

**Historic building recording
of an air-raid shelter
at Birch School,
Colchester, Essex
February 2012**



**report prepared by
Chris Lister**

**on behalf of
Birch Church of England
Primary School**

CAT project ref: 12/02b
NGR: TL 9423 1989 (c)
Colchester and Ipswich Museum
accession code: 2012.9



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CAT Report 635
February 2012

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1 Summary

A programme of building recording was carried out by the Colchester Archaeological Trust (CAT) on a World War Two air-raid shelter at Birch Church of England Primary School, Colchester, Essex in February 2012.

2 Introduction (Figs 2-3)

This is the archive report on the historic building recording of an air-raid shelter, prior to its demolition, at Birch Church of England Primary School, Colchester, Essex. The work was carried out on behalf of the school by Colchester Archaeological Trust (CAT) in February 2012. The demolition is being carried out to make way for the expansion of the school playground.

A planning application (LB/COL/11/2033) was submitted to Colchester Borough Council (CBC) in November 2011. An archaeological condition for the historic building recording of the air-raid shelter was attached to the consent. This recommendation followed *Planning Policy Statement 5: Planning for the Historic Environment*.

A brief detailing the required work (historic building recording) was issued by the CBC (Winter 2011). All work was carried out in accordance with a WSI (Written Scheme of Investigation) produced by CAT (CAT 2011) in response to the CBC brief and agreed with the Colchester Borough Council Archaeological Officer (CBCAO).

All work was carried out according to standards and practices contained in the Institute for Archaeologists *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (2008a) and *Standard and guidance for archaeological investigation and recording of standing buildings or structures* (2008), *Management of research projects in the historic environment* (MoRPHE), and *Standards for field archaeology in the East of England* (EAA 14).

3 Historical background (Fig 2)

Very little is known about the air-raid shelter. It was constructed around 1939/40 as part of Birch School's air-raid precautions. The school itself is a Grade II listed building (English Heritage building record ID 117360) built in 1847 by Charles Gray Round, the owner of the nearby Birch Hall, and Member of Parliament for North Essex 1837-47. The school was part of a building programme undertaken by Round after succeeding his father in 1834, which included the rebuilding of Birch Hall 1843-8, and the construction of the Rectory in 1860. As well as owning a great deal of land in Colchester, Round was also the owner of Colchester Castle and the surrounding Castle Park, and served as Recorder for Colchester and as Deputy Lieutenant for Essex. The school remained part of the Birch Hall estate until 1939 when it was handed over to the Chelmsford Diocesan Board of Finance.

4 Documentary and cartographic survey (Fig 1)

A documentary and cartographic search was undertaken in an attempt to understand the development of the air-raid shelter.

The only documentary reference directly relating to the air-raid shelter comes from a booklet produced by the school in 1947 celebrating the school centenary, 'Birch School 1847-1947'. A section describing the history of the school mentions how evacuees from London, sent to the school in September 1939, were all eventually either sent home or relocated to the west of England by June 1940. The account then goes on to describe how four brick air-raid shelters were built in the school's playgrounds and that, later on, an emergency sleeping hut was built in the playground. It is possible that the narrative accurately reflects the timeline of events, but it is more likely that the shelters were constructed in 1939.

The earliest depiction of the air-raid shelter is on a 1964 1:2500 edition Ordnance Survey Map (Fig 1). This shows the school with the air-raid shelter in the north-west corner of the grounds (marked with a red dot). Although the structure is a single

rectangle, this actually represents two shelters built side-by-side, half of the total number mentioned in the centenary booklet. The other two shelters are very likely to also have been side-by-side in an identical structure. This structure was demolished after the 1960s, but it is probable that the building marked with a blue dot represents this. The structure marked with a green dot probably represents the emergency sleeping hut, which was retained after the war as a dining hall. It is possible that the smaller building joined to the sleeping hut was the second set of shelters but it is more likely that this was a kitchen constructed after the war to serve the emergency sleeping hut/dining hall. The case for the building with the blue dot being the second set of shelters is based on two points. The first is the distance from the main school building. Both shelters would have been located as far from the school as possible to minimise the danger from flying debris should the school itself be bombed. The building with the blue dot is approximately the same distance away from the school as that with the red dot. Each shelter is located (remembering that the sleeping hut post-dates the shelters) for access from the wings of the school, with pupils in the north-south aligned wing probably using the red shelter and those from the east-west aligned wing using the blue shelter. The second point is that the playground on the west and north sides is surrounded by an earth bank. This would have provided increased protection from blast shock and so it would make sense to site the shelters close to it.

