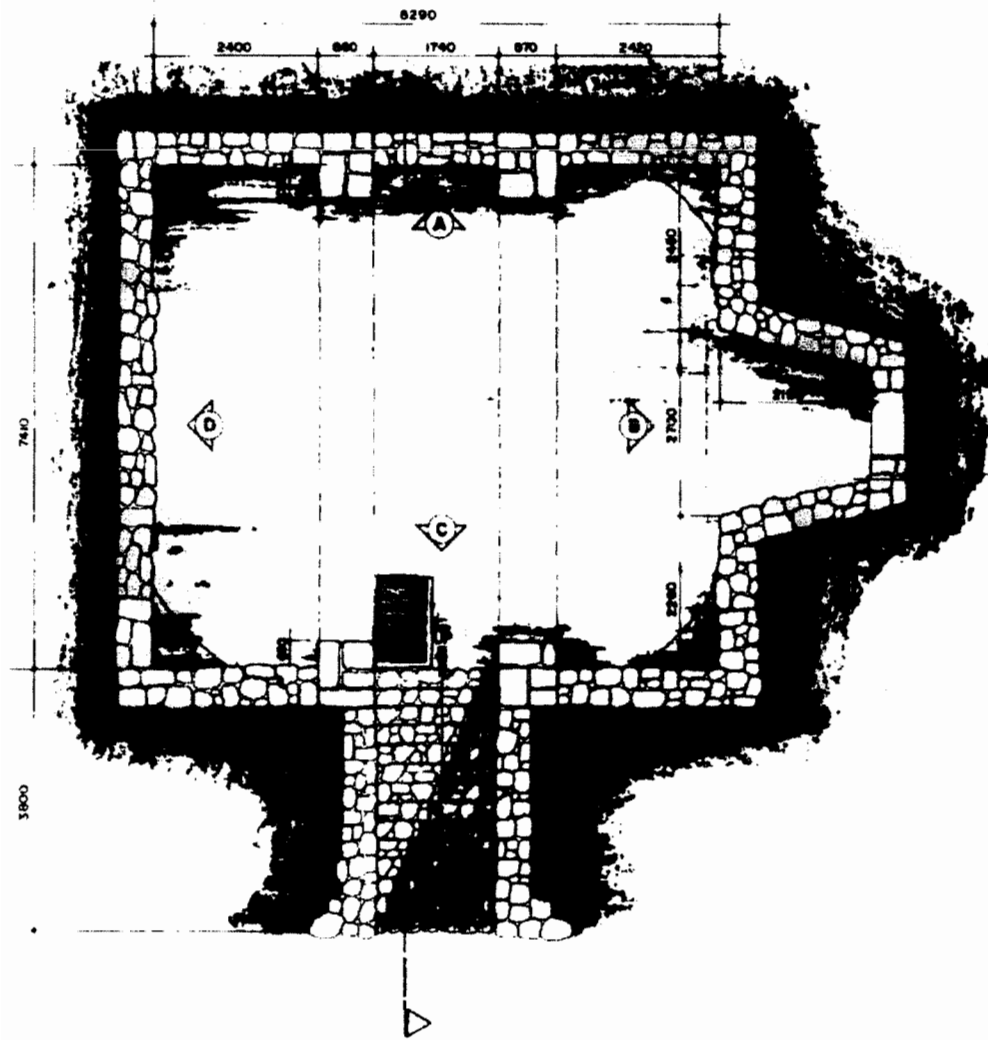
ELEVATION - A



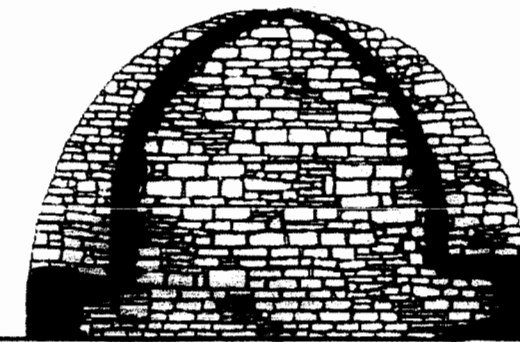
ELEVATION - B



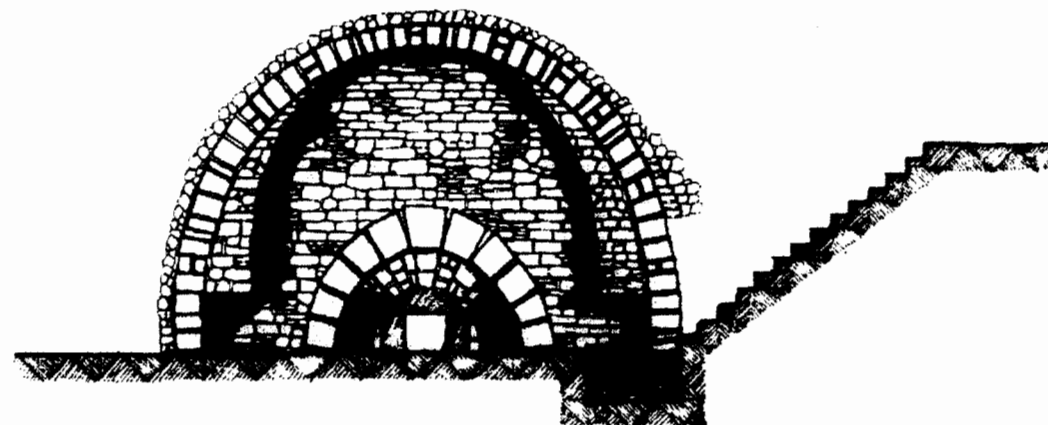
ELEVATION - C



PLAN



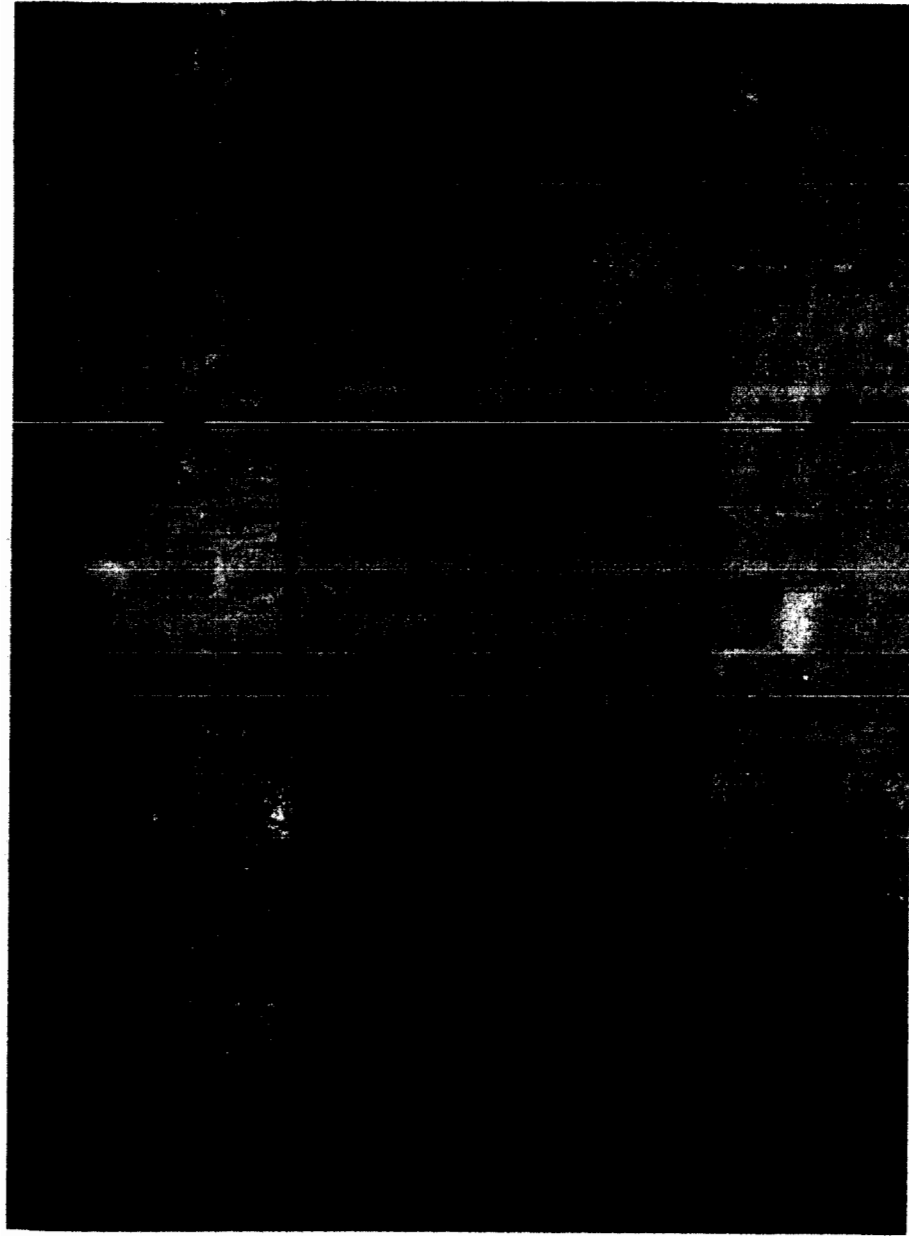
ELEVATION - D



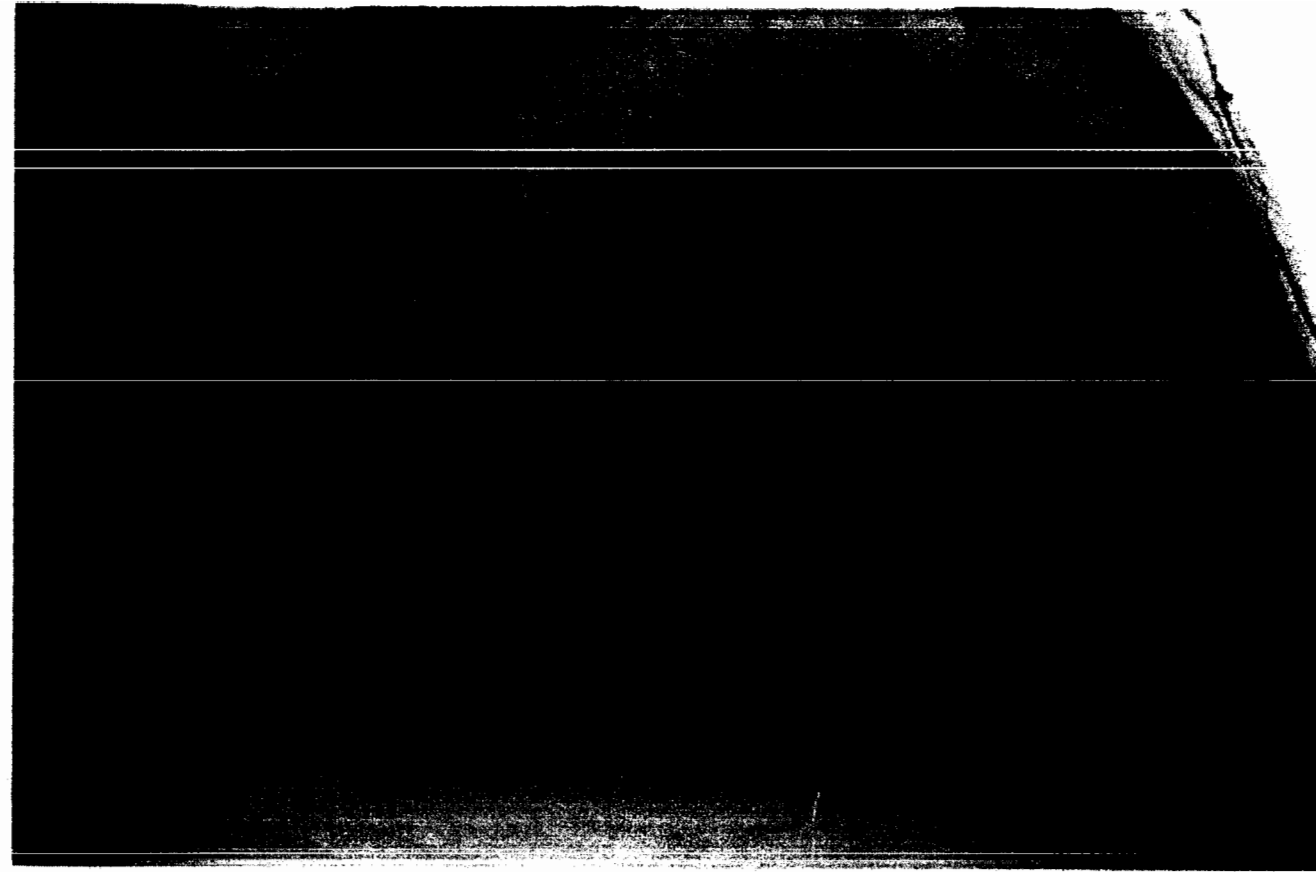
SECTION THRU STAIR

Detail drawing of the chamber in South West Bastion showing the type of structure use on it

Architect : Ms. Khatoun Al Ansari - State of Bahrain



Pillar structure system

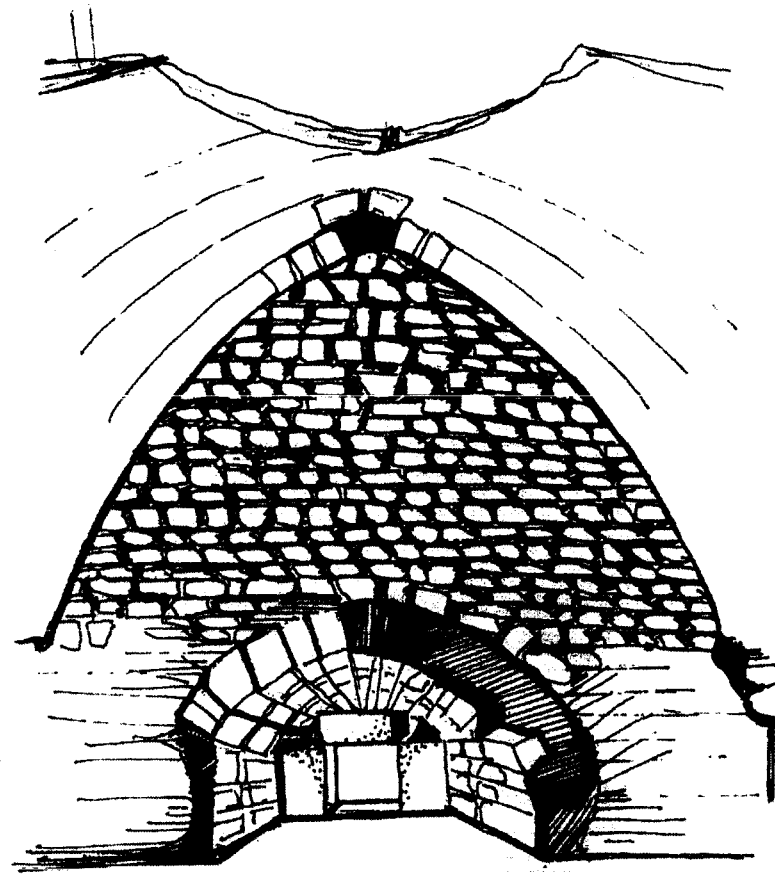


Ventilation for the firing smoke

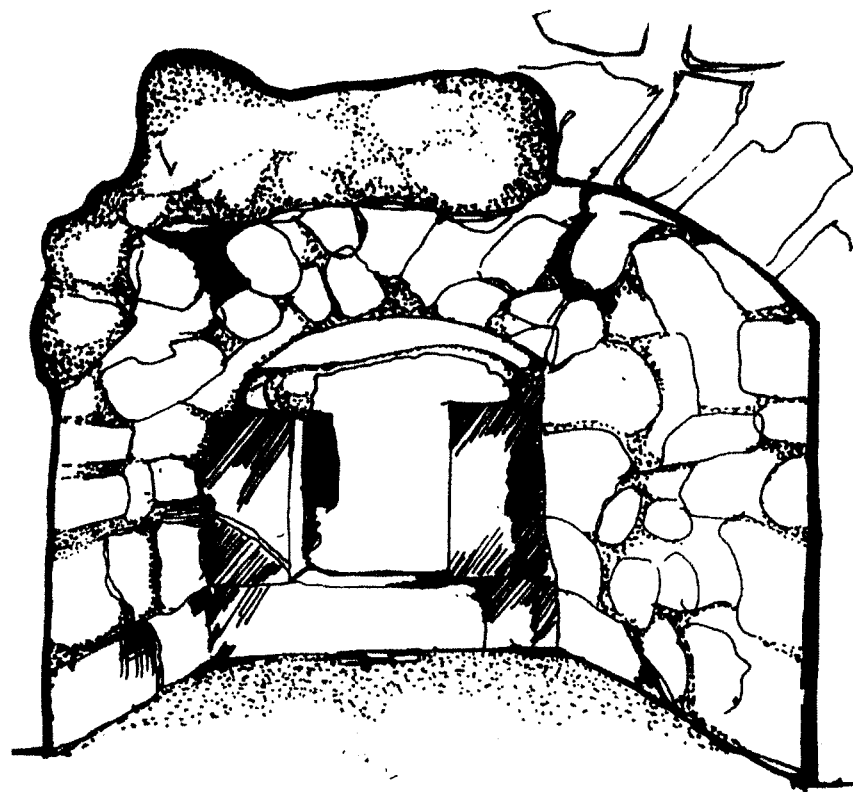
Firing point for the Cannon



The interior of South West Bastion chamber

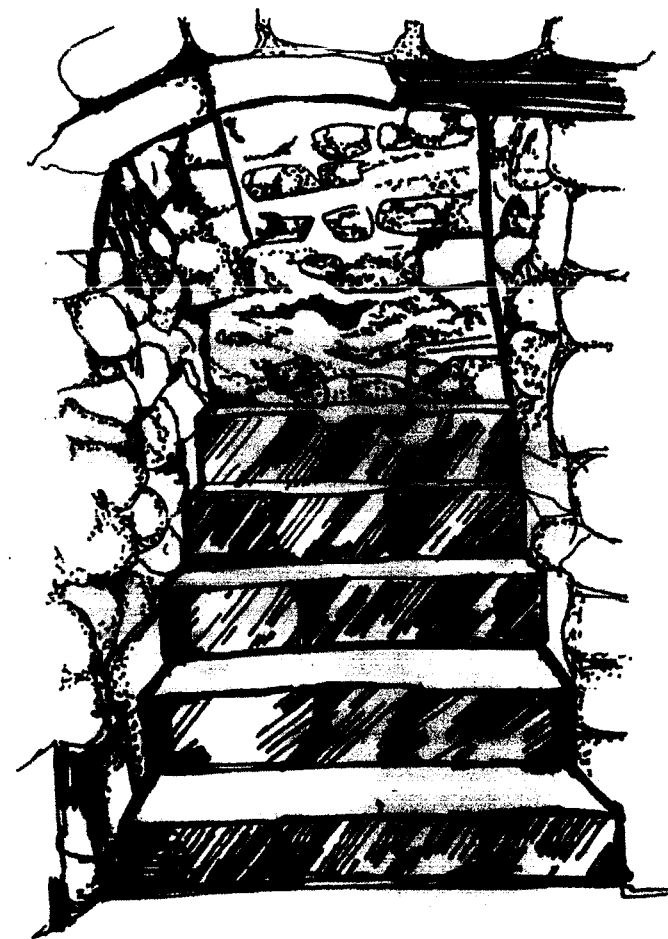


Ceiling structure before restoration

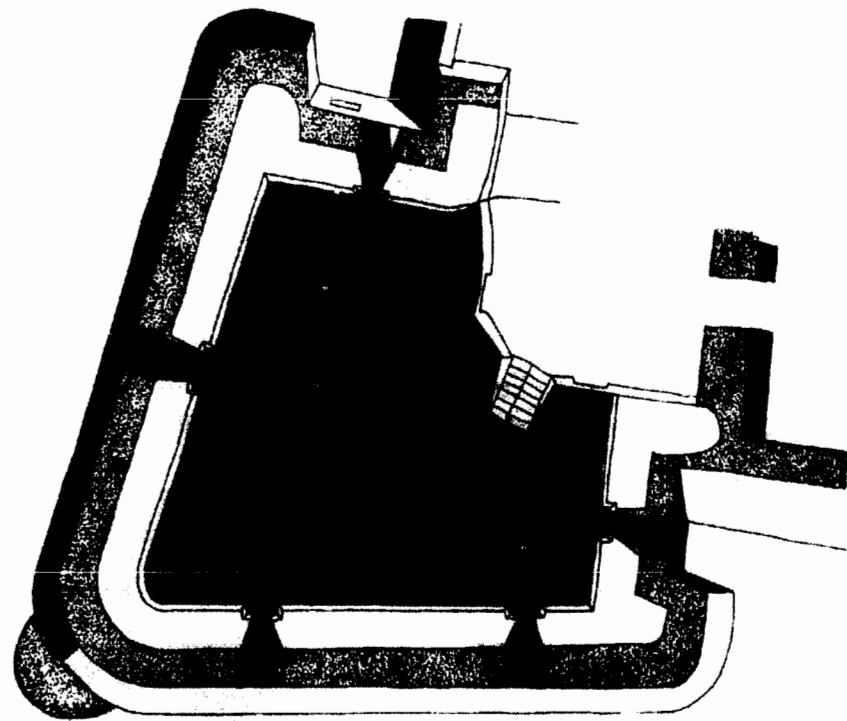


Firing point before restoration

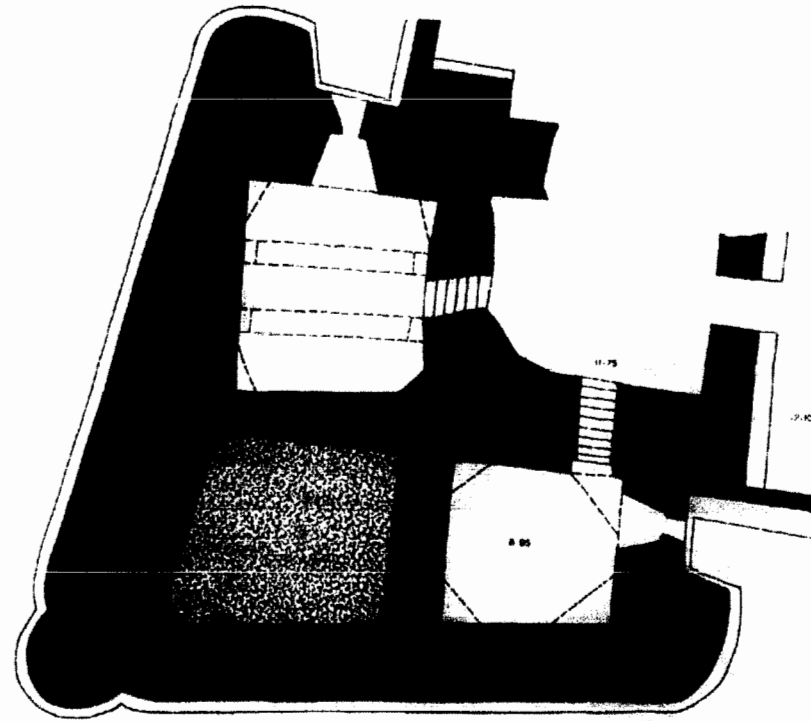
South West Bastion



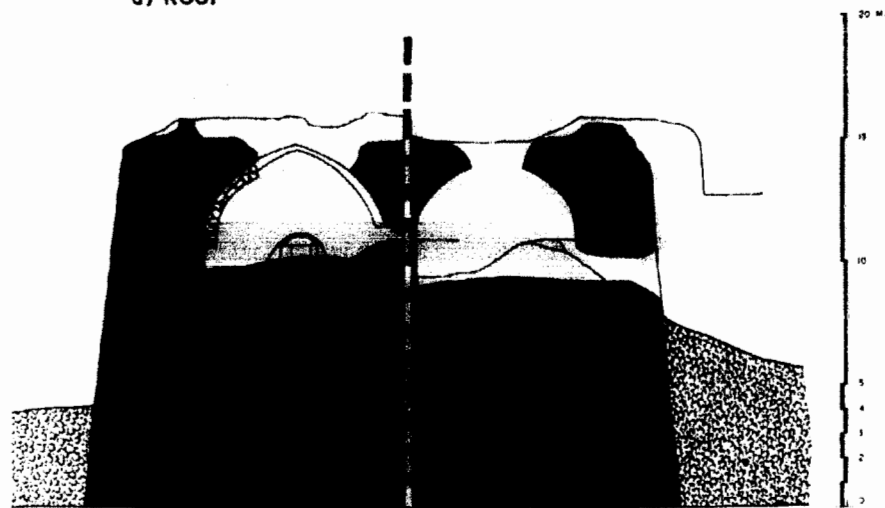
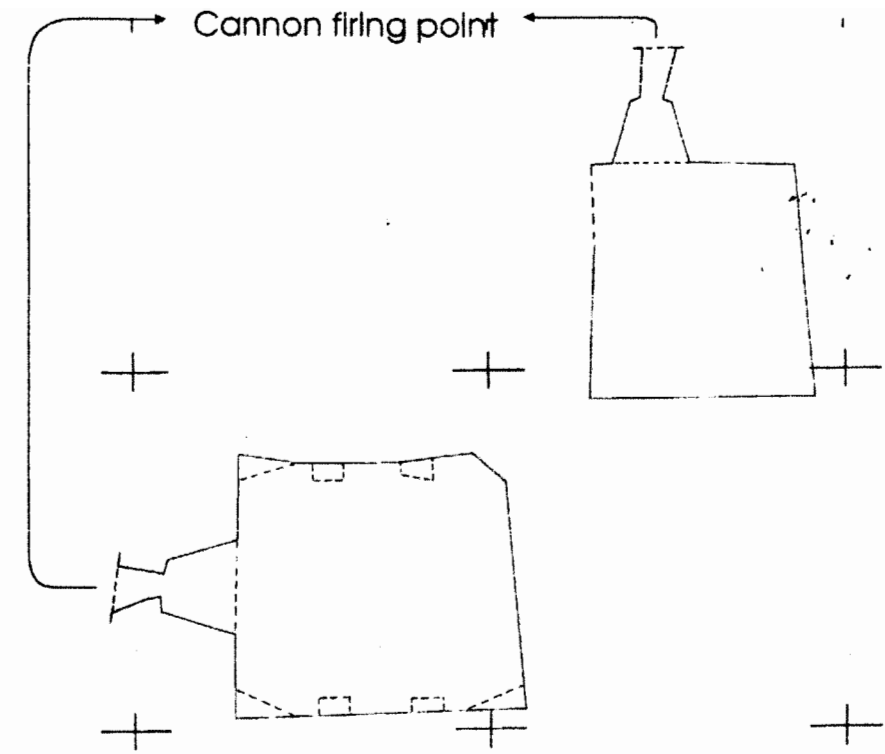
Staircase



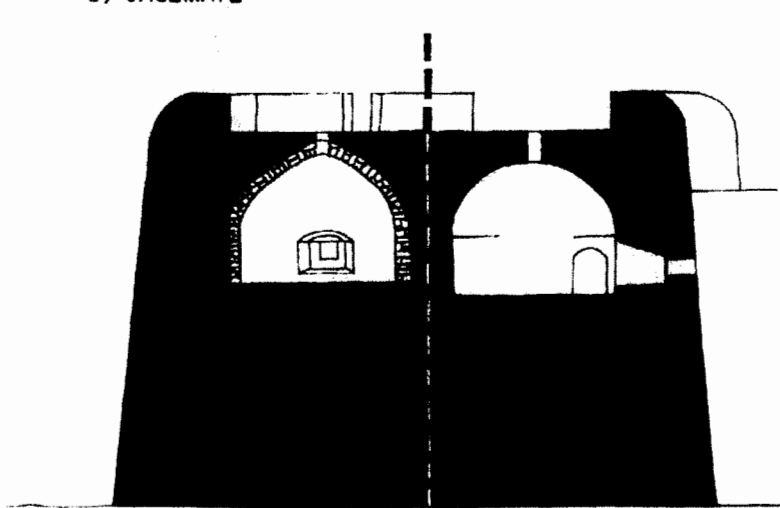
a) ROOF



b) CASEMATE



a) AS IT WAS IN 1986



b) RESTITUTION



South West Bastion after restoration

Drawing of the South West Bastion before and after restoration

The North-West Bastion

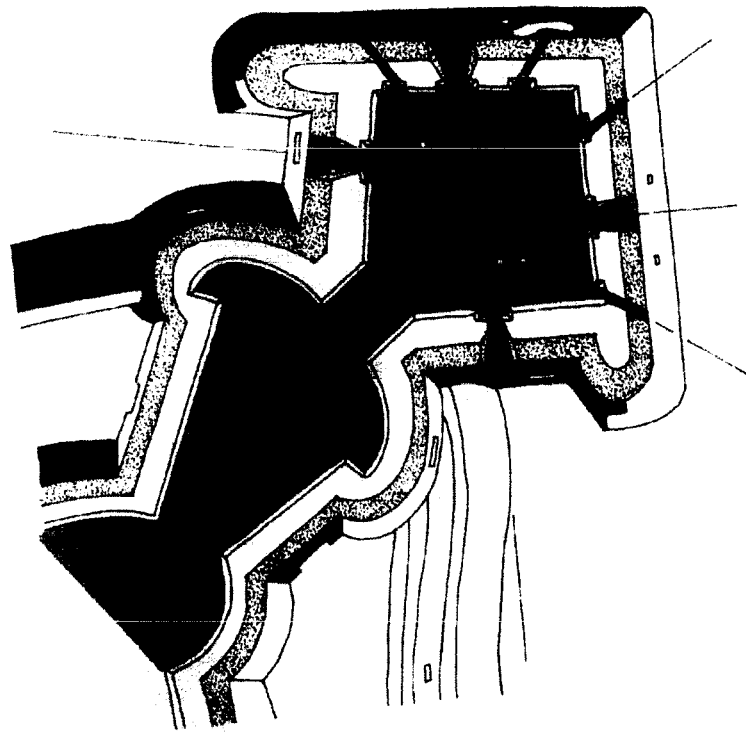
The North-West bastion is the smallest one, but also the most refined and the best preserved. As in the south-west bastion, a "lock-chamber" formed the junction of the bastion with the inner enceinte. The access to the platform was directly from the first enceinte across the roof of the "lock-chamber". This chamber, which leads to the bastion casemates, is likely to have once been connected to the roof with a ladder through a manhole. It also linked the west faussebraie to the north one with doors to be locked from the inside so that it would be used to break the circulation in case of assault. In order to protect these two doors from oblique shots, the "lock-chamber" itself was given two orillons (one is today collapsed), slightly protruding from the bastion gorge : here are placed two niches of embrasures allowing the defenders to shoot frontly, along the flanks of the bastion. From the "lock-chamber", a single staircase leads to both the casemates. Of the two chambers, one is roofed with an elongated oval vault on squinches, the other by a dome on "pseudo-pendentives", both of which have vents at the keystone.

Each flank gunport is protected by an orillon whose inner corner, rounded at the top, becomes sharp edged at the bottom so to minimize the risk of a coup d'embrasure. In the middle of each bastion face, two loopholes splayed inwards for rimes d'épaule are coupled in the same niche, about one meter above the casemate floor : their height allows shooting across the moat, in grazing fire, on the glacis.

