

*Ghajn Tuffieha*

*Ghajn Tuffieha*  
*Management Plan*

# *Contents*

*1.0 Terms of Reference*

*2.0 Executive Summary*

*3.0 Site Description & Plan Summary*

*4.0 First Intervention Measures & Rights of Access*

*5.0 Wardens & Regulations*

*6.0 Photogrammetric Survey*

*7.0 Historical Buildings and Other Structures*

*8.0 Beaches & Footpaths*

*9.0 Conservation Profiles*

*10.0 Geology, Geomorphology & Hydrology Survey - May 1997*

*11.0 Ecological Survey - May 1997*

*12.0 Financial Overview and Budgeted Cash Flow*

*Appendices:*

*1. Ecological Survey - January 1995*

*2. Access points to protected zone and measures planned*

*3. Guidelines on trees, shrubs and plants for planting and landscaping in the Maltese islands - March 1997*

*4. Foot path map*

## ***1.0 Terms of Reference***

The Gaia Foundation entered into a contract with the Environment Protection Department on the 20th. August 1996 and by virtue of this contract The Gaia Foundation is to manage the area known as Ghajn Tuffieha. An essential part of the contract and the Foundation's obligations is the drawing up of a management plan for Ghajn Tuffieha. A site plan delineating the area to be covered by the management plan is attached in the Appendix. This is in accordance with Article 4, paragraph 4 and 5, which state:

*The Manager shall, during the first twelve months of the contract, also develop a detailed management plan for execution in the forthcoming years. The management plan has to be presented to the Director of the Environment Protection Department, for his approval, which shall not be unreasonably withheld, before any of its provisions are executed.*

*The management plan shall provide a detailed and quantified plan of all conservation and other works to be undertaken in the subsequent period of nine years. A time scale for the various interventions must also be prepared. Appropriate and sufficient bench marks shall be included and indicated against which future performance of the contract shall be gauged.*

The project was launched on the 10th. December 1996 by The Minister for the Environment and the Foundation's work started in earnest after this date, as the Foundation thought fit not to actively embark on this project before an official endorsement by the new Government.

As stated in Article 4, paragraph 3, of the contract, the Foundation has sought professional advice and commissioned the relevant reports upon which the management plan is based. The reports have been prepared by Malta University Services Limited which holds within its ranks the foremost Maltese experts in the realm of Ecology, Geology, Geomorphology and Hydrology.

The contract with the EPD only includes land *belonging to the Government of Malta*. It is therefore clear that the Foundation cannot implement protective measures on privately owned land or in fact actively manage such land, without the consent of the legal owners. Such private pockets of land exist within the area managed by the Foundation.

## **2.0 Executive Summary**

The Ghajn Tuffieha Project provides the first concrete manifestation of The Foundation's main objective, which is:

*To promote and implement means and ways through which human beings can meaningfully interact with their environment.*

The Foundation is dedicated to the protection and understanding of the environment. We are dwelling on these matters at this point as these words denote the intention and underlying thrust behind the Foundation's work. In these times when the degradation of the environment is a daily and alarming occurrence we need to implement protective measures with speed. Having implemented the protective measure we need to act with understanding and not rush in, just to appear to be doing something.

The intention of the Foundation is to protect and manage Ghajn Tuffieha as a habitat. This is the only sure way of also protecting the individual species. This is in accordance with environment protection policy in other countries. It is clear that habitats have a greater value than simply the sum of species which make them up.

Ghajn Tuffieha is unique not only because it is an area of ecological and scientific importance, with the presence of a number of endemic and threatened species, but also because it is the venue for thousands of visitors particularly during the summer months. The priority here is to protect the site and therefore human activity must be channelled and controlled without being unnecessarily inhibited.

As is often the case, the vast majority of visitors do not harm the site. In fact we expect that the measures to be taken, which will include the presence of Wardens, will be considered to be a very positive move. It is a very small minority which is in fact causing damage and degradation. The first intervention measures and regulations proposed in this management plan are designed to combat this threat.

The vision which the Foundation has for Ghajn Tuffieha is a place where one can enjoy the rugged beauty of a Maltese coastal region and bay. This is an experience which has been lost in the other sandy bays and which is highly appreciated by Maltese and tourists alike. Ghajn Tuffieha is probably one of the last remaining bays in the Maltese islands ( rivalled only by Ramla Il-Hamra in Gozo) which, because of its geomorphology, has remained relatively untainted by human intervention.

It is a venue for country walks and bathing. This provides an excellent opportunity for the general public to experience a location where persons can enjoy an outdoor activity in full respect for the environment and also learn about the natural heritage which surrounds them.

The Foundation has in the past months been primarily engaged in the establishing contact, developing ideas and planning the work to be done with organisations and persons which are considered the main players in this project. These include:

- ◆ The National Tourist Organisation re:- Tourist information centre.
- ◆ Mgarr Local Council re:- Beach cleaning
- ◆ Golden Sands Co. Ltd. re:- Riviera Martinique hotel and beach bar.
- ◆ Planning Authority re:- first intervention measures, regulations and enforcement order for illegal structure
- ◆ Department of Agriculture re:- setting up of nursery and provision of flora

An efficient organisational structure and logistical support is important for the successful completion of this task. The Foundation has therefore appointed a Project Manager for Ghajn Tuffieha and has set up a base office at Xemxija, until such time as the restoration of the historical buildings on site will enable these to be used as a base for site activity.

Wardens have also been employed and uniforms organised. This service, which is described at greater length in another section has commenced in July of this year. Considerable effort has also been exerted in planning and organising fund raising initiatives and activities to supplement the Government grant towards the implementation of this project. These include a subscription campaign as well as the selling of selected items on site.

The management plan which follows is a comprehensive document which tackles the project from as many angles as possible. The reason for this is twofold. Firstly only a holistic approach could hope to provide a solution for a site such as Ghajn Tuffieha with such a variety of factors effecting its environment. Secondly we hope that this plan and its follow up will serve as a guide for the protection of similar sites in the Maltese islands.

It must also be noted that a management plan is a live document which evolves and gains in content as more experience and work is done on the site. Therefore this current plan, although providing a basic framework, is subject to amendments and enhancements as we become more knowledgeable about Ghajn Tuffieha.

### ***3.0 Site Description & Plan Summary***

#### ***3.1 Site Description***

The area covered by this management plan is located in the Northwest of Malta along the coast and is defined by the southern flank of Ir-Ramla tal-Mixquqa (Golden bay) in the north, Il-Bajja tal-Gnejna in the south and encroaches inland to the east on localities known as Ix-Xahra Tat-Torri and Tal-Lippija in the south, Il-Hotba Il-Bajda, It-Tafal and Ghajn Tuffieha in the middle and a Headland between Ir-Ramla Tal-Mixquqa and Ir-Ramla Ta' Ghajn Tuffieha in the north. This Headland shall be referred to as the Golden Bay Headland. The total superficial area of the site is 0.8 square km. Detailed site plans are included in the Geomorphologic survey attached.

The elevations vary between sea level to 100 metres at Il-Lippija. The site includes historical buildings, ex-army buildings, illegal structures, a derelict hotel and an unused sewage treatment plant. Parts of the Golden Bay Headland and Hotba Il-Bajda are cultivated.

