Geo Green Power

Planning Department
Staffordshire Moorlands District Council
8th April 2019

REF: Planning Permission: 180kW Ground Source Heat Pump at Goldhurst Farm, Hollington, ST10 4HY

Back in April 2018, the applicant approached Geo Green Power to ask for advice on how they could best utilise renewable energy generation opportunities on their land to reduce the environmental impact of the business. Geo Green Power proposed the installation of 180kW heat pump system to replace the existing LPG energy system at the time.

DESIGN & ACCESS STATEMENT, 180kW Ground Source Heat Pump

1. ACCESS

The specific location of the ground source heat pump is within the pre-existing plant room adjacent to applicant owned building (marked on Appendix C) at Goldhurst Farm, Hollington, ST10 4HY. No alterations, extensions or building works were necessary to facilitate this.

The ground collector is buried beneath the empty agricultural field to the east of Goldhurst Farm. Now the ground collector is installed, access to it will never be needed during the lifetime of the system. Neither the ground source heat pump in the existing building, nor the ground collector in the field, impact accessibility needs to public highways, cycle paths or foot paths. They also do not impact access needed for emergency vehicles, or connections that these may require. The land has been returned to its original state prior to the installation of the ground collector (empty/unused agricultural farmland) and can continue to be utilised in whatever capacity is seen fit, such as animal grazing, crop growing etc. Note that the pipe is laid deeper than any agricultural ploughing depth.

CHARACTER

Geo Green Power designs and installs ground source heat pump systems with high regard for the aesthetics and impact on surrounding areas. In order to meet the local requirements, Geo Green Power were careful to ensure that this heat pump is a non-permanent installation. The heat pump will be removed as soon as it is no longer required. The system has no permanent features and could be removed in its entirety and everything would be returned to exactly as it was before installation.

The 180kW ground source heat pump is built using 3 off NIBE F1345-60 sub-modules. The manual containing technical data has been included separately (GGP.DATA.F1345 Installer Manual). This is located within an existing plant room and so is not visible from any roads, fields or viewpoints.

The area of land chosen for the ground collector is Grade 3c and has no specific landscape quality. The insulated pipework of the ground collector is buried 1m underground and therefore is not visible to the surrounding area or to the public. In addition to this, there are hedgerows along each boundary of the field providing screening from all angles, as well as neighbouring fields and buildings between the

proposed development and any highways. Additionally, the applicant owns all the surrounding land as can be seen in document 'GGP.Location Plan 1 to 2500'.

Once the heat pump is no longer in operation the system will be removed immediately. The heat pump underground collector has no moving parts and therefore maintenance is minimal. There should be no need for the underground collector location to be accessed on foot any more than 3 or 4 times over the duration of the guaranteed period of twenty years. The heat pump itself was installed in a pre-existing plant room, hidden from view, and therefore can be disregarded as part of this planning application

The area of excavation for the ground collector is 4,800 sq m. The collector has been made up of 24 x 200m trenches. This has been filled with 9,600m of 40mm SDR17 pipe and then back-filled with the original soil . Scaled drawings of the collector have been included in the application: 'GGP.PLANS Ground Collector Trench Layout.' The pipes directly run from the ground collector to the heat pump and the land was returned to its original state immediately once the pipes were laid. Excavation, pipe laying and back-filling took just one week. A to scale Ordnance Survey Map has been submitted separately ('GGP.Location Plan 1 to 2500' and 'GGP. Site Location Plan 1 to 1250')

The collector does not fall within an area of outstanding natural beauty nor does the site fall within a biodiversity and ecological point of interest.

2. COMMUNITY SAFETY

Geo Green Power have made the heat pump as safe and secure as possible. This includes meeting specific health & safety requirements during installation and for the lifetime of the system. The heat pump collector does not have any moving parts that could impact the safety of the system. All work and materials used in the system meet the relevant electrical, plumbing and mechanical standards including, but not limited to, BS7671 compliance for any A/C components, and MCS compliance regulations for D/C components, G99 IET wiring regulations and EN 14825. Groundworks completed according to relevant Health and Safety regulations and 'CITB: Advice for Construction Operatives onsite safety procedures of work'. Geo Green Power is NICEIC accredited and Gas Safety Registered.

Geo Green Power has taken care to ensure that the heat pump is in a location so as not to impact the safety of the general public. (Heat pump is located within the applicants private building so is not accessible to general public).

3. ENVIRONMENTAL SUSTAINABILITY

The applicant wished to reduce the environmental impact of his business. The installation of the 180kW heat pump system will reduce their carbon footprint by approximately 330MWh per annum. This environmental impact of the business on the surrounding area was reduced immediately as the heat pump system replaced the LPG heating system previously installed. (See Appendix D)

The heat pump system does not contribute to the merging of neighbourhoods and indeed we can demonstrate that the heat pump and ground collector have a limited impact on the appearance and openness of the surrounding area. The ground collector only takes up a proportionally small parcel of land within the applicant's boundary. That land is in fact still able to be utilised and the pipes are below ground. Additionally, the heat pump system is not visible from the surrounding highways or footpaths and its location has been specifically selected because of this (see Appendix A). We would draw attention to the fact that the site is already well contained by physical barriers within the landscape.

Furthermore, this location has not only been chosen for the minimal visual impact but also to assist in the development having minimal amenity impact. The site has been chosen because of the proximity to the business' private supply to which it will be connected in to, and therefore the reduction in the amount of ancillary infrastructure needed to support the scheme.

