

The Nailsea Glassworks,

Nailsea, North Somerset

A Summary of the known
Archaeological Interventions
1975 - 2004

Nailsea Glassworks Study 2004 - Part 2



on behalf of

Tesco Stores, Limited.

Andrew F Smith,
Avon Archaeological Unit

The Nailsea Glassworks, Nailsea, North Somerset

**A Summary of the known Archaeological Interventions
1975 - 2004**

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February, 2004

The cover photograph, © Cloud 9 High Level Photography, is an overhead view, looking approximately north-east, of the New House Cone base as excavated, and dates from 1987/1988. It is reproduced by courtesy of Mr M Thurstan, "Denmans", 5, West Street, South Petherton, Somerset, TA13 5DQ, the owner of Cloud 9 High Level Photography

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Acknowledgements

In general these are all covered in the main Introduction to the Study, but the assistance of Dr David Crossley and Dr Justine Bailey in the selection and identification of the samples from the North Somerset Museum is gratefully acknowledged, as is the assistance and facilities afforded by Nick Goff and Jane Hill at the Museum.

Note

Whereas Avon Archaeological Unit have taken all care to produce a comprehensive summary of the known and recorded archaeological evidence, no responsibility can be accepted for any omissions of fact or opinion, however caused.

Copyright

Please see the Copyright statement in the main Introduction to the Study.

The site centred plan (Figure 2.1) that has been taken as the modern basis, and all subsequent plans based on that (e.g. Figures 2.12, 2.14, etc) are reproduced by permission of the Controller of Her Majesty's Stationery Office. © Crown Copyright Reserved.

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INTRODUCTION

The Nailsea Glassworks site has been the subject of a number of archaeological interventions. As far as can be determined, these have all been restricted to the main production site to the south of the High Street.

This section is intended to give summaries of these interventions, rather than detailed context-by-context descriptions. The intention is therefore to give general descriptions in each case, illustrated as appropriate where suitable illustrations exist. The excavated areas will be shown in relation to a modern (as at October 2002) site-centred OS plan, (Figure 2.1, below) and also to [an adaptation of] a drawing based on [tracings taken from] the Sturge 1870 plan of the glassworks (BRO 37959/22), (Figure 2.2). This plan has been chosen as it dates from late in the life of the glassworks, and is also accompanied by a schedule (Table 2.1, below) of the functions of buildings identified by number on the plan. It also shows the holding to the north of the High Street, which included glassworkers' housing and a mine. (The adaptation for later figures has been the addition of the national grid 100m squares to assist with positioning the features, and re-orientating the plan to grid north.)

Finally the relationship between all the known archaeological interventions will be summarised on both plan bases in order to show the proportion of the site which has been examined.

Reference is occasionally made to the BRO copy of the plan of the glassworks dated to the 1830s. This has been reproduced in the desk-top study, (Part 1 of the study.)

It should be noted that there are occasional references to Avon County Council and some of its departments. As part of local government restructuring in 1974, Avon County was created from an area comprising the southern part of Gloucestershire, the northern part of Somerset, including the City of Bath, and the City and County of Bristol. In 1996 the county was deconstructed in the formation of the present authorities of South Gloucestershire, North Somerset, Bath & North East Somerset, and Bristol. It is thought that the disappearance of some of the archives may date from this deconstruction. It has a parallel in ancient Rome, and elsewhere in antiquity, in that there was sometimes indecent haste to expunge the name of a deposed/despised ruler from the public record.

It has not been within the remit of this study to do any sorting or ordering of the archive, but this is an exercise that would be very worthwhile.

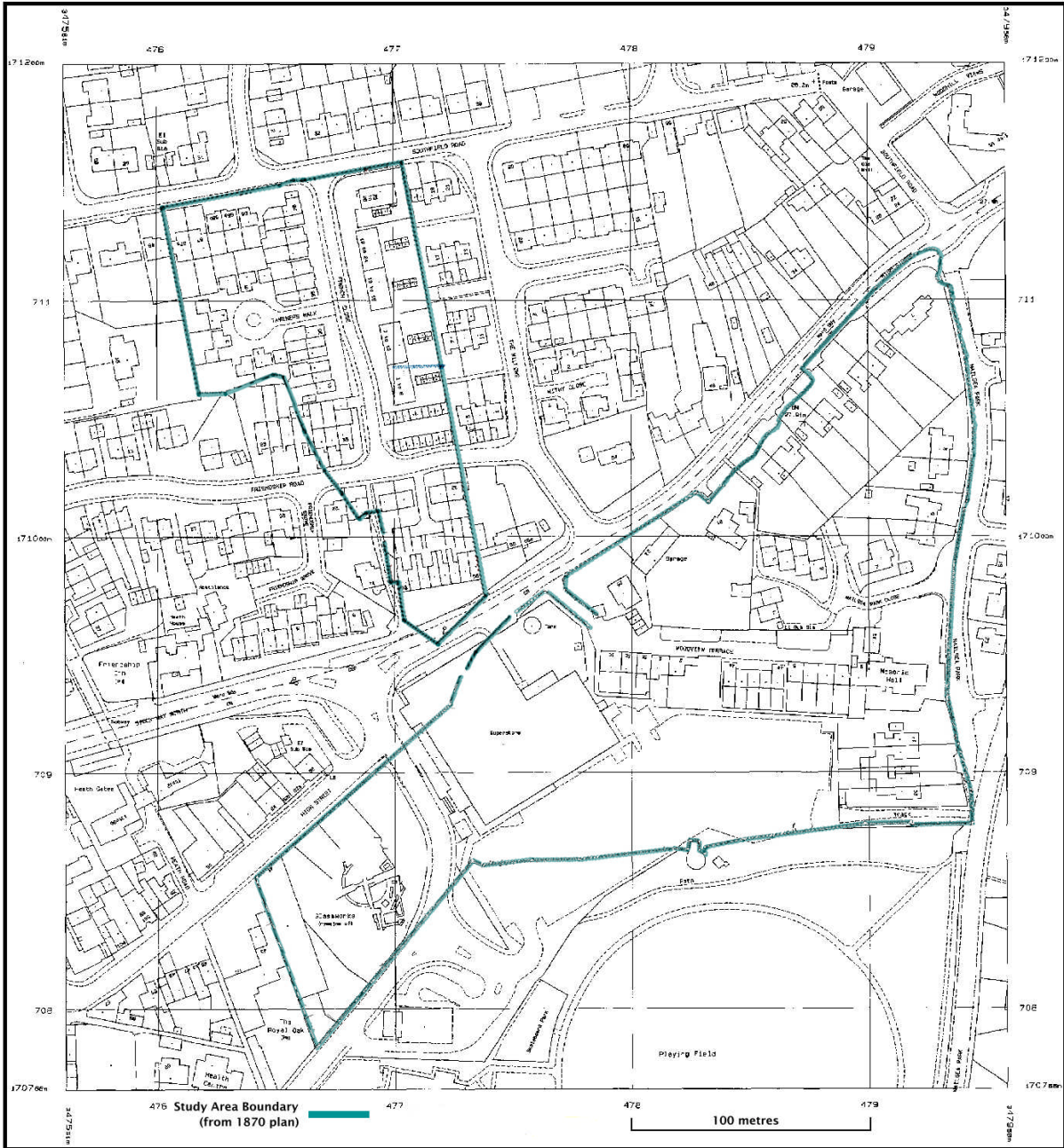


Figure 2.1: Site-centred Plan (Not to scale, but based on a 1:1500 OS original)

The numbering, titling, etc on the 1870 plan (Figure 2.2, below) have all been enhanced, as the original is approximately 1.25 m square, and it was evident that hand transcription would not reproduce well. In the text building numbers referring to the 1870 plan are enclosed thus: - { }. It is not entirely clear when the cones became named, rather than numbered, but because it is the names of the cones that seem now to be in common usage they have been used here throughout. In any case, from the plan evidence, the numbering of the cones changed with time.

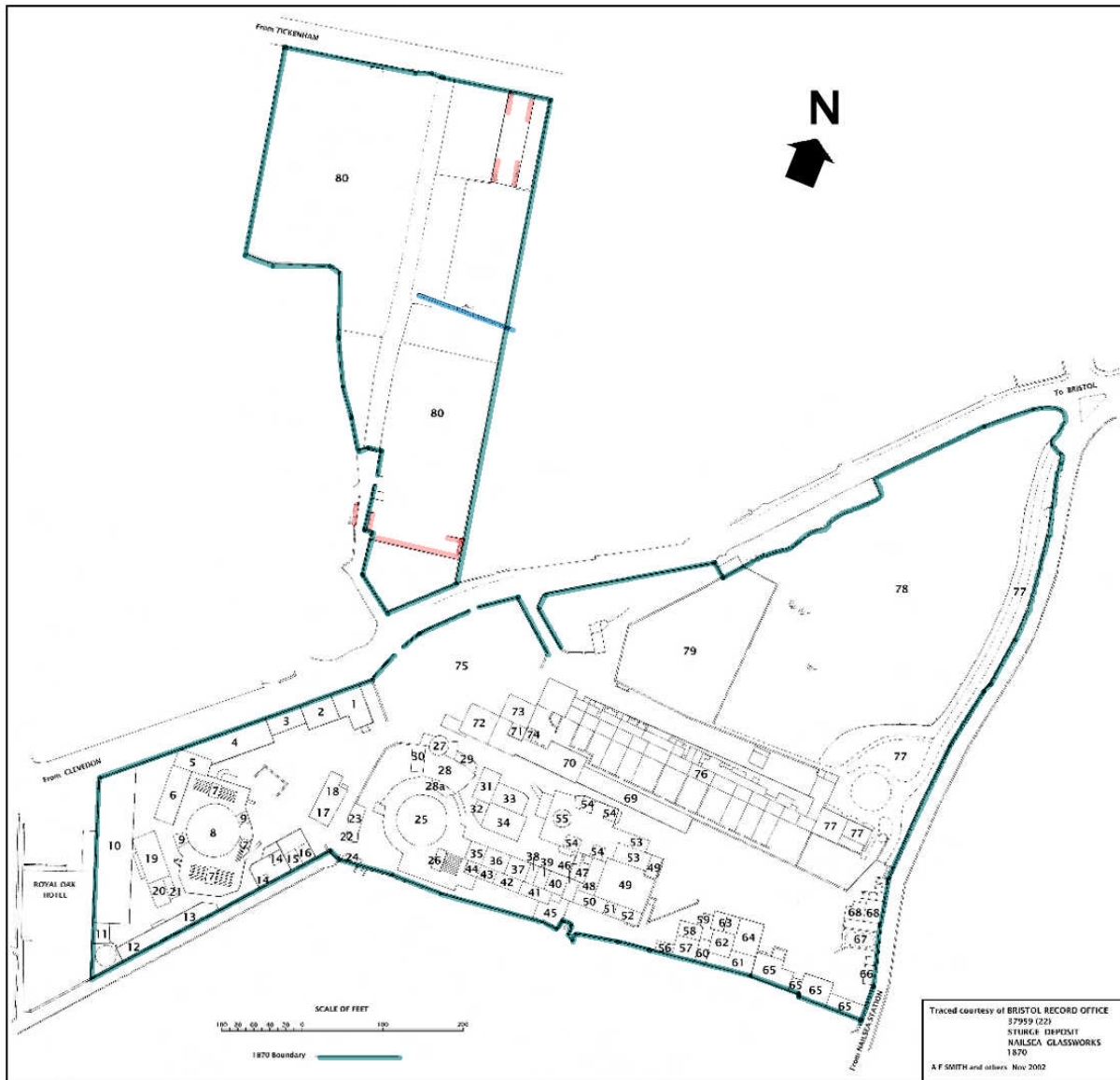


Figure 2.2: 1870 Plan of the Nailsea Glassworks Holding [BRO Sturge Deposit 57959 (22)]

No explanation has been given for the name given to the Lilly Cone (1870 plan ref. {55}), when the other two remaining cones are numbered at that time. Some writers call it the “Lily” Cone. As it appears to have been the smallest cone it is suggested that “Lilly” was possibly a corruption of “Little”. Nor has an explanation been found for the names “French Kilns” or “Belgian Lears”. It is not known whether they are generic terms, referring to a certain design, or whether they were imported from their respective countries. [However, an unattributed note found in the SMR records (some long time after the foregoing was written) states that a French Kiln was for flattening cylinder glass, and a Belgian Lear, or lehr, was for annealing, the glass travelling through it on bogies from hot to cool.]¹

¹ Later still: June 2004 – This now appears to be correct. See under “Furnaces” in Part 3 – Technology.

Table 2.1 - Schedule referring to the 1870 plan.

*Schedule referring to Plan of the
Nailsea Glass Works 6.6.70 [6th June 1870]*

<i>Number</i>	<i>Description</i>		
1	Offices		
2, 2.	Two French Kilns		
3	Smith's Shop		
4	Belgian Lear		
5	Cutting Room		
6	Six storey building 2 packing & cutting Rooms 3 Pot rooms and loft for lift machinery		
7,7,7	Blowing holes		
8	Cone N° 1 Furnace		
9	N° 1 Furnace cylinder room		
10	Two French Kilns		
11	Gas Retort		
12	Sand caulker		
13	Mixing Room		
14	Two French Kilns		
15 & 16	Pot arches		
17	Old office		
18	Crucible furnace		
19	Cutting & packing room		
20 & 21	Store Rooms		
22 & 23	Old Watch House		
24	Boiler		
25	Cone of N° 2 Furnace		
26	Blowing Holes (12)		
27	Brick Kiln		
28	Brick Room & Pot room over		
28a	Crown Kilns (2)		
29	Brick Room		
30	Stone dressing room		
31	Pot arch		
32	Cylinder room		
33	Room for making small bricks with straw loft over		
33, 34	Two French Kilns		
	Ground Floor	1st Floor	2nd Floor
35	Coloured cullet room	Cylinder rooms	Pot rooms
36	Mixing Room		
37	Sand store room	Packing room	
38	Store for Limestone		
39	Limestone & Salt Cake Mill	Enamel grinding room	
40	Clay Mill	Obscuring Room	40 & part of 46: Ring Room
41 & 42	Clay Room		
43 & 44	Coloured Cullet room. Brilliant cutting room		
45	Saw Mill		
46	Engine Room		
47	Open space for coal for feeding boilers		
48	Old arches of bottle house - useless		

49, 49	Open spaces where old bottle house stood	
50	Clay Mill	Chaff & corn loft
51	Arch	
52	Empty shed	
53	Covered unoccupied space	
54, 54, 54, 54	Four rolled plate kilns	
55	Lilly cone	
56	Shed for chipping potsherds	
57	Empty Room	
58	Old chapel (used for Carpenters Room)	
59	Boy Shop	
60	Store room for centres	
61	Joiners Shop	
62	Open space	
63	Empty shed	
64	Dilly shed	
65	Stabling &c	
66	Fowl pen	
67	Pond	
68, 68	Cottages	
69	Rolled plate room with pot & tile room over	
70	Lear	
71	Ornamental burning kiln	
72	3 Storey Building - Cutting packing & assorting Rooms	
73	Drill Room empty	
74	W.C. &c for cottages	
75	Waste ground for rubbish	

Schedule of Quantities

Numbers		a	r	p
1 to 76	Works and cottages	6	1	29
77	House, Lawn, Drive, etc	0	3	10
78	Paddock	2	1	4
79	Garden	0	2	0
80	Colliery, etc	3	1	34
	Total	13	1	37

[Initialled] *H H²*

[In pencil] *Messrs Chance Brothers & Co*
Glass Works
near Birmingham

[BRO (Sturges) 37959/22]

[Transcribed from original manuscript by the writer, 25th September 2002.]

Note: **a** = acres, **r** = roods (4 to an acre), **p** = perches (40 to a rood). 1 acre = 4840 sq. yards
1 hectare = 10,000 sq. m. = 2.47 acres approximately

² This may be H H Ham mentioned by J Eyres (See Part 3 Appendix 8)

1. 1975 - 1982

This first intervention was informal, and was carried out by Mr David Charlton, the owner/occupier of the bungalow (No. 37, High Street, Nailsea) built in “about 1945 ... within the space occupied by the [New House] cone.”³ [The bungalow is not visible on the December 1946 RAF aerial photograph, however.]

It started in 1975 when Mr Charlton “started 'digging' to help a local school engaged on a project. He continued to excavate each year until this year [1983] when Avon Community Conservation and Environment Scheme (ACCES) were introduced to the site in order to excavate quickly as a planned link road threatens the existence of the remains.”⁴

In 1982, he discovered the remains of a bogie, about three feet by four feet, believed to be from an annealing oven. It was recovered to what was then “Woodspring” Museum. (Avon Mercury, 9 April, 1982). (Another local paper said that the bogie would have been pulled along rails in “the kneel in” ovens!) The original dimensioned rough sketches are in Folder E of the North Somerset SMR (NS SMR), and copies have been sent to the North Somerset Museum.

As far as is known there are no other records from this work.

2. 1983 - 1988

This, the first formal work, was undertaken by ACCES, as noted above, under Mr David Pollard, using Manpower Services Commission (MSC) trainees. It seems from correspondence in the various files held by NS SMR that Mr Pollard led work on the site for the 1983 and 1984 seasons.

The first season ran from April to September **1983**⁵, and as well as “tidying up” based on Mr Charlton's work, the team went on to clear further areas around the bungalow, which was still standing. The work is summarised in a plan (see Figure 2.4 below), (the original photo-reduced copy from which this was taken was not legibly annotated) which together with a very detailed manuscript report of the 1983 work exists in a black ring binder “File A NAILSEA GLASSWORKS - GENERAL, (Site description, drawings, small finds)”, currently held in the NS SMR 2397. From this it appears that when the first airway was exposed it was initially thought to be an entrance to the cone. As well as the plan and descriptions there are some very nice drawings of finds, an extremely detailed record of measurements of (fragmented) cylinder glass, and detailed lists of drawings, some identified as being for publication. Unfortunately none of these drawings have been found at the time of writing. [That was in mid-2003. Later that year, some detailed drawings came to light, through the good offices of Vince Russett. All these drawings are in a long green box identified as “ASMR 2397 NAILSEA GLASSWORKS” which will pass with the archive to North Somerset Museum. Amongst these was a print of the original drawing on which the copy used for Figure 2.4 was based. The printing on it includes spot heights and other information, but it is in an extremely small hand, so does not show up when reduced in scale. Other drawings from the same source gave the position of the two datum lines, and enabled some attempt at identifying the approximate limits of the areas described in “File A”. It should be noted that the orientation of Figure 2.4 is not that given on the original. Comparison of the orientation of the bungalow as shown on a 1:2500 OS map of 1983 indicates that North on the original plan was orientated about 39° west of grid north.]

³ Letter dated 11 Jan 1984, D J Pollard to Mr D Ashurst, of Barnsley, Gawber glasshouse excavator.

⁴ “*Nailsea Glassworks - An Archaeological Excavation*” Author and date uncertain

⁵ Cutting - Weston Mercury 22 July 1983

The areas/sites are described as follows:

Area/Site A: “located between the rear (South side) of the bungalow and further south to the main east-west wall #2.”

Area/Site B: “defined as being the area south of Wall 2 and bordered on the south by the modern boundary wall and on the east by the workshop which housed the French Kilns.”

Area/Site C: “all the area to the east of the bungalow and area north of the workshop (Site ‘E’) including the archway at the SE corner of the bungalow.”

Area/Site D: “the area of the cone wall north of the bungalow. Prior to excavation there was one section of the cone wall visible above ground at the boundary The presence of such a large amount of cone wall found above ground is due to the fact that this section was mostly hidden by bushes at the property boundary line.” The triangle of brickwork in the “south-east” corner of Area D as shown is included on the basis of one of the recently found drawings.

Area/Site E: “the workshop which [formerly] housed the French Kilns” {14}. “The building had in previous years been used as a stone mason’s workshop.” However, it “had apparently become a dumping ground for various bricks and rubble from other parts of the site.”

It is noted by R Iles (*Avon Archaeology*, 1983. p63) that, “A considerable length of the 1m thick, pennant stone wall was uncovered, revealing inverted stress relieving arches; excavation at one point showed the base of the wall to be 4.2m below the level of the working floor of which only small area remains. A complete swinging pit, some 2.5m deep and used for the making of sheet glass by the cylinder method, yielded several glassmakers' tools including snips, blowing irons and glass gathering rods together with numerous fragments of cylinder glass. Part of the area of a much larger swinging pit extension to the cone dating from about 1840 was excavated as was part of the cave or airway leading to the furnaces in the centre of the cone.” [“Swinging pit” seems to be an alternative term for “blowing holes”, which is how they are described in the 1870 schedule {7}. Alternatively, they may have been associated, each swinging pit having its own blowing hole.]

From correspondence, a gasholder in the rear garden of ‘The Royal Oak’ (NS SMR 03530) just to the west of the site was also excavated in 1983 as part of the programme (D Pollard to Mr Inett Homes of Ledbury, 1st September 1983, NS SMR, Folder E). In this letter he states that “a small coal gas plant was installed here c1870,” and continues, “the infill [of the gasholder] contains finds indicating abandonment between 1880 and 1900.” In a later letter to the Science Museum (22nd December 1983, NS SMR, Folder E) he believes that the gas-holder dates from the 1860s, and states that finds in the infill suggest that it was disused in the 1890s. No drawings have been found but significant numbers of 35mm contact prints and negatives exist (NS SMR, Folder D). Whether the circular feature in the extreme south-west corner of the 1870 plan is another gas holder or the base of a chimney associated with the “Gas Retort” {11} has not been established. [A plan and a section have subsequently been found in the late-2003 green box mentioned above. These have been combined to produce Figure 2.3 below. The approximate position has been plotted on Figures 2.12, etc., even though outside the area defined for the glassworks in this study.]

