

# **The project guideline for the post-excavation operations on the FJHP site**

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# **1 The analysis of the current situation**

## **1.1 Site**

The FJHP's excavation site situates on the high plateau of the mount of Aaron, about 5 kilometres away from the ancient city Petra in southern Jordan. Access to the site happens normally by foot or by donkey. There is a road from Petra to area, but from the roads end there is still a considerable rise up to the plateau. Geographically the area is desert, mainly sandstone cliffs and sand. Existing plants are few consisting of scattered bushes and small trees.

The site has been under a thorough scientific research for over a decade. The main ancient structures on the site are the ruins of the monastic building complex. The built area is about 3000 sq. m. Adequate conservation and consolidation work for unearthened structures has been done during the excavations. The central structures of the complex – the church, the chapel and the mosaic – require some kind of sheltering, if they are to be displayed from now on.

## **1.2 Functions**

The current functions on the site are for the upkeep of the excavation and for the security purposes. There is the ongoing guarding on the site and the excavation area is fenced. Two small buildings have been erected next to the excavation area; the first one is a kitchen/warehouse for the excavation's maintenance and the other one is the police post. During the excavation seasons there has been a big bedouin tent for the accomodation and several smaller shelters for office space, eating area, washing and toilets.

Aerial view of the site is available e.g. in the projects exhibition publication Frösen & Fiema(2002) p. 26.

# **2 The objective definition**

## **2.1 Definition of the alternative strategies**

The post excavation use of the site may proceed to different directions according to will of the local authorities and the availability of the resources for planning, building and maintaining the site for future visitors. Here the alternative possibilities and their conditions are briefly assessed, even the certain measures are taken by the excator in any case.

The unearthened wall, floors and pavements are open to the deteriorating effect of the natural forces. The best way for preservation of the structures is backfilling the excavated areas. However, if there is the objective to display the site for public the

backfilling may not be desirable to all trenches. The protecting of the structures has to be done the other way, e.g. sheltering selected areas and providing the visitors with planned and protected route on the site. Additionally the effect of the visiting public to the overall site plan and sites needed functions have to be considered carefully.

The alternative strategies may be named:

S1: (strategy 1): Backfilling all the trenches, maintaining fences.

S2: Sheltering of the smaller areas (chapel, mosaic), backfilling (alternatives A1 and A4).

S3: Sheltering of the wider area, backfilling? (alternatives A2s, A3 and A5)

The numbers of the alternatives refer to the preliminary shelter designs illustrated in the accompanying document called FJHP\_Shelter.pdf.

When doing the more detailed design strategy and the material selection one must pay attention to the logistical challenges. The material can not be transported to the site with trucks. The parcelling of the material must be instructed so that it can be airlifted or transported by draft animals.

## 2.2 Conditions on the site

The weather conditions on the site are hard. There is a big difference in the temperatures during a day and the year round. The additional factors are sand, rain, frost, snowfall and intensive sun shine. No power or water networks are available, supplies are carried to the site.

The ground is composed of sand and sandstone cliffs. On the excavation area the surface is of sand and debris of the collapsed buildings.

## 2.3 Functional, spatial and structural needs

Architecturally the content of the project is favorably considered from the several points of view, which include the wide spectrum of functional, technical and aesthetic targets plus material selection, formal design, structures inner meaning (typologies) and expressive content.

### *Possible functions*

When open to the visitors the site will be mainly considered as a historical attraction. One or more prepared rooms can be a site's museum, which sets certain needs (e.g. security, lighting, climate). Other function which may effect on planning are activity of the pilgrims and the site as an artistic venue. What other needs do the functions generate?

### *Protective purpose*

The main purpose for the shelter is to protect the excavated structures from the decaying effect of the sun, water, snow and sand. This means that the shelter has to

be wide enough to secure the structures from oblique rain and providing shadow on selected areas. On the site especially north winds carry sand which may be prevented by wall like structure or with long downward eaves of the shelter. Local rains are rare but abundant, so the handling of the water on and from the roof surfaces is an important design task. Moreover, in winter time and due to high altitude of the site, snow and frost are regular phenomena.