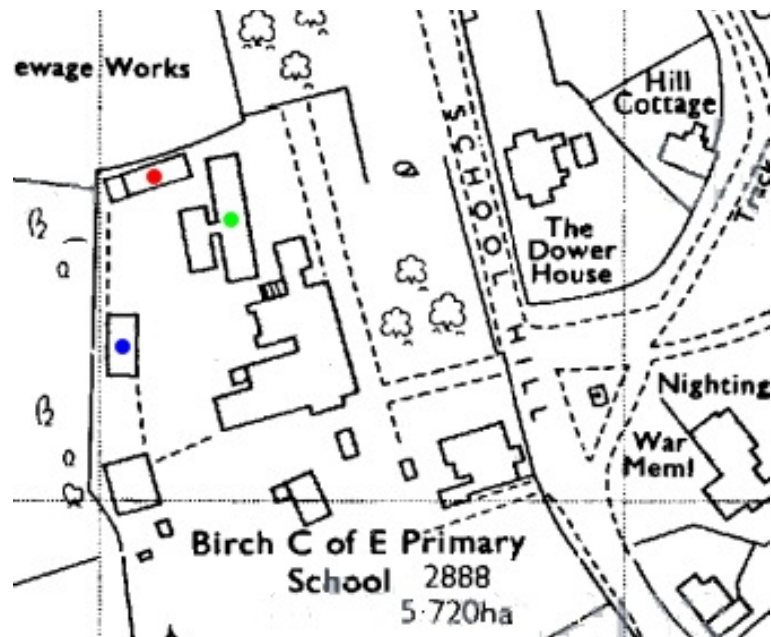


Fig 1 1964 1:2500 Ordnance Survey map.

5 Descriptive record (Fig 4)

The air-raid shelter is a rectangular structure, 13m by 4.5m, orientated north-east to south-west in the north-west corner of the school playground (Plate 1). It stands on a concrete plinth 15cm high at the west end and is brick-built of red stock bricks (dimensions 22cm by 6cm by 10.5cm) laid in twenty-eight courses of English bond. The roof is formed from a slab of reinforced concrete 15.5cm thick that overhangs the walls. The height of the shelter, from slab to bottom of the roof, is 2.15m.

The building is symmetrically divided into two separate shelters through a central brick wall. Flanking this wall are two entrances, one to each shelter, which share a concrete lintel. Each entrance opens onto a 2.27m long corridor formed by the dividing wall and a blast wall, terminating in a second blast wall creating a right-angled turn into the main chamber of the shelter (Plate 2). These blast walls are the same thickness (34cm) as the main walls of the shelter. The main chamber of the

shelter is a rectangular open space with a recess to the north of the entrance corridor (Plates 3-4). The interior brickwork is finished in yellow stock bricks rather than red, although the upper third of the walls are white-painted. Ventilation holes formed from sections of cast iron pipe are placed around the shelter in the second course of bricks down from the roof (Plate 5). These are 7cm in diameter and located at the corners of the building, 69cm from the corners on the short sides and 65cm from the corners on the long sides. Each of the short sides has a low, off-centre opening with a concrete lintel (Plate 6). These are 60cm high by 53cm wide and are in line with the opening from the corridor. Both openings have been blocked in by one brick thick walls (Plate 7).

The roof on either side of the dividing wall is supported by a reinforced concrete beam (24cm by 24cm) centrally located in the main chambers of the shelter. There are mortared remains of brick piers on the concrete floor, twelve on the south side of the gangway between entrance and the opening in the short sides and fourteen to the north. Although the bricks of these piers have almost all been completely removed, it is possible to discern a pattern (Fig 5).

An original wooden bracket is screwed to the outside wall of the recess in the west shelter (Plate 8). Opposite this, on the north-facing side of the blast wall, are rusted screws from another bracket. The east shelter has no brackets or screws present at these locations, but screw holes in the brickwork indicate where brackets were originally placed. One instance of graffiti was recorded on the north-facing blast wall of the east shelter. The word 'MORE' was inscribed in pencil, about two thirds of the way up the wall. The shelter has electrical lighting, although the current system is not contemporary to the building. However, scars on the brickwork and concrete indicate the replacement switches and ducting have followed the original layout. Power was brought into the building via an overhead cable attached to electrical insulators on a post on the east wall.

The entrances have wooden vertical plank doors, held in three-sided frames, with strap hinges and a hasp for a padlock. The south face of the air-raid shelter is completely covered by a mural painted in bright colours. This depicts an island with palm trees and various wild animals, including elephants, giraffes and dinosaurs.

6 Discussion

With the threat of imminent war and following the concept that 'the bomber will always get through,' the British Government in 1937 passed the Air-Raid Precautions Act, followed by the Civil Defence Act in 1939. These sought to address a prevalent concept that millions would be killed as a result of German aerial bombing campaigns. This fear was brought about by memories of the World War One Zeppelin raids and German involvement in the targeting of civilian populations during the Spanish Civil War.

The Acts made provision for the construction of air-raid shelters. Although individual design and execution often varied, these can be broadly grouped into four categories:

- Surface shelters
- Trench shelters
- Semi-sunken shelters
- Deep shelters

Surface shelters were often public shelters, rather than dedicated to a building or particular institution. They were predominantly simple, long brick-and-concrete structures built on pavements or beside buildings. They usually had one or two entrances and were designed to offer shelter from collapsing buildings and bomb splinters.

