Description of Services and Works: Fountain 2

Original Use: Drinking fountain
Historical Period(s)/Chronology: Ottoman period
Materials: Stone, lime mortar, metal taps
Dimensions of structure: Approx. 6m diameter in plan (octagonal) x 2m height
Cadastral Information: Parcel 253, Quarter 20, Block 3, Nicosia, Sheet /Plan 21/46.02.08

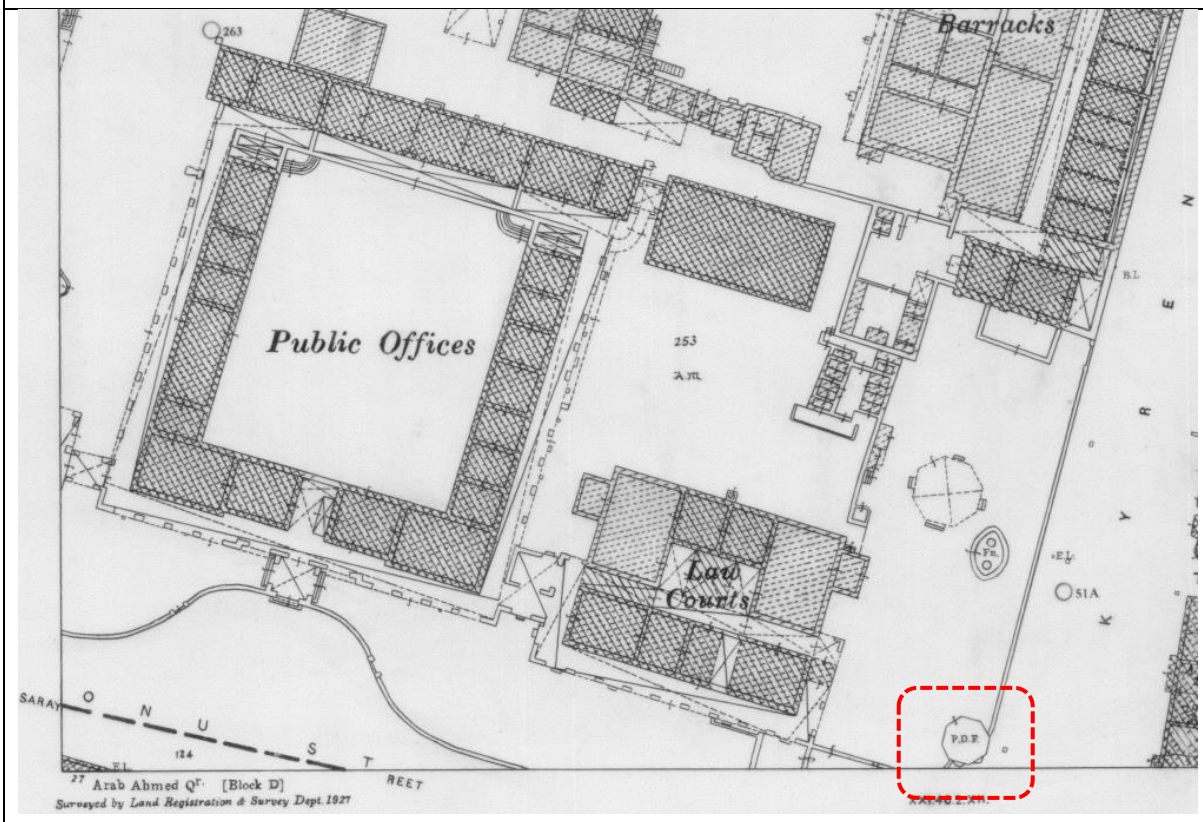

Figure 1 Cadastral map

Photographic documentation	Description of Services required
	- **General cleaning of the fountain (removal of waste)** - **Cleaning of the fountain's stone body** - **Assessment of the degree of corrosion of the reinforcement steel (exposed parts and further). Treatment of the corroded steel reinforcement elements according to the assessment (removal of rusting and application of corrosion inhibitors). Parts** - **Treatment and restoration the ashlar stone body of the fountain**

Photo 1. The façade of the fountain towards the street (southeast facade) @ UNDP, November 2018

Photo 2. Details of the deterioration of the upper decorative band of the fountain @ UNDP, November 2018

Photo 3. Deterioration on the lower areas of the fountain @ UNDP, November 2018

- Removal of loose and deteriorated mortar used for patch repairs on the stone
- Removal of non-compatible plasters and mortars (concrete)
- Consolidation of stone where needed. Stone with severe damage and/or deterioration should be replaced with compatible stone of the same size and type -carved profile should be reproduced. It is critical for the color of any additions to be compatible with the original stone body of the fountain
- Treatment of cracks

- **Repointing where needed with compatible mortar**
- **Treat the existing taps (remove rust) or in the case that the rusting is extensive replace with new tabs of same type. This item includes:**
  - Restore the handles of the taps
  - Remove the locks from the taps
- **Rainwater drainage issues to be addressed (roof) with repairing the existing hydraulic cement mortar on the roof and restoring the original rainwater drainage system.**
- **Cleaning and treatment of the basins of the fountain**


Photo 4 & 5. The basins of the fountain (embedded on the pavement) @ UNDP, November 2018

DESCRIPTION OF WORKS

Cleaning of the fountain's stone body:

