

A preservation in-situ excavation at the Barking Church of England Primary School.

The Barking Church of England Primary School in the London Borough of Barking and Dagenham is located within the medieval precinct of Barking Abbey, immediately north of the abbey church and cloister. From December, 1993 to February, 1994 an archaeological team advised by constructional engineers and an architect carried out a rescue excavation to preserve archaeological deposits *in situ* in advance of the construction of the primary school extension.

#### The assessment

The school extension is located within an Archaeological Priority Zone (APZ) and partially within the area of the Scheduled Ancient Monument (SAM) of St Mary's Abbey. Planning permission had, therefore, to be sought from both the Planning Committee of Barking and Dagenham Borough Council and from English Heritage. English Heritage also insisted that the important deposits of pre- and Dissolution date archaeology should be preserved *in situ*.

In order to determine the nature and depths of archaeological deposits in the area of the proposed building, nine test pits were excavated in the APZ to the north of the SAM during August and September 1993. The trenches revealed floor layers of a building, a masonry culvert and a brick faced wall dating to the medieval period. The trenches also revealed two further important pieces of information. Firstly, that the height of the highest surviving archaeology was roughly in the centre of the extension and approximately 30 cms below the top of the proposed level of the school floor. Secondly, at the edges of the proposed construction, the top of the archaeology sloped downwards allowing more freeway between the archaeology and the top of the designed height of the school floor. Whilst these deposits indicated the nature of the archaeology within the APZ, no test pits were allowed in the SAM and it was only the north facing sections of test pits 4, 5 and 6 which show the possibility of the deposits within the area of the SAM. These north facing sections showed that a 60 cm deposit of relatively modern soil underlay the tarmac of the playground at that point.

With the information from the nine test pits it was decided to ask the Engineers - Messrs Curtins Ltd. - if the extension could be built upon a raft to preserve the archaeology.

A constraint upon the design of the raft was that its floor surface needed to be flush with that of the existing school. Therefore, the minimum depth of the raft would be 30cm at the centre of the raft and but in other areas, particularly where drain pipe runs had been removed, it could be thicker. The test pits showed that in the area of the APZ the soil above the archaeology would accommodate the 40cm deep locating toe beam. Curtins agreed that this would be possible but that the minimum depth that they would require for the raft would be 30cm. They further pointed out that the culvert could be protected by covering it with a stainless steel plate. The depth of the raft and toe beam were constantly checked using a dumpy level to ensure that these minimum depths were achieved because high spots of archaeology would mean that the raft would be thinner than 30 cm in some areas. However, all these minimum depths were achieved.

Despite the lack of archaeological detail from the SAM the Board of Governors of the School decided to apply to both The London Borough of Barking and Dagenham and The London Division of English Heritage for permission to build the school extension. Permission to build was duly granted by both organisations with three main *provisos*. The first was that there would be an archaeological excavation only to record the revealed archaeological surfaces. Removal of old services was allowed the sections of which cuts provided further information upon the underlying archaeology. The second *proviso* stated that the scheme would have to be re-thought if extensive archaeology was found, particularly in the SAM, at a greater height than in the test pits. Apart from other considerations the finding of such archaeology over a large area would have the affect of reducing the depth of the raft and probably invalidating the concept. The third *proviso* required that a geo-textile membrane be laid over the archeology and in the drain cuts and over this a 5 cm layer of sand was to be spread and rolled under the supervision of the archaeological site supervisor. All this was duly done and upon this protective covering the locating toe-beam and raft were cast

At the completion of the archaeological investigation a protective geo-textile membrane was placed over masonry structures and soft archaeology and upon this a 5cm layer of sharp sand was laid and rolled. Upon this protective covering the raft and locating toe beam were cast.

#### Documentary Evidence

Barking Abbey was founded in 666 A.D. when St. Erkenwald, later Bishop of London established for his sister, St Ethelberga a double foundation for monks and nuns with their separate quarters. The position of this Saxon religious establishment has not yet been located. Bede recorded that the abbey cemetery was moved by its second Abbess, Hildelitha, because its situation was in too narrow a place. This has led some authors to suggest that the church also was re-sited by Hildelitha, sometime before Bede's death in 735 AD. Therefore there may be two Saxon religious foundations in the area, and therefore, one of the main reasons for wishing to archaeologically investigate in advance of this construction. (V.C.H. V 1966 p222, Lockwood H.H. 1986 p6, Pewsey S. and Brooks A., 1993 p6)

The Anglo-Saxon religious house was possibly abandoned in 870 A.D. when the Danes invaded Canterbury and entered the Thames Estuary and attacked London. It has been suggested that the Abbey was sacked but so far there is little archaeological evidence to support this idea. The abbey may have been re-established as early as 913 AD when Edward the Elder, son of Alfred the Great, re-established Anglo-Saxon authority in the area. It is believed that at this time the abbey became a purely Benedictine nunnery, the most important nunnery in the whole of Britain. Its Abbesses were the most senior of all the English female religious houses, were always drawn from aristocratic or royal families and had the rank of a peer of the realm. In 1066 the importance of Barking Abbey was demonstrated when William the Conqueror stayed at the abbey and awaited the surviving military leaders and the burghers of London to swear fealty to him, after his coronation at Westminster Abbey on Christmas Day. In contrast to his behaviour elsewhere, he did not confiscate the abbey's land holdings from its abbess Alfgiva but confirmed its rights

and privileges. William therefore did not remove authority from a Saxon noble. (V.C.H. V 1966, p222, Pewsey S. and Brooks A., 1993 p6)