Trench shelters were simple dug and revetted trenches on open pieces of land. They were reinforced with sandbags, sheet metal, and wooden props. As the war progressed, many were covered over and made more substantial with the sides built up in brick, concrete and steel.

Semi-sunken shelters used preformed segments with a curved roof constructed in a shallow hole in the ground. The structure was then buried in an earth mound which would, theoretically, absorb bomb blasts. This type of shelter was commonly found in peoples' back gardens. One of the most common semi-sunken shelters used was the Anderson shelter, of which over two million were constructed.

Deep shelters were originally designed for some densely populated urban areas and intended to accommodate thousands, but few were ever built as they were very expensive to construct. The risk of high casualties from a direct hit also made the Government reluctant to authorise such shelters.

Specific guidelines were issued in 1939 covering 'Air-Raid Precautions in Schools.' These recommended that trench shelters should be constructed at schools, placed away from but within easy reach of school buildings. In a chillingly practical manner the guidelines also stated that no more than fifty children should be sheltered in one trench. The guidelines recommended that the trenches be roofed but gave no specific instructions regarding the method of construction or the materials to be used. It was suggested however that the shelters should have sloping floors with a sump at one end and that provision be made for pumping or bailing out the sump should it flood. The shelter was to be arranged with seating for the children along one or both walls, with each child allowed 28 inches. Gangways were to be a minimum of 24 inches for a double row of seating and 18 for a single row. The height of the shelter was to be at least 72 inches. Finally, each shelter was to possess a gas curtain over its entrance making the interiors 'reasonably gas proof'.

The air-raid shelter at Birch Church of England Primary School is clearly of the surface type, intended to provide staff and pupils with a safe haven from debris in the event that the school was bombed. Early in the war this may have seemed unnecessary and perhaps was (as the return home of the evacuees reflects) but with the start of the Blitz in September 1940 it is logical to assume that air-raids would have been a frequent part of life for the children at the school. Thankfully the need for the air-raid shelters declined after May 1941, with end of the Blitz. It is possible they saw use later in the war, either through scares over attacks on the nearby American airfield (constructed in 1943; Fig 2) or in response to the V1 and V2 rocket attacks of 1944-45.

The four shelters at Birch School probably reflect usage by different age groups, taught in different parts of the school. These would have required shelters close enough to their part of the school to be reached safely and quickly in the event of an air-raid. The way the structures are divided into two shelters may also indicate that the pupils were gender segregated.

The construction and layout of the shelters broadly conforms to the guidance given in the Air-Raid Precautions for Schools. Although the shelters are not of the trench or semi-sunken variety recommended by the guidelines, they are within easy reach of the school buildings and constructed with thick walls and roof. The blast walls forming the corridors prevented debris being blown into the shelters. The potential danger associated with only having a single entrance was mitigated by the openings in the short ends. These were emergency escape hatches, large enough to crawl out through but small enough to minimise the amount of debris that might be blown in. They were also placed in walls that did not directly face the school buildings, the most likely source of flying debris in the event of bombing. The recess to the north of the entrance would have housed a chemical toilet and the wooden bracket found in the west shelter supported a rod, from which a privacy curtain would have hung. The brick piers supported wooden benches for the children to sit upon during an air-raid. The toilet and benches were necessary as the air-raid would have continued for an unknown length of time and the children would not have been allowed to leave until the 'all clear' was sounded. If the benches were laid out as Fig 5 suggests, and using a measurement of 28 inches (the amount of space per child recommended by the Air-Raid Precautions in Schools), the capacity of each chamber of the shelter is between 24-26. This fits exactly with the Government recommendation that no more than fifty children be grouped together during an air-raid.

No trace of gas curtains or the fittings for these was found. Any trace of these has probably been obscured by the frame of the later entrance doors. These doors were probably fitted shortly after the end of the war, at the same time as the emergency

escape hatches were bricked-in. The air-raid shelter was then used as storage space for the school and, most recently, as a painted backdrop for the playground.

The significance of the air-raid shelter at Birch Church of England Primary School lies not in the actual building itself, but in what that building represents. The number of surviving shelters from the war decreases every year and with the clearance of these buildings, visible symbols of the impact of modern warfare on the people of Britain are lost. The shelter is a direct link to historic events, the Blitz and the Battle of Britain, and as living witnesses become fewer and fewer, these structures become increasingly important to our historical understanding of the events and our empathy with the people who lived through them.

7 Archive deposition

The paper and digital archive is currently held by the Colchester Archaeological trust at 12 Lexden Road, Colchester, Essex CO3 3NF, but it will be permanently deposited with Colchester and Ipswich Museum under accession code 2012.9.

