Geo Green Power

Staffordshire Moorlands District Council

Moorlands House

Stockwell Street

Staffordshire Moorlands

ST13 6HQ

4th August 2020

REF: Planning Permission: 26kW Ground Source Heat Pump installation at Oakhill, ST10 4JH

In April 2020, 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 dwelling at 1 Oakhill, ST10 4JH Geo Green Power proposed the installation of a 26kW heat pump system.

DESIGN & ACCESS STATEMENT, 60kW Ground Source Heat Pump

1. ACCESS

The specific location of the proposed ground source heat pump system is within the pre-existing adjoining garage adjacent to applicant owned building (marked on Appendix C) at ST10 4JH. No alterations, extensions or building works are necessary to facilitate this.

Rather than utilising a large ground collector system, a borehole option has been selected, thus reducing the area of land affected by the installation. The boreholes would be 125m beneath the ground to the south of 1 Oakhill. Once this is installed, access to it will hardly be needed during the lifetime of the system. Neither the proposed ground source heat pump in the existing garage, nor the boreholes, would impact accessibility needs to public highways, cycle paths or foot paths. They would also not impact access needed for emergency vehicles, or connections that these may require. The land would be returned to its original state prior to the installation of the boreholes and could continue to be utilised in whatever capacity is seen fit.

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 would be careful to ensure that proposed heat pump would be a non-permanent installation. The heat pump would be removed as soon as it is no longer required. The system would have no permanent features and could be removed in its entirety and everything would be returned to exactly as it was before installation.

The proposed 26kW system comprises of 2 x Stiebel Eltron13kW ground source heat pump units. The manual containing technical data has been included separately (GGP.Heat Pump Datasheet). The heat pump would be located within the existing garage and so would not be visible from any roads, fields or viewpoints.

The area of land utilised for the borehole would be minimal. There would be 4 x 120mm boreholes which would be 125m deep. This would be filled with 500m double probes which would convene at a manifold. From the manifold there would be a 25m header trench which would be 1m wide and excavated, filled with 63mm pipe and then back-filled with the original soil. Scaled drawings of this have been included in the application: 'GGP.Borehole Layout'. The pipes would directly run from the manifold to the heat pump and the land would be returned to its original state immediately once the pipes were laid. Excavation, pipe laying and back-filling usually take just one week. A to scale Ordnance Survey Map has been submitted separately ('GGP.Location Plan'). The pipework would be buried 1m underground and therefore would not

be visible to the surrounding area or to the public. In addition to this, there are trees or fences along each boundary of the site 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'.

Once the heat pump is no longer in operation the system will be removed immediately. The heat pump few moving parts and therefore maintenance would be minimal. There should be no need for the borehole locations to be accessed over the duration of the guaranteed period. The heat pump itself would be installed in a pre-existing garage, hidden from view, and therefore can be disregarded as part of this planning application

2. COMMUNITY SAFETY

Geo Green Power would ensure that the heat pump was 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 would 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 would be completed according to relevant Health and Safety regulations and 'CITB: Advice for Construction Operatives onsite safety procedures of work'. Geo Green Power is NICEIC and CHAS accredited and Gas Safety Registered.

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

3. ENVIRONMENTAL SUSTAINABILITY

The applicant wishes to reduce the environmental impact of the dwelling. The installation of the proposed 26kW heat pump system would reduce the carbon footprint by approximately 30MWh per annum.

The heat pump system would not contribute to the merging of neighbourhoods and indeed we can demonstrate that similar heat pump and borehole installations have a limited impact on the appearance and openness of the surrounding area. The proposed boreholes only take up a proportionally small parcel of land within the applicant's boundary. That land is in fact still able to be utilised as the pipes are below ground. Additionally, the heat pump system would not be 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 dwellings' private supply to which it would be connected into, and therefore the reduction in the amount of ancillary infrastructure needed to support the scheme.