#### *Spatial targets*

Some of these have been defined above from the protective point of view. There is an important spatial objective to be remembered: shelter's design must allow a view to the site from the summit of the mountain, so that it rather helps that blocks the observation from above. The shelter structure can be seen from the distance, so its purpose as a landmark is inevitable.

#### *Technical targets*

Light weight of the shelter is a desired key attribute of the new structure, because it has an effect on all the other considerations (material use, logistics, foundation, costs etc.). The foundation, armature and the roof cover material are to be chosen accordingly. The long term maintenance is important factor in material selection, e.g. when regular materials are chosen their availability is better and the skills and resources for fixing can be found locally.

#### *Aesthetic and semantic targets*

The chosen roof form can help the visitor to perceive and imagine the old building phases, if the construct is sized and shaped according to the previous lines. There can be chosen factors in this estimation i.e. shape, height, roof angle, material etc.

The building complexes previous use as a religious facility sets rather higher standard to the quality demands than lower.

## 2.4 The use of the existing structures

In the monastery complex the structures have to be untouched as much as possible. Due to the softness of the local stone any of the monastery's structures can not be used as a foundation or support for the new elements.

## 2.5 Sizing principles

The size of the shelter is defined by its protective target. The size can be specified after the selection of the protected areas. The coverage must extend to the larger area for desired shadowing effect and for protecting from rain.

Usable places for the shelter's foundation are limited, which leads to the longer span of the roofing structure. With smaller shelters the span is shorter and the foundations are lighter; however, the structure is erected nearer or on the top of existing ones. With longer span the foundation can be done outside the excavated areas so that the new structure will not touch the existing structures. This strategy

requires more elaborate and costly building technology and the new excavations of the foundation pits. Relatively the costs of the bigger shelters are cheaper.

## 2.6 Possibilities for gradual expansion of the functions

The building activity on the excavation area is much more demanding than on the surrounding area. That is why possible later changes should be strategically aimed to the surrounding areas. E.g. if tourist and guest services are needed to be expanded that happens on the surrounding area.

## 2.7 Definition of the financial targets and boundaries

The financial targets can be defined after the strategy's setting. Possible cost sources for estimation are planning/ design, negotiations, manufacturing, transportation (global? and local).

## 2.8 Definition of the timetable targets

Overall timeframe waits for setting. Certain tasks may be allocated to the excavation season.

# **3 The compilation of alternative design solutions**

## 3.1 Searching for design solutions and their comparison

The designs presented by this document have their origin in the different strategies defined above (S1...S3). The final solution is dependent on the available resources and also on the larger development objectives of the Petra area. These designs, alternatives from 1 to 5, should be looked at as a preliminary draft for the main target, which is the protection of the excavated structures. The pictorial material is aimed to help to choose solution, which goes to next step on planning. The pictures present also the overall environmental effect of different roofing schemes.

## 3.2 Juridical and technical assessment of the site conditions

The area is under the governance of the Petra National Park. All the planned work have to be approved by them. In project planning phase the requirements are going to be mapped.

There are several topics appearing from the technical point of view, which drive the planning and the solution. Near the site there is plenty space for normal building and storing operations. Maybe the most demanding possible task will be air-lifting

with a helicopter. For that the possible landing areas have to be scouted.

The power on site is produced by photovoltaic systems and fuel powered generator. Water is carried to the site. When there will be vast roof surfaces the rain water collection will be the new option.

### 3.3 The investment and cost analysis of the alternative solutions in the long run

The first design strategy (S1) has the lowest investment and maintenance costs, but also the returns are minimum.

The second strategy (S2) is more demanding during the production, but requires less maintenance than a larger construct. Production may be possible to carry out with light operations. The return will be a new possibility for visits in Petra area and emergence of small guiding and feeding services.

The third strategy (S3) is the most demanding. The proper performance during the production and maintenance requires well working networks and reliable funding. This large accomplishment will have wider visibility and the returns can be varied in many areas.

## **4 Preparation for project's planning phase**

### 4.1 Preliminary sketches (plans, illustrations)

The next step is the setting of the project definitions and starting the detailed project planning. The outline of the project plan topics can be found in the enclosed document titled The project planning for the FJHP Site.