The Abbey Church was again rebuilt in the late twelfth century and it is these remains to be seen in the parkland north of St. Margarets grave yard (see Figure ?). The Abbey Church consisted of an aisled nave with two west towers, short transepts with apsidal towers on the east sides, crossing tower, presbytery with apsidal end and aisles ending in apses. In the first half of the thirteenth century, the east end of the church was extended with the addition of a Saints chapel and a Lady chapel. The church was dedicated to St Mary. The cloister lay on the north side of the church with the chapter house and warming house on the east side, the frater on the north and the dorter on the west side of the cloister. The infirmary and its chapel formed a wing on the north east side of the cloister (V.C.H. Essex V 1966, p222). St Margarets parish church, dating from approximately the twelfth century, is to the south of and contemporary with the medieval abbey and was within the latter's grounds (V.C.H. Essex V 1966 p222). The precinct walls were alligned north-south along North Street, probably east-west along London Rd, turning north-south, paralleling the River Roding to the Great Gate and the mill, near the Town Quay in the south, before returning east-west to the south of St Margarets Church. Two other gate houses are known: the surviving Curfew or Fire Bell Gate and the demolished North Gate, the latter situated approximately on the north-east corner of the Primary School land boundary (V.C.H. Essex V 1966 p222).

Other buildings can be located within the abbey precinct from a legal document of 1463 which describes the course of a conduit, supplying the abbey with water, (E.R.O. T/P 93/2). Herbert Lockwood suggests that a courtyard lay between the frater and infirmary, and the North Gate (Lockwood H.H. 1986 p5). If this is correct then the Guest House, the slaughter house and workshops were to the north of the courtyard, the Abbess's and Prioress's separate quarters, their gardens and the Abbey kitchen on the south side and the granary and the store houses on the west side of the courtyard. (Lockwood H. 1986 p5).

The Abbey prospered until the mid 14th century when a combination of the black death plagues of 1348 and 1360 and later flooding of the abbey land ruined its finances (V.C.H. V. p183, 215). The Abbey was closed during the Dissolution in 1539 and within two years, the complex was almost completely demolished, the masonry being shipped to both Dartford and Greenwich for the construction of royal residences and to extend the north aisle of St Margaret's church (V.C.H. Essex V 1986 p222).

### Archaeological Remains

As a result of the agreement to build the school on a raft the archaeological brief was to remove the over-burden to a sufficient depth to accommodate the raft and its toe beam, to record the visible archaeology and to preserve it *in situ*. As a result of this methodology, it was difficult to completely sequence and date the stratigraphic relationships. Additional information was gained from the sections of the excavated modern and Victorian drains and foundations.

The earliest activity uncovered consisted of several structures and deposits datable to the medieval period. Structure (430) was present as a sequence of floor levels, seen in section. The latest floor was composed of chalk. No walls were recorded as a robber trench had removed the masonry. The robber trench revealed the south and east sides of (430) and the extent of this structure. The robber trench also probably existed on the western side of building (430). It was only probably apparent on the western side because a sufficient depth of material to accommodate the raft had been removed from this region of the site and it was not necessary to excavate to a further depth. For a similar reason the robber trench on the northern side (if it existed here) underlay post-medieval soils. However, it is thought that the building continued to the probable position of the northern robber trench because test pit 9 of the archaeological evaluation (Telfer) uncovered a tile floor surface similar to floor surfaces of structure (430). Sections created by the removal of Victorian drains and test pit 9 gave a more complete idea of the size of this medieval building. These sections and test pit 9 showed the dimensions of the building as being approximately 11.00m north to south by 10m east to west. The structure appeared to be aligned north-east to south-west. Too little of the floor surface was revealed to show the evidence of its internal structure, however, three post-holes in the chalk surface of the floor together with a masonry wall suggests evidence for internal division into rooms.

At the south-west corner of structure (430), the section of an excavated Victorian drain showed the layers of structure (480), which were similar to that of the floor layers of structure (430). Structure (480) could either be an annexe of (430) or perhaps the foundations for external stairs giving access to (430's) upper floors.

Structure (252) a substantial chalk wall footing running north-south with a return to the west was revealed in the south west of the trench. An opening in the north-south wall of structure (252) had been closed with chalk blocks. The internal angle of the wall formed by its western and southern faces, north of the opening, was faced with bricks dateable from 1400 to 1800. Therefore, it is possible that the wall was faced with bricks sometime between 1400 and the abbey's dissolution in 1539. West of wall (252) was a layer of late medieval soil, (271), which had an horticultural appearance. Layer (271) was stratigraphically later than wall (252) and probably concealed its construction cut. The wall was probably marking boundaries of different activities within the convent and it is possible that this wall is the north eastern limit of the Prioresses garden mentioned in the document of 1463.

Structure (251) was another remnant of a chalk wall footing which appeared to have been robbed and not enough of the masonry was exposed to provide an interpretation of its function.

The next activity recorded was the construction of a Kentish Ragstone, green sandstone and chalk built wall, structure (250). The wall was aligned east-west and carried an opening. East of the entrance the wall had been robbed. Again, too little of the wall was uncovered to indicate its function, however its width suggested that it was not for a building but probably another boundary demarcation.

Test pit 7 of the evaluation revealed the top of a chalk and green sandstone culvert. This culvert (431) was stratigraphically the next feature to be revealed and recorded.

It was located in the northern area of the site and was aligned east-west. The construction cut for the culvert was only partially seen in section and not enough was observed for a detailed description. The culvert itself was constructed of two parallel walls containing squared and rendered sandstone and roughly napped flint blocks bonded with a light yellowy brown sandy mortar containing occasional 2mm pebbles and chalk fragments. The roof was barrel vaulted and consisted of roughly hewn green sandstone and occasional Kentish Ragstone blocks and the keystones were entirely Kentish Ragstone. The arch was then covered with a capping of chalk. The culvert carried a down pipe at the point at which it was truncated by a modern wall and was therefore largely demolished. Because of the truncation it is not possible to state with certainty if the downpipe was square or rectangular in plan shape. It was made of moulded green sandstone blocks and it abutted the green sandstone arch. The pipe was as wide as the drain and its north and south faces were the drain sides carried vertically upwards above the originating point of the springing of the arch of the barrel vaulted roof. The down pipe could be either for a garderobe or a sluice. There was no super structure detected in association with this down pipe construction. The culvert cannot have been related to the medieval building, (430), as it cut through the buildings floor levels and, therefore, this building must have been out of use at this time and may even have been demolished. The top of the curving roof of the culvert appeared to stand proud of the contemporary land surface.

