

ARCHAEOLOGICAL SOLUTIONS LTD

THE PUMPHOUSE, ORCHARD ROAD, WELWYN,  
HERTFORDSHIRE

HISTORIC BUILDING RECORDING

Authors: Tansy Collins BSc Lee Prosser PhD Kathren Henry	
NGR: TL 23283 16175	Report No: 3397
District: Welwyn Hatfield	Site Code: AS 1239
Approved:	Project No: 3625
Signed:	Date: October 2009

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<b>OASIS SUMMARY SHEET</b>			
Project name	<i>The Pumphouse, Orchard road, Welwyn, Hertfordshire: historic building recording</i>		
<p><b>Summary</b></p> <p><i>In September 2009, Archaeological Solutions Ltd (AS) conducted a programme of historic building recording at The Pumphouse, Orchard Road, Welwyn. The work was commissioned as part of a planning condition for proposed extension and conversion to residential use. The building was probably constructed in the late 1920s for the purpose of pumping sewage, but was conceived in a sympathetic Neo-Georgian architectural style to a high specification, which despite prolonged neglect remains in good condition. Traditional materials such as brick, tile and timber are combined in a happy marriage with industrial components such as steel and concrete. Four pumps, located in a deep open well within the building drew waste material from an adjoining chamber to the east, raising the sewage to a higher level and driving it on for further processing through a network of pipes and conduits. Each pump was driven by an individual motor, served by electrical capacitors, but so placed and designed that maintenance and replacement could be effected with ease. The original layout and substantial remains of three of the four original pumps survive intact, though the motors and electrical equipment have, as would be expected, been replaced. Residual elements of the older switching gear remain in situ. Other elements of the building appear little altered, though entirely utilitarian.</i></p>			
Project dates (fieldwork)	17 <sup>th</sup> September 2009		
Previous work (Y/N/?)	N	Future work (Y/N/?)	?
P. number	3625	Site code	AS 1239
Type of project	<i>Historic building recording</i>		
Site status			
Current land use	<i>Unoccupied</i>		
Planned development	<i>Residential conversion</i>		
Main features (+dates)	<i>1920s sewage pumping station</i>		
Significant finds (+dates)			
<b>Project location</b>			
County/ District/ Parish	<i>Herts.</i>	<i>Welwyn Hatfield</i>	<i>Welwyn</i>
HER for area	<i>Hertfordshire Historic Environment Record</i>		
Post code (if known)			
Area of site			
NGR	TL 23283 16175		
Height AOD (max)	65m AOD		
<b>Project creators</b>			
Brief issued by	<i>HCC HEU</i>		
Project supervisor/s (PO)	<i>Archaeological Solutions Ltd</i>		
Funded by	<i>Angela White</i>		
Full title	<i>The Pumphouse, Orchard road, Welwyn, Hertfordshire: historic building recording</i>		
Authors	<i>Collins, T. Prosser, L.</i>		
Report no.	3397		
Date (of report)	October 2009		

THE PUMP HOUSE, ORCHARD ROAD,  
WELWYN,  
HERTFORDSHIRE

HISTORIC BUILDING RECORDING  
AND BUILDING MONITORING AND RECORDING

**SUMMARY**

*In September 2009, Archaeological Solutions Ltd (AS) conducted a programme of historic building recording at The Pumphouse, Orchard Road, Welwyn. The recording was commissioned as part of a planning condition for proposed extension and conversion to residential use.*

*The building was probably constructed in the late 1920s for the purpose of pumping sewage, but was conceived in a sympathetic Neo-Georgian architectural style to a high specification, which despite prolonged neglect remains in good condition. Traditional materials such as brick, tile and timber are combined in a happy marriage with industrial components such as steel and concrete. Four pumps, located in a deep open well within the building drew waste material from an adjoining chamber to the east, raising the sewage to a higher level and driving it on for further processing through a network of pipes and conduits. Each pump was driven by an individual motor, served by electrical capacitors, but so placed and designed that maintenance and replacement could be effected with ease.*

*The original layout and substantial remains of three of the four original pumps survive intact, though the motors and electrical equipment have, as would be expected, been replaced. Residual elements of the older switching gear remain in situ. Other elements of the building appear little altered, though entirely utilitarian.*

**1 INTRODUCTION**

1.1 In September 2009, Archaeological Solutions Ltd (AS) conducted a programme of historic building recording at The Pumphouse, Orchard Road, Welwyn, Hertfordshire (NGR TL 23283 16175). The work was commissioned by Angela White as part of a planning condition for approval for the conversion and extension of the existing pump house with associated parking (Planning Ref. N6/2008/1974/FP).

1.2 The relevant planning policies which apply to the effect of development with regard to cultural heritage are Planning Policy Guidance Note 15 'Planning

*and the Historic Environment'* (PPG15) and Planning Policy Guidance Note 16 '*Archaeology and Planning*' (PPG16) (issued by the former Department of the Environment). PPG15 (1994) is the national guidance which applies to the conservation of the historic environment by protecting the character and appearance of conservation areas and protecting listed buildings (of architectural or historical interest) from demolition and unsympathetic change and safeguarding their settings as far as is possible. This condition is also widely applied by local authorities.

1.3 The project was conducted in accordance with advice from Hertfordshire County Council Historic Environment Unit (HCC HEU: Andy Instone, received 28<sup>th</sup> August 2009) and a specification compiled by AS (dated 28<sup>th</sup> August 2009). The building recording was carried out to Level 3 as defined in the English Heritage document '*Understanding Historic Buildings: a guide to good recording practice*', 2006 and the Royal Commission's '*Recording Historic Buildings: A descriptive specification*' RCHME (3<sup>rd</sup> edition), 1996. It was also carried out in accordance with the Institute of Field Archaeologists' (IFA) '*Standard and Guidance for the Archaeological Investigation and Recording of Standing Buildings or Structures*' (revised 2001). The relevant sections of *Standards for Field Archaeology in the East of England*, East Anglian Archaeology Paper 14/ALGAO (Gurney 2003) and the IFA '*Standard and Guidance for Archaeological Desk-Based Assessments*' (revised 2001) were also followed.

1.4 The objectives of the historic building recording were, as set out in the brief and the English Heritage guidance documents:

- to compile a comprehensive and high quality record of the buildings proposed for conversion, and original features/equipment to be altered or removed, with analysis and interpretation of that structure in conjunction with an associated documentary survey;
- to provide a review of the local and regional historical context of the structures recorded by the project. These to be adequately detailed to place the findings of the archaeological recording in context.
- to produce a high quality, fully integrated archive suitable for long-term deposition in order to 'preserve by record' the buildings in their current form prior to alteration.

1.5 Specific aims of the monitoring element were:

- to compile accurate plans and elevations of each floor of the building
- to carry out a full photographic survey of the building including detailed photographs of all the equipment/features associated with the function of the building.
- to compile a written description of each piece of surviving equipment and where possible identify maker, model and function

- to produce an appraisal of the likely impact of the development on that structure

1.6 The brief and specification allowed for further observation works during the development phase if these were felt to be justified. However, all elements of the building were visible for analysis and it was not considered that additional works would give any substantial further insight.

## **2 DESCRIPTION OF THE SITE (Figs. 1 & 2)**

2.1 Welwyn is a small village lying in the heart of Hertfordshire, straddling the river Mimram. The High Street crosses the river and extends north to St Mary's Church where North Street branches to the north-east, although the village is now encircled by modern roads including the A1(M) to the east. Other small villages in the area include Oaklands and Digswell, while Welwyn Garden City dominates the area to the south-east.

2.2 The assessment structure comprises a small building set within its own triangular plot of land at the eastern periphery of the historic core where it lies within Area of Archaeological Significance no.7 as designated in the Local Plan. Allotments lie immediately to the north-east while the river runs to the south.

## **3 METHODOLOGY**

### **3.1 Historical and cartographic sources**

Documentary and cartographic sources can help to establish historical context for the assessment site and the surrounding area. The principal source of primary evidence is the Hertfordshire Archives and Local Studies (HALS). Relevant documents regarding the study area are listed in Appendix 2 and reproduced in Figs. 4-11.

