

Annex 1 – Client's Specification

Casting of Bronze Fountain, Nygaardsparken Bergen
BME EOS 09-2022



BERGEN
KOMMUNE

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1 Brief

The complete reconstruction of a large 1880s fountain in solid bronze. The fountain will consist of three tiers with ornate sculptures and internal pipework.

2 Project Description

As part of the ongoing restoration of the landscape Park of Nygaardsparken, The Municipality of Bergen (hereafter the Client) are reinstating a large bronze fountain that stood in the park between the 1880s until the 1960s. The fountain depicts sculptures of the four seasons, four mermen in a large basin and two cherubes.

A basis for the bidding and manufacturing will be the fully detailed, digital 3D model of the fountain provided by the Client as an STL file during the second stage of the tender. This digital model will facilitate the making of a pattern, thereafter the moulds and lastly the cast of each of the individual components – all three stages which will need to be allowed for in the tender returns by the bidder.

3 Detailed Description

3.1 Project background

The park of Nygaardsparken is located in Bergen, Norway and is currently undergoing extensive renovations and restorations. When complete, the bronze fountain will be reinstated on a new granite plinth in a 12 m diameter fountain pool from which 8 jet nozzles will throw water into the large second tier basin. The historic fountain was an important feature of the park until its removal due to deterioration, and it will therefore be important for the reconstructed fountain to be of excellent quality to ensure a lifespan of more than 100 years.

Research has shown that the historic fountain was manufactured from zinc and covered with a bronze imitation, explaining its inevitable deterioration. To ensure an identical appearance to the historic fountain but a more robust structure, the new fountain will be cast in solid bronze.

3.2 Details and Scope

Appearance: The new bronze fountain should be a replica of the historic fountain with regards to shape and appearance, and a high level of detail accuracy is required. The digital 3D model is based partly on 3D scans of a fountain in Latvia with a series of identical sculptures, but also partly on new digital modelling developed from historical drawings and photographs. It is important that the bidders fully appreciate the detailing of the model and can identify the areas where further detailing is necessary to achieve a faultless result.

Components: Due to the size of the fountain, it will be preferable to split it into parts. This will ease the pattern and mold making, as well as the manufacturing and dry assembling in the workshop. When the entire fountain is complete, it will need to be fully assembled in the workshop for a detailed inspection by the Client prior to sign off, shipping and handover. Disassembly of the fountain must be possible also following permanent installation.

Material: The fountain will need to be manufactured to a robust standard and bronze thickness that is suitable for a public space and be able to withstand the wear that is likely to be affected by. This includes not only maintenance access, but also unavoidable public interaction. All joints and fixing

must therefore allow for the necessary upkeep and future replacements of individual parts, as well as taking account of the sometimes cold and harsh coastal environment that it will be located within.

With regards to the surface finishing, physical samples will be required prior to the final workshop inspection to agree the colour and patination. This can be provided and agreed in the workshop during the review of the pattern.

Fountain plinth and pipework: The new granite plinth on which the bronze fountain sits will be provided by a separate contractor and installed in situ prior to delivery of the fountain. Some coordination will be required with regards to the bronze and granite junction, and the internal pipework. It is the intention that a separate contractor will install the pipework during the assembly of the fountain, and some coordination will therefore be required to ensure that the pipework is designed to fit the interior of the fountain and that all junctions are feasible.

3.3 Method Statement

A method statement by the bidder describing the process leading up to and including casting will be advised. This is to help the Client understand and compare the bids prior to awarding a contract and pick up any significant differences between the bidders in the manufacturing process. A method statement should be no longer than 1-2 pages and describe how the project particulars will be resolved, including the materials and casting techniques used. Any involvement of subcontractors should also be established in this statement.

3.4 Technical Design

The tender drawings and 3D model provided shows the external surface of the sculptures only. The bidder will be required to ensure that the sculptures are cast in a way that ensures a robust structure with no weak points, and where there are concerns, resolve these with the Client prior to manufacture. Where pipework and plumbing details are likely to be required, design exercises will be required together with the Client or their contractors to ensure the fountain is fit for purpose. The alloy ratio and thickness of the completed cast when set should be added to the documentation below.

3.5 Documentation

The bidder is expected to submit documentation of the bronze used for casting, such as the ratio of copper to tin in the bronze that is intended to be used, as well as datasheets for the materials that are proposed for all bolts, nuts and other fixing components.

