

L O V E

CHARTERED ARCHITECTS

A R C H I T E C T U R E

PROJECT MANAGERS

Director: B Q LOVE RIBA FRSA



Date : August 2018 Ref : 761a810 - Design & Access.odt Revision p01

Church of St John - at - Hampstead, NW3 6UU

Proposed Photo-voltaic Array

Design & Access Statement

Church of St. John-at-Hampstead, Church Row, Hampstead, London, NW3 6UU is listed Grade I and is in the Archdeaconry of Hampstead, Diocese of London. Please refer to the attached [Historic England list entry summary](#).

It sits in Hampstead Conservation Area designated in Feb 1968. Referring to the church and its setting the Conservation Area Statement says:

Church Row is a street almost entirely lined with handsome early 18th century houses of brown brick with red dressings. Many have cast iron railings forming the front boundary. The street widens towards the west, focusing on St John's Church forming a well-proportioned and attractive urban space, marred at times by the traffic. The graveyard set in a mature landscape provides a beautiful backdrop to the Church.

And further notes:

Mount Vernon A narrow road at the northern end of Holly Place. From here there is an important view of St John's Church.

Proposal

The proposed development is installation of photo-voltaic panels on the south side of the nave and chancel roofs in locations where they are hidden by the existing parapets from views from surrounding vantage points, including that from Mount Vernon which is to the north of the church.

History of the Church

The Tower and main body of the church date from 1745-47 by John Sanderson, although part of the Tower was rebuilt in 1759 and the copper spire was added in 1784. There have been three significant extensions since, all at the west end of the church. What can now be loosely described as North and South Transepts were added in 1844. The present chancel, sanctuary and a small vestry were added in 1878. The Choir vestry and crypt room were added in 1912, by Temple Moore, with the undercroft and crypt room undergoing enclosure and alteration in the late C20th.

Design Intent

The intention is that the panels will generate electricity from a renewable resource which will reduce the purchase cost of electricity for the church, or will enable it to support additional activities, which will be of community benefit. In addition any surplus electricity will be exported to the national grid. All electricity generated will reduce the church's carbon footprint and assist in achieving the carbon savings target laid out

in the UK Climate Change Act 2008. The visual impact upon, and the interference with the historic fabric of, the church will be minimal

Roof Condition

The most recent quinquennial report on the condition of the church's fabric prepared by Robinson Thorne Architects states:

The Church of St John at Hampstead is in generally good condition and whilst the need for ongoing and regular maintenance and/or minor repairs is as important as ever, there are currently very few areas of critical or immediate concern.

Regarding the Main Roof, South side which is where the largest set of panels will be located the report states that the Welsh slates are in good condition had repairs have been effected since the previous report; that lead flashings appear sound; and the lead gutters have one minor crack which is not currently critical.

Regarding the Chancel Roof which is the second location for panels, the report states:

Slating is reasonable at present, however there are a significant number of old individual repairs with lead clips and there will come a point when more general reslating is appropriate, here and elsewhere.

And continues to advise:

Whilst the roof is sound at present, a thorough overhaul (strip and re-fix slates) is required prior to the proposed solar panel installation.

Electricity Generation

The proposed array is 33 x 300w panels.

It is estimated that the amount of electricity generated will be 9,179 kWh pa.

Given the daily activities and historic annual consumption figures of the church it is calculated that:

- 5,966 kWh pa. will be used on site
- a surplus of 3,213 kWh pa. will be exported to the national grid.

It should be noted that the above figures are estimates based on assessed demand using historical consumption data (rather than the 50% deemed for Feed In Tariff purposes). However they can only be estimates, as they will depend on weather conditions and future energy usage patterns. The actual figures could be higher or lower.

Community Benefit

The result will support the church and its activities, by reducing the church's electricity bill, or enabling additional activities at no increase in energy costs.

Alternative Options

The church has a programme of relighting to reduce consumption which has received Diocesan Advisory Committee Approval. It is now applying for a faculty and this is in process, with the aim to carry out the lighting works inside the Church in Q1 2019.

Although the LED upgrade will reduce grid-electricity consumption it would not be enough to achieve a D rated EPC (Energy Performance Certificate). The EPC survey was carried out at the end of 2017 and as a D Rating was not achieved, OFGEM exemption was applied for and received. Please refer to the attached the OFGEM confirmation of exemption letter.

Reduced Carbon Footprint

The panels will also reduce the church's carbon footprint, which will benefit the local community, the Diocese and the planet as a whole. The targets for reductions are:

Targets

- Long Term
 - Both the UK and the Church of England have set targets of reducing carbon emissions by 80% by 2050.
- Intermediate
 - The UK target is to reduce emissions by 57% by 2030
 - Both the Church of England and the Diocese target a 42% reduction by 2020
 - Camden Council's target is to reduce emissions by 40% by 2020

Comparison

In broad terms

- 6,000 kWh p.a. will used by the church
- 3,000 kWh p.a. will be exported

Thus approximately 9,000 kWh pa will be saved. From this figure must be deducted the carbon associated with manufacturing and sales of the panels, so the figures are multiplied by a factor of 0.36 to convert to kilograms of carbon per kWh.

Therefore the carbon dioxide saving will be $9,000 \times 0.36 = 3,240$ kg or 3.24 tonnes of CO² per annum

A round trip flight from the UK to New York has carbon dioxide emissions of approximately 1 metric tonne, so the savings which will be achieved by the installation of the panels will be equivalent to 6 transatlantic crossings by an air liner.

Without subtracting for manufacture and transport, the factor is 0.449, which gives a saving of 4.12 tonnes, the equivalent of 8 transatlantic flights.

Installation

Panels

The panels are to be Perlight Solar Plus PLM-300-MB60 series as described in the product data sheets shown on drawing E200 which also shows their fixings. All fixings are fully reversible, and at the end of the panels' life they can be removed and a replacement slate inserted. The panels are black in colour.

Inverters

The inverters are Zeverlution single phase inverters and will be installed where shown on drawing E200.

Cable Runs

These are shown on drawing E200.

Maintenance

A maintenance regime will be established of an annual visit to check and test the system. Every third year the panels are to be cleaned to ensure they continue to operate at their potential. Access to the panels will be via the existing roof access points.

Visual Impact

As can be seen from the Aerial View on drawing X100, to the south of the church are large mature trees. These are all evergreen, so the cover is provided throughout the year. See photos on drawing X700 showing views of the roof from the churchyard.

From the ground the panels will only be visible from the south side of the church, and at a distance at least greater than 50m from the south facade. Closer than this they will be hidden by the parapet wall. The land to the south slopes downhill, so the actual distance from which they will be visible to a standing person is considerably greater than 50m. The visual impact for nearby residents will be negligible, due to the falling away of the land toward University College School.

The panels chosen are black to blend in with the slate roof. There may be some visual impact when viewed from the upper floors of houses in Ellerdale Road, but this will be minimal as the residential houses between that road and the Church are at a much lower level.

Access

Public and disabled access to the church and heritage asset will be safeguarded or enhanced, while public access to the panels is not needed (only maintenance).