The drawings and view illustrations are in the document called FJHP\_Shelter.pdf.

### 4.2 Environmental analysis

More detailed analysis should be done in the next phase for the selected strategy. Below some considerations on the different strategies.

In the strategy S1 when the excavations are backfilled and the area is secured, there will be minimum effect to the environment. Activities will be same kind as earlier before excavation viz. pilgrimage and police/security.

In the S2 there is the raised amount of visitors, but the site development and the services may remain simple. The impact to the environment is still limited. One important focus area is the trash collection.

In the S3 the level of building and activities is much higher than previously, which sets demands for the security, the maintenance and the services. Here the local supply chains and procedures have to be better planned to prevent the damage to the environment.

#### 4.3 Risk analysis

In this stage there not yet any risk analysis. The detailed analysis have to be done during the project planning phase. A proper mapping and adequate preparation helps to prevent undesired surprises. Here some possible risk sources: sponsors, manufacturing, logistics, working possibilities, authorities, timetable...

#### 4.4 The requirements of the local authority

This phase has started a formal definition of the site's handling. One objective of this phase has been to start the preparation of the shelter design and the illustrative material for the meetings of the local authorities. The project's requirements are to be determined on the mutual meetings. Some discussion topics are the development strategy of the area, the permissions and possible support the authority can give during the project (material, work force, transport, public relations, communications).

## 5 Lists

### 5.1 BIBLIOGRAPHY

#### *Books and articles*

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Price, N.P.Stanley (Ed.) (1995) Conservation on Archaeological Excavations. Rome: ICCROM

#### *Links to web sources*

Franciscan Archaeological Institute: <http://www.christusrex.org/www1/ofm/fai/FAImain.html>

Studium Biblicum Franciscanum: <http://198.62.75.5/opt/xampp/custodia/01sbf.php>

#### *Design information and comparative projects*

ARK95 (1995) Arkkitehtisuunnittelun tehtävälueello. Helsinki: Rakennustieto

Anglesey Abbey Visitor Centre in Cambridge in Detail 2.2009, p. 163-167

Community Centre in Corpat aux-Magnedenc in Detail 2.2009, p. 158-162

Market Hall in Wakefield in Detail 2.2009, p. 128-131

Monastery of Tantra in Detail 1.2009, p. 52-57

Museum in Sabres in Detail 1.2009, p. 42-47

Parking-Deck Canopy in Linz in Detail 2.2009, p. 154-157

Renovation and Extension of a modular school in Schulzendorf in Detail 1.2008, p. 47-51

## 5.2 LIST OF DOCUMENTS

Project: FJHP (shelter)

Date: 2009-07-27

### TEXTS:

- The project guideline for post-excavation operations on the FJHP site  
[ file: Project\_guideline.pdf ]
  
- Project definition (for the next phase)
- The project planning for the FJHP Site (for the next phase)

### DRAWINGS:

- [ file: FJHP\_Shelter.pdf ]
- General plan, 1:2000
- 1. Alternative, plan 1:400, A-, B-sections 1:200
- 2.1 Alternative, plan 1:400, A-, B-sections 1:200
- 2.2 Alternative, plan 1:400, A-, B-sections 1:200
- 2.3 Alternative, plan 1:400, A-, B-sections 1:200
- 2.4 Alternative, plan 1:400, A-, B-sections 1:200
- 3. Alternative, plan 1:400, A-, B-sections 1:200
- 4. Alternative, plan 1:400, A-, B-sections 1:200
- 5. Alternative, plan 1:400, A-, B-sections 1:200
- Views, Camera positions

- [ file: Functions\_on\_site.pdf ]
- Functions, Site during seasons, 1:1000

### VIEWS:

- 35 view pictures (png) from different camera positions and times of day  
(date 15th Sept.)

### MANUFACTURERS:

- RT G28-37528, Best-Hall Oy
- RT G2-37393, Rautaruukki, runkojärjestelmät
- RT N-37467, Rautaruukki, vesikattojärjestelmät
- RT N-37608, Icopal Oy, Fastlock Uni -valokate
- RT N-37634, Protan Oy
- Tentnology, Tspantents\_080420115355.pdf