

Description of Services and Works: Fountain 2

Original Use: Drinking fountain

Historical Period(s)/Chronology: Ottoman period

Materials: Ashlar stone, lime mortar, metal taps

Dimensions of structure: Approx. area 24m² (the fountain) and 7m² (the concrete basin)

Dimensions: approx. 3,5m (length) X 3,4m (width) X 2,50 m (max height).

Cadastral Information: Kyrenia, Sheet 12, Plan 210102, Plot 136

GPS information: Y: 35.341120, X: 33.320759 (35°20'28.0"N 33°19'14.7"E)

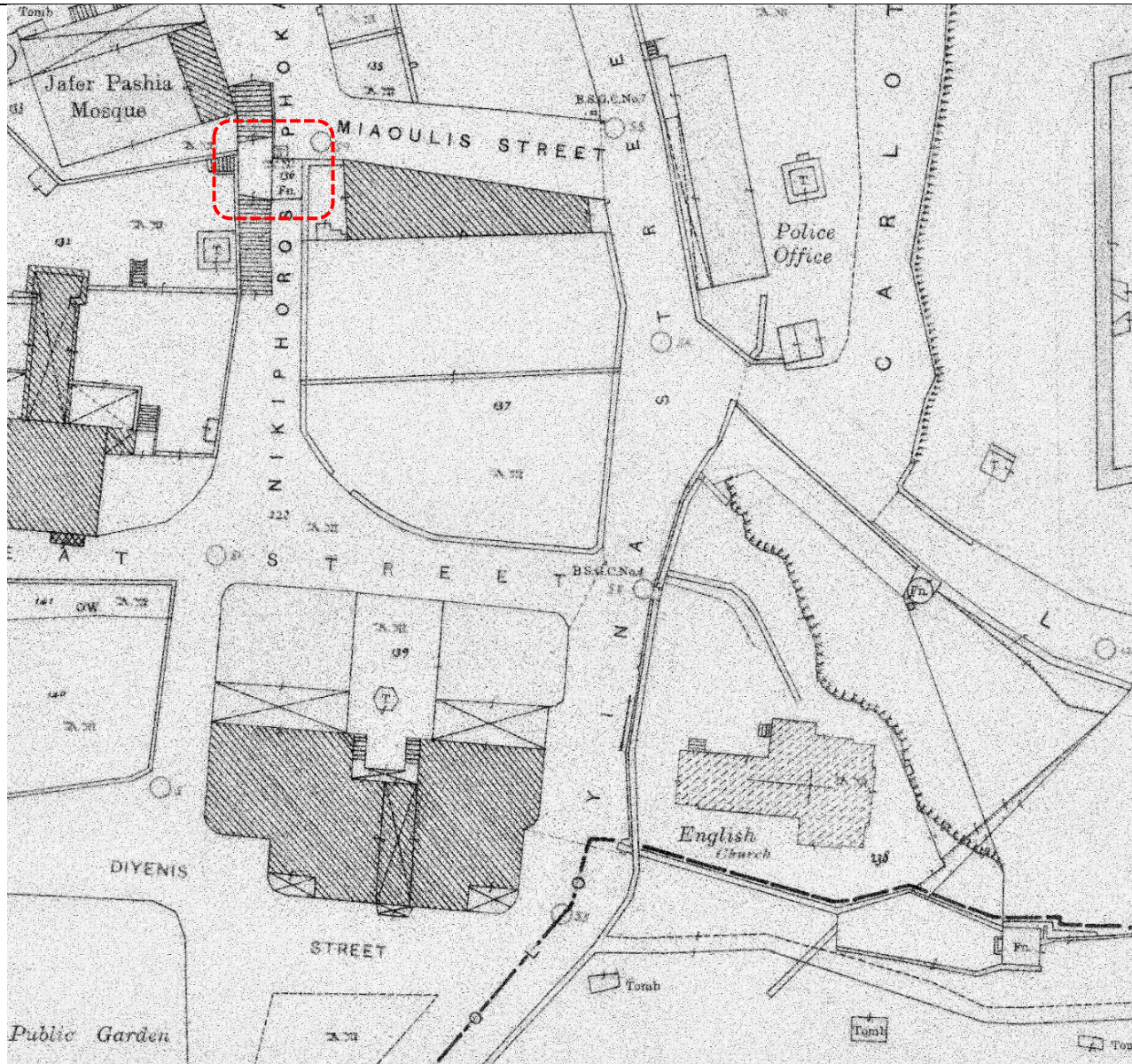


Figure 1 Cadastral map




Photographic documentation	Description of Services required
 <p>Photo 1. North façade of the fountain towards the street @ UNDP, February 2020</p>  <p>Photo 2. Northeast façade of the fountain @ UNDP, February 2020</p>  <p>Photo 3. The roof of the fountain towards the North @ UNDP, February 2020</p>	<ol style="list-style-type: none"> 1. General cleaning of the fountain (removal of waste from above and around the fountain) 2. Removal of vegetation and use of biocides for preventing further vegetation growth (at the main structure and the basin) 3. Treatment of cracks 4. Restoring stone body of the fountain and the adjacent wall to their original form (as it evident from its current state) 5. Treatment of the roof 6. Treatment of the basin 7. Replacement of the missing taps and treatment/replacement of any other rusted metal elements 8. Clean the existing drainage (provide and fix new copper down pipe if needed) ensuring the operation of rainwater drainage system 9. Cleaning and conservation of the inscription and the stone curved ornaments if needed 10. Replacement of deteriorated stones on the perimeter walls and stairs



Photo 4. The lower roof of the fountain @ UNDP, February 2020



Photo 5. The inscription on the middle blind arch of the north façade of the fountain @ UNDP, February 2020



Photo 6. The stairs that lead from the road to the roof of the fountain @ UNDP, February 2020

DESCRIPTION OF WORKS**1. General cleaning of the fountain (removal of waste from above and around the fountain)****2. Removal of vegetation and use of biocide for preventing further vegetation growth (at the main structure and the basin)**

- Dry cleaning of loose surface deposits on the stone surfaces: 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 fibre 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 biological growth and application of biocide: 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. The biocide should be washed off with a soft brush and water or with low pressure compressed air/water aspirator if needed. The manufacturer's instructions should be followed.

3. Treatment of cracks

Treatment of cracks following the steps below:

- 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 0.3 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 colour, 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.

4. Restoring stone body of the fountain and the adjacent wall to their original form (as it evident from its current state)

- Removal of cement mortar or any other incompatible additions on the stone
 - Incompatible or loose mortar
 - 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.
 - 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:
