In April 2017 we were asked by the architect for a couple, to provide a budget quotation for the installation of an Open-Loop GSHP to heat a new build property in Alfriston, Sussex, which we duly provided. Following subsequent site visits and receipt of SAP reports a detailed scale plans, we were accurately able to size the unit required and provide a Firm Quotation to recommend the installation of a 6kW Kensa Shoebox heat pump.

Kensa Shoebox

This was the first installation where we recommended a closed-loop conversion instead of a dedicated open-loop heat pump. The decision was made as the properties of the building indicated that the smallest dedicated open-loop unit wold be 2 times larger than necessary and would therefore be oversized. We had been in discussions with another British manufacturer regarding their interest in developing a dedicated open-loop unit and decided to approach them regarding the suitability of converting one of their smaller closed-loop units to provide the required heat for this project. They confirmed that it would be possible to convert a unit and still achieve similar efficiencies to a dedicated open-loop unit. The feedback we received was very positive and the support they offered us during and after installation enabled us to confidently provide a firm quotation for this installation in October 2018. This quotation was accepted and we were contracted to undertake the work in November 2018.

A 200mm diameter borehole was constructed to a depth of approximately 25m below ground level. Vagaries in the hydro-geology were encountered meant that while we had to line the borehole as we had encountered sand at a higher level than anticipated, and therefore we had to stabilise the hole, as we had not drilled to the quoted depth, we were able to provide a net saving of £400 to the client. The client also chose to invest in a dual switching system. This is basically the installation of 2 borehole pumps (to get the groundwater out of the borehole and into the heat pump) which act as 'duty' and 'standby'. We recommend a dual borehole pump switching system on all our water supply and heating installations as this means that if one pump fails, then the client is not without water or heat. The borehole was test pumped to prove efficiency and records of the borehole construction were provided to the British Geological Survey as required.

Between the initial borehole construction in 2018 and the installation of the heat pump in 2019, we had to recalculate the size of the required heat pump unit as the owners of the property being constructed wanted the unit to provide hot water also. In this case, the size of the specified unit was suitable to provide this additional service.

The client also decided that rather than returning the cooled water straight to the recharge borehole (soakaway), they would like to install a harvesting tank to collect the cooled water to enable it to be used for garden irrigation as well as allowing it to regain heat before being returned to the aquifer.

Garage/Plant Room

During the installation process, the home owners had questions regarding the domestic RHI which our team were able to address. The team provided the client with the Essential Guides for the homeowners which answered many questions and enabled us to sign-post to the relevant information and assuage any fears.

Installation work was completed on site in August 2019 and the installation was registered with the MCS and insurance backed warranties were secured and the client was provided with a handover pack which included all the information required to ensure they understood the operation of the system and how to apply for the dRHI. Also included for the system was a maintenance agreement, which was required as evidence of regular system maintenance to comply with the requirements of the dRHI.

The installation has been designed to be dRHI eligible and the client has been given all information we can provide to aid in the application for the incentive.

Since the completion of this installation, we have been taking regular data from the system, as it was our first closed-loop conversion. Currently, the figures are looking very good, with efficiencies of up to 150% above the manufacturers expected figures when connected to a closed-loop system being indicated. While we are holding our breath to see if these remain consistent, the evidence is promising, and the manufacturer is very interested in seeing how other 'converted' open-loop systems perform. We will be sharing data with them regularly in order to inform our own open-loop system design and to possibly to assist them in developing a dedicated unit.