- Dry cleaning of loose surface deposits on the stone surfaces to is performed using soft flat brushes, natural fibre brooms and vacuum cleaners. First level of cleaning aimed at removing loose deposits to be performed as follows;
    - Removal of iron elements (if any) scattered over the walls (nails, iron items, hooks).
    - Use of mild mechanical systems (cloth, natural fiber brooms) in order to remove traces of dirt, bird deposits and easily removable residues.
    - Use of low pressure compressed air aspirator for the complete removal of residues.
    - Localized use of scalpels, spatulas, small nylon or metal brushes, natural fibre brooms and vacuum cleaners, whenever it is deemed necessary.
    - In case of soft stone material, work must be done with maximum care in order to prevent crumbling of the stone surface. Special attention must be given to sculptured stone items so as not to cause any damage.
- Cleaning of vegetation by; localized application of the approved herbicide to remove vegetation and use of chemical products to complete manual removal, as follows:
    - Local application of approved herbicide
    - Wait until dry, minimum 15 days after application
    - Subsequent manual elimination of vegetation must be done with care so as not to cause damage to the fountain
- Cleaning of biological growth by applying a wide-spectrum, water-based and anti-mildew biocide solution with a brush, roller or spray (Kimistone Biocide or equivalent and approved). The material should be biocide suitable for wide-ranging use in eliminating autotrophic and heterotrophic microflora from the surface of stone

Treating the corroded steel bars:

- All exposed steel bars shall be cleaned from old concrete and corrosion (rust) by using wire brushing, taking care not to damage the stone.
- If corrosion has reduced the cross section of the steel bar to less than 80% of its original diameter then the affected steel bar must be removed.
- For the protection of all existing exposed steel bars, they shall be painted with an active primer, which contains active corrosion inhibiting additives.
- Provide and apply special protective paint on the exposed reinforcement bars – at least 2 coats

Treatment and restoration the ashlar stone body of the fountain

- Removal of loose and deteriorated mortar used for patch repairs on the stone using hand tools. Only if absolutely necessary and after approval by UNDP sand blasting at low pressure will be used with care so as not to damage the stone. Any inappropriate intervention/additions such as patch repairs with cementitious based materials should also be removed.
- Treatment of cracks following the following steps:
    - For cracks width between 1 and 5mm: The existing pointing should be removed along the crack at its total width and as deep as it can. The area should be cleaned from any loose materials and dust by watering and low-pressure air jet. The crack should be sealed with mortar on the facing external surface from where the slurry could sleep out. Holes of diameter 20-40mm should be drilled to a depth of 2/3 of the thickness of the stone structure. If the structural stone surface is thicker than 60cm is better to make holes from both sides. Small tubes or injectors should be fastened in place and then mortar- grout injection should be employed. The use of Mape-Antique I or similar is recommended. The day before injecting the slurry is recommended to saturate all the inside of the structure with water through the small tubes previously fastened in place. Particular care must be taken to the injection pressure which must be up to 1 bar. Injection should be started from the bottom working upwards. When the injection has been completed all tubes and injections and external seal-mortar must be removed. The remaining holes and gaps should be grouted with a compatible mortar from the Mapei range.
    - For cracks width between o.3 and 1mm: In that case the existing pointing should be removed along the crack at its total width and as deep as it can. The area should be cleaned from any loose materials and dust by watering and low-pressure air jet. The crack should be sealed with ready-to-use mortar containing natural hydraulic lime base material to match existing color, until the crack is fully sealed. The mortar will be well pressed with spatula, and treated externally with sponge. Test will be done for the approval of the engineer.
- Stone with severe damage and/or deterioration should be replaced with compatible stone of corresponding mechanical and physical characteristics with the existing sand stones. Stones to be removed must be marked and approved by UNDP prior removal. The stones which will be approved for removal, will be numbered, their exact location on the fountain will be noted and they will be stored. The new sand stones must be of similar color, size and texture in order to match existing sand stones characteristics. The existing sand stones in bad condition and defined as above will be carefully removed with soft machinery or by hand tools from existing location. Prior fixing the new sand stone in place make

sure that old loose members and all old mortars are removed and cleaned form the area. the area must be dust free and wet prior fixing the new sand stone with hydraulic lime mortar.

- Upon removal of ashlar stones in case the core

Removal of all damage or inappropriate pointing;

- Removal of inappropriate pointing using suitable instruments so as not to damage the stones up to 4cm depth.
- Deep manual cleaning of the joints and washing with potable water (PH 7 or higher)
- Repointing with ready-to-use mortar containing natural hydraulic lime base material to match existing color. Pointing mortar will be placed 0.5 cm recessed from stone surface and applied in two layers as described below, well pressed with spatula, treated with sponge. Stones are to remain clean of any pointing overspills. Excess mortar must be cleaned before dried.
    - First layer: Kimia Limepor NHL or equivalent product applied using small brushes, carefully avoiding affecting surfaces that are not involved.
    - Finishing layer with hydraulic lime Kimia Limepor SK or equivalent product mixed with local fine grain sandstone to match in color with the surrounding stone. Test should be done in small area for the approval of UNDP.
    - Regularization of finish using small sponges moistened with water.

Removal of top layer of the roof and its reconstruction; the works sequence on the top layer of the roof will follow as below;

- Carefully removal of the top roof layer with hand tools (no heavy machinery tools to be used) up to the filling
- Treatment of cracks with Limepor 100, where needed
- Construction of new lime concrete slab of at least 8-10 cm thick
- Smoothing edges to facilitate flow of water according to original detail.
- Waterproofing after one week with lime based (cement free) liquid water proofing material, Masterseal 390 or equivalent. Application of product should be done according to manufacturers instructions.

Existing taps on the fountains; existing taps are in bad and not working condition with some parts missing. Provide and fix same or similar taps on the fountains where needed. Sample of the taps will be submitted by the contractor for approval before they provide and fix at final location.

Concrete basin at the fountains; existing drainage basins in front of the fountains are concrete. All concrete members of the basin to be repaired strengthened with appropriate materials to upgrade the condition of the concrete basins. Drainage system to be checked in detail and bring the existing drainage system to a good and working condition. Apply liquid insulation in the basin.