Demolition activity associated with the destruction of the convent was the next stratigraphic event recorded, and was largely seen in the south-west corner of the site. This event was indicated by robber trenches removing material from structures (251) and (250) and several dump layers seemed to have built up including building material from the demolition of structure (252), the possible Prioresses garden wall. Other material associated with demolition, localised spreads of chalk and crushed green sandstone, were found in the north western part of the trench. West of structure (252), were a number of gravel filled cuts, (268), (270), (276) and (278), which may have been foot pads for buildings. Also along the south-western side of the site layer (371) accumulated, which contained frequent cattle bone and 16th century pottery. The cattle bone may have originated in the Abbey slaughter house which, according to the document of 1463, was probably located to the north of the site. Overlying this layer (371) were several dumps of building materials, including tile, crushed green sandstone and burnt clay together with oyster shell middens. This phase of activity probably dated to the 16th century, most likely 1541, when the abbey was almost completely demolished (V.C.H. Essex V, p 222). However, pottery recovered from some of these layers may indicate that dumping on the site continued after 1600.

Two layers of soil seem to have built up over the site during the next phase and probably represent general horticultural activity. The finds from these two layers date them to the 17th and 18th centuries. Other activities occur during this phase; localised dumping of building material, and chalk and sand spreads were found on the east side of the site and several robber trenches were excavated to remove building materials from earlier structures. There was evidence to suggest that a robber trench, (288/321) removed material from the internal partitioning abbey wall, structure (252) which quarried the stonework but not the brick facing. At this time, the walls surrounding the medieval building, (430), were removed and a number of layers which included mortar, chalk and tile spreads overlay its chalk floor. These

may have resulted from the robber trench activity. The robber trench removing masonry from structure (430) seemed to have continued beyond structure (480), possibly removing masonry from the latter structure in the process. The culvert, (431) was robbed of masonry from the eastern side of its downpipe, by robber trench (337), its western half being left intact. During the demolition of the culvert, the northern supporting wall of the arch, had its top surface tiled at its lowest point of demolition. These activities suggest that several structures, (252) and (430), survived at foundation level probably until the 17th century.

The excavation revealed part of a probable furnace built during the 18th or 19th centuries. It is not possible to describe the plan shape of the feature as it ran westwards into the western limit of excavation and only a triangular shaped area was exposed. The excavation revealed the furnace construction cut which was lined with bricks which had probably been mortared. However intense heat seems to have decomposed the remaining brick and mortar. The fill enclosed by the brick lining was red rake out material demonstrating that the structure was involved with a process using heat. Removal of the latter fill failed to indicate the method of construction and the function of the furnace.

During the 19th century a layer of soil built up over the whole site into which the footings of the Barking Church of England Primary school were dug in 1872 (V.C.H. Essex V p247). Layers of soil and dumps of building material accumulated at the northern end of the site and into these were laid ceramic sewer pipes and land drains to service the school and drain the playground. The footings for the infant department of the Victorian School, built in 1896 (V.C.H. Essex V p247) were uncovered and consisted of Essex Coarse Stock Bricks forming a stepped foundation set on a concrete footing. The excavation revealed the internal walls of three rooms of the infant department of the school. An outhouse for the school was recorded in the north-west corner of the site which was again constructed of Essex Coarse Stock bricks set on a concrete footing.

The excavation also revealed other features associated with the landscape of the Victorian school such as a roughly hewn ragstone drainage gutter, a bedding surface probably for the School yard and, truncating the latter, a rectangular pit containing clinker cinders and 19th/20th century glazed fireplace tiles. The Victorian school was demolished in 1966 and the present school was built.

In conclusion, the extension to the church of England Primary school was located to the north of the abbey church complex of the most senior nunnery in England. The site is known from a document of 1463 to have been in the vicinity of the Guest-house and other claustral buildings.

The archaeological excavation had the potential to validate the written record, however, although a medieval building was partially uncovered, the archaeological

methodology precluded deeper excavation to prove that this had been the guesthouse. Another hypothesis concerning the location of the Saxon abbeys remained unproven because of the restriction on trench depth.

The intention of the excavation was to preserve the archaeology in situ, and this was achieved. However, enough archaeological structures and deposits were partially revealed to demonstrate the site was an active area of the abbey. The excavated service trenches, revealed deep stratigraphy.

Some of the problems with preservation in situ can clearly be seen in the explanation of the excavation of Barking Primary School recounted above. The first problem was that the clients agent was a small firm of architects who had little experience of the planning problems which they had to resolve before the test pits could be excavated. Secondly, there was the problem that the site fell within the remit of planning authorities, English Heritage who supervise the area of the Scheduled Ancient Monument and the Local Authority who supervised the adjoining conservation area. Permission to put test pits in the local authority area was more easily acquired, indeed, permission to excavate in the scheduled ancient monument was only granted when the inspector had examined the pits and the report of the evaluation in the conservation area. Thirdly, permission to excavate within the scheduled ancient monument was given on the basis of the findings of the test pits within the adjacent conservation area and on the nature of archaeology revealed by the removal of overburden up to the edge of the SAM after the main excavation had begun. Fourthly, the top of the floor of the new extension had to be flush with the floor of the main building. The difference between the height of survival of the archaeology shown by the test pits and the existing school floor indicated the minimum thickness of the construction raft. Had archaeology been shown to have survived higher than that in the test pits during the removal of the over-burden it would have lead to design difficulties. However, the thinning of the raft in these areas would have been surmounted by placing stainless steel plates over the thinner spots. It does, however, show that the raft design could not be finalised until the over-burden had been removed from the whole of the site. Fifthly, the major problem was the manner in which preservation in situ limited the depth of archaeology that could be excavated and, therefore, the degree to which its interpretation was also limited. The text amply illustrates this problem. To attempt to increase the quantity of archaeological knowledge on the site permission was sought, and granted, to remove 19th and 20th century drains so that the drain cut sections could be seen. These drain cuts were either reused for the extensions services or backfilled with sand. The fifth problem was that the backfilling of the site with sand meant that it was necessary to monitor the contractors work.