8 Acknowledgments

Colchester Archaeological Trust would like to thank Birch Church of England Primary School for commissioning and funding the building recording.

The building recording was carried out by Chris Lister. The project was monitored by Martin Winter on behalf of Colchester Borough Council.

9 References

Note: all CAT reports, except for DBAs, are available online in .pdf format at <http://cat.essex.ac.uk>

CAT	2012	<i>Written Scheme of Investigation for Historic Building Recording of an Air-Raid Shelter at Birch School, Colchester, Essex</i> by C Lister
CBA	1996	<i>20th Century Defences in Britain, An Introductory Guide</i> , Council for British Archaeology Practical Handbook 12 , ed B Lowry,
DoE	2010	<i>Planning and Policy Statement 5: Planning for the Historic Environment</i>
EAA 14	2003	<i>Standards for field archaeology in the East of England</i> , East Anglian Archaeology, Occasional Papers, 14 , ed by D Gurney
English Heritage	2003	<i>Twentieth-Century Military Sites: Current approaches to their recording and conservation</i>
English Heritage	2011	<i>Listed Buildings Online</i> http://www.english-heritage.org.uk/ibonline
IfA	2008	<i>Standard and guidance for archaeological investigation and recording of standing buildings and structures</i>
IfA	2008a	<i>Standard and guidance for the collection, documentation, conservation and research of archaeological materials</i>
IfA	2008b	<i>Standard and guidance for archaeological watching briefs</i>
Millatt, T B	1947	<i>Birch School 1847-1947</i>
MoRPHE	2006	<i>Management of research projects in the historic environment</i> (English Heritage)
Winter, M	2011	<i>Brief for the Recording of Air Raid-Shelter, Birch School, Colchester, Essex</i> . Colchester Borough Council brief 2011

10 Abbreviations and glossary

blast wall	brick or concrete wall shielding interior from the entrance
CAT	Colchester Archaeological Trust
CBC	Colchester Borough Council
EHER	Essex Historic Environment Record, held by the Essex County Council
IfA	Institute for Archaeologists
modern	period from the 19th century onwards to the present
NGR	National Grid Reference

11 Contents of archive

One A4 document wallet containing:

1 Introduction

- 1.1 Copy of CBC brief
- 1.2 Copy of the WSI produced by CAT
- 1.3 Risk assessment

2 Site archive

- 2.1 Digital photographic record
- 2.2 Digital photographic contact sheet
- 2.3 Black and white photographic record
- 2.4 Black and white photographic contact sheet
- 2.5 Attendance register
- 2.6 Site photographic record on CD
- 2.7 One packet of black and white 35mm photographs with negatives

3 Research archive

- 3.1 Monitoring (client) report

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Distribution list

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Martin Winter, Colchester Borough Council Archaeology Officer
EHER



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checked by: *Philip Crummy*
date: 20.02.12

Appendices
Appendix 1
Selected photographs



Plate 1 Air-raid shelter - view north-east.



Plate 2 East shelter entrance with blast wall to the right - view north.



Plate 3 East shelter interior - view north-east.



Plate 4 West shelter, recess for chemical toilet and blast walls - view north-east.



Plate 5 Detail of ventilation hole.



Plate 6 Emergency escape hatch in west wall - view south-west.



Plate 7 Exterior of the air-raid shelter showing the emergency escape hatch in the west wall - view north-east.



Plate 8 West shelter, surviving original bracket for curtain across toilet recess - view north.

Appendix 2

Full list of digital photographic record (images on accompanying CD)

Birch School 001.jpg	Air-raid shelter - view north-west.
Birch School 002.jpg	Air-raid shelter - view west.
Birch School 003.jpg	Air-raid shelter - view north-east.
Birch School 004.jpg	Detail of ventilation hole.
Birch School 005.jpg	Entrances to the shelter with later wooden doors - view north-west.
Birch School 006.jpg	Rear of the air-raid shelter - view east.
Birch School 007.jpg	Post with ceramic electrical insulators attached to east wall – view north-west.
Birch School 008.jpg	Post with ceramic electrical insulators attached to east wall - view north-west.
Birch School 009.jpg	East shelter entrance with blast wall to the right - view north.
Birch School 010.jpg	Replacement light switch in east shelter entrance - view north-west.
Birch School 011.jpg	East shelter interior - view north-east.
Birch School 012.jpg	East shelter interior - view south-east.
Birch School 013.jpg	East shelter interior with blast wall to the left and recess for chemical toilet - view west.
Birch School 014.jpg	Emergency escape hatch in east wall - view north-east.
Birch School 015.jpg	Remains of brick pier for benches.
Birch School 016.jpg	East shelter, remains of brick pier for benches.
Birch School 017.jpg	East shelter, pencilled graffiti "MORE" on toilet recess wall - view south-west.
Birch School 018.jpg	West shelter entrance with blast wall to the left - view north-west.
Birch School 019.jpg	West shelter interior - view west.
Birch School 020.jpg	West shelter interior - view south-west.
Birch School 021.jpg	West shelter interior with blast wall to the right and recess for chemical toilet - view north-east.
Birch School 022.jpg	West shelter, blast walls around entrance - view east.
Birch School 023.jpg	West shelter, recess for chemical toilet and blast walls - view north-east.
Birch School 024.jpg	Emergency escape hatch in west wall - view south-west.
Birch School 025.jpg	West shelter, surviving original bracket for curtain across toilet recess - view north.
Birch School 026.jpg	West shelter, surviving screws of bracket for toilet curtain – view south-east.
Birch School 027.jpg	Exterior of the air-raid shelter showing the emergency escape hatch in the west wall - view north-east.
Birch School 028.jpg	General shot of new school buildings - view south-east.
Birch School 029.jpg	Birch C of E Primary School, original 19th-century building - view west.