The area can be reached via the road network from Mgarr, Zebbieh, Manikata and San Martin and the road along the Pwales Valley links it to a major road artery at St. Paul's Bay.

#### ***3.2 Plan Summary***

The main objectives which the Foundation is set to achieve by the development of this plan are various and these are:

- ◆ Environmental protection
- ◆ Understanding the Ecological balance
- ◆ Restoration of the site
- ◆ Enjoyment of the site for walking and bathing by general public
- ◆ Educational
- ◆ A model and a show piece for similar projects

### **3.2.1 First Intervention Measures and Rights of Access**

There are measures that need to be implemented with speed in order to stop the degradation. The feature which is definitely most at risk is the blue clay slopes. This unique geological formation must be protected at all costs, as it has no parallel in the Maltese islands. The measures which the Foundation is proposing to implement within the next two months are designed to restrict access mainly to the clay slopes. This is aimed at off roaders such as motor cycles, four wheel drives and mountain bikes.

The area governed by the management plan is government land, part of which is agricultural while other parts are the subject of leases. One parcel of private land lies in the Northern part of the area and includes the site of the derelict hotel and the slope leading to the beach bar location. The other large parcel lies to the South and includes the whole of Ix-Xaghra Tat-Torri Step. Agricultural land is located at the back of Il-Hotba il-Bajda, at the Golden Bay Headland and at Ta' Lippija and Il-Lippija at Ix-Xaghra Tat-Torri. The actual interventions and restoration work can only be carried out on Government land, however the Foundation will seek the co-operation of tenants and private land owners in order to protect the land in question which is after all Scheduled Property.

### **3.2.2 Wardens and Regulations**

Uniformed Wardens will patrol the site and their work will involve them in educational and regulation guidance duties as well as site maintenance. The Wardens will afford a minimum 7 hour daily coverage during the summer months and a six hour coverage during the rest of the year. The regulations which are recommended by the Foundation are the definitive answer to the protection of Ghajn Tuffieha. The human activities which are to be encouraged and which are what the vast majority of people enjoy, centre around bathing and walking. The proposed regulations aim at enhancing these activities and adding to them a new dimension, that of appreciation of the environment in all its aspects.

### **3.2.3 Photographic Survey**

All journeys start with a clear knowledge of the present position and our journey at Ghajn Tuffieha is no exception. In order to have a permanent record of the current status the Foundation has commissioned a photogrammetric survey of the land and the Ghajn Tuffieha Tower. Il-Hotba Il-Bajda and the Golden Bay Headland could not be photographed effectively as a perspective which was elevated enough was not available.

However the Foundation has obtained two aerial photographs of Ghajn Tuffieha which have been blown up and which would provide a suitable record of the ecological and geological state of the site. These photogrammetric surveys are to be undertaken at intervals to monitor progress and alterations to the ecology and to the geomorphologic structures.

### **3.2.4 Historical Buildings and Other Structures**

The historical buildings on site include It-Torri tal-Lippija and It-Torri ta' Ghajn Tuffieha as well as two abandoned small military structures at Il-Hotba Il-Bajda. It is planned that these buildings be restored for educational and site interpretation purposes. There is also an army pill box at the top of the clay hill to the north and another next to It-Torri ta' Ghajn Tuffieha on the cliff edge. The latter is surrounded by an illegal structure on which there is an enforcement order by the Planning Authority which is pending before appeal. There is a farmhouse located at the east end of Ix-Xaghra Tat-Torri. The largest and most intrusive structure on site is the derelict hotel on the cliff edge on the northern flank of the main bay, which is not only an eyesore but is also extremely dangerous and is an accident waiting to happen. The Planning Authority must act energetically on this matter.

### **3.2.5 Beaches and Footpaths**

Human activity on the site is mainly centred, and in the future will solely be centred, around the beaches and footpaths. These are focal points for visitors and are the points at which people interact with the Ghajn Tuffieha environment. The beaches are to be kept clean and as far as possible protected from the advancing and sliding clay slope.

There are three sandy beaches in the area, one major and two smaller ones. One of the smaller ones lies on the inner southern side of the main bay and the other below the steep promontory joining Il-Karraba to the mainland, on the Gnejna side. Posidonia Banquettes should be allowed to develop on the latter, so that the communities which they maintain can be studied. The wave cut terrace formed by the Upper Globigerina Member and the Blue Clay Formation is also very popular with the more adventurous bathers. This is located to the east of the small sandy beach on the Gnejna side.

Footpaths are to be rationalised using three criterion. The first criteria is



establishing the older ones. The second criterion is noting which footpaths present today offer the path of least resistance to walkers, and finally observing the flow of human activity to note the most popular ones. In the case of Ghajn Tuffieha, these three approaches result in the identification of the same footpaths and these are the ones which the foundation will establish.

### **3.2.6 Education**

The educational aspect of this project is one of the most important as only in education, and therefore eventual understanding of the priceless value of unique habitats such as Ghajn Tuffieha, lies the guarantee of their ultimate protection. This objective will be reached in two ways. The first is the messages and explanations which will be spread by the Wardens to the thousands of people they will come in contact with and secondly school visits and the eventual establishment of a Nature Trail. These activities will be supported by the use of the restored buildings.

### **3.2.7 Geology and Geomorphology**

The diversity of the Geomorphologic features in the area is striking, with ridges, slopes, undercliffs, bays, a wave cut terrace, a promontory connected to the mainland by a sharp isthmus, soils and valleys present in the area covered by the plan. The area is crossed by four fault lines: The Ghajn Tuffieha-St. Paul's Bay Fault, Ras Il-Gebel Fault, Il-Qarraba Fault and Tal-Lippija-Wardija Fault. The main geological features are defined by these faults, which are East-West trending faults.

Four of the five geological formations of the Maltese islands are present at Ghajn Tuffieha. These are from top to bottom, in stratification terms: Upper Coralline Limestone, Green Sand, Blue Clay, and Globigerina Limestone. The latter is the formation present at sea level.

The area includes 9 Sites of Scientific Importance (SSIs) which satisfy one of the conditions of Structure Plan Policy RCO 11 and are of significance for their geological and geomorphologic features. This subject is treated in detail in the attached survey which forms an integral part of this document.

The Foundation's efforts shall centre at preserving the integrity of the site and ensuring that the only works carried out shall be those deemed necessary for its

conservation and not exploitation. The only work envisaged in the area, apart from afforestation, is some minor clay movements on the slopes in order to rehabilitate footpaths and water courses. Otherwise control of the access points to the site should be sufficient to avoid degradation.

The site can best be described as being active, in geological terms, with landslides occurring naturally and as part of the natural process which the area has been undergoing for thousands of years. We need to ensure, not particularly that we stunt or impede this process, but that human activity does not accelerate it. We should also monitor the site closely in this respect so as to be in a position to forecast potential land slides.

### **3.2.8 Hydrology**

There are two surface conditions which mark the hydrology of Ghajn Tuffieha. The first is permeability of the karst landform of the Upper Coralline Limestone which results in high absorption and underground water movements and the second is the impervious steep slopes of Blue Clay. In the latter case the hydrology is characterised by surface flow of water which is particularly dependent on the temporal distribution of rainfall.