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Barking School: Notes to be inserted in the text.

Note 1: The trenches also revealed two further important pieces of information. Firstly, that the height of the highest surviving archaeology was roughly in the centre of the extension and approximately 30cm below the top of the proposed level of the school floor. Secondly, at the edges of the proposed construction, the top of the archaeology sloped downwards allowing more freeway between the archaeology and the top of the designed height of the school floor.

Note 2: These north facing sections showed that a 60 cm deposit of relatively modern soil underlay the tarmac of the playground at that point.

Note 3: With the information from the nine test pits it was decided to ask the Engineers - Messrs Curtins Ltd. - if the extension could be built upon a raft to preserve the archaeology.

As mentioned above, a constraint upon the design of the raft was that the top of the floor of the new extension had to be at the same level as that of the main school building to which it was to be attached. Therefore, the minimum depth of the raft would be 30cm at the centre but in other areas, particularly where drain pipe runs had been removed, it could be thicker. The test pits showed that in the area of the APZ the soil above the archaeology would accommodate the 40cm deep locating toe beam. Curtins agreed that this would be possible and also pointed out that the culvert could be protected by covering it with a stainless steel plate.

Note 4: Despite the lack of archaeological detail from the SAM the Board of Governors of the School decided to apply to both The London Borough of Barking and Dagenham and The London Division of English Heritage for permission to build the school extension. Permission to build was duly granted by both organisations with three main *provisos*. The first was that there would be an archaeological excavation only to record the revealed archaeological surfaces. Removal of old services was allowed the sections of which cuts provided further information upon the underlying archaeology. The second *proviso* stated that the scheme would have to be re-thought if extensive archaeology was found, particularly in the SAM, at a greater height than in the test pits. Apart from other considerations the finding of such archaeology over a large area would have the effect of reducing the depth of the raft and probably invalidating the concept. The third *proviso* required that a geo-textile membrane be laid over the archaeology and in the drain cuts and over this a 5 cm layer of sand was to be spread and rolled under the supervision of the archaeological site supervisor. All this was duly done and upon this protective covering the locating toe-beam and raft were cast

Note 5: Bede recorded that the abbey was built in a restricted space, and, that because of this, Hildelitha, the second Abbess, decided to move the bones of the saints from the graveyard into a single tomb within the church. This has led some authors to suggest that the church also was re-sited by Hildelitha, sometime before Bede's death in 735 AD.

Note 6: . : Note 6: As a result of the agreement to build the school on a raft the archaeological brief was to remove the over-burden to a sufficient depth to

accommodate the raft and its toe beam, to record the visible archaeology and to preserve it in *in situ*. As a result of this methodology, it was difficult to completely sequence and date the stratigraphic relationships. Additional information was gained from the sections of the excavated modern and Victorian drains and walls.





## ABSTRACT

An extension to the Church of England Primary School was to be built within the precinct and to the north of the exposed remains of the church and cloister of St Mary's Abbey, North Street, Barking. The excavation for a concrete raft to support classrooms sought to preserve in situ the archaeological deposits in the area. Medieval walls marking boundaries of activity within the abbey precinct and floors for a medieval building were revealed. Post Dissolution material and 19th century deposits were excavated and recorded leaving immediate Dissolution and medieval abbey deposits undisturbed.



## INTRODUCTION

This introduction briefly describes the origins of this project, the history of the archaeological investigations of the immediate area, the purpose and constraints of the excavation and the construction of the raft before outlining the archaeological work undertaken. The report describes the findings of the archaeological rescue project of Barking Church of England Primary School in advance of the construction of the western extension. Barking Church of England Primary School is located to the north of the abbey church and to the west of North Road (see Figure 1). The research design, the archaeological investigation and this report were commissioned by Ronald Wylde Associates, agents for the Governors of the Barking Church of England Primary School.



The extension to the school is located within the grounds of Barking Abbey. The Abbey was founded in 666 A.D. as a double foundation (housing monks and nuns, presided over by an abbess). In the tenth century the abbey became a purely Benedictine Nunnery. The surviving remains of the Abbey church and buildings around the cloisters date to the late twelfth century. The Dissolution of the Abbey occurred in 1539 and its buildings were demolished shortly after this. Appendix I gives a more detailed account of Barking Abbey's history. Excavations of the Abbey church and buildings surrounding the cloisters were excavated by antiquarians in 1724 and 1911. More recent excavations by the West Essex Archaeology Group and the Passmore Edwards Museum have located Saxon and medieval activities within the Abbey's grounds. Appendix II gives a chronology of the archaeological investigations of Barking Abbey. The only Sites and Monuments Record for the area of the school is for a silver denarius of Vespasian which was found in the garden of the School House in 1850.