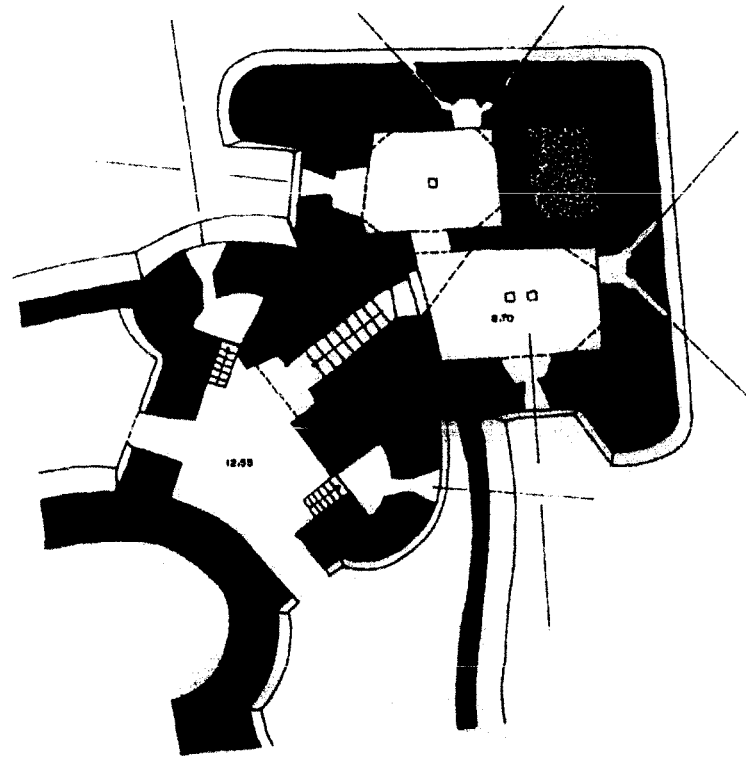


North West Bastion before restoration in 1987

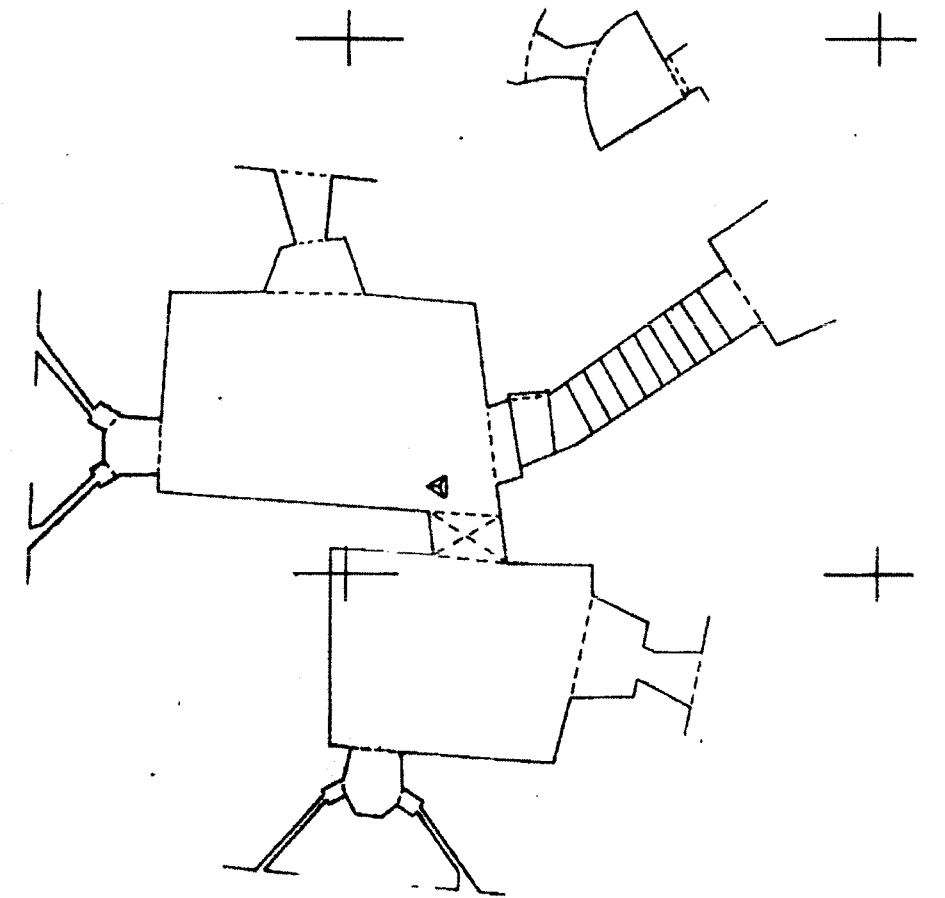




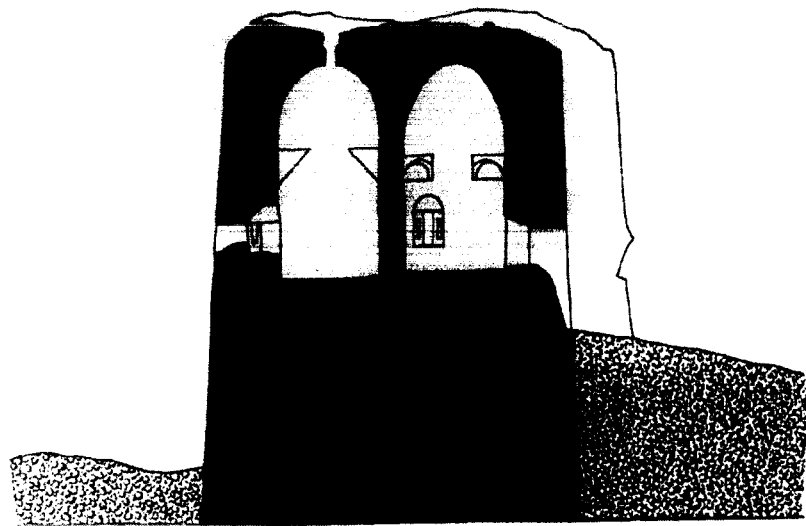
a) ROOF



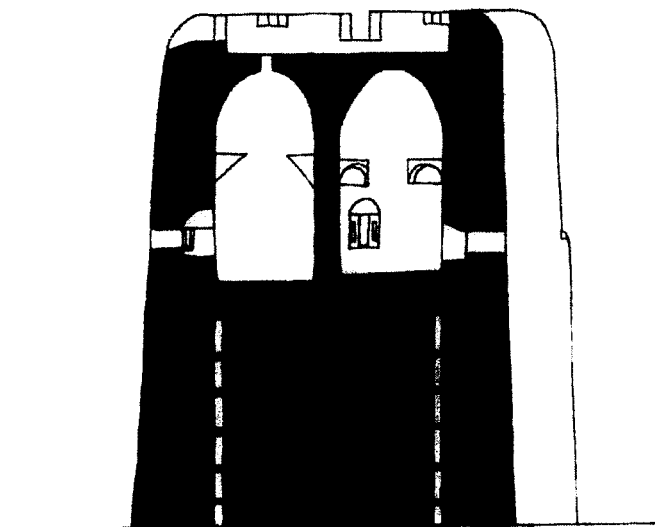
b) CASEMATE



The firing location in North West Bastion

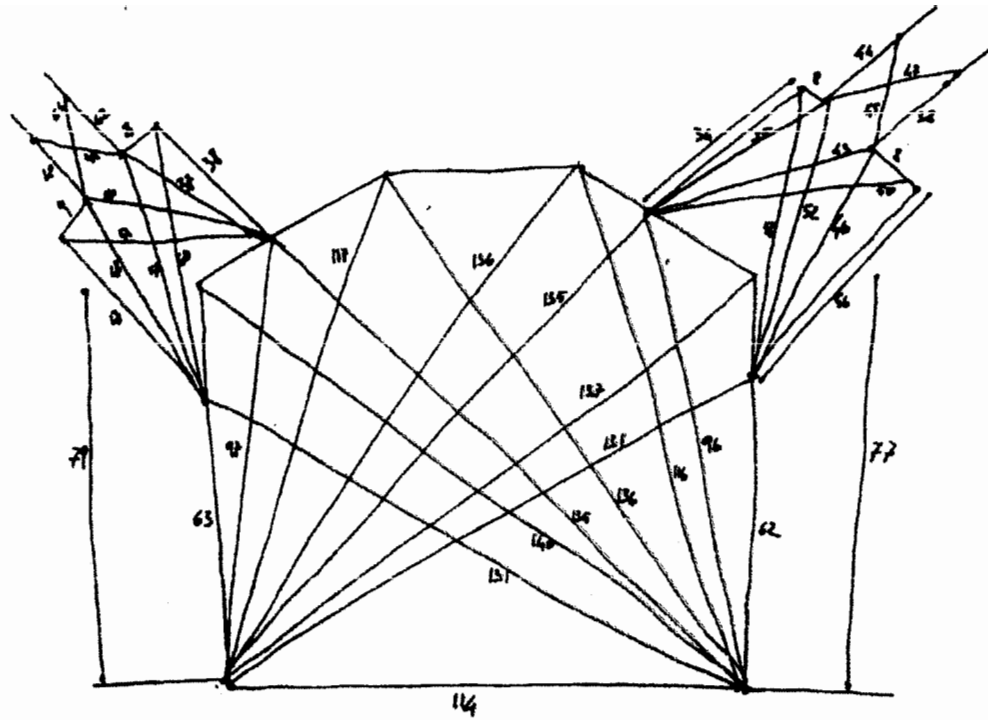


a) AS IT WAS IN 1986

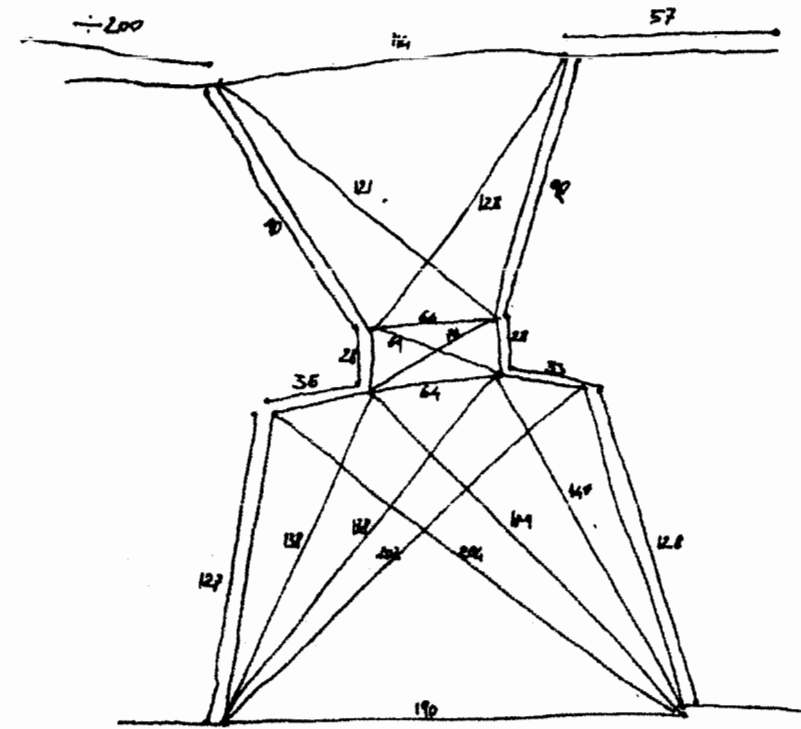


b) RESTITUTION

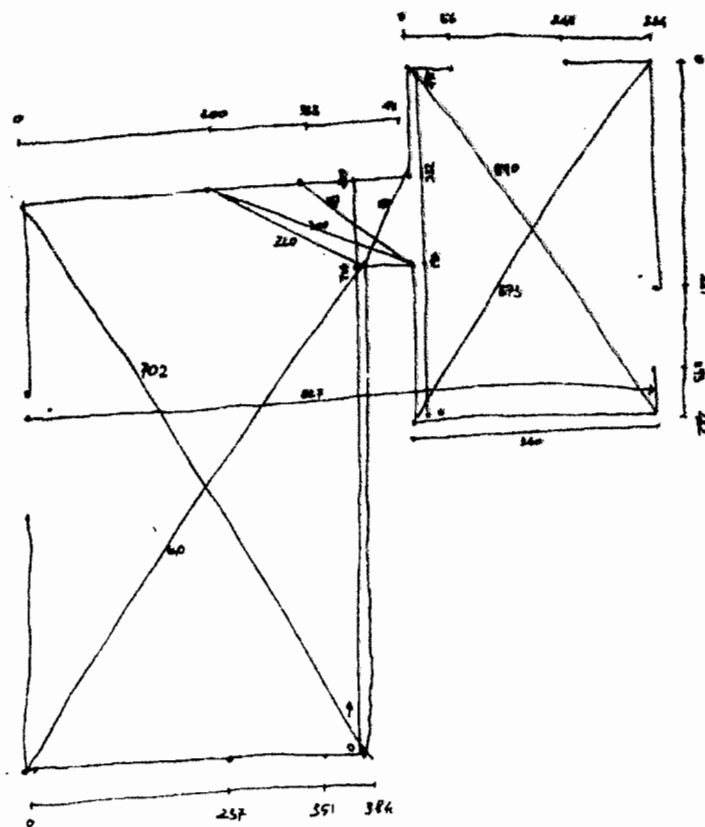
North West Bastion before and after restoration



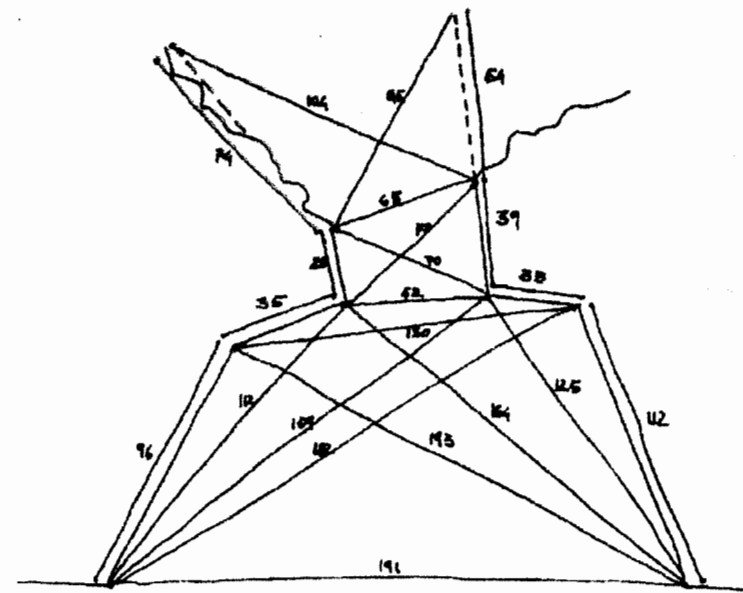
NORTH BASTION - SOUTH LOOPHOLE



NORTH BASTION - SOUTH GUNPORT

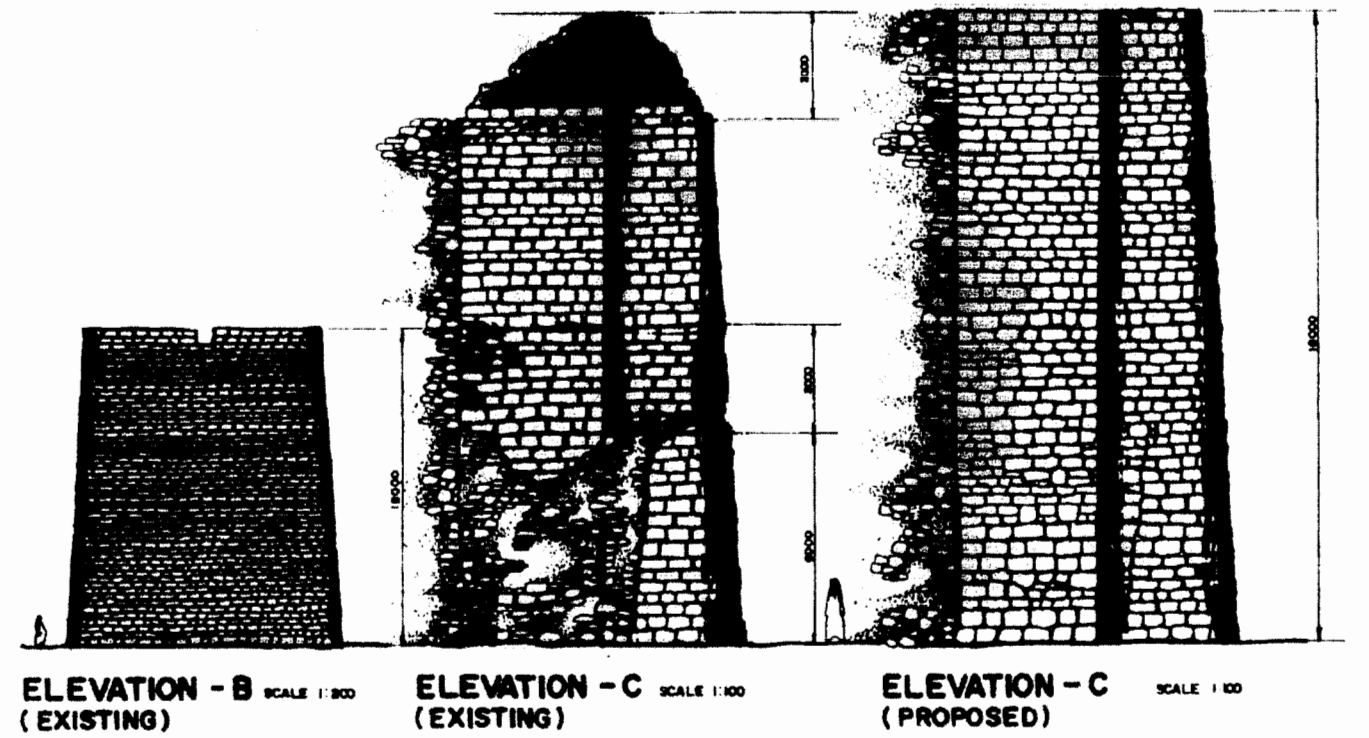
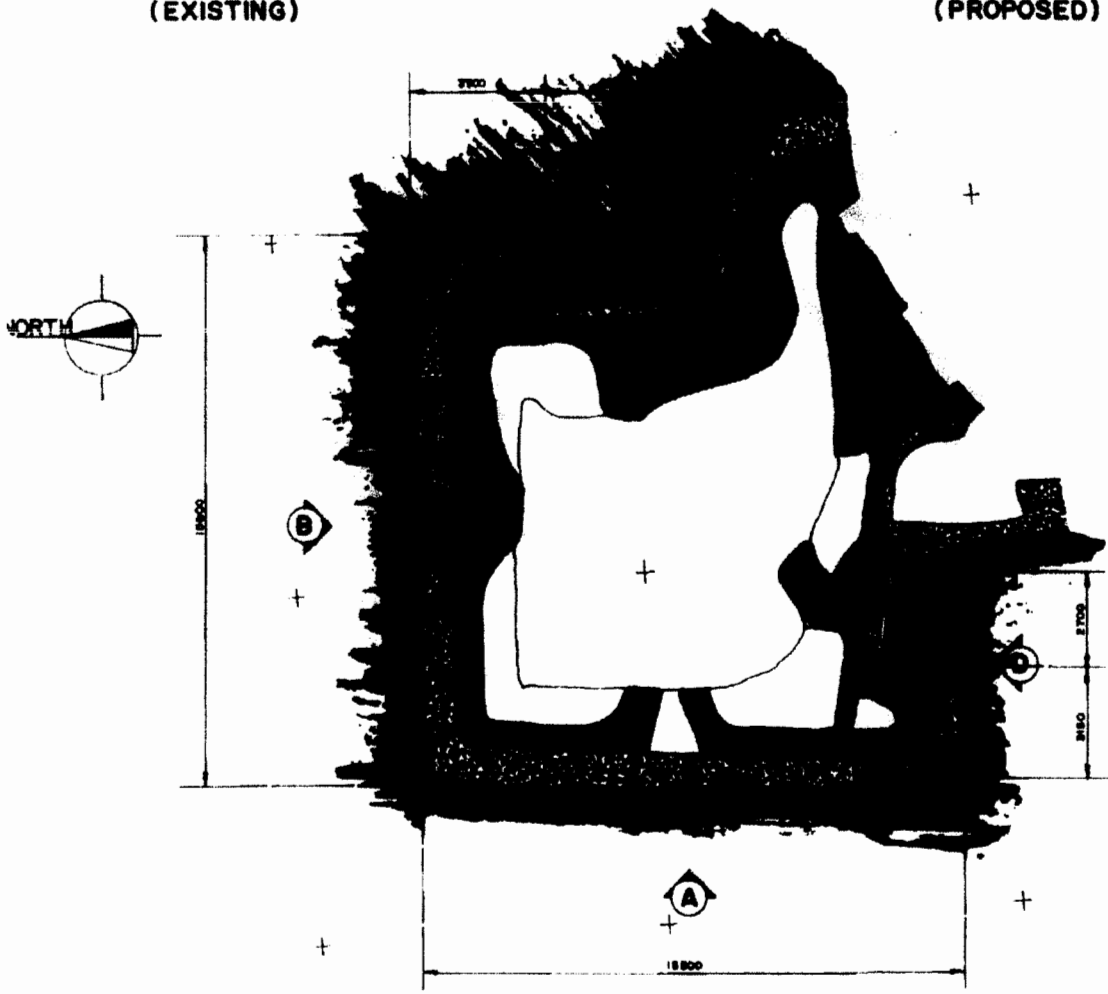
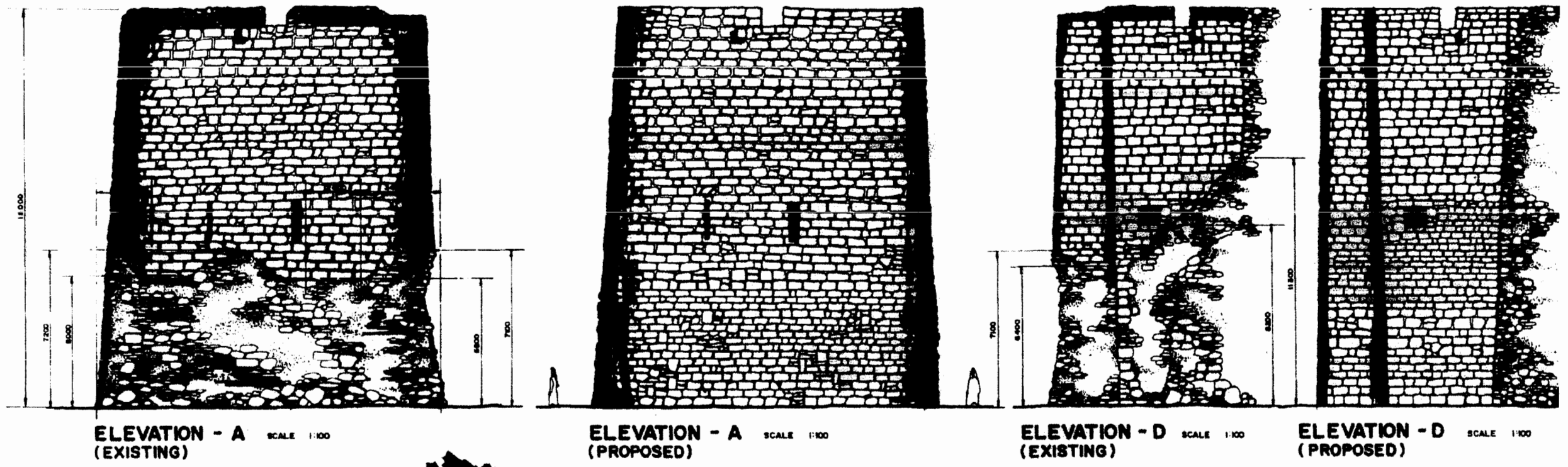


NORTH BASTION - CHAMBERS

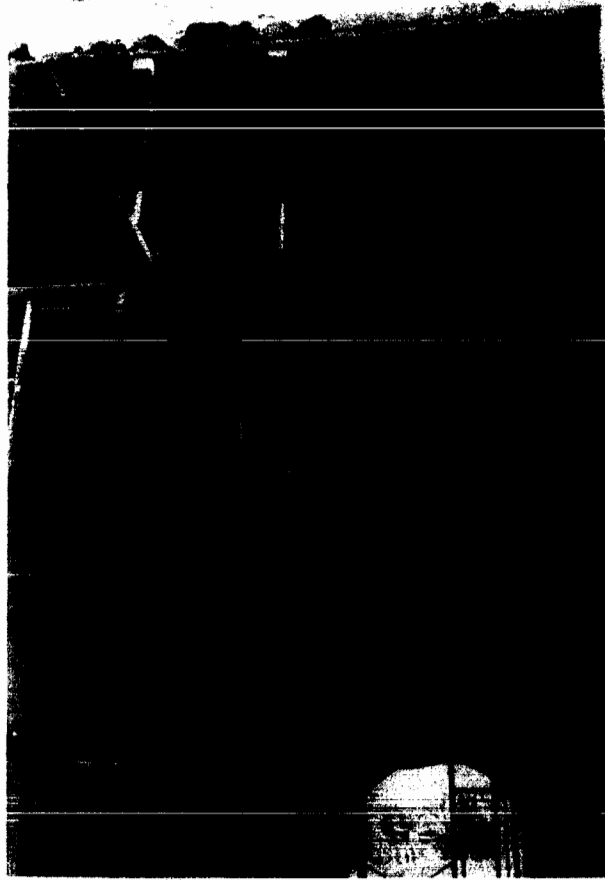


NORTH BASTION - EAST GUN PORT

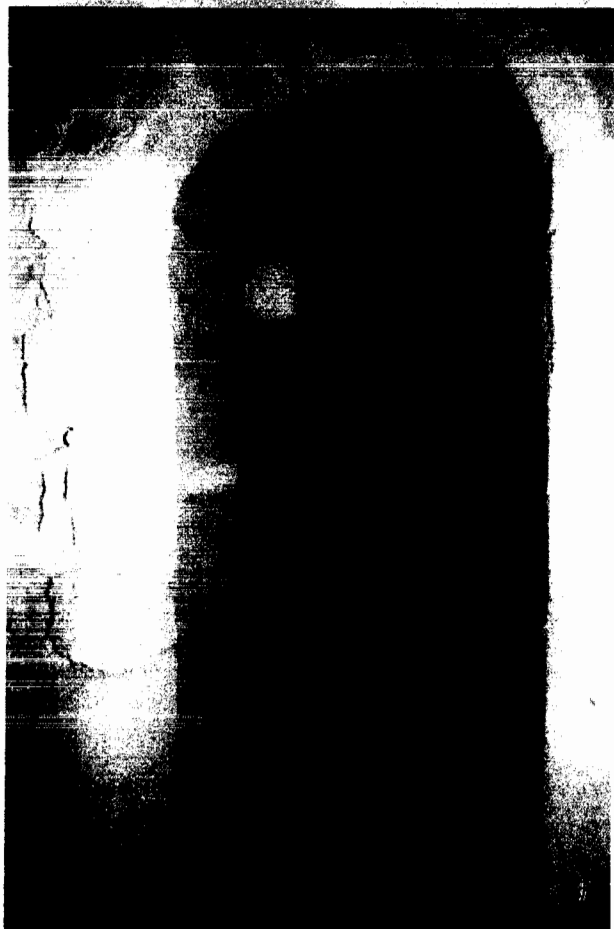
The firing diagram for the North West Bastion



North West Bastion existing condition and proposed restoration in 1987



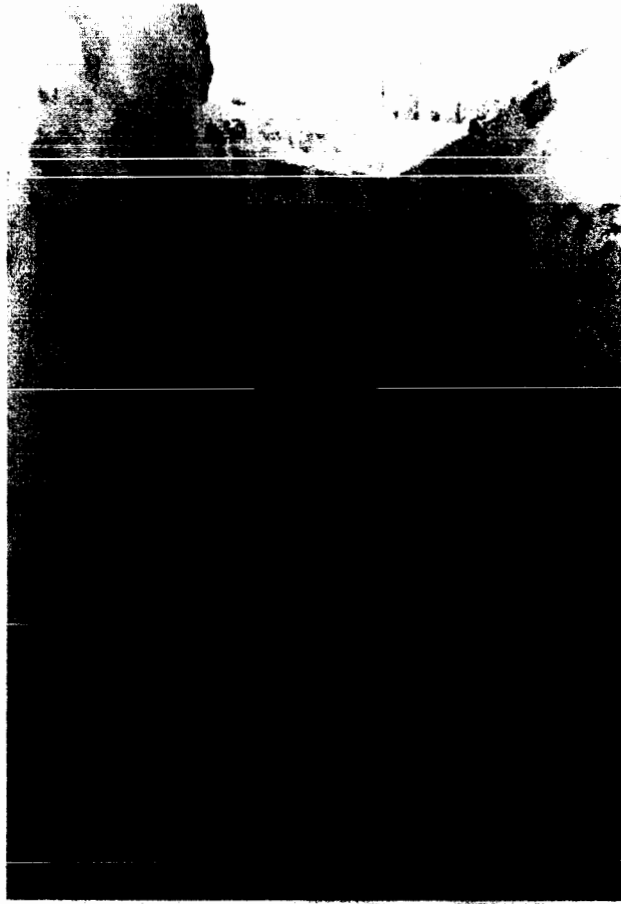
Ceiling of the hall of North West Bastion during restoration



The North West Bastion staircase



North West Bastion after restoration in 1997



Firing gunpoint during restoration



The entrance of North West Bastion before restoration



Firing point after restoration



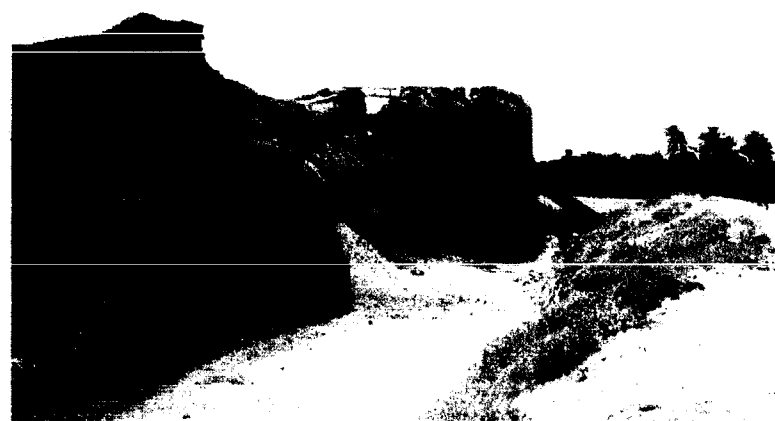
Architect : Ms. Khatoun Al Ansari - State of Bahrain



North Elevation before restoration



1987



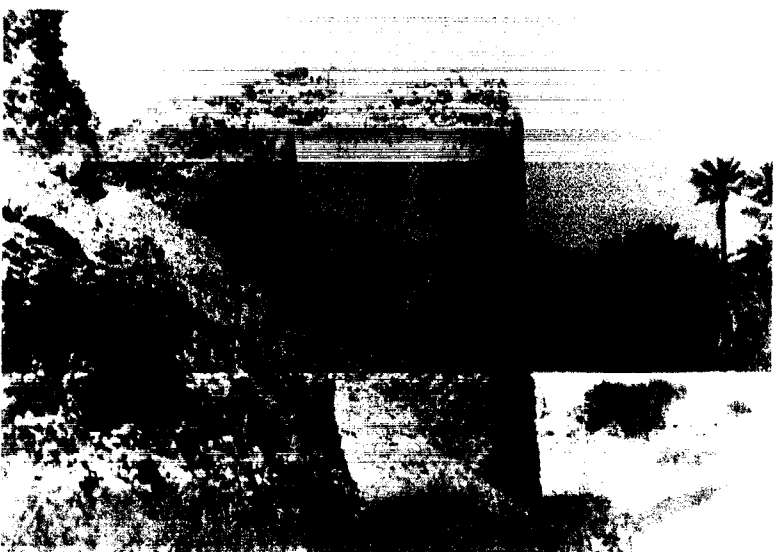
1986



1987



1990



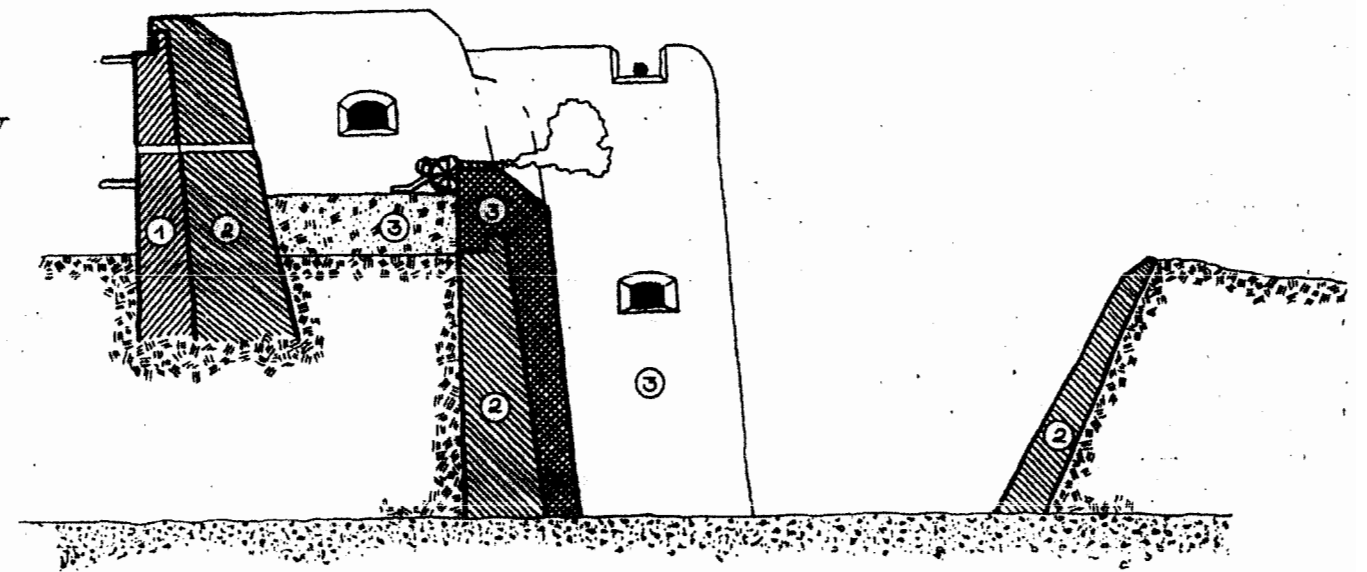
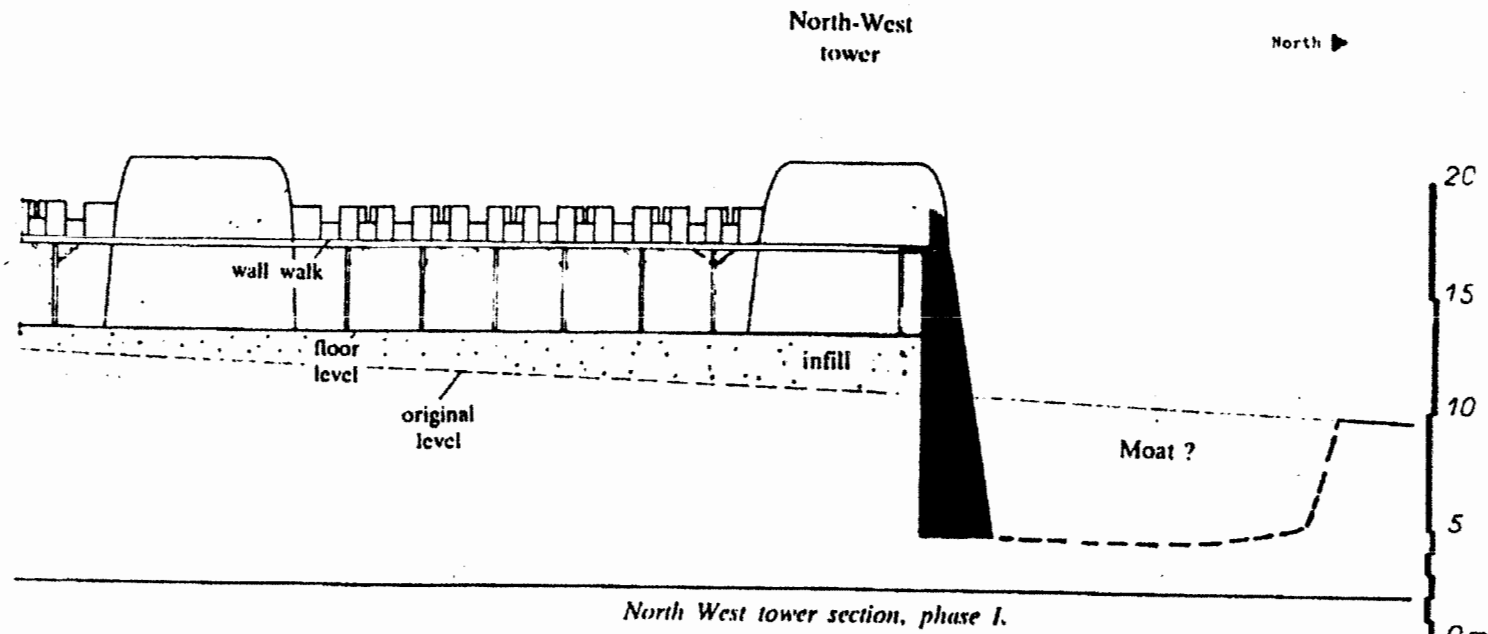
1987



