

Written Scheme of Investigation for
Archaeological Field Evaluation



One YMCA
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Welwyn Garden City
AL7 3UL

On behalf of

Kori Construction

December 2022

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*Cover: Extract from the Ordnance Survey 6-inch maps of 1899 (Hertfordshire Sheet XXVIII.SE)
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1 Introduction

Border Archaeology (BA) has been instructed by Henry Barrow of Kori Construction to carry out a programme of Archaeological Field Evaluation (AFE) in connection with the demolition of the existing hostel and the development of a four storey 100 bed YMCA Hostel, along with up to 43 residential apartments at One YMCA, 90 Peartree Lane, Welwyn Garden City AL7 3UL (NGR: TL 24407 12598; *fig. 1*).

In accordance with the *National Planning Policy Framework* (Ministry of Housing, Communities & Local Government 2019), planning permission for the proposed works has been granted by Welwyn Hatfield Borough Council (Planning Ref.: 6/2019/2714/OUTLINE) subject to a section 106 agreement which includes condition 3 of the Planning Decision, as outlined below:

3. *No development shall take place on the application site as identified in drawing numbered 8057 / P010 until an Archaeological Written Scheme of Investigation is submitted to and approved in writing by the Local Planning Authority. The scheme shall include an assessment of archaeological significance and research questions; and:*
 1. *The programme and methodology of site investigation and recording as suggested by the evaluation;*
 2. *The programme for post investigation assessment;*
 3. *Provision to be made for analysis of the site investigation and recording;*
 4. *Provision to be made for publication and dissemination of the analysis and records of the site investigation;*
 5. *Provision to be made for archive deposition of the analysis and records of the site investigation;*
 6. *Nomination of a competent person or persons/organisation to undertake the works set out within the Archaeological Written Scheme of Investigation.*

The development shall not be carried out other than in accordance with the approved programme.

Prior to occupation the site investigation and post investigation assessment must have been completed in accordance with the programme set out in the Written Scheme of Investigation approved and provision should have been made for analysis and publication where appropriate.

REASON: To enable the inspection of the site by qualified persons for the investigation of archaeological remains in accordance with a written scheme of investigation in accordance with the National Planning Policy Framework and Policy R29 of the Welwyn Hatfield District Plan 2005.

This Written Scheme of Investigation (WSI) has been prepared by Lyndsey Clark BSc (Hons.) MCIfA with reference to Section 3.2 of *Standard and guidance for an archaeological evaluation* (CIfA 2020a) and Section 4 of *Standards for Field Archaeology in the East of England* (Gurney 2003); it is for submission to Alison Tinniswood BA MA ACIfA, Senior Historic Environment Advisor to Hertfordshire County Council, as a methodology for the proposed programme of works.

2 Site Description

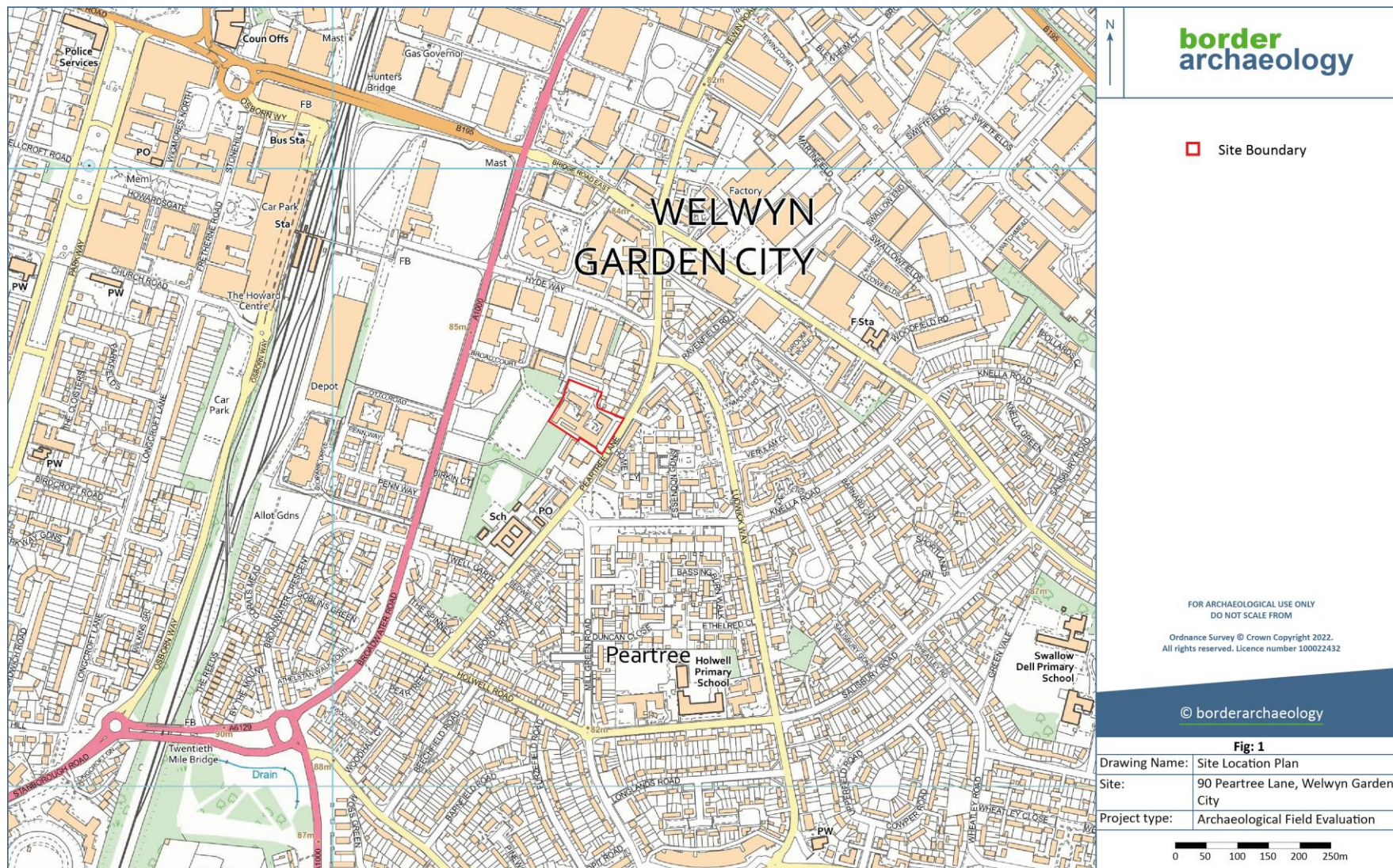
The Site is located just under 1km to the ESE of Welwyn Garden City town centre on the transition between the residential area of Peartree to the E, and the predominantly commercial/industrial area of Broadwater Road and the mainline railway to the W. The Site, which measures c. 7200sqm and lies at a height of c. 86m AOD, currently comprises a 125-bed hostel operated by One YMCA. It is bounded by Peartree Lane to the E and the residential apartments of Peartree Close to the S, while commercial and light industrial properties lie to the N and W.