The area of the western extension is within an Archaeological Priority Zone (APZ) as specified in the London Borough of Barking and Dagenham Unitary Development Plan and the Scheduled Ancient Monument (Number 107) of St Mary's Abbey. The boundary line of the Scheduled Ancient Monument (SAM) kinks through the present school, as it was originally planned to follow the southern outline of the Victorian school classrooms. The SAM area is controlled by The Department of National Heritage on advice from Mrs Ellen Barnes, Inspector of Ancient Monuments, English Heritage. The APZ is controlled by the London Borough of Barking and Dagenham, whose planning officer Andy Bestwick was advised by Mr Jim Hunter and later Mr Lawrence Pontin, archaeological planning officers for North East London, on the planning application for the school (TP 371.93). The brief for the archaeological work was provided by Jim Hunter (Hunter J., 1993). Ken MacGowan, Newham Museum Service, produced a project design (MacGowan K., 1993) to fulfill this brief as approved by Ellen Barnes and Jim Hunter. An archaeological evaluation in the area of the extension was carried out in August and September

1993 (Telfer, A., 1993) to ascertain the depth and nature of archaeological deposits prior to considering the footing design of the new building. In view of the nature and the height of survival of the archaeology these officers decided that the archaeology should be preserved in situ. The implications of this decision was that the new extension should be built upon a raft. They further decided that the raft should not be cast directly upon the archaeology but first a geo-textile membrane should be laid down and upon this a 5cm layer of sharp sand should be laid and rolled. Furthermore, they decided that this work should be supervised by archaeological staff.

A constraint upon the design of the raft was that its floor surface had to be flush with that of the existing school. The height of the survival of the archaeology, the protective layer of geo-textile membrane and sand and the existing school floor meant that the raft would in places be very thin. The engineers required more information about the height of the survival of the archaeology in areas other than that of the nine test pits. They requested this information in the hope that it would be possible to deepen the raft in other places to compensate for its occasional thinness. They further requested information about the depths of deposits around the parameter of the building for the enabling trench which would facilitate the casting of the toe beam

(see Figure 2). The structural engineers decided that they could bridge high spots of archaeology in the area of the toe beam or the culvert with lintels or a metal plate. Much of this information could not be obtained from the nine test pits. It was therefore decided to apply for planning permission to open a trench to the dimensions the foot print of the building lying within the conservation area. It was hoped that the southern section would give information to determine the depth of removable deposits within the Scheduled Ancient Monument area. Permission to extend the trench into the Scheduled Ancient Monument area was only granted by National Heritage when the nature of the deposits in the southern section were known and the engineers could present a final design of the under-side of the southern quarter of the raft.

The London Borough of Barking and Dagenham duly granted permission to excavate within the conservation area and the investigation began on the 1st December 1993. The archaeological excavation was designed to remove only post Dissolution deposits. This meant post Dissolution dumped layers could be removed as well as Victorian and modern walls and drains. The cuts for these walls and drains proved useful to contain modern drains and services. The engineers requirements for a 0.55m deep enabling trench for the toe beam and 0.40m deep clearance for the raft were met, except for areas of high archaeological survival where the raft clearance was reduced to 0.30m. The excavation was duly completed on the 15th February 1994.

## THE EXCAVATION METHODOLOGY

The final dimensions of the trench including the National Heritage area was 37m north to south by 19m east to west, (see Figure 3 for Trench locations). The trench was excavated by machine to the depths specified above and the depth of the bases of the toe beam and raft were continually checked using a dumpy level. Mechanical excavation stopped at archaeological deposits of a Dissolution date even if the desired depth of that part of the raft was not reached. The recognition of archaeological deposits during the machining of the trench was helped by locating the assessment test pits and noting the deposits recorded in the assessment report. Finds retrieved from deposits as they were being machined were immediately spot dated to determine whether excavation of the layers could continue. The excavation by mechanical digger largely stopped at deposits of a post A.D. 1600 date. The tops of medieval chalk footings, a chalk floor surface and the top of the culvert were revealed, directly underlying post Dissolution layers.

The modern and Victorian features were excavated by hand, and the walls of a similar date were demolished using percussion power instruments. These walls would have created hard spots for the raft and toe beam. The archaeology was recorded as revealed on these surfaces and in the sections of the Victorian drains and walls, and no further excavation was allowed. The trench was gridded, the archaeological deposits cleaned, photographed planned, and recorded using single context recording methods. After the excavation ground workers from the construction company: William Verry Ltd, supervised by archaeological staff, lay the protective membrane across the site and protective material over the medieval walls and culvert. These materials were in turn covered by coarse sand and compacted using a powered vibrating roller, as approved by Ellen Barnes and Lawrence Pontin.

## PHASE DISCUSSIONS

In the "PHASE DISCUSSION" the groups of contexts are drawn together into phases. Phases are significant blocks of archaeology representing single or related activities within a band of time on the site under discussion, e.g. the occupation of a house or settlement, the complete renovation of a house, the change of settlement pattern or the abandonment of a house or settlement. When a significant change in activity is found in the archaeological record of a site then a change of phase can be said to have happened. By discussing phases and comparing them we can see the overall sequence of events at the site.



## PHASE I A (see Figure 7)

Phase I A consisted of several structures and deposits datable to the medieval period. Structure (430) was present as a sequence of floor levels, seen in section (see Figure 19, Section 3), the latest being composed of chalk. No walls were recorded as a robber trench seen in section and plan and dated to Phase IV had removed the walls. The robber trench revealed the extent of structure (430) on its south and east sides and it probably existed also on its western side. Test Pit 9 of the archaeological evaluation uncovered a tile floor surface, (10) similar to floor surfaces of structure (430). Sections gave a more complete idea of the size of this medieval building. The dimensions of structure (430) were approximately 11.00m north to south by 10m east to west and appeared to be aligned north-east south-west. Too little of the floor surface was revealed to show the evidence for its internal structure, however three post-holes in the chalk surface and a masonry wall suggests evidence for rooms. At the south-west corner of structure (430), the section of an excavated Victorian drain (see Figure 19, Section 4) showed layers, structure (480), which were similar to that of the floor layers of structure (430). This could either be for an annexe for (430) or perhaps the foundations for external stairs giving access to upper floors of the Medieval building.