There are three perched aquifers in the area, one major and two minor ones. The largest is located at Ix-Xaghra Tat-Torri and the others are located at Il-Qarraba and the Golden Bay Headland. The Xaghra Tat-Torri aquifer is the source of the four main gravity water springs in the area, two on the north flank and two on the west flank.

The Foundation will ensure that the water is not contaminated before it reaches the Aquifers. This of course is within the capabilities of the Foundation when it relates to Government land. With regard to private land, such as in the case of the Aquifer at Ix-Xaghra Tat-Torri, the Foundation will have to act in liaison with the land owners. The Foundation has identified, through the surveys carried out, the presence and location of aquifers, water courses and springs and will ensure that this valuable resource is protected and allowed to flow and rest and sustain the eco-system of Ghajn Tuffieha.

### **3.2.9 Ecology**

The area covered by the plan has, at the request of the Foundation, been parcelled into 9 sectors ( A to I ), defined by the ecologically diverse

landscapes, which broadly speaking follow the SSIs mentioned under the Geomorphologic survey. The Ecological landscape of Ghajn Tuffieha includes:

Agricultural land	Abandoned Terraced Fields	Garigue
Disturbed Steppe	Boulder Scree	Clay Steppe
Oleander Plantation	Degraded Area	Sandy Beach
Clay Talus	Posidonia Banquettes	

The Clay Steppe is further subdivided into:-

- Esparto Grass/Asphodel Clay Steppe
- Asphodel Clay Steppe
- Esparto Grass Clay Steppe
- Esparto Grass/Thistle Clay Steppe
- Tamarisk/Sea Sapphire/Esparto Grass Clay Slopes
- Tamarisk/Acacia/Esparto Grass Clay Slopes

The nine sectors have also been analysed by the Ecological landscape described above. This approach has greatly facilitated the formulating of conservation profiles per sector. There is no doubt that the landscape which is the most valuable, and in fact holds the status of both a site of Scientific Importance (SSI) and that of an Area of Ecological Importance (AEI) is the Clay Steppe and Slope. This is where the challenge is the greatest and were where the Foundation will concentrate most of its efforts.

The Foundation's nursery is the medium via which the trees and other vegetation will find their way to be planted at Ghajn Tuffieha. The nursery so far includes Tamarisk Africana (Bruka), Peanus Halepensis (Znuber) and Quercus Halipex (Ballut).

### **3.2.10 Rubble Walls**

There are a number of rubble walls present on site, the most prominent of which is the one along the main road bordering Israel Grove at Il-Hotba Il-Bajda. Restoration will be carried out on these across the site. We are exploring the possibility of using *box gabions* for this purpose. The Agriculture Department will also be using these at Chadwick Lakes. Rubble walls may also be used for terracing on the clay slopes and to provide shelter for saplings elsewhere.

#### **4.0 First Intervention Measures and Rights of Access**

The first intervention measures are designed to control the access points to the site. The persons and vehicles having access to the site today can be split between those which have access to undertake traditional activities which do not harm the eco-system of the area and those which have actively contributed to bring the area to the state of degradation it is in today.

**A.** Persons and vehicles having access to undertake traditional activities which do not harm the eco-system of the area:

- ◆ Farmers
- ◆ Maintenance of site
- ◆ Bathers & Trekkers
- ◆ Horse riding - in certain areas
- ◆ Ambulance & Fire Brigade
- ◆ Beach cleaning - removal of Waste & Posedonia Banquettes

**B.** Persons and vehicles having access to undertake activities which have actively contributed to bring the area to a state of degradation:

- ◆ Motorcycles - off roading
- ◆ Mountain Bikes
- ◆ Four wheel drive vehicles - off roading
- ◆ Supply trucks for beach bar or private functions
- ◆ Bathers driving down the clay slopes

#### **4.1 Access Points**

The most serious damage to the ecology and geomorphology of Ghajn Tuffieha is being caused by vehicles listed under section B above having access to the site from various points. These points are illustrated in the attached appendix and have been identified as:

Access from car park to clay slopes, marked A on map

Access from car park to area around It-Torri ta' Ghajn Tuffieha, marked C on map

Access from track which gives on to the main road on the east side of Israel Grove, marked B on the map

Access on to the Ghajn Tuffieha headland at the north tip of the protected area next to the unused sewage treatment plant, marked D on the map

## ***4.2 Access Control***

The access has been inhibited by the installation of padlocked bollards joined by chains recently installed by the Foundation. This is a temporary measure in some cases and the plan is to replace some of the bollards with rubble walls, boulders and gates.

### **4.2.1 Access point A:- From car park to clay slope**

The access is today controlled by the presence of a padlocked metal barrier and bollards. It is planned to replace the barrier and extend the rubble wall bordering the road and enclosing Israel Grove. The rubble wall will follow the design of the existing rubble wall and will be perforated at intervals to allow pedestrian access. The low rubble wall will be interrupted by a low gate in order to give access for utilities.

### **4.2.2 Access point B:- From main road to track east of Israel Grove**

Some flexibility needs to be retained at this point of access only to allow farmers to reach their fields. Farmers, having entered the area through this point use a subsidiary track and beyond the fork to the subsidiary track the main track will be reduced to a footpath by the planting of vegetation and selective placing of boulders. The bollards at the access point on to the main road will be retained and a copy of the keys given to the farmers concerned.

### **4.2.3 Access point C:- From car park to Tower area**

Most of the bollards will be replaced by a low rubble wall which will be perforated at intervals to allow pedestrian and wheelchair access. This point is also an entry point for farmers and therefore a few bollards and chains will be retained to allow access to the farmer in question.

### **4.2.4 Access point D:- From main road, next to disused sewage plant, to Golden Bay headland**

The Golden Bay headland needs to be accessed by trekkers & farmers and horse riders. At the point of access from the main road the bollards and chains will be retained however further into the protected zone the wide tracks will be reduced to footpaths by the selective placing of boulders and small rubble walls. These will also act as wind breakers and will encourage the growth of vegetation in this wind swept part of the protected zone.

### **4.3 Property Rights**

Research has been carried out at the Lands Department in order to identify the persons enjoying rights over the Government land subject to the contract entered into between the Foundation and the Environment Protection Department, which is the subject of this Management Plan. The names and addresses are known to the Foundation, however it was not thought fit to divulge them here.

The results are:

<b>Land or Building</b>	<b>Tenant</b>	<b>Address</b>
Riviera Martinique Hotel and Bar and land in between	Tenant 1	Address 1
Pillbox at the centre of the illegal structure next to Ghajn tuffieha Tower	Tenant 2	Address 2
Bunker - small rectangular room at Il-Hotba Il-Bajda	Tenant 3	Address 3
Elevated platform adjacent to Bunker - at Il-Hotba Il-Bajda	Tenant 4	Address 4

<b>Agricultural Leases</b>	<b>Tenant</b>	<b>Address</b>
Room on main Road	Tenant 5	Address 5
Area between derelict hotel and beach bar	Tenant 6	Address 6
Fields between Car Park and Apple's Eye Bar	Tenant 7	Address 7
	Tenant 8	Address 8
	Tenant 9	Address 9

## ***5.0 Wardens and Regulations***

The employment of Wardens and the establishment of site regulations are crucial for the success of the management plan. There is no way the Foundation can be successful in its endeavour if site regulations are not issued by the Planning Authority.

