Delta Green
environmental design

Solar Specification

St Wilfrid's Hospice, Bosham
Solar Photovoltaic System

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I) TABLE OF REVISION

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1.0 INTRODUCTION

1.1 THE PROJECT

St. Wilfrid's Hospice is an existing development located in Bosham, West Sussex. The project is to provide a new photovoltaic system to serve the development, maximising use of existing available roof space.

1.2 THE BUILDING

St Wilfrid's Hospice is an existing hospice building located in West Sussex. The building is live and offers critical care amongst other community services. It is vital that the building remains live during any works associated with the project. Any intrusive works which may impact staff or patients, must be carefully co-ordinated with the hospice.

1.3 THE PROJECT OBJECTIVES AND SCOPE

The purpose of the project is to provide the hospice with a new solar PV system by making use of existing roof space. The primary focus for this project is to help offset the buildings energy costs without adversely impacting the visual appearance of the building. There is no requirement to meet any energy related compliance; however the scheme will enhance the building's sustainability credentials and take a step towards carbon neutrality.

The Contractor shall allow to design, supply, install, commission and set to work a new photovoltaic system in accordance with this specification and any constraints identified onsite.

The Contractor's design shall include a layout drawing for the photovoltaic array(s) showing cable routes and intended builders work.

The Contractor shall allow to attend site, prior to completing the design, to undertake a comprehensive site survey. The purpose of the survey shall be to inform the Contractor's design. This will include identifying any onsite constraints, confirming cable routes, inverter locations and all associated builders work.

The proposed areas for installation are predominantly on a standing seam roof, to be surveyed by the contractor. The client's preference is for fixings associated with the installation to make use of the standing seam and not to compromise the integrity of the roof structure.

The Contractor's design shall be submitted to the hospice for review prior to procurement of materials or any works onsite. The design should include a provisional programme of dates when work will be undertaken.

Once approved, the Contractor shall liaise directly with the hospice to organise the work onsite.

The Contractor shall work with the Hospice to ensure all wider aspects of the project are addressed including, but not limited to:

Planning Permission – it is anticipated that the scheme will fall under permitted development, however the project shall be notified accordingly. The Contractor will manage this process with the Hospice and provide all necessary information to supplement the submission.

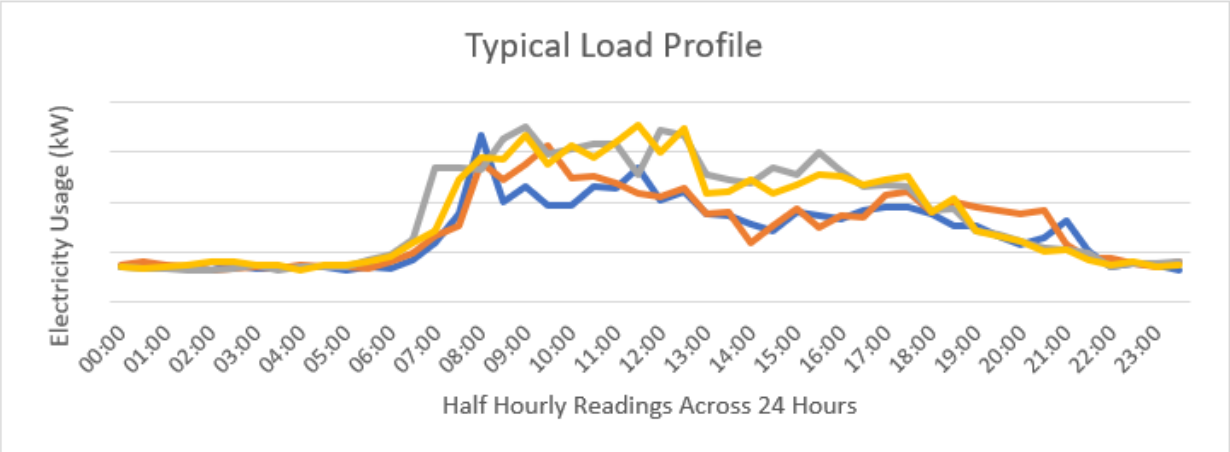
Structural Calculations – The Contractor will mange the process of confirming the existing structure and roof construction is suitable for the proposed installation. The structural calculations / report shall be made available to the Hospice for record purposes.

Wind Load Calculations – The Contractor will provide wind load calculations for the installation and provide these to the Hospice for record purposes.