Appendix 3

Full list of 35mm black and white photographic record (images on accompanying CD)

Birch School bw001.jpg	Air-raid shelter - view north-west.
Birch School bw002.jpg	Air-raid shelter - view east.
Birch School bw003.jpg	Air-raid shelter - view north-west.
Birch School bw004.jpg	Air-raid shelter - view north-west.
Birch School bw005.jpg	Entrances to the shelter with later wooden doors - view north-west.
Birch School bw006.jpg	Post with ceramic electrical insulators attached to east wall – view north-west.
Birch School bw007.jpg	Detail of post with ceramic electrical insulators – view north-west.
Birch School bw008.jpg	East shelter entrance with blast wall to the right - view north.
Birch School bw009.jpg	East shelter interior - view north-east.
Birch School bw010.jpg	East shelter interior - view north-east.
Birch School bw011.jpg	Emergency escape hatch in east wall - view north-east.
Birch School bw012.jpg	East shelter interior with blast wall to the left and recess for chemical toilet - view west.
Birch School bw013.jpg	Replacement light switch in east shelter entrance - view north-west.
Birch School bw014.jpg	West shelter entrance with blast wall to the left - view north-west.
Birch School bw015.jpg	West shelter interior - view west.
Birch School bw016.jpg	West shelter interior with blast wall to the right and recess for chemical toilet - view north-east.
Birch School bw017.jpg	West shelter, recess for chemical toilet and blast walls - view north-east.
Birch School bw018.jpg	West shelter, recess for chemical toilet and blast walls - view north-east.
Birch School bw019.jpg	West shelter, surviving original bracket for curtain across toilet recess - view north.
Birch School bw020.jpg	General shot of new school buildings - view south-east.
Birch School bw021.jpg	Exterior of the air-raid shelter showing the emergency escape hatch in the west wall - view north-east.
Birch School bw022.jpg	Detail of ventilation hole.
Birch School bw023.jpg	Birch C of E Primary School, original 19th-century building - view west.
Birch School bw024.jpg	St Peter's Church - view east.
Birch School bw025.jpg	St Peter's Church - view west.
Birch School bw026.jpg	St Peter's Church - view east.

