

DESCRIPTION OF ITEMS FOR EMERGENCY INTERVENTIONS

1. GENERAL

Emergency intervention services must start in 48 hours of being instructed.

1.1 MOBILISATION

Within 48 hours of being instructed in writing the contractor shall establish on site;

- Site setup composing of portable chemical sanitary unit with wash basin
- Portable covered or enclosed space for labourers resting place – min 5m²
- Generator for required power needs for the works and for the site use
- Water for the works and for the site use

1.2 TEMPORARY SAFETY TO THE PUBLIC

Within 48 hours of being instructed in writing the contractor shall install temporary safety barriers with one of the following described details;

- 1m height hard plastic fence delineating unsafe areas and posting at least 4 sets of notices in three languages,
- 1.5m metal fence with portable bases delineating unsafe areas and posting 4 sets of notices in three languages,
- 2m metal fence with portable bases delineating unsafe areas and posting 4 sets of notices in three languages.

1.3 HEALTH & SAFETY

Site safety measures include all Health & Safety elements related to construction sites and as required by the applicable regulations under the supervision and responsibility of a Health & Safety officer;

- PPE for site personnel
- PPE for COVID measures
- First aid kit

1.4 SCAFFOLDS FOR WORKS

The set-up, erection and dismantling of internal and external scaffoldings must be designed and executed by the health & safety officer of the contractor. Scaffolding installations must meet the following but not limited to;

- Fabricated tube and coupler system must be used for all scaffoldings
- Base poles must be levelled and secured on rigid ground and wooden planks/boards
- Before erection of the internal scaffolding the floor must be covered with nylon and the feet of the scaffolding must sit on wooden planks
- Scaffold platforms must be minimum 80cm wide and fully planked
- Wooden planks will be used at the joints between the scaffoldings and the masonry
- Two side bars will be installed at 45cm and 90cm and same should be put at all ends.
- All horizontal openings larger than 20cm must be protected

- Working space between a wall and the scaffolding must not exceed 30cm
- In case of larger space is not avoidable guardrails should be provided
- Scaffolds with a height to base width ratio of more than 4:1 must be externally supported
- Cross braces should be used where necessary
- Toe boards should be installed at the all edges
- Scaffold platforms must be kept clean at all times.

2. WORKS ITEMS - INTERVENTIONS:

Depending on the type of intervention the works items will be selected, and the contractor will be instructed accordingly.

2.1 CLEANING AND DISPOSAL

This work item will involve with one of the below depending on the particularity of the site;

- Sweeping of hard surfaces with soft brushes from all foreign material, storing and disposing these properly
- Surficial cleaning of earth surfaces with soft brushes and disposing these properly.

2.2 VEGETATION TREATMENT AND REMOVAL

All organic growth on the roof, buttresses, internal and external walls must be treated with Glyphosate based herbicide or equivalent, that is suitable for vegetation removal on masonry monuments.

- Vegetation should not be cut before the application of herbicide. The leaves of the plants must remain as the herbicide acts through photosynthesis.
- Herbicide should not be applied on windy and/or rainy weather conditions.
- It must be taken into consideration that the application of herbicide cannot be effective if the area gets wet subsequent the 48 hours after the application. In this case the application process must be repeated.
- Before herbicide application the area must be cleaned and brushed carefully. The application area must be checked to be free from excess dust and soil.
- After at least 15 days from the application of herbicide the vegetation is expected to dry. The application area must be monitored carefully and after 14 days if the organic growth is not fully dried, the herbicide treatment should be repeated with the same sequence until the vegetation is fully dry.
- Injecting herbicide into woody plants which are 2m or nearer to the structure and removing after 3-4 weeks.
- Once the vegetation is dried Engineer's approval required for cut and/or remove the organic growth.

2.3 PRUNING OF TREES

Cutting off branches of trees growing close to the structure and disposing.

Removing trees that affect the base of the structure with their roots or cutting them and using herbicide to stop growth.

2.4 STONE-WORKS

Stoneworks will include replacement of stones with similar characteristics and dimensions ranging from 20cm to 60cm in width and height and depth ranging from 20cm to 40cm.

Installation of stones into voids with similar characteristics and dimensions.

Broken (cracked) or heavily weathered stones (mainly dressed stones) are to be replaced in several positions indicated.