The land was returned to its original state straight after the pipes of the ground collector had been laid and back-filled. The method of excavation, pipe laying and back-filling, also means that the land is still able to be used for dual purpose if so needed, as the surface area is still be accessible. The land may be used to whatever agricultural purpose it might have been used for before the installation of the heat pump. It is considered that the finite and reversible aspect of the proposals should be afforded significant weight when considering the very special circumstances of this proposal.

In addition, the Government has a commitment to heat pump development and has identified this form of renewable energy production as having an important role to play in a balanced UK energy policy. The European Union Directive 2008/28/EC (April 2009) set a target that 15% of all energy consumed should be from renewable energy sources by 2020. Heat pump energy is therefore capable of providing a source of energy at a time when there is an overall issue in terms of energy supply and security within the UK.

Overall, the principle direction of both national and local planning policy is to support the use of renewable energy technologies, such as heat pumps, to contribute to the U.K.'s target of reducing its carbon dioxide and other greenhouse gas emissions. This heat pump system allows this farm to cut its CO2 production by 148.5 tonnes a year. One of the core principle planning policies of the NPPF is a move towards a low carbon economy and the Framework is clear in its support of renewable energy projects. The generation of electricity at the site to drive the heat pumps from renewable power is a positive factor in favour of the proposal and it would make a valuable contribution in the context of wider environmental benefits.

In the future, should the heat pump system need to be removed, it is a non-permanent fixture and so can be done with minimal impact on the surrounding areas. Water sources and waste management will not be affected.

4. MOVEMENT TO, FROM AND WITHIN THE DEVELOPMENT

As the heat pump system is on the applicants' private land, the use of any public transport remains the same, as do the parking arrangements currently in place. Any surrounding footpaths, highways or

cycle ways are unaffected by the heat pump system. Additionally, the delivery schedule of installing this heat pump system did not increase the level of traffic that the business was used to receiving on a daily basis due to the nature of their work. Access is detailed in Appendix B.

6. CUMULATIVE IMPACT

This heat pump system provides renewable heat for the applicant's own business activity, rather than using fossil fuel based sources, such as LPG, enabling the applicant to significantly lower their grid energy and propane consumption by around 330MWh per annum. This project is one of the few practical alternatives there is to help the transition the business to a lower carbon energy use footprint.

7. WILDLIFE & TREES

When designing the current proposal, thought was given to section 11 of the NPPF. There is no security lighting installed so this heat pump system does not contribute to the light pollution of the surrounding area. Additionally, the system does not contribute to noise pollution as there are no high power moving parts in the heat pump system and therefore wildlife that may be situated in the surrounding trees and hedgerow shall not be adversely affected. The ground collector and heat pump are not within reach of wildlife so wildlife is not affected. There will be no building demolition and there are no ponds in the vicinity.

Specific attention has also been paid to BS5837-2012 "Trees in relation to design, demolition and constructions". All existing hedgerows that are currently at the applicant's site have been considered. It is well understood that these are all 'material considerations' in the planning process, and to this end, no demolition was needed in order to accommodate the proposal (section 5.4).

Section 5.3 of the BS5837-2012 outlines that the Root Protection Area of any on site tree should not be affected by the proposed development. The ground collector structure is situated underground. However, it is also far enough away from the hedgerow regardless, so that direct damage to the development shall not occur, e.g. from falling branches, or seasonal nuisances, meaning that there will be no pressure in the future to remove these trees. Instead, the trees and hedgerow which provide character and visual amenity to the surrounding area have been retained and not adversely affected. The trees and hedgerows provide screening to all four sides of the development (which is not visible anyway as it is located underground) Allowances for sufficient room for root growth were given and the proposal does not interfere with any Root Protection Orders.

8. HERITAGE STATEMENT

The closest heritage asset is Goldhurst Farmhouse, List UID 1280885, Grade ll*. It falls outside the application site and no works were carried out on the house, although its setting has been considered a key factor of the development as the heat pump provides heating for the house. The 180kW heat

pump system was installed nearby Goldhurst Farmhouse within a pre-existing plant room within the curtilage of Goldhurst Farm (business curtilage). A small section of the applicant's land adjacent to Goldhurst Farmhouse was used for the ground collector. This did not affect the heritage asset from a material point of view. The heat pump system is located just over 50 meters away from Goldhurst Farmhouse at its nearest point and the system is all hidden below ground. Even during the brief installation period, substantial screening lies between the development site and the house meaning the system was not visible from the Grade II* building during installation.

The proposal does not contribute to the noise or light pollution of the surrounding area and therefore this will have no negative impact on the heritage asset either.

The location of the Grade ll* building and the proposed site is indicated in Appendix C.

Please do not hesitate to contact me should you require any further information.

Yours faithfully

Chloe Reganaz
Geo Green Power Ltd

Appendix A



Viewpoint A



Viewpoint B



Viewpoint C



Viewpoint D



Viewpoint D is an up to date picture of the where the ground collector has been buried. Ground has been returned to original state.

Appendix B



Access route marked in yellow

Appendix C



Not to scale

Grade ll* Goldhurst Farmhouse is specified by the blue triangle and yellow rectangle. Heat pump indicated by red cross. Buried ground collector in black.

Appendix D



Previous LPG heating system. 180kW ground source heat pump system has replaced this heating system.