Harris McCormack
ARCHITECTS

HERITAGE STATEMENT

25 – 1280 DUCK STREET, ELTON

AIR SOURCE HEAT PUMP INSTALATION

RETROSPECTIVE APPLICATION REF: **24/01626/LBC**

Contents:

1.0 **INTRODUCTION** Page 3

2.0 **LOCATION** Page 3
- 2.1 The Site Page 3

3.0 **HERITAGE** – an analysis of the Surrounding Area Page 4
- 3.1 Official building listing Page 4
- 3.2 Building details Page 5
- 3.3 Local listed buildings Page 5

4.0 **PROPOSALS** – Page 6
- 4.1 Proposal Page 6

5.0 SUSTAINABILITY Page 7

6.0 **CONSERVATION OFFICER COMMENTS**
- 6.1 What is the ASHP? Page 8
- 6.2 Visual Impact Page 8
- 6.3 Details Page 9

7.0 **HERITAGE**
- 7.1 Heritage Statement Page 10

8.0 **CONCLUSION** – is this application appropriate? Page 11
- 8.1 Conclusion Page 11

1.0 INTRO

This is a retrospective listed building application following the installation of an ASHP on a listed building. Harris McCormack Architects was approached by the Applicant to justify the removal of a condemned oil boiler and installation of an air source heat pump on a grade II listed dwelling. The clients were focused on improving their home to more modern energy standards whilst retaining the character of the property. A retrospective listed building application was submitted to the LPA Huntingdonshire under the Ref: 24/01626/LBC by the company that installed the ASHP. The LPA's conservation team requested a more detailed submission to allow them to determine the listed building application.

2.0 Location Analysis of the site & existing buildings

2.1 The Site

The site comprises an existing detached dwelling, in the centre of the village of Elton.

The site is accessed from Duck Street; a quiet road running alongside the village green.



Figure 1 Outline of site in red.

3.0 HERITAGE

In this section we look at the building's historical significance and the surrounding village.

3.1 Official list entry (per Historic England)

Heritage Category: Listed Building

Grade: II

List Entry Number: 1317620

Date first listed: 16-Nov-1988

List Entry Name: NUMBER 2 AND ATTACHED WORKSHOP TO SOUTH

Statutory Address 1: 2 Duck Street and attached workshop to south, Elton, PE8 6RQ

3.2 Building Details (per Historic England)

GV II House and workshop. Late C18. Coursed limestone rubble and ashlar, ashlar and freestone dressings. Thatched roof; corrugated iron roof to workshop. One storey and attic; gable end stacks; boarded door and panelled door both with plain stone lintels and keystones, two shallow segmental planned bay windows with lead covered roofs and two eyebrow casement dormer windows. Workshop with double boarded doors and workshop window of six lights.



Figure 2 Photos of the building

3.3 Local listed buildings

Alongside 2 Duck Street there are 61 other local listed buildings within the village of Elton. None of these have a view of the proposed works.

Local Listed Buildings

Proposed Works



Figure 3 Listed Buildings within the vicinity

4.0 PROPOSALS

4.1 Proposal

This is a proposal for the replacement of an oil boiler with a new, more environmentally friendly air source heat pump. The work has already taken place, and a retrospective listed building application has been submitted. This is additional application information expanding on details mentioned in the previous submission. Refer to attached drawings.

The air source heat pump has been installed in the north end of the garden parallel with the house. It is approximately 1200MM x 1005MM and faced with a dark grey plastic covering. It sits on a concrete pad.

The extent of the alteration to the listed fabric of the building is minimal resulting in less than substantial harm. Holes were drilled through the existing stonework to form an opening for two copper pipes to be run into a utility room at the rear of the house. Once inside these copper pipes run parallel alongside the exposed floor joists on the underside of the ceiling into an indoor central coil unit. This process can be entirely dissembled and returned to its original state, if necessary, in the future. Please note – The previous boiler & associate pipework had been removed prior to installation.



Figure 4 Garden View



Figure 5 Condensate valve



Figure 6 View of internal coil



Figure 7 Internal Pipework

5.0 *Environmental*

5.1 Environmental Impact

Homes account for 13% of the UK's emissions. Therefore, it is important to reduce the amount of carbon reduced in the home by improving their efficiency. Miss Kerry Kew, clerk to Elton parish council stated in reference to this application 'Use of domestic renewable ("green") energy sources should be encouraged where practicable.'.

In an air source heat pump, the evaporator extracts heat from the outside air to warm the liquid refrigerant and turn it into a gas, which is then compressed to further raise the temperature. This allows heat to be extracted from the air. The condenser is the part of the heat pump that delivers the heat into the building. All ASHPs house the evaporator in the outdoor unit.