1998

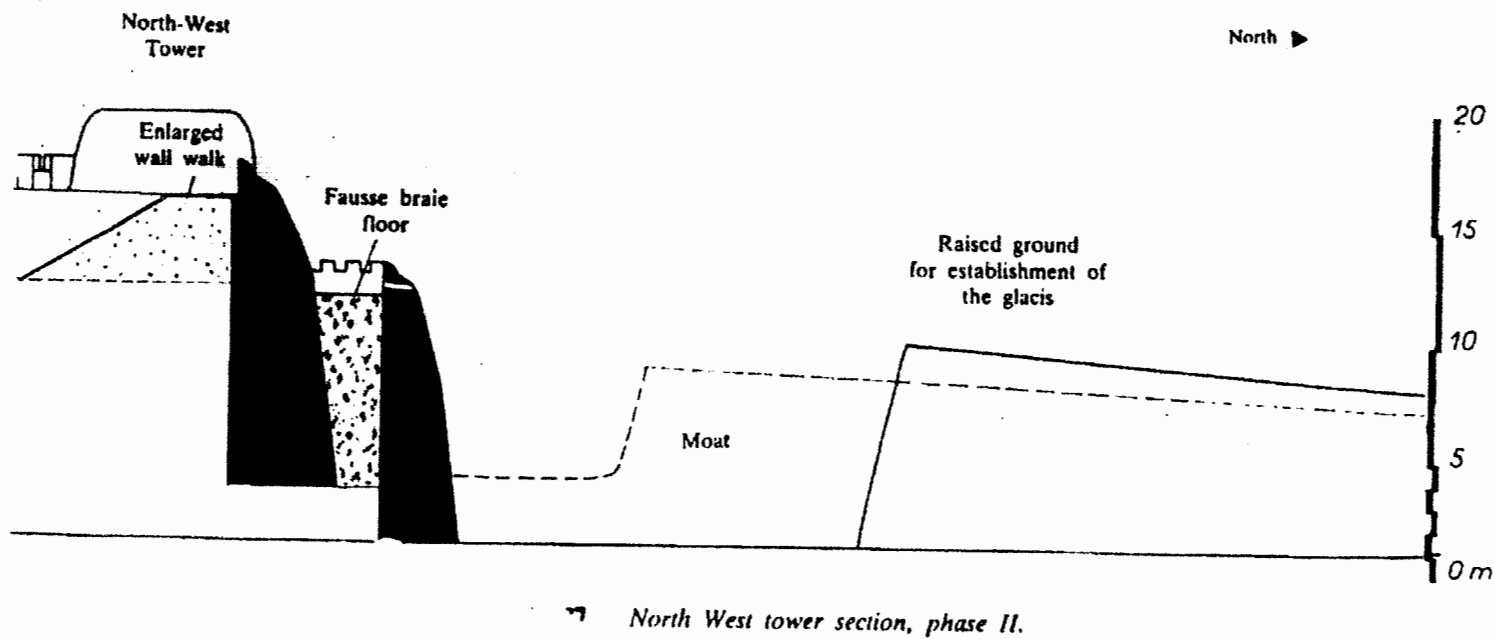
North Elevation during and after restoration

Architect : Ms. Khatoon Al Ansari - State of Bahrain



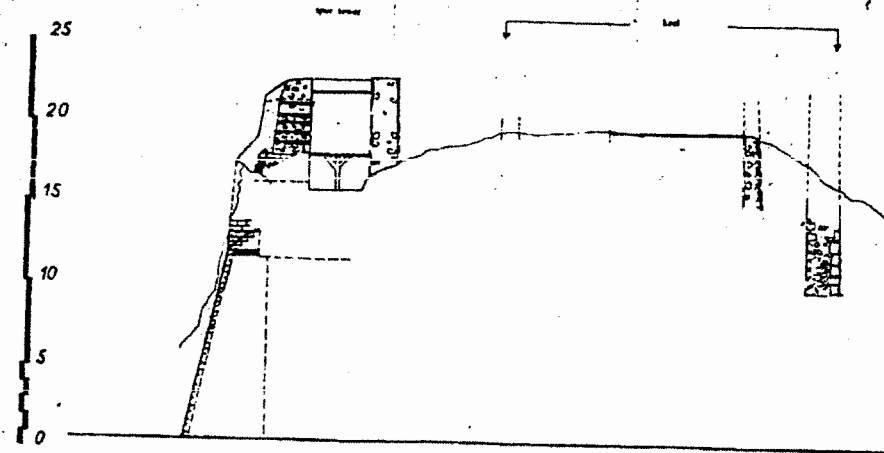
Evolution of the North West part of the fortress from phase I to phase III.

Elevation of the North West part of the fortress Phase I to III



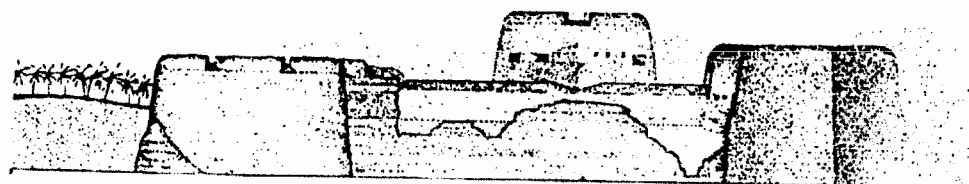


North Elevation after restoration



Section on the spur tower.

Section of the Super Tower



Propose



BAHRAIN FORT
SOUTHSIDE ELEVATION
SCALE 1:100

1987

South elevation before and after restoration



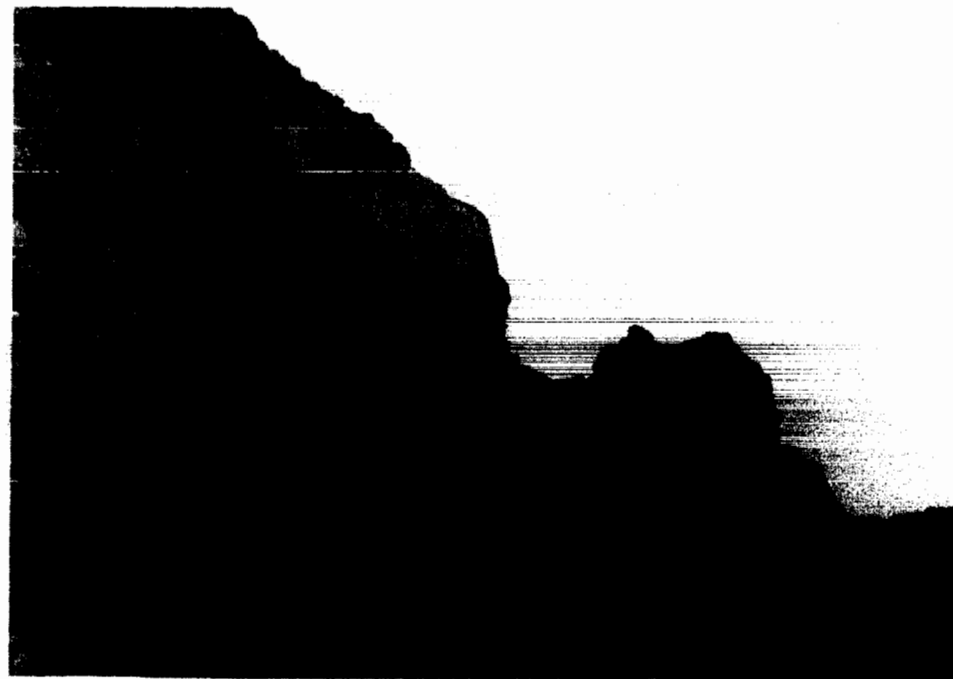
South elevation and Super Tower before restoration In 1987



South elevation before restoration In 1987



South West Bastion in south wall in 1987



South elevation before restoration in 1987



1987



1989

Super Tower and South Elevation Before and during restoration



1989

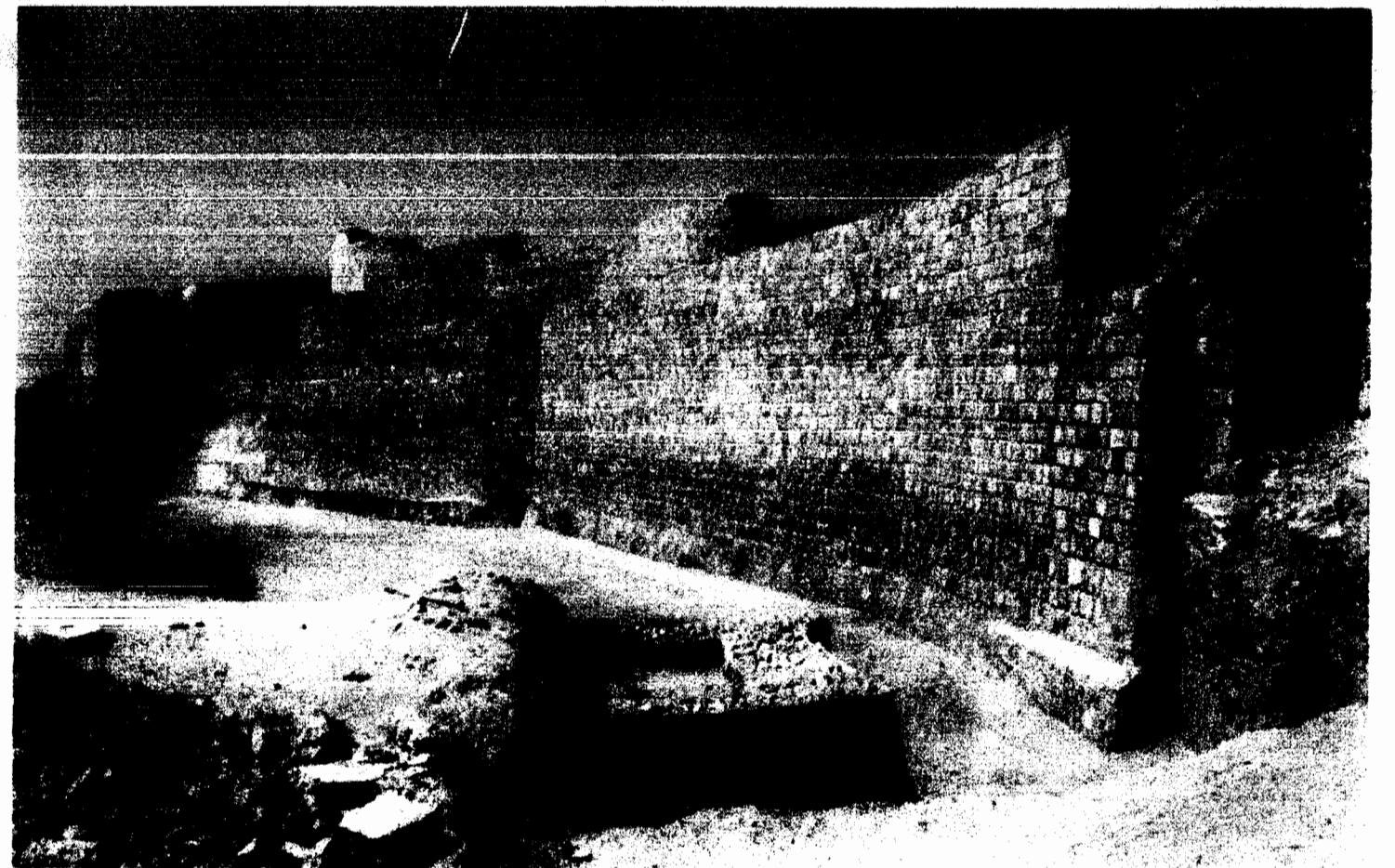


South elevation after restoration



1987

East Elevation before and after restoration



1999



1987



1987

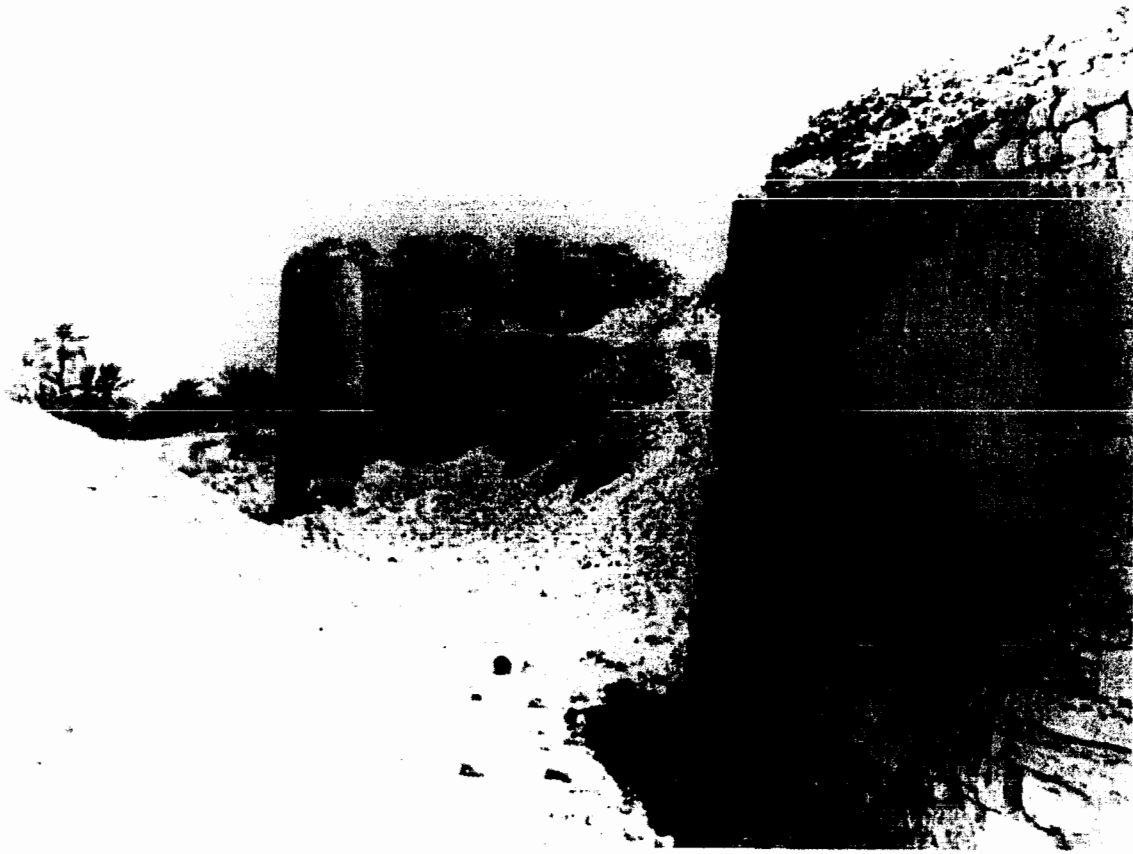
East Elevation



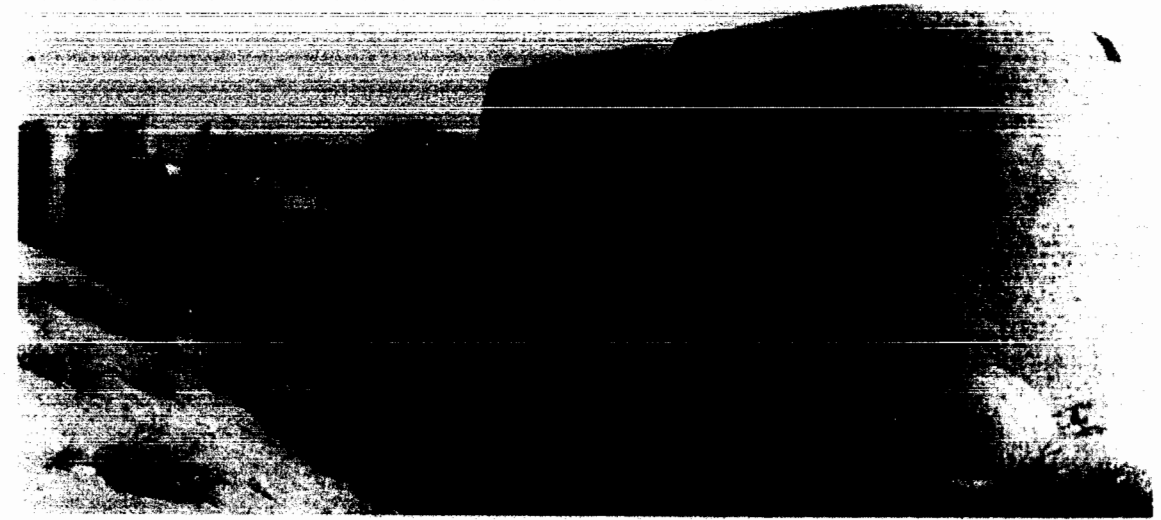
The Bahrain Fort mound before restoration in 1987



East Elevation south part

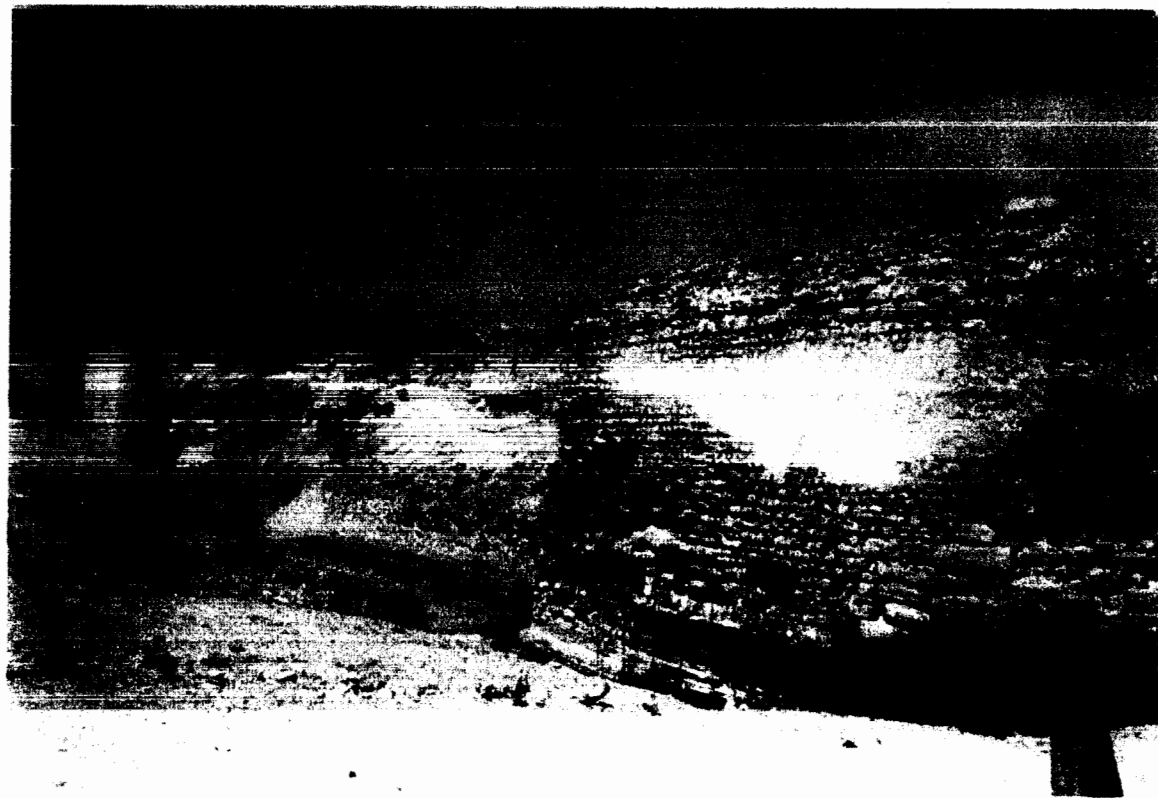


1987



1992

West Elevation before and after restoration



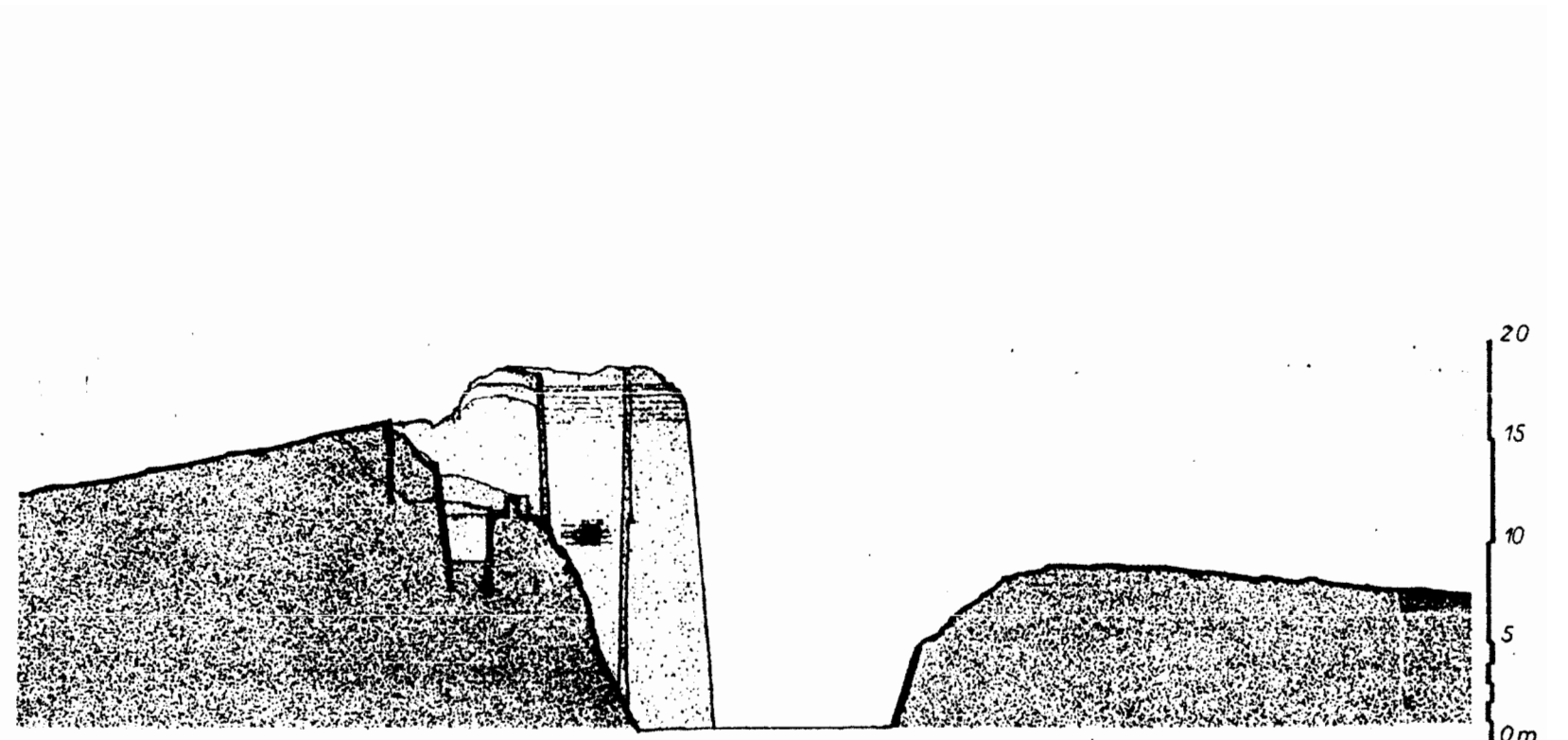
1987



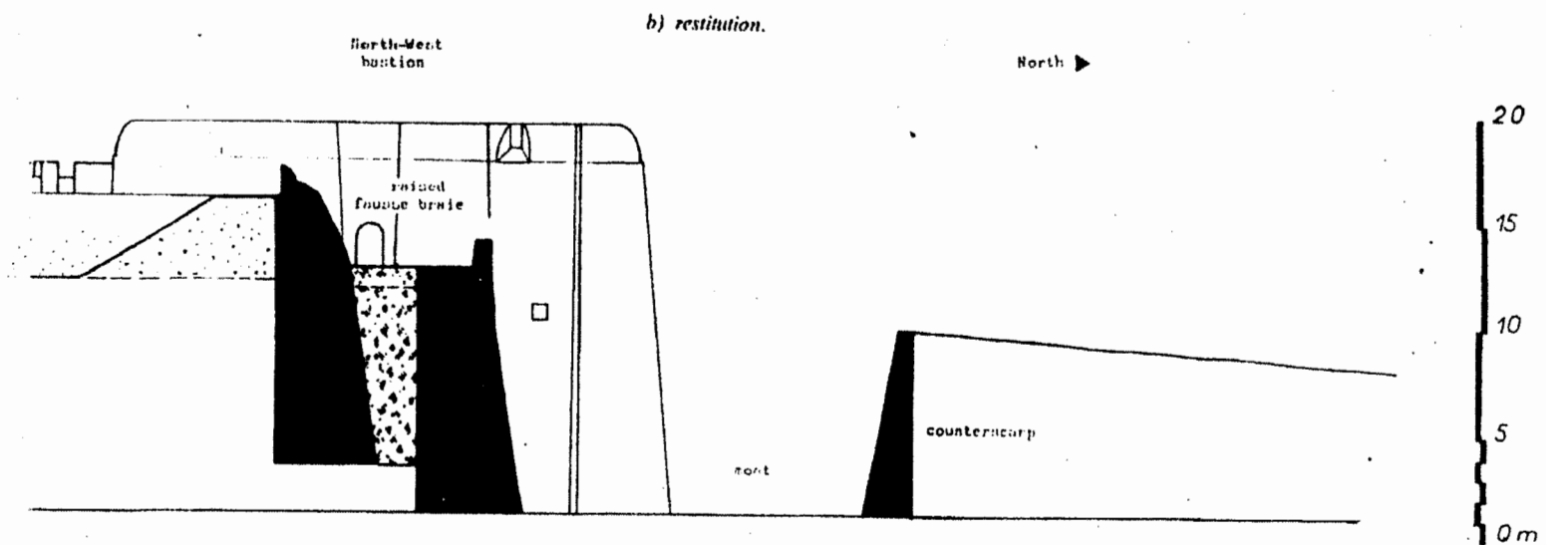
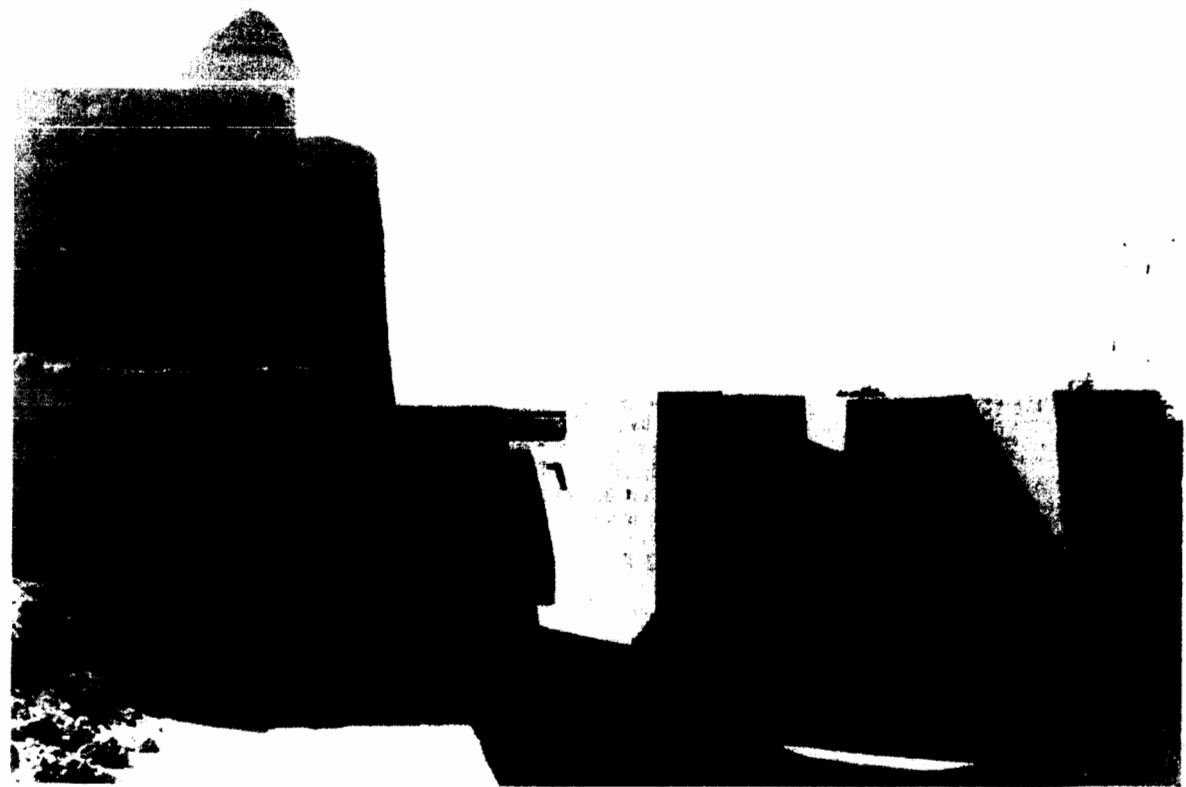
1995



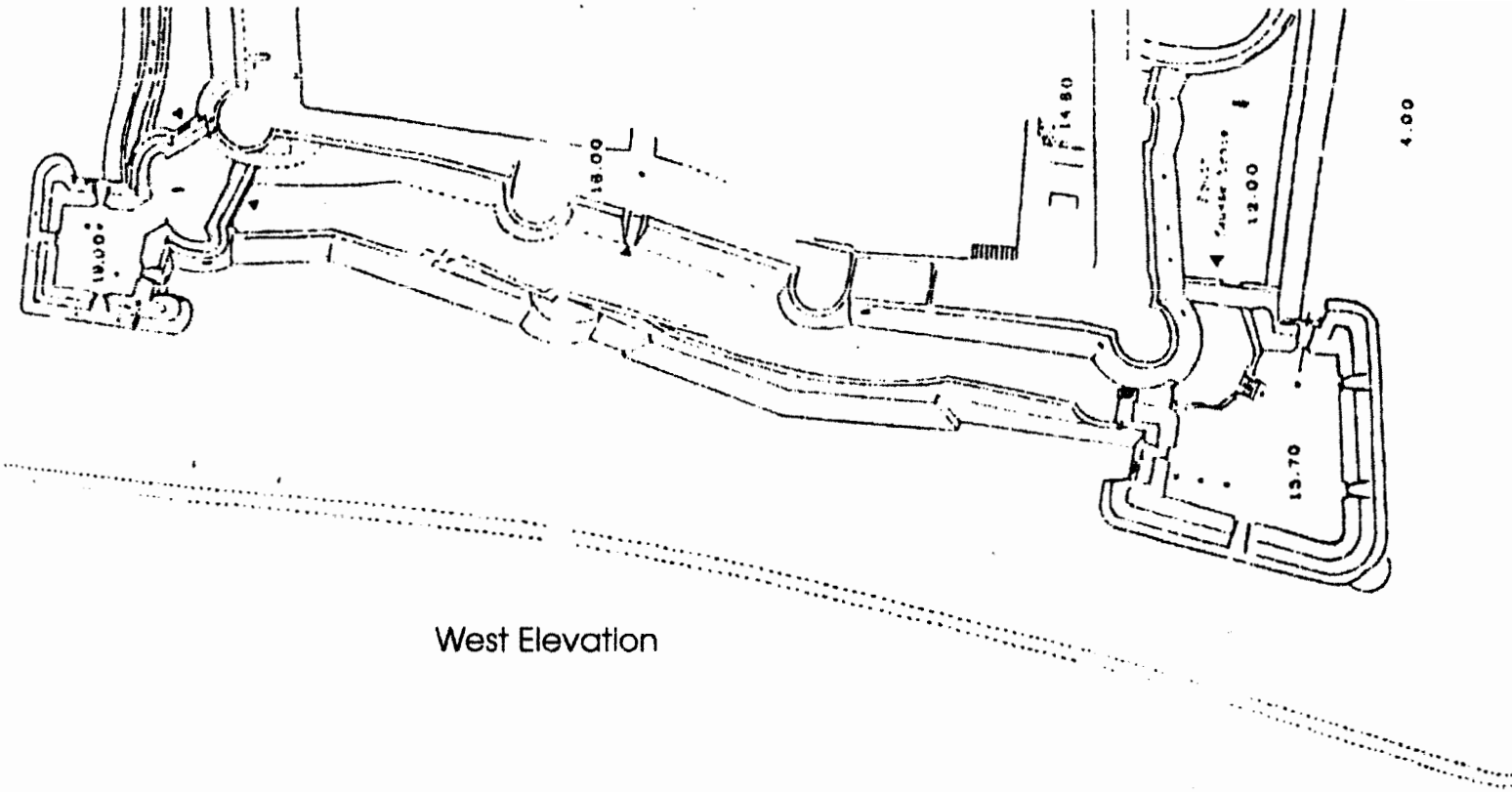
West Elevation after restoration in 1994



a) as it was in 1986;
North West part of the fortress



b) restitution.