It does not seem that the retort building {11} itself was excavated. Nowhere has there been any mention of gas pipes having been found during any of the excavations. Either they were salvaged during demolition or scavenged subsequently, or the gas was maybe being piped direct to the French Kilns in the adjacent building {10}, which still survives on the western edge of the study area.]

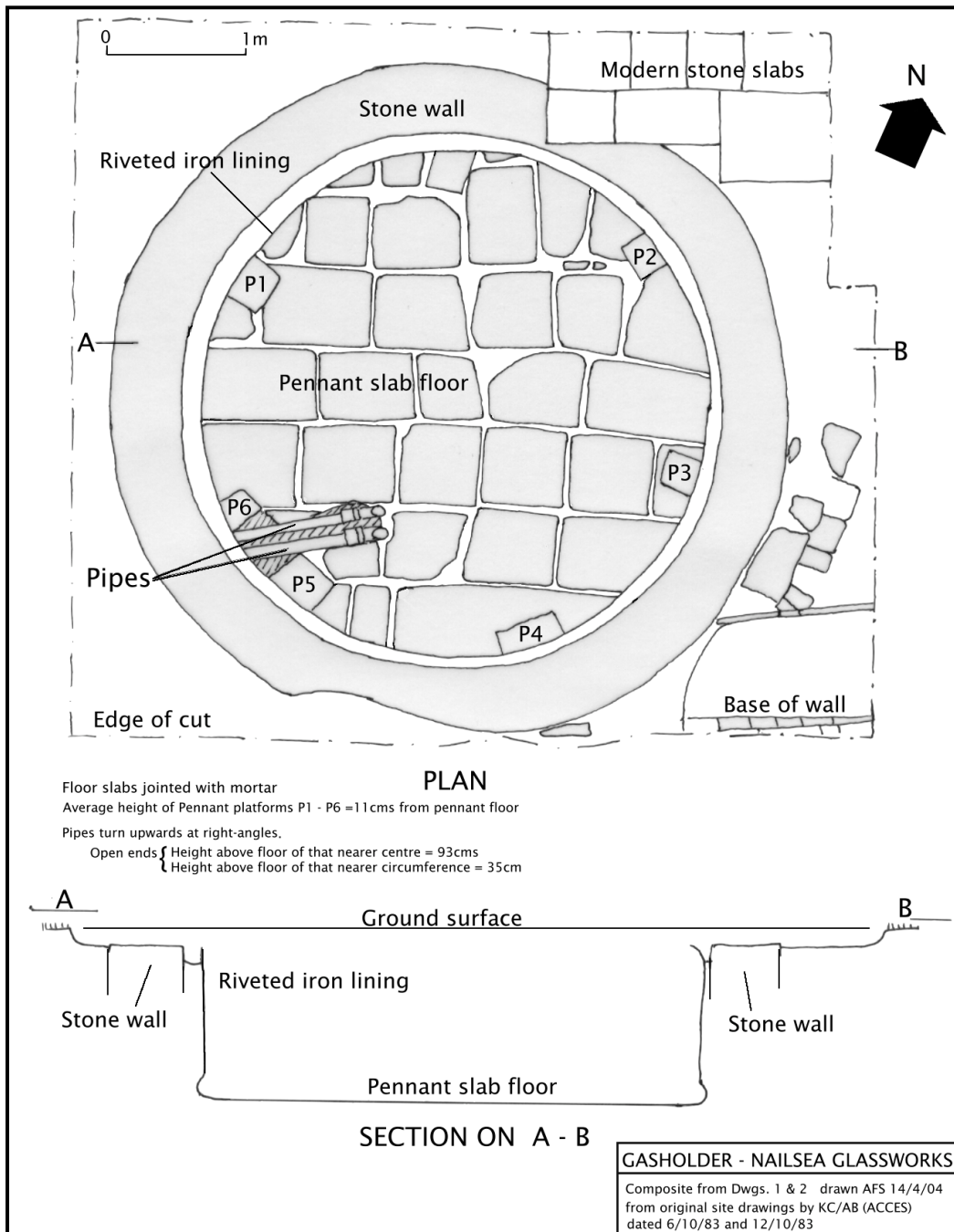


Figure 2.3: Composite plan and section of the gasholder

It appears that Mr Pollard was also responsible for the **1984** season, before leaving the area, but the evidence for any work in 1984 is slight. It is stated in “*Nailsea Glassworks - An Archaeological Excavation*” that, “In January 1984, a bungalow, which had been built directly over the main furnace was completely demolished allowing further excavation of the main airway and furnace. As this represents the heart of the New House Cone it is hoped that we will establish some interesting finds in the coming months.” However it is clear from several items of correspondence (NS SMR File C) that the demolition of the bungalow was delayed, at least until mid-August, 1984.

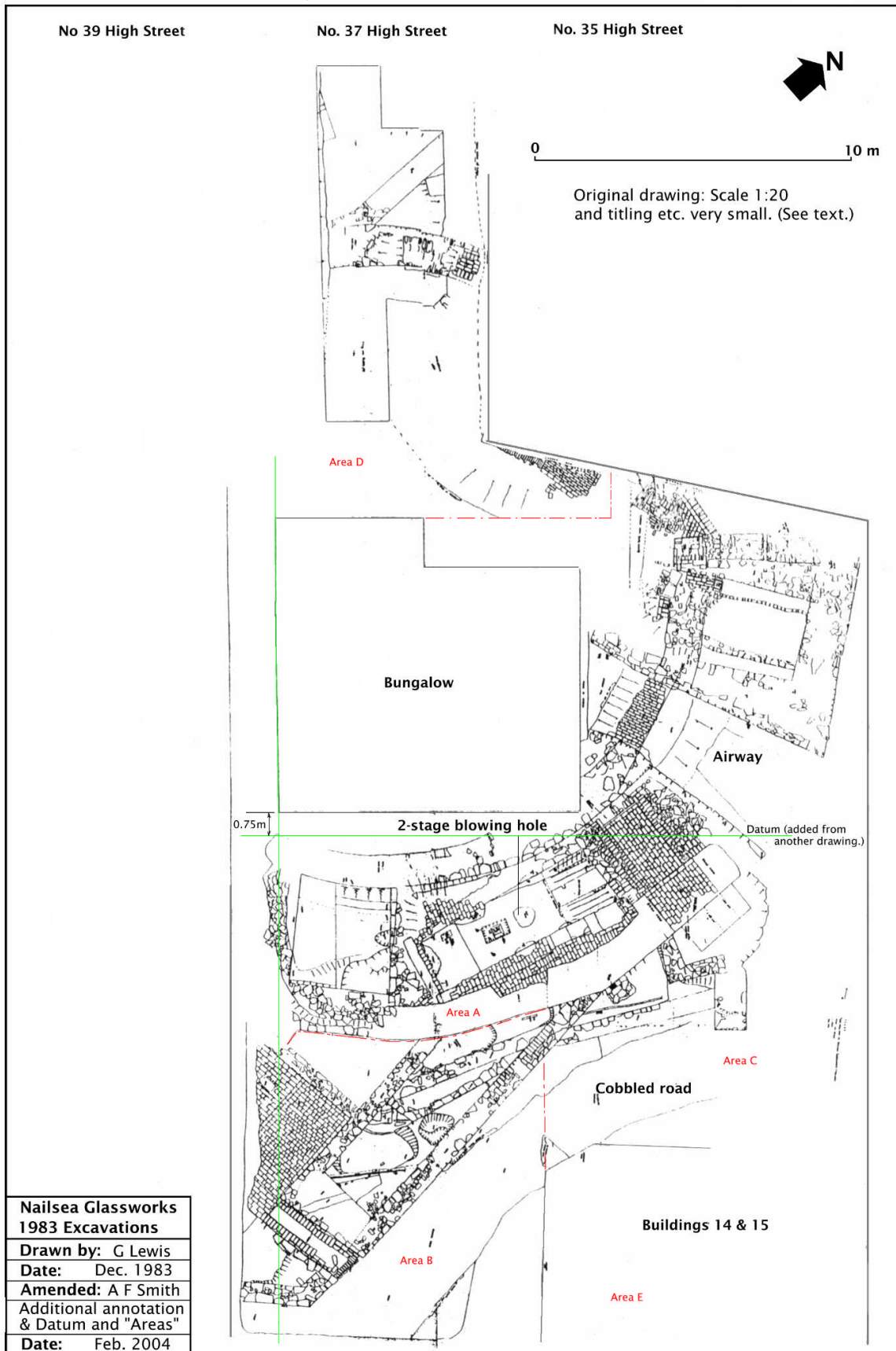


Figure 2.4: 1983 Excavation plan (Building nos. refer to 1870 plan)

It is not clear, therefore, whether or not any excavation work was done in 1984, although it is clear that Mr Pollard was seeking information from various sources post-excavation, for example on fire-brick makers in the Dudley/Stourbridge area (30th January '84 to Stourbridge Library, NS SMR, Folder E). The inference from correspondence is that Mr Pollard was working on the report of the 1983 excavation (14th August '84 to SAHNS librarian, NS SMR, Folder C) but on the 3rd August 1984 he wrote to a curator at Bristol Museum that he would be leaving [ACCES] on 27th September (NS SMR, Folder C).

From the correspondence (NS SMR, Folder F) it appears that some work was done in **1985**, activity having been delayed for a year waiting for demolition of the bungalow, but work at No 37, High Street had recently restarted (R D Iles to J Hobbs, 17th May '85). Agreement was being sought from Mr J Hobbs for permission to excavate in No. 39 High Street, but this had not been secured by 30th August 1985. The temporary planning permission for No. 37 was therefore to be extended. An entry in *Avon Archaeology*, Iles and White, 1985, p.55, records, "Following demolition of a building (in 1984) over the centre of the New House Cone, excavations were resumed by T Downey for Avon Industrial Buildings Trust [AIBT]. The four main airways to the base of the furnace were revealed." This was after "most of the season was taken up with the removal of the concrete raft on which a recently demolished bungalow had been built." (Figure 2.5.)



Figure 2.5: 1985 "The four main airways.... were revealed."

The work then appears to have come under the supervision of Brian Bentham of the AIBT, although the NMR Event Report 654757 has T Downey as the Director from 1985 to 1987, but local documentary evidence does not support this. As a first-hand record it is considered worth quoting Bentham at some length: "The first priority of **1986** was to check the plans of the site to ensure that recording of all the features was complete. Further excavation of the southern airway led to the discovery of various features, the most important being the small 'room' which we now know to be associated with the furnace for the ten stage blowing hole. New excavations in the garden of No. 35, High Street were interrupted when permission was obtained from Hobbs Holdings Ltd to excavate in the garden of No. 39 of the same street. Limited excavation time meant that work in all other areas was temporarily abandoned. ... Over the next six weeks an estimated three hundred tons of topsoil and rubble were removed by hand. The lowest levels of deposits related to the glassworks were removed by trowel and recorded. A short time scale meant that it was impossible to excavate the whole area. Recording which was carried out was at the expense of detail. As work is still in progress

a final interpretation of the site is impossible, however major features of the glasshouse have been identified. The earliest plan shows one ten stage blowing hole and it is thought that when originally built the cone only had a ring of attached buildings.”⁶ [This plan has not been found - the earliest plan showing the New House Cone seen by the writer is not earlier than 1826 (SRO Lucas papers DD/SB Box 16/3), and it has a similar footprint to that attributed to the 1830s (BRO 32395(25). From this it would appear that 'as built' it certainly had the ring of attached buildings with accommodation for the northern eight-stage blowing hole, and with the six-storey warehouse alongside. Interestingly the cone is identified there as “Cone No. 4 - with flattening flashing and annealing kilns around the same with warehouses communicating”.]

Bentham continues, “The second ten stage hole was added some time before 1870, but no precise date is known. It now appears that many more building phases occurred, some of them being extensive. The largest of these, hitherto unknown alterations, involves the airways. The main airway was originally some nine inches lower than the present floor. The side airways, which do not have brick floors, are on a level with the upper floor in the main airway. This suggests that the side airways were built at the same time as the main airways were being re-floored. The airways were arched tunnels that passed under the floor of the cone and under the furnace. It seems unlikely that this work could have been carried out while the furnace was working.

It seems more likely that the New House Cone was closed down while the reconstruction was in progress. The [second] ten stage blowing hole was a late addition to the works, but even that appears to have undergone considerable rebuilding.”⁷

The evidence for work in **1987** and **1988** is very slight. Brian Bentham was still in charge and there is a large archive of material at the Museum at Weston-super-Mare (Accession No. 1989.66) but apart from two manuscript pages of notes on the finds (Folder - Nailsea Glassworks -General) there is no other documentary archive to accompany that material. It is doubtful, therefore, unless drawings do eventually come to light, if it will ever be sensibly analysed, quite apart from the effort required from an under-funded museum.

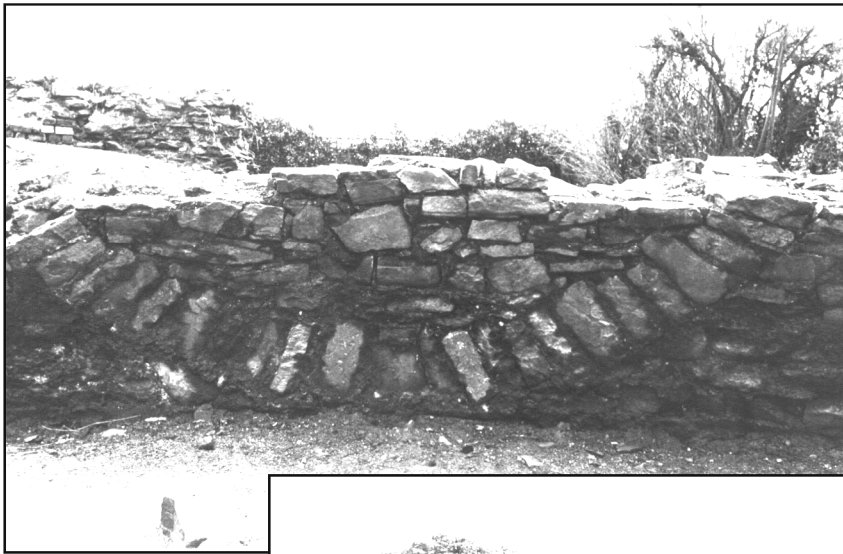
The Museum has a photocopy of a plan by B Bentham, dated 12.1.87. (Museum folder, Nailsea Glassworks - Wadhurst Properties Scheme). This is of “Nos. 35, 37 & 39, High Street Nailsea, Showing excavated areas of Nailsea Glassworks.” It would appear to be a photocopy of a photocopied reduction from the original, which was drawn at 1:250.

In the NS SMR (Folder B) there are copies of two plans, both dated 17-3-87, drawn by B Bentham showing details of the cone foundations and of the remaining three inverted relieving arches. Two, identified as B and C were diametrically opposite, and the centre-lines of A and B which are adjacent to each other (See Figure 2.6) are separated by 23.3°. Taking grid north as 0°, centred on the centre of the cone, and moving in a clockwise direction, the centrelines of the relieving arches A, B and C lie at 108.5°, 131.8° and 312.0° respectively.

It would appear, therefore, that if there were archways all round the cone then sixteen is a likely number. The relieving arches were to spread the downward thrust from the main arch piers to the whole foundation, which appears to have been entirely of stone. The superstructure was built in brick. (See Figure 2.8 below.) [The photographer has used the classic “framing” technique of taking the picture through an arch - at first glance it might be thought that the “cone” was in fact a dome.]

⁶ Bentham, B, *NAILSEA GLASSWORKS - A Guide To The Site*, Deproost, S (Ed), AIBT, Bristol, Year unknown

⁷ *Ibid.*



Left:
Relieving Arch B
(Interior)

Right:
Relieving Arch A
(behind post) to
left of Arch B
(Interior)

Buildings 14 and
15
In background

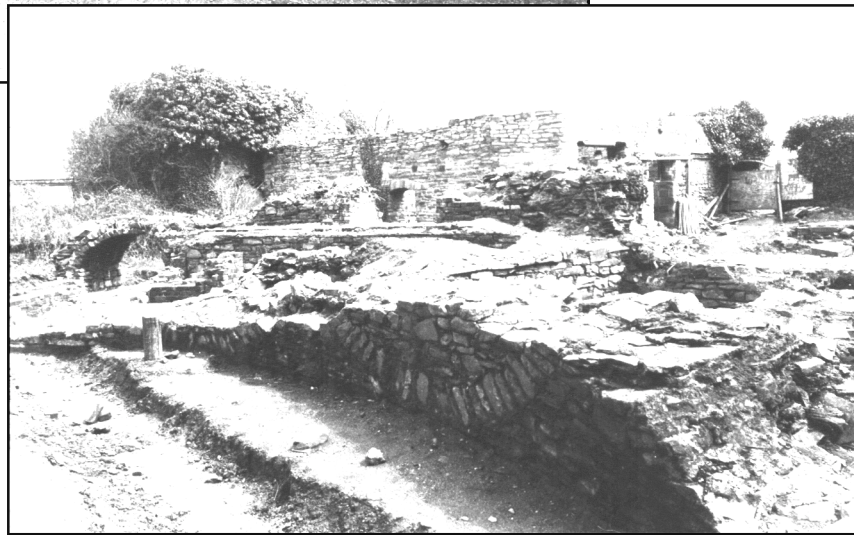


Figure 2.6: Detail and general view of relieving arches A and B.

The ‘cone foundations’ drawing (see Figure 2.7 below) gives the “highest point of [the] cone wall, containing 2 rows of bricks 33.92 m OD” at the northern end of Arch C. Above the elevation drawing of the face of the cone wall on the north side of the eastern end of the main airway, which clearly shows the inward taper of the wall, there is a note (not reproduced). It states that the “Cone wall varies in thickness between 1.0m and 1.2m. This is due to the tapering design of the wall. The average width of the wall at the bottom of the arches is 1.23m. The width at floor level is 1.0m.” Assuming the scale of 1:20 is correct, and that the drawing has not been altered in size from the original, the statement on “thickness” is taken to mean the variation in width of the surviving top courses of the cone wall.

Probably also dating from 1987, on the basis of the extent of the excavated area, is the Plan showing the major components so far excavated on the cone. (Figure 2.9, below.) This is in NS SMR Folder B, together with a diagram showing suggested phasing for major building work on the New House Cone, which is worth reproducing. (Figure 2.10 below.) No original has been found, but on the basis that the Plan is also in Ref. 4 above it should probably be attributed to B Bentham. [It is felt that the terminology on the Plan, and used in the text for uniformity, might be somewhat misleading - 7a, 7b and 7c all have the description “10 STAGE BLOWING HOLE”. This should really apply to the combined structure, which consists of two 5-stage holes either side of a re-heating furnace.

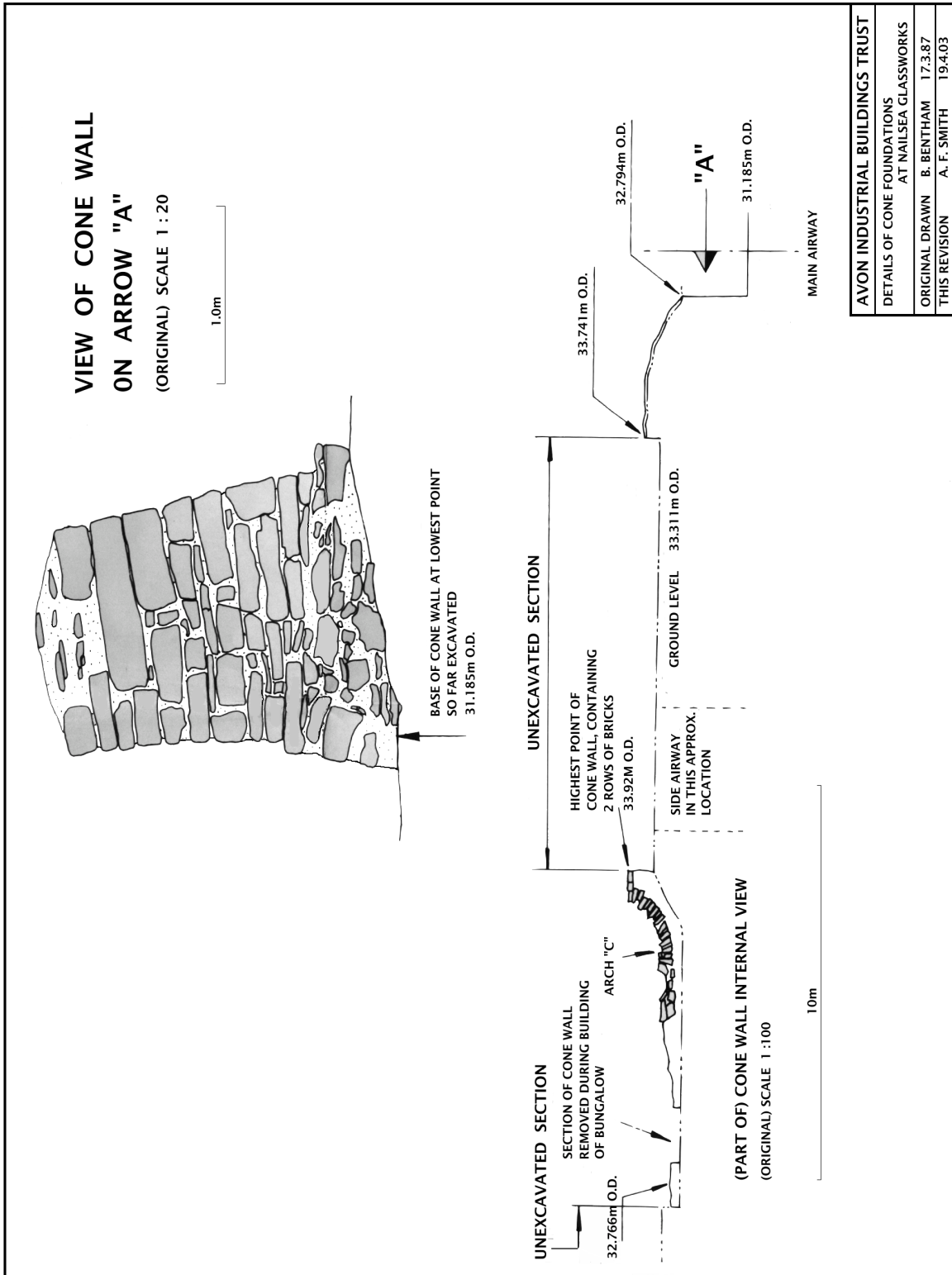


Figure 2.7: Extract from “Details of Cone Foundations at Nailsea Glassworks”
(The titling on Figure 2.7 has been edited and typed for clarity.)