An air source heat pumps significantly reduces the emission of carbon. According to historic England 'electrifying heat is key to reducing reliance on fossil fuels'. The client has been careful to pick a system that compliments the building and its occupancy.

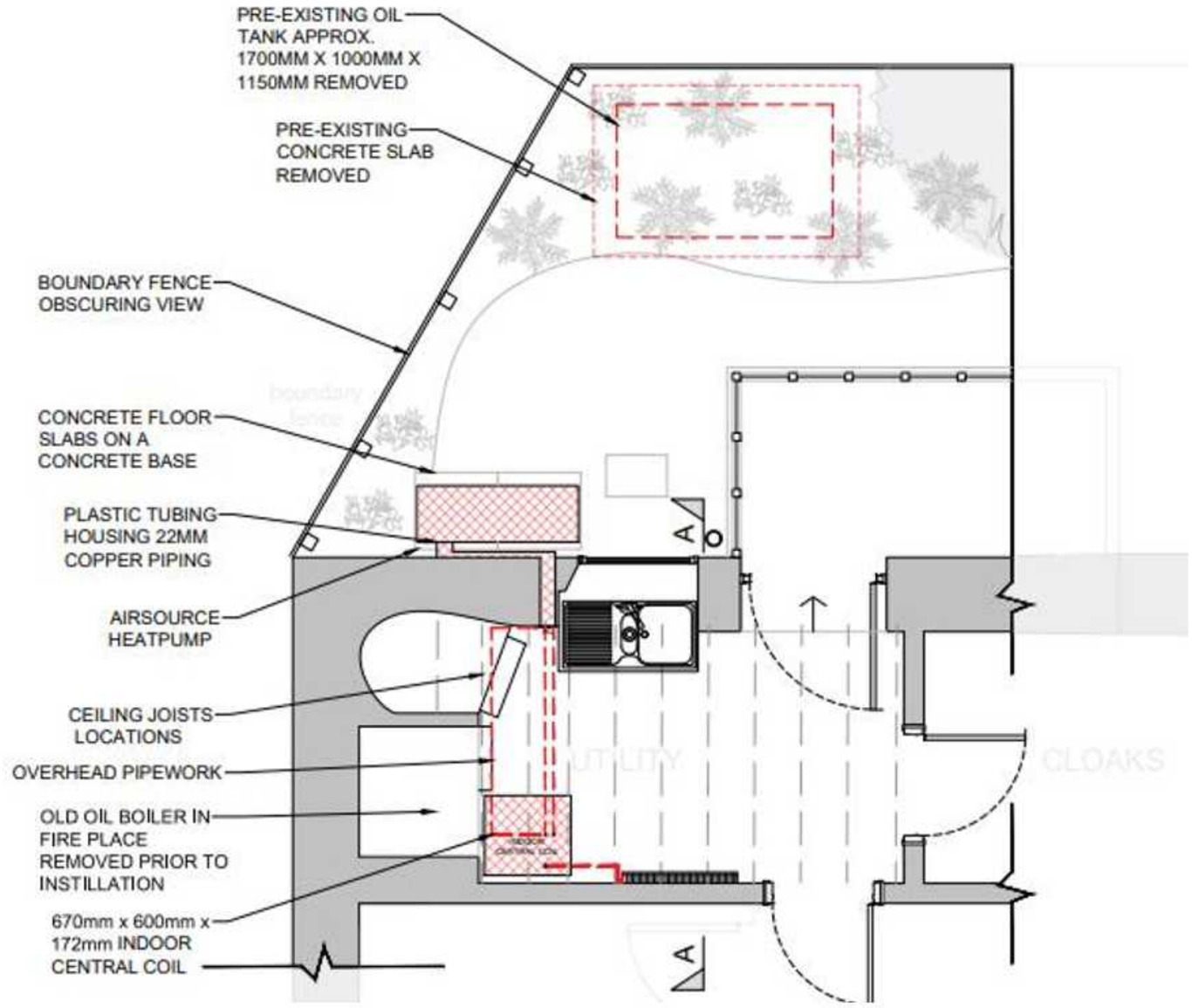


Figure 8 Proposed heat pump plan

6.0 Conservation Comments

Referring and responding to comments made by the conservation officer

6.1 Conservation Officers Comment-

The type of ASHP is not clearly specified to be a monobloc unit (air-to-water), and there is lack of information with regards to the freestanding element and if the mounting is raised to provide significant clearance from heavy snowfall or flooding.