3.6 Proficiency and Experience

It is a qualification criterion that the bidder is a registered foundry who specialize in bronze castings. The bidders experience with similar projects to the fountain will be considered as part of the award criteria.

3.7 Meetings and workshop visits

This paragraph describes the process following the award of contract, and the bidder is therefore described as 'the foundry'. All below meetings, visits and installation described are to be allowed for in the total cost.

Workshop Visits: It will likely be necessary to carry out two visits by the Client or their representatives to the foundry following award of the contract. One visit to review the completed pattern before the mould is created, and one visit to review the complete bronze fountain before it is shipped. If the Client wishes to carry out additional visits, this should be accommodated.

Meetings: The Client or their representatives are obliged to participate in digital meetings when requested by the foundry to agree on detailing or contractual arrangements. Similarly, the foundry will need to be available for meetings if the Client have queries about the progress of the project. All requests for meetings must be given with due notice by both parties.

Installation: The presence of installers from the foundry on site in Bergen, Norway, will be required for the assembly and commissioning of the fountain in liaison with the Client and their contractors.

3.8 Additional work

In the event where the Client decides to significantly amend any part of the design of the fountain from the material submitted in the 3D model beyond what is reasonable to adjust during pattern making, this will be additional work for which the bidder can submit a request for change notice and cost the work appropriate to the adjustment made.

Some additional time in Bergen, Norway, might be required for the installation and commissioning of the fountain. Anything beyond 3no working days on the installation site will be agreed at a later stage, and so day rates for labour from the bidder to extend the installation time should be submitted on the tender return as an estimate for additional work.

3.9 Copyright and licensing

All drawings and 3D models of the fountain provided to the bidders are under the copyright of the Client, regardless of format. The bidder is given access to these digital materials for pricing purposes only. Where a contract is not awarded, these materials are to be deleted. Where a contract is awarded, the 3D model will be used to create 1no pattern. Any use of the materials beyond the expressed wish of the Client will not be permitted.

Any patterns and moulds paid for by the Client will remain the Client's property. An agreement will be made between the Client and the bidders about where and for how long these should be stored, and whether any of these if reusable should also be handed over together with the cast.

If seen necessary by one of the parties, a Letter of agreement concerning the copyright of the material can be put forward to the other party for consideration.

3.10 Project Timeline

It is expected that the bidder provides an estimated project timeline addressing points 1-5 This timeline will be assessed as part of the award criteria.

1. Pattern completed and ready for inspection together with patination samples
2. Mould complete and ready for casting
3. Bronze casting, assembly and patination complete and ready for inspection
4. Delivery on site with foundry staff present, ready for final installation
5. Final installation

Timelines proposed by the bidder will be regarded as committal and used as a basis for a contract.

3.11 Handover

Handover of the fountain will take place on site in Bergen once the fountain is assembled and commissioned and describes the formal signature of the handover certificate. The handover certificate will require signature from both parties. The signature will be carried out when the fountain has been inspected and checked for any faults and it is confirmed that it operates as intended. Prior to handover, all documents such as user guides, maintenance recommendations, commissioning data and warranties must have been submitted to the Client.

The warranty period commences once the Handover Certificate has been completed and signed.

3.12 Contract

The contractual relationship is regulated by the Agreement document with accompanying appendices.

4 Minimum Requirements

The Client has a list of set requirements for the execution of the project. These are listed below and must be addressed and signed for in Merccell.

Nr.	Project requirements
1.1	Material, goods and craftsmanship The bidder must deliver the bronze fountain as described in Appendix 1- Client's specification and ensure that it is fit for purpose, free from defects, faults, errors or omissions in design, materials and workmanship during the warranty period.
1.2	Pattern and mould The bidder must allow for all necessary materials, equipment and workshop with sufficient cast pit in order to manufacture and present the required patterns and complete cast sculptures to the Client at the stages described.
1.3	Delivery and installation The bidder must allow for the delivery to and installation on site in Bergen, Norway. If this is likely to complete in winter, flexibility must be shown with regards to weather conditions. The bidder is expected to be present for the full assembly and commissioning of the fountain until the handover certificate can be signed.

5 Award Criteria

See part 1 Annex B