Figure 2.8: The Nailsea Glassworks Cone Supports, revealed during demolition in 1905 (NDLHS)

There appears to be no report giving the reasoning behind the suggested phasing, other than a statement on the “relieving arches” plan that the secondary airway appeared to cut the cone wall. The typescript by G Lewis, in NS SMR File B, comments, “The similar stonework used in the construction of the cone wall and the adjoining swinging pit area enclosed between the cone wall and the outer wall 2, suggests that these structures are contemporary with one another. Historical records tell us that this could not be so as there was no actual cylinder (sheet) glass production at Nailsea until 1844 (Chance 1968:35).” [The recorded introduction by Chance Brothers to the United Kingdom of “the improved cylinder method also known as German sheet glass” is not until 1832⁸.]

The patent documentation (SRO DD/SAS/ C/2136) casts doubt on this statement. It is evidence that J R Lucas was familiar enough with the method known as German sheet glass to include reference to it in his patent of 1805. Both the Old House and New House Cones have “flattening” and “annealing” kilns associated with them on the 1830s plan. It is suggested therefore, both on this and on map evidence, that the 2-stage blowing hole, as well as the northern eight-stage blowing hole (referred to as a 10-stage blowing hole in Phase 3 of Figure 2.10, but shown as 8-stage on the 1870 plan) was in fact part of the original design, as the “footprint” of the ca. 1826 plan clearly has space for them. Furthermore, the latter plan also shows the “six-storey” warehouse - {6} on the 1870 plan, as mentioned above. This and the northern blowing holes are not shown on these excavation plans and diagrams, not having been proved by excavation at this stage.

The argument is reinforced by the identification of the building of unknown function [12] to the north of the eastern end of the main air-way, which is shown as original, being identified as a “cylinder room”, {9} on the 1870 plan, which also shows another diametrically opposite. It is thought that these might have a re-heating or annealing function. The space in the centre of the 10-stage blowing holes would be occupied by a furnace for re-heating the cylinders during the

⁸ Burgoyne, I and Scoble, R, *Two Thousand Years of Flat Glass Making*, Chalons Press Ltd, St Helens, 1989

blowing and swinging process, similar to that to the north of the 2-stage blowing hole. (Burgoyne and Scoble, 1989, illustration of Improved Cylinder Method, p.5.)⁹

It would appear from the map/plan evidence seen that the southern 10-stage blowing hole was added or extended sometime between 1840 (tithe) and 1870 (Sturge plan). This is based on the introduction of a discontinuity in the range of buildings to the south of the New House Cone.

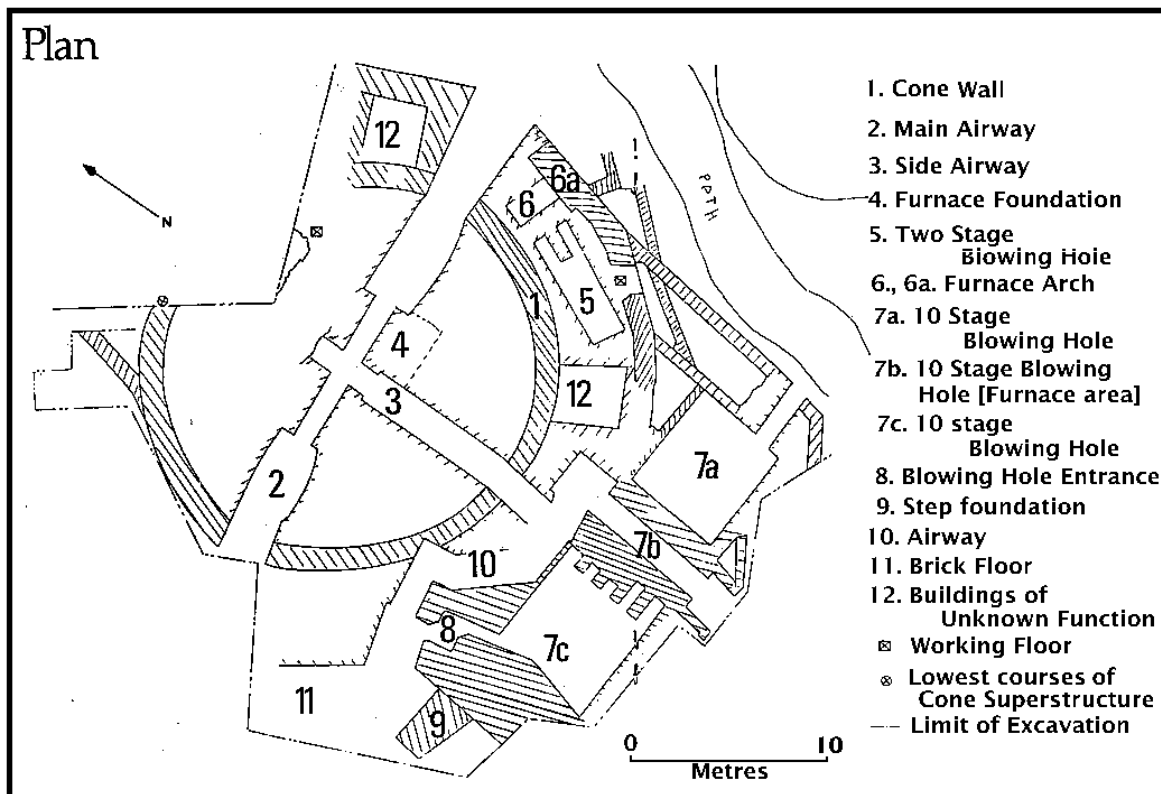


Figure 2.9: 1987 Key Plan (probably by B Bentham) [Legend re-typed]

The Evening Post for Saturday, March 5, 1988 (Cutting NS SMR, Folder E) records that, “Now the five-year programme is over, and supervising archaeologist Mr Brian Bentham will be attempting to solve at least two mysteries as he begins a long and detailed study of the findings. He has yet to discover the reason why a well-preserved system of clay-lined water drainage channels was needed for the glass blowing and he still has to identify one of the buildings on the site. “But we have learnt a lot about how the glass was made and we believe the site may well be unique in Europe for one production process,” he said.” However, the Weston Mercury, Friday, September 23, 1988 mentions, “The work, which has just finished...” What that process might be has not been determined in this study.

There are two very detailed drawings of the cone as excavated, by Brian Bentham dated 7-7-89, at a scale of 1:50, one of which is annotated with context numbers. (NS SMR 2397). These represent the final stage of this intervention, and the un-labelled one is reproduced here as Figure 2.11, below.

⁹ *Ibid.*

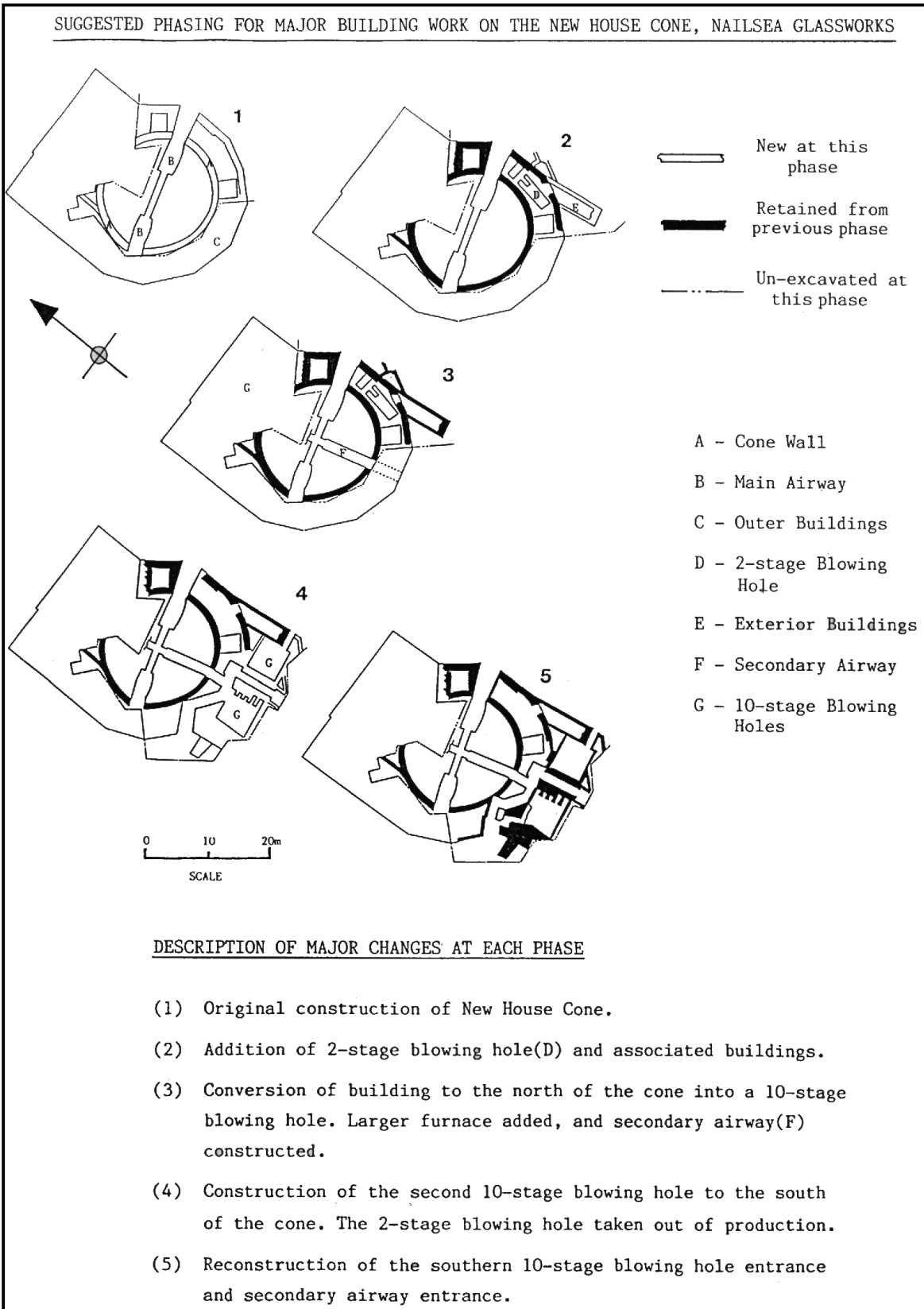


Figure 2.10: 1987 Suggested Phasing Plan (probably by B Bentham)

[See comments above on the assumed phasing in this diagram – the analysis appears to have followed textual evidence, rather than that from the archaeology, at least in part.]

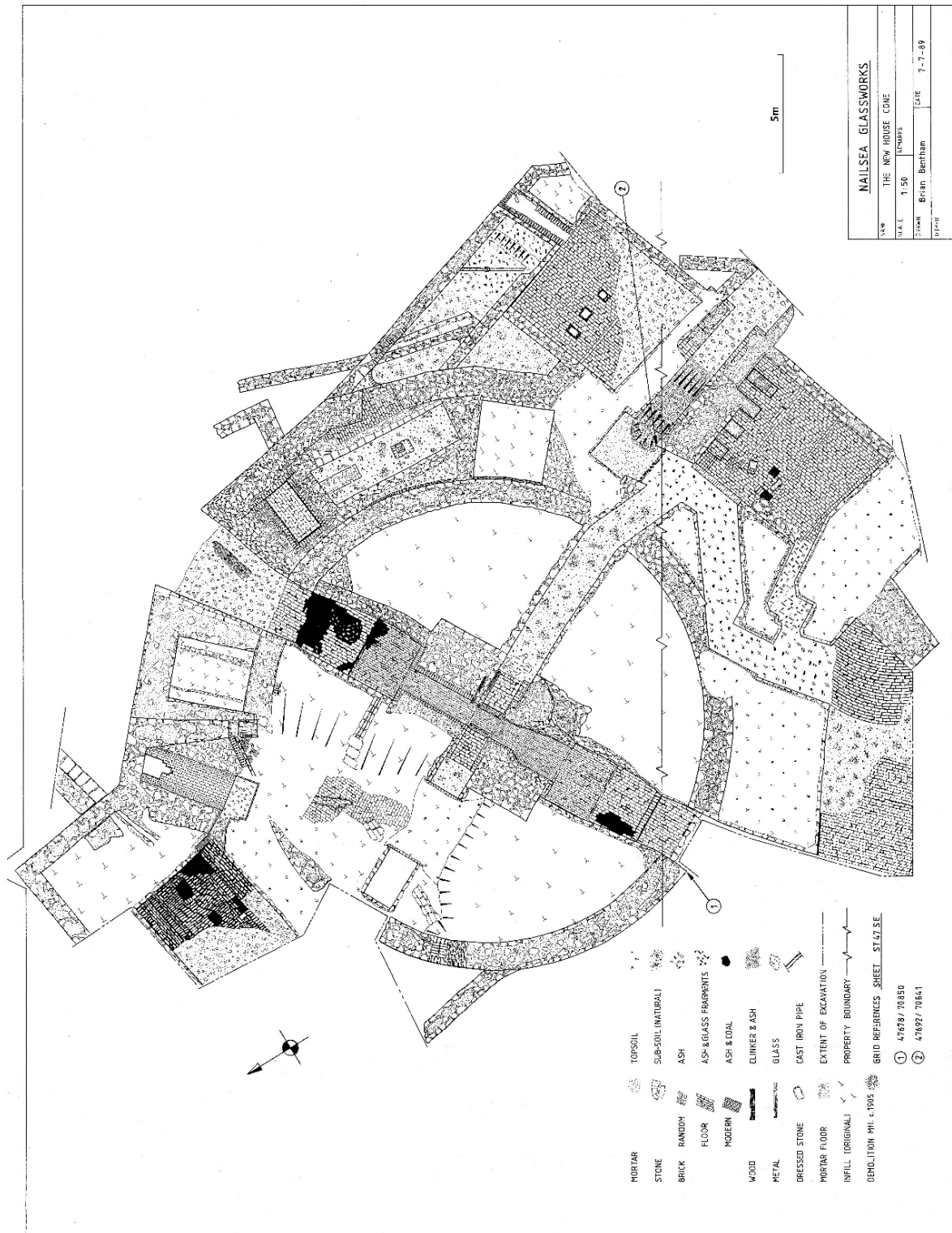


Figure 2.11: 1989 Plan of the New House Cone, as excavated (B Bentham)

With reference to Figure 2.11, it appears that the north indicator may in fact point about 5.3° east of grid north by calculation from the grid references given for two points on the plan. It may also be 9.2° east of grid north, when compared with the site-centred OS plan, Figure 2.1.

Figure 2.12, below, shows the areas excavated to 1988 highlighted in yellow, superimposed on the site-centred plan, using the OS orientation and position.

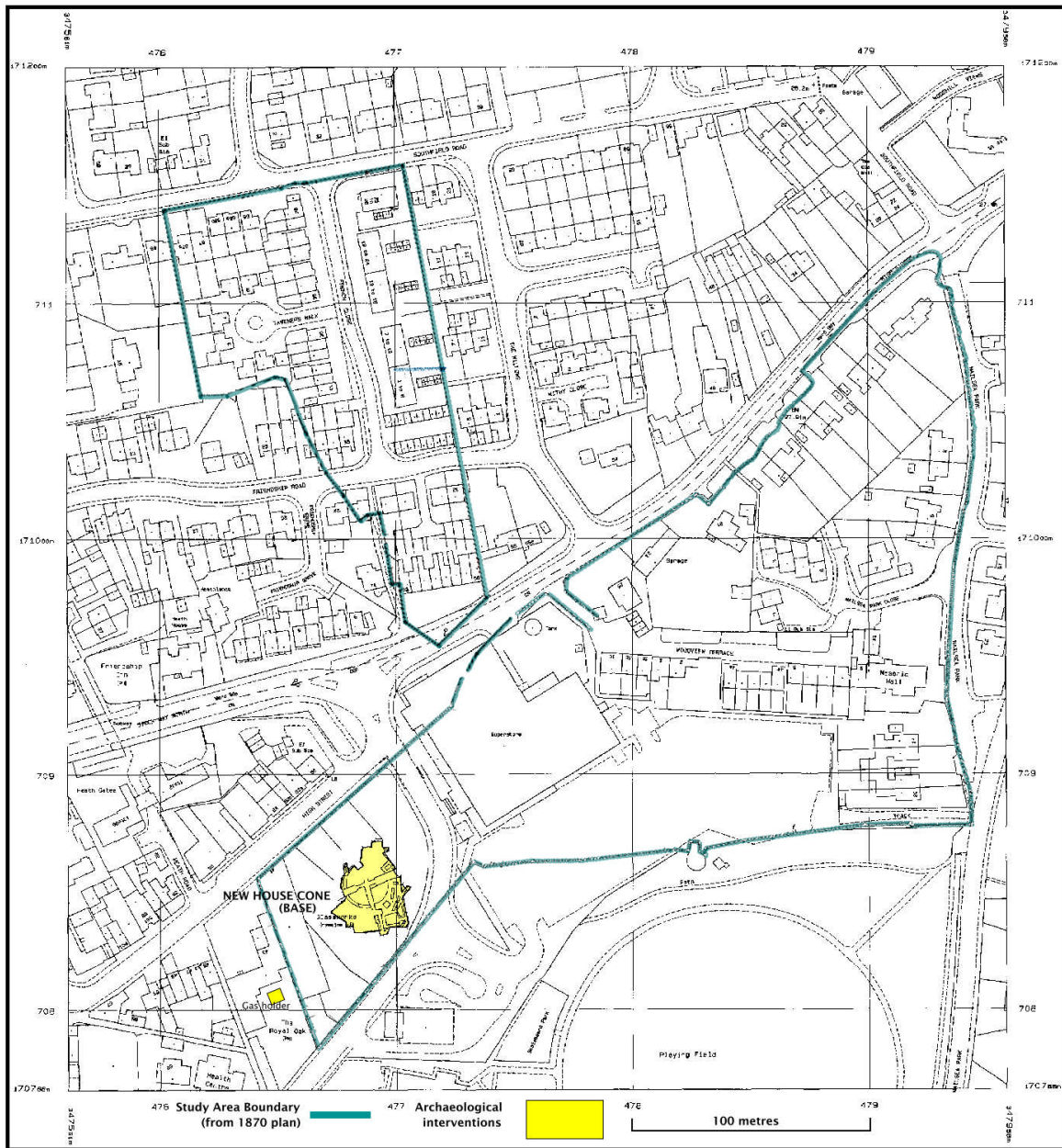


Figure 2.12: Area excavations to 1988 on the site-centred map

Similarly Figure 2.13 below shows the same information superimposed on the 1870 plan. This has been rotated so that ‘plan’ north coincides with ‘grid’ north and the national grid has been superimposed. The intention is that it should facilitate comparison between the two plans.

In summary, a great deal was obviously done in this period to expose and record the New House Cone. It would have been gratifying to have found the solutions to Bentham’s two mysteries, and the nature of the production process that would make the site unique, but it has not happened. However the detailed results do not now seem to exist to any significant extent. Most of such archive as remains has been mentioned above. It would benefit from a rigorous sort and overhaul.