### **3.2 Secondary sources**

Secondary material can be found at HALS as well as the library resources at AS. Unpublished sources regarding the assessment area, such as previous field evaluation reports and desk-based assessments, have also been consulted. Much of the pump house equipment was provided by Adams of York, a company which still exists, and they were contacted for supporting information. All sources are listed in the bibliography.

### **3.3 Geological/ geotechnical information**

Information was compiled from appropriate maps published by the Geological Survey of Great Britain and the Soil Survey of England and Wales (SSEW 1983).

### **3.4 The building**

3.4.1 The site was visited on 17<sup>th</sup> September 2009 in order to compile the description of the building and undertake the drawing and photographic work. Tansy Collins and Lee Prosser compiled the written descriptions and carried out the photographic recording and Tansy Collins completed the drawing work. Floor plans, sections and an elevation based upon drawings provided by the client are included with annotations (Fig. 8). Mechanical equipment was individually inspected, described and photographed. To identify these, each item is located on the plan (Fig. 8) and marked with box numbers.

3.4.2 The photographic recording was conducted using medium format (4.5 x 6cm) black and white film and included all external views and general internal shots. This utilised a Zenza Bronica ETRS camera and Ilford HP5 IOS 400 120mm film. Colour photographs were taken using an Olympus Camedia E20 digital camera, duplicating the black and white photography. Architectural detail was captured using 35mm black and white film. Supplementary colour photography used 35mm Ektachrome colour transparency film. External lighting and weather conditions were good at the time of the survey. A scale was used wherever possible, and a flash was employed for internal shots. A pictorial index of the digital photography and selected colour plates are included below together with location plots (Fig. 12).

## **4 THE EVIDENCE**

### **4.1 Topography, geology and soils**

4.1.1 The settlement at Welwyn is located on glacial river gravels at approximately 67 m AOD. The presence of the river Mimram has resulted in minor deposition of Thames alluvium, but the river has been fordable for most of its recorded history and there is little evidence of a substantial flood plain. Soils of the area are predominantly of the Hornbeam 2 Association, consisting of a plateau drift of deep fine loamy over clayey soils, though the village core also features Marlow Association soil, which is well-drained. Traditionally these have supported deciduous woodland and permanent grassland, with some cereals (Soil Survey of England and Wales, 1983).

### **4.2 Historical and cartographic evidence**

4.2.1 The suitability of the soils in the Welwyn area presupposes human activity from the earliest times, and this is reflected in the wealth of archaeological remains from many periods recovered from the vicinity of the village.



4.2.2 Welwyn emerges into the historical record in the tenth century, although archaeologically there are few traces of activity for the period. In a will dated to 947, a wealthy lady named Æðelgifu bequeathed food rents and cattle from Munden to the minster at 'Welingum', demonstrating that an important church existed at the settlement from at least the later Anglo-Saxon period (Gelling 1979, 85). The name Welwyn is probably derived from the Old English *welig* 'at the willows' (Gover *et al* 1938, 144).

4.2.3 At the time of Domesday, the estate at Welwyn was divided into a number of fragmented holdings (Morris 1976), and later, during the Middle Ages, comprised several important estates, including Lockleys and Mardleybury. Welwyn probably derived some prosperity from its location on the Great North Road from London and at a fording point on the river. Inns are attested from the 14<sup>th</sup> century, though there is no mention of a local market, and so the settlement remained modest.

4.2.4 During the 18<sup>th</sup> century, several large houses, such as Danesbury and the Frythe were built as a sign of increasing wealth, but in other respects Welwyn could be less respectable. Proximity to the road meant that the local area was at times known as a haunt of robbers and 'footpads', and parts of the village were used for stacking timber, making dungheaps and for dumping the carcasses of dead dogs (Johnson 1960, 211).

4.2.5 In the late 19<sup>th</sup> and early 20<sup>th</sup> century, the village earned an altogether more respectable reputation, as the home of a sister of the artist Vincent van Gogh, and later the nearby residence of the author George Bernard Shaw. Traffic was already a considerable problem by the early 20<sup>th</sup> century, and a by-pass was constructed, during which many archaeological discoveries were made. Attending this from 1920 was the establishment and rise of the second garden city to the south, which took its name from Welwyn, though 'Old Welwyn' retains its separate identity.

### *The Site*

4.2.6 The assessment site lies at the eastern extent of the historic core of the village on a small triangular plot of land. The earliest maps reveal that the site lay undeveloped until the earlier 20<sup>th</sup> century, although the area immediately to the south shows some activity to exploit the nearby watercourse (Figs. 3 and 4). By the late Victorian period, industrial activities such as a corn mill and gas works used the river as an important resource, while gravel extraction occurred nearby.

4.2.7 The site itself was originally planted with a few trees and was bisected by a trackway, although by 1898 (Fig. 4) these features had disappeared. However, by this period the focus of the immediate area saw gradual development with water treatment in mind as the later map shows a small sewage works immediately to the south-east.



4.2.8 Little alteration is discernable by 1923 (Fig. 5), apart from expansion of the nearby sewage works. Records dated 1899-1914 show that the High Welwyn Waterworks was purchased by the Rural District Council, along with other land. Other documents also exist regarding proposed housing sites concerning land purchased by the RDC for waterworks dated 1919-1920 and although the site is not mentioned specifically it is likely that these documents are related.

4.2.9 The building fabric suggests that the pump house was constructed in the late 1920s, and it appears on the 1937 OS map (Fig. 6), incorporated into the existing sewage works. By 1972 (Fig. 7) the boundary enclosing the site had been removed with considerable expansion to the facility, although much of the former sewage works was by that date labelled 'Council Depot'.

### *Pumping station processes*

4.2.10 The pump house was a crucial component of waste disposal management, which may explain why it survived long after the associated works were moved elsewhere. Its relatively benign function had none of the noxious associations of a treatment plant and its purpose was fairly simple.

4.2.11 An underground chamber or 'wet well' would collect the raw sewage, which was fed by means of gravity through pipes and conduits from the surrounding area. Once the waste had reached a certain level, pumps would be deployed in order to lift the sewage to a higher level, where it could be discharged into another network of pipes, to travel once again by gravity to the treatment plant or next pumping station. A number of redundant 'noflote' controllers were found lying around the building. These comprised a series of rods or switches set at differing heights within the wet well, which would monitor the levels and trigger the pumps automatically. Typically, pumping stations would be given secondary back-up pumps to support the main machinery as complete failure could be catastrophic.

## **5 THE BUILDING (Fig. 8)**

### *Exterior*

5.1 Welwyn pump house stands within an uncultivated curtilage enclosed on the north by a crude flint and brick rubble wall which separates it from neighbouring allotments, and modern fencing on the remaining sides. The building is orientated north – south with its entrance on the south side (Plate 1). It is flanked on the east by a concrete platform with inspection hatch covers and steps to a subterranean chamber, all enclosed by a tubular steel railing. The chamber was blocked and not accessible at the time of the survey, though a very limited view was possible through gaps in the protective covering. The chamber

and steps are lined with concrete, with narrow pipes springing from the west wall. A further small pit on the west has a large stopcock visible, marked 'Adams Hydraulics Ltd, York and London', as we see on much of the surviving internal plant.

5.2 The pump house is modest, but constructed with great care and in high quality materials, typical of civic pride expressed in the 1920s. Though built of brick with steel windows, it is constructed in the 'Neo-Geo' style which is common in Welwyn Garden City, for example, with decorative finishes such as a heavy timber box-cornice and peg-tile roof, all of which are strictly unnecessary in an industrial and utilitarian building of this kind. The brick is of an orange, slightly creased fabric which is well preserved with little sign of weathering, all laid in stretcher bond with its original pointing. At the north and south returns of the gable ends, it is expressed in Flemish bond, with a continuous soldier-course extending around the building at the level of the window heads. The central sections of the gables are slightly recessed. Air bricks provide ventilation within the walls.

5.3 Four large steel 'Crittall'-type windows pierce the long east and west elevations, while a single central window on the north and a main door on the south complete a symmetrical whole. The windows have projecting bull-nosed brick sills and 12 panes, the central six opening as a central pivoting casement. Most of the glass is now broken.