West Elevation



West Elevation before restoration



1987

Bahrain Fort before and after restoration



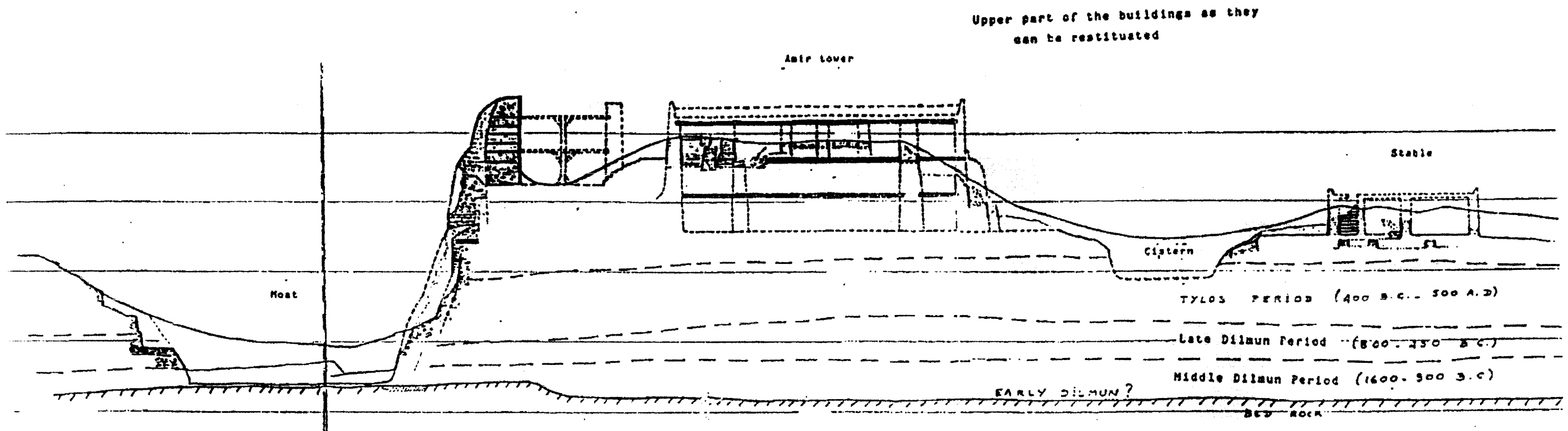
1990



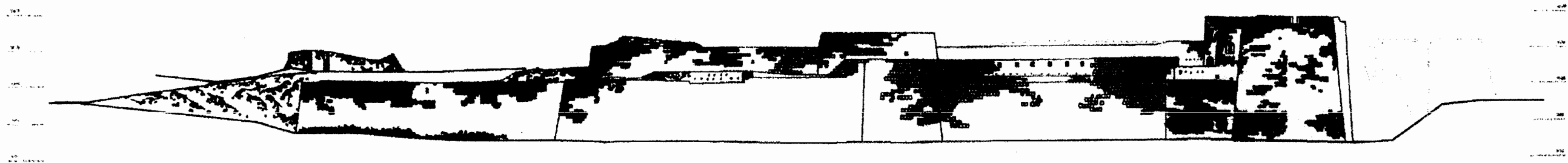
1998

During the excavation season, as well as the former ones, we had the opportunity to understand the stratigraphy of the site up to the bed rock: the section 1 shows the archaeological layers below the fortress, the section 2 shows the archaeological levels just outside the North West bastion.

Section 1.

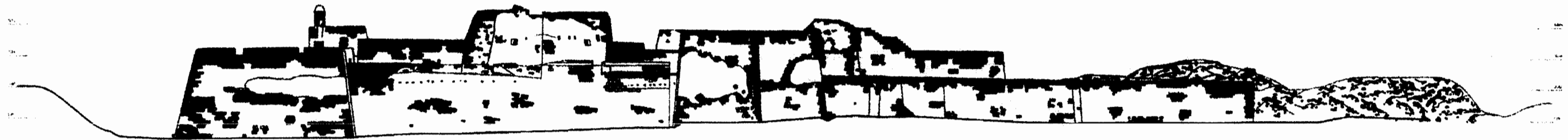


Cross section showing historical period of the Bahrain Fort



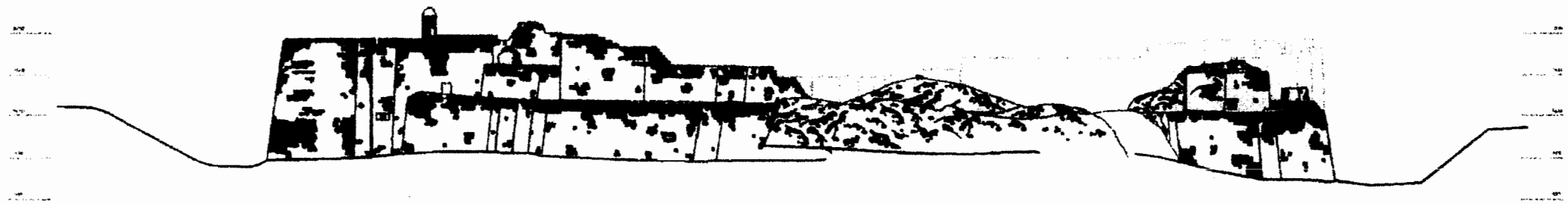
NORTH - SIDE ELEVATION

BAHRAIN FORT



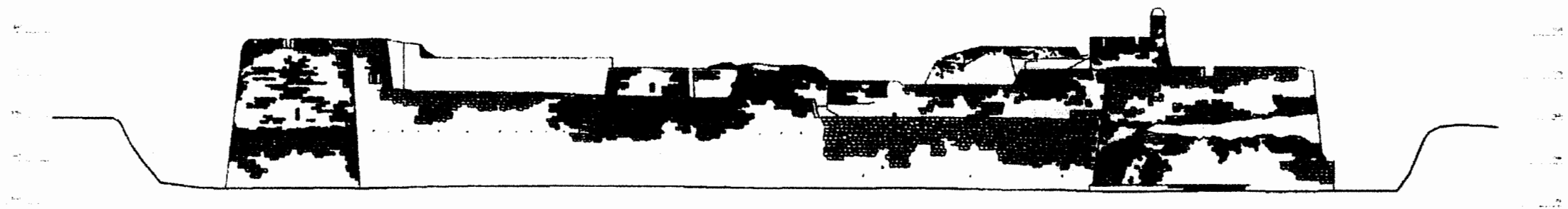
SOUTH - SIDE ELEVATION

BAHRAIN FORT



EAST - SIDE ELEVATION

BAHRAIN FORT



WEST - SIDE ELEVATION

BAHRAIN FORT

The Spur Tower

At the center of the south front, where the enemy would attack, an odd work which blocks throughout the faussebraie and whose salient resembles an eagle beak, overlooks the whole site. Its unique structure- a curved layout with a triangular salient, becoming horse-shoe shaped at the top- reflects a search for a solution of two different problems : on the one hand, giving the enemy bullets oblique surfaces so to deflect them, on the other, allowing fire in all directions.

So, the central tower task was twofold : to act as a shield for the keep and to survey, from its high platform, the tell borders where the besieger, well concealed, could have gathered men and materials. The tower was certainly open at the gorge so to be under the keep control. Its floor, four meters higher than the fausse braie provided another firing level with several frontal loopholes : six of them are still visible. On the sides , two double splayed gunports enfilade the faussebraie of the collateral bastions. Indeed, the tower could act as a reverse fire casemate in case the first defensive work had fallen.

Remains of timbers protruding from the masonry suggest a strong wooden balcony, possibly resting on a central pillar conceived to absorb the vibrations of the light gun shots. Actually, the trace of a 0.55 meters wide frontal embrasure proves the platform to be equipped with artillery, likely to be on wheels. The parapet allowed the arquebus to shoot in barrette.

1987



Super Tower before and after restoration



1994

The "Fausses-Braies"

In addition to the bastions, the fausses braies have been excavated : the whole west one, part of the North and South ones.

On West side, two floor levels have been kept : to the south, the 2nd phase level, and to the North, the 3rd phase level, one and half meter higher.

This decision has been taken according to the Principe of this restoration, which is to show as often as possible, the different periods of the building. We think that the final visual effect will be not unpleasant, if the necessary care is given in this restoration and explanations well displayed. Also a very good knowledge of architecture of 14-16th centuries will be necessary to the architects in charge for this restoration.

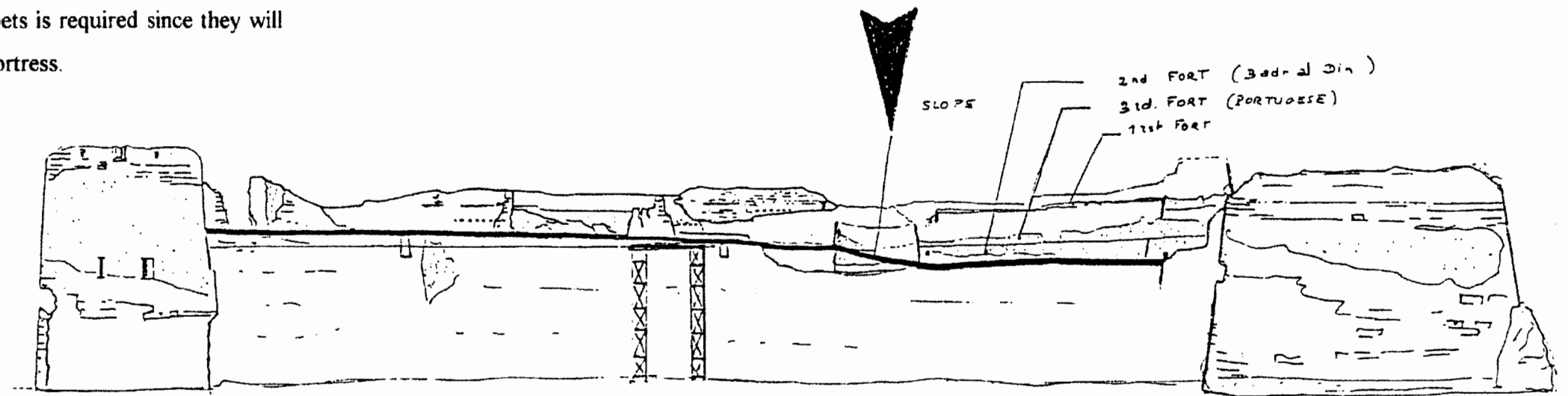
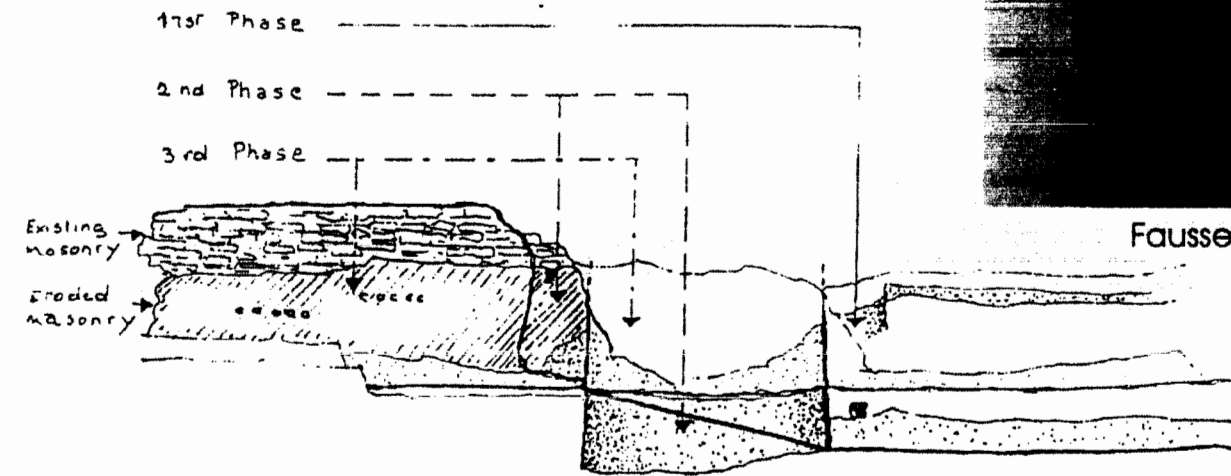
The restoration of the parapet edging the fausse-braie will make problem, since very few of it is preserved. Only a piece of the lower part of the parapet has been uncovered on the North side of the fausse-braie. Its pattern could be kept for the West side also, but the shape and size of its openings, are unknown.

Nothing of the upper parapet is remaining. We have to imagine it from the old drawings showing the fortress of the 15th-16th centuries : a lot of them is available and it is better to take from them informations than from a very late building as Rifa fortress.

The South front will be more simple, with just some large gun-ports open in the parapet of bastions and curtains. An accurate restoration of the parapets is required since they will take up a great deal of room in the final visual effect of the fortress.



Fausses-Braies after restoration



West Side of the fortress

Different phases of the Fort

Mortar Experiments

- Further experiments on mortars have been carried out in order to obtain a mix which is structurally as well as visually similar to the original ones. As far as the intervention to be carried out on the Portuguese parts, the most satisfactory mortar seems to be a gypsum / lime mix. To help the curing of the lime - lacking any pozzolanic materials and avoiding Portland cement which performs very badly in this aggressive environment, P.F.A. (pulverised Fuel Ashes) could be used also giving the right color.

For the time being the mix used is as follows :

2 lime : 1 Saudi Gypsum : 1/4 PFA : 2 1/2 Double
washed marine sand : 1 washed aggregates sieved from excavated material.

The materials are mixed dry to avoid the gypsum to hydrate and water is added only before use.

- Cubes for compression test have been made of this mortar as well as of the different lines available in Bahrain, their results being ready next month.
- As far as the Islamic mortar is concerned, satisfactory mixes have not been found yet. Experiments with burnt sea clay (Tin al bahar) are to be made.



Super Tower from inside during restoration

GYPSUM TESTING FOR BAHRAIN FORT RENOVATION

The samples were tested for compliance with the chemical requirements for plaster of paris, of BS. 1191 part 1, the results are as follow:

TYPE OF TEST	BS. REQUIREMENT	SAMPLE RESULT
Sulphur trioxide content.	a) Not less than 3%	44.45 %
Calcium oxide content.	b) Not less than 2/3 Sulphur trioxide.	40.2 %
Mgo + Na2O content.	c) Not more than 0.2%	0.245+Na2O
Loss on ignition.	d) Not more than 9% and not less than 4%	2 %

CONCLUSION:

The table above shows that the sample does not comply with the BS. requirements, in c and d.

LIME TESTING FOR BAHRAIN FORT RENOVATION

The samples were tested for compliance with the chemical requirements for high calcium hydrated lime of B.s.890, the results are as follow:

TYPE OF TEST	BS REQUIREMENT	SAMPLE NO.		
		1269-1 A'ALI	1269-2 HAJI HASSAN	1296-3 AISCO
Carbon dioxide.	Not more than 6	a 2 %	a 13%	a 5 %
Insoluble matter.	Not more than 1	1.14%	1.13%	0.3 %
Lime plus magnesia.	Not more than 65	87.2 %	67%	75%
Magnesia, MgO.	Not more than 4	5.5 %	3%	13%
Soluble salts.	Not more than 0.5	0.4 %	0.52%	0.37%
soluble silica		--	2.1 %	3.6 %

CONCLUSION:

The table above shows that none of the samples complies with the BS requirements.

THE CUBES RESULTS :

REFERENCE	FAILURE LOAD (KN)	COMP. STRENGTH (N/MM ²)	COMP STRENGTH (KGF/CM ²)
A'ALI - PFA DRY	2.2	0.2	2.0
	3.8	0.4	4.1
H.H	6.5	0.7	7.1
	4.4	0.4	4.1
AISCO	5.9	0.6	6.1
	6.3	0.6	6.1
B. MIX DRY	28.6	2.9	29.6
	34.1	3.4	34.7
B. MIX WET (O?C)	23.7	2.4	24.5
	24.9	2.5	25.5
	49.2	4.9	50.0
	39.5	4.0	40.8

RESULTS OF COMPRESIVE STRENGTH TESTS ON 100 MM. CUBES - MORTAR.

BUILDING MATERIALS:

The Building Materials used in the construction and derived from the local environment of either the gulf or land.

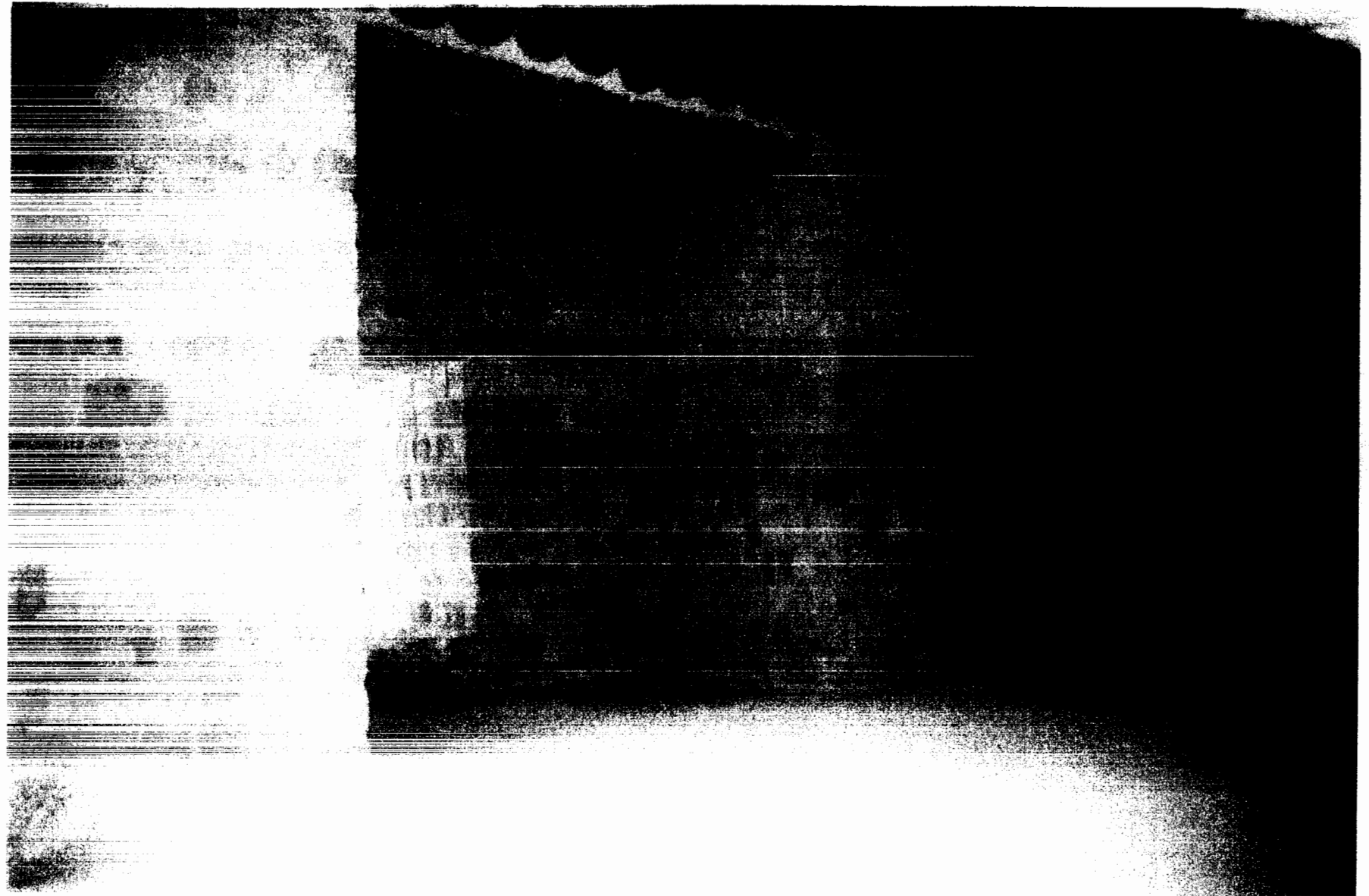
1. GYPSUM:

This is processed sea stone brought from different parts of Bahrain it was arranged in square or rectangles shapes of 10x20 ft. over wooden canal like construction the stone were piled on the set areas palm leaves were then burned under the stones.

The processed stone was then crushed, shifted and stored in sacks. It usually took five to ten men to make Gypsum. Some songs came to be associated with this work, sung by the workman “ Ya Allah Ya Aawin” - God is the helper.

2. YEDH'A:

This was obtained from the trunk of a dead palm tree. The trunk was cut in to long strips which were used in building foundations and roofs.



The use of Yedh'a on the construction of Spur Tower

3. CORAL AGGREGATE BLOCK

(Hadjar Al Bahr, Sea Stone) are obtained from rock that originates in the sea, formed by the Coalescence of Crystallized Carbonate of Lime, it is a very strong stone by it is high salt content renders, to use it in the construction, should be washed properly before using.

4. PJISS:

Lime stone based on Hydrous Calcium Sulphate, Crushed and burnt provides the powder to make plaster (Coating and Stucco) and the mortar binding the Stone in the Masonry, It is generally imported from Saudi Arabia.

BAHRAIN FORT BUILDING METHOD IMPLEMENTATION

1. THE FOUNDATION

They are about a two metre deep more compact Calcareous Stones are utilised to protect the base of the walls from too much dam prise all the foundation of the Bastions were built on the bedrock.



The use of Coral Aggregate Block on the construction of the wall

2. THE GROUND SURFACES

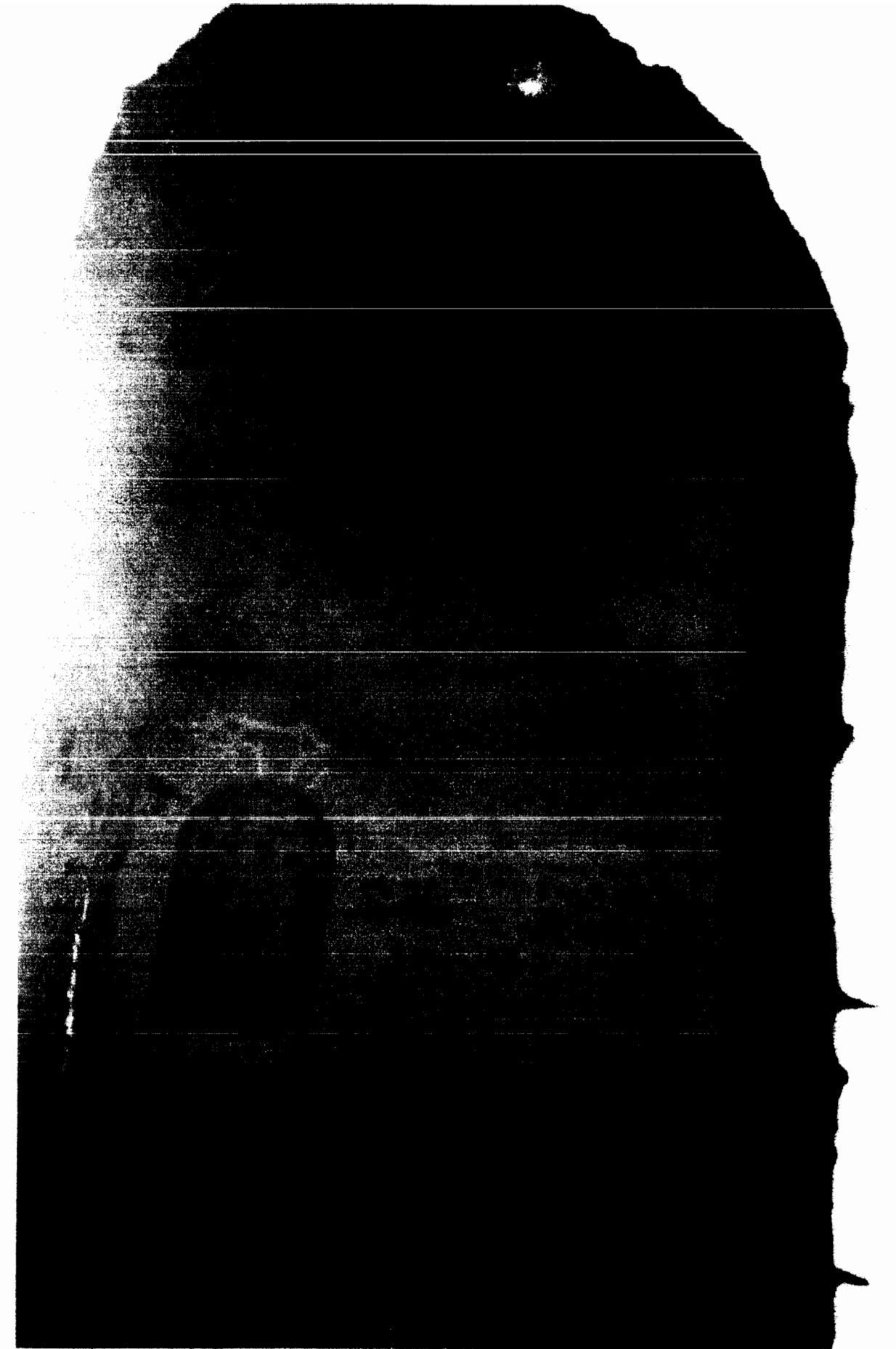
The courtsground surfaces are usually from beaten earth the revetment of the flooring of the rooms is with a simple finished mortar.

3. THE WALLS

The walls of the Fort are composed of coral block rubble. The thickness of the external walls varies from 1.5m to 2.5m at their upper sections the bonding is from mortar made from Gypsum, Lime and high percentage of sand. The internal Partition are often supporting walls the walls heights reaches up to 15 metres but the Bastions walls reaches some of them up to 25 metres.

4. THE ROOFING

The roofs of the normal rooms at the fort are flat but slightly sloping to eliminate rain water. The north Bastion and Southeast Bastion built in volt system support by some log (palm tree trunks), but the Southwest Bastion Root built with two arch pillars and volt ceiling and the two pillars linked by logs.



The use of Plam Tree Trunk on the construction of Volt System

SPUR TOWER

The structure supporting the flooring is composed of palm trunk and covered by masonry of varying thickness covers the whole, finally a coating of mortar is applied as a floor finish for the roof floor about.

5. LINED SPANNING

Beams and lintels: the beam that support the walls and sometimes part of the floors infrastructure consist of a number of logs strong together which are then embedded in the masonry.

The Coatings: Coating play an extremely important role in protecting the masonry from the surrounding damp. It consists fundamentally of a more or less homogenous mixture of Gypsum (Calcium Sulphate) and of the Lime (Calcium Carbonate), but all the front elevation and Bastion were covered with special carved lime stone cut from Jada Island.



The use of Sea Stone on the construction of Chamber of Bastion

31 JAN. 2005

3

KINGDOM OF BAHRAIN
MINISTRY OF MUNICIPALITIES & AGRICULTURE
MUNICIPALITIES AFFAIRS



مملكة البحرين
وزارة شؤون البلديات والزراعة
شؤون البلديات

UNDERSECRETARY'S OFFICE

مكتب وكيل

Ref: 44/42/05
Date: 30th January 2005

WHC REGISTRATION	
Date	31.01.05
Id N°	1192
Copy	1 Item 18

Mr. Mahmood Yousif Al-Mahmood
Undersecretary for Information,
Ministry of Information,
Kingdom of Bahrain

Your Excellency,

UNESCO WORLD HERITAGE LIST 2005:
NOMINATION OF QAL'AT AL-BAHRAIN

With reference to H.E. the Minister of information letter ref. no 2005/اص /وز /Km/3 dated 8th January 2005 regarding the comments submitted by the International Council on Monuments and Sites (ICOMOS) in December 2004 regarding Qal'at Al-Bahrain.

We would note the following observations and comments in reply:-

- 1) The proposed development of plots to the north of the site is currently being prepared by the private developers and we are in coordination with them. These sites are out with the 500-metre radius shown on the attached plans. We suggest that this Ministry should prepared a coordinated master plan for this entire area that will coordinate all developments and restrictions, including the proposed Museum etc. There is a scheme under review to locate the houses immediately to the south of the fort further away from the site thereby freeing more of the site from development, but this has to be further developed.
- 2) The existing Palm Groves that surround this site are on privately owned lands, in addition there are some reclaimed and we have indicated those which are within the 500-metre radius on the attached plan. From our studies of this site there is approximately 500,000 sq. m. in total. In addition there are also some plots in the sea, approximately 71,000 sq.m.

KINGDOM OF BAHRAIN
MINISTRY OF MUNICIPALITIES & AGRICULTURE
MUNICIPALITIES AFFAIRS



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UNDERSECRETARY'S OFFICE

مكتب الوكيل

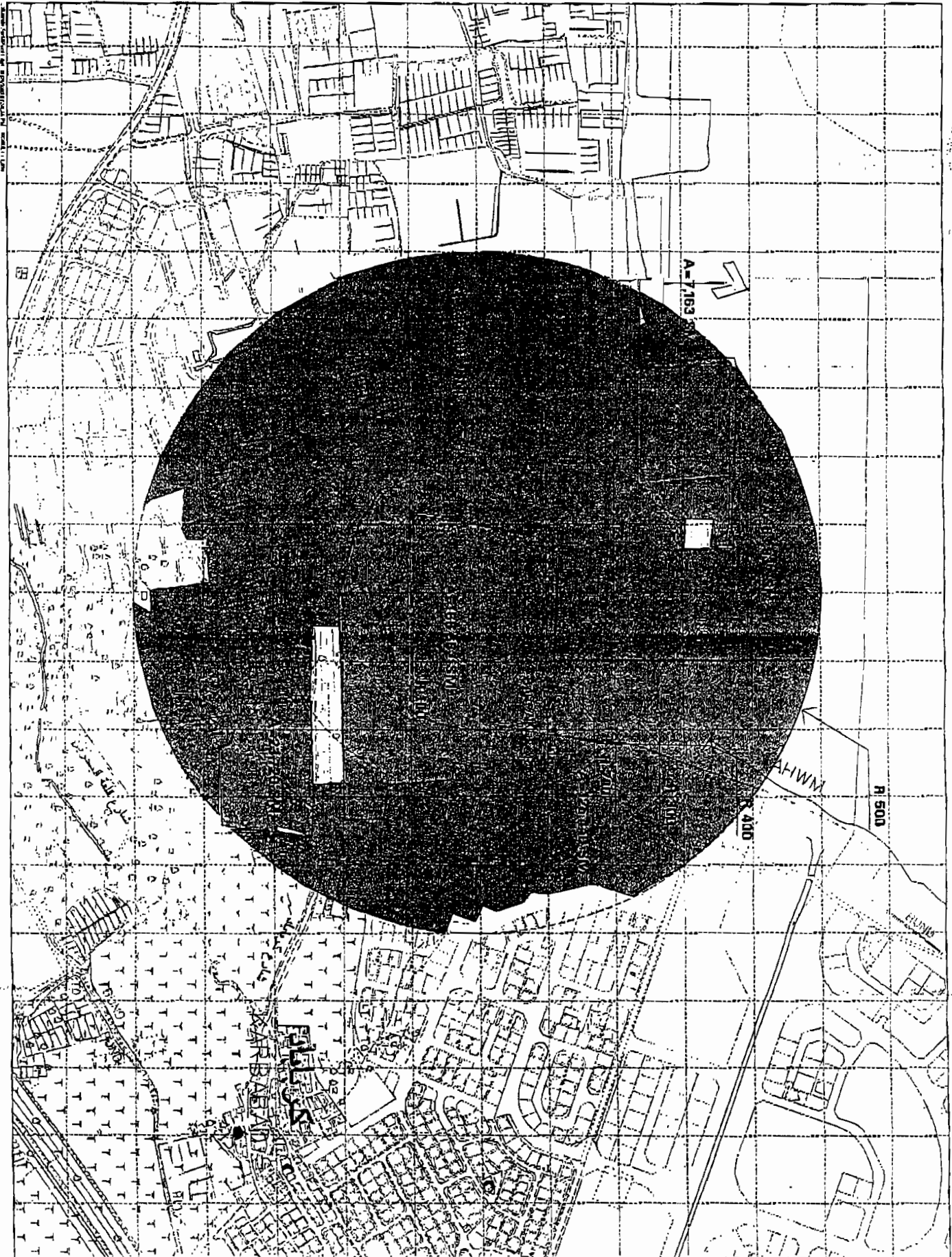
and the budget required by the Ministry of Information to acquire all of these plots would be in the region of BD 45 million. We would be obliged if you could inform us if Your Ministry is planning to acquire these plots and we coordinate this matter with the concerned Municipal Council.

We note that ICOMOS refer to a management plan that has been prepared for this site; we would greatly appreciate if a copy can be forwarded for our information and records. We assure Your Excellency of our cooperation to complete this prestigious project and please do not hesitate to contact this office if Your Excellency requires any additional information.