The Site is not located within a Conservation Area or Archaeological Priority Area.

2.1 Soils and Geology

The British Geological Survey lists the underlying solid geology within the Site as comprising chalk of the Lewes Nodular and Seaford Chalk Formations; these formed in a marine environment approximately 84 to 94 million years ago in the Cretaceous Period. The overlying superficial deposits comprise the Lowestoft Formation (Diamicton), a sedimentary superficial deposit that formed between 423 and 480 thousand years ago during the Quaternary period (BGS 2021).

No records of geotechnical investigations have been identified within the Site or its immediate surrounds (BGS 2022).



3 Brief Historical and Archaeological Background

In order to understand the full archaeological and historical context of the Site, the Hertfordshire Historic Environment Record (HHER) was consulted on the known cultural heritage features within a 1km study area around the Site (see Appendix 1 for gazetteers and maps); the following summarises the information contained therein.

3.1 Prehistoric & Romano-British

The earliest activity recorded within the designated study area is Late Bronze Age in date, represented by a single socketed axe that was found c. 730m to the SSW of Site on Woodhall Lane (HER No.: 642; NGR: TL 24117 11889).

Late Iron Age activity within the study area is better attested with several sites recorded in the vicinity. The most impressive of these was located just over 1km to the ENE of Site; it comprised a small cemetery containing a total of seven cremation burials, one of which was a rich La Tene 'chieftain' type burial found in association with amphorae, pots, a silver cup, bronze and wooden vessels, and a set of glass game counters (HER No.: 2815; NGR: TL 253 131).

Approximately 100m to the SE of the cemetery, a Late Iron Age ditch and a complex of Romano-British ditches and finds were recorded (HER No.: 2820; NGR: TL 254 130); these were interpreted as forming part of a Late Iron Age and Romano-British farmstead. Another Late Iron Age ditch, interpreted as a possible boundary feature, was also identified c. 885m to the ESE of Site (HER No.: 858; NGR: TL 252 122), while a Late Iron Age/Romano-British ditch, containing fragments of 1st/2nd Century domestic ware and a bronze fibula, was excavated c. 785m to the WNW (HER No.: 199; NGR: TL 236 127). Late Iron Age material (HER No.: 2808; NGR: TL 248 122) and sherds of Late Iron Age pottery (HER No.: 2800; NGR: TL 243 117) were also recovered from c. 520m to the SE and c. 895m to the SSW of Site respectively.

Further evidence for activity in the Late Iron Age/Romano-British transitional period includes the recovery of 50 coarse ware vessels from Shortlands Green, located c. 550m to the SE of Site (HER No.: 1576; NGR: TL 249 123), and pottery, a considerable amount of daub and a coin of Nero (54-68 AD) found c. 775m to the N of Site on Bessemer Road (HER No.: 1575; NGR: TL 244 133).

Roman pottery was also recovered from the junction of Hyde Way and Broadwater Road, c. 290m to the NNW of Site (HER No.: 13420; NGR: TL 242 128), with two 3rd Century coins found just over 1km to the ENE (HER No.: 11760; NGR: TL 252 131) and ESE (HER No.: 2821; NGR: TL 253 122) of Site. In addition, the supposed line of the Viatores' route 214 through Welwyn Garden City is recorded as being c. 640m to the SSW of Site (HER No.: 4664; NGR: TL 243 119), although this has not been proved by excavation.

3.2 Medieval

Medieval activity within the designated study area is limited to the site of an infilled sub-rectangular moat, located c. 360m to the SW of Site (HER No.: 2615; NGR: TL 241 122), and a roughly rectangular area of burnt soil interpreted as the site of a 13th Century structure, which is located just over 1km to the ENE (HER No.: 12834; NGR: TL 253 131).

An historic boundary between the parishes of Hatfield and Tewin is also recorded c. 810m to the E of Site within a small patch of woodland known as Hens Wood (HER No.: 17711; NGR: TL 252 126); this comprises a low bank topped with ancient coppice.

3.3 Post-medieval

The Hatfield map of 1805 depicts the Site as lying at the western extent of an area known as 'Small Gains wood', which extended from just N of the present-day Woodhall Lane, to just S of Bridge Road East. At the northern extent of the woodland, at the present-day junction between Tewlin Road and Garden Court, is what appears to be a small circular pond named 'Lady Grove'. Numerous properties dot the surrounding landscape linked by a network of trackways, three of which traverse the woodland. The southernmost WNW-ESE orientated track is depicted at the location of the aforementioned moat, which is noticeably absent from this map, while the central track is shown extending in an SSW direction to the site of Woodhall Lodge Farm (HER No.: 16282; NGR: TL 240 117) simply labelled 'Lodge', c. 900m to the SSW of Site.