5.4 A heavy composite moulded timber cornice frames the eaves. This returns on the south and north to stop short of the recessed panels, though the deep overhang continues within the gable ends. Being of timber and apparently not properly maintained, it is now in fairly poor condition. The green colour appears to be original, with little or no build-up of paint visible. The roof is tiled with hand-made peg tiles, pierced on each pitch by a wide skylight of six panes, in patent glazing. The apex is surmounted by a decorative alloy ventilator cone with a small cupola.

5.5 The building is entered through a central pair of doors on the south. Each leaf has four moulded panels within a robust frame. A cast iron knob survives, but has latterly been augmented by a steel hasp and crudely bolted steel plates to provide additional security. A contemporary external light fitting survives above, with an opaque glass globe shade on a decorative iron bracket.

### *Interior*

5.6 The interior is a single undivided space, designed to enclose a deep pit housing the pumps and driving motors. The naked brickwork is exposed all round (Plate 2), while the pit is enclosed by a tubular steel balustrade with bevelled corners, which incorporates a steep ladder stair on the north-east giving access into the pit. This railing is identical to that enclosing the external

subterranean chamber described above. The pit occupies most of the building, partly covered with a mezzanine of metal plates on I-girders on the north, south and west sides, the only solid platform being on the east to house the electrical switching gear.

5.7 More of the construction method may be seen on the internal walls. The brick is a fine, even-textured, possibly Fletton brick of typically modern form, laid in stretcher bond as on the exterior, but with header courses above the lintels on the east and west. The windows repeat the bull-nosed brick to their sills and have pre-cast concrete lintels. The door, though much abused is mostly original, with a fruitwood knob, original keyhole and escutcheon cover, together with later brass bolts and a modern Yale rim-lock. A rudimentary work-bench in the north-west corner is the only movable equipment in the building and presumably allowed on-site repairs to be made to the equipment.

5.8 The roof is supported by two trusses of bolted L-section steel girders and two timber purlins in each pitch, these framing the roof lights which have robust mullions moulded with a fillet (Plate 3). A strong ridge purlin also rests on small blocks at the apex of each truss. The roof is underboarded and painted, as is the ventilation louvre. Four pendant lights on stiff poles survive with their enamelled factory-light shades.

5.9 A large north – south I-girder spans the building just west of centre above the pit and is probably a later insertion as we see some disturbance where it is housed in the existing brickwork. The girder is marked SKINNINGROVE ENGLAND, sourcing the beam from a notable steelworks in North Yorkshire. It supports a small movable hoist system on runners, clearly designed to allow the raising and maintenance of the electrical pump motors.

5.10 The east side, where the floor is solid, houses steel capacitor boxes resting on concrete plinths; each serving a pump in the pit, together with switching equipment and a large stopcock. Three of the original four now survive, though they have all been gutted to retrieve copper and other valuable materials. The equipment was housed in grey, metal cases, probably of 1950s date, two of which preserve name-plates of the Watford Electrical and Manufacturing Company, Limited. A few components, such as amp meters, dials and bakelite switches survive. The south capacitor is of larger size, commensurate with its larger companion pump in the pit. Between the second and third plinths a large cast-iron stop cock and decorative column is marked with the Adams Hydraulics name.

5.11 Several fuse and switch boxes are attached to the east and south walls (Plate 4). What follows comprises a description of each piece of equipment with location labelled on Fig. 8 as box numbers.

- 1 Original switch board adjoining the front door with six switches for lights and a three-pin plug socket (Plate 5).  
Marked MEMSET
- 2 Original fuse box containing four fuses, for the lighting system  
marked MEMSET
- 3 Original fuse box containing four fuses, for the heating system.  
marked MEMSET
- 4 Fuse box, not original. It is possibly contemporary with the capacitors.  
marked MEM MIDLAND ELECTRIC MFG (EXEL Fuse box)
- 5 Large cast-iron fuse box (Plate 6). It has two fuses with an emergency release button, along with a volt meter above.  
marked GEORGE ELLISON LTD OF BIRMINGHAM, with a probable date mark 27/01/28
- 6 Original fuse box (Plate 7). It holds twelve fuses and although the fuses have been modernised the ceramic housings survive.  
marked MEM MADE IN ENGLAND.
- 7 Therminol capacitor (Plate 8)  
AH HUNT (CAPACITORS) LTD  
LONDON SW18  
MODEL L90A
- 8 Therminol capacitor, smaller example  
AH HUNT (CAPACITORS) LTD  
LONDON SW18  
MODEL L90A
- 9 Therminol capacitor, smaller example  
AH HUNT (CAPACITORS) LTD  
LONDON SW18  
MODEL L90A
- 10 Original large cast-iron box  
Containing four plugs / wiring labelled 'Starter No. 1 to Starter No. 4'  
marked MEM MADE IN ENGLAND.
- 11 A form of switch box with a large lever  
Not marked.

5.12 Some residual mechanical components are less easy to explain, and might be redundant elements of an earlier arrangement. On the east we see two pulleys wheels suspended from short iron bars set into the window piers which relate to redundant holes in the floor, for hoisting or similar. More equipment was formerly attached to the back plate below the boxes on the south wall – this was clearly of some age as the remaining wiring retains woven fabric insulation. The Midland Electric Manufacturing Company Ltd produced the majority of the electrical boxes in the building and this company is first recorded in Bennett's Business Directory of Warwickshire of 1914. A number of rods with conical heads lie in the room marked 'EVERSHED NOFLOTE CONTROL'. These are noted above in Section 4.2.10, although they appear to have been superseded and here lie discarded.

### *The pit*

5.13 As noted above a steep ladder-stair of bolted steel treads with a steel balustrade gives access to the pit on the north-east. The walls are entirely lined with concrete.

5.14 The pit houses elements, some substantially complete of four Adams' 'amphistoma' pumps, their electrical motors and associated pipe-work (Plate 10). These pumps were served by individual capacitors at mezzanine level with three smaller pumps to the north and the larger south pump served by the large capacitor above. Three of the pumps survive; the fourth, with its capacitor has been entirely removed. They are numbered and labelled on Fig. 8.

5.15 The pumps sit on a heavy iron plate, bolted to a slightly raised concrete pad (Plate 11). This double system presumably prevented the pump from working loose from its housing or breaking up the concrete through vibration, while providing a secure base. One side is slightly raised to accommodate the motor with the pumping gear attached. Most is marked with the amphistoma hydraulic mark, although the motors are more recent, and marked 'CROMPTON PARKINSON'.

5.16 Each pump comprises a motor, which is a self-contained engine bolted to the plate and the pump wheel, connected by a drive shaft and covered gear mechanism. The motors have a small lifting ring to allow them to be raised for maintenance or replacement while the pump is enclosed by a moulded steel cover and connect inlet and outlet pipes. Two of the outlet pipes are preserved, that to the south and Pump 1 being the most complete. All are bolted in pre-fabricated sections, with frequent stopcocks allowing individual sections to be isolated for maintenance or in case of failure. Smaller, secondary pipes also occur, possibly to allow flushing out with fresh water or lubrication of the sealed parts.

5.17 The whole system is efficiently designed. The electric supply is embedded into the concrete floor, emerging only adjoining the pump, while each pump is individually lit by a light fitting on the east wall. These are original, and a single example with a steel shade and a glass cover survives complete (Plate 11).

5.18 Plates are affixed to the pumps recording number and type, these are noted below. Occasional numbers, however, were not discernable – these are indicated by a #.

Pump 1: Pump NO. 64093  
TYPE 4## LH

Pump 2: Pump No. 64163  
TYPE 6XL LH

Pump 3: Pump No. 64084  
TYPE 4L LH

## 6 DISCUSSION

6.1 The pump house is a modest, purpose-built facility, typical of its date, which has survived well with minimal apparent maintenance. Although small and of no great importance it comes at the end of the tradition of grandiose architecture being used for water treatment and sewage plants, as often survive in spectacular style in London. Yet it also reflects pride in the company, a desire to disguise its true function, and also to combine architecture with efficient industrial design. It probably dates from 1928, which would be absolutely typical for its style, and such was the care and attention given to its construction, that only the electrical equipment has been updated over time. Most of the internal joinery was once painted 'corporation' green. This has hardly, if ever been repainted in the life of the building.