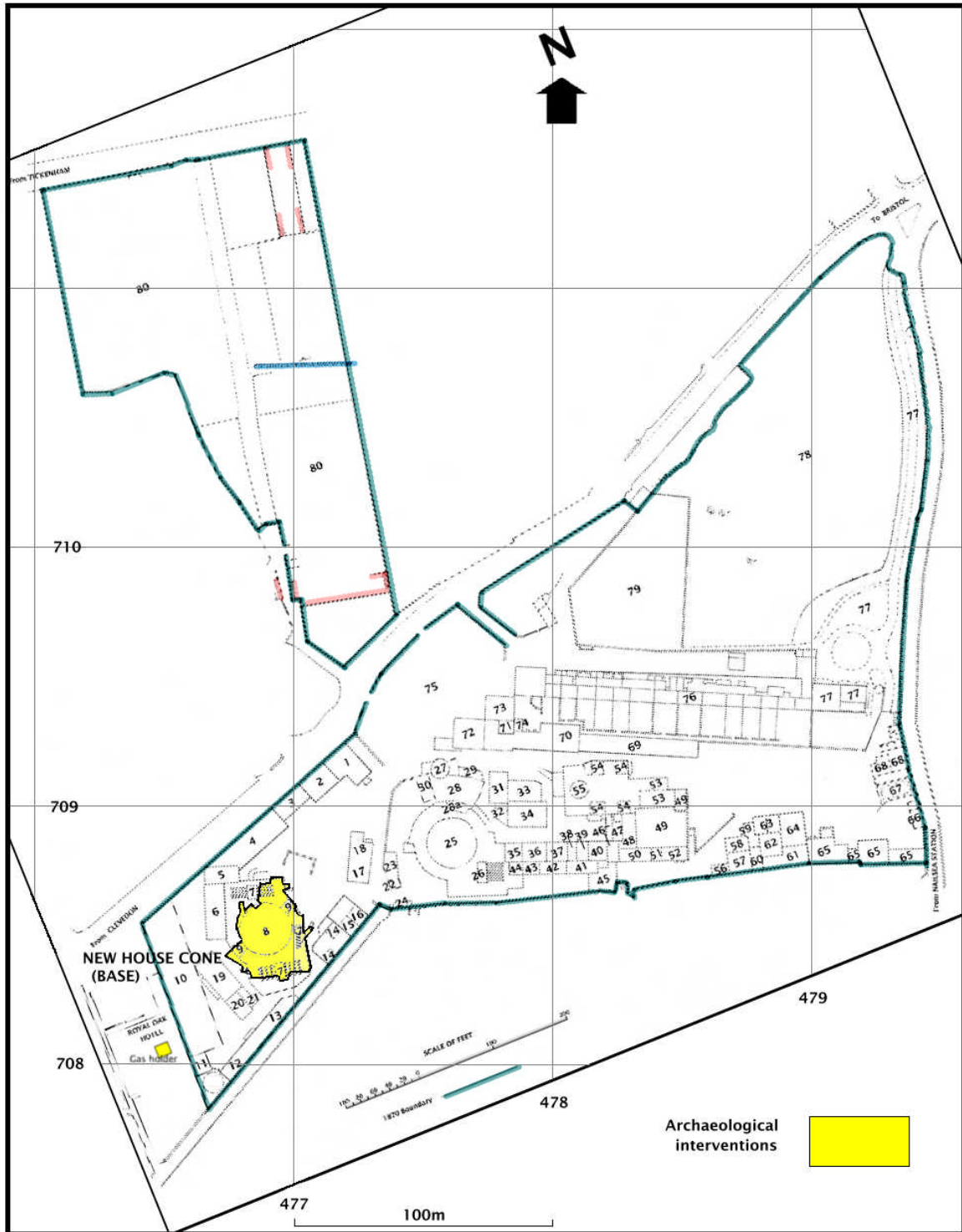


Figure 2.13: Area excavated to 1988 superimposed on 1870 plan

3. 1991

At this time a Waitrose supermarket development was proposed by the John Lewis Partnership that would avoid the greater part of the glassworks site, insofar as the actual store building would be outside the original site, and the existing remainder would all be under either access

roads or the car parking area. From this proposal it appears that the commercial garage, Avon Motor Centre, centred at NGR 34775 17095 ¹⁰, would remain standing. No SMR number, other than 2397, appears to have been issued against this work.

Accordingly, a series of ten geophysical test pits were proposed. It appears that only nine were excavated, on the 6th December 1991, and all were back-filled the same day. The archaeologist on site was Les Cross of the Avon County Planning Department. He was also responsible for the report, which comes from Folder G in NS SMR 2397.

There appears to have been some variance from the original plan, in the actual siting of the test pits on the day, and the positions shown on Figures 2.14 and 2.15 below are believed to represent the actual positions. There is a plan of the locations dated 17.12.91, and there is some slight variance in position and orientation from that used, which appears to be a copy of a working drawing as probably used in the field. The test pits were all about 3m x 1m in plan, and were taken out to depths varying from 1.5m to 2.5m. The results are summarised in Table 2.2 below.

Table 2.2 - 1991 Test pit results

T/pit No.	Layer thickness	Layer description
1	0.75m	Topsoil & rubble including brick fragments
	0.75m	Weathered sandstone
2	0.3m	Loamy topsoil
	1.2m	Weathered sandstone
3	1.4m	Topsoil & rubble including brick fragments, concrete & angle iron
	1.1m	Weathered sandstone
4	0.25m	Loamy soil/ demolition material + clay pipe stem
	0.8m	Silty clay
	0.35m	Weathered sandstone
5	0.3m	Topsoil containing limestone fragments with melted glass adhered to surface
	1.0m	Weathered sandstone
6	0.03m	Asphalt
	0.27m	Rubble
	0.2m	Heat damaged clay
	0.7m	Infill around limestone structure of five courses with blackened mortar
	1.0m	Silty clay
	0.3m	Weathered sandstone
7	0.03m	Asphalt
	0.45m	Loam and rubble
	1.2m	Silty clay
	0.52m	Weathered sandstone
8	0.3m	Loam and rubble
	1.4m	Silty clay
	0.3m	Weathered sandstone
9	0.6m	Dark loam
	1.1m	Weathered sandstone

¹⁰ From Parry, A H H, *Archaeological Evaluation*, June 1994 (Avon SMR 10090)

It can be seen that in each pit “Weathered sandstone” lay at the bottom, occurring at varying depths relative to the existing surface. Test pits 2 and 9 were the only two to be without any direct archaeological evidence, although 9 may have been close to the junction of {57}, “Old chapel (used for Carpenters Room)” and {59}, “Boy Shop”.

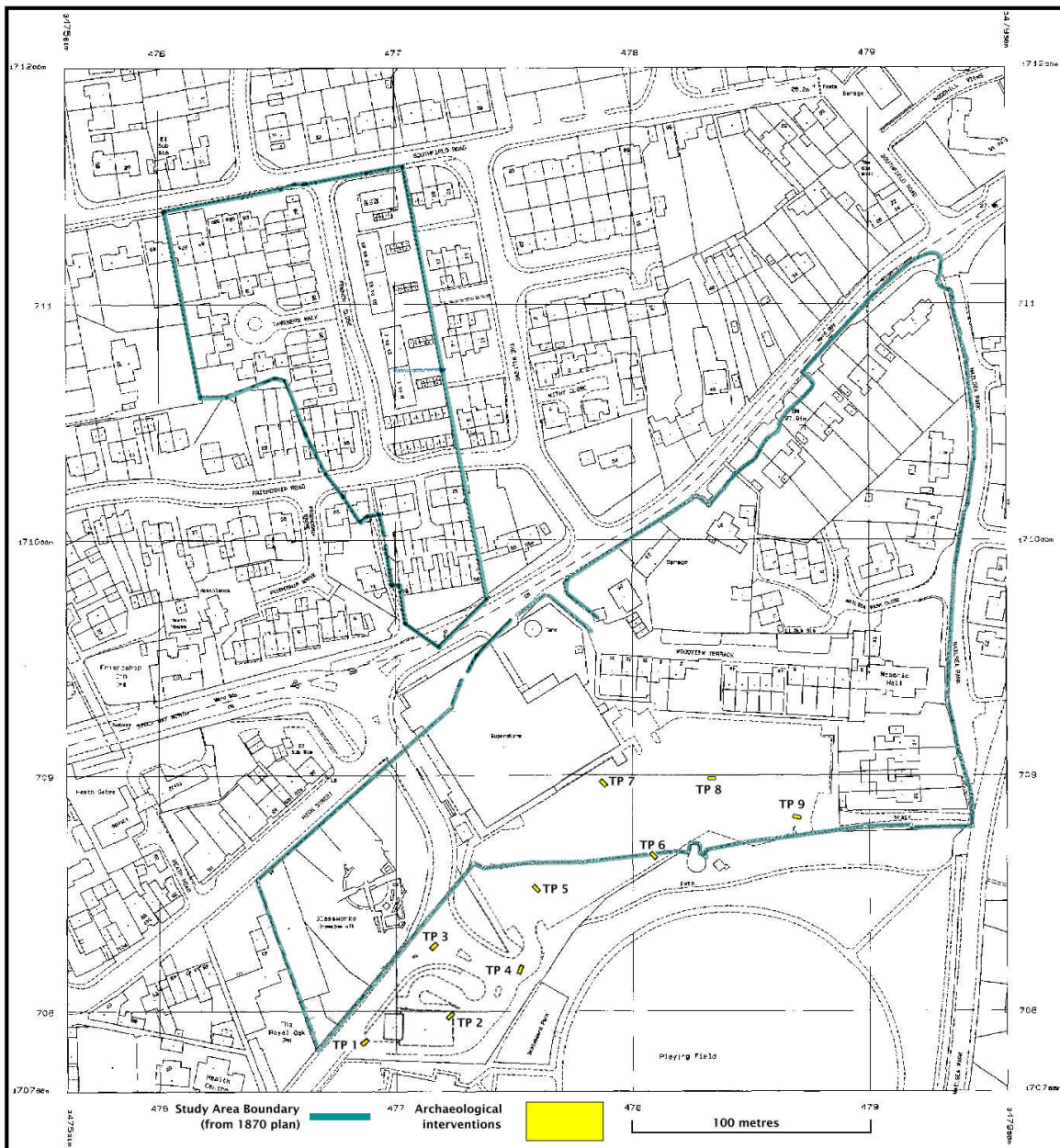


Figure 2.14: 1991 Test Pit locations on site-centred map

It is suggested in the text of the report that test pit 6 may be building {41} on the 1870 plan, but it seems on present measurement to sit more on the boundary wall. Similarly test pit 7 is postulated [reasonably correctly] as being building {32}/{34}. Building {34} was the site of a French kiln in 1870. Test pit 8 is postulated in the report as being building {69}. The latter is too far north on the original plan, and it appears that a more correct interpretation may be between building {53} and {49}. These were unoccupied spaces, the first covered, and the second, the site of the old bottle house, open, in 1870, so they may be remains of an earlier development.

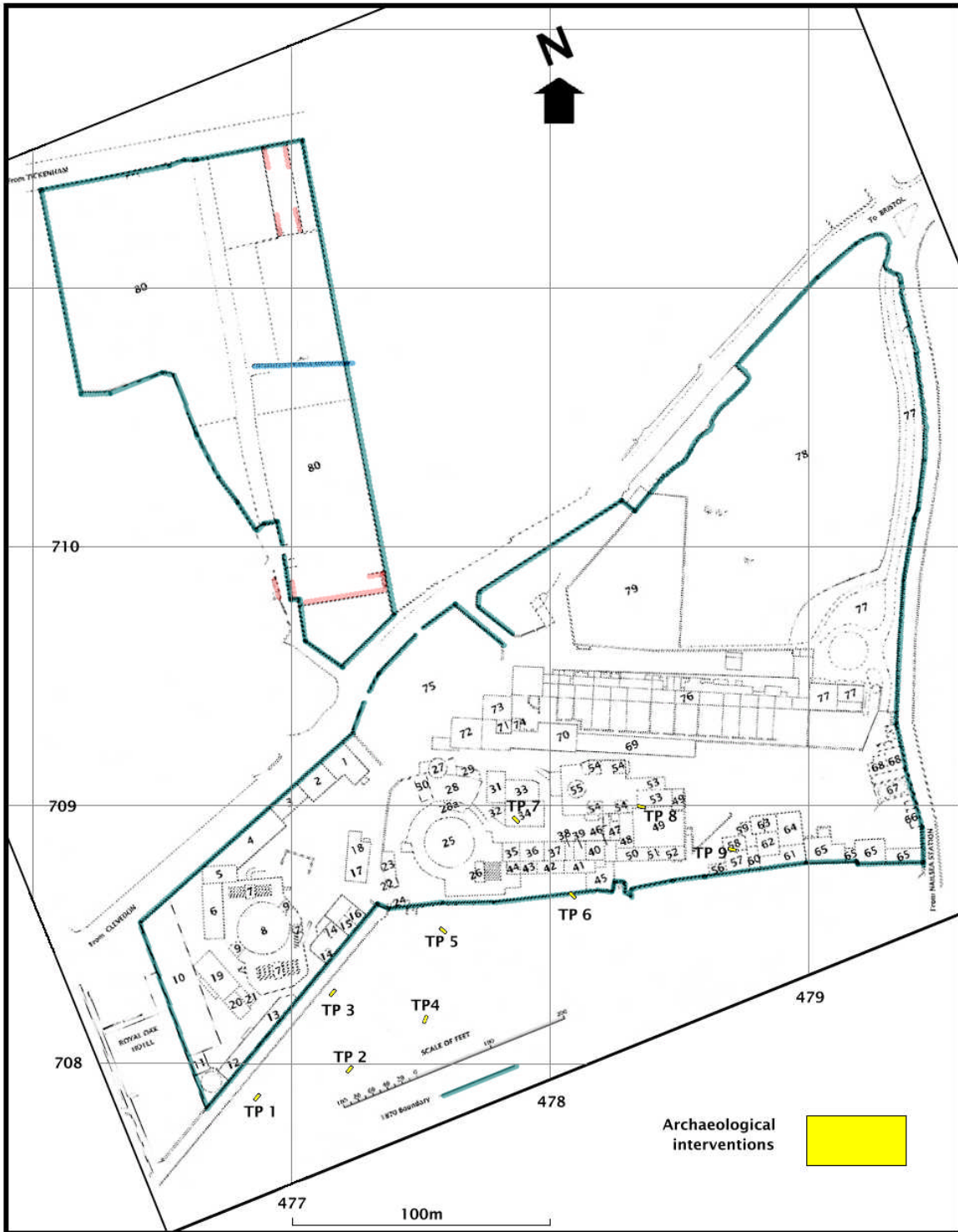


Figure 2.15: 1991 Test Pit locations superimposed on 1870 plan

Correlation of the text of the report (presented as Table 2.2 above) referring to the test pits is, unfortunately, difficult to relate to the accompanying drawings. These depict sections of test pits 6, 7 and 8, and although only 6 is described as having a structure within it, the other two both show coursed remains in the sections revealed. It is not clear whether these are sections or faces of walls. There is also no mention of the “red sandstone” that appears from the drawings to have been excavated for foundation trenches and which appears to overlie (unconformably?) the “weathered sandstone”. Equally the drawings do not show “silty clay”, and there are some

discrepancies between the overall depths as quoted in the table and those shown on the drawings. No absolute levels appear to have been recorded, but the comment is made that in the area of the proposed car park (that is the eastern portion of the site) “most of the archaeology seems to occur at 0.5m below existing ground level. No dating evidence was offered from the clay pipe stem found in test pit 4.

No real conclusions can be reached because of the lack of dating evidence, other than that the 1870 plan might be confirmed as having structures where revealed by these test pits, or of course that these are the remains of structures from some other phase of the glassworks' development. It would appear from test pits 1 and 3 -5 that demolition material spread well beyond the confines of the original site.

4. 1992

The report on this evaluation for Avon County Planning Department was originally given an Avon SMR number of 2397. This has been adopted as the overall NS SMR number for the glassworks site, so in January 2003 the North Somerset County Archaeologist subsequently allocated the NS SMR event number of 44980 to the report. All quotes in this section are taken from that report.¹¹

The purpose of the evaluation “was to determine the extent and state of preservation of archaeological deposits and structures of the former Nailsea glassworks...”

The work on site took place between 22nd January and 4th February 1992, under the supervision of James Mumford, of Avon County Planning Department. It was in response to the same development proposal as that of 1991, and was funded by Hobbs Holdings, Ltd.

The work took place in two zones, each with its own grid survey. That to the east was described under “Methodology” (p.4) as “Grid No 1: This was used for area D and was set into the west facing wall of building 69... at ref. Point 168/505, 6.0m from the south west corner of the building.” That to the west, “Grid No 2: is taken from the eastern corner of the southern side of the old rear entrance to the works, and from the southeast corner of building 15”. Grid 2 covered areas A, B and C. None of these points are now clearly identifiable.

There are three drawings included in the report, which are described in the text but not numbered on the drawings themselves.

Figure 1 is [a version] derived from the 1870 plan, merely a schematic key plan to identify the buildings of that date. Figure 2 (reproduced as Figure 2.18 below) is “the 1:100 scale plan of area D (reduced to A3)”, so that the scale is in fact 1:200. Figure 3 (reproduced as Figure 2.16 below) “is a plan at 1:100 scale of areas [Trenches] A, B and C, showing their relation to each other.” (p.5) It appears that the grid for area D is based on a 10m unit, while that for A, B and C is based on a 5m unit.

Analysis is further complicated by the fact that the north point marked on the key plan appears to be 54° west of grid north, while that on Figure 2 is 37° west of grid north, and that on Figure 3 is 50° west of grid north. Both buildings {15} and {69} are still shown on the 1988 OS 1:1250 map (4770 NE) and this has been used as a basis for a plot of the results from this evaluation. From close examination it is believed that Grid 1 was in fact measured from the south-east corner of building {69}. Grid 2 can be approximately positioned as above, using the

¹¹ Mumford, J, *Archaeological Evaluation in advance of supermarket development for John Lewis Partnership*, Avon County Planning Department, Bristol, February, 1992. NS SMR 44980.

1870 plan. This puts area C approximately in the right position, east west, abutting the southern boundary of the site. If area A is moved approximately 2m “south”, then the external wall revealed in area A becomes the south-, rather than west-, facing wall of building {17} – see Figure 2.30, below. [None of this is of any immediate help as all these points have disappeared in the course of the present development, but it does tie the results reasonably well in to the national grid, from the point of view of any future researcher.]

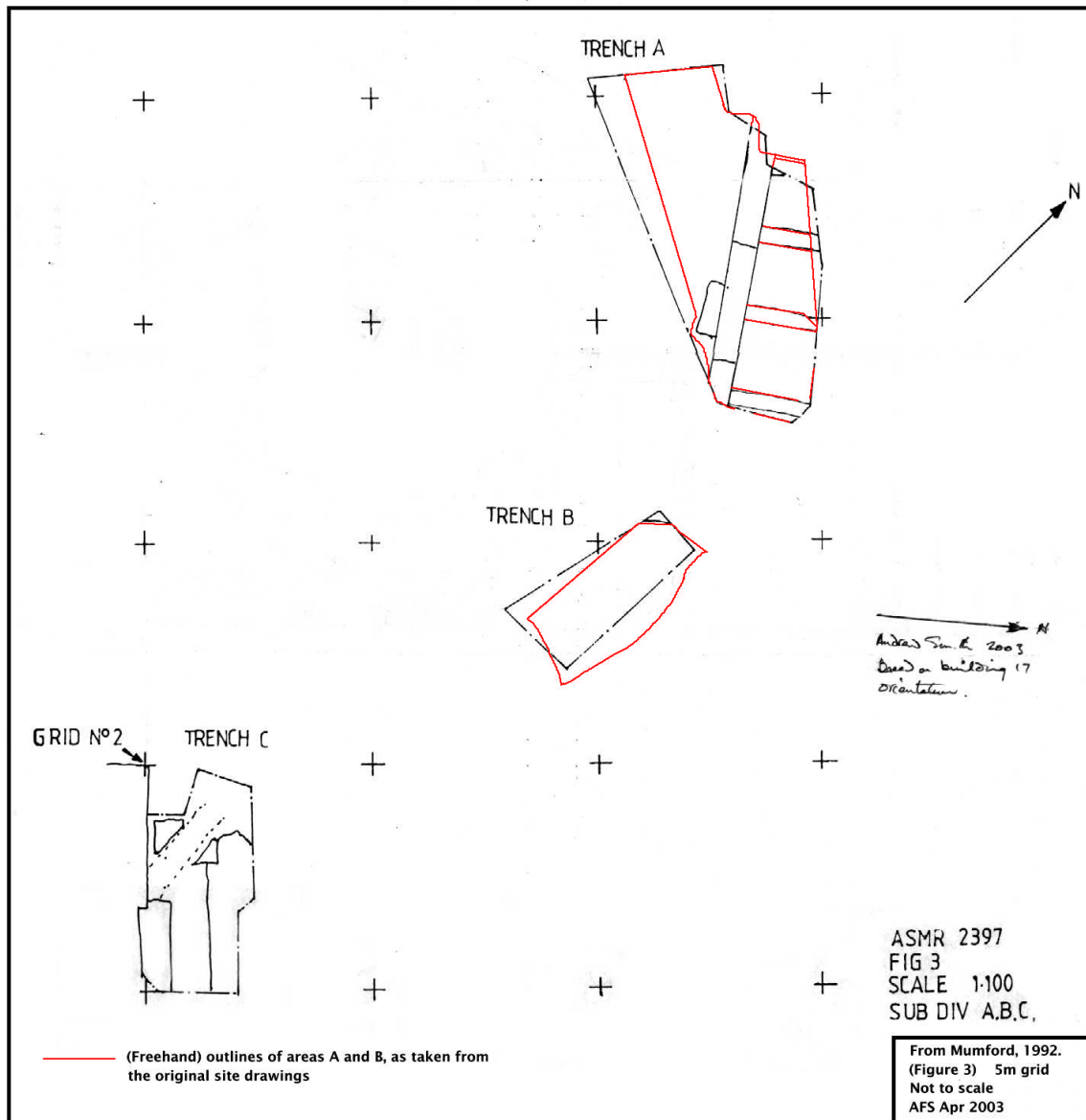


Figure 2.16: 1992, Figure 3 from Mumford, showing areas A, B & C, amended

The wall in area A was built from “coursed Pennant Sandstone slabs set in a hard, dark grey mortar.” “The section uncovered contained a blocked doorway, and the remains of an iron hinge that once supported the door structure. Four internal features, probably [‘sleeper wall’] floor joist supports were also revealed, along with the remains of the old courtyard surface immediately to the south of the building.”