The presence of Wardens is then essential to enforce the regulations with the backup of the government law enforcement agencies.

### **5.1 Wardens**

The Foundation has employed 5 part time Wardens to perform various tasks at Ghajn Tuffieha. The wardens will be present on site at the following times:

Summer: 1st July to 30th September - 1:00 pm to 8:00 pm

Winter: 1st October to 30th June - 10:00 am to 4:00 pm

The Wardens shall wear a uniform in summer which consists of a cap, shorts, a polo shirt and joggers. The polo shirt and cap carry the Foundation logo. The winter uniform consists of a cap, jeans, sweat shirt, an anorak and joggers. The cap, sweat shirt and anorak carry the Foundation logo.

The Wardens are to attend first aid, rescue and life saving courses as well as environment related courses.

The tasks to be carried out during the shift are:

- ◆ Patrol the entire site 4 times a day to enforce regulations
- ◆ Act as a liaison with farmers re access to the cultivated land
- ◆ Guide the flow of human activity along footpaths and away from sensitive areas
- ◆ Act as a medium of education to the general public about the effort being carried out at Ghajn Tuffieha and on environmental matters generally.
- ◆ Fund raising activities
- ◆ Control access into the bay by motorised boats
- ◆ Assist in the restoration and clean up activities

## **5.2 Site Regulations**

The Foundation is recommending detailed site regulations which stem from its interpretation of the Structure Plan Policy RCO 12. Clause 9.3 in the section on conservation profiles adequately divides the protected zone between levels 1 to 4.

### **5.2.1 Structure Plan Policy RCO 12**

RCO 12 states that in local plans, the Planning Authority will give protection ratings to Areas of Ecological Importance (AEI) and Sites of Scientific Importance (SSI) as follows:

Under this policy there is a general presumption against the following:

- ◆ development
- ◆ activities likely to be a fire risk
- ◆ noxious emissions nearby AEI and SSI

Also

- ◆ intrusive elements should be removed
- ◆ buffer zones should be included to further protection

RCO 12 provides for 4 levels of protection and the following is a brief explanation of each and the recommended regulations for the areas falling under each level.

### **5.2.2 LEVEL 1**

Zones will include important habitat types present only in small areas and/or sites with unique species and features.

- ◆ Human intervention kept to barest minimum
- ◆ No physical development
- ◆ All efforts made to protect the identified features of scientific interest
- ◆ Management by the competent government agency in an appropriate manner

Regulations:-

- No unauthorised access to motorised or other vehicles and bicycles
- No camping



- No removal or introduction of sand, pebbles, stones and clay
- No removal, destruction or introduction of any species of flora and land based fauna
- No development or landscaping
- Any sporting, leisure or group activity to be carried out in the area to be first approved by the Manager, The Gaia Foundation. This does not include the sandy beaches.
- Group activities on the sandy beaches of more than 30 persons require the permission of the Foundation to ensure that regulations are complied with.
- No littering or dumping
- No barbecues except on the beach and as per the Foundation's rules or other fires
- Passage through the managed area is to be via official footpaths only.
- No Picnics, except on beach.

### 5.2.3 LEVEL 2

Zones will include important habitat types present in relatively large areas and/or sites with rare species or features.

- ◆ Human intervention strictly controlled
- ◆ Physical development restricted to maintenance of existing structures.  
Development of minor amenities for recreational and educational use of area, such as footpaths and nature trails.
- ◆ Traditional activities such as agriculture can continue

Regulations:-

- No unauthorised access to motorised or other vehicles and bicycles (except in certain areas for the latter)
- No camping
- No removal or introduction of sand, pebbles, stones and clay
- No removal, destruction or introduction of any species of flora and land based fauna
- No development or landscaping
- Any sporting, leisure or group activity to be carried out in the area to be first approved by the managers, The Gaia Foundation .
- No littering or dumping
- No barbecues or other fires
- Passage through the managed area is to be via official footpaths only.
- No Picnics

#### 5.2.4 LEVEL 3

Zones will include areas where control is necessary to preserve habitats/species/features in adjacent sites.

- ◆ No residential, industrial, commercial or tourism development
- ◆ No infrastructure or public utility works
- ◆ Small scale physical development following EIA, provided adjacent AEI and SSI are protected

Regulations:-

- No unauthorised access to motorised or other vehicles and bicycles
- No camping
- No removal or introduction of sand, pebbles, stones and clay
- No removal, destruction or introduction of any species of flora and land based fauna
- No development or landscaping
- Any sporting, leisure or group activity to be carried out in the area to be first approved by the managers, The Gaia Foundation.
- No littering or dumping
- No barbecues or other fires
- Passage through the managed area is to be via official footpaths only

#### 5.2.5 LEVEL 4

Zones will include habitats and/or features of generic interest

- ◆ Small to medium physical development may be considered provided there is no suitable alternative and AEI and SSI are protected
- ◆ A suitable EIA is undertaken

Regulations:-

- No unauthorised access to motorised or other vehicles and bicycles
- No camping
- No removal or introduction of sand, pebbles, stones and clay
- No removal, destruction or introduction of any species of flora and land based fauna
- Any sporting, leisure or group activity to be carried out in the area to be first approved by the managers, The Gaia Foundation .
- No littering or dumping

- No barbecues or other fires
- Passage through the managed area is to be via official footpaths only

### *6.0 Photogrammetric Survey*

The Foundation commissioned Working Light Ltd. to conduct a photographic survey of the site. The objective was to capture a snap shot of the site which could in later years be compared to future surveys. In this way conclusions could be drawn on matters such as the extent to which the area is covered by vegetation and broadly speaking of which type and also geomorphologic movements could be detected, which would not otherwise be apparent.

High resolution photographs were taken of It-Torri Ta' Ghajn Tuffieha, also known as It-Torri Ta' Ghajn Miskuka and of the site generally. The set of photographs includes:

- The East wall of the Tower and annex
- The North wall of the Tower
- The South wall of the Tower and annex
- The West wall of the Tower and annex

The West and South walls show the cracks developing on the Tower as a result of geological movements at the cliff edge. The age of the annex and its relationship to the Tower need to be ascertained in order to establish a restoration policy. The photographs will also be an invaluable aid in the restoration effort on the Tower. The Foundation is actively looking for a sponsor for the restoration work and would plan to use the Tower in support of the Wardens' work, whilst enhancing it as a tourist attraction.

- The North face of Il-Qarraba
- The clay slopes above the main bay
- The South face of the undercliffs of the Golden Bay headland and clay slopes
- The South face of the isthmus joining the Qarraba to the mainland
- The West facing clay slopes below Ix-Xaghra Tal-Lippija and the wave cut terrace
- The South face of Il-Qarraba
- The South facing clay slopes West and East of the wave cut terrace

There are two main landscapes which were not included in the survey through lack of appropriate vantage points. These are the Golden Bay Headland and Il-Hotba Il-Bajda. The Foundation has enlarged two aerial photographs obtained

from the Planning Authority to cover these areas, until such time as more adequate aerial photos can be organised.