Yours faithfully


Dr. Juma Ahmed Al-Kalbi
Undersecretary for Municipalities Affairs

Encl.



Qal'at al-Bahrain (Bahrain)

No 1192

1. BASIC DATA

<i>State Party:</i>	Kingdom of Bahrain
<i>Name of property:</i>	Qal'at al-Bahrain Archaeological Site
<i>Location:</i>	Northern Region
<i>Date received:</i>	29 January 2004

Category of property:

In terms of the categories of cultural property set out in Article 1 of the 1972 World Heritage Convention, this is a *site*.

Brief description:

Qal'at al – Bahrain is a typical Tell – an artificial mound created by many successive human occupational layers. The stratigraphy of the site is continuous, from about 2300 BC to the 16th century AD. About 25% of the site have been excavated and revealed structures of different types – residential, public, commercial, religious and military. On the top of the mound there is the impressive Portuguese fort, which gave the whole site its name – qal'a, meaning – fort.

2. THE PROPERTY

Description

Qal'at al-Bahrain is an archaeological site. It has the shape and all the characteristics of a typical tell, meaning- an artificial mound, created by successive occupational layers, built one on top of the other. The size of the mound of Qal'at al- Bahrain is about 300x600 meters and its highest point is about 11.2 m. above sea level.

Archaeological excavations at the site started 50 years ago with the Danish expedition, working between 1954 and 1970, followed by French expedition since 1978 and archaeologists from Bahrain, since 1987.

The different excavation areas, covering about 25% of the site, provided the stratigraphy of the occupation layers as well as reach architectural remains.

The earliest stratum on the site is dated to circa 2300 BC, consisting of probably residential structures, uncovered in the northern excavation area, near the sea. This is also the period when a thick masonry wall was constructed, to surround and protect the settlement. About 46 meters of this fortification, built of dry masonry, is visible nowadays.

A later wall, possibly reinforcement of the first one, was erected around 1450 BC. Extensive use of extremely hard mortar and surface plastering took place in this phase,

resulting in still very good state of conservation of the wall. It seems that this wall lost its defense function in about 500 BC, when later residential structures are built against it and on top of some of its sections.

Different occupation layers were uncovered in the central excavation area. The earliest belongs to the same period as the first city wall, or 2200-1800 BC. The main architecture uncovered consists of a street, measuring 12 m. in width, and large, monumental structures, on both of its sides. Parts of these are probably palatial structures, including storage spaces of the palace. In the following period, (Middle Bronze age or 1450 – 1300 BC), the earlier buildings were modified and enlarged, to serve as the palace of the Kassite governor (Kassites were the Mesopotamian colonizers of the site).

The walls of the 14th century BC palace were used as foundations for next structures dating to the 11th to 5th centuries BC (Iron Age). A monumental, two pillared structure, probably a temple, was discovered here. In the same excavation area, several luxurious residences, with private and public spaces and elaborate sanitation system also belong to the same period. Under the floors of these dwellings several graves, in earthen sarcophagi, were discovered.

As a result of this continuous use of the same walls, some of them reach a considerable height of up to 4.5 m.

The archaeological level in the central area shows that around the 3rd century BC (Tylos or Hellenistic or Seleucid-Parthian period) the site was densely built. Due to later destruction and plundering, the character and use of these structures is not clear yet.

A coastal fortress measuring 51.5x51.5 m. was excavated on the northern part of the site. This large fortress is not easy to date, but was probably not built before the 3rd century AD. It bears strong resemblance to Sasanian fortifications, particularly its round corner towers. The fortress was in use until the 5th century and then abandoned until the 13th century. It was then rebuilt for commercial functions and eight of its rooms were used as madbasa (date syrup) workshop. The fortress and the later structures built on its site, are preserved to a height of between 20 to 250 cm. Its building materials were reused for the construction of later the large medieval fort – the Fort of Bahrain.

In the central excavation area two additional strata were excavated. The first belongs to the 14th century – Middle Islamic period. The architectural remains include dense urban area and a structure which was probably a suk or a caravanserai. In the second period, dating to the 15th century, the area was occupied by very modest houses, built of mixed materials, mainly re used from earlier structures.

From the 16th century until the abandonment of the site it served mainly for military purposes. A large fortress which was built on top of the tell dominates the site and even gave it its name. The large fortress of Bahrain has several building phases. The first phase dates to the beginning of the 15th century, when a simple fortified enclosure was erected on the site. In 1529 the first significant enlargement of the fortress and its moat took place, as well as its adaptation to modern artillery.

The third phase is the one which gave the fortress its actual shape. This phase dates to 1561 on, when the island came under Portuguese rule and they added several corner bastions in Genovese style and enlarged again the moat. The strengthening and enlargement of the fortress reflects the growing importance of the sea trade route to India and China, as well as the rivalries between the Principality of Hormuz, the Portuguese, the Persian Safavids and the Ottoman Turks. A written source from the beginning of the 17th century describes the fortress as useless for military purposes due to being non accessible from the sea. The old access channel, cut in the coral rift, which made the site attractive for centuries, was almost completely silt –up by now, and only small vessels could reach the site, during high tide.

This was also the main reason for the final abandonment of the whole site of Qal'at al-Bahrain, and its gradual transformation from a 4500 years settlement to an archaeological site.

The site is surrounded by palmgroves and there is one row of one floor houses inside the nominated area.

Management regime

Legal provision:

The site is protected by the "Law for the Protection of Archaeological Sites" (Law number 11 of 1995). According to this law, the Ministry of Information and its Directorate of Culture & Heritage is the organization responsible for the management of the site.

70% of the site is state property, while activities on the privately owned parts is also restricted and controlled.

The palm groves and trees surrounding the site are protected by special law (Legislative decree No 21 of 1983).

Management structure:

The site is directly managed by the Directorate of Culture&Heritage. There is a site superintendant and two conservation architects involved in the conservation of the large fortress.

Resources:

The conservation and management budget comes from the Ministry of Information, and its only scope is conservation and consolidation of the main fort.

Justification by the State Party (summary)

The tell of Qal'at al-Bahrain represents an almost 4500 years of uninterrupted human occupation of the site. It is one of the most important archaeological sites presenting all phases of the Dilmun culture. This culture, mentioned in Sumerian and other sources, was considered until the Qal'at al Bahrain discoveries as a rather historical and philological concept. Since then other excavations in Eastern Arabia exposed remains of the Dilmun culture, but at none of the known sites all periods of this culture are represented. In Qal'at al-Bahrain, in addition there is a representation of all other historic periods – thus the site becomes kind of a catalogue of the cultures of the region.

This phenomenon does not exist on any other site of the East Arabian region.

3. ICOMOS EVALUATION

Actions by ICOMOS

An ICOMOS mission to the site took place in November 2004.

ICOMOS has consulted the State Party for further information.

Conservation

Conservation history:

Some of the earlier excavated areas have been backfilled. Very little conservation and consolidation work has been carried out on the exposed remains. The nomination file is mentioning it as well, while describing future intentions for conservation works.

On the other hand extensive reconstruction works took place on the main fort, much beyond the acceptable according to the professional ethics. Some of it is justified in the file by conservation needs, but the extent of it is far beyond what conservation/consolidation can justify.

The past conservation works have not been fully documented.

State of conservation:

The central excavated area is decaying and not getting any conservation attention. The important coastal fortress has been recently consolidated and seems to be in good state of conservation. The main fortress is in good state of conservation, and most of the work being carried out on the site is on this fortress.

The archaeological expeditions working on the site are not required to carry out conservation works on the remains they are uncovering.

Management:

The site does not have a management plan in place. The State Party submitted with the nomination file a document called "management plan" which is in reality a scheme for preparation of a management plan and contains mainly information which is already included in the nomination format.

The State Party has a basic management mechanism for cultural heritage, which is the one managing the nominated site as well. There is no full management mechanism, nor plan, for the specific site.

At the same time, the submission of the nomination and the works carried out on the central fortress are the expression of existing management and of the serious intentions of the State Party for improving the situation.

Risk analysis:

The main risks are urbanization, development pressures, property values and land reclamation. At the moment there are two big projects in the pipeline – one of large urban development to the north of the site and the other one an

artificial island. The traditional architecture is of two to three storey buildings only, and therefore does not cause a threat to skyline. On the other hand, it is not known what is planned to be constructed on the new island, and since land is so expensive, it would make sense that buildings there will be higher than the ones on mainland. The risk of the island is also in the fact that the link between the site and the sea as well as the ancient approach from the sea to the site are an important component of its cultural and historic value.

On the other hand, the site is surrounded by palm groves, and their protection reduces some of the risks.

Authenticity and integrity

Authenticity:

As an archaeological site, most of its authenticity is well kept. While this is true for the excavated parts, it is not the same with the main fortress. This important structure has been extensively reconstructed.

Integrity:

The settings of the site and its relations to the surroundings have been compromised, but not yet to the extent of reducing its values. The main integrity issue comes from land reclamation in front of the site, which gained its importance from the available access from the sea. Therefore keeping this link between site and sea is important.

Comparative evaluation

The comparative analysis presented in the nomination file is comprehensive and convincing. While there are other sites in the region which represent the same historic periods, none of them represent all periods on one site, as is the case with Qal'at al Bahrain.

Outstanding universal value

The site has outstanding universal value.

The justification of this statement comes from the importance of the Dilmun culture and its archaeological presence on the nominated site. This land and culture is mentioned in the Sumerian mythology linking Dilmun with the origins of the world. Sumerian texts from the 3rd millennium describe Dilmun as land blessed by the Gods, graced with abundant fresh water and renowned as an international marketplace. Dilmun was the only marketplace for long distance trade via the Gulf. It was a port of transit where representatives of all countries came to exchange or sell their products, thus also exchange cultural ideas. In the 2nd Millennium BC Dilmun is conquered by the Mesopotamian Kassite dynasty and in the 7th century BC mentioned seven times in the bas-reliefs of Sargon's palace in Khorsabad.

All these historic periods are well represented in Qal'at al-Bahrain, which is considered as the capital of Dilmun and the seat of the king or the administrator – when the Dilmuns are conquered by others.

General statement:

ICOMOS has no doubt in the high cultural values of the site and the importance of its investigations and conservation for the understanding of the big cultures of the world.

Evaluation of criteria:

The state party suggests the inscription of the site on the basis of criteria ii, iii, iv and ICOMOS agrees that the site meets these criteria.

Criterion ii: There is no doubt that Qal'at al-Bahrain, being a capital and port on important trade routes, preserves important material testimony of different cultures and exchanges of cultures, which use it as market or occupied it.

Criterion iii: This site bears a unique testimony of Dilmun capital city and culture, of early city planning traditions and of all cultures which existed and lived in the region for almost 5000 years.

Criterion iv: The early Dilmun palaces are unique examples of this type of architecture in the region and of this culture. The different fortresses are outstanding examples of defensive structures from the 3rd and 15-16th centuries, defending the ruling power from the locals, rather than from the outside. The palmgroves, in combination with the site, are outstanding example of an agricultural tradition and landscape which has existed since the 3rd century BC.

4. ICOMOS RECOMMENDATIONS

Recommendation for the future

ICOMOS recommends that:

- a comprehensive conservation plan be prepared for the whole site and implemented as soon as possible.
- a full management plan be prepared, including a proper management mechanism to be able to implement the plan.
- that no more land reclamation should take place along the coast flanking the site.
- that everything be done to minimize the effects of urbanization threats and the potential threat of the artificial island project.
- that all reconstruction works on the main fortress be stopped.
- that a report on the progress and implementation of the recommendations be presented to the World Heritage Committee at its next session.

Recommendation with respect to inscription

ICOMOS recommends that the World Heritage Committee adopt the following draft decision:

The World Heritage Committee,

1. Having examined Document WHC-05/29.COM/8B,

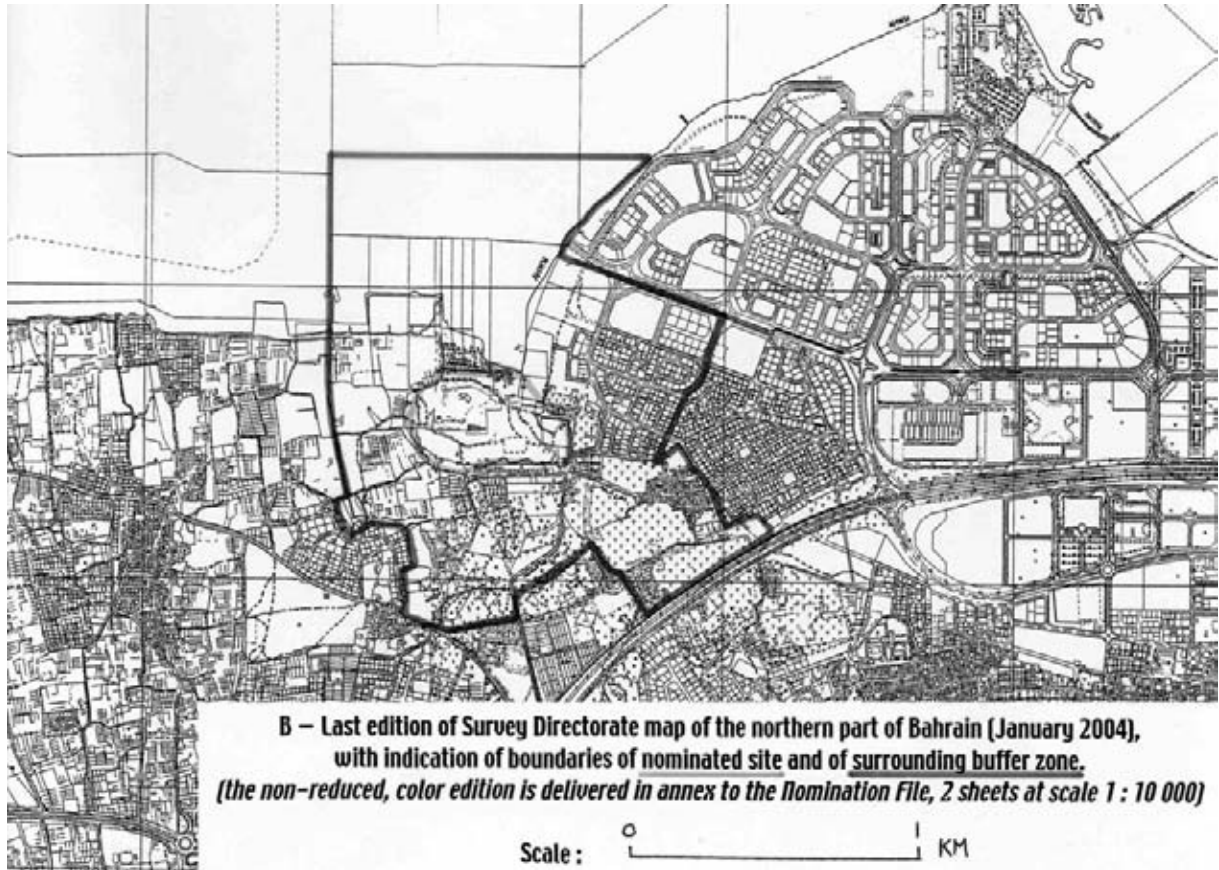
2. Inscribes the property on the World Heritage List on the basis of *criteria ii, iii and iv*:

Criterion ii: Being an important port city, where people and traditions from different parts of the then known world met, lived and practiced their commercial activities, makes the place a real meeting point of cultures – all reflected in its architecture and development. Being in addition, invaded and occupied for long periods, by most of the great powers and empires, leaved their cultural traces in different strata of the tell.

Criterion iii: The site was the capital of one of the most important ancient civilizations of the region – the Dilmun civilization. As such this site is the best representative of this culture.

Criterion iv: The palaces of Dilmun are unique examples of public architecture of this culture, which had an impact on architecture in general in the region. The different fortifications are the best examples of defence works from the 3rd century B.C to the 16th century AD, all on one site. The protected palm groves surrounding the site are an illustration of the typical landscape and agriculture of the region, since the 3rd century BC.

ICOMOS, April 2005



Plan showing the boundaries of the nominated property



Aerial view of late Dilmun residence



Aerial view towards the south of Bahrain Fort

Qalaat al-Bahreïn (Bahreïn)

No 1192

1. IDENTIFICATION

État partie : Royaume du Bahreïn

Bien proposé : Site archéologique de Qalaat al-Bahreïn

Lieu : Région du nord

Date de réception : 29 janvier 2004

Catégorie de bien :

En termes de catégories de biens culturels, telles qu'elles sont définies à l'article premier de la Convention du Patrimoine mondial de 1972, il s'agit d'un *site*.

Brève description :

Qalaat al-Bahreïn est un tell typique, c'est-à-dire une colline artificielle créée par plusieurs strates successives d'occupation humaine. La stratigraphie du site, continue, va d'environ 2300 avant J.-C. au XVI^e siècle de notre ère. Environ 25 % du site ont déjà fait l'objet de fouilles, qui ont révélé des structures de divers types : résidentiel, public, commercial, religieux et militaire. Au sommet de la colline se trouve un impressionnant fort portugais, qui a donné son nom à tout le site – qal'a signifiant fort.

2. LE BIEN

Description

Qalaat al-Bahreïn est un site archéologique. Il a la forme et toutes les caractéristiques d'un tell typique, à savoir une colline artificielle créée par plusieurs strates successives d'occupation, bâties les unes sur les autres. La colline de Qalaat al-Bahreïn mesure environ 300 x 600 mètres et son point le plus haut se situe à environ 11,2 m au-dessus du niveau de la mer.

Les fouilles archéologiques sur le site ont commencé il y a 50 ans avec l'expédition danoise, qui a travaillé entre 1954 et 1970, suivie par l'expédition française depuis 1978 et des archéologues de Bahreïn depuis 1987.

Les différentes zones de fouilles, couvrant environ 25 % du site, ont révélé la stratigraphie des couches d'occupation ainsi que des vestiges architecturaux.

La première phase du site date d'environ 2300 avant J.-C., consistant en structures probablement résidentielles, mises au jour dans la zone de fouilles au nord, près de la mer. C'est aussi à cette époque qu'un épais mur de maçonnerie

a été construit, pour entourer et protéger le peuplement. Environ 46 mètres de ces fortifications, en maçonnerie sèche, sont visibles aujourd'hui.

Un mur plus tardif, peut-être un renfort du premier, a été érigé aux environs de 1450 avant J.-C. Cette phase s'est caractérisée par l'usage extensif d'un mortier extrêmement dur et d'un enduit en surface, d'où un très bon état de conservation du mur. Il semble que ce mur ait perdu sa fonction de défense aux environs de 500 avant J.-C., quand des structures résidentielles ont été construites en s'adossant à celui-ci et au-dessus de certaines de ses sections.

Différentes strates d'occupation ont été révélées dans la zone centrale des fouilles. La première appartient à la même période que le premier mur de la ville, soit 2200-1800 avant J.-C. La principale architecture révélée consiste en une rue de 12 m de large, et de grandes structures monumentales la bordant. Il s'agit probablement pour une partie de structures palatiales, notamment les entrepôts du palais. Dans la période suivante (âge du bronze moyen ou 1450-1350 avant J.-C.), les bâtiments antérieurs ont été modifiés et agrandis pour servir de palais du gouverneur Kassite (les Kassites étaient les colonisateurs mésopotamiens du site).

Les murs du palais du XIV^e siècle avant J.-C. ont été utilisés comme fondations pour les structures suivantes, datant du XI^e au Ve siècle avant J.-C. (âge du fer). Une structure monumentale à deux colonnes, probablement un temple, y a été découverte. Dans la même zone de fouilles, plusieurs résidences luxueuses avec des espaces privés et publics et un système sanitaire élaboré datent également de la même période. Sous les sols de ces habitations, plusieurs tombes et sarcophages en terre ont été découverts.

En conséquence de l'usage continu de ces mêmes murs, certains d'entre eux atteignent une hauteur considérable, jusqu'à 4,5 m.

Le niveau archéologique de la zone centrale montre qu'aux environs du III^e siècle avant J.-C. (période de Tylos, période hellénistique ou séleucide-parthe), la construction sur le site était dense. Du fait des destructions et dégradations ultérieures, le caractère et l'utilisation de ces structures ne sont pas encore claires.

Une forteresse côtière mesurant 51,5 x 51,5 m a été fouillée dans la partie nord du site. Cette grande forteresse n'est pas facile à dater, mais n'est probablement pas antérieure au III^e siècle après J.-C. Elle présente une ressemblance marquée avec les fortifications sassanides, particulièrement du fait de ses tours d'angle arrondies. La forteresse servit jusqu'au Ve siècle, puis fut abandonnée jusqu'au XIII^e siècle. Elle fut ensuite reconstruite dans l'optique de fonctions commerciales, et huit de ses pièces furent utilisées comme ateliers de confection de madbasa (sirop de dattes). La forteresse et les structures plus tardives construites sur son site sont préservées sur une hauteur de 20 à 250 cm. Ses matériaux de construction ont été réutilisés pour la construction du grand fort médiéval ultérieur, le fort de Bahreïn.

Dans la zone centrale de fouille, deux strates supplémentaires ont été fouillées. La première date du

XIV^e siècle (période islamique moyenne). Les vestiges architecturaux comprennent une zone urbaine dense, et une structure qui était probablement un souk ou un caravansérail. À la deuxième période, datant du XV^e siècle, la zone était occupée par des maisons très modestes, faites de matériaux mixtes, essentiellement réutilisés à partir des structures antérieures.

Du XVI^e siècle jusqu'à l'abandon du site, il servit essentiellement à des fins militaires. Une grande forteresse construite en haut du tell domine le site, et lui a même donné son nom. La grande forteresse de Bahreïn comporte plusieurs phases de construction. La première phase date du début du XV^e siècle, quand une simple enceinte fortifiée fut érigée sur le site. En 1529, le premier grand agrandissement de la forteresse et de ses douves eut lieu, ainsi que son adaptation à l'artillerie moderne.

La troisième phase est celle qui donna à la forteresse sa forme actuelle. Cette phase commença en 1561, quand l'île tomba sous le joug portugais. Les Portugais ajoutèrent plusieurs bastions d'angle de style génois et agrandirent à nouveau les douves. Le renforcement et l'élargissement de la forteresse reflète l'importance croissante de la route maritime marchande vers l'Inde et la Chine, ainsi que les rivalités entre la principauté de Hormuz, les Portugais, les Perses safavides et les Turcs ottomans. Une source écrite du début du XVII^e siècle décrit la forteresse comme inutile du point de vue militaire, car inaccessible depuis la mer. L'ancien chenal d'accès, taillé dans le rift corallien, qui a fait l'attrait du site pendant des siècles, était alors presque complètement ensablé, et seuls de petits navires pouvaient atteindre le site, à marée haute.

Ce fut la principale raison de l'abandon définitif du site de Qalaat al-Bahreïn, et de sa transformation progressive de peuplement vieux de 4 500 ans en site archéologique.

Le site est entouré de palmeraies, et la zone proposée pour inscription comporte une rangée de maisons à un étage.

Politique de gestion

Dispositions légales :

Le site est protégé en vertu de la Loi de protection des sites archéologiques (loi n° 11 de 1995). D'après cette loi, le ministère de l'Information et sa direction de la Culture et du Patrimoine sont responsables de la gestion du site.

Le site est à 70 % la propriété de l'État, tandis que les activités des parties privées sont également restreintes et contrôlées.

Les palmeraies et les arbres qui entourent le site sont protégés par décret spécial (décret législatif n° 21 de 1983).

Structure de la gestion :

Le site est sous la gestion directe de la Direction de la Culture et du Patrimoine. Le site compte un superintendant et deux architectes de la conservation, prenant part à la conservation de la grande forteresse.

Ressources :

Le seul budget de conservation et de gestion vient du ministère de l'Information, et il ne couvre que la conservation et la consolidation du fort principal

Justification émanant de l'État partie (résumé)

Le tell de Qalaat al-Bahreïn représente quasiment 4 500 ans d'occupation humaine ininterrompue du site. C'est l'un des sites archéologiques les plus importants, présentant toutes les phases de la culture Dilmun. Cette culture, mentionnée dans des sources sumériennes et d'autres, était considérée jusqu'aux découvertes de Qalaat al-Bahreïn comme un concept plutôt historique et philologique. Depuis lors, d'autres fouilles en Arabie orientale ont révélé des vestiges de la culture Dilmun, mais aucun des sites connus ne donne une représentation de toutes les époques de cette culture. On trouve en outre à Qalaat al-Bahreïn une représentation de toutes les autres périodes historiques – le site devient ainsi une sorte de catalogue des cultures de la région.

Ce phénomène n'existe sur aucun autre site de la région d'Arabie orientale.

3. ÉVALUATION DE L'ICOMOS

Actions de l'ICOMOS

Une mission de l'ICOMOS s'est rendue sur le site en novembre 2004.

L'ICOMOS a consulté l'État partie pour obtenir des informations complémentaires.

Conservation

Historique de la conservation :

Certaines des plus anciennes zones fouillées ont été remblayées. Très peu de travaux de conservation et de consolidation ont été effectués sur les vestiges exposés. Le dossier de proposition d'inscription le mentionne aussi, tout en décrivant les intentions futures pour les travaux de conservation.

Par ailleurs, des travaux de reconstruction extensifs ont eu lieu sur le fort principal, bien au-delà de ce que l'éthique professionnelle juge acceptable. Le dossier en justifie une partie pour les besoins de conservation, mais ils dépassent de loin ce que la conservation/consolidation peut imposer. Les travaux de conservation passés n'ont pas été entièrement documentés.

État de conservation :

La zone centrale de fouilles mise à nu se détériore et ne fait l'objet d'aucune conservation. L'importante forteresse côtière a fait l'objet de travaux de consolidation récents et semble être en bon état de conservation. La grande forteresse est en bon état de conservation, et la plupart des travaux exécutés sur le site concernent cette forteresse.

Les expéditions archéologiques travaillant sur le site ne sont pas nécessaires pour exécuter des travaux de conservation sur les vestiges qu'elles révèlent.

Gestion :

Aucun plan de gestion n'est en place pour le site. L'État partie a soumis avec la proposition d'inscription un document appelé « plan de gestion », qui est en réalité un plan de préparation d'un plan de gestion et contient principalement des informations figurant déjà dans la proposition d'inscription.

L'État partie a mis en place un mécanisme élémentaire de gestion du patrimoine culturel, qui gère le site proposé pour inscription. Il n'y a pas de mécanisme de gestion global, ni de plan, pour le site en question.

La soumission de la proposition d'inscription et les travaux réalisés sur la forteresse centrale sont l'expression de la gestion actuelle et des intentions sérieuses de l'État partie d'améliorer la situation.

Analyse des risques :

Les principaux risques sont l'urbanisation, les pressions du développement, les valeurs du bien et la mise en valeur des sols. Il y a actuellement deux grands projets en cours, un projet de grand développement urbain au nord du site, et un autre d'île artificielle. L'architecture traditionnelle ne dépasse pas deux ou trois étages, et ne représente donc pas de menace pour la ligne d'horizon. Mais on ne connaît pas les projets de construction sur la nouvelle île, et le terrain étant si cher, il serait raisonnable de penser que les bâtiments y seront plus élevés que sur le continent. L'île constitue aussi un risque en ce sens que le lien entre le site et la mer et l'ancienne approche du site depuis cette dernière constituent un élément important de la valeur culturelle et historique.

Le site est encore entouré de palmeraies qui le protègent de certains des risques.

Authenticité et intégrité

Authenticité :

En tant que site archéologique, le site conserve son authenticité. Mais, si cela est vrai pour les parties fouillées, il n'en va pas de même pour la forteresse principale. Cette importante structure a fait l'objet de vastes travaux de reconstruction.

Intégrité :

Le cadre du site et ses relations avec l'environnement ont été compromis, mais pas au point d'en diminuer ses valeurs. La principale question d'intégrité vient de la mise en valeur des sols devant le site, ce qui a son importance du point de vue du possible accès depuis la mer. Par conséquent, la préservation de ce lien entre le site et la mer est importante.

Évaluation comparative

L'analyse comparative présentée dans la proposition d'inscription est exhaustive et convaincante. S'il y a dans la région d'autres sites qui représentent les mêmes périodes historiques, aucun autre n'illustre à lui seul toutes les périodes comme le fait Qalaat al-Bahrein.

Valeur universelle exceptionnelle

Le site possède une valeur universelle exceptionnelle.

Cette déclaration se justifie par l'importance de la culture Dilmun et la présence de ses vestiges archéologiques sur le site proposé pour inscription. Cette terre et cette culture sont mentionnées dans la mythologie sumérienne, qui relie les Dilmun aux origines du monde. Des textes sumériens du III^e millénaire décrivent Dilmun comme une terre bénie des dieux, dotée d'eau douce en abondance et comme un centre marchand de renommée internationale. Dilmun était le seul lieu d'échange pour le commerce longue distance via le Golfe. C'était un port de transit où des représentants de tous les pays venaient échanger ou vendre leurs produits, échangeant également des concepts culturels. Au II^e millénaire avant J.-C., Dilmun est conquise par la dynastie Kassite de Mésopotamie et, au VII^e siècle avant J.-C., mentionnée sept fois dans les bas-reliefs du palais de Sargon à Khorsabad.

Toutes ces périodes historiques sont bien représentées à Qalaat al-Bahrein, considéré comme la capitale de Dilmun et le siège du roi ou de l'administrateur, lorsque les Dilmuns furent conquis par d'autres peuples.

Déclaration générale :

L'ICOMOS n'a aucun doute quant à la grande valeur culturelle du site et à l'importance de fouilles et de travaux de conservation pour la compréhension des grandes cultures du monde.

Évaluation des critères :

L'État partie suggère l'inscription du site sur la base des critères ii, iii et iv, et l'ICOMOS convient que le site remplit ces critères.

Critère ii : Il n'y a aucun doute sur le fait que Qalaat al-Bahrein, en tant que capitale et port de passage d'importantes routes marchandes, conserve des témoignages matériels remarquables des différentes cultures et des échanges culturels dont l'endroit a été le témoin.

Critère iii : Le site constitue un témoignage exceptionnel de la capitale de Dilmun et de sa culture, des premières traditions d'urbanisme et de toutes les cultures qui ont existé et vécu dans la région pendant presque 5000 ans.

Critère iv : Les premiers palais de Dilmun sont des exemples uniques dans la région de ce type d'architecture et de cette culture. Les différentes forteresses sont des illustrations exceptionnelles des structures défensives du III^e au XV^e-XVI^e siècles, défendant le pouvoir en place contre les locaux plutôt que contre l'extérieur. Les

palmeraies associées au site sont un exemple exceptionnel de la tradition agricole et du paysage existant depuis le IIIe siècle avant J.-C.

meilleurs exemples d'ouvrages défensifs du IIIe siècle av. J.-C. au XVIe siècle apr. J.-C. réunis sur un seul et même site. Les palmeraies protégées qui entourent le site illustrent le paysage et l'agriculture typiques de la région depuis le IIIe siècle av. J.-C.

4. RECOMMANDATIONS DE L'ICOMOS

Recommandations pour le futur

L'ICOMOS recommande :

- La préparation d'un plan de conservation exhaustif pour l'ensemble du site et sa mise en œuvre dans les plus brefs délais.
- La préparation d'un plan de gestion complet, avec un mécanisme de gestion approprié permettant la mise en œuvre du plan.
- L'interdiction de plus amples politiques de mise en valeur des sols le long de la côte au bord du site.
- La prise de mesures pour minimiser les effets des menaces liées à l'urbanisation et la menace potentielle du projet d'île artificielle.
- L'arrêt de tous les travaux de reconstruction sur la forteresse principale.
- La présentation d'un rapport sur les progrès et la mise en œuvre des recommandations au Comité du patrimoine mondial, à l'occasion de sa prochaine session.

