Rosslyn Hill Chapel, Hampstead Heating Project Planning Sustainability and Climate Change Statement

Prepared for the client by Michael Brennan of Chris Reading Associates Limited Document issued in October 2024 – Ref: CRA2401-DS1

Registered Address: 8a Parr Street, Poole, BH14 0JY Registered in England and Wales | Registration number: 12240384 Tel. 07966 799 740 | E-mail: <u>mike@consultcraltd.co.uk</u> | Web: <u>www.consultcraltd.co.uk</u>

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M&E Building Services Design Statement

Subject: Planning Sustainability and Climate Change Statement – Installation of New Heating System at Rosslyn Hill Chapel, 3 Pilgrims Place, London, NW3 1NG.

(a) Details

(i) Designer Details:

Name:	Michael Brennan				
Address:	8a Parr Street, Poole, BH14 0JY				
Contact Information:	Tel: 07966799740, E-mail: mike@consultcraltd.co.uk				
Relationship to the Building:	M&E Consulting Engineer employed by Rosslyn Hill Chapel for the Heating				
	Project.				

(ii) Property Details:

Address: Rosslyn Hill Chapel, 3 Pilgrims Place, London, NW3 1NG Listing Reference: Grade II, 1130399 (Historic England) Ownership: Rosslyn Hill Unitarian Chapel Current and Proposed Use: Church

(b) Overview

The proposed project at Rosslyn Hill Chapel involves replacing the existing inefficient gas-fired heating system with a modern, energy-efficient solution that integrates air source heat pumps, underfloor heating, and perimeter radiators. This report outlines the sustainability aspects and compliance with Camden Borough's climate change mitigation requirements. The project prioritises improving energy efficiency, reducing greenhouse gas emissions, and maintaining the aesthetic and historical value of this heritage building.

(c) Replacement of the Heating System

The existing heating system comprises outdated indirect gas-fired convector heaters and infrared radiant heaters that have become inefficient and unsustainable. The proposed replacement system includes:

- Air Source Heat Pumps (ASHPs) Two ASHPs, each with a capacity of 33 kW, will provide efficient heating for the chapel, delivering a combined total output of approximately 50 kW. This technology reduces reliance on fossil fuels and significantly improves overall efficiency.
- Underfloor Heating Installed in selected areas of the nave and aisles, underfloor heating ensures even heat distribution while maintaining comfort and reducing heat losses.

• Perimeter Radiators - New radiators will be installed around the nave, aisles, and the organ mezzanine. The radiators have been selected for their aesthetic compatibility with the historical character of the chapel.

(d) Sustainability and Environmental Benefits

The new heating system is expected to use approximately 22,000 kWh of electricity per year, in comparison to the 120,000 kWh of gas consumed annually by the existing system. The estimated carbon emissions from the current gas system are 25,560 kgCO2e per year, while the proposed system is estimated to produce 6,050 kgCO2e per year. This represents a reduction in carbon emissions of approximately 76%. Further emission reductions may be achieved if the client uses a green electricity tariff, potentially resulting in zero emissions from the new system.

A comparison of the estimated annual energy usage and carbon emissions of the old systems and new systems is shown in the table below.

	Existing Heating System		Proposed Heating System		Improvement			
	Energy	Carbon	Energy	Carbon	Energy	Carbon	Energy	Carbon
	(kWh)	(kgCO2e)	(kWh)	(kgCO2e)	(kWh)	(kgCO2e)	(%)	(%)
Heating Fuel	120,000	25,560	0	0	-120,000	-25,560	-100	-100
Electricity	Unknown	Unknown	22,000	6,050	+22,000	+6,050	+100	+100
Total	120,000	25,560	22,000	6,050	-98,000	-19,510	-82%	-76%

The proposed upgrades comply with Camden Borough's sustainability goals and planning requirements:

- **Energy Efficiency and Reduced Emissions:** The ASHPs and the improved building services design contribute to a more efficient use of energy and significantly lower greenhouse gas emissions. The project is aligned with the borough's objectives to mitigate climate change through reduced reliance on gas and increased efficiency of building services.
- **Noise and Visual Impact:** The ASHPs will be positioned to minimise any noise and visual impact on the chapel's exterior and neighbouring properties.
- **Preservation of Historical Aesthetic:** Careful consideration has been taken to ensure that the new heating components blend harmoniously with the chapel's architectural features, maintaining its historical integrity while providing modern comfort.