## **7.0 Historical Buildings and Other Structures**

There are a number of buildings on site ranging from illegal structures to priceless historical buildings. We have taken note of these buildings and are outlining here under the Foundation's recommendations in this respect.

### **7.1 Historical buildings**

The historical buildings are:

- It-Torri ta' Ghajn Tuffieha
- It-Torri Tal-Lippija
- Rectangular room at Il-Hotba Il-Bajda
- Military structure which housed a mobile radar unit at Il-Hotba Il-Bajda

Of the two Towers, the one at Ghajn Tuffieha is the one which mostly needs repair. The photogrammetric survey carried out in April of this year highlights the urgency of the work to be carried out. The Tower at Tal-Lippija is locked up and in a better condition. The greatest threat to the Towers is the receding cliff edge. The Foundation will commission a study to establish the time scales involved in the erosion of the cliff edge at these locations and action will be taken based on the results of this study. Once the Towers are restored the Foundation would plan to use them to support the Wardens' activity. The use of the Towers in this way will contribute to retain their original use and character as Watch Towers. This is subject to obtaining title from the Lands Department.

The rooms at Il-Hotba Il-Bajda were used by the British Army and are now in a derelict state. The Foundation plans to propose the restoration of these rooms for two purposes. The rectangular room would be used as an interpretation centre. This room is located along one of the most popular foot paths on the site and also at a vantage point with a scenic view. Information will be available at this location, also in the form of a leaflet, with regard to the flora and fauna present on the site as well as the geomorphologic and hydrological features.

The ex-radar base would be converted to a multi-purpose hall to be used for educational activities. These activities would be aimed at schools and other educational establishments and visitors. The hall would be used for exhibitions and also as a class room where students would gather to learn about the site in particular and the environment in general.

Plans will be prepared and submitted to the Lands Department & the Planning Authority.

## **7.2 Other Structures**

The other structures present on site are:           The Riviera Martinique Hotel  
Room giving on to main road  
Old sewage treatment plant

The Riviera Martinique hotel is a dangerous and derelict structure and an eyesore on the skyline. The South facing retaining walls of this building have collapsed littering the clay slopes with debris. The land which stretches from the hotel in the car park to the bar on the North side of the main bay is held on lease. The Foundation has held a number of meetings with the owner, Mr. Neville Fenech, on the subject of a possible solution to the impasse.

It is proposed that the Lands Department be approached to consider granting lessees a plot of land in the Golden Bay Headland bordering on to the main road on the East and the car park on the South. The title would be given in full exchange for the land presently leased, described in the preceding paragraph. If the PA decides to grant a permit for the hotel covering the same footprint in the area, the Foundation considers that the said proposal would be the least environmentally damaging after considering the conservation nature of the site around the present hotel footprint. It would mean that the old hotel would be demolished and removed from site with the resulting environmental and safety benefits. The Foundation's position on the new structure is that it is not exceed the foot print of the old hotel and that its elevation would not exceed 14 courses from the road.

The room giving on to the main road is around 100 metres down the road from the car park, before the fork to Il-Bajja Tal-Mixquqa. The room is occupied by a person, other than the registered tenant, to store equipment used at a beach concession at Golden Bay.

The old sewage treatment plant at the North tip of the protected zone is not operational and consists of plant rooms and a reservoir. The Foundation plans to restore the reservoir. The reservoir lies along a water course and as a result it would collect water easily during the winter season. It could also be a collection point for bowsers during the dry season and would help the irrigation process tremendously.

## **7.3 Illegal Structures**

An illegal structure exists near It-Torri Ta' Ghajn Tuffieha. A pill box has been extended and surrounded by a high enclosing wall. This structure is an eyesore on the cliff edge on the North flank of Ghajn Tuffieha Bay and is illegal. An enforcement order is pending before the appeals board.

### **8.0 Beaches and Footpaths**

The flow of human activity at Ghajn Tuffieha is centred along the foot paths and on the beaches. The main bay takes the lion's share of the traffic. The smaller bay on the north side of Il-Qarraba is not as accessible and in any case can take only 20 to 30 persons. The other small bay on the South face of the Clay Isthmus is accessible by boat or via a tortuous footpath, as is the wave cut terrace on the same side further towards Gnejna Bay.

The area is today crossed by foot paths in such a way as to completely inhibit the existence of any habitat or eco-system of any value. The channelling of human activity along fewer footpaths is one of the more important tasks to be carried out on this project. The foot paths which will be kept will be restored in such a way as to be more interesting to walk along because of the different species of flora which could be observed along the way and also because of the vantage points from which the scenic beauty of the place can be enjoyed. The foot paths which have been identified as the ones which will be retained are the following.

These have been chosen on the basis of popularity and age, the assumption here being that the older ones are the ones which have the greater functional value. They are also the ones which follow the contours of the landscape.

- ◆from the old sewage treatment plant along the Rdum by It-Torri Ta' Ghajn Tuffieha and ends in the car park - *FOOT PATH A*
- ◆from the car park down the clay slopes, along the road which now exists, down to the main bay - *FOOT PATH B*
- ◆half way down Foot Path B, where the slope levels off for a while, there is a fork to the left as one walks down. This path follows the contour to the Clay Isthmus. This path joins up with a shorter one going down to the beach at the far South side - *FOOT PATH C*
- ◆a circular Foot Path around Il-Qarraba, starting off and ending at the Clay Isthmus - *FOOT PATH D*
- ◆from the car park up to Il-Hotba Il-Bajda, next to the old army buildings, and back down towards the rear of Il-Hotba Il-Bajda to join a track which starts from the main road and leads to the small depression between the outcrop of Il-Hotba and the Tal-Lippija Xaghra - *FOOT PATH E*
- ◆from the point where Foot Path E ends, up to Ix-Xaghra Tal-Lippija and along the Rdum, past It-Torri Tal-Lippija. The path then carries on to Ix-Xaghra Ta' Ghar Is-Sienja and down to It-Tafal. From It-Tafal it proceeds to the area known as Ghajn Tuffieha behind Il-Hotba il-Bajda and along a track to the main road leading to Mgarr - *FOOT PATH F*

## **8.1 Beaches**

Although the Foundation's brief is an environmental one the Foundation feels that beach management is such an integral part of the project that it is essential that some attention is given to this aspect. The areas to be covered here are:

- ◆ establishing an approximate beach population capacity which the beaches and the site can maintain.
- ◆ ensure that the beach cleaners contracted by the Mgarr Local Council do their work at Ghajn Tuffieha.
- ◆ an efficient waste management system. The Foundation has introduced adequate waste disposal bins on the beach, with waste separated at source and exported for recycling..
- ◆ follow up with Planning Authority the progress with the permit and works on the new beach bar building. This appears to be running into serious problems as the time scales, agreed to with the developer, have all been exceeded.
- ◆ ensure that the beach bar concession does not monopolise parts of the beach for its clientele or canoes, pedalos etc.. for hire.
- ◆ a study will need to be undertaken to study the wave patterns at Ghajn Tuffieha coastal zone and their effect on the sandy beaches. In particular, the effect on the size of the beaches and the creation of the Posidonia Banquettes.