6.2 The system of sewage pumping is fairly straightforward and consistent with processes which remain in use to the present day. It is a way of helping gravity to carry the waste over long distances. The building was designed to give access and maintenance, with a large, airy space, presumably to prevent overheating of the machinery, and contain any catastrophic failures in the pipework.

6.3 Although four pumps were provided, one or more probably served in a back-up capacity. Latterly the fourth pump was removed as being entirely redundant. Since the end of its original purpose, the building appears to have been plundered and vandalised, though it remains in good condition.

## **7 CONCLUSION**

7.1 With no sewage left to pump, the building no longer fulfils its original purpose, but it is typical, well-built and picturesque as an architectural example of the late 1920s, which deserves to be converted and maintained in alternative use.

## **DEPOSITION OF THE ARCHIVE**

An archive of all materials produced by the report has been created and listed according to English Heritage (MAP2) standards. Copies of the final report will be lodged with the Hertfordshire Heritage Environment Record (HER) and the National Monument Record (NMR), Swindon. The project archive will be lodged with Hertfordshire Archives and Local Studies (HALS).

## **ACKNOWLEDGEMENTS**

Archaeological Solutions is grateful to Angela White for commissioning the project.

AS would also like to thank staff at the Hertfordshire Historic Environment Record, notably Alison Tinniswood and Isobel Thompson, and the staff at Hertfordshire Archives and Local Studies for their kind assistance.

AS would like to acknowledge the input and advice of Mr Andy Instone of HCC Historic Environment Unit.



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## APPENDIX 1      HISTORIC SOURCES

### Cartographic sources

Date	Title	Scale	Location
1881	1 <sup>st</sup> Edition Ordnance Survey map, Herts Sheet XXVIII.3	25" to 1 mile	HALS
1898	Ordnance Survey map, Herts Sheet XXVIII.3	25" to 1 mile	HALS
1923	Ordnance Survey map, Herts Sheet XXVIII.3	25" to 1 mile	HALS
1937	Ordnance Survey map, Herts Sheet XXVIII.3	25" to 1 mile	HALS
1972	Ordnance Survey map: sheet TL 2216-2316	1:2500	HALS

### Documentary sources consulted

D/EL/5677/1-77: purchase OF High Welwyn waterworks by RDC and purchase of other land for waterworks, dated 1899-1914

D/EL/5680, 1-8: proposed housing sites and plans concerning land purchased by the RDC for waterworks, dated 1919-1920

## APPENDIX 2

### HER SUMMARY SHEET

<b>Site name and address:</b>	The Pumphouse, Orchard road, Welwyn, Hertfordshire: historic building recording
<b>County:</b> Herts	<b>District:</b> Welwyn Hatfield
<b>Village/Town:</b> Welwyn	<b>Parish:</b> Welwyn
<b>Planning application reference:</b>	Planning Ref. N6/2008/1974/FP
<b>Client name/address/tel:</b>	Angela White
<b>Nature of application:</b>	Residential conversion
<b>Present land use:</b>	Empty
<b>Size of application area:</b>	<b>Size of area investigated</b>
<b>NGR (8 figures):</b>	TL 23283 16175
<b>Site Code:</b>	AS 1239
<b>Site director/Organization:</b>	Archaeological Solutions Ltd
<b>Type of work:</b>	Historic building recording
<b>Date of work:</b>	October 2009
<b>Location of finds/Curating museum:</b>	HALs
<b>Related SMR Nos:</b>	<b>Periods represented:</b>
<b>Relevant previous summaries/reports: -</b>	
<b>Summary of fieldwork results:</b>	<p><i>In September 2009, Archaeological Solutions Ltd (AS) conducted a programme of historic building recording at The Pumphouse, Orchard Road, Welwyn. The work was commissioned as part of a planning condition for proposed extension and conversion to residential use.</i></p> <p><i>The building was probably constructed in the late 1920s for the purpose of pumping sewage, but was conceived in a sympathetic Neo-Georgian architectural style to a high specification, which despite prolonged neglect remains in good condition. Traditional materials such as brick, tile and timber are combined in a happy marriage with industrial components such as steel and concrete. Four pumps, located in a deep open well within the building drew waste material from an adjoining chamber to the east, raising the sewage to a higher level and driving it on for further processing through a network of pipes and conduits. Each pump was driven by an individual motor, served by electrical capacitors, but so placed and designed that maintenance and replacement could be effected with ease.</i></p> <p><i>The original layout and substantial remains of three of the four original pumps survive intact, though the motors and electrical equipment have, as would be expected, been replaced. Residual elements of the older switching gear remain in situ. Other elements of the building appear little altered, though entirely utilitarian.</i></p>
<b>Author of summary:</b> Tansy Collins	<b>Date of Summary:</b> 13.10.09

### APPENDIX 3

### ARCHAEOLOGICAL SOLUTIONS

### BUILDING RECORDING ARCHIVE FORM

<b>Site Details</b>							
<b>Site Name:</b> The Pumphouse, Orchard road, Welwyn					<b>NGR:</b> TL 23283 16175		
<b>County:</b> Hertfordshire				<b>Museum Collecting Area:</b> Hertford			
<b>Site Code:</b> AS 1239				<b>Project Number:</b> 3625			
<b>Date of Work:</b> September 2009				<b>Related Work:</b>			
<b>Brief/s</b>				<b>Specification/s</b>			
<b>Date</b>		<b>Present</b>		<b>Date</b>		<b>Present</b>	
28.08.09		Yes		28.08.09		Yes	
<b>Site Records (Description)</b>							
Notes (9 sheets A4)							
<b>Site Drawings (Give Details of Formats &amp; Size)</b>							
Drawn Plans & Sections: 1 sheets A4 drawing film							
<b>Architect's Drawings:</b> 4 sheets A3 – annotated 1 sheets A2							
<b>Digital Drawings</b>							
<b>Printouts of Drawings</b>			<b>Printouts of Data</b>			<b>Digital Data</b>	
In report						Digital photographs and drawings on CD	
<b>Reports</b>							
<b>Report No</b>		<b>Report Type</b>				<b>Present</b>	
3397		Historic building recording				Yes	
<b>Site Photographs</b>							
Black & White Contact Prints					Colour Slides		
<b>Film No</b>	<b>Film Type</b>	<b>Negs</b>	<b>Negs Present</b>	<b>Contacts Present</b>	<b>Film No</b>	<b>Negs</b>	<b>Present</b>
1	120mm	1-15	Yes	Yes	1	7-11	Yes
2	120mm	1-9	Yes	Yes			
<b>Photographic Location Plans Present? (Give Details)</b>							
In report and separate printout in archive folder							
<b>Digital Photographs (Give Details):</b>							
Digital photography duplicates black and white photography. Index and selected plates printed in report. Separate printout of index included in archive folder and digitally on CD.							