 - Repointing with ready-to-use mortar containing natural hydraulic lime base material to match existing colour. 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 overspill. 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 colour 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.
- Use of mortar to fill any holes on stones: Use compatible, lime-based mortar to fill any holes in the stones that do not present major deterioration and do not need replacement, to avoid rainwater penetration in the stones and therefore in the fountain

- Change all the heavily deteriorated or damaged stones as estimated:
 - Stone with severe damage and/or deterioration should be replaced with compatible stone of corresponding mechanical and physical characteristics with the existing sand stones.
 - Dry cleaning of the masonry cavity of loose surface deposits on the stone surfaces, dirt, vegetation, loose mortar, and loose debris to be performed using soft flat brushes, natural fibre brooms and vacuum cleaners.
 - The existing sandstones in bad condition and defined as above will be carefully removed with soft machinery or by hand tools from existing location.
 - Stones to be removed must be marked and approved by UNDP prior removal. The stones 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 colour, size and texture in order to match existing sand stones characteristics.
 - Prior fixing the new sandstones in place make sure that old loose members and all old mortars are removed
 - Pre-wet adjacent surfaces with clean, potable water before initiating rebuilding of the masonry. Any missing parts of the masonry of the fountains should be rebuilt with the same type of stones and mortar and in the same character with the existing one (in similar style and workmanship, taking account of the style and shape of any coursing patterns, masonry structure, stone shapes and the like).
 - Stone should be laid in an evenly filled bed of mortar, with full mortar coverage on horizontal and vertical joints. Adjust stone units to final position while mortar is soft and plastic.
 - Repointing with ready-to-use mortar containing natural hydraulic lime base material to match existing colour. The mortar must match in colour, texture, tooling, and sand content the existing. The objective is to match the historic mortar so that the new material will not conflict visually or physically with the original materials. It must also have less compressive strength than the surrounding stone material.
 - Periodic rewetting of the newly re-pointed area should be conducted as this will also prevent premature drying. Stones are to remain clean of any pointing overspills. Excess mortar must be cleaned before dried. When mortar is thumbprint hard, tool to match original appearance of joints. Remove excess mortar from edge of joint by brushing. Maximum tolerances from plumb and level new work, not to exceed variation from plumb and level of adjacent existing work.
 - Clean the new wall surface with natural brush after mortar is dry.
 - Overall aim is to reuse the existing stone available for the reconstruction of the masonry. If replacement units are required, they should match original sandstone in colour, texture, and size, and be free from salts and other contaminants.
 - All new materials must be checked for consistency, colour, absence of salt, ingredients, texture, etc.