Our Response-

The unit is an Aira 6Kw Outdoor unit mounted on a concrete base and raised on a concrete pad to avoid adverse weather conditions. It is freestanding, the only mounting is pipework along the elevation of the building. Spec below-

Energy efficiency (35/55 °C)	A+++/A++
Refrigerant	R290
Power output @ +7/35 °C (Max rps)	9.5 kW
Power output @ -7/35 °C (Max rps)	6 kW
SCOP (Average 35 °C)	4,7
Maximum cooling power @ 35/18 °C	8 kW
Max temp outlet	70 °C
Working range, heating	-25 °C – +45 °C
Power supply	230V
Recommended fuse size, A (outdoor unit)	16A
Sound pressure level (EN12102)	46.9 dB(A)
Dimensions (cm) (w/h/d)	121.6 x 100.5 x 42.5

6.2 Conservation Officers Comment-

The ASHP will have a visual impact on the setting and rear elevation due to its modern design (dark grey matte metal) in contrast to the existing light-coloured limestone ashlar, and it will sit adjacent to what appears to be an early window. The location of the ASHP currently appears to be freestanding adjacent to the walls of the building.

Our Response-

The box itself is a sleek modern design in a dark matte grey colouring. It is not visible from any neighbouring buildings and has no prominent views from the house. The adjacent window sits within a utility room and looks onto a plain timber fence. It is not a prominent view. This ASHP relaced an oil tank of approximately 1700mm x 1000mm x 1150mm dimensions and 1000 lite capacity sat within the back garden. This was a larger installation and was more visible from the house. The oil tank, concrete slab & all existing pipework has been removed.





Figure 9 Previous gas tank situated in the garden & boiler within the utility room

6.3 Conservation Officers Comment-

The application does not specify the details of the pipework connecting the external unit with the building, or if the condensate drainage has been addressed, and therefore it is unclear of the possible impact on external fabric of the existing east elevation. The associated internal works to facilitate the ASHP will need to be provided. The overall impact of the ASHP on the significance of the building may be limited as it is free standing however at this point there is insufficient formation provided on the anticipated pipework detail and routing, and no information appears to have been provided detailing how the ASHP unit connects to the existing external walls, and how the system integrates with the existing heating and hot water system

Our response-

The Air Source Heat Pump (ASHP), measuring 121.6mm x 100.5mm x 42.5mm, is connected to a stainless steel Aira Indoor Unit (dimensions: 670mm x 600mm x 172mm), which houses the internal central coil. The connection between the ASHP and the indoor unit is made via 22mm copper piping, which is fully insulated with high-density foam for thermal efficiency and protection against environmental factors.

The piping runs along the external rear façade of the building, affixed to the stone wall using discreet stainless-steel screws, resulting in minimal, repairable incisions in the stonework. These screw penetrations are negligible and can be restored to the original state if required in the future. Once affixed, the copper pipes were covered with a dark grey protective sleeve, which serves a functional role by shielding the pipes from external weathering and UV degradation. The protective covering is designed to be removable, facilitating access to the underlying pipework for maintenance or inspection. This can be removed if it is believed to be more harmful to the aesthetic of the house. This will reduce the heaviness of the dark grey matte against the ashlar stone

The pipes are routed through a small, carefully drilled hole in the stonework, which leads into the interior of the building. The hole is of a minimal size and is easily repairable should future alterations or removals of the system be necessary. Within the interior, the pipes are secured using non-invasive clips that are affixed to the underside of the ceiling, running parallel to the existing floor joists. These clips are akin in design to those used for the existing modern strip lighting in the utility room.

The system's condensation is managed by the indoor central coil, which directs the condensate to a condensation drain on the side of the building. This drain is located through another small opening in the stone wall, which, like the others, is minimal in size and easily repaired if required.

Visually, the only elements of the system visible to the public are plastic tubing for condensation release which appear as a narrow tubing on the side elevation. The overall visual impact is minimal and is further mitigated by the fact that the pipes are largely shielded from view by an existing gate, which remains in a fixed open position, providing additional concealment.

Given that the installation is largely discreet and does not result in any significant disruption to the building's fabric or visual impact, we believe that it does not detract from the architectural integrity of the Grade 2 listed building. The minimal incisions to the stonework and the carefully considered routing of the pipes have been designed to be reversible and easily restored to their original condition, should that be required in the future.

7.0 Heritage

7.1 Heritage Impact Statement

The proposed changes will have a minimal impact visually on the heritage asset, and they are necessary to improve the energy efficiency of the house. The proposal will have a negligible aesthetic impact on the heritage asset and views in and out of the building, as the air source heat pump is within a small, contained area of the rear garden. It also replaces larger and more obstructive oil tank. The air source heat pump will significantly improve the energy efficiency and thermal comfort of the house. All changes are minor and have low impact on the historic fabric. They are reversible and can we be repaired with relative ease. Therefore, the impact of the proposals to the heritage asset are negligible, positive and have less than substantial harm.