The Tithe map of 1839 shows Woodhall Lodge Farm, located within Plot 497, as an L-shaped property with what appears to be three square outbuildings to the W; the owner is listed in the *Tithe Apportionments* as the Marquess of Salisbury while the property was occupied at this time by Frederick and John Farr. The trackways formerly depicted traversing the woodland are no longer shown, however, the moat is now present in a small tract of land called Moat Wood (Plot 505) which previously formed the SW extent of Small Gains Wood. The moat is depicted as a square-shaped ditch with no visible entranceway and no nearby building or road access; the owner is again listed as the Marquess of Salisbury, while the occupier is one John Hunter Junior. The pond-like feature formerly depicted to the N of Small Gains Wood is no longer visible on the Tithe map, although the parcel of land is still named 'Lady Grove' (Plot 567). The *Tithe Apportionments* once again list the owner as the Marquess of Salisbury and the occupier as John Hunter Junior.

At this time, the majority of the Site was located within the large plot of land still known as Small Gains Woods (Plot 506), which was owned and occupied by the Marquess of Salisbury. However, the westernmost part extended into what was Plot 512, a small tract of land called Bug Croft which according to the *Tithe Apportionments* was owned by Earl Cowper and occupied by one Maria Farr.

Other buildings in the vicinity of the Site that are depicted on the Tithe map include the site of The Woodman Public House, which was located c. 950m to the SE of Site on Cole Green Lane (HER No.: 16279; NGR: TL 249 118), and the 17th Century Old Cottage, located just over 1km to the NW of Site on Bridge Road (HER No.: 10873; NGR: TL 234 132).

The 1st Edition 6-inch Ordnance Survey (OS) map of 1884 depicts a much-changed landscape from that shown on the Tithe map of 45 years earlier. No evidence of Small Gains Wood remains by this time, with the land that it once occupied now divided into numerous agricultural fields. The Great Northern railway line is also shown cutting a swathe through the land to the W, with two road bridges, Hunters Bridge to the N (HER No.: 5108; NGR: TL 240 131) and Twentieth Mile Bridge to the S (HER No.: 5107; NGR: TL 237 120), both built in 1850 to cross the newly constructed railway line; the White Bridge (HER No.: 7152; NGR: TL 237 134), located on Digswell Road just over 1km to the NNW of Site, was later constructed in 1860 to cross the Hatfield, Luton & Dunstable branch of the line.

Woodhall-lodge Farm is depicted as a substantial farmstead at the end of a tree-lined avenue, with ranges of barns around a rectangular yard and a large pond to the N. The moat is also still visible, along with a small copse of trees to its SW, however, a trackway now runs in a NE-SW direction directly to its E along the present-day course of Peartree Lane. This track led to Peartree Farm (HER No.: 17938; NGR: TL 244 126) which comprised a substantial farmhouse to the W with a group of buildings arranged around two small compartmented yards to the E; four ponds of varying sizes are also shown in the fields to the S of the farm.

The 2nd Edition 6-inch OS map of 1899 depicts little change to Peartree Farm itself, although a few additional buildings seem to have been added to the westernmost yard; a field boundary to the N has also been removed and a footpath now extends towards a small building located on a track leading to Hunters Bridge. The moat is still visible to the S of Peartree Farm, with what appears to be a small pond-like extension to its eastern corner. Trees are shown internally, while a new field boundary extends from its NW corner; another boundary to the S of this has been removed and the copse of trees appears slightly reduced.

Woodhall-lodge Farm appears to have been extended again by this time, although some of the former outbuildings had been removed. Part of the land located between the railway line and the farm had also been turned into a Brick Works known as the Twentieth Mile Pit after the adjacent railway bridge (HER No.: 10940; NGR: TL 237 118). A siding is visible entering the site from the railway line to the S, while a number of small buildings are scattered throughout the works.

3.4 Modern

Following the construction of Letchworth Garden City in the late 19th Century, the creator Ebenezer Howard sought to establish another planned town in close proximity to London that would provide both industry and pleasant living conditions for its inhabitants. The architect Louis de Soissons, along with planner Frederic Osborn, designed Welwyn Garden City (HER No.: 9599; NGR: TL 235 126) with distinct commercial, civic and industrial zones that were surrounded by housing; the design included long straight vistas, known as The Parkway and Howardsgate, which incorporated ornamental open spaces in the middle of the town.

Construction began in 1920 with 50 properties initially built to house the workmen and staff. The OS 6-inch Edition map of 1925 depicts the Workmen's Camp (HER No.: 10935; NGR: TL 236 133) as comprising 12 long rectangular buildings arranged in a semicircle with a 'laundry' located to the N. These were situated in an area of wood- and scrubland within the loop of the railway line. To the S of the camp are the Parish Council Offices, with 'Saw Mills'

(HER No.: 10934; NGR: TL 234 133) and 'Brick Works' (HER No.: 10933; NGR: TL 234 134) to the W, and a restaurant named the 'Cherry Tree' to the E; a number of roads had also been laid out by this time, while a temporary railway station intended for use by the workmen is depicted near Hunters Bridge (HER No.: 9824; NGR: TL 240 131).

Little had changed at Peartree Farm by this time, with the map depicting an additional outbuilding to the E and a small pond-like feature to the S. The small building located to the N of the adjoining footpath (on the track to Hunters Bridge) is now labelled 'Peartree Cottages' and an 'Electric Power Station' is situated to its E. In the S of the study area, Woodhall-lodge Farm appears largely unchanged, although an outbuilding to its E has been removed. The former Brick Works to the W were bought by the Welwyn Garden City Co. in 1925-26 and were the main source of sand and gravel for the construction of the town, although they no longer appear to be operating at the time of this map; two of the small buildings previously depicted within the works are however labelled as 'Gravel Pit Cottages'.

By the late 1920s development at Welwyn Garden City was well under way. A new railway station had opened on the main line in 1926, c. 250m to the S of the temporary stop (HER No.: 10941; NGR: TL 239 128), and numerous factories had been constructed to the W, including the Grade II Listed Shredded Wheat Factory located c. 415m to the NW of Site (HER No.: 10880; List Entry No.: 1101084; NGR: TL 241 129), and the British Instructional Film Studios, located c. 300m to the W (HER No.: 10984; NGR: TL 241 126). In 1934, Parkway School (HER No.: 18262; NGR: TL 234 124), originally named Birdcroft Junior School, was opened c. 870m to the WSW of Site, while The Peartree Public House (HER No.: 30836; NGR: TL 244 116), located c. 880m to the S of Site, was built in 1938 to serve the inhabitants of the new Garden City.