## PLATES



Plate 1 South and east elevation of the building, taken from south-east (DP 01)



Plate 2 East side of the building showing surviving equipment, taken from the north-west (DP 06)





Plate 3      Roof structure of the building showing the lateral rail system, taken from the south (DP 08)



Plate 4      Boxes and equipment on the south-east side, taken from the north-west (DP 15)



Plate 5

Box 1 (original switch box) on the south wall, taken from the north (DP 16)



Plate 6

Box 5 (original fuse box and emergency override) on the south wall, taken from the north-west (DP 21)





Plate 7

Box 6 (original fuse box) on the east wall, taken from the north-west (DP 26)



Plate 8

Capacitor Box 7 on the east side of the building, taken from the north-west (DP 28)



Plate 9 View of the pit from above, taken from the north-west (DP 14)



Plate 10 Pump 1 on the south side of the pit, taken from the north (DP 47)





Plate 11      Original light on the east wall of the pit, taken from the south-west (DP 42)

## PHOTOGRAPHIC INDEX



DP 1

*South and east elevation of the building, taken from south-east*



DP 2

*South and west elevation of the building, taken from the south-west*



DP 3

*North elevation of the building, taken from the south*



DP 4

*East elevation of the building with railings enclosing subterranean chamber, taken from the east*



DP 5

*South side of the building, taken from the north*



DP 6

*East side of the building showing surviving equipment, taken from the north-west*





DP 7

*North-west side of the building, taken from the south-east*



DP 8

*Roof structure of the building showing the lateral rail system, taken from the south*



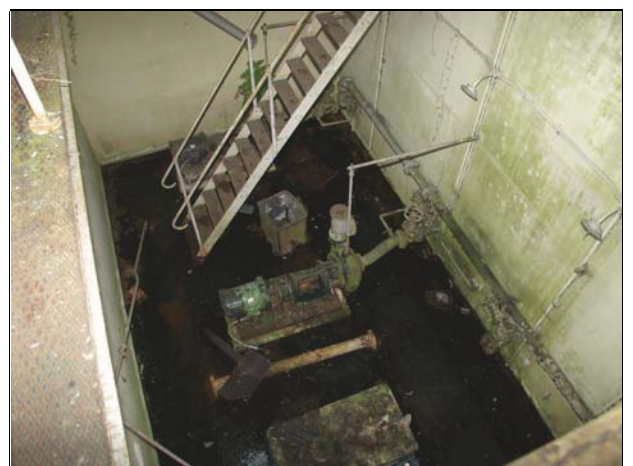
DP 9

*South side of the pit, taken from the north*



DP 10

*East side of the pit, taken from the north-west*







DP 13

*View of the south side of the pit from above, taken from the north-east*



DP 14

*View of the pit from above, taken from the north-west*



DP 15

*Boxes and equipment on the south-east side, taken from the north-west*



DP 16

*Box 1 (original switch box) on the south wall, taken from the north*



DP 17

*Boxes 2 and 3 (original fuse boxes) on the south wall, taken from the north*



DP 18

*Boxes 2 and 3 (original fuse boxes) on the south wall, taken from the north*





DP 19

*Box 4 (fuse box – not original) on the south wall, taken from the north*



DP 20

*Box 5 (original fuse box and emergency override) on the south wall, taken from the north-west*



DP 21

*Noflote controllers within the building, no longer in position, taken from the south*



DP 22

*Detail of Box 5, taken from the north*



DP 23

*Detail of Box 5 showing emergency override button, taken from the north*



DP 24

*Detail of Box 5 showing volt meter, taken from the north*





DP 25

*Detail of Box 5, taken from the west*



DP 26

*Box 6 (original fuse box) on the east wall, taken from the north-west*



DP 27

*Box 6 (original fuse box) on the east wall, taken from the north-west*



DP 28

*Capacitor Box 7 on the east side of the building, taken from the north-west*



DP 29

*Amp meter and bakelite switches on capacitor Box 7 on the east side of the building, taken from the west*



DP 30

*Plate on capacitor Box 7, taken from the west*



DP 31

*Information plate on capacitor Box 7, taken from the north*



DP 32

*Large stop cock at ground floor level adjoining capacitor Box 8, taken from the south-west*



DP 33

*Mark on head of stop cock adjoining capacitor Box 8, taken from the south*



DP 34

*Box 10 (original starter box) on the east wall, taken from the west*



DP 35

*Box 11 (original switch box) on the east wall, taken from the north-west*



DP 36

*Pulley wheel set into the window pier of the east wall, taken from the north-west*





DP 37

*Capacitor Box 9 on the east side of the building, taken from the north-west*



DP 38

*Pump 3 on the north side of the pit, taken from the south-west*



DP 39

*Plate on Pump 3, taken from the north*



DP 40

*Pipe work and stop cocks to the east of Pump 3, taken from the south-west*



DP 41

*Pipe work and stop cocks to the east of Pump 2 in the centre of the pit, taken from the north-west*



DP 42

*Original light on the east wall of the pit, taken from the south-west*



DP 43

*Inlet pipe to the west of Pump 3, taken from the north*



DP 44

*Pump 2 in the centre of the pit, taken from the north-west*



DP 45

*The wheel housing of Pump 2 showing manufacturers stamp, taken from the west*



DP 46

*Pump 1 on the south side of the pit, taken from the north*



DP 47

*Pipework and mechanisms above the wheel of Pump 1, taken from the north-west*



DP 48

*Plate on Pump 1, taken from the north*





DP 49

*Pipework and mechanisms above the wheel of Pump 1, taken from the east*



DP 50

*Pipework and mechanisms above the wheel of Pump 1, taken from the east*



DP 51

*Lateral pipe across the east wall of the pit with junction of pipes from Pumps 3 and 2, taken from the south*



DP 52

*Turbine with electrical supply embedded in the floor, taken from the south-east*



DP 53

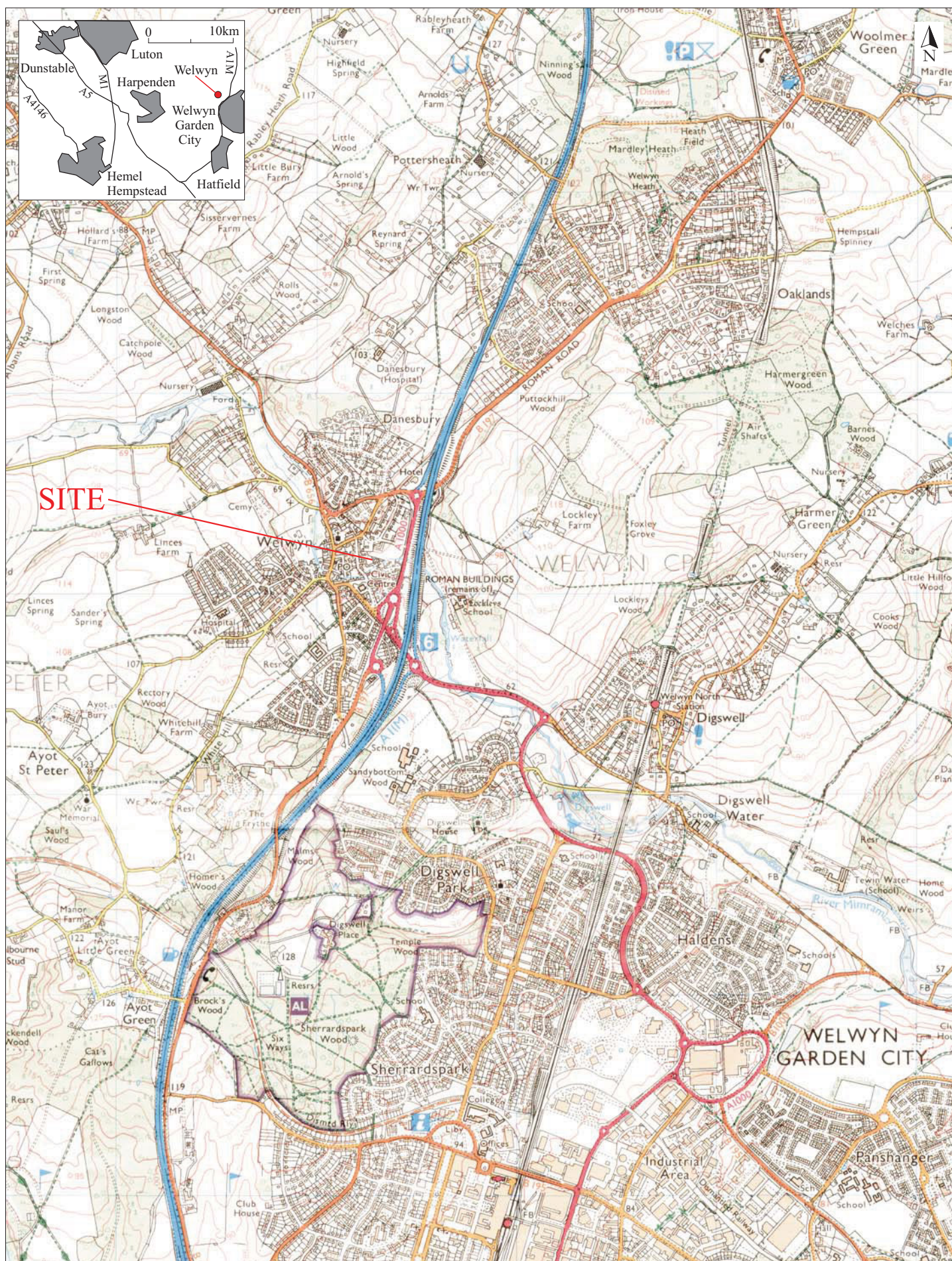
*Inspection pit cover outside the building of Adams Hydraulics manufacture, taken from the south*