Area B had the outer face of a wall revealed in its western corner and this is interpreted in the report as the south-facing wall of building {17}. It is believed that this should be seen as an east-facing wall. As originally shown on Figure 3 [see Figure 2.16, above] it is not quite in the

correct relationship to {17}, but the fit is reasonably close. Photograph 2 of area B in the report (see Figure 2.17 below), shows this short section of wall; it appears to be about 2m north of the line of the external east-west wall in area A. This would then almost certainly make it part of (or adjacent to - see below) building {17}, the “Old office” on the 1870 schedule. Area A can be seen in the background (upper left). The step to the (blocked) doorway can be seen to the left of that wall, and the line of the sleeper wall (3290) may be seen on the opposite side of the wall from the step. Alternatively, the tithe maps show a long wall running down through the works with {17} butting it on the western side, so this very short section of wall could be this wall which does not seem to appear on any other map or plan. A deeper cut in this area led to the conclusion that this structure at least had been built over a large pit or quarry that had been filled with compacted waste from the kilns sometime before building was started.



Figure 2.17: 1992, Photograph 2 (Mumford), showing relationship between areas A & B

Area C was “cut along the inside of the boundary wall of the glassworks, eastwards from the old entrance gateway. The structures revealed were interpreted as the supports of the boiler depicted at the site in the 1870s plan ... as building No 24. The trench also revealed that the present boundary wall is later than the structure found in the trench, indicating that it has probably been rebuilt in the immediate area of the old entrance since the late nineteenth century.”

Three issues arise from examination of the original site drawings. In the first case the trenches for areas A and B have a different shape on the original site drawings from those depicted in the report (and therefore Figure 2.16 above, which has the site drawing trench outlines added in red). In the second, it is apparent from these drawings that a 2m square grid was used to draw the detail of these two areas, rather than the 5m grid of the overall plan. Thirdly, the annotation for area B indicates that there was some confusion in the mind of the draughtsman. Adjacent points on the grid are numbered “5,10” and “7,12” - they should either be “5,10” and “5,12” or “7,10” and “7,12”. This may be the source of the apparent misplacement of area A (shown as 2m too far north in 1995) on the overall plan.

Area D was investigated in three separate sub-areas. A substantial (1m thick) internal wall (2003) at the southern edge of the northern sub-area “was interpreted as ... the outer eastern corner of the old bottle kiln depicted on the 1850s [*sic*] plan, or one of its associated buildings.”

Its position and thickness within the outline of the old bottle house as shown on the 1830s plan could well mean that it was in fact part of the structure supporting the cone (No 1) of the old bottle kiln itself.

The majority of the northern sub-area was occupied by “building 2004”. Comparison with the 1830s plan shows that this was part of what was then identified as the northeastern corner of the approximately-square building surrounding Cone No. 1. By 1870 this had become '49 - Open spaces where old bottle house stood' and '53 - Covered unoccupied space'. In para. 3.7.1 of the report (p.6) it states, “This building seems to have been one of those added during the rebuilding and redevelopment that took place between the two nineteenth century plans... and is thought to be one of the plate glass kilns (No. 54 on the plan). It appears to have been inaccurately located on the plan, as its position agrees with that of a ruin depicted on the 1931 OS 1:2500 map in the Somerset County Series.”

If the recorded evidence has been interpreted correctly, this statement is now challenged. The building plan profile matches that shown on the 1830s plan, and from inspection the ruin shown on the OS 1932 Somerset sheet V6 (1:2500) includes both the old bottle house area and the area occupied by the Lilly Cone {55} and the four rolled plate kilns {54}. The northeastern kiln {54} has its easternmost edge virtually on the north-south centre-line of {69}, while 2004 lies opposite the eastern half of {69}. There is in fact very good co-relation between the 1830s plan, the 1870 plan and subsequent OS plans, and there is no reason to doubt the accuracy of either of the earlier plans. That is not to say that the structure found was not a kiln, merely that it was not one of those identified as {54} on the 1870 plan. It is possible that this kiln was for pre-heating the pots or crucibles, although the schedule of 1870 states that the western adjunct to {49} was {48}, “old arches of the bottle house - useless.” The inference from this is that these were the “pot” arches where the crucibles were heated prior to introduction to the furnace.

In para 3.9.3 it is observed that “After going out of use, the kiln was then filled in and the fill of the flues compacted, up to the level of the inside of the threshold...” It is also stated that flue 1019, which runs northwest to southeast connecting the smaller portion of 2004 with the larger, “appears to have stayed open until the demolition of the site in the 1950s. This is confirmed by the nature of the fill of flue 1019; it clearly derives from the collapse of its roof, probably demolished deliberately during the 1950s demolition.” It has already been established above that this part of the site was a roofless ruin in 1931/2, and this is confirmed by the 1946 AP. The earliest map showing this northern sub-area as open is the OS 1:2500 V6 of 1903.

Building 2007, interpreted as a possible lean-to building, projecting northwards from the eastern end of the north side of the old bottle house, was certainly in situ in the 1830s, and appears to have been demolished by 1870, but then the building profile appears to have been 'squared-up' by 1903. It is noted in 3.10.2 that “the construction of building 2007 cut layer 1002 which is contemporary with buildings 2004 and 2008” {69}. It should be noted that {69} did not appear to exist in the 1830s.

In the centre of area D parts of the free-standing wall between {49} and {58} from the 1870 plan was revealed, and it coincides with the south-east facing wall of the Stave Yard shown on the 1830s plan. On the southern edge of area D a “small area of the building identified on nineteenth century plans as building 56 ... of which a portion is visible in the old boundary wall ... was investigated. Its east-facing wall, and one internal wall, were revealed and recorded.” (3.13, p.8) Unfortunately, when plotted on the 1988 OS 1:1250 map the building outline as recorded does not coincide with the boundary, which appears to be consistent throughout the map records. It appears that the plot of this feature is some 4m too far south. The fact that there is otherwise good correlation between the plot in the report and the map evidence leads to

the conclusion that there was either a plotting error or a mensuration error for this part, possibly for reasons similar to that for areas A, B and C.

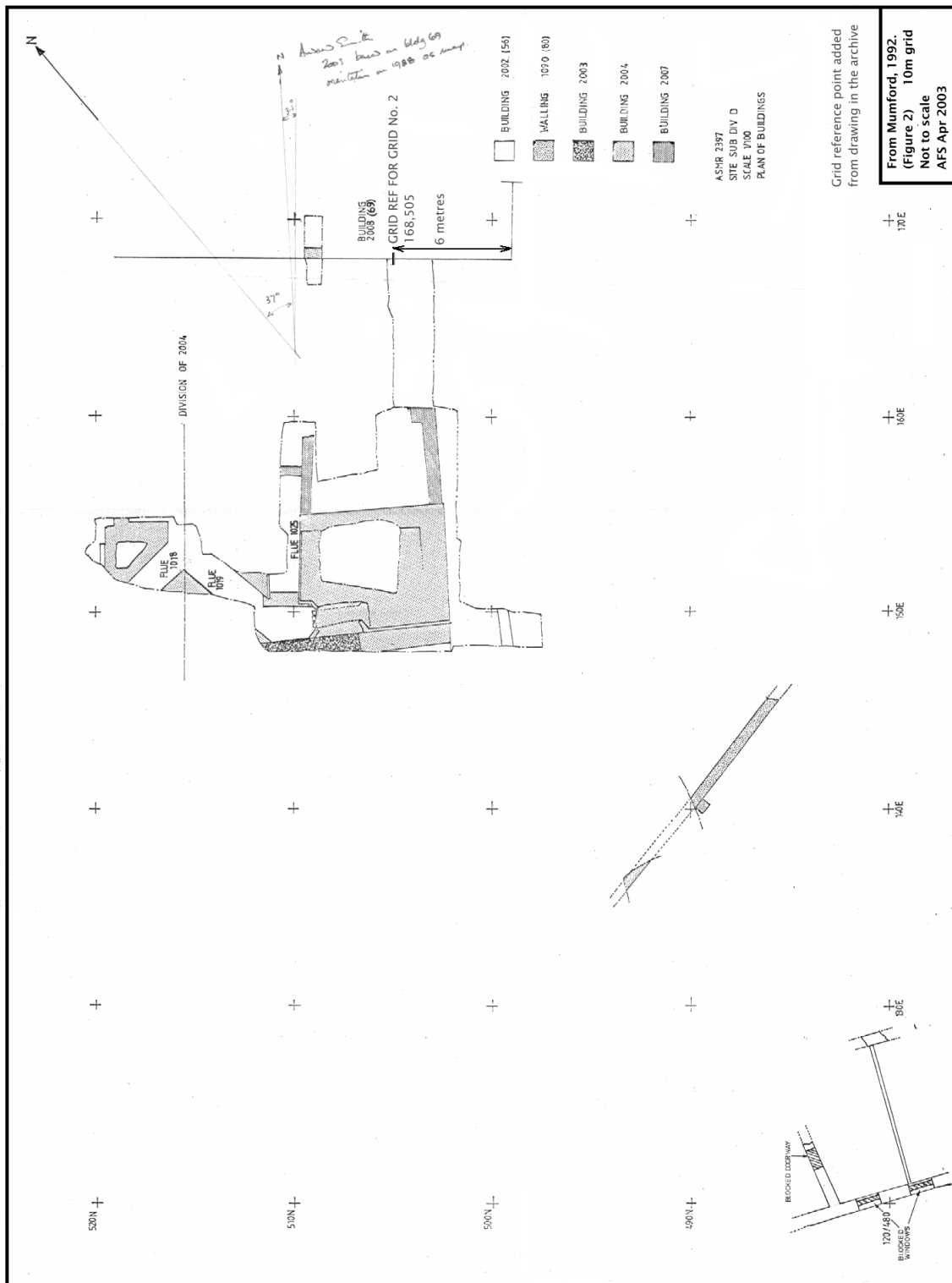


Figure 2.18: 1992, Figure 2 from Mumford, showing area D

It is also considered that it would appear that while the external wall with the blocked doorway is the east facing wall of {56}, the standing building recorded was more likely to have been {57} [& {58}]. This is because a) they were shown still standing as a shell on the 1961 OS 25

inch to 1 mile map, and b) their dimensions are more in agreement. {56} was about 6m in length along the boundary and about 4m deep, perpendicular to the boundary, while {57} & {58} were about 9m along the boundary and 8m + 6m respectively along the perpendicular.

It was noted (5.1.1, p.11) that the “gable wall of building {69} was still standing to a height above ground level of something like 5m”. It was proposed that this be recorded, then stabilised and preserved to a height of not less than two metres above the finished level of the car park. As far as can be determined neither recommendation was followed.

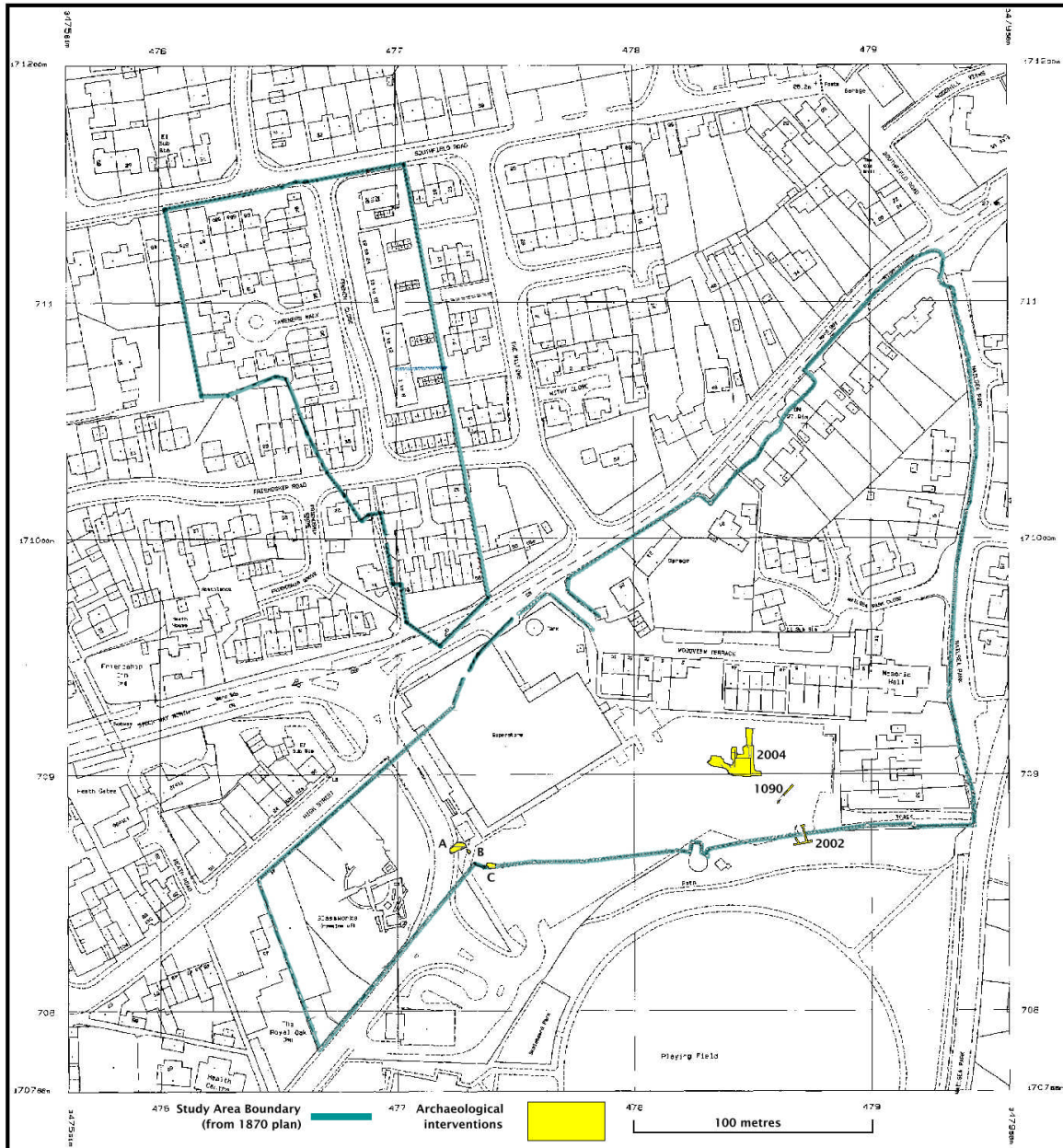


Figure 2.19: 1992 Evaluation locations on site-centred map

In Areas A, B and C, the maximum level to which structures survived was 33.24m AOD. In Area D the southern most part of the trench identified on the plan as 2004 had archaeology surviving to 31.69m AOD, and the small section of the southern wall of {69} that was exposed came to 31.64m AOD. The maximum level at 1090 was 31.26m AOD.

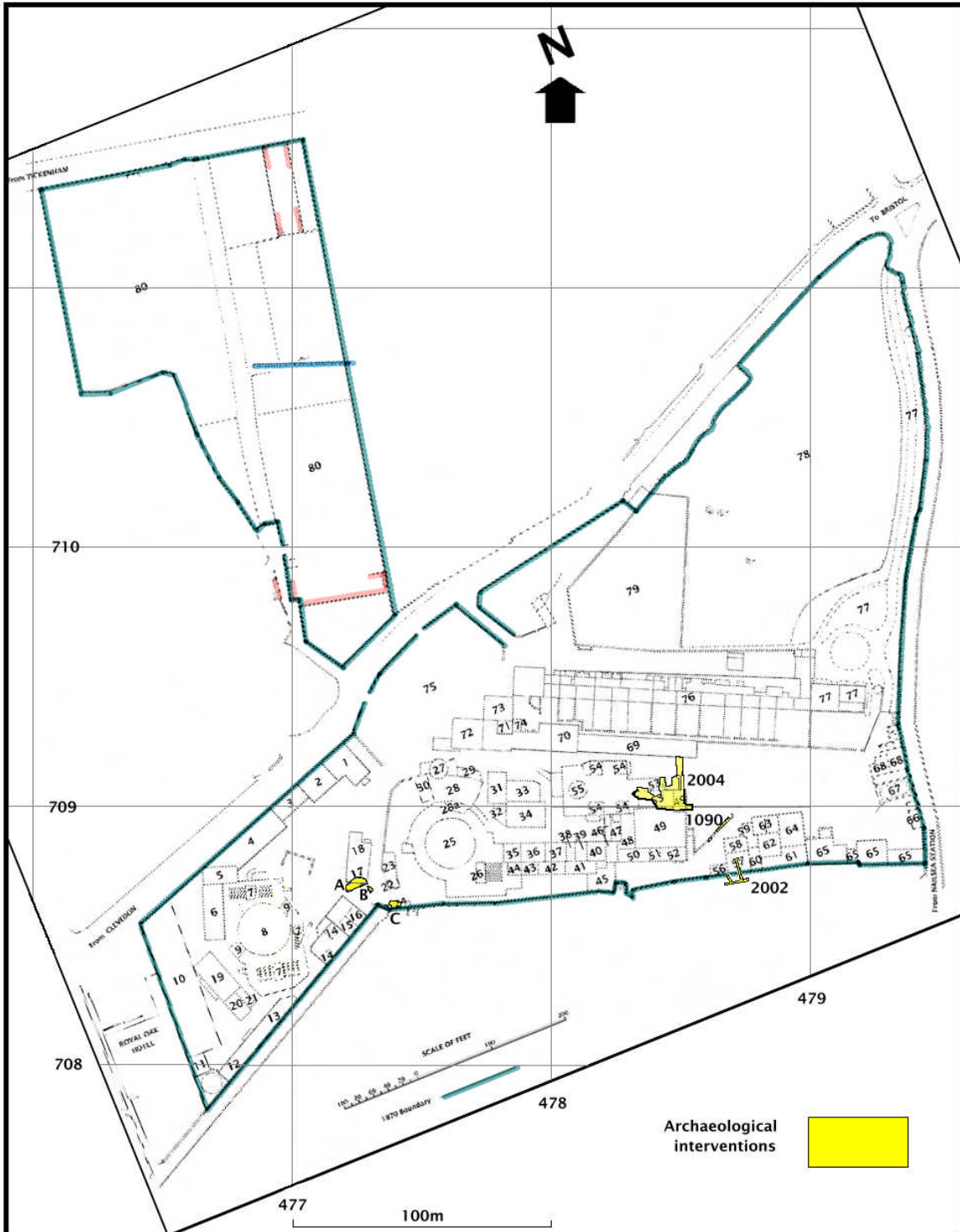


Figure 2.20: 1992 Evaluations superimposed on 1870 plan

Figures 2.19 and 2.20, above, show the 1992 evaluation sites placed on the site-centred map and the 1870 plan respectively.

There is no mention of the deposition of any finds or the archive, and none have been located. There is also no mention of any real dating evidence having been found, and some of the conclusions reached seem to be at variance with the map evidence. Having said this, the work

was undertaken in a short time-scale at an inconvenient time of year, from an archaeological point of view.

5. 1994 - (1)

The commercial garage, Avon Motor Centre, centred at OS 34775 17095, was the subject of a redevelopment proposal from Hobbs Holdings Ltd. as a supermarket site, with the New House Cone base being incorporated in a car showroom.¹²

In response to this, the County Archaeological Officer recommended an evaluation be carried out to “determine the nature, date and extent of archaeological remains within the proposed development area. The evaluation, recorded as Avon SMR event number 10090, was designed to recover a sample of archaeological information which would allow the Planning Authority to make informed and practical decisions concerning the archaeological implications of any future development, and if necessary, to provide the basis for future strategies to conserve and record any significant archaeological remains which were identified on the site.”¹³ It was funded by the company proposing the redevelopment, and directed by Adrian H H Parry of the Avon Archaeological Unit, in June 1994.

Trench 1 and the associated test pit (not specified in the project brief but created because of the difficulties of breaching the concrete retaining wall between it and trench 1) were in the line of one of the proposed access roadways. Figure 2.21 shows the outline of the trench and test pit and some of the detail. The drawing has been re-orientated, so most of the textual details of context numbers and levels are therefore inverted, but as no particular reference will be made to these it was not seen as worth either changing or deleting them. The north point as originally drawn is 40° east of grid north.

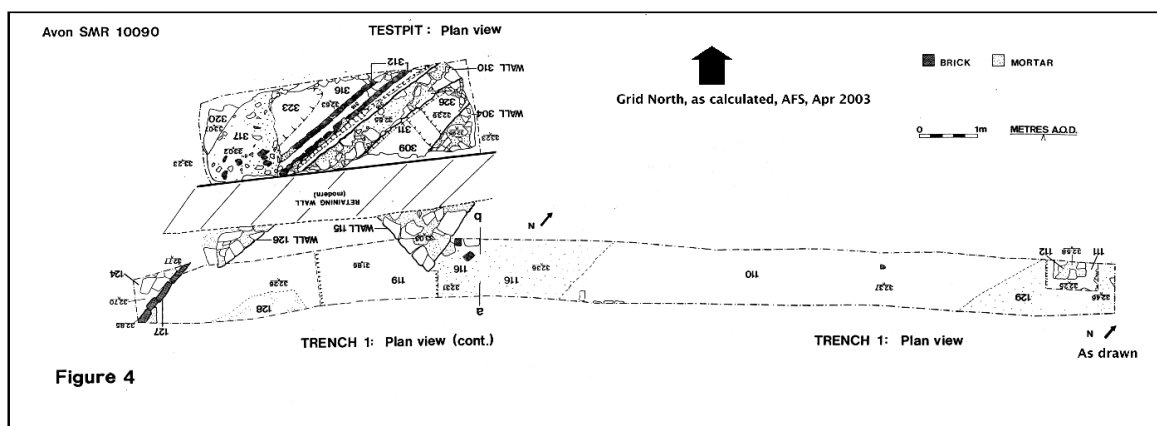


Figure 2.21: 1994 Trench 1 and Test pit, adapted from Figure 4, Parry

In the summary, it is noted that, “The archaeological remains recorded within Trench 1 and the test pit comprised wall footings (representing more than one phase of construction), a possible flue (or flues) and deposits of furnace generated material. The character of these remains and the depths to which they were preserved appeared to confirm that structures forming part of, or directly associated with, the Old House glasscone are still well preserved within this part of the application site.”¹⁴ They were covered by what appeared to be demolition material of more than

¹² Baker Associates, Scheme Layout drawing 93246/15, June 1994

¹³ Parry, A H H, *Archaeological Evaluation ...* June 1994 (NS SMR 10090) 1.3, p 3

¹⁴ *Ibid.*, 6.2, p 12

one phase and depth, varying across the site. Excavated levels varied from 31m to 33m AOD approximately.