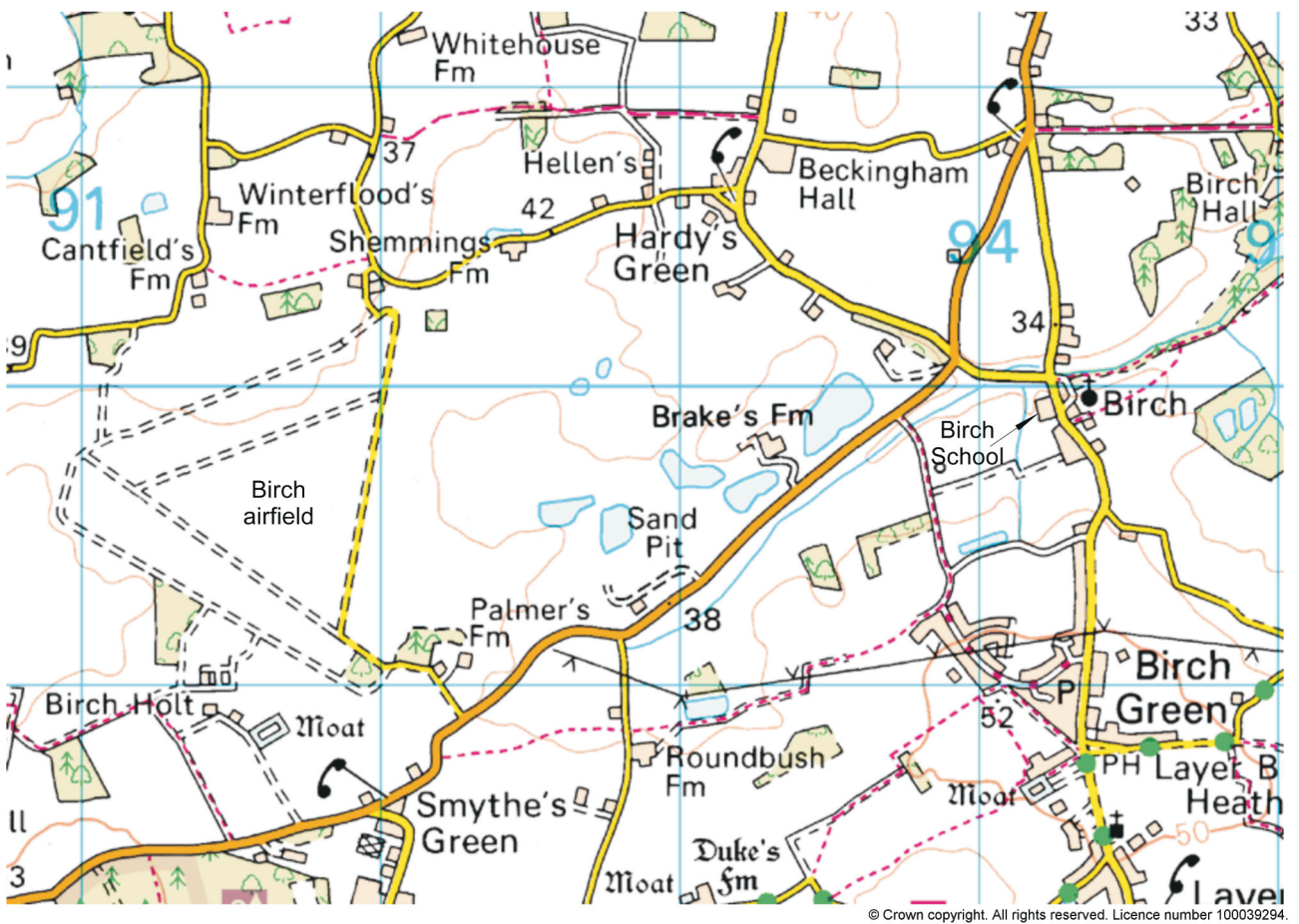
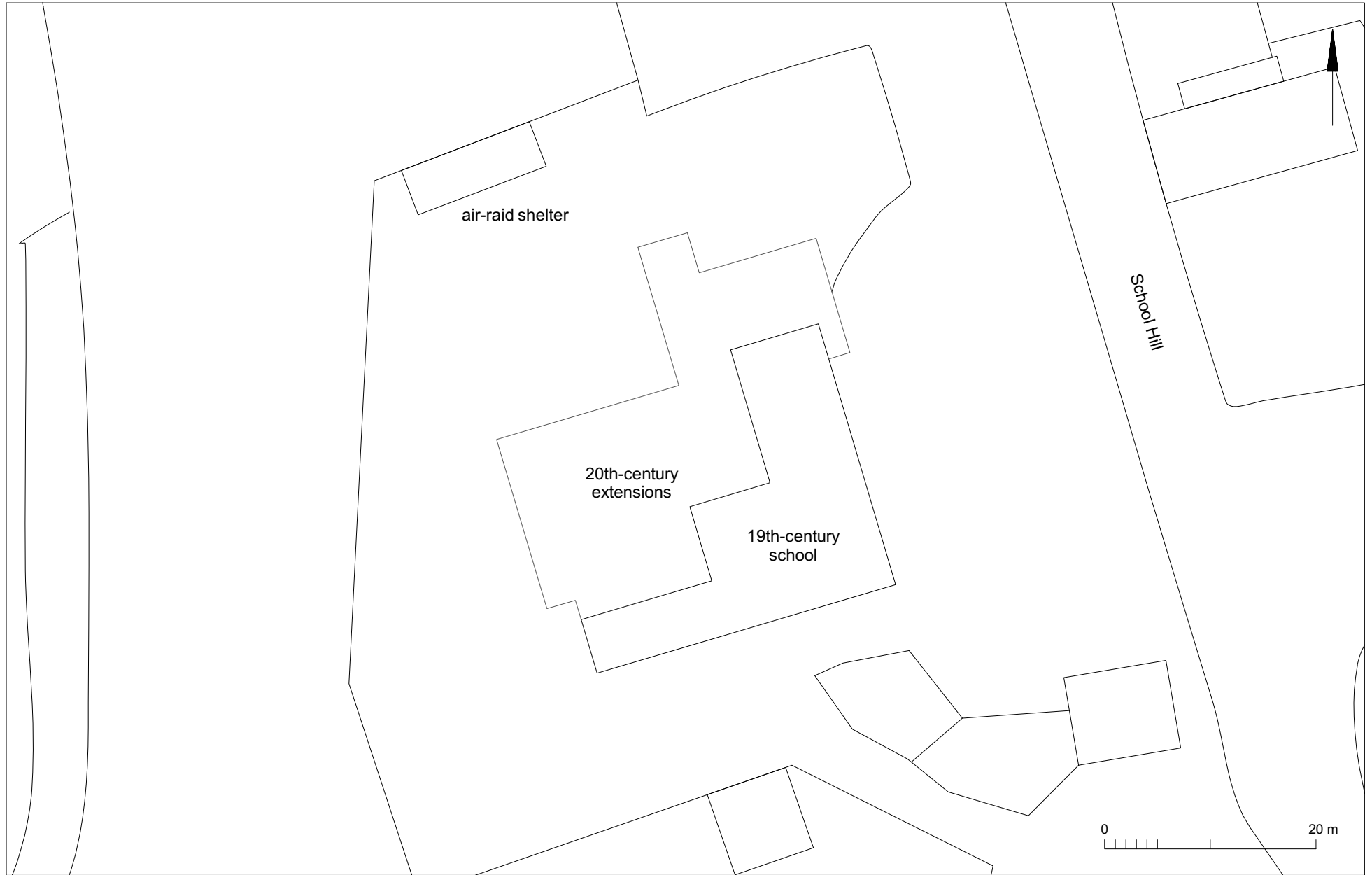