The south-west area of the enabling trench revealed a substantial chalk wall footing running north-south with a return to the west. This was structure (252) which had an opening in its north south wall which had been blocked with chalk masonry. From the opening, the internal angle of the wall was faced with bricks which were dated from 1400 to 1800. No evidence for the construction cut of (252) was seen at this level of the excavation. The wall was probably marking boundaries of different activities within the convent. West of wall structure (252) was a layer of late Medieval soil, (271), which had an horticultural appearance.

Structure (251) was another remnant of a chalk wall footing which appeared to have been robbed. Not enough of the masonry was exposed to give an interpretation.

## PHASE I B (see Figure 8)

Kentish Ragstone, green sandstone and chalk formed wall structure (250). The wall was aligned east-west with an entrance. East of the entrance the wall had been robbed. Too little of the wall was uncovered to indicate its function, however its width suggested that it was not for a building but probably a boundary demarcation.

## PHASE II (see Figures 9 and 10)

A chalk and green sandstone culvert, structure (431) represented Phase II activity on the site (see Figures 9 and 10). The culvert was located in the northern area of the site and was aligned east-west. The construction cut for the culvert was only partially seen in a section and not enough was observed for a detailed description. The culvert itself was constructed of two parallel walls containing squared and rendered sandstone and roughly napped flint blocks bonded with a light yellowy brown sandy mortar containing occasional 2mm pebbles and chalk fragments. The roof consisted of roughly hewn green sandstone blocks with occasional Kentish Ragstone blocks and the keystones were entirely Kentish Ragstone. The arch was then covered with a capping of chalk. The culvert was seen to carry a down pipe at the point at which it was cut by the modern wall (see Figure 10). The down pipe was largely demolished. It was made of moulded green sandstone blocks. It abutted the green sandstone arch at right angles but its face was carried vertically upwards above the originating point of the springing of the arch. The northern wall of this down pipe was built upon the walls of the drain as described above. The down pipe could be either for a garderobe or a sluice. There was no super structure detected in association with this down pipe construction.

The medieval building, structure (430), appeared to be out of use at this time as the culvert cut through its floor levels. The top of the curving roof of the culvert appeared to stand proud of the land surface. This culvert cannot be traced to the 1463 document detailing the supply of water to the Abbey and its buildings (E.R.O. T/P 93/2) (see Appendix I).

## PHASE III (see Figure 11)

This phase was largely seen in the south-west corner of the site in the area of the enabling trench. Evidence suggested that this phase contained activity associated with demolition of the convent. Robber trenches appear to have removed material from structures (251) and (250) and several dump layers seemed to have built up including building material from the demolition of structure (252), a partitioning wall within the abbey. Other material associated with demolition, localised spreads of chalk and crushed green sandstone were found in the northern area of the site within the area of the enabling trench. West of structure (252), existed a number of gravel filled cuts, (268), (270), (276) and (278), and may have been foot pads for buildings. Also along the south-western side of the site a layer, (371) accumulated, and contained frequent cattle bone and 16th century pottery. The cattle bone may have originally come from the Abbey slaughter house which was probably located to the north of the site. The position of the slaughter house is known from the 1462 document detailing the Abbeys water supply. Overlying this layer were several dumps of building materials,

tile, crushed green sandstone, burnt clay and oyster shell middens. This phase probably dated to the 16th century, most likely 1541 when the abbey was almost completely demolished (V.C.H. Essex V, p 222). However, pottery recovered from some of these layers may indicate that dumping on the site was continuing after 1600.

#### PHASE IV (see Figure 12)

Two layers of soil seem to have built up over the site during this phase and probably represent general horticultural activity. The finds from these two layers date them to the 17th and 18th centuries. Other activities occur during this phase. Localised dumping of building material, chalk and sand were found on the east side of the site and several robber trenches were excavated to remove building materials from earlier structures. There was evidence to suggest that a robber trench, (288/321) removed material from the internal partitioning abbey wall, structure (252) which removed the stonework but not the brick facing. At this time, the walls surrounding the medieval building, structure (430) were removed. A number of layers were recorded overlying the chalk floor of structure (430) which included mortar and tile spreads and this may have resulted from the robber trench activity. The robber trench removing masonry from structure (430) seemed to have carried on beyond these walls possibly removing masonry from structure (480) and to continue on beyond (480). The culvert, (431) was robbed of masonry from its downpipe, eastwards by robber trench (337), its western half being left intact. During the demolition of the culvert, the northern supporting wall of the arch, had its top surface tiled at its lowest point of demolition. These activities suggest that several structures, (252) and (430), probably at foundation level, survived until the 17th century.

#### PHASE V (see Figure 13)

A probable furnace was present in this phase. The excavation revealed the furnace construction cut. Probably rectangular in shape, however the feature ran outside the trench and only a triangular area was exposed. The construction cut was lined with bricks which were probably mortared. However intense heat seems to have decomposed the existing brick and mortar. A fill within the cut was red in colour and demonstrated that the structure was involved with a process using heat. Only the latter fill was uncovered, so the method of construction and the function of the furnace is not fully known. The furnace is dated to the 18th or 19th centuries from stratigraphic evidence.



## PHASE VI (see Figure 14)

This phase dates to the 19th century. A layer of soil appeared to have built up over the whole site during this phase until the building of the Barking Church of England Primary school in 1872

(V.C.H. Essex V p247). Additional layers accumulated at the northern end of the site and into these were laid ceramic drains and land pipes draining the playground and serving the school. The footings for the Victorian School were also uncovered and consisted of Essex Coarse Stock Bricks forming a stepped foundation set on a concrete footing. Internal walls showed that three rooms of the infant department for the school, built 1896, (V.C.H. Essex V p247) were revealed by the excavation. An outhouse for the school was recorded in the north-west corner of the site which consisted of Essex Coarse Stock bricks set on a concrete footing. The Victorian school can be seen in Photograph

2.