1.4 BUILDING ENERGY PROFILE

The buildings existing energy usage has been analysed over a period of 12 months, between October 2021 and October 2022. The data shows a peak usage figure of approximately 60kW and an average of around 38kW daily peak, occurring in the colder months of the year.

The below graph shows example data for the buildings energy profile. The graph shows that the building has a base usage rate through the night, which increases at around 07:30am each morning. The usage remains higher throughout the working day before tailing off in the evenings. The base rate of usage is approximately 20kW.



The PV scheme has been designed to account for the anticipated peak usage with additional consideration for the potential future provision for electric vehicle charging onsite. It should be noted that the installation can be extended in the future, should it be appropriate to do so.

1.5 PHOTOVOLTAIC (PV) SYSTEM

A new photovoltaic (PV) system shall be provided to serve the building. The PV system will be roof mounted as indicated on accompanying drawing / sketches.

It is proposed that a 86.94 kWp system is provided to the development. The proposed system shall comprise 207 PV panels rated at 420W with an efficiency of 20.3%.

It is expected that this will generate sufficient electricity to cover >90% of the Hospice's usage during summer months, and >60% of usage during winter months, base on energy data collected by the sites incoming electricity metering.

It is proposed that the panels shall be from the LG NeON2 range or equal and approved. The installed panels should include a manufacturers product warranty of not less than 25 years.

The Contractor shall allow for the design, supply, installation and certification of the roof mounted solar photovoltaic array. This shall include all associated ancillary items and equipment associated with the installation such as mounting brackets, wind guards etc.

New inverters shall be provided for the PV system. The final location of PV inverters shall be agreed with the Hospice onsite, however it is proposed that these may be external adjacent to existing plant – subject to size and onsite co-ordination.

The Contractor shall allow for bird netting or a similar anti-nesting solution to prevent birds nesting in the vicinity of PV panels.

The Contractor shall allow to liaise with the electricity network operator to ensure permission will be provided to connect the new PV system to the grid. The Contractor shall fully comply with EREC G83, G99 or as applicable and as required, dependent on size of PV array.

The Contractor shall have MCS accreditation or shall employ an MCS accredited specialist to provide the Photovoltaic installation (PV) of all Panels, dc cabling, dc isolators, inverters etc as required to form a complete installation.

The Contractor shall design, supply, install, commissioning and set to work new DC/AC solar inverters as required to suit the installation. It is anticipated a number of inverters will be required to suit the fragmented nature of the solar arrays.

The Contractor shall install an A/C isolator adjacent to the PV Inverter connected back to a local distribution / panel board. Final connection of the PV system shall be by the specialist PV installer.

1.6 BUILDERS WORK IN CONNECTION (BWIC)

The Contractor will be responsible for all builders work associated with the installation. The Contractor shall detail all proposed builders work and issue to the Hospice for review prior to starting onsite. Builders work shall be minimised wherever possible, and the Contractor shall be responsible for making good. Any builders work through fire rated walls shall be appropriately sealed / fire stopped on completion of the work.

1.7 INSTALLATION ACCESS

The Contractor shall be responsible for providing all necessary access and lifting equipment to facilitate the installation. Where fixed access equipment such as scaffolding is required and expected to be onsite for an extended period of time, this shall be co-ordinated with the hospice.

1.8 SITE WORKS AND CO-ORDINATON

The Contractor shall make due allowance for working in and around a live building. This shall include providing a programme of the works with key milestones. The programme shall highlight any works considered to be 'intrusive' such as localised power shut-downs, so these can be appropriate co-ordinated by site staff.

The Contractor will also be required to provide a Risk Assessment & Method Statement (RAMS) for the works, to be agreed with site staff.

It should be noted that the site is provided with a back-up generator. The contractor shall ensure all necessary precautions are taken.

1.9 COSTING

The Contractor shall provide a complete and compliant tender for the proposed scheme for St Wilfrid's Hospice. The tender should include a breakdown for each element of the works, and clearly outline any assumptions or exclusions deemed necessary.

It is requested that the contractor also includes a cost for ongoing maintenance of the system, in accordance with manufacturers recommendations.

Should the contractor wish to propose any alternatives to the scheme, such as alternative panel manufacturers, these shall be listed below the line and identified as either a cost saving or addition. It is requested that a description of any variations be provided with the return, for client consideration.