According to the recollections of a former Lieutenant in the local Home Guard, numerous defences were constructed around Welwyn Garden City during the Second World War, these included: the Watchmead Pillbox, which stood by the railway line c. 685m to the ENE of Site (HER No.: 6634; NGR: TL 250 129); a Pillbox and Anti-Tank Obstacles at the site of a former Railway Bridge on Tewin Road, c. 740m to the NNE of Site (HER No.: 6633; NGR: TL 247 133); a Pillbox located at the NE corner of the junction of Sweet Briar and Cole Green Lane just over 1km to the SE of Site (HER No.: 6635; NGR: TL 254 117); and an Anti-Tank Obstacle, located on the White Bridge, just over 1km to the NW of Site (HER No.: 6631; NGR: TL 237 134). The NW corner of the John Lewis department store (originally the Welwyn Stores) also had a loopholed parapet around a flat roof overlooking The Campus to the N and The Parkway to the W (HER No.: 6632; NGR: TL 237 132).

By the time of the OS Provisional Edition of 1948 the agricultural fields surrounding Peartree Farm had been engulfed by the newly laid out residential streets of Peartree; the farm itself remained extant but a youth hostel and club house had been erected against its southern boundary. The moat is also still present to the S but this is surrounded by residential properties that seem to have partially impacted onto its southern corner. Woodhall-lodge Farm and the Gravel Pit Cottages also appear unchanged, though the urban development has reached their northern bounds, extending as far E as the present-day junction between Salsbury Road and Knella Road.

The Provisional Edition OS map of 1950 shows the newly developed residential area in more detail, with individual plots clearly visible. A newly constructed Post Office and school are depicted to the S of the Youth Hostel beyond which lies the moat which has been retained as an open space within the housing development; interestingly, this

is now depicted as being complete with no evidence of the former impaction shown on the map of 1948. Woodhall-lodge Farm to the S continued to remain unchanged and this stayed the case until the construction of the Our Lady Roman Catholic Primary School in the 1970s.

4 Aims & Objectives

The evaluation will seek to:

- ascertain the extent, depth below ground surface, depth of deposit, character, date, significance and condition of any archaeological remains on Site;
- establish the extent to which previous development and/or other processes have affected archaeological deposits at the Site;
- establish the likely impact on archaeological deposits of the proposed development;
- inform a further programme of mitigation, should such be required.

The results will be integrated into the wider historic and archaeological context of the landscape and address, where applicable, the research aims set out in the *The East of England Regional Research framework for the Historic Environment* (ALGAO 2021).

5 Methodology

The programme of archaeological work will be carried out in accordance with BA's *Archaeological Field Recording Manual* (2021) and with *Standard and guidance for archaeological field evaluation* (ClfA 2020a), *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (ClfA 2020b) and *Standards for Field Archaeology in the East of England* (Gurney 2003). BA adheres to the ClfA *Code of conduct* (2022) and to project management advice set out in *Management of Research Projects in the Historic Environment: The Project Managers' Guide* (Lee 2015).

ClfA (2020a, 4) defines AFE as:

.... a limited programme of non-intrusive and/or intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site on land, inter-tidal zone or underwater. If such archaeological remains are present field evaluation defines their character, extent, quality and preservation, and enables an assessment of their significance in a local, regional, national or international context as appropriate.

5.1 Scheme of works

A total of five evaluation trenches, measuring c. 1.8m × 30m and representing c. 5% of the development area, will be set out across the Site to provide a comprehensive assessment of its archaeological and palaeoenvironmental potential (*fig. 2*); if significant archaeology is identified, a contingency for an additional 1% of trenching has been allowed.

While minor variations to the trench layout may be made where unexpected constraints (e.g. active services) are encountered, any substantive changes to the trench layout will be agreed with the Senior Historic Environment Advisor before being implemented.

The trenches will be opened by a mechanical excavator equipped with a 1.8m wide toothless bucket operating under archaeological supervision. Undifferentiated topsoil and subsoil deposits will be removed in level spits, care being taken not to machine away seemingly homogenous layers that may include the upper parts of archaeological features; potentially significant deposits will not be removed by machine before their character is reasonably understood.

Made ground, topsoil, subsoil and archaeological deposits will be kept separate during excavation to allow for the sequential backfilling of trenches, which will not be carried out without the prior agreement of the Senior Historic Environment Advisor unless necessitated by health and safety concerns.