The excavation also revealed other features associated with the landscape of the Victorian school such as a roughly hewn ragstone drainage gutter, a bedding surface probably for the School yard and truncating the latter a rectangular pit containing clinker cinders and 19th/20th century glazed fireplace tiles.

## PHASE VII A

This phase was concerned with deposits recorded in association with the present school and therefore date from 1966 to the present. A number of layers resulting from the demolition of the Victorian school were recorded in the sections at the southern end of the site. A cut which appeared to have investigated or robbed material from the furnace, structure (432) and discussed in Phase VI also occurred during this period of activity. The construction cut for the present school was also uncovered along the eastern length of the Site. Four drains were also recorded which serviced the existing playground. A brick wall set on a concrete footing which divided the playground from an area previously used for the caretakers garden in the northern area of the site as well as the tarmac surfaces and paths for the present playground were also recorded. Also grassed soils north and south of the aforementioned brick wall were recorded in section.

## PHASE VII B

Nine archaeological assessment test pits, excavated during August and September 1993 (A. Telfer. 1993) were present within the Trench and this represented the final sub-phase of activity on the site.

## SUMMARY

The extension was located within the grounds of Barking Abbey, approximately 50m from the Abbey Church and adjacent to important buildings such as the Abbey infirmary and its Chapel. The excavation would therefore have expected to find substantial remains. Nine Phases and Sub-Phases of activity were recorded. The earliest activity included a large chalk floored building with a possible annexe or flight of stairs. The walls for this building had been robbed. To the south of this building, chalk wall footings for internal partitioning walls within the abbey were recorded. The chalk floored building went out of use and a chalk, ragstone and green sandstone arched culvert was then built, which ran east-west across the site, truncating the floor layers of the building. The above activity dated to before 1539 when the Abbey was closed by Henry VIII. Extensive demolition of the Abbey occurred between 1541-42 (V.C.H. V. 1966, p222) and this resulted in a number of dump layers of building materials and refuse as well as the build up of soils on the site. During the 17th century any remaining masonry on the site was robbed and this included the footings of the medieval chalk floored building and the western half of the culvert. Following this period of wall robbing the land use probably became agricultural and soils of 18th century in date accumulated. Lethieullier's map of 1722 shows the vicinity of the site to be open land (Lockwood H.H., 1986 p16). However, sometime in the 18th or 19th centuries a furnace for an uncertain industry was constructed on the site. The following activity on the site was the construction of the Church of England Primary School in 1872 and the brick footings for the primary school classrooms, erected in 1896 ( V.C.H. Essex V, p247) were uncovered. The last activity on the site was the demolition of the Victorian school in 1967 and the construction of the present school (Wand, H. 1994).

In conclusion, the extension to the church of England Primary school was located to the north of the abbey church complex of the most senior nunnery in England. The site is known from a document of 1463 to have been in the vicinity where the Guest-house and other buildings are believe to have existed. Therefore the archaeological excavation of the site could have tested the written record, however although a medieval building was partially uncovered, not enough was revealed to know its function. Another hypothesis concerning any excavation dealing with Barking Abbey, is the location of the two Saxon abbeys, however, trench depth restriction prevented finding Anglo-Saxon archaeology on the site. The intention of the excavation was to preserve the archaeology in situ, and this was achieved. However, enough archaeological structures and deposits were partially revealed to demonstrate the site was an active area of the abbey. The excavated service trenches, revealed deep stratigraphy. The findings detailed above are important and it is recommended that any future construction work on the site or in the vicinity should be archaeologically investigated.

## APPENDIX I: THE HISTORICAL BACKGROUND TO BARKING ABBEY

by K. MacGowan and C.D. Jarrett

Barking Abbey was founded in 666 A.D. when St. Erkenwald, later Bishop of London established for his sister, St Ethelberga a double foundation for monks and nuns with their separate quarters. The position of this Saxon religious establishment has not yet been located. Bede recorded that the abbey and its cemetery were moved by its second Abbess, Hildelitha, because its situation was in too narrow a place. This happened prior to Bede's death in 735 A.D. Therefore there may be two Saxon religious foundations in the area. (V.C.H. V 1966 p222, Lockwood H.H. 1986 p6, Pewsey S. and Brooks A., 1993 p6)

The Anglo-Saxon religious house was abandoned in 870 A.D. when the Danes invaded Canterbury and entered the Thames Estuary and attacked London. It has been suggested that the Abbey was sacked but so far there is little archaeological evidence to support this idea. The abbey was re-established in the early 10th century, sometime after Edward the Elder, son of Alfred the Great re-established Anglo-Saxon authority in the area. It is believed that at this time the abbey became a purely Benedictine nunnery, the most important nunnery in the whole of Britain. Its Abbesses were the most senior of all English female religious houses, were always drawn from aristocratic or royal families and had the rank of a peer of the realm. In 1066 the importance of Barking Abbey was demonstrated when William the Conqueror stayed at the abbey and awaited the surviving military leaders and the burghers of London to swear fealty to him after his coronation at Westminster Abbey on Christmas Day. In contrast to his behaviour elsewhere, he did not confiscate the abbey's land holdings from its abbess Alfgiva but confirmed its rights and privileges. William therefore did not remove authority from a Saxon noble. (V.C.H. V 1966, p222, Pewsey S. and Brooks A., 1993 p6)

The Abbey Church was again rebuilt in the late twelfth century and its remains are in the parkland north of St. Margarets grave yard (see Figures 1 and 18). The Abbey Church consisted of an aisled nave with two west towers, short transepts with apsidal towers on the east sides, crossing tower, presbytery with apsidal end and aisles ending in apses. In the first half of the thirteenth century, the east end of the church was extended with the addition of a Saints chapel and a Lady chapel. The church was dedicated to St Mary. The cloister lay on the north side of the church with the chapter house and warming house on the east side, the frater on the north and the dorter on the west side of the cloister. The infirmary and its chapel formed a wing on the north east side of the cloister (V.C.H. Essex V 1966, p222). St Margarets parish church, dating from approximately the twelfth century, is to the south of and contemporary with the abbey and was within the latter's ground (V.C.H. Essex V 1966 p222). The precinct walls existed north-south along North Street, probably east-west along London Rd, returning north- south, paralleling the River Roding to the demolished Great Gate and the mill, near

the Town Quay, before turning east-west and to the south of St Margarets. Two other gate houses are known, the surviving Curfew or Fire Bell Gate and the demolished North Gate (see Photograph 1), the latter situated approximately on the north-east corner of the Primary School land boundary (V.C.H. Essex V 1966 p222).