Fig 2 Site location.



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Fig 3 Block plan.

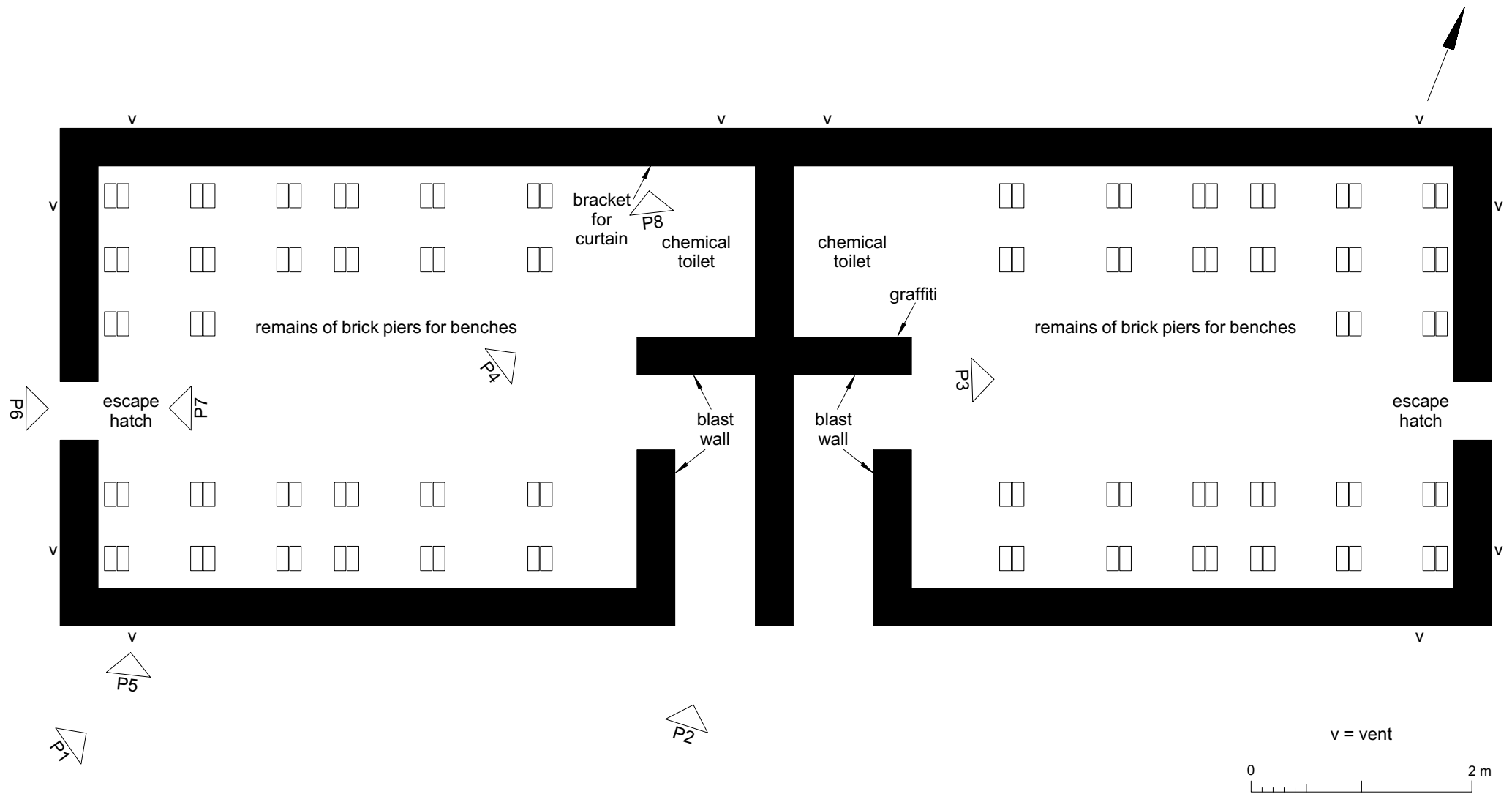


Fig 4 Ground plan of air-raid shelter.