The land would be returned to its original state straight after the pipes had been laid and back-filled. The method of excavation, pipe laying and back-filling, also means that the land would still be able to be used for dual purpose if so needed, as the surface area would still be accessible. The land may be used to whatever 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 Climate Change Act commits the UK government by law to reducing greenhouse gas emissions by at least 100% of 1990 levels (net zero) by 2050. 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 1 Oakhill to cut its CO2 production by 13.5 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 heat from a renewable energy source (the ground) to drive the heat pump in order to generate heating for use throughout the dwellings, 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 proposed heat pump system is on the applicants' private land, the use of any public transport would remain the same, as would the parking arrangements currently in place. Any surrounding footpaths, highways or cycle ways would be unaffected by the heat pump system. Additionally, the delivery schedule of installing this heat pump system would not increase the level of traffic that the dwelling is used to receiving.

Over the course of this heat pump installation, a 6.5 tonne lorry will visit site one or two times to deliver the probes, 63mm pipe, approximately 1,500L of Thermox DTX delivered in 800L IBCs and the heat pump itself along with ancillary equipment. This will not increase traffic or access to the site above and beyond what is usually expected in the running of a property this size. A low loader will visit site twice, and this will be to deliver and then collect the machine that will be used for the borehole excavation works. Additionally, contractor vans (Vauxhall Vivaros etc) will be making daily trips to site, and these will not cause any over-run whilst accessing the site. There is a well-established path to drive along the boundaries of the applicant owned fields to reach the intended location of the development. No new access will need to be granted and there is substantial on-site private parking.

Access is detailed in Appendix B.

6. CUMULATIVE IMPACT

This heat pump system would provide renewable heating for the applicant's own 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 30MWh per annum. This project is one of the few practical alternatives there is to help the transition 1 Oakhill to a lower carbon energy use footprint. The system has been designed in line with the customers personal consumption so therefore has not been designed to work in conjunction with other heating systems of surrounding properties.

7. WILDLIFE & TREES

When designing the current proposal, thought was given to section 11 of the NPPF. There is no security lighting to be installed so this heat pump system would not contribute to the light pollution of the surrounding area. Additionally, the system would 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 would not be adversely affected. The boreholes and heat pump would not be within reach of wildlife so wildlife would not be 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 trees 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 would be 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. Due to the minimal excavation works required and the utilisation of a borehole, there would be very little impact on existing trees. The borehole structure would be situated underground. However, it would also be far enough away from the hedgerow regardless, so that direct damage to the development would 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 which provide character and visual amenity to the surrounding area would be retained and not adversely affected. The trees provide screening to all four sides of the development (which would not be visible anyway as it is located underground). Allowances for sufficient room for root growth have been given and the proposal would not interfere with any Root Protection Orders.

8. HERITAGE STATEMENT

The closest heritage asset is:

-MILEPOST AT SJ9945039761 APPROXIMATELY 140M EAST OF TOTMONSLOW FARM, Grade: II, List UID: 1392047

This falls outside the application site (approx. 650m) away and no works are to be carried out on or nearby the asset. The proposed works would not affect the heritage asset from a material point of view. No extensions, demolition or building works would be required for this installation. Therefore, works would have minimal impact on the heritage asset. The proposed heat pump system will be located just over 650 meters away from this listing at its nearest point and the system would be all hidden below ground, or within the garage at 1 Oakhill. Even during the brief installation period, substantial screening lies between the development site and the house meaning the system would not be visible from the Grade II asset during installation.

In line with point 192 of the NPPF, thought has been given to the likelihood of discovering currently unidentified heritage assets. Due to the utilisation of a boreholes, excavation works are minimal, being carried out to a dimeter of 120mm. As such it is highly unlikely that artefacts of historical interest will be unearthed during the installation process. However, works shall be carried out with precision, care and necessary equipment in order to further minimise impact.