Other buildings can be located within the abbey precinct from a legal document of 1463 which describes the course of a conduit, supplying the abbey with water, (E.R.O. T/P 93/2). Herbert Lockwood suggests that a courtyard lay between the frater and infirmary, and the North Gate (Lockwood H.H. 1986 p5). If this is correct then the Guest House, the slaughter house and workshops were to the north of the courtyard, the Abbess's and Prioress's separate quarters and the kitchen on the south side and the granary and the store houses on the west side of the courtyard. (Lockwood H. 1986 p5). Other buildings and industrial areas were excavated to the west of the Church and Abbey Road. (MacGowan, K. 1987)

The Abbey prospered until the mid 14th century when a combination of the black death plagues of 1348 and 1360 and later flooding of the abbey land ruined its finances (V.C.H. V. p183, 215). The Abbey was closed during the Dissolution in 1539 and within two years, the complex was almost completely demolished, the masonry being shipped to either Dartford or Greenwich for the construction of royal residences or to extend the north aisle of St Margaret's (V.C.H. Essex V 1986 p222).

A more detailed history of Barking Abbey is to be found in an application to English Heritage for a grant to complete the post-excavation work on Barking Abbey Sites (MacGowan K., 1994).



## APPENDIX II: THE PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

(see Figure 18)

by K. MacGowan and C.D. Jarrett

After the Dissolution in A.D. 1539 the Abbey was almost completely removed except for the Curfew Tower, North Gate and a stretch of the precinct wall (V.C.H. Essex V 1966, p222). Interest in the Abbey revived in the early 18th century.

Samuel Lethieullier, the Lord of the Manor of Barking excavated on the site of the Abbey in AD 1724 and produced a plan of the Abbey Church. In the 19th century the school was relocated from the east of North Street to the site north of the Abbey Church. In 1850 a silver denarius of Vespasian was found in the garden of the School House and is the only Sites and Monuments Record for the School. From 1871 to 1892 the headmaster of the school was Mr. Joshua King, a noted antiquarian. In 1875, Mr King acting for the Antiquarian Society excavated in his garden and found the Lady Chapel which contained a tomb with the well preserved skeleton of a woman, presumably a former abbess (V.C.H. Essex V 1966 p222).

The Abbey was more fully excavated by Alfred Clapham, later Sir Alfred, in 1911 on behalf of the Morant Club and Barking UDC. Clapham was disappointed to have found few finds and little architectural detail of the church complex was uncovered and therefore Clapham included Kings earlier finds in his report (Lockwood, H. 1986 p6). Clapham like Lethieullier produced a plan of his excavations. There was no archaeological work in the area between 1911 and 1966. Neither was any archaeological work conducted in advance of the construction of the new school in 1966. However, in 1966 and 1967, Frank Clark and the West Essex Archaeological Group (W.E.A.G.) excavated immediately to the south of the school playground and north of the Abbey Church (see Figure 18). Here they revealed the Infirmary and its Chapel with two extended inhumations. The Infirmary and its Chapel was seen to continue into the school playground. In 1971, Miss Patricia Wilkinson of the Passmore Edwards Museum and the W.E.A.G. excavated to the west of the playground in advance of a landscaping scheme. This excavation also found evidence of medieval walls, pitched tile hearths and Saxon pottery. Excavations in 1985, to the west of Abbey Road, revealed further walls, a garderobe and a Saxon mill leat as well as other extensive Saxon features (MacGowan, K. 1987) . In 1988, at the junction of Abbey Road and London Road, north-west of the school, excavations uncovered medieval features including a bread oven and pitched tile hearths with possible Saxon post-holes (pers. comm. K. MacGowan). The latest large scale excavation in 1990, was to the south of the 1985 site and uncovered the chalk footing for the western precinct wall, with a garderobe, several buildings including one with a cellar, a late medieval lead furnace, Saxon furnaces of which one was used to work glass. (pers. comm. K. MacGowan).





The most recent excavation was in 1992 for an extension to the south of the Church of England Primary School . The shallow depth of this excavation revealed little archaeology (Chew S. 1992)

All these excavations have revealed medieval features and structures. Several important buildings of the medieval Abbey, such as the Guest-house have not been located. However, the document of 1463, mentioned above, locates the Guest-house and other buildings in the vicinity of the extension, and therefore archaeology could test the written record. Lethieullier and Clapham recorded only medieval features and claim not to have found Saxon deposits on the site of the medieval abbey church. It is noteworthy that the main Saxon features have been found to the west of the abbey church. The date of c. A.D. 705 for the Saxon leat is close to the abbey foundation date of A.D. 666. The Saxon glass kiln has been dated by archaeo-magnetism to A.D. 920 + or - 50 years to a second level of confidence. The kiln therefore may date to the refoundation of the abbey in the 10th century. The Saxon archaeology appears to be concentrated to the west of the Abbey Road, however, the uncertainty of the position of the Saxon abbeys means that their location in that area cannot be taken for granted.

The extension to the school is, therefore, in the centre of highly important Saxon and medieval archaeology and an archaeological assessment in advance of construction was necessary.