New stones should be of similar characteristics as the stone to be replaced (colour, texture, hardness, size etc.).

Use readymade mortar made from hydraulic lime for building the stones

2.5 CORNICES

- Repairs of cornice stones
- Carving and installation of new cornice stones

2.6 GROUTING

Will be applied for serious cracks on walls, arches and vaults in order to strengthen and improve the mechanical properties of the structure.

Areas in need of grouting can only be specified, by the engineer after surfaces are cleaned from plants and vegetation.

Grouting material must be of fine hydraulic lime mortar, such as Kimia Limepor 100, Mapei Antique I, Albaria calce Alletamento or equivalent.

Grouting is to be applied as per manufacturers recommendations in the following steps:

- Cleaning of crack or area to be treated,
- Insertion of plastic injection tubes at a distance of about 50 cm,
- Sealing of crack/joints with lime mortar,
- Injection with fluid mortar starting from bottom of wall,
- Sealing of first point of injection when material comes out of the second etc.
- If the work is applied to an extended area, the work must be done from bottom to top in rows of about 1m each. Material of first row must be dry before going to the upper one.
- Cleaning of stone surface, removal of plastic tubes and sealing of holes.

Mixing and injection machinery, plastic tubes 12 to 16 mm in diameter (to be penetrated 30 cm into the wall) are required for application of grouting. The last 10cm of the tube into the masonry should be perforated along the perimeter to allow better diffusion of grouting

The pressure should be always monitored with appropriate manometer and should not exceed 1atm unless the Engineer instructs for a higher pressure.

2.7 POINTING – REPAIR OF JOINTS

Pointing with hydraulic lime mortar (colour matching to be ensured) – up to a depth of 2cm.

Repair of joints between stones with hydraulic lime mortar (colour matching to be ensured) – from 2 cm up to a depth of 10cm

The procedure includes:

- Cleaning of joints to a depth of at least 7cm and maximum 10cm. Use hand equipment carefully not to damage the stones

- Removing debris and washing with potable water
- Fill the joints with mortar made from hydraulic lime (Albaria Allettamento or other equivalent) up to the depth of 2cm from the face of the wall.
- Finish the joint with pointing. The mortar should be made from hydraulic lime and appropriate proportions of sands (grey, white, brownish) and additives to achieve compatibility of colour. Consider that sample must be made for approval
- For the repair of the joint the mortar must be applied in layers and each one must be thoroughly compacted.
- Pointing must be slightly recessed (0.5-1cm) from stone surface and not be spread on stone surface. Excess mortar must be cleaned before dry.
- Mortar must be protected by rapid drying with damp cloth during summer period and must be regularly sprayed with water to be kept humid and to dry slowly.

2.8 FILLING OF CRACKS AND DISLOCATED JOINTS ON WALLS

To prevent water ingress into masonry body cracks and dislocated joints shall be filled with lime based mortar (albaria allettamento or equivalent) and as follows;

- Filling with hydraulic lime mortar – width up to 5cm and depth of up to 10cm
- Filling with hydraulic lime mortar – width up to 5cm and depth of 11 – 20cm
- Filling with hydraulic lime mortar – width between 5 and 10 cm and depth of up to 10cm
- Filling with hydraulic lime mortar – width between 5 and 10 cm and depth of 11 – 20cm

2.9 ROOFWORKS – NO TILES

If roofs are entirely covered by the traditional “lime-mortar” material and exhibits surface failure and/or cracks.

Defective surfaces will be removed, and the same material will be reconstructed. The new “lime mortar” material for repairs will be used to differentiate with the original.

Defective areas (loose or cracked material) must be cleaned up to a depth of min 15cm. The area must be cleaned with clean potable water the new “lime-mortar will be reconstructed in layers of about 5 cm each. The material must remain wet and protected by direct sun so as to dry slowly. It must be sprayed regularly for at least 15 days and be protected by damp cloth.

If there are presence of biological organisms, surfaces must be cleaned from bio deteriorating organisms. Antimould biocide (Kimistone BIOCIDA or similar) to be applied with brush, roller or spray according to the manufacturer’s recommendations

To prevent water ingress from roof, a new roofing insulating material will be applied. The whole surface must be thoroughly cleaned with water under pressure so as loose materials and dirt will be removed.

Application of insulation material - masterseal 390 or equivalent.