DP 54

*Inspection pit cover outside the building of Adams Hydraulics manufacture, taken from the south*

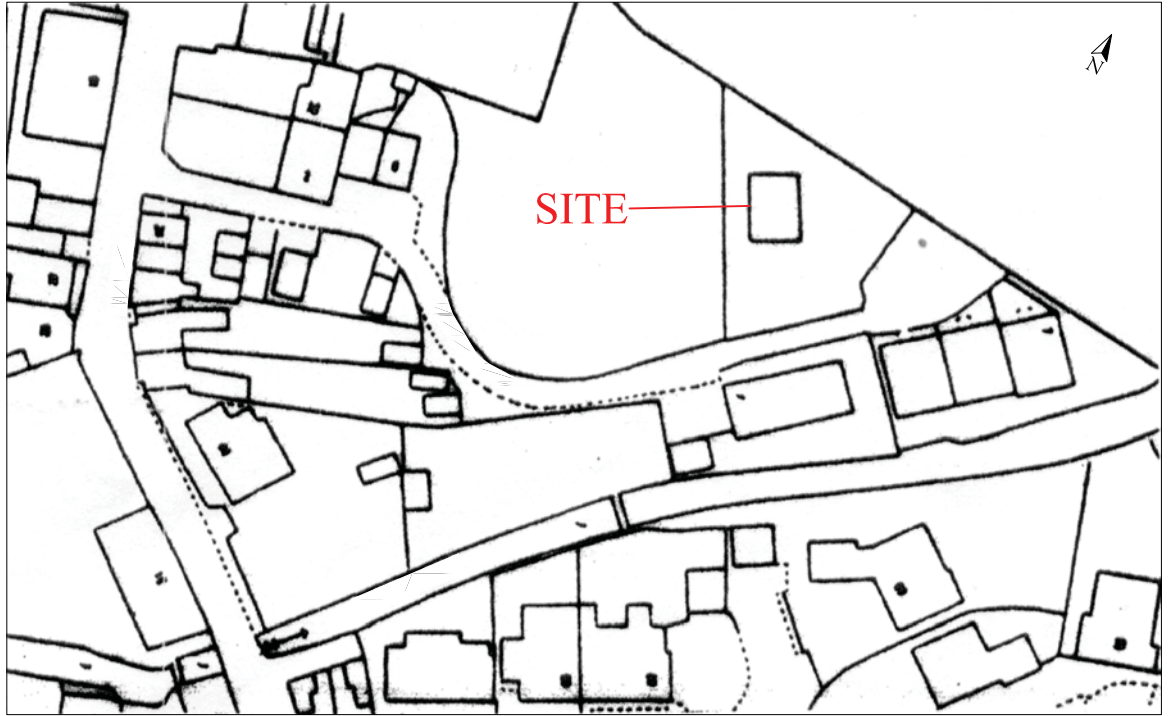




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**Fig. 1 Site location plan**  
 Scale 1:25,000 at A4

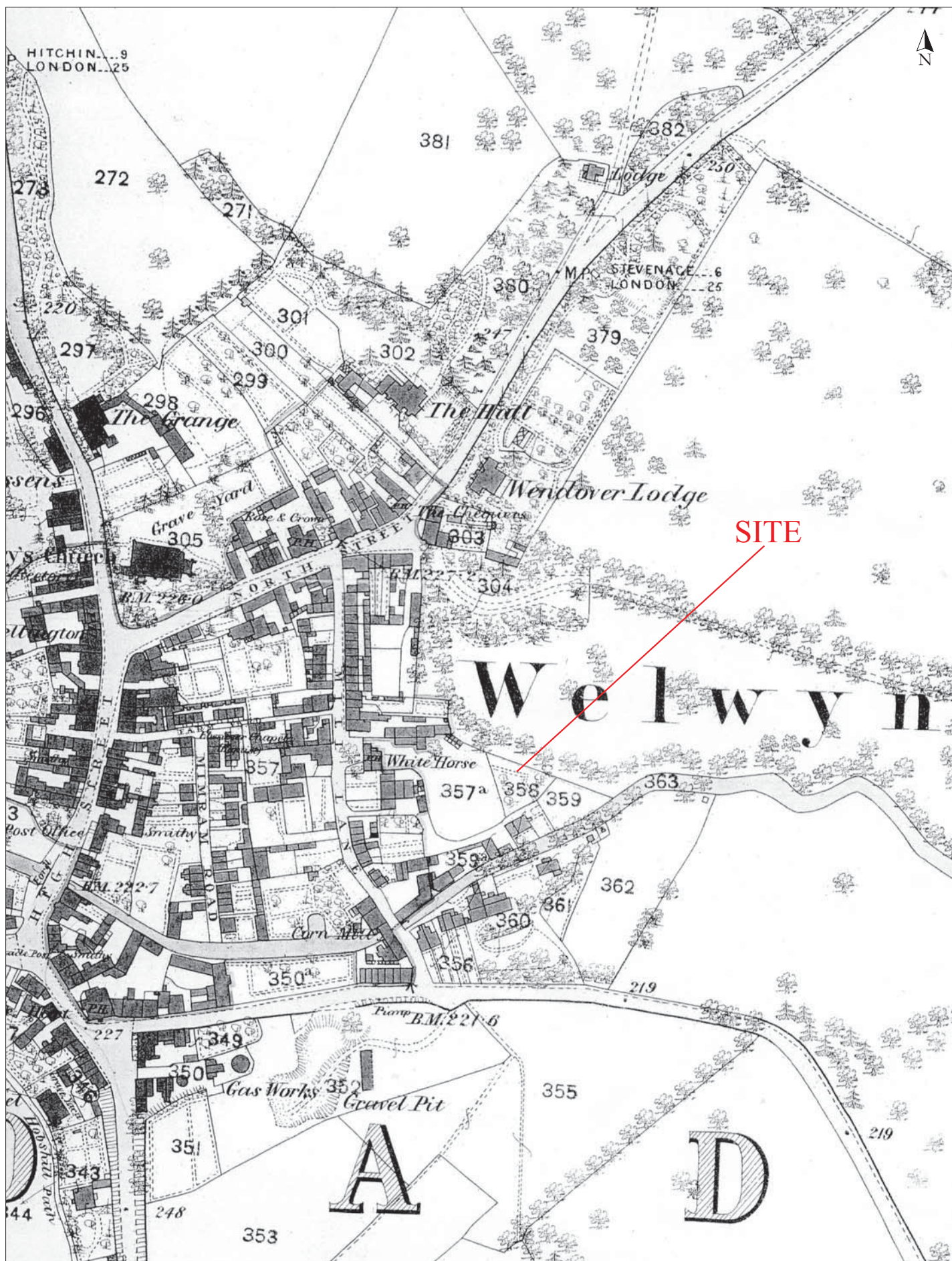




0 50m

<i>Archaeological Solutions Ltd</i>
<b>Fig. 2 Detailed site location plan</b>
Scale 1:1000 at A4