Trench 2 lay across the area proposed as a car park. Figure 2.22 below again shows the outline and some detail. Both drawings are adapted from those in the original report in order to show each trench as a continuous feature.

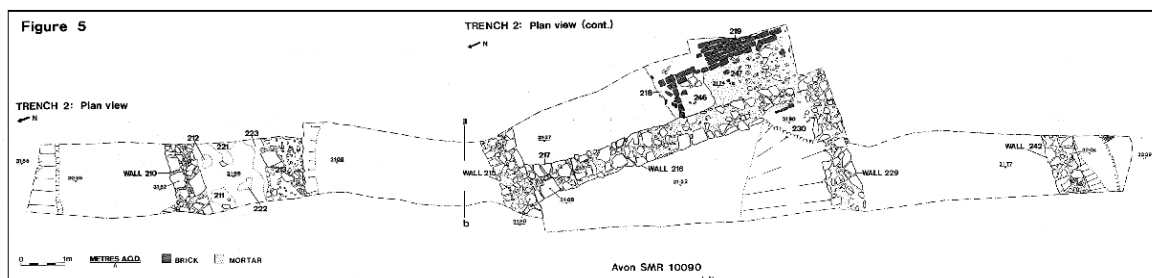


Figure 2.22: 1994 Trench 2, adapted from Figure 5, Parry

Again, from Parry, 1994, “The ... remains recorded in trench 2 appeared, on the basis of the cartographic evidence to correspond with (a) the outer wall of the building to the north-east of the Old House glasscone and (b) the outer wall and internal divisions of the building attached to [its] eastern side ... The poorly consolidated nature of these remains and the minimal amounts of furnace waste recorded would appear to confirm that the glassworks buildings located within this part of the application site were not specifically associated with the processes carried out in the cone.”¹⁵ (The walls all appeared “to belong to a single phase of construction.”)

On the 1830s plan these buildings are shown as containing “Frit rooms” and “Counting Houses, Pot Rooms and Warehouses” respectively.

By 1870 they are {32} and {34} [“Cylinder room” and “Two French Kilns”] and {35} and {36} [“Coloured Cullet Room” and “Mixing Room”, bracketed together as underneath a “Cylinder Room” on the first floor and in turn this was under a “Pot Room “ on the second floor. (See table 2.1.)

However, if Trench 2 has been correctly located, and the 1870 plan is accurate, there should be evidence of the “Blowing Holes (12)”, {26}, but there is not, as surprisingly none was found.¹⁶ The outline of the 1830s plan, when compared with that of 1870 indicates that there might well have been accommodation for the blowing holes at the earlier date.

A possible explanation given by Parry for the absence of the “swing pits” is “that in common with several [?] other swing pits excavated on the glassworks site during the early Eighties the pits in which the cylinder glass was swung may have been built up above ground level.” References to absolute levels have not been found, but from photographs and drawings of the earlier excavations it looks very much as if the pits of the New House Cone that were excavated, and for which records have been found for this study had their floors below ground level. It certainly appears, for example, that there is a ramp up from the brick floor of the southeastern pit, presumably to the then ground level. This is confirmed by a statement in “Description of Site 'B'“ in the manuscript report of the 1983 excavations¹⁷ that, “A ramp...connects this lower brick floor area to a cobbled floor, a little less than a meter [*sic*]

¹⁵ *Ibid.*, 6.3, p 12

¹⁶ *Ibid.*, 5.3.8, p 11

¹⁷ NS SMR 2397 File A, Author unknown

higher in elevation.”¹⁸ Later in the same section it transpires that the cobbled floor is in fact a cobbled roadway, complete with wheel ruts 145 cm apart.

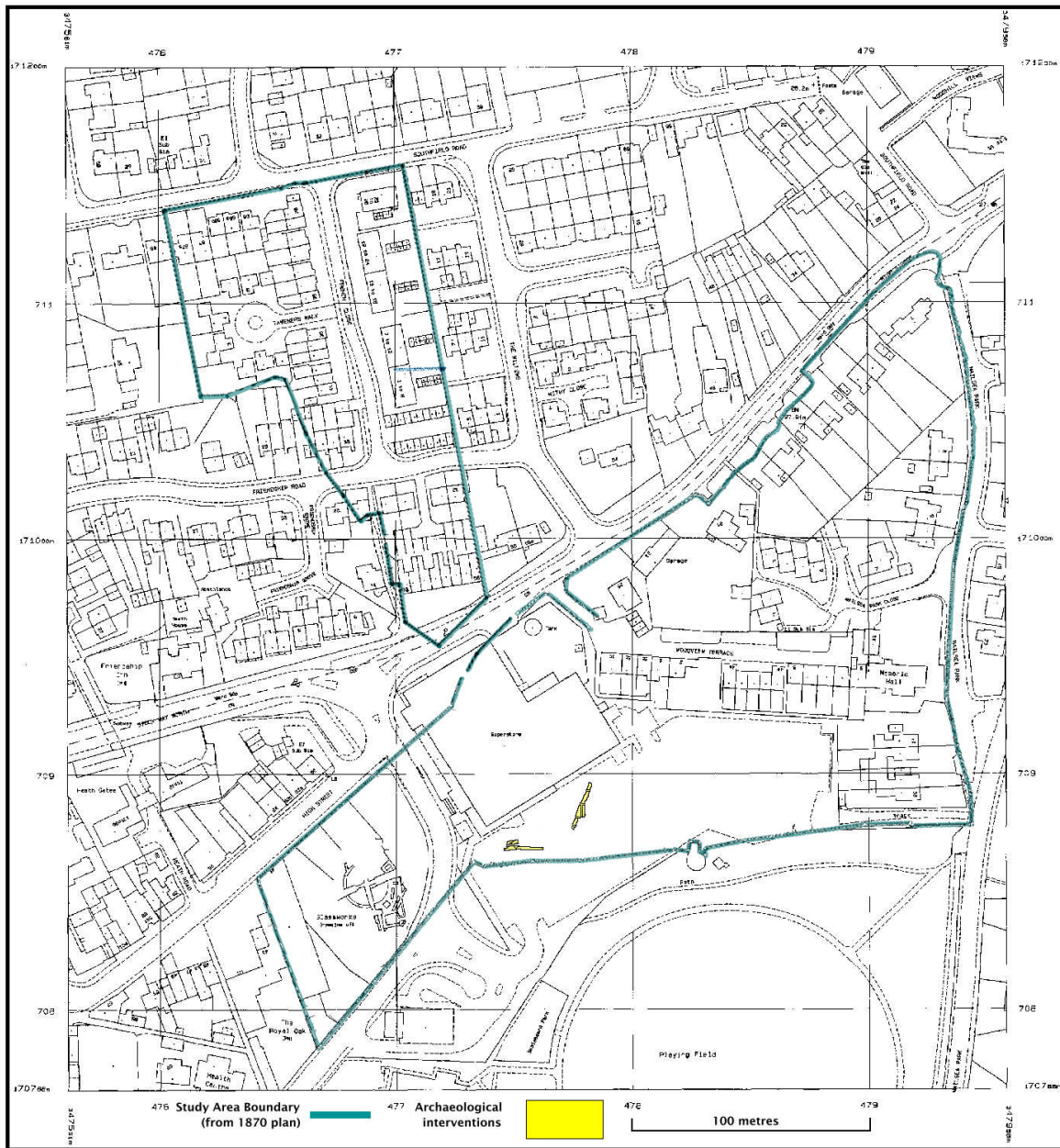


Figure 2.23: 1994 evaluation on site-centred map

In the absence of any direct evidence to the contrary, the position of trench 2 reproduced in Figures 2.23 and 2.24, below, is as given on Figure 2 of the report. However, if the plan of Trench 2 is compared at the same scale with the 1870 plan there is a very good fit if it is moved eastwards by 9.75m from the position shown. The northernmost wall in the trench is then a section in the centre of the southern wall of {34}; the north-south wall is between {35} and {36}. The two walls meeting this wall at right-angles at each end are the northern walls of {36} and the southern wall of {35}. The section of wall crossing the southern end of the trench is not then sitting, somewhat inexplicably, in the middle of a swinging pit, but forms the

¹⁸ From a larger scale version of Figure 2.3, which came to light late in 2003, well after the above was written, the pit floor level was 31.70–31.77m AOD and the cobbled road level at the top of the ramp was 32.50m AOD.

western end of the southern wall of {44}. The known swinging pits associated with the New House Cone are substantial structures, and it does seem unlikely that there was

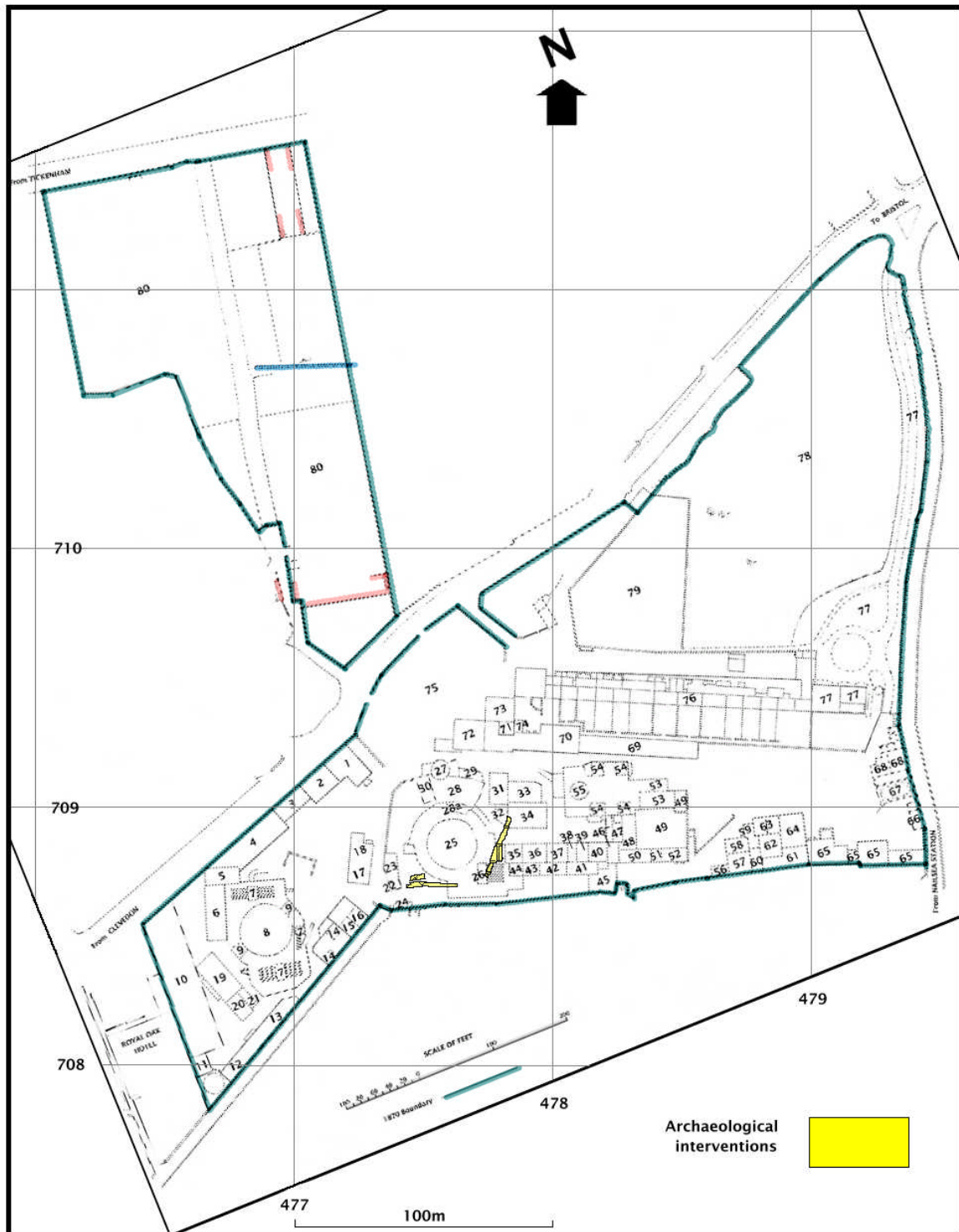


Figure 2.24: 1994 evaluation superimposed on 1870 plan

no evidence for something similar in Trench 2. The 1870 drawing does seem to be reasonably accurate, both when compared with later OS maps and with the archaeology found so far.

For ease of plotting the 1870 plan used has been reduced from its original size of approximately 1.2m square to a 1:1500 scale, but it is felt, by boundary comparisons, that any error is still

slight. It is considered, therefore, in view of the errors found in the reports examined so far, that an error in positioning, either on the ground or in the subsequent drafting, is more likely than a significant error in the 1870 plan, even at reduced scale. Having said that, there does seem to be a slight variance in the boundaries as one goes the length of Woodview Terrace {76}, although some of this may be down to redevelopment.

The archive was with Avon Archaeological Unit, but has now been transferred to the North Somerset Museum at Weston-super-Mare.

6. 1994 - (2)

The photographic recording of the French kiln and pot arch buildings, centred at OS 34772 17085, {14}, {15} and {16} on the 1870 plan, was done in October-November 1994. It is in the N Somerset SMR as event 10371. The photographs showing the targets at metre intervals vertically and horizontally, together with some explanatory drawings are held in the archive, but no report seems to have been prepared at the time. Lynn Hume has now analysed the photographs and the accompanying site drawings and produced a report, on which this section is based.¹⁹

The buildings are in the background of the right-hand plate in Figure 2.6 above, probably taken circa 1986; the roofs have been removed. They were apparently demolished shortly after the photogrammetric recording, which is a great pity, because archaeological evaluation does not really seem to have been complete.

It should be noted that in this section the room numbers quoted in the report will be used. Room 1 corresponds to the room with the two French Kilns {14} on the 1870 plan, and Room 2 contains Pot Arch 2, {15}, and Pot Arch 1, {16}. There is a structure on the 1870 plan corresponding to Room 3, but there it has no identifying number/description.

Room 1 seems to have been cleared to floor level, and it was noted that, “A small area of sandstone slabbed edging, located along the western face of Wall 18 (figure 3) [see Figure 2.25 below], appeared to indicate that the floor had originally been paved throughout. These sandstone flags, however, appear to have been superseded at a later date by a simple concrete floor. N.B. Although this room is supposed to be a ‘French Kiln’ room, no surviving indication of these structures was observed.”

Some partial excavation was carried out in this area in 1983²⁰ but had been suspended because of the dangerous condition of the roof. Even so some clues might have been available subsequently if more than just recording the walls had been commissioned. However, it is reported that some of the structure was in a poor state of preservation, and a lot of vegetation had had to be removed prior to the photographic recording. Some parts of the building were collapsed and others patched/infilled with modern materials. The building was “largely constructed from roughly coursed sandstone rubble, bonded with lime-based mortar flecked with ash/charcoal fragments.”

From what was left of the building it was difficult to determine phasing, but it appears from the discontinuities, both vertical and horizontal, as well as from blocked openings that the buildings had been altered probably more than once during their lifetime. There is further detail in the report regarding blocked window, door and other openings. Room 1 was described as having been a “workshop” in one of the early reports, but it also seems to have been a dump for spoil as well, at a later stage. There was, for example no comment on the “chamfered” western

¹⁹ Hume, L, *Archaeological Standing Building and Rectified Photographic Survey*, AAU, May 2003

²⁰ 1983 manuscript record, author unknown, possibly G Lewis, (File A, Area E)

corner, other than being identified as an individual wall, but this would appear merely to be part of the recording technique, in which each section of wall is given a different identifier for both the external and internal faces.

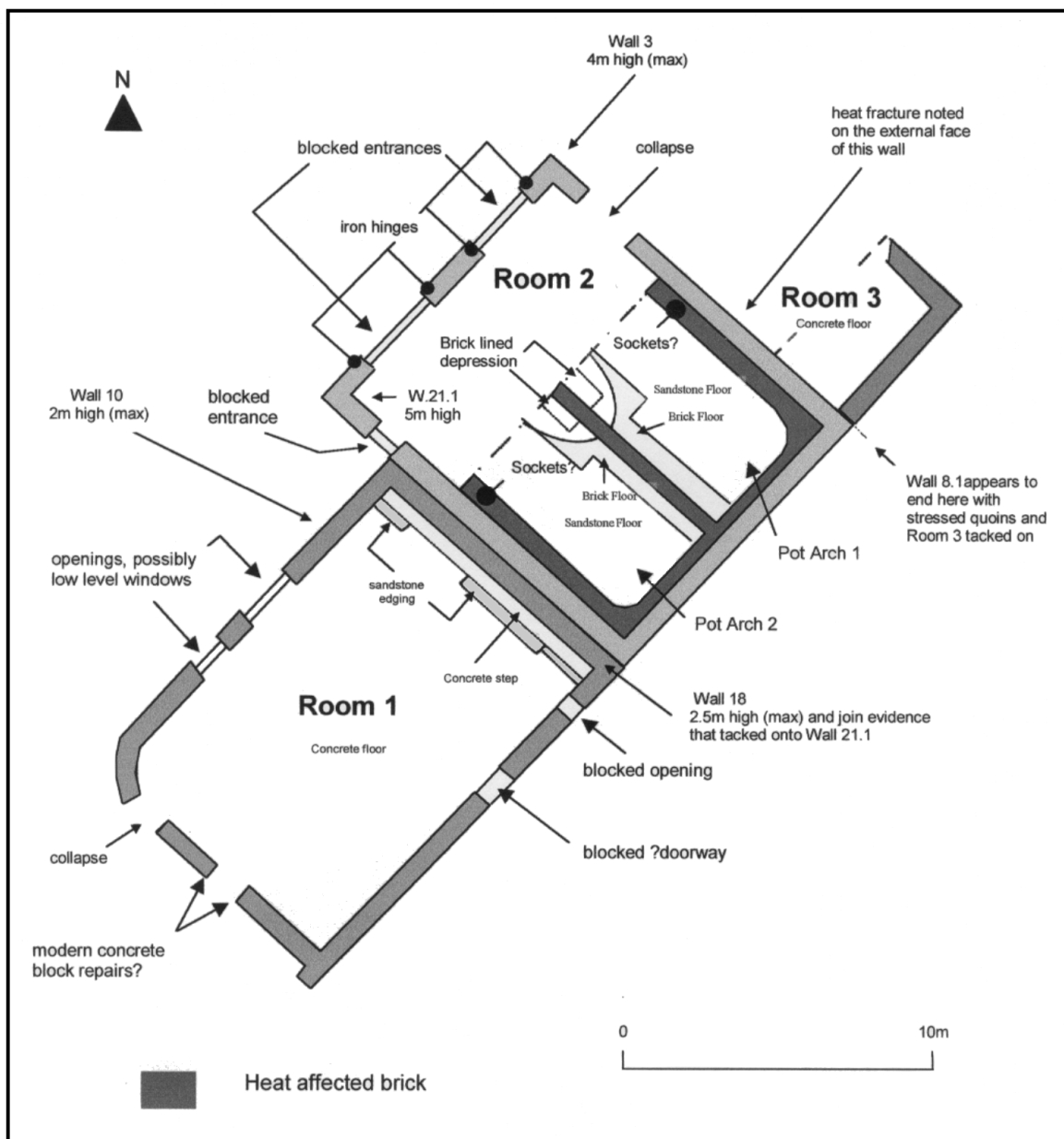


Figure 2.25: Schematic Plan of Rooms 1 - 3, detailing blocked openings (from Figure 3 in original report)

As observed in Part 1, and see Figure 1.9, part of this range appears to have been demolished to make way for extensions to the New House Cone, date unknown other than between 1840 and 1870, and this corner was presumably modified at this time

While the physical relationship of the building to the rest of the works is clear, the functional relationship is not. If the kilns were for annealing, for example, there would presumably be a problem with thermal shock if hot glassware was taken outside on a winter's day before being put in to the kiln. (The alternative is that these kilns were in fact "Flattening" kilns, where the

cylinders were brought cold to be re-heated after being scored so that they would form a flat sheet.) As mentioned elsewhere it has proved impossible to determine the exact form and function of these kilns. How they were fired and accessed is not clear – there appeared to be no evidence of external flues

The same applies to the “pot arches” in Room 2. Although the function of pot arches is generally well understood, it does seem strange that here they should be at some remove from the furnace area. Pot arch {31} has a similar relationship with the Old House Cone. Exactly how they were heated in this case is not known. Conventionally they are where the pots, or crucibles, were fired and/or brought up to furnace temperature before insertion in the furnace and usually they are much closer to the main furnace, often incorporated in the cone wall. Possibly at Nailsea there were re-heating furnaces inside the cone area to bring the individual pots up to temperature before introducing them in to the main furnace. The pot arches themselves, appearing to be approximately elliptical in section, with a maximum height of about 2.2m, were built of brick within the main structure. They were about 4.5m in width and 7.5m deep, and are obviously capable of containing several pots. In 1836/7 Coathupe [p.61] gives typical dimensions, “when made”, giving the outside top diameter as 56 inches [1.42m]; the height can be calculated as 41.2 inches [1.05m]. He also comments [p.63] that “Pots, if carefully watched may be “turned” in the annealing Arch in 60 hours and set in 36 hours afterwards.” These “pot arches” may therefore well be annealing arches for the initial firing of the pots after air-drying, but see further discussion in Part 3.