2.10 INSERTION OF WOODEN TIE BEAMS

In order to improve the diaphragmatic function of dome base, the original system of tie beams must be restored. Thus, new wooden tie beams must be inserted where the original ones have been damaged, cut off or removed.

New tie beams must be inserted into walls/arches by removing existing wood remnants and the stones from one side so as to allow access. New tie beams must be inserted into walls/arches for at least 20 cm and be built and fixed properly.

20x20 cm cross-section softwood treated with two coats of sylvanol LM

2.11 CAPPING SACRIFICIAL LAYER

Placing hydraulic lime mortar minimum 8-10cm as per manufacturer recommendations on horizontal surfaces to prevent water ingress into masonry body maximum horizontal width of 50cm.

Hydraulic mortar Albaria SP2 or equivalent will be used.

2.12 PLASTERING

Plastering will be implemented in one of the manners as below;

- Plastering with 2 coats of gypsum as per manufacturer's recommendations.
- Plastering with 2 coats of hydraulic lime mortar as per manufacturer recommendations.
- Plaster repairs with gypsum mortar (removal of loose plaster and re-plastering)
- Plaster repairs with hydraulic lime mortar (removal of loose plaster and re-plastering)

Hydraulic mortar Albaria SP2 or equivalent will be used. The colour will be white (ish) (subject to engineer's decision). The thickness of the new plaster should not exceed the existing one.

Plasters shouldn't be applied on the walls at the initial stage. Prior to plastering, monitoring of the humidity should take place.

Before application of plaster, wall must be wet. Plastering must be in layers according to manufacturers' instructions. The surface of each layer should remain rough for better application of next one. The final layer should be worked with wood float, trowels and floating rule.

Plaster should be sprayed regularly for 15 days for gradual drying. Externally should be also protected with PVC membrane or damp cloth to prevent rapid drying.

2.13 PROPPING UP – VERTICAL AND LATERAL

Under each load-bearing element such as arches and vaults props will be installed at every 50cm. Props will be adjustable tubular iron of at least 3mm thickness and with bases resting on 50x50 cm 35mm thick wooden planks.

Wooden planks must be restrained on all sides.

Interface with masonry will be plywood of 50mm thickness.

Provide similar section inclined props for lateral stability connected to the main props with the use of appropriate clamps and fixed to the ground with the use of concrete or stone blocks

2.14 CLOSING OF OPENINGS

Installation of simple wooden and iron mesh closing element of openings (doors and windows) – wood will be pine softwood and to be treated with Silvanol LM; mesh of 2x2cm treated with antirust paint.

2.15 PERMANENT FENCING

Either one of these fencing details may be implemented.

- 1.5m metal galvanised chainlink (max 10x10) fence with fixed in-situ bases delineating the plot; posts at every 2m and diagonals on corners, turns and at every 20m,
- 1.5m plastic coated galvanised chainlink fence (max 10x10) with fixed in-situ bases delineating the plot; posts at every 2m and diagonals on corners, turns and at every 20m,
- 2m metal galvanised chainlink (max 10x10) fence with fixed in-situ bases delineating the plot; posts at every 2m and diagonals on corners, turns and at every 20m,
- 2m plastic coated metal fence (max 10x10) with fixed in-situ bases delineating the plot; posts at every 2m and diagonals on corners, turns and at every 20m.

Diagonals will be welded on posts at 45-degree angles.

No tie beams under fencing is envisaged.

2.16 DRAINAGE

The aim of drainage is to convey rainwater away from the structure walls and not to construct drainage channels of any kind.

Slope formation of at least 2% away from wall and to a minimum distance of 1m from wall will be made from existing earth surfaces. Soil will be tamped and compacted.

If needed soil can be carted in from outside.

2.17 CONCRETE WORKS

Although concrete works are not much used in cultural heritage sites pricing of concrete shall be made taking into account the following;

- Formworks (fairface)
- Reinforcement B500C – cut, bent and place
- Concrete (gross beton) C16 – compacted and cured
- Concrete C20/25 – compacted and cured
- Concrete C25/30 – compacted and cured

NOTE:

Bidders will give unit prices considering the following:

- o Distances from Nicosia up to 40km, 80km and 120km radii
- o ~~Will include performance bank guarantee costs in its unit rates~~
- o Will include insurance costs of at least Euro 50,000 for employer's liability and Euro 30,000 for the works