Thought has also been given to NPPF Point 192 of sustaining and enhancing the significance of heritage assets and encouraging conservation of the asset. As this proposal utilises renewable energy it encourages the conservation of the nearby assets by decreasing the reliability on fossil fuels and ensures

that the assets will still be habitable for future generations to come. The proposed renewable installation is sustainable and contributes to the conservation of both the historical asset and the planet.

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 next closest heritage asset is:

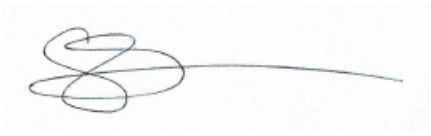
-THE WHITE HART, Grade: II, List UID: 1374674

This is within a small cluster of listed properties. However, these assets fall far outside of the application site (approx. 840m away from the site) and no works would be carried out on or nearby these assets. Even during the brief installation period, substantial screening (including, hedges, trees and properties) lie between the development site and the heritage asset meaning the system would not be visible from these Grade II* listed buildings during installation. They fall far outside the application site and as such can be disregarded for this part of the application.

The location of the Grade II* 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

Geo Green Power

Appendix A



Viewpoint A



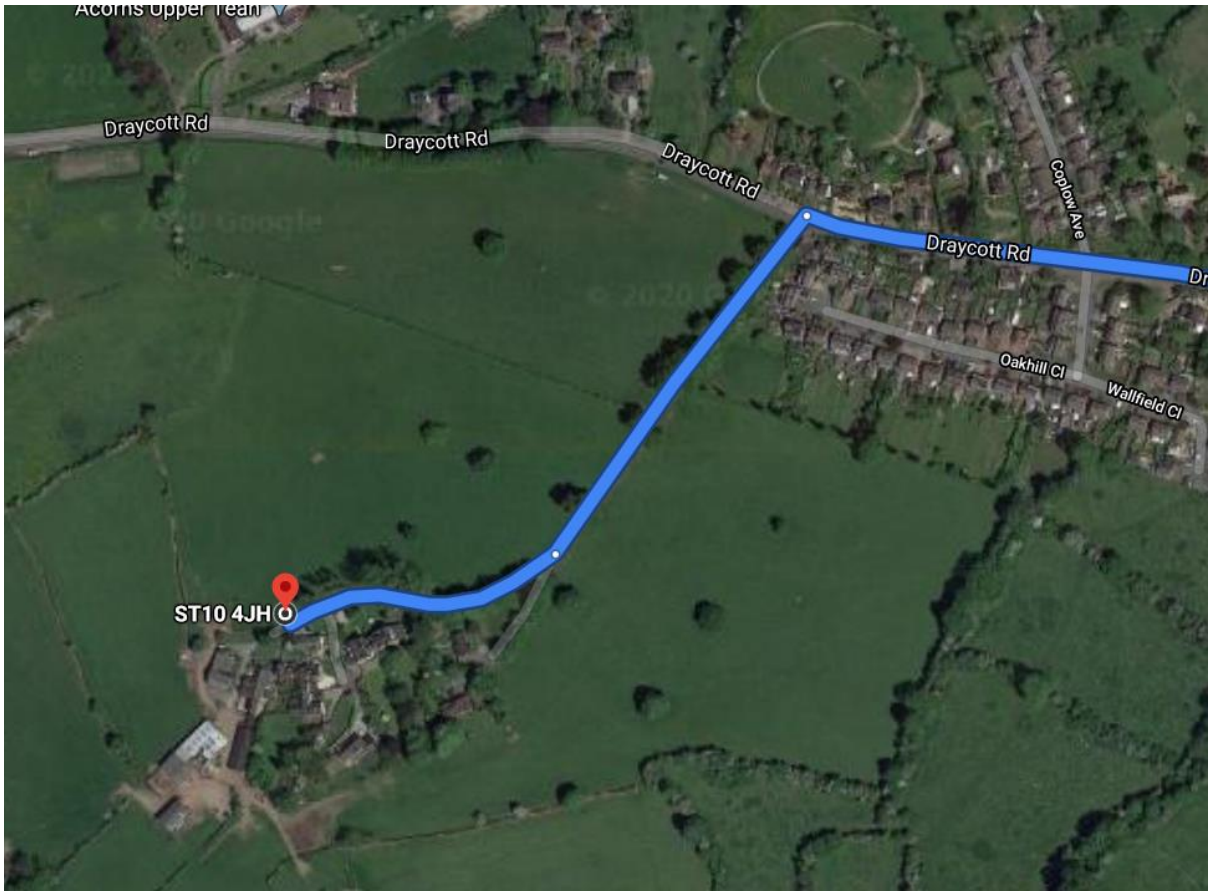
Viewpoint B



Viewpoint C



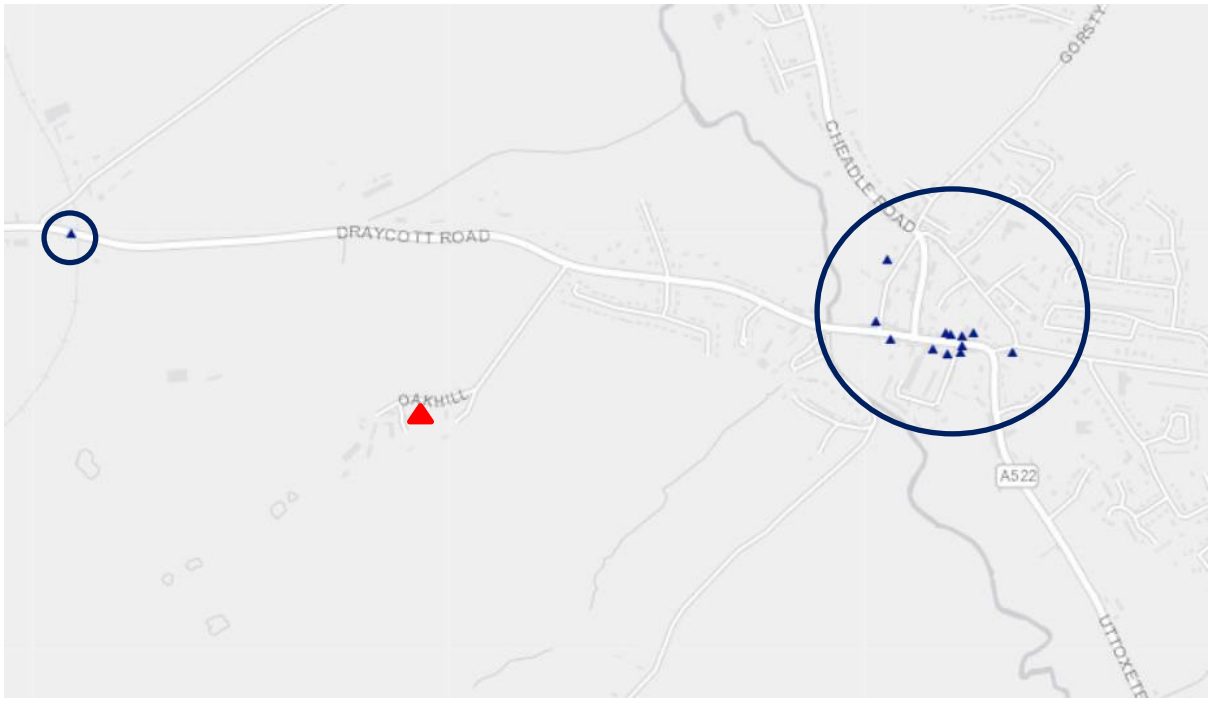
Appendix B



Access route marked in blue

Appendix C





Grade II* properties are specified by the blue triangles within the blue circles. Approx proposed heat pump location indicated by red triangle.

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