The regulations detailed in Section 5 do not allow the removal of sand from the area and also would provide a strict regime in the use of barbecues on the beaches.

## **8.2 Footpaths**

The footpaths which have been identified as the viable ones are to be sign posted using small wooden signs. The other foot paths to be restored to their natural state will also be marked so that the public would be guided not to use them.

The foot paths selected also form circular routes, which are always more interesting than having to go back retracing one's steps. The routes are:

- Car park - Footpath A - main road - car park
- Car park - Footpath B - Footpath C (Footpath D may be added as a loop at this point) - main beach - Footpath B - Car park
- Car park - Footpath E - Main road - Car park
- Car park - Footpath E - Footpath F - Main Road - Car park



## 9.0 Conservation Profiles

The surveys carried out contain a large quantity of detailed information and recommendations. This section will outline the general plan of action which will be guided by the information found in the surveys and the Foundation's own observations. As we had the opportunity to note before, this plan cannot be a definitive statement as to what will be done in all its detail, but is intended to set strict parameters within which technical knowledge, experience and observation will do the rest.

### 9.1 Geology, Geomorphology and Hydrology

The Geology, Geomorphology and Hydrology survey on page 40 Section 6 illustrates the area as divided into 9 Sites of Scientific Importance. It is impressive that every part of the protected zone is an SSI. The general rationale behind this classification is shown in Table 1 page 41, which clearly shows that every part has at least medium and mostly high Educational, Research and Aesthetic value. The same table shows the recommended Levels, as noted in Policy RCO 12, which are:

Level 1 - **Il-Hotba il-Bajda Ridge**, Il-Qarraba Promontory, Il-Qarraba Isthmus, **Sandy Beaches**.

Level 2 - **Ix-Xaghra Tat-Torri Step**, **Blue Clay Slopes**, Wave Cut Terrace.

Level 4 - Under Cliffs, **Golden Bay Headland**.

The five SSIs, marked in bold above, are under threat. Table V on page 57 of the survey lists the threats per site together with the conflicting interests and the recommended restoration.

Pages 46 to 54 show detailed conservation principles for each SSI which govern the recommended conservation profile and the interpretation of the activities carried out at Ghajn Tuffieha as being threats or otherwise.

The survey findings indicate that intervention, where it is necessary, should be non-invasive, as much as possible, using *novel application of traditional structures*. The most important measure is for the site to be protected from further abuse, which mainly stems from the human activity and which therefore should be channelled and controlled. No further development should be allowed in the entire area covered by the plan.

The table on the next page indicates the measure to be taken and the time scale

within which this shall happen. Year 1 ends 19th August 1997.

SSI	Year 1	Years 2 to 4	Years 5 to 7	Years 8 to 10
Blue Clay Slopes	<ol style="list-style-type: none"> <li>1. Prohibit unauthorised entry to vehicles, camping, picnics, littering, open fires, barbecues &amp; removal of clay and stones as per regulations in Section 5.</li> <li>2. Establish footpaths to be retained and mark with sign posts.</li> <li>3. Establish main features of this SSI and the conservation profile.</li> <li>4. Establish rules which allow activities on site to be carried out only by permission of Foundation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reclaim minor excavations in clay slopes.</li> <li>2. Reclaim foot paths and rehabilitate official footpaths</li> <li>3. Plant trees and shrubs at selected sites.</li> <li>4. Act in liaison with the Planning Authority to clear derelict terraces and debris of Riviera Martinique.</li> <li>5. Rehabilitate base of clay slopes reducing access points to main beach.</li> <li>6. Act in liaison with the PA &amp; Golden Sands Co. Ltd to pull up road leading down to beach.</li> <li>7. Control access with the use of rubble walls, boulders and bollards.</li> <li>8. Liaison with Golden Sands Co Ltd. to instal winch.</li> </ol>	<ol style="list-style-type: none"> <li>1. On going study and monitoring of geological movements.</li> <li>2. Establish area as a venue for educational purposes and research in the fields of Geology, Geomorphology and Hydrology.</li> <li>3. Rehabilitate water courses leading down the clay slopes in to catchment areas with overflows at various levels along the slopes.</li> <li>4. Rubble wall restoration.</li> </ol>	<ol style="list-style-type: none"> <li>1. On going study and monitoring of geological movements.</li> </ol>
Il-Hotba il-Bajda	<ol style="list-style-type: none"> <li>1. Prohibit unauthorised entry to vehicles, camping, picnics, littering, barbecues, open fires &amp; removal of stones as per regulations in Section 5.</li> <li>2. Establish footpaths to be retained and mark with sign posts.</li> <li>3. Establish main features of this SSI and the conservation profile.</li> <li>4. Establish rules which allow activities on site to be carried out only by permission of Foundation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reclaim unmarked foot paths and rehabilitate official footpaths.</li> <li>2. Restore walled area into a multipurpose hall.</li> <li>3. Attempt to obtain use of bunker and elevated platform noted in Section 4.3 to use as <i>Interpretation Centre</i>.</li> <li>4. Conduct meetings with hunters to ensure correct use of site.</li> <li>5. Rehabilitate the water courses stemming form this SSI.</li> <li>6. Control access with the use of rubble walls, boulders and</li> </ol>	<ol style="list-style-type: none"> <li>1. Conduct educational and research activities in restored buildings.</li> <li>2. Conduct discussions with farmers to minimise use of cloches and glass houses and the possibility of embarking on organic farming projects.</li> <li>3. Print site interpretation leaflets for visitors</li> </ol>	<ol style="list-style-type: none"> <li>1. Ongoing research and educational activities.</li> <li>2. Results from organic farming projects</li> </ol>

		<p>bollards. 7. Rubble wall restoration.</p>		
SSI	Year 1	Years 2 to 4	Years 5 to 7	Years 8 to 10
Sandy Beaches	<p>1. Prohibit unauthorised entry to vehicles, camping, picnics, littering, barbecues, open fires &amp; removal of pebbles and sand as per regulations in Section 5. 2. Establish main features of this SSI and the conservation profile. 3. Establish rules which allow activities on site to be carried out only by permission of the Foundation. 4. Introduce a waste management system with separation of waste at source.</p>	<p>1. Act in liaison with the Planning Authority to ensure the speedy completion of the bar works. 2. Put up warning signs re swimming in rough seas. 3. Monitor beach cleaning effort and inform Mgarr Council of short comings. 4. Access to beach will be possible for rescue and clearing of seaweed via an 8 foot wide path leading from the car park to the beach. Access to this path will be via a locked gate.</p>	<p>1. Undertake study to ascertain the factors which contribute to the accumulation and the dispersing of the sand on the beach. 2. Undertake beach protection measures. 3. Allow undisturbed accumulation of Posedonia Banquettes on small beach at south base of Isthmus for research purposes.</p>	<p>1. Maintain beach protection measures. 2. Publish findings on beach and Posidonia banquette studies.</p>
Golden bay Headland	<p>1. Prohibit unauthorised entry to vehicles, camping, picnics, littering, barbecues, open fires &amp; removal of stones and other natural materials as per regulations in Section 5. 2. Establish main features of this SSI and the conservation profile. 3. Establish rules which allow activities on site to be carried out only by permission of Foundation. 4. Establish, on plan, footpaths to be retained.</p>	<p>1. Reclaim unmarked foot paths and rehabilitate official footpaths. Mark official footpaths with signs. 2. Obtain sponsor for Ghajn Tuffieha Tower restoration to be used in support of Wardens' activities. 3. Control access with the use of rubble walls, boulders and bollards. 4. Act in liaison with the Planning Authority for the removal of the illegal structure next to the tower. 5. Act in liaison with the PA for the removal</p>	<p>1. Complete Ghajn Tuffieha Tower restoration. 2. Conduct discussions with farmers to minimise use of cloches and glass houses and the possibility of embarking on organic farming projects. 3. Restore the reservoir, part of the old sewage plant, for collection of water from a main water course with its head at Golden Bay. 4. Monitor the state of the aquifer and take protective measures. 5. Rehabilitation of</p>	<p>1. Monitor the state of the aquifer and take protective measures. 2. Results from organic farming projects. 3. Wardens make use of the Ghajn Tuffieha Tower. 4. Reservoir works complete and water used for irrigation of afforestation works.</p>