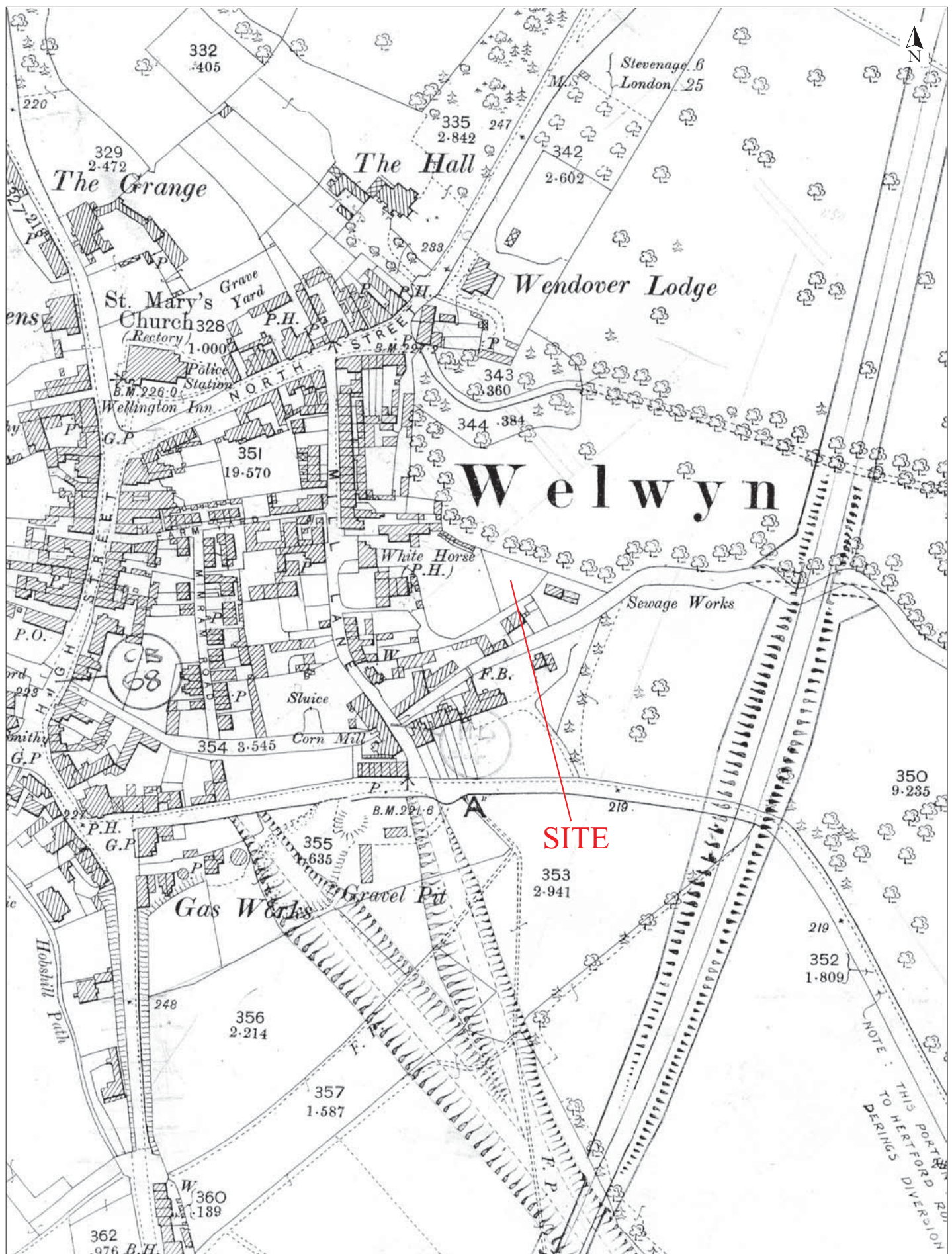
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**Fig. 3 OS map, 1881**

Scale 25" to 1 mile at A4

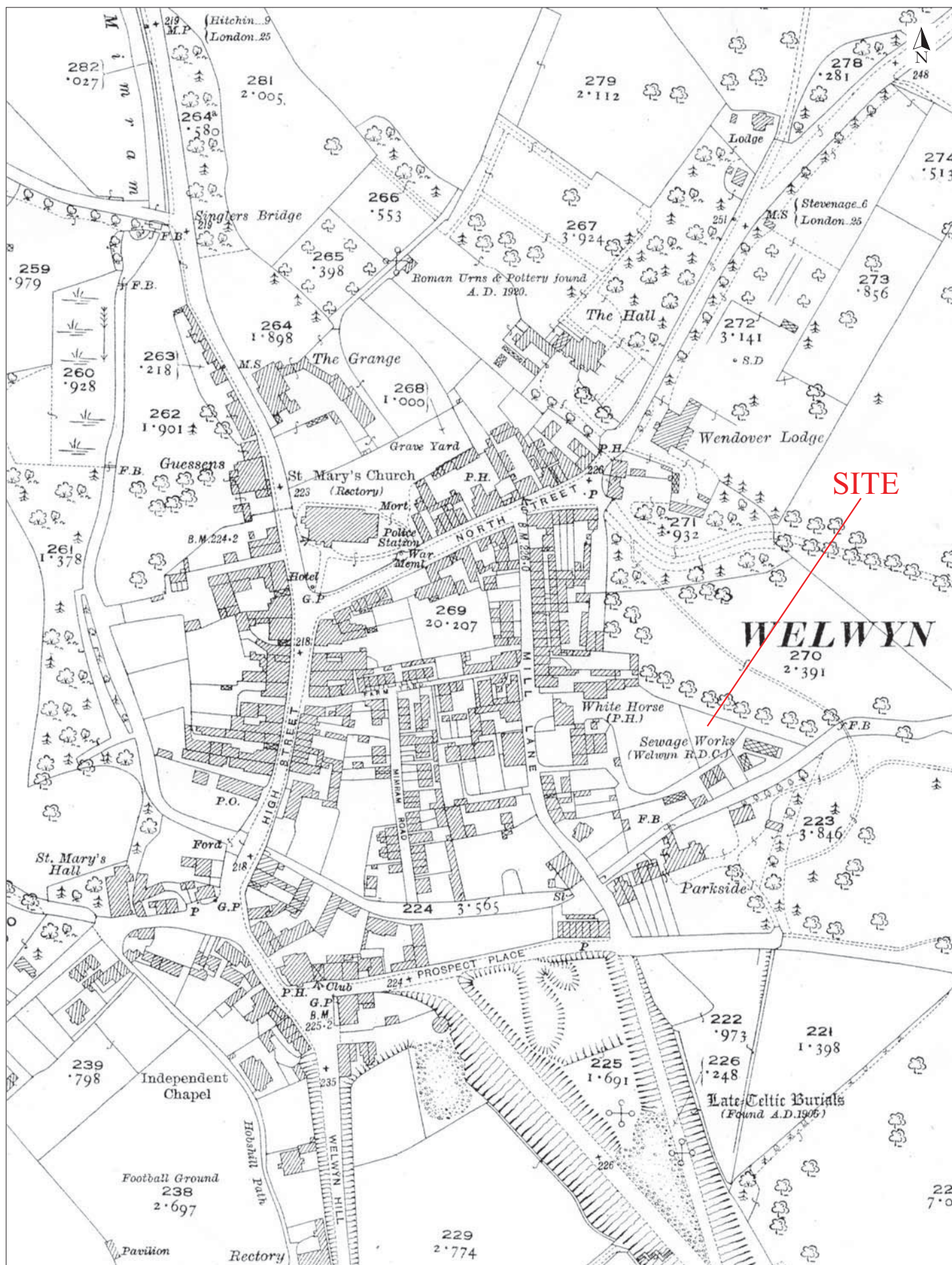




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Fig. 4 OS map, 1898  
Scale 25" to 1 mile at A4