The function of the brick lined depression at the northernmost end of the central wall is not known. From the photographs it appears to have been subjected to heat. While the majority of the floors in the arches were formed from sandstone, that surrounding this depression and paralleling the central wall on both sides were of brick²¹, so whether this was associated with some form of furnace/flue is surmised, but not known for certain. The surviving height of the walls of Room 2 was about 4.5m. The main structure, as for Room 1, was roughly coursed sandstone rubble, in a fair state of preservation. Freestone quoins towards the upper part (see Figure 2.28) and other evidence seems to point to a later modification to the building, either in the form of a re-build or an upper storey extension. “Joist sockets were observed at a height of c. 3m from the surviving floor level.” Ground levels were recorded from 32.2m to 32.9m AOD.

Figures 2.28 and 2.29, below, show the exterior and interior of the pot-arch building respectively. It appears from the remaining evidence that the doors, both towards the front of the arches within the building and for the corresponding openings in the external walls (blocked at this time) were double-leaved, outward opening, supported on pin hinges. There was no evidence to suggest that the dividing wall between the two pot arches went any further in to Room 2 than shown.

The two surviving walls of Room 3 appeared to represent an addition to the original range and were built from randomly coursed sandstone rubble. It was floored with concrete and had a cement fillet adhering to most of two sides that had obviously been sealing corrugated roofing material to the wall, so it is seen as a later conversion to an open-sided lean-to. It appears from the 1995 excavation that the eastern wall had possibly extended further in to the glassworks site, to about twice its length as recorded here. This would agree with the dimensions on the 1870 plan. However in the photographs there appeared to be no sign of this above ground. Equally no cut representing the position of the concrete floor was recorded, so demolition had apparently been right down to ground level or below.

²¹ *Ibid.*

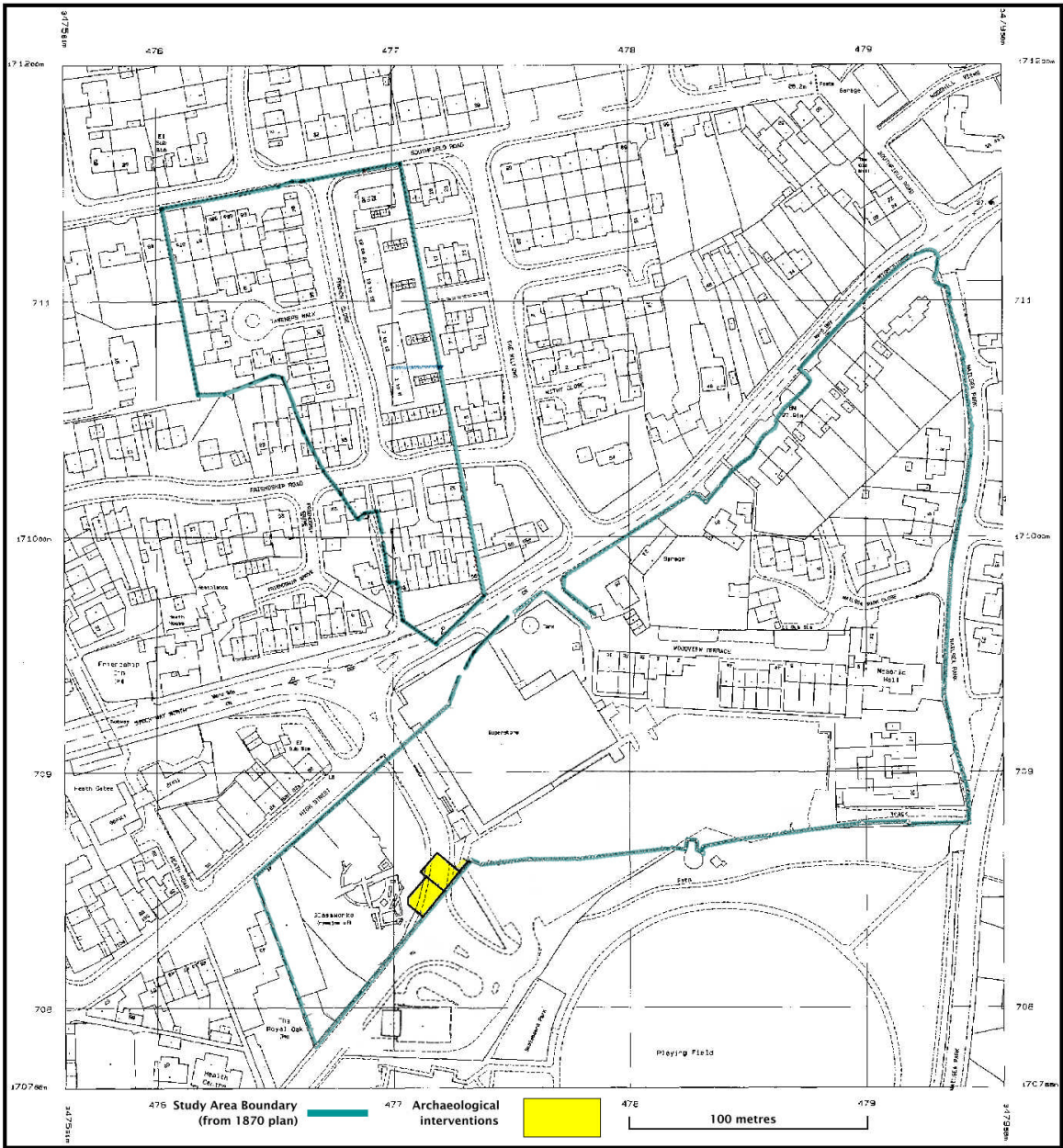


Figure 2.26: 1994 Standing Buildings Recording on site-centred map

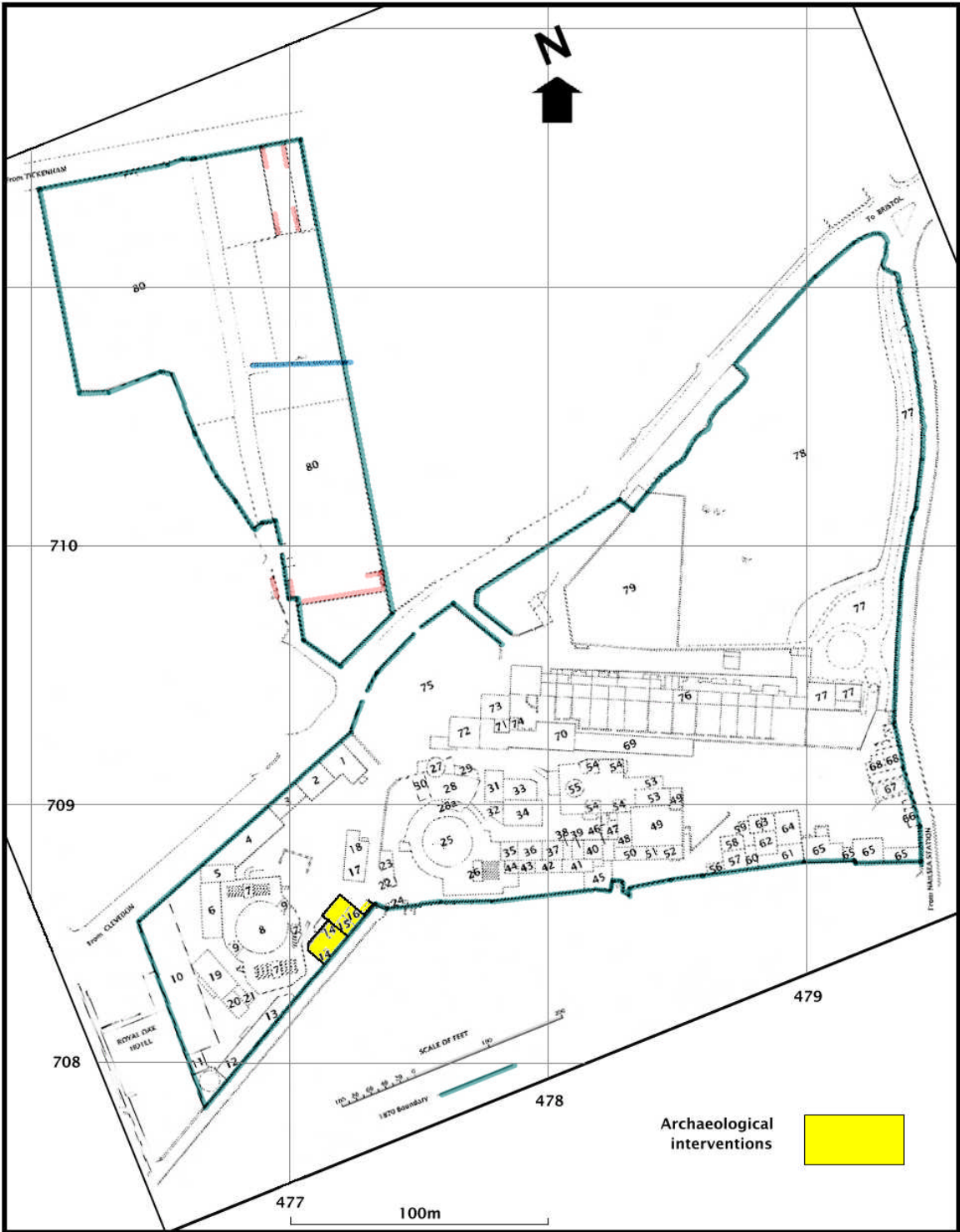


Figure 2.27: 1994 Standing Buildings Recording superimposed on 1870 plan

There was no apparent evidence remaining of the trapezoidal structure shown on the 1870 plan in the exterior angle between rooms 1 and 2.



Figure 2.28: Exterior of pot arch building {15}/{16}, from west.



Figure 2.29: Remains of pot arches {15}/{16} - interior view looking east.

7. 1995

This excavation, between February and April in 1995, was undertaken by Avon Archaeological Unit (AAU) staff under Adrian Parry and Lynn Hume. It was given an SMR number 10509, and was in response to the same development proposal which prompted the previous evaluation, in 1994. Funding was by Hobbs Properties Ltd., Backwell. It was proposed as a two-stage activity, and the report of 1995 was very much written as an interim report. The proposal had apparently been first to establish the extent and condition of the archaeology in the development area, the site of the [former] Avon Motor Centre. The extent of the excavation was limited by the fact that access was still required, as the garage business was still operating. The intention appears to have been that the Unit would proceed with excavation of the remainder of the area to be affected by the supermarket building provided the initial stage showed that this would be worthwhile.

The area selected included Trench 1 and the Test pit from 1994 - (1) as well as a sector of the Old House Cone (about 40m x 20m), and a north-west/south-east area (about 25m x 15m) to the west of the said cone site. It was excavated in two areas, A and B, separated by about 5m.

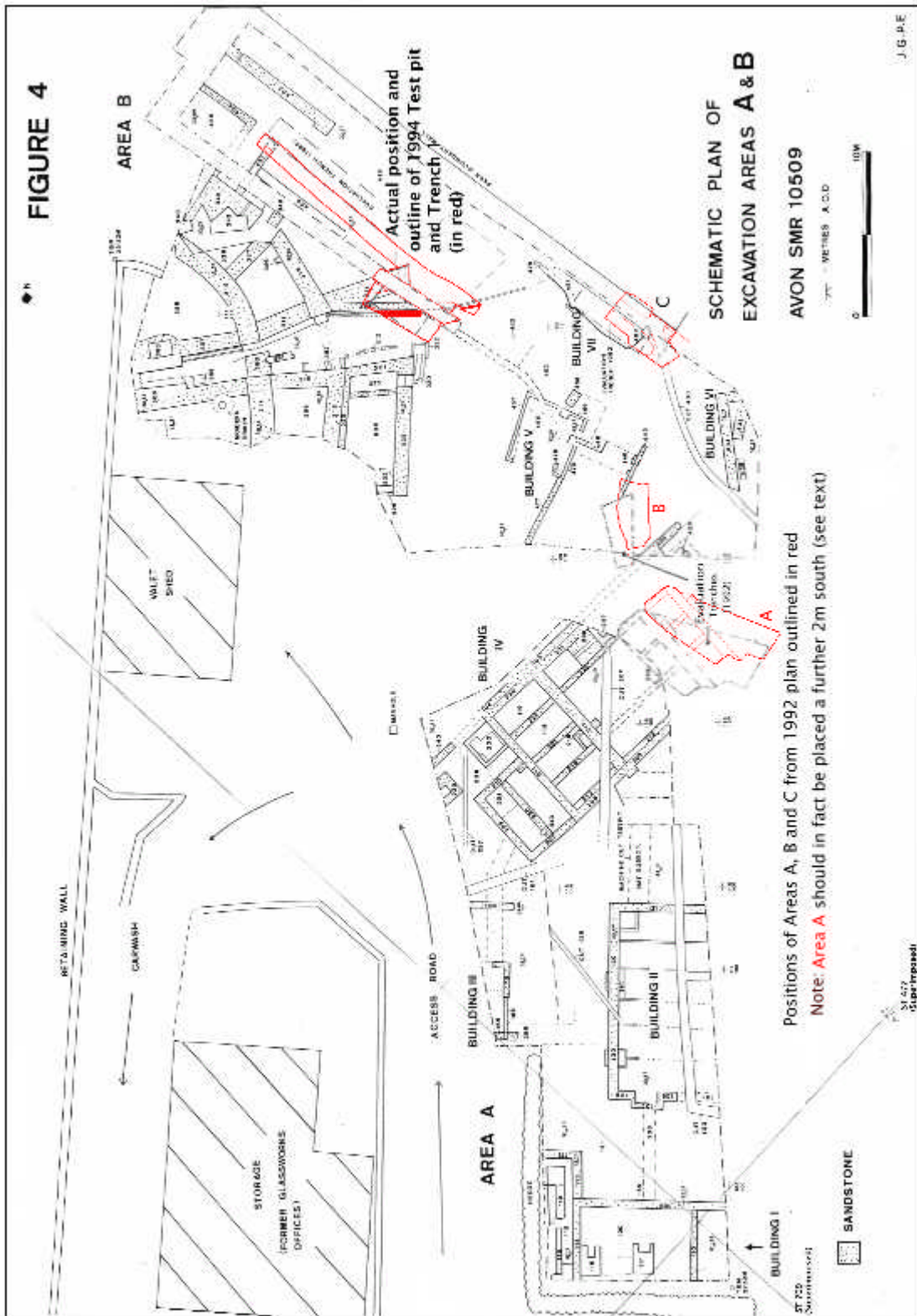


Figure 2.30: 1995 Figure 4 (amended, with OS National Grid added.)

In the report²² it states that the “excavation areas were located relative both to the National Grid and to plans provided by Baker Associates of Bristol (agents for the developers).” This is not evident from the report. It appears that the positions and/or orientations of the 1992 evaluation

²² Parry, A H H, & Hume, L, *Nailsea Glassworks Site-1995 Excavation (Interim Report)*, AAU, May 1995

trenches as shown on Figure 4 of the report are not entirely accurate. The apparent errors in the recording and analysis of areas A, B and C in 1992 (see **1992** above) were only partly responsible for the incorrect positioning of these areas in Figure 4 of the report. They were not transferred accurately from the 1992 report, and do not appear to have been corrected in plan outline either.

The outline of the Test pit and Trench 1 from 1994 also did not correspond with that from the original 1994 drawings. Establishing the actual orientation of Figure 4 relative to the OS National Grid was therefore something of a compromise. Figure 2.30 (above) represents the amended Figure 4.

In addition it seems that there may have been a change in the allocation of context numbers between making the drawings and writing the report. When one reads the report the positions of some contexts are quite clearly described, but in some cases numbers on the plan do not appear to correspond with those in the text. They are not cited individually in this summary.

The report states (4.2, p.6), “The archaeological programme concentrated on excavating and recording the remains of the “Old House” cone structure which were preserved within Area B. Archaeological remains preserved elsewhere on the site were excavated more selectively, with the aim of gaining a basic understanding of their character and stratigraphic position.”

Considering the descriptions of the buildings as found, Building I is described as being part of the range of buildings fronting on to Nailsea High Street. The only other plans/maps known are all small scale, but it would appear from them that the buildings would be better aligned on the ground than in fact they appear in Figure 4 of the report. The frontage appears to be straight, but if it is represented by the north wall of the (then) extant 'storage (former glassworks offices)' building, then Building I has been rotated slightly in an anti-clockwise direction. The wall going north-eastwards into the hedge should align with the shortest wall of the storage building, and it clearly does not. The major part of this building was a smith's shop {3} in 1870, with the smaller northeastern part being only a fraction of a larger building containing two French kilns {2}. Because of the limits placed on the excavation insufficient was revealed to tell us anything useful about these.

Building II appears to be the foundations of 31 High Street, built on the site after the demolition of the glassworks. It was demolished in turn and the service trench that cuts it was probably for the “Portakabin”-style council offices shown on some of the O.S. maps and photographs from the 1980s.

Building III appears to have been part of an extension of the southeast-facing wall of the cullet shop over the small square structure to the southwest of the cullet shop on the 1830s plan. The orientation of the apparently free-standing wall between it and Building IV and its proximity to Building III suggested that the two were contemporary. However further excavation seemed to indicate that this wall was in fact contemporary with Building IV.

According to the 1870 schedule Building IV contained the “Old office” {17} in the southern portion and a “Crucible furnace” {18} in the northern part. How the building was divided is not known from the plans. It does not appear on the 1830s plan, but both copies of the tithe map, one of 1840 and the other from 1844, show it as an open rectangle on the western side of a wall that runs from the eastern corner of the cullet shop (referred to in the preceding paragraph) almost to the building identified as {15} and {16} – “Pot arches” - on the 1870 plan. This wall has not been identified on any other plan, so it does not seem to have been an existing boundary for example, but it clearly appears in the excavation. At its presumed southern end, based on its alignment, it terminates in a posthole (5.2.1, p.11, under Area B). This might

indicate that a gate had been installed to control access to the newer part of the works from the older. A wall on the same line was leading out of the excavated area at the northern edge of Area A. One can therefore speculate that there might be some new process being developed in the New House Cone around this time, causing security to be improved by segregating the new from the old, but it is not recorded in 1870. The demolition had resulted in there being virtually no material evidence being left to help determine the details of the use, or dating, of this building, or indeed any others, although all the reports refer to fills of broken glass (generally 'window'), demolition rubble, ash and lime mortar in various combinations, and condition. Survival in Area A of the glassworks structures was to around 32m AOD.

Moving to Area B, Building V "represented a flimsily constructed brick and sandstone structure" identified as the Old Watch House, {22} & {23} on the 1870 plan. It appears to have been predated by a possible cellar that had been back-filled with rubble and then surfaced over. No plan has been found that locates any other building in this area. The function of the Old Watch House is not known. On the basis of the name and the long wall curving approximately northwards and then east-north-east to join up with the buildings attached to the north of the Old House Cone, one wonders if this too was some form of site security office, in modern terms.

An "L-shaped sandstone rubble and lime mortar wall, which extended westwards beyond the excavation area, marked the location of the north-eastern end of a pot arch building (Building VI)." This had only recently been demolished in 1995 and the "demolition exposed the heavily truncated remains of one, or possibly two, earlier walls... representing structural activity not previously recorded." Strictly, from its position it appears that this should be identified as the north-eastern wall [6/7] of the lean-to building (Room 3 of the 1994 photographic survey - Hume 2003) that sits to the north-east of the pot arch building {15} and {16} on the 1870 plan. It shows as a stub wall on that plan, on the western side of the southern entrance to the glassworks.

Part of Building VII was exposed during the 1992 evaluation²³, and the area examined was extended during this 1995 excavation. It was identified in 1992 as part of the boiler-house {24} built against the southern boundary wall of the glassworks. A detailed record of what remained then is in the earlier report (5.2.3, p.11). It appeared to be connected to the Old House Cone by a narrow (20 cm) duct of single-brick construction. Its function is not known from the archaeology. It is suggested (5.3.6.1) that it conducted hot air [presumably as a forced draught] from the boiler house to the cone furnace. An alternative suggestion might be conducting hot air in the opposite direction. In either case its cross-section would appear rather slight for this purpose. If it was for drainage, its direction of fall does not seem to have been recorded. There must have been a reason for siting the boiler house at the perimeter of the site, but what it was has not yet been determined. The 1995 excavation revealed that this building, certainly at its eastern end, had been built over an earlier brick structure of unknown function. [It may be of interest to note that on the 1830s plan there is an "Engine House" similarly isolated to the north of the Old House Cone. Maybe boiler explosions were not unknown. Alternatively that Engine House may have been associated with the pit that seems to have predated the glassworks just to the north of the Old House Cone.]

The major structure in Area B was a sector of the Old House Cone. It accounted for about one-fifth of the total area, and reached almost to the centre of the cone. Fortuitously it included a primary airway, running approximately south-west to north-east, and a secondary airway was

²³ Mumford, 1992

also found. From the report it appears that the furnace foundations were reached. At least, the remains of corbelled firebrick liners to the airway were found in situ.