Recommandation concernant l'inscription

L'ICOMOS recommande que le Comité du patrimoine mondial adopte le projet de décision suivant :

Le Comité du patrimoine mondial,

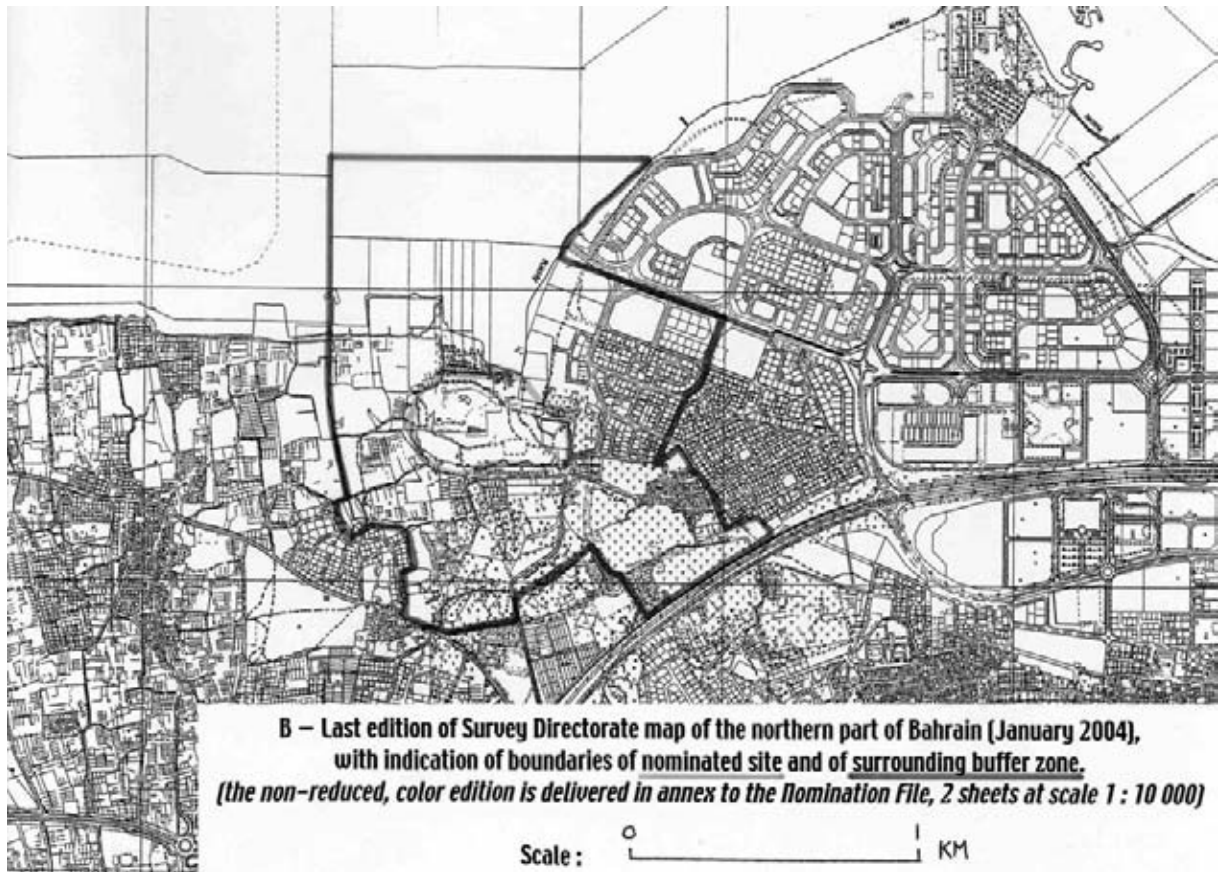
1. Ayant examiné le document WHC-05/29.COM/8B,
2. Inscrit le bien sur la Liste du patrimoine mondial sur la base des *critères ii, iii et iv* :

Critère ii : Son statut de grande ville portuaire, où divers peuples et traditions venus de différentes régions du monde connu d'alors se rencontraient, vivaient et exerçaient leurs activités commerciales, fait de cet endroit un véritable carrefour de cultures, toutes reflétées dans son architecture et son développement. En outre, le site a été envahi et occupé pendant longtemps par la plupart des grandes puissances et des empires influents, qui ont marqué de leur empreinte culturelle les différentes strates du tell.

Critère iii : Le site était la capitale de l'une des plus importantes civilisations antiques de la région, la culture Dilmun. À ce titre, ce site est l'exemple le plus représentatif de cette culture.

Critère iv : Les palais de Dilmun sont des exemples uniques d'architecture publique de cette culture, qui a eu un impact sur l'architecture de la région dans son ensemble. Les différentes fortifications sont les

ICOMOS, avril 2005



Plan indiquant les délimitations du bien



Vue aérienne d'une résidence Dilmun tardive



Vue aérienne vers le sud du Fort de Bahrain

Kingdom of Bahrain
Culture and National Heritage

QAL'AT AL-BAHRAIN:
THE ANCIENT HARBOUR AND CAPITAL
OF DILMUN

MODIFICATION TO THE BOUNDARIES

REQUEST FOR MODIFICATION OF CORE AND BUFFER ZONE

January 2008

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1 Introduction

During its 29th Session in Durban, South Africa in 2005, the World Heritage Committee inscribed Qal'at al-Bahrain Archaeological Site unto the World Heritage List. The site was inscribed according to the cultural criteria (ii), (iii) and (iv) with the following justification:

“Criterion (ii): Being an important port city, where people and traditions from different parts of the then known world met, lived and practised their commercial activities, makes the place a real meeting point of cultures – all reflected in its architecture and development. Being in addition, invaded and occupied for long periods, by most of the great powers and empires, leaved their cultural traces in different strata of the tell.

Criterion (iii): The site was the capital of one of the most important ancient civilizations of the region – the Dilmun civilization. As such this site is the best representative of its culture.

Criterion (iv): The palaces of Dilmun are unique examples of public architecture of this culture, which had an impact on architecture in general in the region. The different fortifications are the best examples of defence works from the 3rd century BC to the 16th century AD, all on one site. The protected palm groves surrounding the site are an illustration of the typical landscape and agriculture of the region, since the 3rd century BC.” (WHC-29-COM 8B.26)

The inscription itself was preceded by a somewhat lengthy discussion on the quality of the management tools in place and potential threats to the setting of the site caused by long-term reclamation plans. The World Heritage Committee in recognition of the incompleteness of the management system especially with regard to the protection of setting and sea access added two requests to its decision for inscription. These are reflected in the same decision:

“The World Heritage Committee (...) requests the State Party of Bahrain to submit by 1st February 2006 complete management and conservation plans for the property;

Also requests the State Party to refrain from approving any land reclamation or construction in the sea anywhere in front of the site and that the new construction on existing reclaimed land should be checked as to protect the visual integrity of the site and to maintain the principal sight lines of the area nominated;” (WHC-29-COM 8B.26)

It turned out only few months later, that the concerns of the Committee were very relevant, as plans to reclaim an artificial island of 600 hectares at 500m distance of the shore of Qal'at al-Bahrain archaeological site were made known in the Kingdom of Bahrain. The project, “North Star”, accompanied by two further planned projects of a fishing harbour and a reclaimed highway led to intense discussions and considerations on improved tools for the protection of the sea in front of Qal'at al-Bahrain. An UNESCO World Heritage Centre mission (February 2006) and an UNESCO and ICOMOS mission (June 2006) took place and several national workshops, with participants from various governmental agencies, were dedicated to this particular challenge.

The outcome of these intense discussions – a visual corridor of 7 kilometre distance and 1.8 kilometre width in front of Qal'at al-Bahrain was presented to the World Heritage Committee at its 30th Session in Vilnius, Lithuania, as an extended protection zone. The Committee acknowledged the established new measures, with the following words:

“Welcomes the proposal to delineate a visual corridor, in which any land reclamation in the sea in front of the property would be prohibited in order to preserve its visual integrity, and which has been developed by the State Party in consultation with the World Heritage Centre and ICOMOS during the mission of June 2006, which identified eight defining geographic coordinates.

Supports the possible replacement of the foreseen causeway by a bridge and invites the State Party to consult the World Heritage Centre and ICOMOS on the design of this future project.” (WHC-30-COM 7B.49)

During the same session, the Kingdom of Bahrain requested a name change for the site in order to better illustrate its important relation to the sea and its particular values as a capital and port. The name was accordingly changed from “Qal'at al-Bahrain Archaeological Site” to “Qal'at al-Bahrain – the ancient harbour and capital of Dilmun”.

With the acceptance of the new name and the recognition of the proposed visual corridor, the World Heritage Committee requested that the sea elements of the site, that is an ancient light tower and a sea channel transgressing a coral reef shall, as a reflection of their crucial importance, be included in the core zone of the property. In addition the Committee requested to formalize the status of the visual corridor by designating it as an extended buffer zone of the World Heritage Site. The Committee invited the State Party in the 30th session in Vilnius, Lithuania:

“(…) to submit a proposal for a modification of the boundaries of the inscribed property according to the procedures indicated in paragraphs 163 to 165 of the Operational Guidelines, for revising the core zone to include the ancient channel and the sea tower, and for revising the buffer zone to include the visual corridor as identified in point 5 above.” (WHC-30-COM 7B.49)

The State Party was not able to submit the extension request within six months following the Committee session in order to meet the January 31st 2007 deadline, since further surveys were required to precisely identify the course of the ancient access channel. This led to another consideration of the extension during the 31st session of the World Heritage Committee, during which the Committee requested submission of the relevant documentation by latest January 31st 2008:

“Invites the State Party, as mentioned in document 30 COM 7B.49, to submit, before 1 February 2008, a proposal for a modification of the boundaries of the inscribed property according to the procedures indicated in paragraphs 163 to 165 of the Operational Guidelines, for revising the buffer zone to include the visual corridor, for examination by the Committee at its 33rd session in 2009.” (WHC-31-COM 7B.60)

The document at hand responds to this request although surveys of the property extensions have not been completed. Habitat surveys allowed to clearly delineate the outer course of the channel but traces are less evident in the harbour basin. Due to unavailability of underwater archaeological teams, the archaeological surveys were not yet completed. It might therefore be necessary to further enlarge the core zone once the precise extension of the later part of the channel and the harbour basin has been identified. As long as this identification cannot be founded on empirical data, the State Party prefers to propose two separate core zones and protect the presumed harbour area as part of the buffer zone.

2. Identification of the property

The following data corresponds to the details given in the initial nomination dossier submitted in January 2004 under the title "Qal'at al-Bahrain Archaeological Site". The name of the property was since changed in 2006 to "Qal'at al-Bahrain – the ancient harbour and capital of Dilmun".

2.1 State Party

Kingdom of Bahrain

2.2 State, Province or Region

Northern Municipal District

2.3 Name of property

Qal'at al-Bahrain – the ancient harbour and capital of Dilmun

2.4 Geographical coordinates to the nearest second

Furthest extension of core and buffer zones: (in geographic coordinates)

	Core zone 1 (initial property)	Core zone 2 (extension)	Buffer zone (extended)
North	26°14'04 N	26°14'55 N	26°17'53 N
South	26°13'53 N	26°14'23 N	26°13'34 N
West	50°31'06 E	50°30'54 E	50°30'49 E
East	50°31'28 E	50°31'24 E	50°31'55 E

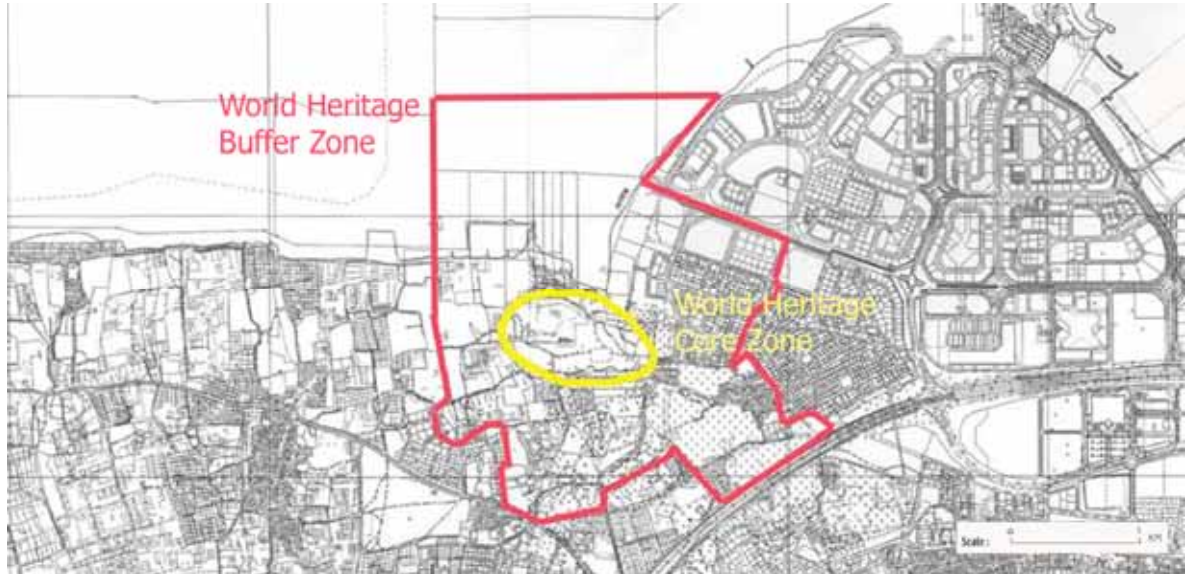
2.5 Maps and plans, showing the boundaries of the nominated property and the buffer zone

List of maps in annex:

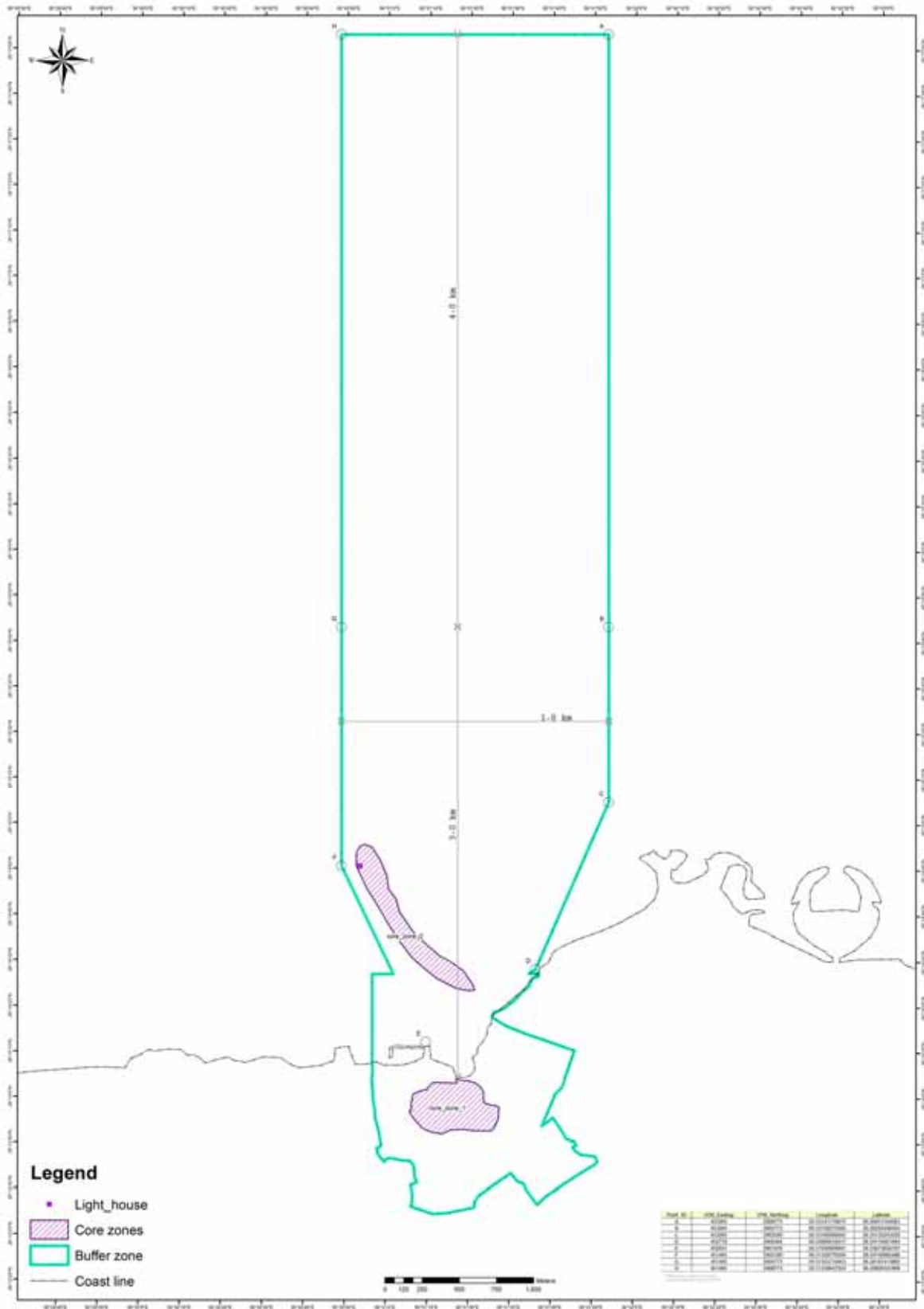
- 2.5.A Boundaries of core and buffer zones in property nomination dossier of 2004
- 2.5.B Extension of core and buffer zones according to geographical coordinates
- 2.5 C Area of the nominated property
- 2.5.D Aerial photograph with localisation of core and buffer zones
- 2.5.E Bathymetrical contours in extended buffer zone (superimposed on aerial photograph)
- 2.5.F Marine habitat survey in extended buffer zone

2.6 Area of nominated property (ha.) and proposed buffer zone (ha.)

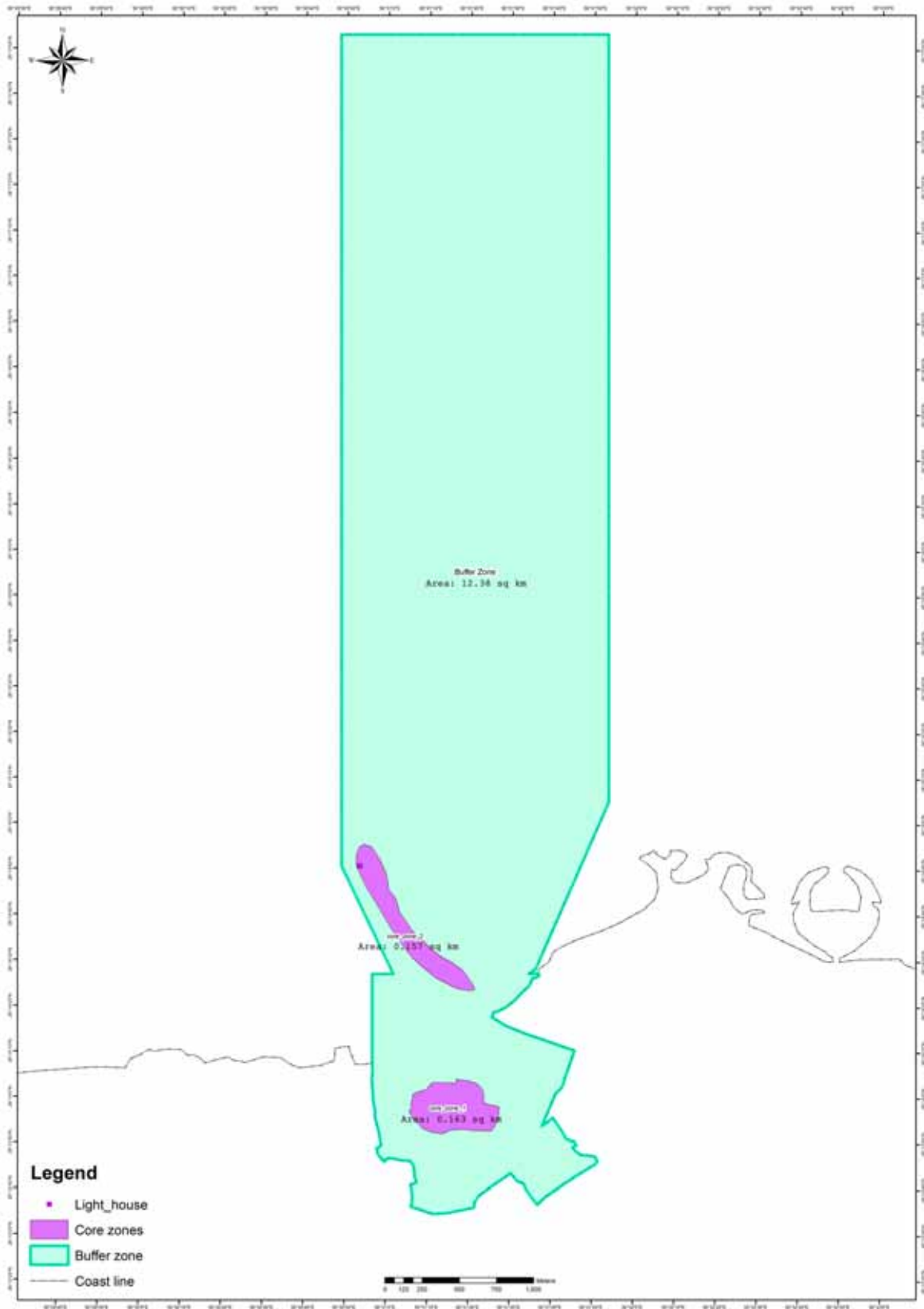
The core zone of the initial nomination comprises 0.163 square kilometres or 16.3 hectares. The proposed second buffer zone covers an area of 0.157 square kilometres or 15.7 hectares. The proposed extended buffer zone extends to an area of 12.38 square kilometres or 1238 hectares. When compared with the buffer zone presented in the initial nomination dossier in 2004 with an area of 185 hectares, the proposed buffer zone is now more than 6 times larger.



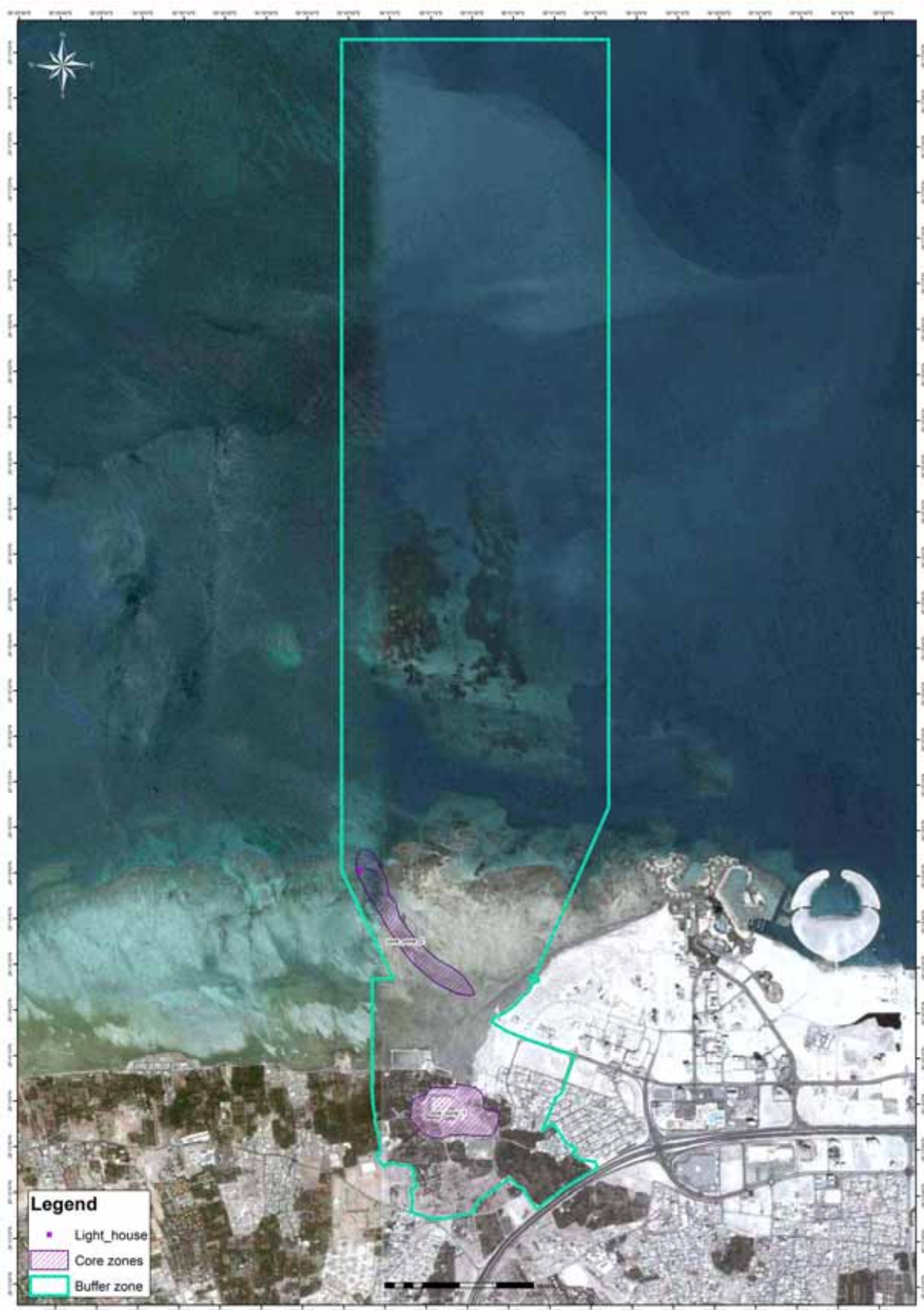
map 1: 2.5.A Boundaries of core and buffer zones in property nomination dossier of 2004



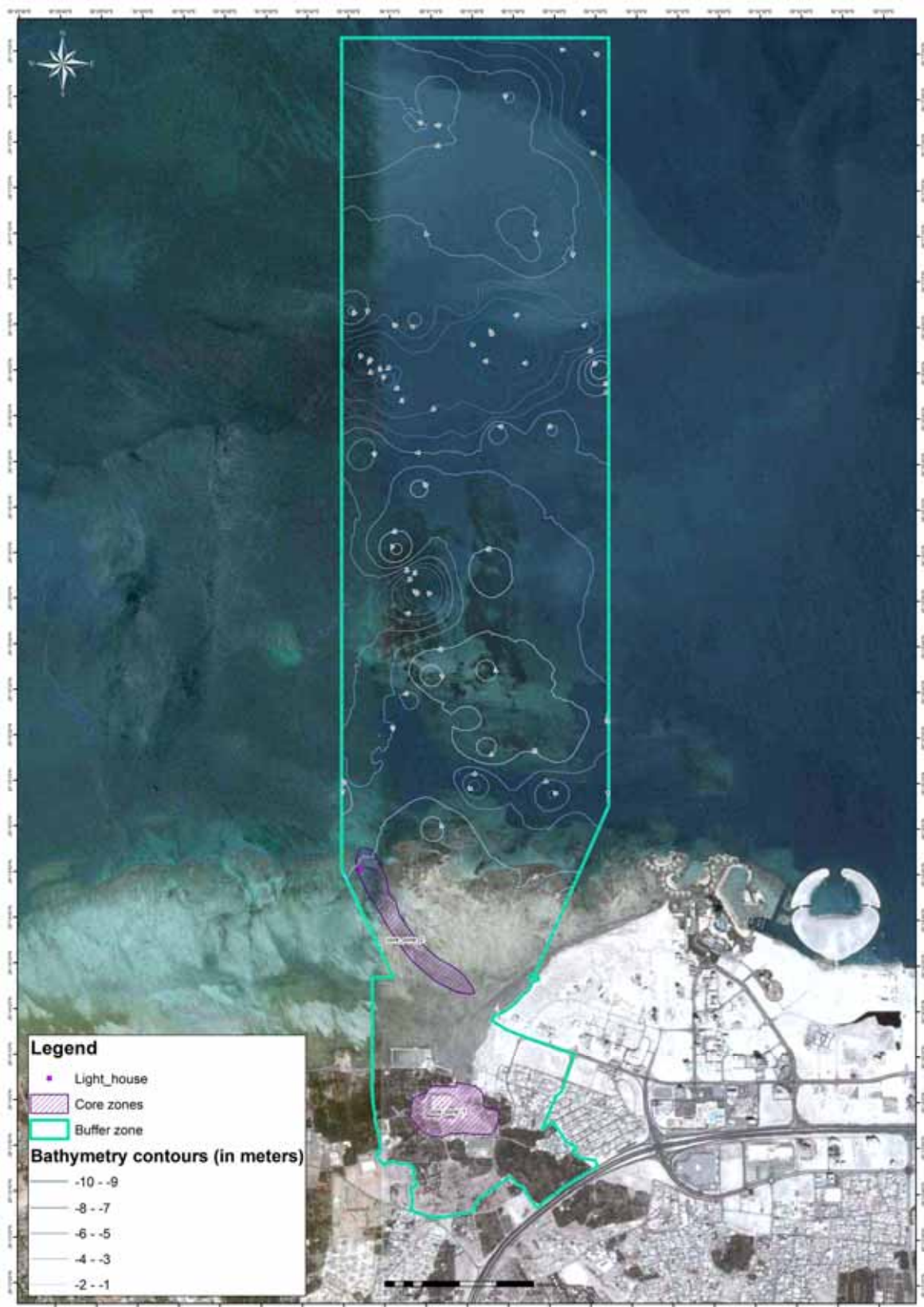
map 2: 2.5.B Extension of core and buffer zones according to geographical coordinates



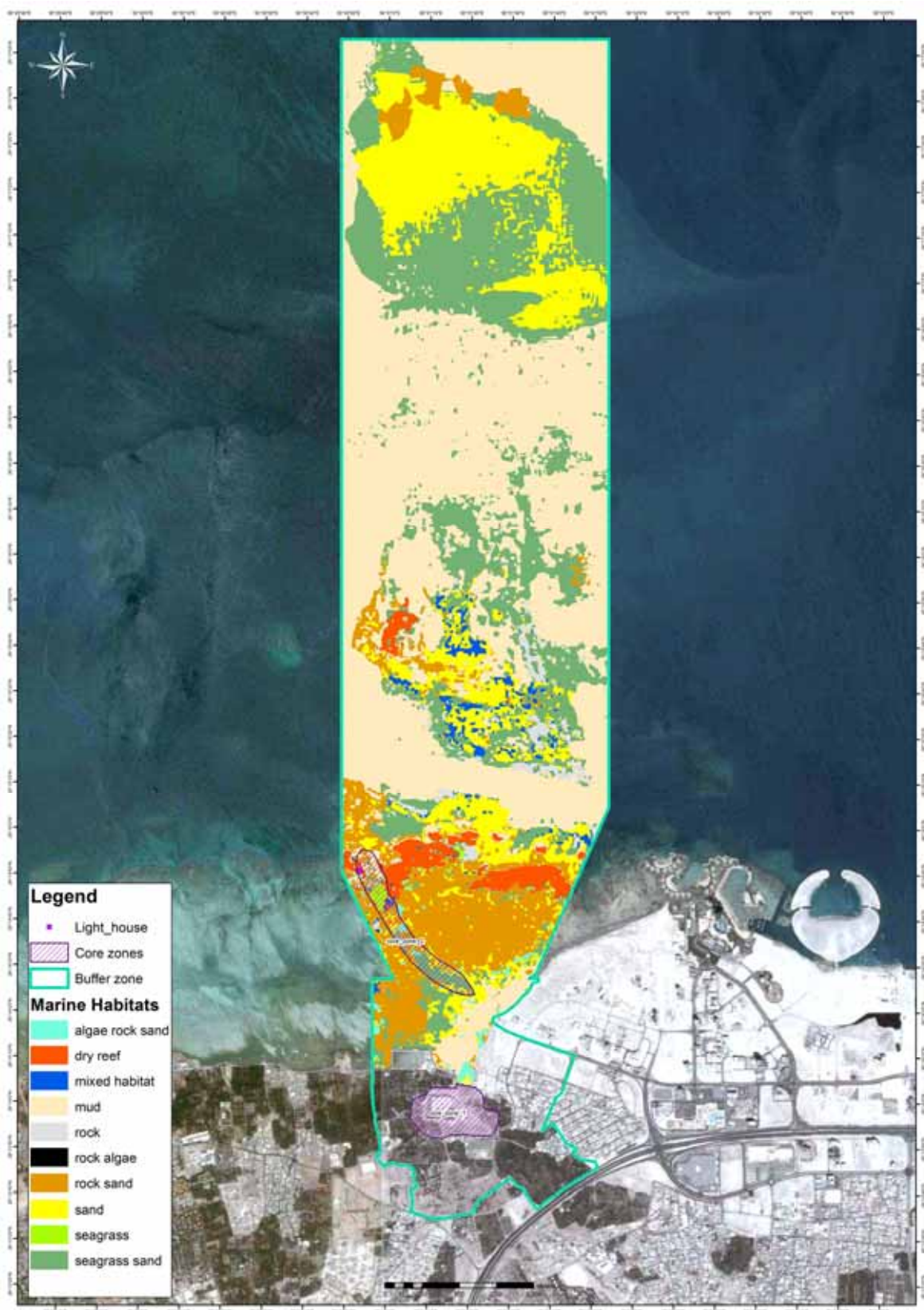
map 3: 2.5.C Area of the nominated property



map 4: 2.5.D Aerial photograph with localization of core and buffer zones



map 5: 2.5.E Bathymetrical contours in extended buffer zone (superimposed on aerial photograph)



map 6: Marine habitat survey in extended buffer zone

3. Description of property extension

During the initial nomination and inscription phase (2004 – 2005) the documents submitted focused on the universal qualities of the archaeological site that means seven subsequent settlements which are documented in an archaeological stratigraphy which includes more than 4000 years of building activity from 2300 BC up to the 16th century AD. The main focus of description was the archaeological tell and the fortress built on part of the settlements.

Only when discussing the threat of envisaged land reclamations in the sea in front of the property which became known in late 2005, it became obvious that the archaeological tell and its many subsequent settlements can only be fully comprehended by future generations if we also protect its relation to the sea and the main trade routes that brought ships to anchor at and trade with the ancient capital of Dilmun.

3.1 Description of property extension

The proposed extension of the site, indicated as a second core zone, brings forward two main elements. These are a sea channel which cuts through a fossilized coral reef and a tower structure built on the western edge of the coral reef structure adjacent to the channel. Both elements were already described in the initial nomination dossier but were not included in the core zone.

The access channel reaches from the subtidal zone at a distance of approximately 1.85 kilometres off the shore of the archaeological site through an intertidal platform located between roughly 1.75 and 1.55 km distance from the shore and continues passing through the intertidal plain behind the reef platform. (cf. fig. 1: Intertidal platform north of Qal'at al-Bahrain) The channel is difficult to identify as a result of years of sedimentation recently accelerated by the nearby land reclamation of Seef. Recent surveys, which measured the depth of the sediment that silted up in the area have led to a clear identification of the first 800 metres of the channel. Unfortunately we have not been able to trace the final 400 – 500 metres of the channel through which ships would have accessed the harbour. At the same time, since the harbour cannot be precisely located, jetty-like structures might have – at least at some points in time – reached up to a basin at the southern end of the channel. Since further under-water archaeological research is required to precisely identify the ancient harbour structures, this dossier proposes a second, separate core zone focused on the identified northern part of the channel.