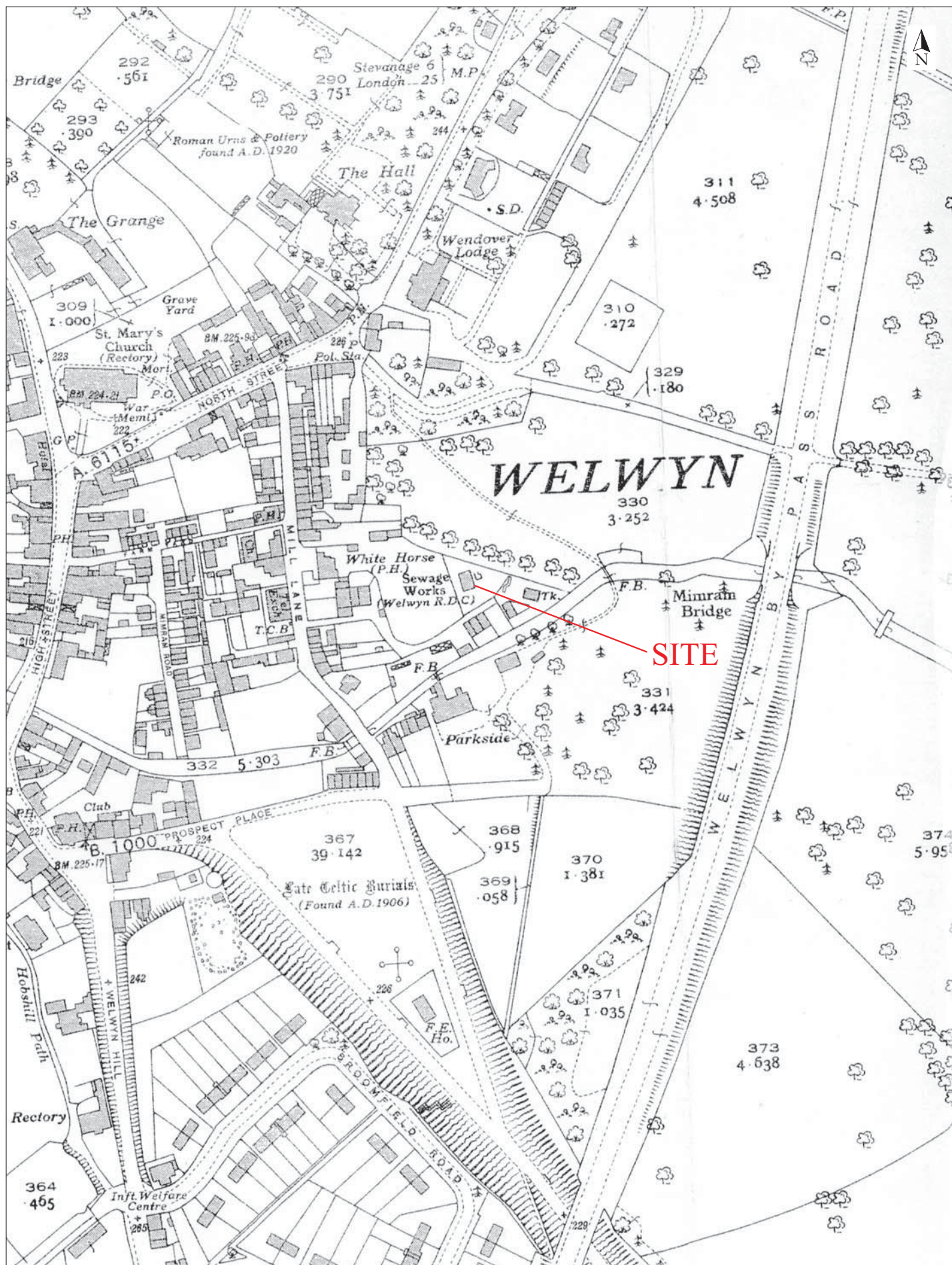
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Fig. 5 OS map, 1923

Scale 25" to 1 mile at A4





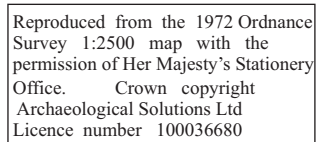
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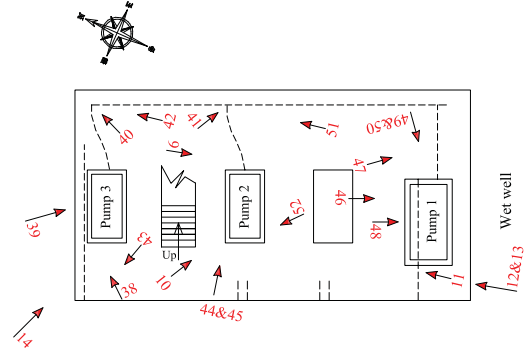
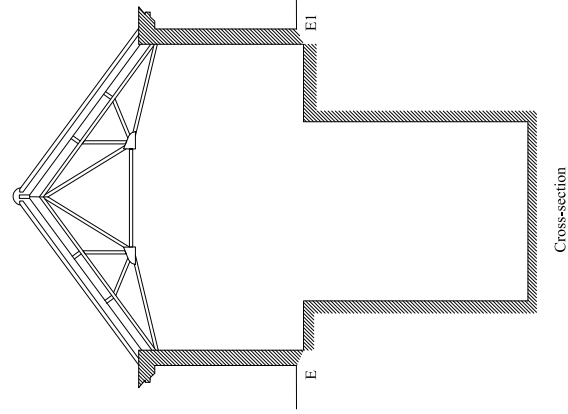
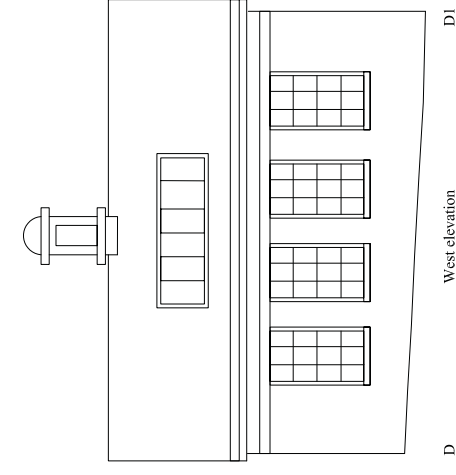
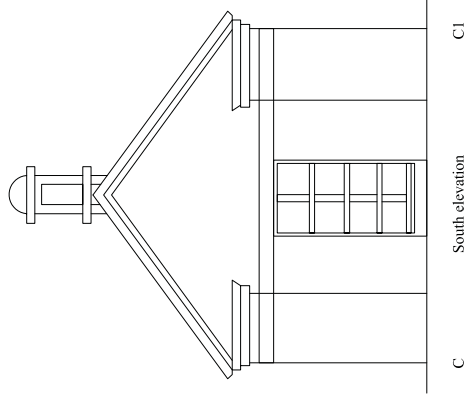
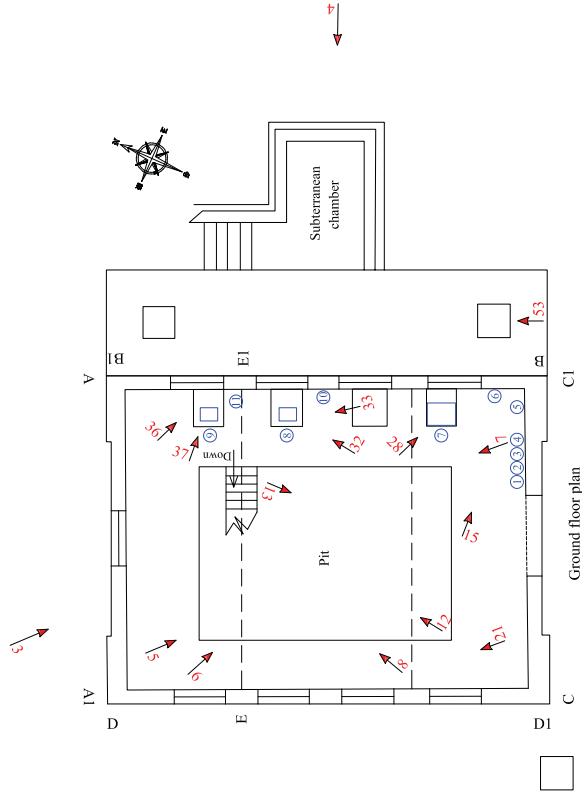
**Fig. 6 OS map, 1937**

Scale 25" to 1 mile at A4





<i>Archaeological Solutions Ltd</i>
<b>Fig. 7 OS map, 1972</b>
Scale 1:2500 at A4



① Location of wall mounted boxes & capacitors  
 ---- Schematic of pipe layout