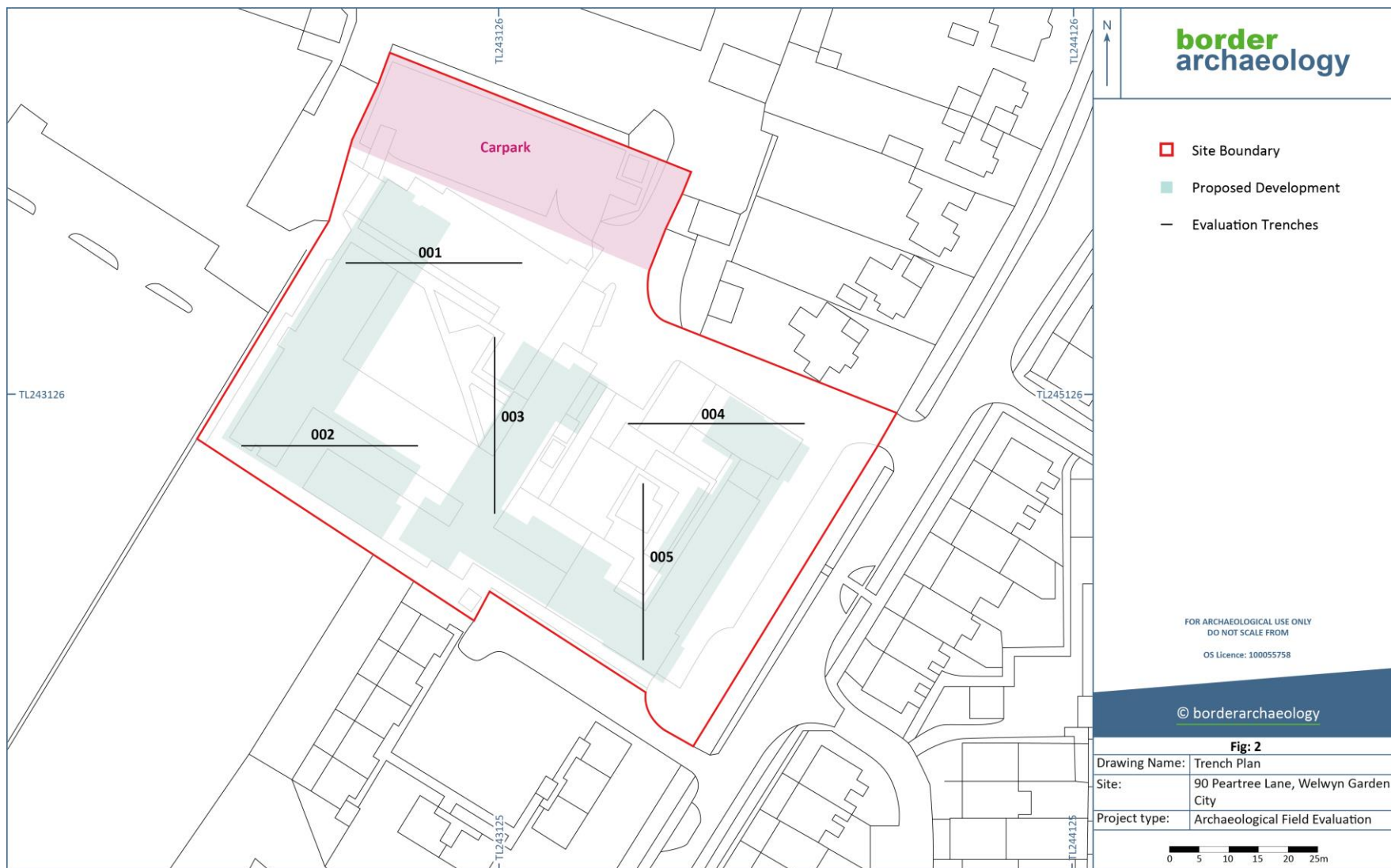
Machine-use will cease when a clear archaeological or geological horizon has been reached. All features of archaeological potential will be identified, cleaned-off by hand, planned at a suitable scale, accurately located and examined in accordance with established criteria for the investigation of archaeological remains.

A sufficient sample of every archaeological and suspected archaeological feature or deposit will be excavated, including:

- 1m long sections excavated through linear features, with termini and relationships excavated as a matter of course;
- half-sectioning of discrete features, with 50-100% excavated depending upon date and quantity of material culture present;

Individual complex features, such as kilns or burials, will be cleaned and recorded but, where possible, left *in-situ* (with specific protection against disturbance during backfilling if necessary).

It is also anticipated that some naturally occurring layers and features, such as peat, alluvium, geoarchaeological deposits and palaeochannels, will be investigated. This is particularly likely when the deposits contain well-preserved biological remains and/or were laid down during periods of archaeological interest.



A metal detector will be used throughout the programme of works to scan exposed features/deposits and spoil heaps. No unauthorised metal detecting will be permitted anywhere within the Site area and all such activity will be carried out in accordance with BA's *Metal Detecting Policy* (2018) incorporating Historic England and Portable Antiquities Scheme guidance.

All BA staff are suitably qualified and experienced to discharge their project roles effectively, are fully cognisant of aims and methodologies and are suitably equipped to undertake the work.

5.2 Recording

The following reference numbers have been assigned to this fieldwork project:

- Site code: PLG22;
- OASIS ID: borderar1-511594;
- Museum Accession No.: TBC.

Full written, graphic and photographic records will be made in accordance with BA's *Archaeological Field Recording Manual* (2021) and with accepted professional standards including *Standard and guidance for archaeological field evaluation* (CIfA 2020a, 10-12).

Records will include:

- A *pro-forma* trench sheet for every trench excavated;
- A *pro-forma* context record for each stratigraphic unit examined;
- A full graphic record of all excavated areas, with the primary record consisting, where practicable and strictly within established safety parameters, of hand-drawn plans and sections (produced on gridded, archive-stable polyester film), to show the extent of the area, the extent of all stratigraphic units and appropriate detail within stratigraphic units at scales of 1:50, 1:20 and 1:10, or as appropriate depending on the complexity to be recorded. All levels will relate to Ordnance Datum. Drawings will be numbered and listed in a drawing register cross-referenced to the written record;
- Temporary Benchmarks (TBMs), which will be established as required;
- Survey using a GPS and/or TS where appropriate;
- A detailed photographic record of all stratigraphic units and representative photographs showing the progress of archaeological work. The record will be made using a high-resolution digital camera (20 MPX) and comprise photographs of archaeological features and appropriate groups of features and structures. The initial photograph of each recorded feature will include a board showing context information, N arrows and scales. All photographic records are indexed and cross-referenced to written Site records. Details concerning subject and direction of view will be maintained in a photographic register, indexed by frame number;

The progress of the works will be recorded and assessed using the Company's ISO 9001 procedures.

5.3 Recovery, processing and curation of artefactual data

Finds are herein defined as...

...all artefacts, building materials, industrial residues, environmental material, biological remains (including human remains) and decay products (ClfA 2020b, 3).

In accordance with *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (ClfA 2020b), Section 7 of *Standards for Field Archaeology in the East of England* (Gurney 2003) and *First Aid for Finds* (Watkinson & Neal 2001), all such materials will be labelled with the Site code and context number before being removed off-site; they will be stored in accordance with *First Aid for Finds* (*ibid.*) and with Historic England technical standards and other relevant sources of information, including standards for data-gathering set out by Brown (2011a, 18-20). Each retained assemblage will be examined according to typological or chronological criteria and conservation needs identified, with all ceramics referenced to the county type fabric series.