- Provide and fix rubble stone where required (e.g. on the large gap on the northwest wall of the basin)
 - The new rubble stones must be of similar colour, size and texture in order to match existing sand stones characteristics.
 - Prior fixing the new rubble stones in place make sure that old loose members and all old mortars are removed, and the area is cleaned.
 - The area must be dust free and wet prior fixing the new rubble stones with hydraulic lime mortar

- The gaps must be filled with rubble stone in the full depth of the wall

5. Treatment of the roof

- Cleaning of the roof:
 - Dry cleaning of loose surface using flat brushes, natural fibre brooms and vacuum cleaner to remove loose deposits, if any
 - Use mild mechanisms (cloths, natural fibre brooms etc.) to remove traces of dirt and easily removable residues
 - Use of low pressure compressed air aspirator for the complete removal of residues
- Application of biocide and removal of organic growth and vegetation (**see step 2 above**):
 - Apply biocide to kill any vegetation / organic growth
 - After the application of the biocide as per manufacturer's instructions, remove any organic growth / vegetation with care (wash off with soft brush and water).
- Implementation of any necessary partial repairs needed:
 - Check the roof slab both at the exterior and inside the fountain (e.g. for minor cracks or for of the concrete slab that the surface has smoothened, and water insulation membrane cannot be applied)
 - Do partial repairs if necessary and where needed
 - Treatment of cracks as per step 3 above
- Application of water insulation membrane:
 - Apply water insulation membrane to protect the slab and the fountain from rainwater penetration

6. Treatment of the basin

- Necessary repairs on the basin
 - The concrete basin to be repaired and strengthen with appropriate materials to upgrade its condition
- Check the drainage system of the basin
 - Drainage system to be checked in detail and to be brought in a good and working condition
- Apply water insulation material
 - Apply water insulation material at basin's slab, that is appropriate for concrete

7. Replacement of the missing taps and treatment/replacement of any other rusted metal elements

- Replacement of the missing taps (same type as existing taps)
- Replacement of brass handles of the taps (in case where the tap is still in place, leave the original and replace only the handle)
- Repair any other rusted metal elements and paint with epoxy paint to avoid further rusting:

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

8. Clean the existing drainage (provide and fix new copper down pipe if needed) ensuring the operation of rainwater drainage system.

- The existing rainwater drainage system to be checked and restored in a working condition
- Replace the plastic pipes with new copper down pipes if needed to ensure the better operation of the rainwater drainage system

9. Cleaning and conservation of the inscription and the stone curved ornaments if needed

- Cleaning and conservation of the inscription and the decorative stone detailing by the contractor's conservator

10. Replacement of the heavily deteriorated stones on the perimeter walls and stairs

- Replacement units should match original stone in colour, texture, and size, and be free from salts and other contaminants. All new materials must be checked for consistency, colour, absence of salt, ingredients, texture, etc.
- Repointing with ready-to-use mortar containing natural hydraulic lime base material to match existing colour. The mortar must match in colour, texture, tooling, and sand content the existing (**see the instructions above in step 4 above**)