		of the derelict hotel building.	the cliff-edge following the removal of the derelict hotel.	
<b>SSI</b>	<b>Year 1</b>	<b>Years 2 to 4</b>	<b>Years 5 to 7</b>	<b>Years 8 to 10</b>
II-Qarraba Promontory and Isthmus	1. Prohibit unauthorised entry to vehicles, camping, picnics, littering, barbecues, open fires & removal of stones, clay and other natural materials as per regulations in Section 5. 2. Establish main features of this SSI and the conservation profile. 3. Establish rules which allow activities on site to be carried out only by permission of Foundation. 4. Establish, on plan, footpaths to be retained .	1. Reclaim unmarked foot paths and rehabilitate official footpaths, marking the latter with signs. 2. On going study and monitoring of geological movements.	1. Monitor the state of the aquifer and take protective measures. 2. On going study and monitoring of geological movements.	1. Monitor the state of the aquifer and take protective measures. 2. On going study and monitoring of geological movements.
IX-Xaghra Tat-Torri Step	1. Prohibit entry to vehicles, camping, picnics, littering, barbecues & removal of stones, clay and other natural materials as per regulations in Section 5. 2. Establish main features of this SSI and the conservation profile. 3. Establish, on plan, footpaths to be retained.	1. Act in liaison with farmers in order to limit expansion of the agricultural activity. 2. Reclaim unmarked foot paths and rehabilitate and mark official footpaths in co-operation with private land owners .	1. Monitor , in co-operation with WSC, the state of the aquifer and take protective measures. Particular threat is over extraction from private wells. 2. Obtain sponsor for restoration of Tal-Lippija Tower. 3. Afforestation of abandoned terraced fields at It-Tafal. 4. Attempt to obtain title from Lands Dept. on Tal-Lippija Tower.	1. Monitor the state of the aquifer and take protective measures. Particular threat is over extraction from private wells. 2. Carry out restoration work on Tal-Lippija Tower.
Undercliffs & Wave cut Terrace	1. Prohibit unauthorised entry to vehicles, camping, picnics, littering, barbecues, open fires & removal of stones, pebbles, clay and other natural	1. On going study and monitoring of geological movements.	1. On going study and monitoring of geological movements.	1. On going study and monitoring of geological movements.

	materials as per regulations in Section 5. 2. Establish main features of this SSI and the conservation profile.			
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## 9.2 Ecology

The protected area has been divided into 10 Areas of Ecological Importance AEIs which roughly coincide with the 9 SSIs in described in 9.1. This division will lead to a greater understanding of the biodiversity in the area and also allow a systematic rehabilitation effort. The table below lists the areas and describes their ecological content.

AEI	Description	Content
A	Clay Slopes below Golden Bay Headland	Esparto grass and Asphodel clay steppe
B	Main Clay Slopes	Sandy beach, Tamarisk/Sea Sapphire/Esparto grass clay slopes, Tamarisk/Acacia/Esparto grass clay slopes and Asphodel clay steppe.
C	Il-Qarraba Isthmus	Sandy beach, Clay tallus/Asphodel clay steppe and Esparto grass/Thistle clay steppe
D	Ras Il-Qarraba	Garigue and Boulder scree
E	Il-Hotba Il-Bajda	Tamarisk/Acacia/Esparto grass clay slopes, Tamarisk/Sea Sapphire/Esparto grass clay slopes and degraded area and Boulder scree
F	Golden Bay Headland	Agricultural land, Degraded area and Boulder scree
G	Ghajn Tuffieha/back of Il-Hotba Il-Bajda	Agricultural land and abandoned terraced fields
H	Clay Slopes below Ix-Xaghra Tat-Torri	Esparto grass clay steppe and Boulder scree
I	Ix-Xaghra Tat-Torri	Garigue and Agricultural land
J	It-Tafal/Il-Lippija	Agricultural land and Abandoned terraced fields

The main management objectives in the area of Ecology are:

- ◆ Conservation of indigenous plants and animals and their habitats.
- ◆ Regeneration of native vegetational communities in appropriate areas.
- ◆ Promoting of low impact recreational activity; for example walking, horse riding (Golden bay headland), picnics (on beach & Golden Bay Headland)

and bathing.

◆ Visitor education through the establishment of an interpretation centre in one of the buildings, once restored.

◆ Protection of cultural heritage such as traditional agriculture and historical buildings.

The recommendations, which are endorsed by the Foundation, on the matter of protection levels arising out of RCO 12 of the Structure Plan are graphically represented in Fig. 4 in the Ecological Survey in Section 11 of this plan. These are:

**Level 1:-** Ras il-Qarraba and Isthmus, the Wave Cut Terrace and the Clay Steppes below Ix-Xaghra Tat-Torri.

**Level 2:-** Boulder Scree below Golden bay Headland, The Clay Slopes, Ix-Xahra Tat-Torri and part of Il-Hotba Il-Bajda.

**Level 3:-** It-Tafal, Il-Lippija, Ghajn Tuffieha, Golden Bay Headland, Main Sandy Beach and part of Il-Hotba Il-Bajda.

**Level 4:-** The car park and derelict hotel plot and Clay Steppe leading to beach bar.

It is immediately apparent that the Levels recommended for the SSIs do not fully co-incide with the Levels recommended for the AEIs. The Foundation adopts the view that the higher of the two will prevail and a final combined recommendation is made at the end of this section.

The Foundation strongly suggests that at least the areas designated as Levels 1 & 2 are declared protected in terms of the Environment Protection Act 1991. This will enable the issuing of regulations for the better management of an area of such great ecological and scientific importance. This is also recommended in the ecological survey carried out by The Malta University Services. It would also integrate the work of the Planning authority and the Environment Protection Department with respect to the conservation and protection of this site.