Kate Smith MA ACIfA, Post-Excavation Manager: Performance Delivery, will contact Welwyn Hatfield: Mill Green Museum or other suitable depository for any specific guidance requirements in respect of the collection and subsequent archiving of finds. Decisions regarding selection and retention of archaeological materials are generally made at the pre-analysis stage of the project and will be informed by principles set out by Brown (2011a, 23), which in essence specify that this process should be sufficient to produce ...

...a project archive that allows a full re-examination and interpretation of all the results of the project whilst avoiding replication, repetition or the retention of materials not germane to future analysis.

BA refers additionally to *Selection, Retention and Dispersal of Archaeological Collections: Guidelines for use in England, Wales and Northern Ireland* (Society of Museum Archaeologists 1993) and the *ClfA Toolkit for Selecting Archaeological Archives* (2019).

5.3.1 Conservation Requirements

Janice McLeish MA (Hons.) ACIfA, Director: Post Excavation Services, will supervise on-site conservation for the lifting and treatment of fragile objects.

Post-excavation conservation work, including cleaning sensitive finds, will be carried out by BA's conservator and/or York Archaeological Trust (YAT).

Finds will be appropriately packaged and stored under the direction of BA's on-site conservation specialist *only* where significant preserved organic artefactual material is discovered. X-ray photographs of archaeological metalwork will be produced off-site by YAT.

5.3.2 Treasure

All finds identified in the Treasure Act (1996) and the Treasure (Designation) Order (2002) as being treasure will be recorded, removed to a safe place and reported to Kori Construction, the Senior Historic Environment Advisor, the Finds Liaison Officer (FLO) and Coroner. If the finds cannot be removed from Site the same day as discovery, provision against theft will be taken. A Treasure Receipt will be completed and a report submitted to the Coroner's Office and the FLO within 14 days of understanding the find is Treasure. The Treasure Receipt and Report will include the date and circumstances of the discovery, the identity of the finder (put as unit/contractor) and (as exactly as possible) the location of the find.

5.4 Recovery and Assessment of Palaeoenvironmental/Palaeoeconomic Data

Samples for palaeoenvironmental/palaeoeconomic purposes will be collected, where appropriate and practicable, according to guidance set out in *Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation* (2nd Edition; Campbell, Moffett & Straker 2011). Where possible, results will be related to themes identified in *The East of England Regional Research framework for the Historic Environment* (ALGAO 2021).

Samples of at least 40ℓ will be taken wherever possible and practicable using numbered sample buckets of 10ℓ capacity.

Processing will be undertaken by BA at its Palaeoenvironmental Processing Facility under the supervision and direction of Amy Bunce BSc MA MCI[†]FA, Director: UK Operations & Palaeoenvironmental Sciences. This assists on-site guidance for sampling purposes and the ability to 'rush' samples to quickly determine their archaeoenvironmental potential whilst still under excavation; this will inform whether additional samples are taken.

Wherever practicable, at least 40ℓ or 100% of each sample (both dry and waterlogged) will be processed by flotation using Siraf-style tanks with a 500µm retent mesh and 250µm flot sieve as standard, with smaller retent meshes to 250µm considered where carbonised material is less likely to float. Heavily waterlogged samples will be considered for analysis without prior processing by flotation.

Retents will be initially scanned by magnet to retrieve archaeometallurgical debris such as flake and/or spheroidal hammer scale. A sieve bank will be used to facilitate visual sorting with the smaller fractions sorted by means of magnifying lamp and/or illuminated stereo zoom microscopy. Non-archaeological, -archaeobotanical, -archaeosteological and -archaeometallurgical material will be disposed of on site. Retents that are particularly rich in carbonised material may be re-floated once dry to assist the separation of archaeobotanical material.

Flots will be sorted using an illuminated stereo zoom microscope, which will have a trinocular head for digital microscopic photography where necessary. Charcoal will only be subjected to species identification where the contextual information suggests it would be advantageous in addressing aims set out in *The East of England Regional Research framework for the Historic Environment* (ALGAO 2021) or in terms of national research

strategies. Archaeological, archaeobotanical, archaeosteological and archaeometallurgical material from flots and retents will be retained as part of the Site assemblage.

Sorting and identification of macro-botanical remains will use an in-house reference collection of botanical material, in conjunction with the consultation of academic, specialist reference books.

5.4.1 Other environmental sampling

Other environmental sampling, e.g. coring and monoliths for pollen, foraminifera, testate amoeba, diatoms etc., will be undertaken under the guidance of the specialist carrying out the further analysis.

Residue analysis on materials such as ceramics will be advised by the finds department.

Potential further investigation of environmental material, e.g. isotope analysis on bone or teeth, will be dependent upon discovery and will only be considered following discussion with the Senior Historic Environment Advisor and the Historic England Regional Science Adviser (London and the South East Region) as part of the post-excavation analysis stage.

5.4.2 Sampling for scientific purposes

A range of scientific dating methods may be employed, as appropriate. In addition to techniques such as ^{14}C and dendrochronology, dating methods applied to inorganic materials exposed to firing or burning may be used, e.g. thermo-luminescence for ceramics, flint artefacts and hearth stones, and archaeomagnetic dating for fired structural remains, such as furnaces and kilns and possibly domestic hearths and ovens.

As luminescence and archaeomagnetic dating will require a specialist Site visit, this will be arranged by BA at the earliest possible opportunity when suitable features are encountered. Provision for other types of scientific analysis will be discussed with the Senior Historic Environment Advisor and the Historic England Regional Science Adviser, should unexpected remains be encountered.

5.4.3 Waterlogged wood

Waterlogged wood will be treated in accordance with *Waterlogged Wood Guidelines on the recording, sampling, conservation and curation of waterlogged wood* (Brunning & Watson 2010) and left *in-situ* where this is practical and its long-term preservation is achievable.