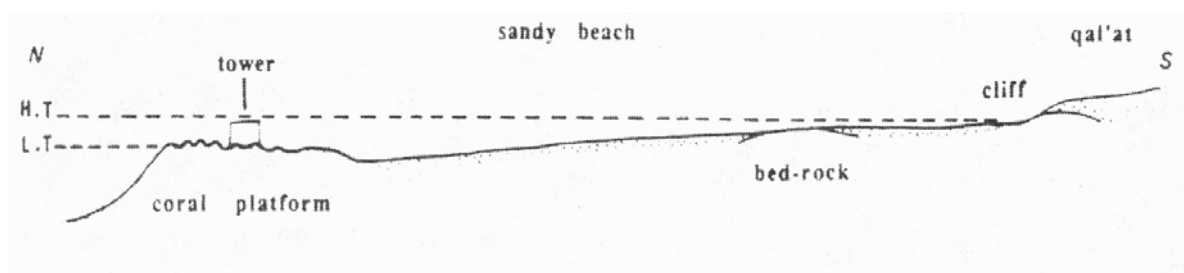


Figure 1: Intertidal platform north of Qal'at al-Bahrain (Paskoff & Sanlaville, 2005, p. 119)

The channel, which was first revealed by aerial photographs of the 1980ies, is between 15 and 90m wide and cuts through the rocky coral plate which parallels the Northern Coast up to 1.8 km off shore. The coral reef structure is very shallow and intertidal with a contemporary maximum depth of 1.6 m during highest spring tide while it is exposed along the entire 1.8 km during the low tides at spring tides. Nowadays the maximum tidal range is about 2.5 meters during this spring tides (cf. Paskoff & Sanlerville, 2005, p. 116).

The channel itself can be identified on the basis of sediment measures according to its depths or following the observation of marine habitats. While on the hard fossilized coral reef structure the merely 0.02 m to 0.3 m sedimentary surface is a natural habitat for algae, the considerable layers of sand which have silted in the depth of the channel have provided a ground for sea grass to grow. The attached marine habitat map illustrates this phenomenon and relates the sea channel to the relevant findings of sea grass habitat (cf. 2.5.F)

The depth of sediment in the sea channel varies between 0.4 m and maximum 1.1 m. With the addition of the inter-tidal differences in water level the channel would have reached a depth of 2.6 m, a relevant depth for access of even larger boats available during the ancient reigns.

The sea tower is built on the western edge of the coral reef, adjacent to the sea channel. Tower may be an euphemistic name for the merely 2 m high stone structure but it is assumed by most archaeologist that this structure had an indicative function for the sea channel that can be compared to the function of a light house. Already in the initial nomination dossier the tower was described as a "rectangular building constructed of two courses of large ashlar stones set directly on the uneven surface of the coral reef". It measures 9.10 m in latitude and 10.7 m in longitude and is preserved at only 2 m height.



Photo 1: transition between intertidal zone (coral reef) and subtidal zone (photographer Dr. Saeed Abdallah al-Khuzai)



Photo 2: Southern end of sea channel during low tide (photographer Dr. Saeed Abdallah al-Khuzai)

In the book “Qal’at al-Bahrain as a trading and military outpost”, published in 2005, Axelle Rougeulle described the technical features of the tower construction: “Marine concretion has thoroughly bonded the coral base and the lower portion of the building, as well as its individual blocks to one another, thus making an indestructible mass of the whole. (...) The lower course of stones is made of limestone blocks 0.65m high with width varying from 0.60 m to 1.12m. What remains of the second course of facing is made of smaller block that are 0.36 m to 0.40 m high and 0.43 m to 0.93 m wide. Above this and set back from the facing, the inside fill of the tower is still around 0.80m above water level. This fill is made of all sorts of stones embedded in a mortar to which highly concretised potsherds are attached.” (Rougeulle, 2005, p. 211)

The author further considers, that it is well possible that the tower would not have been higher than these two courses of stone since the likeability of pillaging at such distance from the coast is very limited and water erosion to an extent that reduced complete stone courses is considered rather improbable, especially if the stones are so firmly cemented as in the tower structure. It is even stated that “the effect of the sea in having so thoroughly cemented the blocks was so great that, had they existed, the upper courses of facing would have survived.” (Rougeulle, 2005, p. 211) However, other archaeologists who assume that the tower must have been a higher stone structure, debate this suggestion.

Since the two courses however are more or less covered during high tide and can hardly fulfil an indicative function, it can be speculated that the stone structure might have been the basis of an additional construction which would have contained the main function, perhaps an indication fire or a defence post. On the other hand we have to take the varying sea levels into account, which are in more detail discussed in the following section on history and development. Obviously the tower is less useful during times of extremely high sea levels than during times of extreme lows. Since the history of the site is affected by constant rises and declines of the average sea levels, the tower must have been the most severely affected element – most likely often subjected to resulting modification and construction works.



Photo 3: sea tower in 2004 (French Archaeological Mission in Bahrain)

3.2 History and development of property extension

The sea channel is a partly natural, partly most likely man-made feature of utmost importance to the location, settlement and trade of the ancient capital of Dilmun and the successive cities at its location. The northern coast of Bahrain is the strategic coast of the island, pointing into the Arabian Gulf and the coast that any boat passing from Mesopotamia towards the Street of Hormuz and into the Indian Ocean would pass by. It must have been a serious disadvantage for trade that especially this coast with its shallow offshore coral reefs was almost inaccessible to boats, with one exception, the bay in front of Qal'at al-Bahrain.

The sea channel which allowed boats to access the coast was the lifeline of the city as it brought in good for trades and merchants to buy their required loadings. And it is well understandable that the last settlement structure of Islamic time as well as the strategic defence fortress of the Portuguese both lost attraction and importance because the channel was silted to an extent that made it unusable. A frank report issued by the Portuguese authorities, dating from sixteen-ten reveals this: "The fort is totally useless because it is further than a gun-shot from the sea, and is surrounded by reefs which make it impossible to land there. It is only strong for its foundations and for its walls. If a landing were to be made in Bahrain, the fort should be overlooked."

It is very difficult to date both the channel and the tower, but since it is of essential importance to all trading activities we have to assume that at least the channel existed since the time of the earliest identified settlement, the ancient city built about 2300 BC. It may be that the access was first based on a natural channel which was later deepened to facilitate access of larger boats. However, such theory can only be confirmed or disproved once the silt and sediment has been removed from the channel and access to the vertical edges is possible. Available research on the interrelation of the site and the sea

suggest that the earliest settlement might not have required the same depth of channel that became necessary to later settlements. Paskoff & Sanlaville calculate in their studies that at the time of the earliest settlement the sea level was considerably higher and hence the need of a channel less pressing. "(...) we may estimate that towards the mid-third millennium, the sea level was noticeably higher than at the present time, even if one allows for the possible deposition of sands in the upper part of the beach" (Paskoff & Sanlaville, 2005, p. 126), as the authors conclude at least 0.8 m higher than at present (see fig. 2: hypothetical height of the sea level during the two last millennia BC).

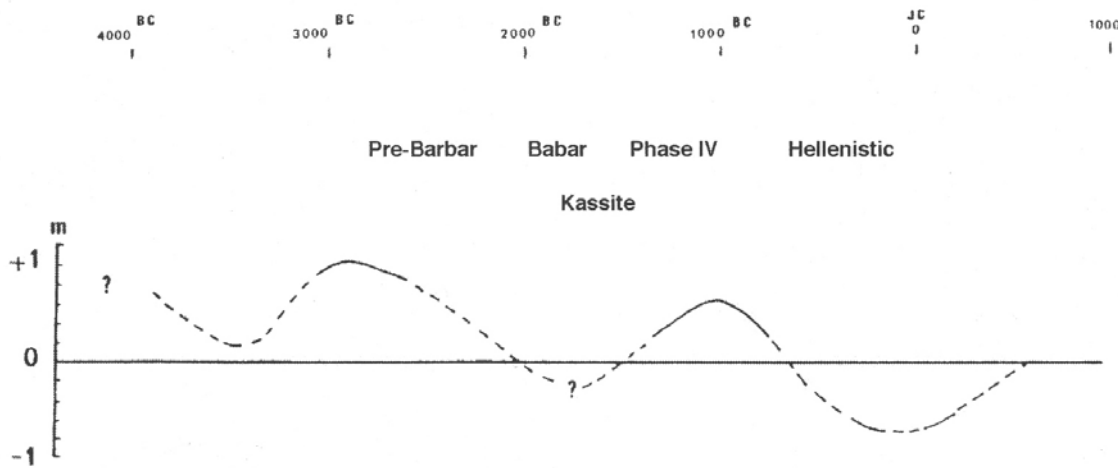


Figure 2: hypothetical height of the sea level during the two last millennia BC (Paskoff & Sanlaville, 2005, p. 126)

The tower provides additional guidance as some of the potsherds attached to it have been dated by the French Archaeological Mission. But they illustrate some unexpected variety in dating. Rougeulle reports that some of them date very late, i.e. thirteenth or fourteenth century while others turned out to be as early as from the second or third century BC. (cf. Rougeulle, 2005, p. 211) Because of its similarity to the construction of the Tylos fortress, the initial coastal fortress defence structure, the author is tempted to also date the sea tower into the Tylos period. But her conclusion remains open: "Nevertheless, we can exclude neither a construction in the third to first millennium BC, nor a later construction linked to the reoccupation of the fortress in the thirteenth century or even to the construction of the second fortress built by the Hormuzi re-using cut old stones." (Ibid.) Dr. Pierre Lombard, Head of the French Archaeological Mission in Bahrain, even suggests, that the sea tower basis might well be older than the Tylos period. It is difficult to favour one of the many options and attempts to define the exact age of both channel and sea tower and it may be necessary to seek clarification by means of additional testing of material samples.

Despite the uncertainty in age, the function or possible multi-functions of the sea tower seem obvious from its very location. It indicates the entrance of the access channel towards the city. Being located at the very tip of the channel where ships had to manoeuvre a curve to access from or into the open sea, the tower functions not solely as an indicator but as a guard tower that might have hosted a few guardians who could permit or prevent ship movement and access to the channel. As a result of the constant changes in sea levels, the use and function of the tower may well have been abandoned and re-established a number of times.



Photo 4: sea tower at high tide, January 2008 (photographer: Dr. Saeed Abdallah al-Khuzai)



Photo 5: sea tower at high tide (view towards North-East), January 2008 (photographer: Dr. Saeed Abdallah al-Khuzai)



Photo 6: sea tower at low tide (view towards West), January 2008 (photographer: Dr. Saeed Abdallah al-Khuzai)



Photo 7: sea tower at low tide (view towards South-West), January 2008 (photographer: Dr. Saeed Abdallah al-Khuzai)



Photo 8: intertidal area of coral reef along the Northern Coast, January 2008 (photographer: Dr. Saeed Abdallah al-Khuzai)



Photo 9: bird activity in the intertidal area, January 2008 (photographer: Dr. Saeed Abdallah al-Khuzai)

4. Justification for inscription of extension

With the proposal of a second core zone, Qal'at al-Bahrain archaeological site gets the character of a serial site with two core zone in one shared buffer zone. According to the specifications for serial sites in par. 137 of the Operational Guidelines it is provided necessary that “the series as a whole – and not necessarily the individual parts of it – (...) are of Outstanding Universal Value.” (UNESCO, 2005, par. 137). In this context, the extension of Qal'at al-Bahrain, the ancient harbour and capital of Dilmun, must be seen as an additional component which contributes to the outstanding universal value of the archaeological tell rather than a new core zone being of Outstanding Universal Value in itself.

4.1 Justification for inscription of extension

The sea channel and sea tower mark the access route from the sea towards the ancient harbour and capital of Dilmun. It is an essential element of understanding the location and the activities in the capital which was predominantly based on the economic gains from its sea-trading activities, solely guaranteed by a safe access and landing to the trade harbour.

Without the natural topography of a channel traversing the coral reef, the location of the city would have been inadequate and – about 2 km away from navigable waters – uninteresting for settlements of a trade-based civilization. Since however, the channel was there it determined not only the location of the first and largest city but also the arrangement of its port and city wall as well as later defence structures. The channel therefore is the reason for the existence of the archaeological site in its location and urban structure and it is difficult to explain these features of the already inscribed area in separation of the channel, and its indication, the sea tower.

4.2 Criteria under which the extension is included

The extension of the access channel and sea tower shall be included in the existing criteria. No additional criterion is proposed in this context. At the same time, the State Party wishes to seek the opportunity to slightly improve the wording (at least the English version) of the existing criteria:

“Criterion (ii): Qal'at al-Bahrain was an important port city and the ancient capital of Dilmun. It was a capital, where people and traditions from different parts of the then known world met, lived and practised their commercial activities, a real meeting point of cultures. This is reflected in its strategic geographical position, accessible from the Arabian Gulf through a sea channel, as well as its architecture and urban development. Several empires and great powers left their cultural traces in the unique stratigraphy of the archaeological tell when, during shifting fates of history, the city was invaded and occupied for long periods.

Criterion (iii): The site was the capital of one of the most important ancient civilizations of the region – the Dilmun civilization and it is the best known representation of Dilmun culture.

Criterion (iv): The palaces of Qal'at al-Bahrain are unique examples of Dilmun public architecture of the early 2nd millennium BC, which had a general impact on architecture in the region. The different fortifications are a collection of the best examples of defence works from the late 3rd millennium BC to the 16th century AD, all on one site. The protected palm groves surrounding the site as well as the intertidal coral reef are an illustration of the typical land- and seascape and its agricultural use in the region, since the 3rd century BC.”

4.3 Proposed amended statement of Outstanding Universal Value

The statement of Outstanding Universal Value is not affected by the proposed extension of the World Heritage Site Qal'at al-Bahrain – the ancient harbour and capital of Dilmun. The following paragraphs summarize the statement of OUV as presented in the initial nomination dossier submitted in 2004 as well as the detailed descriptions of OUV according to different value categories presented in the “Action plan towards a management system for Qal'at al-Bahrain”, submitted in 2006.

4.3.1 Summary statement of Outstanding Universal Value

Qal'at al-Bahrain – the ancient harbour and capital of Dilmun represents the most exceptional archaeological finding of the Dilmun civilization. Its continuous stratigraphy of more than 4000 years is unique and functions as a textbook of Eastern Arabian history. The immense treasures still assumed in the unexcavated 85 percent of the remaining cities promise an outstanding archaeological potential and many future discoveries on life, technology, arts and knowledge of the Dilmun civilization.

4.3.2 Historical Value

Qal'at al-Bahrain Archaeological site is the most unique testimony of a civilization which has disappeared – the Dilmun civilization. It is not only the most important evidence of this civilization but its capital, its main port and its physical centre. Therefore the site is crucial to understand the history of Dilmun civilization.

In addition Qal'at al-Bahrain provides clear evidence on other historic periods. Its unique, continuous stratigraphy from 2300 BC until the 16th century AD reads like a history book to the attentive observer. It therefore offers a deep insight into the alternating history of the Gulf region throughout more than 4000 years.

4.3.3 Cultural (Identity) Value

As the most important central port, the capital of Dilmun was also a cosmopolitan merchant centre, “where people and traditions from different parts of the then known world met, lived and practiced their commercial activities”. The city was a meeting point of cultures, a place of cultural, intellectual and artistic exchange and religious dialogue.

This definition of Bahrain as a centre of cosmopolitanism, cultural exchange and religious dialogue but at the same time as a flourishing merchants centre between East and West is still predominant nowadays. The capital of Dilmun can therefore be considered the initial source of the identity of the modern Kingdom of Bahrain and its people.

4.3.4 Archaeological Value

Being the most important evidence of the Dilmun civilization, the 17.5 hectares city at Qal'at al-Bahrain is the most precious excavation and research spot for archaeologist seeking information on the Dilmun civilization. Only about 15% of the capital has been excavated until today and although it is not in the intention of the Sector of Culture and National Heritage to carry out diggings indefinitely, it still offers a splendid potential for future excavations and thereby potential additional knowledge about the Dilmun civilization.

4.3.5 Landscape/Seascape Value

The harbour city and capital of Dilmun was the point of interaction between the sea and the island, nowadays called Bahrain. The setting of Qal'at al-Bahrain in the transition between the agricultural green belt of the Northern shoreline and the open sea in the North is to a large extent preserved and only disturbed by the development of the so-called Seef district at the North-Eastern edge of the site.

The setting reflects one of the rare remains of traditional shore settlements surrounded by palm groves and is open to the changing seascape which at the Northern coast is strongly characterized by the shallow waters and the enormous change of landscape characteristic between low and high tide. The interrelation between land and sea is further documented by the ancient sea tower, indicating the only access channel in the coral reef which enabled ships to reach the Northern Coast. The remains of this tower and the sea channel indicated by it, document the importance of the very strategic location chosen for the ancient capital.

4.3.6 Ecological Value

The sea access to Qal'at al-Bahrain and the surrounding palm groves are further of ecological value. Archaeological studies show that the palm groves have evolved only very little since the earliest settlements at Qal'at al-Bahrain Archaeological site. These palm-groves until nowadays present a traditional agro-system cultivated with limited amounts of water, at high production of particular fruits and vegetables, such as pomegranate, jujube, grapes, coriander, barley, wheat, sesame etc. Such species represent the typical multi-level-cultivation system of ancient palm groves which is retained until nowadays.

The marine surroundings of the artificial bay north of the site, decorated by traditional fishing traps still in function, attract flocks of seabirds on their way from or to their breeding places. Although the water level and the coastline were changed by the Seef land reclamations the bay and its off-shore coral reef constitute an ecological environment which contributes to Qal'at al-Bahrain Archaeological Site's overall value.

4.3.7 Architectural Value

The palaces of Qal'at al-Bahrain are unique examples of Dilmun public architecture of the early 2nd millennium BC, which had general impact on architecture in the region. Besides the design, ground plans and technology of the Dilmun buildings documented up to now, the site also encompasses a collection of the best examples of defence works from the late 3rd millennium BC to the 16th century AD.

4.3.8 Research/Scientific Value

The remaining archaeological potential of the ancient Tell, only excavated to a small part at the moment, constitutes an enormous research potential offering still hidden information on a civilization buried underneath which is poorly researched and studied at this time.

Although excavations are envisaged only at a very limited scope maybe future technologies will enable scientists and researchers to discover the hidden treasures without destructive archaeological interventions and benefit from the research value still offered by this site.

4.3.9 Educational Value

The unique stratigraphy of layers documenting a time-span of 4000 years is a perfect didactic tool to demonstrate the layering development of historic phases and settlements at this archaeological site. It will help the archaeological layman understand how people of the periods of Dilmun, Tylos, Byzantium and Islam established their housing on top of the former settlements and how such behavior nowadays enables archaeologists to describe and date the various historical stages.

Educational values are further to be attributed to the landscape/seascape quality of the site which enables future generations to experience a traditional Bahraini landscape that survived throughout the centuries. The experience is promoted by the sudden contrast between Seef development district and the quiet and natural environment of Qal'at al-Bahrain. The palm groves, a protected spot on the otherwise rapidly developing north coast might become one of the last traces of the traditional plantation and irrigation system of Bahraini agro-culture and thereby a key-place for environmental education.

4.4 Comparative analysis

Since the proposed additional core zone is not considered to be of outstanding universal value in itself but an integral part of the harbour and the consecutive cities of Qal'at al-Bahrain, the comparative analysis should focus on the features which predominantly constitute the outstanding universal value. These are the unique archaeological stratigraphy, the exceptional representation of the Dilmun civilization and the site's large future archaeological potential.

The comparative analysis for these features has been amply demonstrated in the nomination dossier submitted in 2004 and the State Party does not see any necessity to provide further comparative information.

4.5 Integrity and / or authenticity

4.5.1 Integrity

In 2004 when the initial nomination file was submitted to the World Heritage Centre of UNESCO, consideration of the conditions of integrity was not yet required for nominations proposed under cultural criteria. Perhaps, if it had been required at this time, the authors would have realized that the sea channel and the tower are essential parts of the site and that their inclusion contributes to a higher integrity of the nomination brought forward. With the late extension of the site to a second core zone

comprising the ancient access channel, all elements expressing the outstanding universal value of the site are finally brought together. In the current state of knowledge, the size and selection of the two core zones is adequate to represent the most important features of the archaeological tell including its geographic location and successive development. It may be possible that future surveys and underwater archaeological research and reinvestigation of some of the reclaimed areas may identify the ancient harbour basin or archaeological features located outside the city wall which may require further extension, but – for the moment – such discoveries remain hypothetical.

4.5.2 Authenticity

Since the condition of authenticity of the initial core zone of the World Heritage Property is documented in the nomination dossier submitted in 2004, considerations here shall be limited to the proposed extension that is the second core zone including the sea channel and the tower.

It is difficult to speak of an authentic property or a condition of high authenticity in this case, since several factors have altered the original characteristics as well as the meaning and value of the elements throughout the years. The most severe alteration has certainly been caused by the adjacent land reclamations of the 1980ies which created the district of Seef. It must be assumed that this reclamation changed the local currents, the sea level in Qal'at al-Bahrain bay (obviously the bay itself was only created by the reclamation) as well as the speed and range of silting and sedimentation. However, we do not have access to detailed long-term studies which could empirically underline these statements. The reclamation certainly changed the impression we have of the position of the cities, which were on a far more exposed tip of land than they appear nowadays. And further, the reclamation renders future research and in particular the identification of the exact location of the harbour more difficult. Paskoff & Sanlerville are convinced that their study of the sea and harbour locations in front of Qal'at al-Bahrain in 1982 was the last meaningful study in that sense: "Since our study took place, land reclamation which enlarged the shore around the Qal'at has distorted the environment and rendered impossible, today, all of the progress of understanding concerning the evolution of the site as a port" (Pakoff & Sanlerville, 2005, p. 115)

On the other hand, the reclamation did not physically affect the channel or tower and despite the changed surrounding conditions both elements remain unaltered in their physical and material state. The silting up of the channel in addition can easily be removed at any time and one should merely consider it a temporary diminution of authenticity. The attributes of form and design as well as materials and substance represent a high degree of authenticity.

The attributes of use and functions illustrate a rather limited degree of authenticity but it may be questioned in general if authenticity of use and function can be requested for elements of archaeological properties. It was considered that the channel would be more credible and may be better understood if the sediment which silted up inside was to be removed and small boats, most likely local fishermen could again make use of this ancient coast access. The required measures to clear and subsequently maintain the channel are therefore proposed in the later chapter on policies for the protection of the proposed extension.

5. State of Conservation and factors affecting the property

5.1 Present state of conservation of property extension

As was mentioned above the sea channel, despite being well-conserved in its location and formation, is hardly visible because of sediment silted up, in many places to the level of the coral reef.

The sea tower shows the effects of centuries of water and wind erosion. Thanks to the strong cementation of the materials, partly promoted by the constant influence of sea water, the material is very stable and the erosion hardly measurable. Solely the last oil pollution caused by the damages to oil extraction facilities during the Kuwait crisis in the early 1990ies has resulted in a colour change of the tower, which is according to archaeologists constantly diminishing but still visible. It is difficult to estimate if potentially stored oil particles could negatively influence the natural processes of decay.

5.2 Factors affecting the property extension

The property could be affected several potential threats and dangers which are considered below. The most challenging factor however is the future planning for adjacent land reclamation which will – in the long-term – be unavoidable. The visual corridor which is now brought forward as an extended buffer zone was defined as a reclamation-free zone but it will most certainly be bordered by new projects in the future. The main management focus is therefore dedicated to this very challenge.

5.2.1 Development pressures

Development pressures are the main challenge to the protection and conservation of the proposed extension to the World Heritage Site. After a series of intense negotiations with different governmental agencies of the Kingdom of Bahrain with participation of representatives of the World Heritage Centre and ICOMOS international, it is very evident that future reclamations will take place, most likely close to the edges of the negotiated enlarged buffer zone. Such future reclamations will in addition be connected via an outer ring road bridged or tunnelled through the visual corridor at minimum 3 km distance from the shore, i.e. 1 km distance from the Northern end of the sea channel and the sea tower. This compromise was accepted by the international representatives and welcomed in the Committee decision WHC-30-COM 7B.49, taken in Vilnius Lithuania:

“[The World Heritage Committee] Supports the possible replacement of the foreseen causeway by a bridge and invites the State Party to consult the World Heritage Centre and ICOMOS on the design of this future project;” (WHC-30-COM 7B.49)

Acknowledging the forthcoming land reclamation projects as inevitable, it may be more important to ask what elements of a future reclamation would be more threatening than others. In this sense multi-story buildings without greenery right up to the edge – perhaps even sea wall – of the newly gained islands, high risers or large new marinas in the immediate vicinity of the buffer zone or large coastal

highways seem not only visual or acoustical challenges. If guidelines for at least the shores and properties adjacent to the visual corridor could be developed with the mostly private investors conducting the projects, it may be possible to imagine reclamations with very reduced impact on the qualities of the site or in particular the ancient access channel and sea tower. The setting of the shore and the channel will necessarily change according the larger superimposed channel structure of the extended buffer zone, but only uncoordinated and uncontrolled land and seas development would be a threat.

5.2.2 Environmental pressures

Environmental pressures seem to relate predominantly to the water quality which determines the density and quality of marine habitat and decaying procedures of the underwater structures. Water quality could be severely compromised by higher sea traffic, especially the creation of new harbours and marinas along the northern coast but also by further sea pollution caused by dumping of unwanted material and fluids (both at the shore and at high sea) or by accidents in the oil extraction industry.

A constant rise of sea level – as predicted and analysed in many contemporary discussions on climate change, may have affects on the visibility of the tower which may completely disappear in water. This might not affect its physical structures nor does it need to be considered a unique and new phenomenon. The sea level rose and declined constantly and the tower had certainly disappeared in the water in earlier times before it had to be reused after sea level increases at a later stage.

5.2.3 Natural Disasters and Risk Preparedness

Bahrain has never been exposed to major natural disasters such as strong earthquakes or tsunamis but in theory such disasters could be possible. An intense earthquake may certainly affect both the tower and the sea channel but it seems impossible to think of preventive protection for such cases.

Tsunamis, which as a result of the relative small size of the Arabian Gulf and its isolation from the Indian Ocean by the narrow Street of Hormuz, will never be as catastrophic as we have experienced in other regions, are more likely to affect the archaeological cities than the access channel or the sea tower.

5.2.4 Visitors / tourism pressures

At present the tower and sea channel are hardly ever visited – although it is theoretically possible to walk there across the coral reef during low spring tides. In consideration of the hot and humid climate throughout the majority of the year and the distance of about 1.75 km off the shore, it seems very unlikely that many visitors will attempt to walk to the tower in the future.

Prevention should be taken against potential future shortcut walkways from adjacent land reclamations which might encourage new visitors and – once the channel has been excavated – the amount of visitors approaching Qal'at al-Bahrain from the sea through the channel by boat should be carefully observed.

5.2.5 Number of inhabitants within property extension

The extension proposed is located in the intertidal coastal area and is uninhabited.

6. Protection and management of the property

6.1 Ownership

The sea property covering an initial 600m off shore is under ownership of the Ministry of Information, as documented in the ownership certificate no. 78263 shown below. A large property located beyond this which reaches out to about 4km off shore was also under governmental ownership, but was attributed to the administration of the Royal Court of the Kingdom of Bahrain, and is currently in the process of being transferred to the status of public property under the authority of the Ministry of Information. Due to discussions and revisions of the national expropriation legislation all title deed transferrals of governmental properties are currently reviewed but the processes shall be completed soon. The sea outside the 4 km zone is not yet attributed to owners and has with the Royal decree on protection of the visual corridor in front of the site (see below) been blocked from future sale or distribution.

6.2 Protective designation

The proposed extended buffer zone – formerly referred to as visual corridor – is protected by the Royal Decree 26 of 2006 (see official letter and translation below). It instructs the Minister of Municipal Affairs and Agriculture to preserve the area surrounding Qal'at al Bahrain – the ancient harbour and capital of Dilmun, to refrain from any land reclamation in the area of the extended buffer zone and to restrict the building heights on adjacent lands, providing that they not exceed 3 storeys.

In addition, as is stipulated in the document, all future development measure which may have negative affects on the property are to be coordinated with the authorities for culture and national heritage in the Kingdom.

In the name of God, the Most Merciful, the Most Beneficiary

The Kingdom of Bahrain

Ownership Document

Ministry of Justice and Islamic Affairs Directorate of Real Estate Registration	Fee: no fee Number of Muqademah: 6061/1984 Number of Document: 78263
Minister of Justice and Islamic Affairs	Assistant to Real Estate Registration & Documentation
His Royal Highness Skheikh Isa Bin Salman bin Hamad Al Khalifa	

Main topic of this document: is that the Ministry of Housing and Municipal Affairs and after the approval of HH the Minister has requested the registration of the Land number 5116 (land plot located in Site of Qal'at al Bahrain in Manama) so it can be an area of general public good. These documents have registered this Land in the name of the State for the purpose mentioned, and this document was issued to grant ownership as stated. Boarders from the north include government land, and from the east a land owned by HH Sheikh Khalifa bin Salman Al Khalifa, and the land of Sheikh Khalifa bin Ali Al Khalifa, and the land of Youseff Khalil al Muayyad, and a private land, and a land owned by Skheikh Khalifah Bin Ali Al Khalifah, and the land Mohammad Rashid Fethi and his partners, and other private land. And from the South, there is the Road, and from the West, there are the ownerships of Al-Sheikha Sheikha Bint Sheikh Ibrahim Al Khalifa. The area and boundaries of the land is as indicated in the enclosed map number 5 of this document which was issued on the 11th of Rabi'e Awal coinciding with the 28th of August, 1993.

Figure 3: translation of ownership certificate (shown in figure 4)

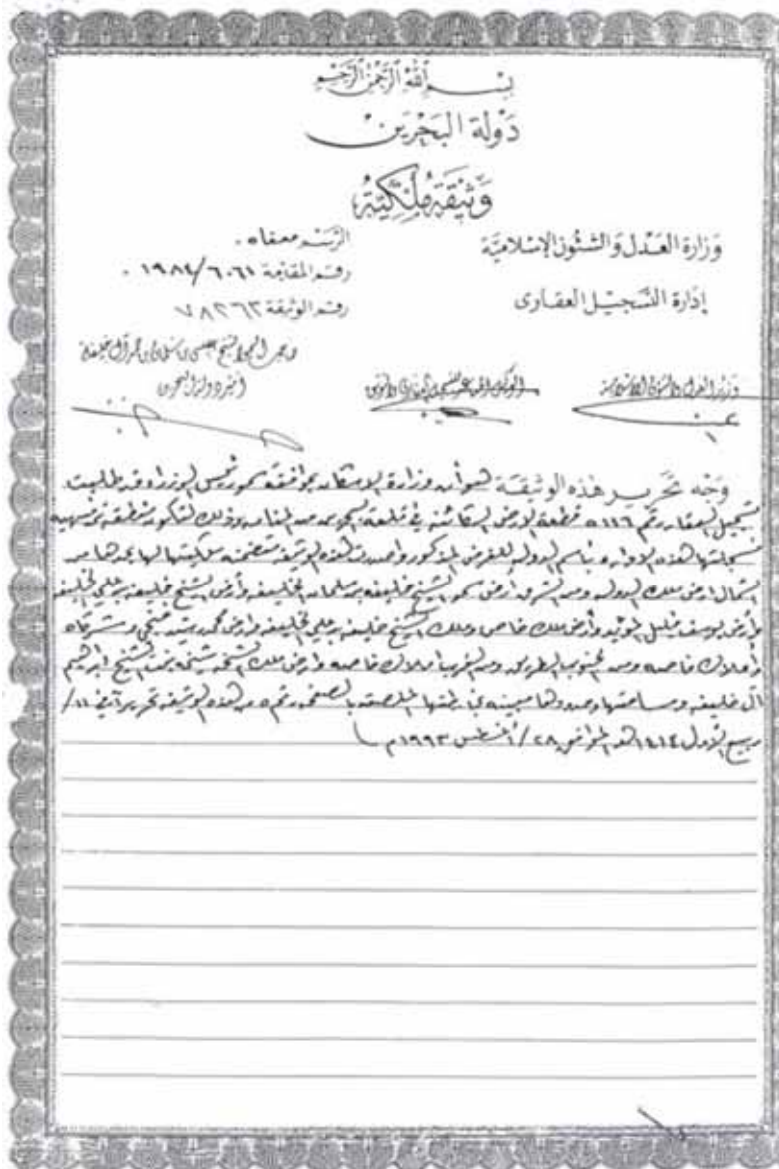


Figure 4: Ownership certificate for public property at sea shore of Qal'at al-Bahrain

Kingdom of Bahrain
Royal Court



مملكة البحرين
الديوان الملكي

٢ محرم ١٤٢٧
١ فبراير ٢٠٠٦
الرقم: ٢٦/ ٢٠٠٦

سعادة الأخ الكريم علي بن صالح الصالح المحترم
وزير شؤون البلديات والزراعة

السلام عليكم ورحمة الله وبركاته ،

بناءً على الأمر الملكي لحضرة سيدي صاحب الجلالة الملك حمد بن عيسى آل خليفة حفظه الله ورعااه .

وحيث أن لجنة التراث العالمي المنبثقة عن منظمة الأمم المتحدة للتربية والعلوم والثقافة (UNESCO) قد وافقت بقرارها رقم 29 COM 8B.26 على تسجيل موقع قلعة البحرين ضمن قائمة التراث العالمي باعتبارها موقع يمتاز بقيمة تاريخية مميزة ، وحيث أن البند الرابع من القرار المذكور أعلاه يشير إلى ضرورة الالتزام بعدم إجراء أي عمليات دفان أو إقامة منشآت في المنطقة المقابلة للقلعة وذلك حفاظاً على الممر البصري أمام القلعة ، كذلك عدم إقامة أي منشآت على الأراضي المدفونة حالياً والتي تحيط بموقع القلعة دون الرجوع إلى الجهات المعنية للتأكيد من عدم تأثير هذه الإنشاءات على التكامل البصري للقلعة مع المنطقة المحيطة بها .