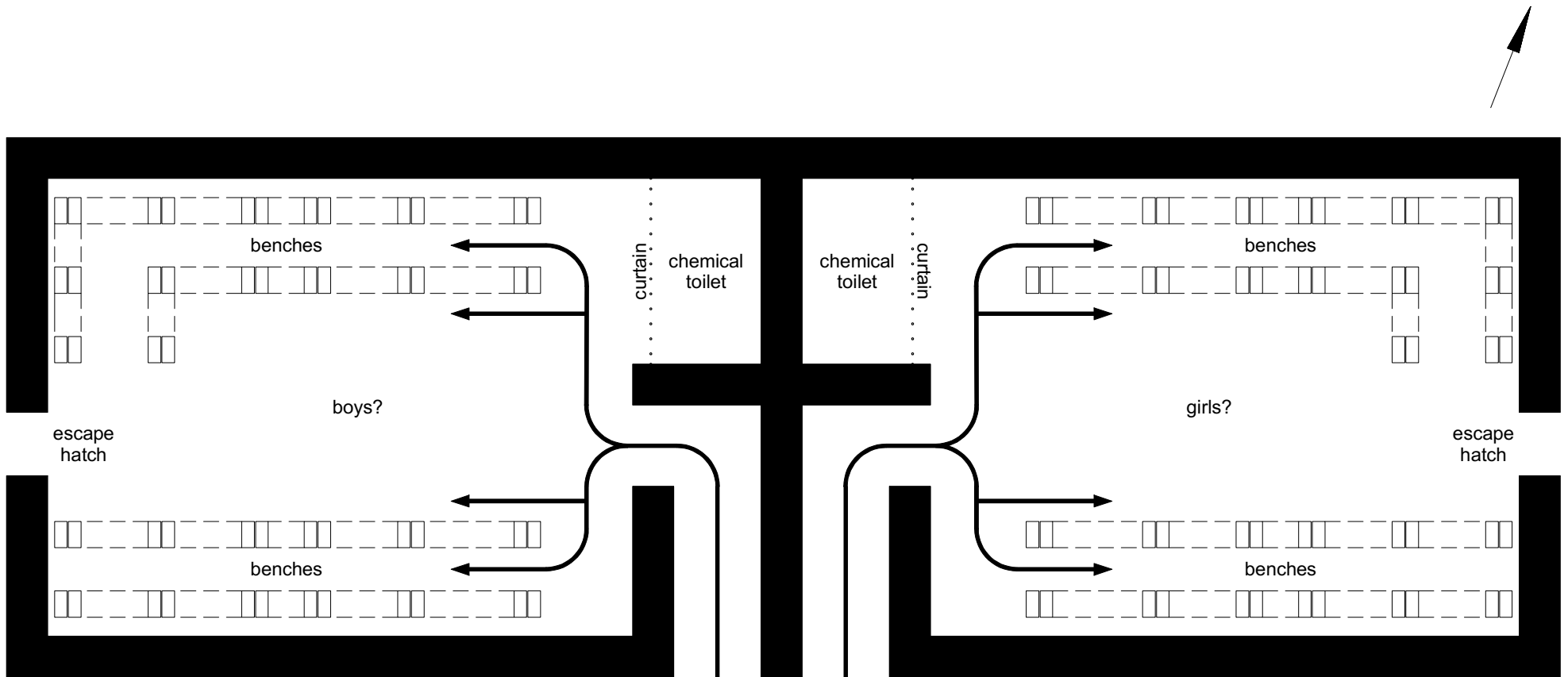


Fig 5 Suggested layout of air-raid shelter interior.



Essex Historic Environment Record/ Essex Archaeology and History

Summary sheet

Address: Birch Church of England Primary School, School Hill, Birch, Colchester, Essex, CO2 0LZ	
Parish: Birch	District: Colchester
NGR: TL 9423 1989 (c)	Site codes: CAT project – 11/04b Museum accession – COLEM 2012.9
Type of work: Building recording	Site director/group: Colchester Archaeological Trust
Date of work: February 2012	Size of area investigated: n/a
Location of curating museum: Colchester and Ipswich Museum	Funding source: Client
Monitored by: Martin Winter of Colchester Borough Council	
Further seasons anticipated? No	Related EHER numbers: --
Final report: CAT Report 635	
Periods represented: 20th century	
Summary: <i>A programme of building recording was carried out by the Colchester Archaeological Trust (CAT) on a World War Two air-raid shelter at Birch Church of England Primary School, Colchester, Essex in February 2012.</i>	
Previous summaries/reports: none	
Keywords: air-raid shelter	Significance: *
Author of summary: Chris Lister	Date of summary: February 2012