5.4.4 Building materials

Samples of construction materials including masonry, brick, roof tile, floor tile, wall tile and hypocaust elements will be recovered for assessment of their potential to assist in the analysis of building palaeotechnology.

5.4.5 Geoarchaeology

Buried soils and sediment sequences considered to reflect the pedology of the Site will be analysed for information on Site formation processes. Highly significant, well-preserved remains, when encountered, will be investigated in a considered manner in order to assess the archaeological stratigraphy. Geoarchaeological works will in general aim to understand how deposits were initially laid down and subsequently modified through time (Canti & Corcoran 2015).

5.5 Human remains

Should human burials be encountered, the Senior Historic Environment Advisor and Kori Construction, the remains being covered, protected and left *in-situ* in the first instance. Graves will be scanned by metal detector to assess whether any grave objects are likely to be present.

BA is cognisant of the deliberations by the Ministry of Justice (MoJ) in 2011 in respect of Section 25 of the Burial Act 1857 (Amended 2018) and any arrangements regarding the discovery of human remains will be at the discretion of HM Coroner, whose instructions/permission will be sought.

Any recording of such remains will be in accordance with *Updated Guidelines to the Standards for Recording Human Remains* (Mitchell & Brickley 2017) using BA's *pro-forma* Skeleton Recording Sheet and Coffin Recording Sheet.

Should removal of remains be required, this would be carried out under the supervision of Niamh Dyer MSc (maternity cover for BA's osteology specialist Dr. Catherine Sinnott MA PhD ACIfA), subject to the appropriate Ministry of Justice licence, environmental health regulations and coroner information, with adequate security provided. Assessment and analysis, where required, will be undertaken by the osteology specialist and will include a statement for the final deposition of the assemblage, together with options for reburial.

Human bone assemblages are treated at all times with due reverence and in accordance with the following guidelines:

- *Excavation and post-excavation treatment of cremated and inhumed human remains*, IFA Technical Paper No. **13** (McKinley & Roberts 1993);
- *Guidelines to the Standards for Recording Human Remains*, IFA Technical Paper No. **7** (Brickley & McKinley 2004);
- *Human Bones from Archaeological Sites: Guidelines for producing assessment documents and analytical reports* (Mays, Brickley & Dodwell 2004);
- *Science and the Dead: A guideline for the destructive sampling of archaeological human remains for scientific analysis* (APABE; Mays *et al.* 2013);
- *Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England* (2nd Edition; APABE; Mays 2017);
- *Updated Guidelines to the Standards for Recording Human Remains* (Mitchell & Brickley 2017);

- *The Role of the Human Osteologist in an Archaeological Fieldwork Project* (Mays, Brickley, Dodwell & Sidell 2018);
- *Burial Law and Policy in the 21st Century: The way forward* (Ministry of Justice 2007);
- *Statement on the exhumation of human remains for archaeological purposes* (Ministry of Justice 2011).

Where analysis of remains is undertaken, arrangements will be made for re-interment in full consultation with all relevant parties.

Where appropriate, the results of any osteological analysis may be submitted to Historic England for inclusion on the database of human skeletal remains.

6 Archive Review & Post-Excavation Assessment

An Archive Review will be completed by the Site Manager upon completion of Site works comprising an audit of all archaeological materials recovered. Dependent upon the fieldwork results, assessment of the nature, date and significance of the stratigraphic, artefactual and palaeoenvironmental evidence may be undertaken by BA's nominated specialists, as detailed in the Appendix 2 to this document. This will be consistent with Section 3.4 of *Standard and guidance for an archaeological field evaluation* (CIfA 2020a, 12-15) and Section 11 of *Standards for Field Archaeology in the East of England* (Gurney 2003). The results will be placed in a local and regional context and address, where possible, specific research themes and priorities identified in *The East of England Regional Research framework for the Historic Environment* (ALGAO 2021).

Where it has been agreed in consultation with the Senior Historic Environment Advisor, materials identified at assessment as appropriate for further analysis will be processed by the relevant specialists and the resultant research archive will be checked and ordered according to *MoRPHE* criteria (Lee 2015). Any such additional analysis will be undertaken as part of an Updated Project Design (UPD) to inform eventual publication.

7 Archive Preparation

All records created during fieldwork will be checked for consistency and accuracy and will form part of the Site archive. The archive will contain all data collected and other specialist materials and will be ordered, indexed, adequately documented, internally consistent, secure, quantified, conforming to standards required by the archive repository and signposted appropriately to ensure future use in research, as detailed in *MoRPHE* (Lee 2015).

The archive will be assembled in accordance with *Hertfordshire Archaeological Archive Standards* (Hertfordshire Museums 2018), *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (CIfA 2020c), *Guidelines for the preparation of excavation archives for long-term storage* (Walker 1990), *Standards in the museum care of archaeological collections* (Paine 1992), *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation* (Brown 2011a), *Safeguarding Archaeological Information:*

Procedures for minimizing risk to undeposited archaeological archives (Brown 2011b) and *Toolkit for Selecting Archaeological Archives* (ClfA 2019).

BA undertakes that the following issues will be addressed and concluded to the satisfaction of the Senior Historic Environment Advisor:

- The written, drawn and photographic records will be of sufficient quality to facilitate publication in an appropriate specialist journal;
- Data concerning complete identifiable and itemised objects will be transferred to specified object record sheets.

7.1 Archive deposition

A Museum Accession Number will be obtained by Kate Smith MA ACIfA and processed assemblages will be boxed according to the museum guidelines. A register of contents will be compiled prior to deposition of the Project Archive.

The Project Archive will be presented to Welwyn Hatfield: Mill Green Museum or other suitable depository following completion of the reporting process, subject to the agreement of the Site owner with regards to any finds and availability of the appointed specialists. Digital archiving will be via the Archaeology Data Service.