نبحث لكم هذا الكتاب لإجراءاتكم حول إصدار الأنظمة والتشريعات اللازمة للحفاظ على المنطقة المحيطة بقلعة البحرين حسب إشتراطات منظمة اليونسكو لتسجيل الموقع ضمن قائمة التراث العالمي ، وتحديد ارتفاعات المباني المسموح بها في المنطقة المذكورة على أن لا تزيد عن ثلاثة طوابق ومن ثم بصوراً تصاعدياً في المناطق المجاورة ، والتنسيق في ذلك مع قطاع الثقافة والتراث الوطني .

هذا مالزوم ودمتم سالمين موفقين.

خالد بن أحمد آل خليفة
وزير الديوان الملكي

نسخة إلى : سعادة وزير الإعلام

ص.ب. ١٧٧٨٨ / ٥٥٥ - هاتف : ١٧١١١١١١ / ١٧١١١٣٣٣ - فاكس : ١٧١١٤٥٨٧ P.O. Box : 28788/565, Tel. : 17888886 / 17888333, Fax : 17884687

Figure 5: letter on the Royal Decree 26 of 2006 regarding the World Heritage Site Qal'at al-Bahrain

Translation of the letter presented in figure 5:

Author: Kingdom of Bahrain , Royal Court (signed by H.E. Shaikh Khaled bin Ahmad Al Khalifa, Minister of the Royal Court; addressed to: H.E. Ali bin Saleh al-Saleh, Minister of Agriculture and Municipalities Affairs; dated 2 Muharram 1427, i.e. February 1st 2006, decree no. 26/2006.

Excellency,

With reference to the Royal Decree issued by H.M. King Hamad bin Isa Al Khalifa. King of Bahrain, Recalling UNESCO's World Heritage Committee's Decision 29 COM 8B.26 concerning the inscription of Qal'at al-Bahrain Archaeological Site (Bahrain) on the World Heritage List on the basis of cultural criteria,

Taking note of Paragraph.4 of the above-mentioned adopted decision requesting that the State Party should "refrain from approving any land reclamation or construction in the sea anywhere in front of the site and that the new construction on existing reclaimed land should be checked up as to protect the visual integrity of the site and to maintain the principal sight lines of the area nominated ", and to refrain from any construction projects on existing reclaimed land surrounding Qal'at al-Bahrain archaeological site without prior approval of the authorities concerned, in order to make sure these construction plans do not affect sight lines of the site and the surrounding area.

We are pleased to send you this letter to take the necessary measures related to the new laws and regulations to be issued in order to preserve the area surrounding Qal'at al-Bahrain site as requested by UNESCO according to inscription of the site on World Heritage List. In addition, We be grateful if Your Honourable Ministry could determine the building heights in the above-mentioned area, providing that they do not exceed Three (3) Storey-building plan, and ultimately apply this to all the surrounding area buildings. Coordination with Culture and National Heritage Sector is necessary to carry out these schemes.

Please accept, Excellency, the assurances of my highest consideration.

6.3 Means of implementing protective measures

The protective buffer zone has been included into the National Planning legislation and the Municipal Zoning Plans of both, the Northern and Seef municipal districts. The area is highlighted as related to a UNESCO World Heritage Site and all building or development requests for the particular area received by the Ministry of Municipalities and Agriculture and forwarded to the Sector for Culture and National Heritage. 14 such requests were received in the course of 2004 for the previous buffer zone and a large majority of them related to the request for permission of residential construction in the village of Karranah adjacent to the site.

For the proposed buffer zone extension, which has already been declared a "no construction above water level zone" and the second core zone which is declared a no construction zone we do not expect any such requests or permissions.

6.4 Existing plans related to municipality and region in which property extension is located

The last version of the municipal zoning plans that is publicly available dates from 2002. Currently the Seef zoning is under revision, but regular coordination meetings with the authorities for Urban Planning in the Ministry of Municipalities ensure the appropriate integration of development regulations which benefit the future promotion of the World Heritage Property.

6.5 Property management plan or management system

According to the decision reached by the 31st Session of the World Heritage Committee in Christchurch New Zealand, the management and conservation plan for the complete World Heritage property of Qal'at al-Bahrain – the ancient harbour and capital of Dilmun is to be submitted to the Committee latest in February 2009 and to be examined with this extension request at the 33rd Session of the World Heritage Committee in 2009.

It did not appear advisable to the national authorities to present a separate management system which merely places emphasis on the sea tower and access channel structure at this point of time.

6.6 Source and levels of finance

The protection of the ancient sea channel and the sea tower will be addressed by the regular budgetary fund of the Ministry of Information, sector of Culture and National Heritage. For the financial biennium 2009/2010, and estimate of 300.000 USD are foreseen to facilitate the excavation of the entrance channel, the study and in situ conservation of the tower as well as the preparation of guidelines for future land reclamations adjacent to the extended buffer zone.

The current biennial budget for 2007/2008 includes a provision of roughly 30.000 USD for the invitation of an international team of underwater-archaeologist to survey the channel, bay and subtidal area north of the coral reef.

6.7 Source of expertise and training in conservation and management techniques

The professional expertise in under-water archaeology in Bahrain is extremely limited, especially when considering that the island is surrounded by archaeological underwater potential. Photographic surveys and measurements have so far been carried out with specialists for marine resources and underwater geology. However, an underwater-archaeology team shall soon be included to assist in the definition of management and preservation objectives.

The national authorities have contacted the ICOMOS International Scientific Committee on Underwater Cultural Heritage (ICUCH) to assist in the identification of an international team to carry out further underwater-archaeological surveys. As soon as a team has been identified further studies of the proposed extension will be conducted. At the same time the presence of the team shall be used to facilitate training courses and allow for participation of local archaeologists to increase the level of local expertise in this field.

6.8 Visitor facilities and statistics

The proposed property extension is not regularly visited. Consequently the number of visits has never been studied or formally summarized in statistics. As soon as the channel is made accessible, the number of boats accessing the site from the open sea will be counted as part of the larger visitor survey of the site.

6.9 Policies related to the preservation and promotion of the property extension

The foreseen excavation of the sea channel will be a main contribution to a future promotion of the property extension, in particular since awareness of the existence of the channel will rise with the opportunity to use it with smaller boats. As soon as boats will again be enabled to access the coast via this channel, they will pass by the ancient sea tower and relate to the historic tradition of access to the Northern Coast and the many successive cities at Qal'at al-Bahrain.

More detailed policies for the promotion and protection of all elements of the World Heritage Site Qal'at al-Bahrain – the ancient harbour and capital of Dilmun will be included in the documentation of the site management system, to be submitted to the World Heritage Committee in February 2009.

6.10 Staffing levels

Permanent staff will not be required to manage and preserve the proposed extensions. The maintenance of the sea channel (continuous removal of silt and sediment) will be provided by an environmental consultant on behalf of the Culture and National Heritage authorities.



Photo 10: Sea tower and its relation to the shore during high tide (photographer Karim Hendili)

7. Monitoring

7.1 Key indicators for measuring state of conservation

Monitoring of the sea tower and the ancient access channel emphasizes two main aspects, on the one hand the environmental quality of the setting, on the other hand the physical decay of the historic tower structure.

Environmental monitoring of the proposed second core zone will employ three sets of indicators, water quality, sediment quality and – dependant on the two first – bird breeding and visitation activity. Water quality measures and sediment analyses can be combined with hydrodynamic measures (evaluating potential speed increases) and shall be carried out at least semi-annually and in the event of special external influences (such as oil pollution, reclamation activity etc). These measures depend on standard data for the evaluation of water quality, i.e. temperature, salinity, dissolved oxygen, water depth, visibility and sediment accumulation and mixture, i.e. sediment type and sediment depth.

Bird watching activities are conducted by many environmental experts and bird specialists in Bahrain and it will merely be necessary to include the bay of Qal'at al-Bahrain into the regularly reviewed and monitored bird spots. Indicator species shall be the Common Cormorant (which visits places with considerable density of small fishes and good water quality and which is nowadays still a very frequent visitor to Qal'at al-Bahrain), Black headed Gulls and Slender-billed Gulls, two migratory species which visit the North Coast of Bahrain with high regularity and in large numbers. In addition to seabirds few waders species should be monitored, such as the Kentish plover and the Western Reef Heron, two residents present in adequate numbers for continuous study.

The sea tower, which will be documented in all detail during the forthcoming low spring tides, shall be measures on an annual basis to establish reliable data on the amount of annual erosion. Only if the statistics seems worrying after a five year monitoring period, additional protective measures to slow-down the erosion processes should be considered.

7.2 Administrative arrangements for monitoring property

The environmental monitoring will be ensured through a long-term consultancy contract with specialists for marine surveys. The marine habitat surveys done so far were prepared by Al-Reem Environmental Consultation and we will probably continue our excellent cooperation. The consultant will further supervise the excavation of sediment in the sea channel and use the sediment samples of different layers to analyse the changes in sediment compositions through the time of silt collection.

Archaeological documentation (including photographic documentation) and detailed measurement of the sea tower shall be conducted by the archaeologists of the Sector of Culture and National Heritage. Since the low spring tides create the best conditions for such survey as the largest possible

amount of stone substance remains outside the water, the documentation shall be annually repeated and photo documents shall be produced at the annual low tide minimum.

7.3 Results of previous reporting exercises

Despite a series of marine surveys of the coast to the North of Qal'at al-Bahrain and archaeological inspections of the tower, comparative data of successive exercises has not yet been gained or evaluated.

Since Qal'at al-Bahrain – the ancient harbour and capital of Dilmun was only inscribed on the World Heritage List in 2005 the site did not participate in the last Periodic Reporting Exercise of the Arab States and has no reference material from such standard monitoring activities.



Photo 11: Impressions from the monitoring exercise (photographer: Dr. Saeed Abdallah al-Khuzai)

8. Documentation

8.1 Photographic documentation of property extension

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(provided in digital form in the annex of the file)	

8.2 Texts relating to protective designation of the property extension

The initial core zone of the World Heritage Site Qal'at al-Bahrain is owned by the Ministry of Information and designated a national heritage site according to the "Law concerning the Protection of Antiquities" no. 11 of the year 1995. According to § 1 of this law it is under the sole authority of the Ministry of Information to decide what places constitute archaeological or historical value and to determine what their specific importance is. The sea tower has now also been designated an archaeological property and falls under the same specifications of this legal instrument. The above mentioned law gives some reference to the setting of archaeological sites:

"§ 7 When considering town or village planning projects, expanding or beautifying or distributing land plots for building purposes, archaeological places and features should be maintained in accordance with the decision taken by the authority concerned in this regard. (...)"

“§ 8 Building and restoration permits in places close to archaeological sites and historic buildings should not be issued before obtaining the approval of the authority concerned with archaeology to ensure the construction of modern buildings with the appropriate style to match the same archaeological character.” (Decree law no. 11 of 1995 concerning the protection of antiquities)

As yet heritage sites and archaeological findings remain absent in the law dealing with physical planning and the updating of zoning plans, which is of relevance to the buffer zone elements which were not declared archaeological sites. According to this law: “§ 28 The Directorate of Physical Planning shall undertake the periodical revision of its physical development plans(...) with the co-ordination of the authorities of jurisdiction taking into account the observance of economic, social, development situations and their future requirements.” (Resolution no 1 for 1994 of Implementation Regulation of the Decree Law No 2 for 1994 concerning the Physical Planning) The involvement of the heritage authorities has only been added in 2006 for the special case of the World Heritage Site Qal'at al-Bahrain by the issuing of the Royal decree no 26 quoted earlier in this document.

8.4 Address where inventory, records and archives are held

General archives:

Library and Archives, Sector of Culture and National Heritage, Ministry of Information, PO. Box 2199, Manama (Kingdom of Bahrain).

Archaeological Collections:

Directorate of Archaeology, The Bahrain National Museum, PO. Box 2199, Manama (Kingdom of Bahrain).

Gulf-Danish Archaeological Expedition, Prehistorical Museum, Moesgård, DK-8270 Højbjerg (Denmark).

French Archaeological Mission in Bahrain, CNRS - Maison de l'Orient et de la Méditerranée-Jean Pouilloux, 7 rue Raulin, F-69007 Lyon (France).

Legal archives:

Ministry of Information, Department of Legal Affairs, Official Gazette Archives, PO Box 253, Isa Town (Kingdom of Bahrain)

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9.3 Other local institutions

The overall authority for the site lies with the Sector of Culture and National Heritage. Questions of land ownership and zoning restrictions are addressed by the Directorate for Urban Planning:
Sector of Urban Planning Affairs
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9.4 Web address

<http://www.info.gov.bh/en/CultureNationalHeritage/>
<http://www.archaeologyconferencebh.com/index.php>

10. Signature on behalf of the State Party

Mai bint Muhammad al Khalifa

Head of the Delegation of the Kingdom of Bahrain to the World Heritage Committee

Qal'at al-Bahrain (Bahrain)

No 1192

1. BASIC DATA

<i>State Party:</i>	Bahrain
<i>Name of property:</i>	Qal'at al-Bahrain: Ancient Harbour and Capital of Dilmun
<i>Location:</i>	Northern Region
<i>Inscription:</i>	2005

Brief Description:

Qal'at al-Bahrain is a typical tell – an artificial mound created by many successive layers of human occupation. The strata of the 300 × 600 m tell testify to continuous human presence from about 2300 BC to the 16th century AD. About 25% of the site has been excavated, revealing structures of different types: residential, public, commercial, religious and military. They testify to the importance of the site, a trading port, over the centuries. On the top of the 12 m mound there is the impressive Portuguese fort, which gave the whole site its name, qal'a (fort). The site was the capital of the Dilmun, one of the most important ancient civilizations of the region. It contains the richest remains inventoried of this civilization, which was hitherto only known from written Sumerian references.

2. ISSUES RAISED

Background

At the time of inscription the World Heritage Committee, in recognition of the incompleteness of the management system especially with regard to the protection of setting and sea access, requested the State Party “to submit by 1st February 2006 complete management and conservation plans for the property; Also requests the State Party to refrain from approving any land reclamation or construction in the sea anywhere in front of the site and that the new construction on existing reclaimed land should be checked as to protect the visual integrity of the site and to maintain the principal sight lines of the area nominated;” (WHC-29-COM 8B.26).

The concerns of the Committee became relevant a few months later when proposals emerged to reclaim an artificial island of 600 hectares at 500m distance offshore of the property. The project, known as North Star, was accompanied by two further planned projects of a fishing harbour and a reclaimed highway. It was considered by an UNESCO World Heritage Centre mission (February 2006) and an UNESCO and ICOMOS mission (June 2006).

An extended protection zone consisting of a visual corridor of 7 kilometre distance and 1.8 kilometre width in front of Qal'at al-Bahrain was presented to the World Heritage Committee at its 30th Session in Vilnius, Lithuania. The Committee requested the State Party to formalize the status of the visual corridor by designating it as an extended buffer zone for the property.

During the same session, the Committee approved a name change for the property from Qal'at al-Bahrain Archaeological Site to Qal'at al-Bahrain – the ancient harbour and capital of Dilmun to better reflect its relation to the sea and its role as a port.

The Committee also requested that the sea elements of the site, that is an ancient light tower and a sea channel transgressing a coral reef should, as a reflection of their crucial importance, be included in the core zone of the property. (WHC-30-COM 7B.49)

Modification

The proposed modification is to enlarge the buffer zone to include the visual corridor front of Qal'at al-Bahrain and to include in the core zone a sea channel, partly natural and partly man-made, which was cut through the fossilized coral reef to allow ships to access the port, and a tower structure built on the western edge of the coral reef structure adjacent to the channel.

Since further under-water archaeological research is required to identify precisely the ancient harbour structures, the State Party proposes a separate core zone focused on the identified northern part of the channel. The channel, which was first revealed by aerial photographs of the 1980s, is between 15 and 90m wide and cuts through the rocky coral plate which parallels the Northern Coast up to 1.8 km off shore. The sea tower is built on the western edge of the coral reef, adjacent to the sea channel. The rectangular tower is constructed of two courses of large ashlar stones set directly on the uneven surface of the coral reef. It is assumed by most archaeologists that this structure had an indicative function for the sea channel that can be compared to the function of a light house. So far archaeological evidence has not provided firm dates for either the channel or the tower.

The sea channel and sea tower mark the access route from the sea towards the ancient harbour and capital of Dilmun. They provide essential elements for an understanding of the location and activities in the capital, which was predominantly based on economic gains from sea-trading activities, for which safe access was essential. The channel determined not only the location of the city but also the arrangement of its port and city wall as well as later defence structures.

The core zone of the initial nomination comprised 0.163 square kilometres or 16.3 hectares. The proposed second core zone covers an area of 0.157 square kilometres or 15.7 hectares. The proposed extended buffer zone, enclosing both core zones, extends to an area of 12.38 square kilometres or 1238 hectares.

Criteria

The State Party requested slight changes in the wording of the criteria at the time of inscription; ICOMOS considers that the agreed wording should be maintained.

Threats

The State Party acknowledges that the property 'will most certainly' be affected by land reclamation adjacent to the extended buffer zone which it is said 'will – in the long-term – be unavoidable'. Such future reclamations will in addition be connected via an outer ring road bridged or tunnelled through the visual corridor at minimum 3 km distance from the shore, i.e. 1 km distance from the Northern end of the sea channel and the sea tower.

At the 30th session of the Committee, the State Party was asked to consult the World Heritage Centre and ICOMOS on the design of this future project. (WHC-30-COM 7B.49)

Ownership

The sea property covering an initial 600m off shore is under ownership of the Ministry of Information. Beyond this and up to about 4km off shore is currently in the process of being transferred to the status of public property under the authority of the Ministry of Information. The sea outside the 4 km zone is not yet attributed to owners, but a Royal decree on protection of the visual corridor blocks prohibits future sale or distribution.

Protection

The sea tower has been designated a national heritage site. The second core zone has been declared a no construction zone. The proposed extended buffer zone is protected by Royal Decree 26 of 2006. This prohibits any land reclamation and restricts the building heights above 3 storeys on adjacent lands. In addition, all future development measures which may have negative affects on the property are to be coordinated with the authorities for culture and national heritage.

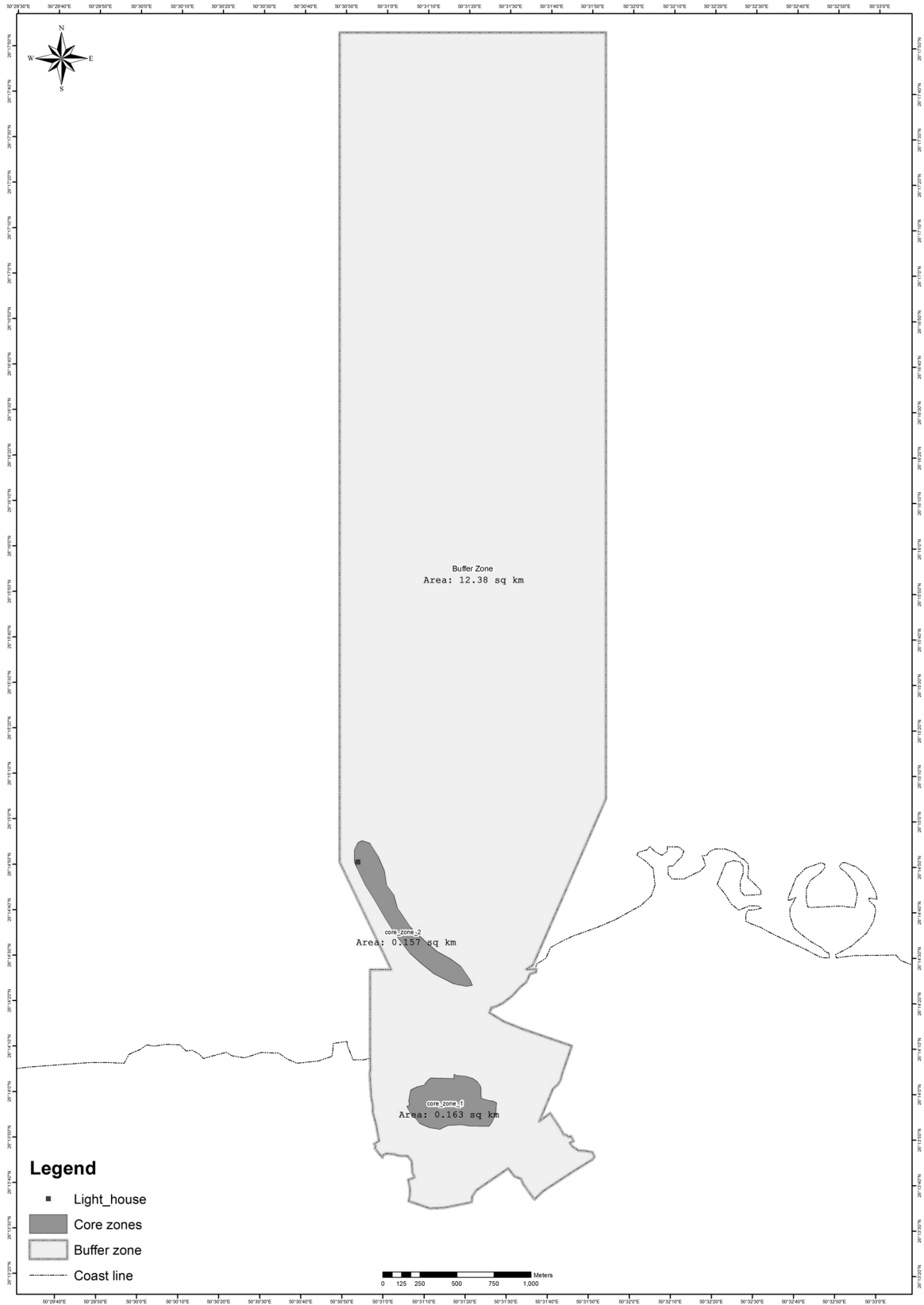
Management Plan

At its 31st Session Committee requested the management and conservation plan to be examined at the 33rd Session of the Committee in 2009.

3. ICOMOS RECOMMENDATIONS

ICOMOS recommends that the minor modification to the core zone, and the enlarged buffer zone, of Qal'at al-Bahrain: Ancient Harbour and Capital of Dilmun, Bahrain, be *approved*.

ICOMOS further recommends that if subsequently surveys by underwater archaeological teams reveal evidence to link the two core zones, the State Party should consider a further enlargement of the core zone.



Map showing the revised boundaries of the property

Qal'at al-Bahreïn (Bahreïn)

No 1192

1. IDENTIFICATION

<i>État partie :</i>	Bahreïn
<i>Nom du bien :</i>	Qal'at al-Bahreïn - ancien port et capitale de Dilmoun
<i>Lieu :</i>	Région du nord
<i>Inscription :</i>	2005
<i>Brève description :</i>	

Qalaat al-Bahreïn est un tell typique, c'est-à-dire une colline artificielle créée par plusieurs strates successives d'occupation humaine. La stratigraphie du tell de 300 m sur 600 atteste d'une présence humaine constante depuis environ 2300 av. J.-C. jusqu'au XVI^e siècle de notre ère. Près d'un quart du site a déjà fait l'objet de fouilles, qui ont révélé des structures de types divers : résidentiel, public, commercial, religieux et militaire. Elles témoignent de l'importance du lieu, un port marchand, à travers les siècles. Au sommet de la colline de 12 m de hauteur se trouve un impressionnant fort portugais qui a donné son nom à l'ensemble du site (qal'a signifie fort). Le site est l'ancienne capitale de Dilmun, l'une des plus importantes civilisations antiques de la région. Il contient les plus riches vestiges répertoriés de cette civilisation, dont on n'avait auparavant connaissance qu'à travers les écrits sumériens.

2. PROBLÈMES POSÉS

Antécédents

Au moment de l'inscription, le Comité du patrimoine mondial, reconnaissant le caractère incomplet du système de gestion, en particulier la protection de l'environnement et de l'accès par la mer, demandait à l'État partie « *de soumettre, avant le 1er février 2006, les plans de gestion et de conservation complets pour le bien ; demande également à l'État partie de s'abstenir d'approuver toute reconquête des terres sur la mer ou construction en mer le long du site et de contrôler toute nouvelle construction sur les terres déjà reconquises de manière à préserver l'intégrité visuelle du site et à maintenir les perspectives principales de la zone dont l'inscription est proposée ;* » (WHC-29-COM 8B.26).

Les inquiétudes du Comité se sont avérées pertinentes quelques mois plus tard lorsque se sont manifestées des demandes d'aménagement d'une île artificielle de 600 hectares à 500 m au large du bien. Le projet, baptisé North Star, était accompagné de deux autres projets d'un port de pêche et de la construction d'une route sur la mer. Ce projet a été étudié par une mission du Centre du patrimoine mondial de l'UNESCO (février 2006) et une

mission conjointe de l'UNESCO et de l'ICOMOS (juin 2006).

Une zone de protection étendue consistant en un couloir visuel de 7 kilomètres de long et 1,8 kilomètres de large en face de Qal'at al-Bahreïn a été présenté au Comité du patrimoine mondial à sa 30^e session à Vilnius, Lituanie. Le Comité demandait à l'État partie de formaliser le statut du couloir visuel en le désignant comme extension de la zone tampon du bien.

Au cours de la même session, le comité a approuvé le changement de nom du bien de Site archéologique de Qalaat al-Bahreïn à Qal'at al-Bahreïn – ancien port et capitale de Dilmoun afin de mieux refléter son rapport à la mer et son rôle de port.

Le Comité a également demandé que les éléments maritimes du site, c'est-à-dire un ancien phare et un chenal traversant la barrière de corail, soient inclus dans la zone principale du bien, pour refléter leur importance cruciale. (WHC-30-COM 7B.49)

Modification

La modification proposée consiste à agrandir la zone tampon pour inclure le corridor visuel en face de Qal'at al-Bahreïn et d'inclure dans la zone tampon un chenal maritime, en partie naturel et en partie fait de la main de l'homme, qui a été aménagé au travers de récifs de coraux fossilisés pour permettre aux navires d'accéder au port, et une tour construite à l'extrémité ouest de la structure en corail adjacente au chenal.

Comme des recherches archéologiques sous-marines sont requises pour identifier précisément les structures de l'ancien port, l'État partie propose une zone principale centrée sur la partie nord identifiée du chenal. Ce chenal, dont la présence a d'abord été décelée sur des photographies aériennes prises dans les années 1980, fait entre 15 et 90 m de large et traverse la barrière de corail qui longe la côte nord jusqu'à 1,8 km au large. La tour de mer est construite à l'extrémité ouest de la barrière de corail, jouxtant le chenal maritime. Cette tour rectangulaire est constituée de deux registres de grandes pierres de taille déposées à même la surface inégale de la barrière de corail. La plupart des archéologues s'accordent pour dire que cette structure avait une fonction de signalisation pour le chenal maritime comparable à la fonction d'un phare. Jusqu'à présent, les vestiges archéologiques n'ont pas livré de dates précises, ni pour le chenal ni pour la tour.

Le chenal et la tour marquent l'accès à l'ancien port et à la capitale de Dilmoun par la mer. Ils constituent des éléments essentiels pour la compréhension de la localisation et des activités de la capitale, qui étaient essentiellement basées sur le commerce maritime pour lequel un accès sûr était essentiel. Le chenal déterminait non seulement la localisation de la ville mais aussi les aménagements de son port et des murs de la ville ainsi que les structures défensives construites par la suite.

La zone principale de la proposition d'inscription d'origine comprenait une superficie de 0,163 km², soit 16,3 hectares. La seconde zone principale proposée couvre une superficie de 0,157 km², soit 15,7 hectares. La

zone tampon agrandie proposée englobe les deux zones principales sur une superficie de 12,38 km², soit 1238 hectares.

Critères

L'État partie demandait de légers changements dans l'énoncé des critères au moment de l'inscription ; L'ICOMOS considère que l'énoncé accepté devrait être conservé.

Menaces

L'État partie reconnaît que le bien « sera presque certainement » affecté par la récupération de terrains sur la mer, dans une zone adjacente à la zone tampon agrandie qui, dit-on, « sera – à long terme – inévitable ». Une telle conquête de terrain sera de plus reliée à une route périphérique construite sur pilotis ou en sous-sol dans le corridor visuel à une distance minimum de 3 km du rivage, soit une distance de 1 km de l'extrémité nord du chenal et de la tour de mer.

À sa 30e session le Comité a demandé à l'État partie de consulter le Centre du patrimoine mondial et l'ICOMOS à propos de la conception de ce futur projet. (WHC-30-COM 7B.49)

Droit de propriété

Le bien maritime couvrant à l'origine 600 m de mer est la propriété du ministère de l'Information. Au-delà et jusqu'à environ 4 km au large, la propriété de l'espace est actuellement en cours de transfert et passera sous l'autorité du ministère de l'Information en tant que bien public. Au-delà de la zone des 4 km, la mer n'est encore attribuée à aucun propriétaire, mais un Décret royal sur la protection du corridor visuel interdit toute future cession ou attribution.

Protection

La tour de mer a été classée site du patrimoine national. La deuxième zone principale a été déclarée zone inconstructible. La zone tampon élargie proposée est protégée par le Décret royal 26 de 2006. Ce statut interdit toute récupération de terrain sur la mer et limite la hauteur des bâtiments à trois niveaux sur les parcelles adjacentes. De plus, tout développement futur susceptible d'avoir des effets négatifs sur le bien doit être coordonné par les autorités chargées de la culture et du patrimoine national.

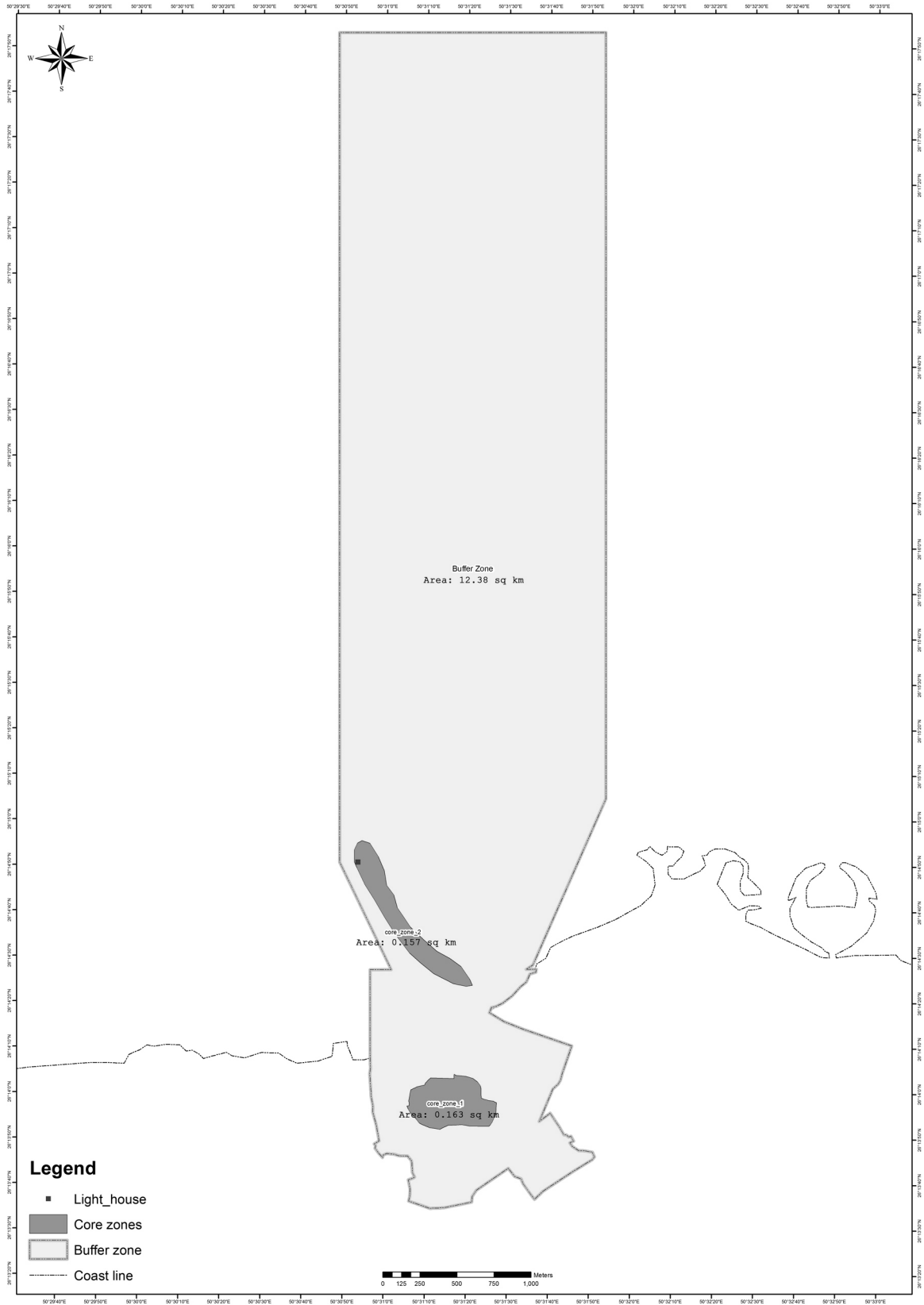
Plan de gestion

À sa 30e session le Comité a demandé que le plan de gestion et de conservation soit examiné à la 33e session du Comité en 2009.

3. RECOMMANDATIONS DE L'ICOMOS

L'ICOMOS recommande que la modification mineure de la zone principale et de la zone tampon de Qal'at al-Bahreïn - ancien port et capitale de Dilmoun, Bahreïn, soit **approuvée**.

L'ICOMOS recommande de plus que si les futures études entreprises par les équipes d'archéologie sous-marine révélaient des éléments reliant les deux zones principales, l'État partie envisage un agrandissement de la zone principale.



Plan indiquant les délimitations révisées du bien