A1



1. Albert Memorial - South Elevation



2. Albert Memorial - Crown Finial at top

Lendlease

Document Review

Lendlease document received on:

1. Accepted
2. Accepted with comments
3. Rejected

Lendlease Checked by Jia Wen Lee

Date: 11/12/2019

Accepted documents are considered to conform to the design intent, but does not mean acceptance of dimensions, details, size or weights; nor does it relieve the designer from responsibilities for errors, omissions and/or compliance with obligations and/or responsibilities of the contract.

Notes

1. This drawing shall be read in conjunction with all other relevant drawings and documents.

2. This drawing is based upon Purcell drawing OTH-PUR-EE-ZZ-DWG-A-7101 and OTH-PUR-EE-ZZ-DWG-A-7106 received 01.10.19.

3. A lightning protection risk assessment calculation, in accordance with BS EN 62305, identifies that Albert Memorial is susceptible to lightning strike, and is not afforded fortuitous protection from nearby buildings such as the Town Hall. It is therefore Arup's professional opinion that lightning protection should be provided to the structure, to protect it from damage associated with a lightning strike, and protect individuals from potential injury caused by falling masonry etc. if a lightning strike occurred.

4. From a review of the Worthington drawings from the 1860s, it is thought that there is an integral stone-clad cast-iron armature within the memorial which forms part of the existing structure and connects in to the existing crown finial on the top of the memorial.

5. It is unclear whether this cast-iron armature was designed to provide fortuitous lightning protection to the memorial, however this does appear to connect from the foundations to the finial, and as such, if it is continuous, it likely provides some form of continuity to earth, which would attract lightning to the finial. This armature is not visible at any point, and it is not possible to expose the connections to the foundations.

6. As part of the survey works, a continuity test shall be completed to determine if the finial has a low-impedance path to earth. This shall be completed by carrying out impedance measurements from the top of the finial to a known earth, through driving a copper earth rod 3m in to the ground adjacent to the memorial.

7. The outcome of the continuity tests will help inform if any fortuitous lightning protection is afforded by the existing finial, and whether supplementary lightning protection should be provided.

8. Should it be determined that new lightning protection is required, this would likely be in the form of two bare copper circular conductors of approximately 12mm diameter, running down two opposite sides of the memorial and fixed at regular intervals, connecting from two connections to the finial at the top, to two solid copper driven earth rods provided in the public realm adjacent to the plinth, on opposing sides.

Rev	Date	By	Chkd	Appd
P01	04/10/19	TW	EO	DT
Work Stage 4 Issue				

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OUR TOWN HALL PROJECT

Client
Manchester City Council

Project Title
Our Town Hall - Manchester

Drawing Title
Albert Memorial Lightning Protection

Scale at A1
NTS

Role
Lighting

Suitability
D2 - Suitable for tender

Arup Job No
256650-00

Rev
P01

Name
OTH-ARU-EE-ES-DWG-E-24401

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Do not scale

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