The site is in a state of flux and mud slides and cliff collapse are events which occur in relatively short time spans. Thirteen (13) metres of cliff have collapsed between the Tal-Lippija Tower and the cliff edge in the past 35 years. Studies have already been carried out by J. Gratten and D. Gilbertson in this area and it is very important that these studies are updated and extended. Planting of trees and shrubs will have the short term effect of binding the clay together to avoid superficial sliding, however without a fuller understanding of the greater geological movements we would not be in a position to act in harmony with these movements. Acting in ignorance of these processes can prove to be an expensive and futile activity.

The table on the next page indicates the measures to be taken and the time scale within which this shall happen. The Foundation may implement certain activities, mentioned in the said table, earlier should this become feasible.

<b>AEI/AHLV</b>	<b>Year 1</b>	<b>Years 2 to 4</b>	<b>Years 5 to 7</b>	<b>Years 8 to 10</b>
Clay Slopes below Golden Bay Headland	1. Establish in detail from survey recommendations exact species to be planted.	1. Gradual removal of Prickly Pear and American Agave. 2. Plan irrigation method. 3. Commence planting selected species.	1. Complete planting of selected species.	1. Monitor progress on site regeneration and rehabilitation.
Main Clay Slopes	1. Establish in detail from survey recommendations exact species to be planted.	1. Clearing of Acacia leave droppings and gradual replacement by trees in Section 5.3 of Ecological survey (page 23). 2. Plan irrigation method. 3. Commence planting selected species.	1. Complete planting of selected species.	1. Monitor progress on site regeneration and rehabilitation.
Ras Il-Qarraba & Isthmus		1. Act in Liaison with PA for removal of illegal hut.	1. Monitor progress on site regeneration and rehabilitation.	1. Monitor progress on site regeneration and rehabilitation.
Il-Hotba Il-Bajda	1. Establish in detail from survey recommendations exact species to be planted.	1. Clearing of Acacia leave droppings and gradual replacement by trees in Section 5.3 of Ecological survey (page 23). 2. Plan irrigation method. 3. Commence planting selected species.	1. Complete planting of selected species.	1. Monitor progress on site regeneration and rehabilitation.
Golden Bay Headland	1. Establish in detail from survey recommendations exact species to be planted.	1. Establish in detail from survey recommendations exact species to be planted.	1. Complete planting of selected species.	1. Monitor progress on site regeneration and rehabilitation
Ghajn Tuffieha/back of Il-Hotba Il-Bajda	1. Establish in detail from survey recommendations exact species to be planted.	1. Plan irrigation method. 2. Planting of selected species along footpaths.	1. Complete planting of selected species.	1. Monitor progress on site regeneration and rehabilitation
Clay Slopes	1. Establish in detail	1. Plan irrigation	1. Complete planting	1. Monitor progress

below Ix-Xaghra Tat-Torri	from survey recommendations exact species to be planted.	method. 2. Commence planting selected species.	of selected species.	on site regeneration and rehabilitation
<b>AEI/AHLV</b>	<b>Year 1</b>	<b>Years 2 to 4</b>	<b>Years 5 to 7</b>	<b>Years 8 to 10</b>
Ix-Xaghra Tat-Torri	1. Establish in detail from survey recommendations exact species to be planted.	1. Plan irrigation method. 2. Planting of selected species along footpaths.	1. Establish wild rabbit population and sustainable numbers. 2. Complete planting of selected species.	1. Monitoring of rabbit population and relocation of excessive numbers. 2. Monitor progress on site regeneration and rehabilitation.
It-Tafal/Il-Lippija	1. Establish in detail from survey recommendations exact species to be planted.	1. Plan irrigation method. 2. Planting of selected tree species to create a wooded environment in the abandoned fields.	1. Complete planting of selected species.	1. Monitor progress on site regeneration and rehabilitation.

### 9.3 Protection Levels

Landscape	SSI Levels	AEI Level	Prevailing Level
Il-Hotba il-Bajda Step	1	2/3	1
Golden Bay Headland	4	3	3
Ix-Xaghra Tat-Torri Step	2	2	2
Blue Clay Slopes	2	2	2
Undercliffs	4	1/2	1 (Il-Qarraba)/2 (Golden Bay Headland)
Il-Qarraba Promontory	1	1	1
Il-Qarraba Isthmus	1	1	1
Sandy beaches	1	1/2	1
Wave-cut Terrace	2	1	1

There certain events which must take place for this project to be successful and these are:

- ◆ The Planning Authority is to issue the regulations recommended by this plan.
- ◆ SSIs and AEIs are to be so designated under the Development Planning Act 1992.
- ◆ The Environment Protection Department is to declare areas designated Levels 1 and 2 in terms of RCO 12 of the Structure Plan a *Nature Reserve* in order to enable it to endorse the same regulations in terms of the Environment Protection Act 1991.



We feel that this plan shows that the Foundation has the approach, strategy, organisation and technical backup necessary to undertake this task successfully. However there is no way we can succeed unless our Wardens can enforce regulations at law. The ideal situation would be for the Wardens to have the direct authority to caution and book offenders and we should work in this direction. Until such time we need to have the committed backup of the law enforcement agencies.

## ***12.0 Financial Overview and Budgeted Cash Flow***

The cash flow for the Ghajn Tuffieha project should be split into two parts. The first is the work to be carried out for site protection, the rehabilitation of the clay slopes, foot paths, rubble walls and general afforestation of the site. The second relates to major projects which involve the restoration of buildings.

### Site rehabilitation:

The cash flow is detailed in section 12.1 which follows. This cash flow will finance the conservation profiles outlined in Section 9 (excluding the restoration of buildings). The income on this project is made up of the Lm 10,000 annual Government contribution, fund raising by the Foundation and use of the Foundations premises and equipment. The balance in the Foundation's hands as at 31st July 1997 is Lm 2259.19. This has resulted from income in the past seven months, from 1st January 1997, of Lm 13,649.30 and expenditure of Lm 11,390.11. The Foundation has in the past seven months:

- employed wardens (in uniform)
- installed 40 bollards and for access control
- placed 20 bins on the beach catering for waste separation
- commissioned ecological, geological, geomorphologic, hydrological surveys
- placed signs at entrance points
- started a nursery of 300 trees
- prepared for a project subscription drive
- purchased T-shirts, caps etc.. for resale in fund raising
- conducted 3 clean ups

The equipment purchased in the period January to July includes a tent, chains, padlocks, binoculars, a table and chairs. The Lm 3,500 budgeted for the period August to December 1997 is for the purchase of a tractor and carriage which will be used in site rehabilitation works and afforestation. The Lm 1,000 under access control in the 2nd year is for the erection of rubble walls and gates at certain access points.

### Restoration of buildings:

Financing of the restoration of buildings will be considered each case on its own merits. The restoration of the two watch towers, It-Torri Tal-Mixquqa and It-Torri Tal-Lippija, would cost up to Lm 20,000 each if they had to be moved and up to Lm 10,000 each if the restoration was carried out in their present location. The long term solution would be to move the towers further inland as these may well be lost as casualties of the receding cliff edge in the next 50 years.

Another project is the restoration of the reservoir at the old sewage treatment plant into a smaller reservoir and a nursery. Estimates are still to be obtained for this work.

The two buildings at Il-Hotba Il-Bajda will be converted into an interpretation centre and a general purpose hall. Estimates are still to be obtained for this work.