The archive will conform to museum specifications as set out in the *Hertfordshire Archaeological Archive Standards* (Hertfordshire Museums 2018). The client will be consulted, where applicable, for permission for the transfer of title to any artefacts discovered to the museum service. An OASIS (Online Access to the Index of Archaeological Investigations) data-capture form will be completed upon deposition of the final archive.

8 The Report

The specific requirements of the report will necessarily vary according to the scope of works, the nature of the results or other factors (ClfA 2020a, 13-15). However, the following sections and illustrative components will be included:

- Non-technical Summary;
- Introduction (including the Site name and grid reference, project type and the date and duration of fieldwork);
- Site Background (including area of Site);
- Aims & Objectives;
- Methodology;
- Results (discussing the nature, location, extent, date, significance and quality of any archaeological and environmental material uncovered);

- Conclusions (considering, where appropriate, the results of archaeological projects undertaken in the wider area);
- Appendices providing detailed context records;
- Appropriate illustrative material on up-to-date OS mapping, (including maps, plans, sections, drawings, heights AOD and photographs).

Should significant archaeological remains be identified, the Report will also include:

- Detailed description and plans (at appropriate scales) of trenches providing significant archaeological information;
- Finds quantification and assessment;
- Environmental archaeology assessment;
- A summary of the extent, depth and state of preservation of archaeological deposits across the Site.

Digital copies of the Report in PDF/A format will be sent to the Senior Historic Environment Advisor for approval, whereupon one bound copy and one digital copy in PDF/A format will be formally submitted for inclusion into the HHER. Once the final report has been accepted a digital PDF/A copy will be deposited with OASIS (<http://www.oasis.ac.uk/>) the Archaeology Data Service Access to the Index of Archaeological Investigations website.

Dependent upon discovery and where applicable, a summary report will be submitted to the editor of *Hertfordshire Archaeology and History* and any relevant period journals such as *Medieval Archaeology* or *Proceedings of the Prehistoric Society*, for wider dissemination.

9 Staff & Timescales

Amy Bunce BSc MA MCIfA will be responsible for project management and staff deployment with support from Lyndsey Clark BSc (Hons.) MCIfA, Director: Archaeological Operations & Reporting.

George Children MA MCIfA, Director: Quality and Compliance, will additionally provide overall technical and editorial guidance to all constituent aspects of the works programme.

The commencement of the fieldwork programme will be confirmed in due course.

10 Border Archaeology Operating Standards

All projects are carried out in accordance with the *Company's Archaeological Field Recording Manual* (BA 2021) and with *CIfA Standards and guidance and Guidelines for Archaeological Projects in Greater London* (GLAAS April 2015).

A pre-works risk assessment will be completed and lodged in the Site Health & Safety File. Site reporting procedures are completed daily.

George Children MA MCI fA retains overall responsibility for the qualitative elements of the project.

11 Monitoring

Monitoring arrangements will be consistent with Section 3.5 of *Standard and guidance for archaeological field evaluation* (CI fA 2020a, 15) and with Section 12 of *Standards for Field Archaeology in the East of England* (Gurney 2003).

The Senior Historic Environment Advisor will monitor the progress of the work and will undertake at least one Site visit unless otherwise agreed.

BA will advise the Senior Historic Environment Advisor of the project's progress on a regular basis and notify them at the earliest opportunity of any unexpected discoveries, especially where there may be a need to vary the project.

12 Copyright

Border Archaeology Ltd shall retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988, with all rights reserved, excepting that it hereby provides a licence to Kori Construction and the Welwyn Hatfield Borough Council for the use of the report by Kori Construction and the Welwyn Hatfield Borough Council in all matters directly relating to the project as described in the Project Specification to use the documentation for their statutory functions and to provide copies of it to third parties as an incidental to such functions.

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14 Appendix 1: Historic Environment Record Maps & Gazetteers

Forthcoming

Appendix 2: Specialists

The following specialists have been appointed to provide, where required, sampling, consulting, analysis & reporting services:

1. Geoarchaeology: Rob Batchelor BSc PhD MCI fA Director Quest University of Reading; ARCA, University of Winchester;
2. Pottery: Alex Gibson BA PhD MCI fA University of Bradford, Rob Perrin M.Litt MCI fA FSA Freelance Specialist, Jo Mills Freelance Specialist, Paul Blinkhorn BTech (Hons) Freelance Specialist;
3. Coins: Peter Guest BA PhD University of Cardiff;
4. Flint: Rebecca Devaney MA ACI fA Freelance Specialist;
5. Petrological Analysis: Imogen Wood BA MA PhD;
6. Glass: Nicola Powell MA MCI fA Freelance Specialist;
7. Clay Tobacco Pipes: Nicola Powell MA MCI fA Freelance Specialist;
8. Leather and Metal Objects: Quita Mould Barbican Research Associates;
9. Archaeometallurgy: Gerry McDonnell BSc PhD Gerry McDonnell Archaeometals;
10. Glass Working: John Shepherd BA FSA MCI fA Freelance Specialist;
11. Artefact & Materials Conservation: Ian Panter York Archaeological Trust;
12. Building Materials: Phil Mills BSc PhD MCI fA Freelance Specialist;
13. Worked Stone: Ruth Shaffrey BA PhD MCI fA Freelance Specialist;
14. On-Site Conservation: Janice McLeish MA ACI fA Border Archaeology Ltd;
15. Faunal Remains: Chris Faine MA ACI fA Freelance Specialist & Janice McLeish MA ACI fA Director: Post Excavation Services Border Archaeology Ltd & Clare Rainsford Freelance Specialist;
16. Human Remains: Catherine Sinnott BA PhD ACI fA Osteoarchaeologist Border Archaeology Ltd;
17. Archaeobotanical, Charcoal & Wood ID: Amy Bunce BSc MA MCI fA Director: UK Operations & Palaeoenvironmental Sciences Border Archaeology Ltd.

Other specialist suppliers will be sourced, if deemed appropriate; suitable management time will be expended to ensure that such external suppliers' work complies with accepted national guidance.

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Editing	Amy Bunce BSc MA MCI fA		
Artwork	Holly Litherland BA (Hons)		
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