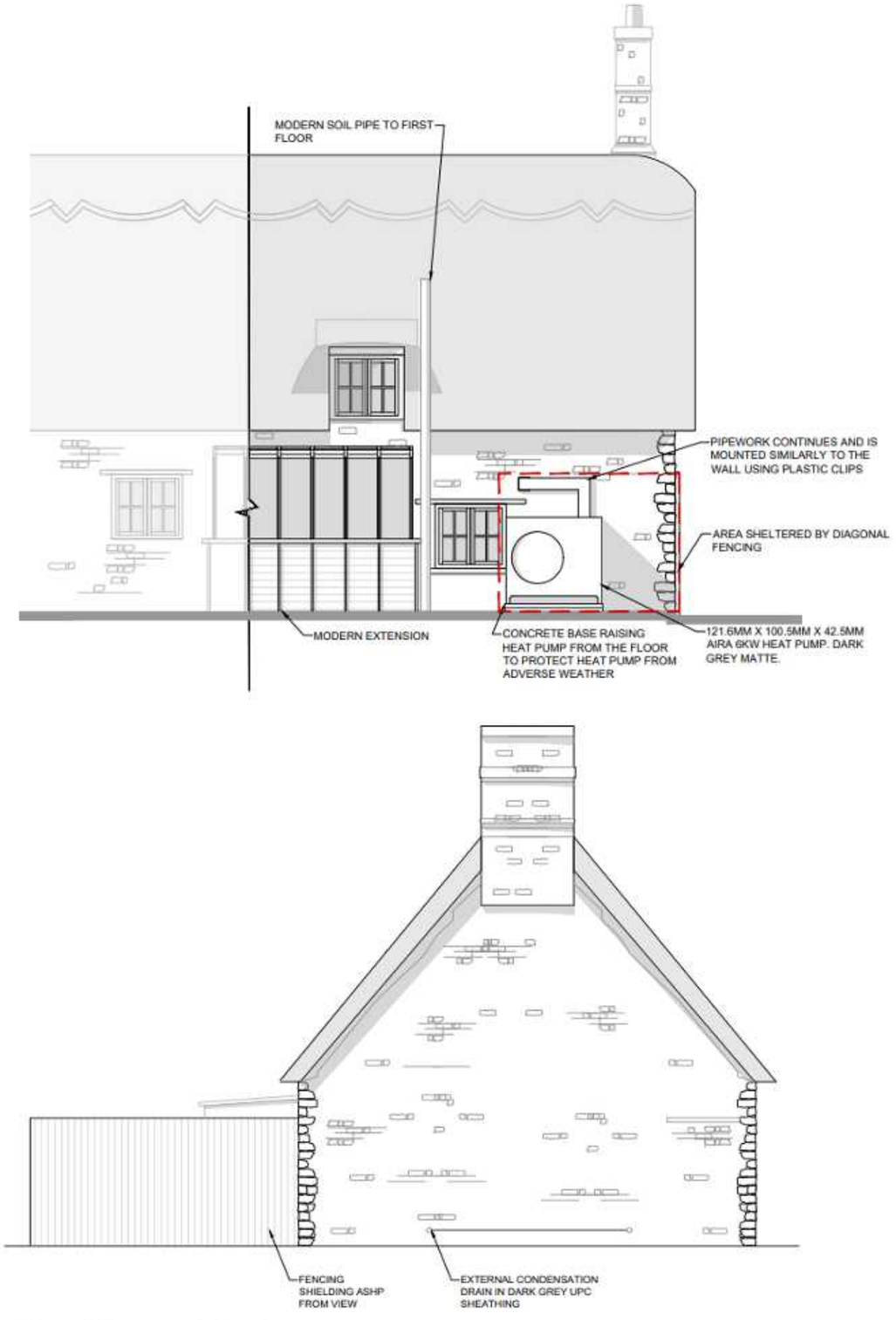


Figure 10 Proposed Elevations

8.0 Conclusion

8.1 Conclusion

This Design, Access and Heritage Statement demonstrates the justification for the alterations in line with Planning Policy. To conclude: The alterations are minimal and include replacement of an existing larger boiler and tank. The level of effect from the air source heat pump is low and the appearance remains adaptable. The changes are positive and will create a more environmentally friendly household. The magnitude of change is low because appreciation and understanding of the heritage asset is clear and considered, and there is not a significant change proposed. This proposal is considered to be a positive. This statement shows that the development of the site, demonstrates that the addition has been considered taking into account the relevant constraints and character of the area.



Figure 11 Front View of site