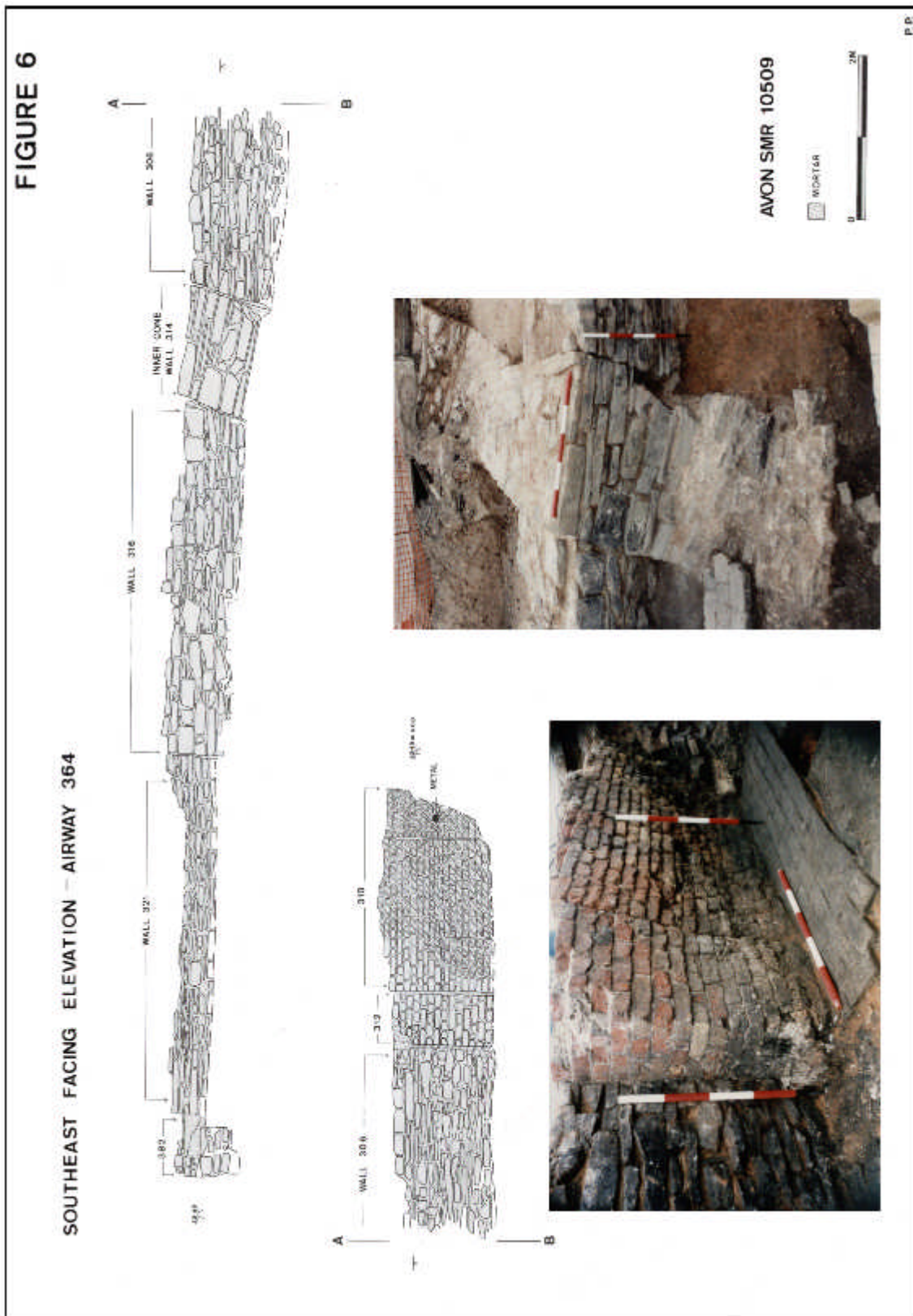


Figure 2.31: Old House Cone airway (1995 Report - Figure 6)

The 1995 report contains a detailed diagram (Figure 7) of the suggested phasing of construction which is reproduced as Figure 2.32 below, with additions. The following general view (Figure 2.33 below) corresponds with most of this diagram.

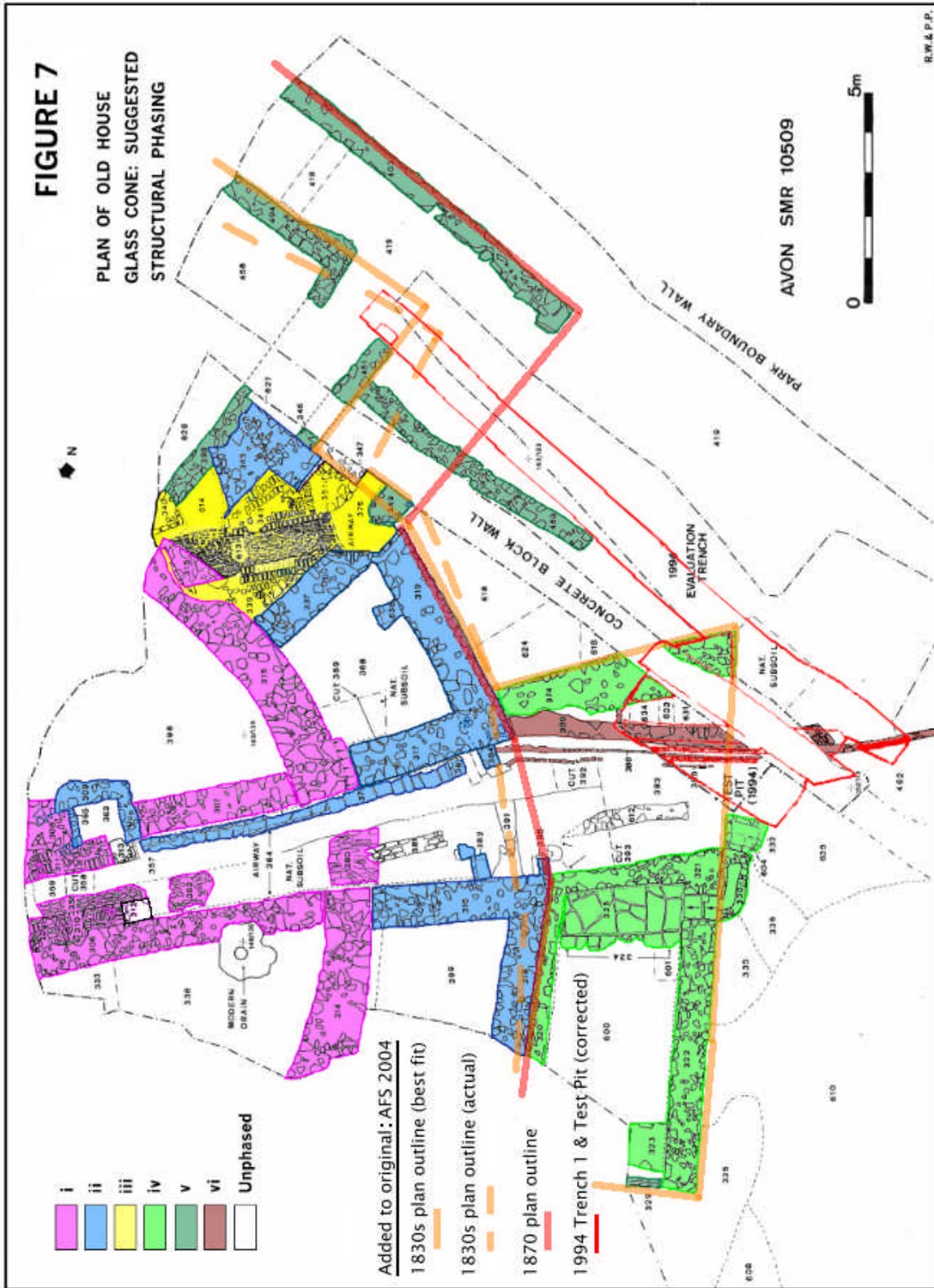


Figure 2.32: Old House Cone - Suggested structural phasing (1995 Report - Figure 7, amended)



Figure 2.33: General view of 1995 excavation: Old House Cone area.

The first phase was the foundations of the wall of the Old House Cone itself. These are described as appearing “to have been laid within a trench and also revetted against the natural substrata” and to have been “constructed from roughly coursed sandstone rubble and pinkish-brown lime mortar. The broad footings of the wall were partially exposed during the excavation, but the depth to which these were preserved was not established....” [Para 5.3.1, p.12].

Context 363, the white rectangle surrounded by blue at the inner end of the main airway in Figure 2.32, is a “deep square chamber ... originally capped by a brick arch...”.



Figure 2.34: Possible furnace feeder chamber (1995 Report - Photograph 10 Context 363).

Its function “was not firmly established as it could not be fully examined for health and safety reasons.” The faced sandstone blocks and slabs forming three sides of the chamber were bonded with a different lime mortar to that bonding the stonework of contexts 307 and 308.”

[The radial wall on either side.] It was thought to be a later addition for this reason, despite the fact that it was “seamlessly integrated in to the airway wall.” The fourth side, contexts 313 and 312 (on the opposite side of the airway), were extensions to the main brick linings “(although their place in the phasing sequence has yet to be fully determined.)” (See Figures 2.31, 2.32, 2.33 and 2.34 above, and 2.35 below.)

The south-east facing elevation of the airway (Figure 2.31 above) shows a metal feature, not described, set in to the brickwork at about 1m from the floor of the airway and about 2m from the line of the chamber. [It is suggested that, in conjunction with contexts 312, 313 and 363, it might represent something to do with the installation of a furnace feeder, one being patented by Mr Myron John Frisbie in 1868. Using this mechanism the coal could be fed from below the furnace, rather than from the working floor. At the time of writing no details have been found, but a general photograph is printed in the booklet²⁴ on the Red House Cone at Wordsley, Stourbridge.] The furnace collapsed in 1862²⁵ and about 1860 a partial rebuild of the cone was necessary due to foundation settlement.²⁶ This might have been the same event, as Mountain had a time span of “fifty to sixty years ago”, and although apparently too early to install a Frisbie feeder, something similar might have been available, and the opportunity taken to try it out. The comment is made in the report that there is no sign of anything similar at the New House Cone. [Para 5.3.2.1, pps. 13-14.]²⁷

Alternatively, 363 may have been used in conjunction with the covered duct at the base of the airway for some sort of forced draught arrangement for the furnace, as mentioned above, but natural draught seems to have been adequate elsewhere. The duct appears, with some of the stone covers removed, in Figure 2.35 below. This was Photograph 12 in the 1995 report.

[Late in 2003, information on the Frisbie furnace feeder came to hand from two sources. The first was a copy of the *Scientific American*, dated December 2, 1876, and the second was the Science Museum Library. Frisbie’s British patent, No. 27, was dated 3rd January 1868. No patent number or date is given in the *Scientific American*, which describes it as an “Improved Furnace Feeder”. The article ends by stating, “We learn that there are already over thirty of the feeders now in use in Birmingham, England.”

The 1868 patent application, p.2, states, “The object and purpose of my said Invention is to provide by means of suitable mechanism or apparatus for feeding fuel into furnaces, fire-boxes, and fire-grates during the progress of combustion of the fuel therein at that part where the fresh fuel can be introduced with great certainty of ensuring the immediate and perfect combustion of the same, avoiding the formation of smoke and effecting the feeding in a ready and cleanly manner; and by the use of which Invention great economy of fuel will result.” On p.4 of the patent it says, “ Fig. 5 is a front elevational view and Fig. 6 a side elevational view shewing an arrangement for feeding fuel into glass-making furnaces, and is adapted to be fixed in the cave or ash-pit below the furnace.” Unfortunately there is no indication of exactly how the mechanism was incorporated in a glassworks’ furnace.]

Phases i and ii are regarded as 18th century in the report, but the reasoning is not given. The later phases are recognised as discrete events, but as there appears to be no dating evidence, there is little point in describing them in detail, other than to comment as follows:-

²⁴ *The Red House Glass Cone -a unique glassmaking experience*, Red House Glass Cone, Dudley Metropolitan Borough Council, 2002

²⁵ Eyres, J, Letter to St George Gray, 10th July 1911

²⁶ Mountain, F, *History of Nailsea Glassworks*, Letter to the Curator, Bristol City Museum, 1915

²⁷ Parry, A H H, & Hume, L, *Nailsea Glassworks Site-1995 Excavation (Interim Report)*, AAU, May 1995

Phase iii: This is a small side airway, possibly relating to an auxiliary furnace of unknown function or, less likely on positional grounds, to the swinging pit shown on the 1870 plan.

Phase iv: This structure, not shown on the 1870 plan, was clearly built against the outer wall of Stage ii, and corresponds to the “flattening kiln” shown on the 1830s plan. It has an intriguing pit, for which there is at present no explanation, fed by a chute from a higher level. Figure 2.36 below is reproduced from Photograph 11 in the 1995 report. In Para. 5.3.4, it is suggested that it is a “tank”, saying that, “It may have served as a sand or water container or been used to mix chemicals or glass making ingredients.” It is now suggested that if such had been the uses it might have had a smooth render, but there is no mention of this. An alternative might have been as a coal bunker if indeed flattening kilns were in that extension. It has also been suggested to the writer that it might have been for pre-conditioning the clay for pots, but it is felt that the location, at some distance from the pot rooms associated with the Old House Cone, and in a presumably hot environment, would make this unlikely. There is no comment in the original report, but the north-eastern end appears in the photograph to be rather blackened

Phase v: The appropriate portions of the 1830s and 1870 plans have been scaled up [electronically, but it is believed that any errors are slight] to compare with the phasing plan (1995 Figure 7) and added to that plan, as shown in Figure 2.32 above. It would seem, in the absence of any contrary archaeological evidence, that there was some inaccuracy with the external dimensions of the cone on the 1830s plan, so what has been taken as contemporary in this phase may well not be. This comparison certainly raises doubts about the interpretation in para. 5.3.5.1 of the original report that the sunken feature 458 and wall 404 formed part of the blowing pit {26}. If the 1870 plan can be relied on, this feature would have been some five metres further east, as can clearly be seen on Figure 2.38 below.



Figure 2.35: Main Airway looking NE



Figure 2.36: Stone lined “tank “

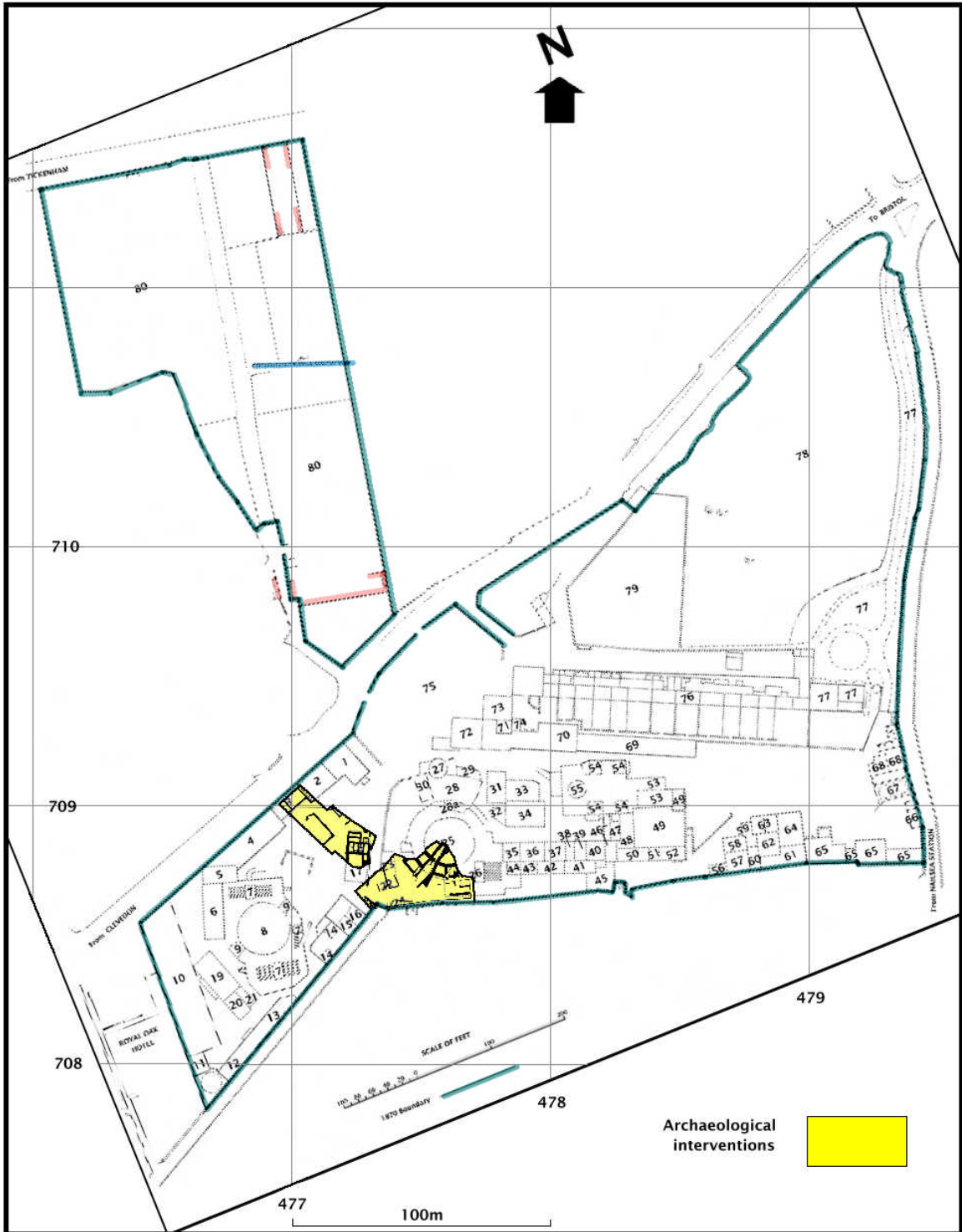


Figure 2.38: 1995 excavation superimposed on 1870 plan

8. 1999

The purpose of this archaeological recording project on 13th and 14th September 1999 (NSSMR Event 40597) was to observe the geotechnical trial/test pits being opened up by Intégrale Consulting of Nailsea. This work was on behalf of White Green Young Environmental ahead of the proposed supermarket development, together with the usual car parking, which it seems

was becoming more of a reality. It was planned to sit over the site of the former Avon Motor Centre, which by this time had been demolished to floor and hard-standing levels.

These hard areas covered most of the areas of interest. The test pits were therefore primarily positioned in order to:

- Locate a former sandstone quarry subsequently used as a rubbish tip in the past.
- Locate exposures of coal seams known to exist in the area.
- Locate a known mine shaft.
- Check for contaminated ground caused by leakage/spillage from diesel and motor spirit storage tanks.
- Define the physical characteristics of the subsurface geology.

Probe-holes and boreholes were also sunk, but no archaeological recording was carried out on these. The hard surfaces over the test pit sites were first broken out by a pneumatic breaker. The excavation was then done by a JCB with a 600mm wide toothed bucket. Once recorded the pits were back-filled immediately.

Ten pits were excavated in total, defined as Test Pit A/99 to Test Pit J/99. Pits D, E, F and H did not reveal any significant archaeology. Pits I and J were to the southwest of the former glassworks site, “towards the modern Sports Centre”, and their precise location was not recorded in the report. Weathered coal measures were found in Pit I but, again, no archaeology. In Pit J there were two parallel lines, each of one course, of mortared bricks on edge about 600mm below present ground level. They were “set in a matrix of black industrial waste.” The feature was not fully investigated, but may have been a “drain or culvert or even a duct possibly accommodating driving rods for a coal mine pump from a centrally placed steam engine.” Further investigation was recommended, but was not, apparently, followed up.

For the remaining pits the following details were recorded. The ground level heights AOD were provided by courtesy of Intégrale Consulting, as was the location plan in the report, from which the locations recorded in this section have been taken.

In Test Pit A/99 there were two areas of large mortared sandstone blocks some 100mm to 400mm below the then existing concrete surface which lay at 31.73m AOD. The areas were approximately 5m apart and five courses of masonry survived. Two large worked, but damaged sandstone blocks were also recovered. These “probably measured about 43 inches square originally” [1.1m approx.] and appeared to have been bases for machinery. These, taken with a brick surface from a yard or workshop indicated almost certain survival of structures associated with the glassworks.” These would have been in the area associated with the ‘Calcining House and Flattening Kilns’ in the 1830s and/or {72}-”3 Storey Building - Cutting packing & assorting Rooms.

Test Pit B/99, surface at 31.55m AOD had a similar general profile to A/99, that again indicated the survival of a mortared sandstone structure at the west end of the test pit at a depth of 2m on the southern edge of the former quarry. This may be the boundary wall between the yard and the quarry shown on the 1830s plan.

Test Pit C/99, at 31.76m AOD was a multi-area pit to investigate a possible coal mine shaft. As in A and B the north end again produced evidence of structures, this time of sandstone with a pinkish mortar to about 0.5m depth. This would be in the vicinity of {27} – “Brick kiln”, on both the 1830s and 1870 plans. A series of probeholes, (BH 20/99) was sunk in a grid pattern in the middle of Test Pit C/99 in an attempt to locate the mineshaft recorded on earlier drawings. Similarly BH/19/99, some 45m east of the centre of the Old House Cone, was to

investigate another presumed shaft: it appears that nothing was found. Reference has been made in Part 1 to the difficulties attendant on locating old shafts.

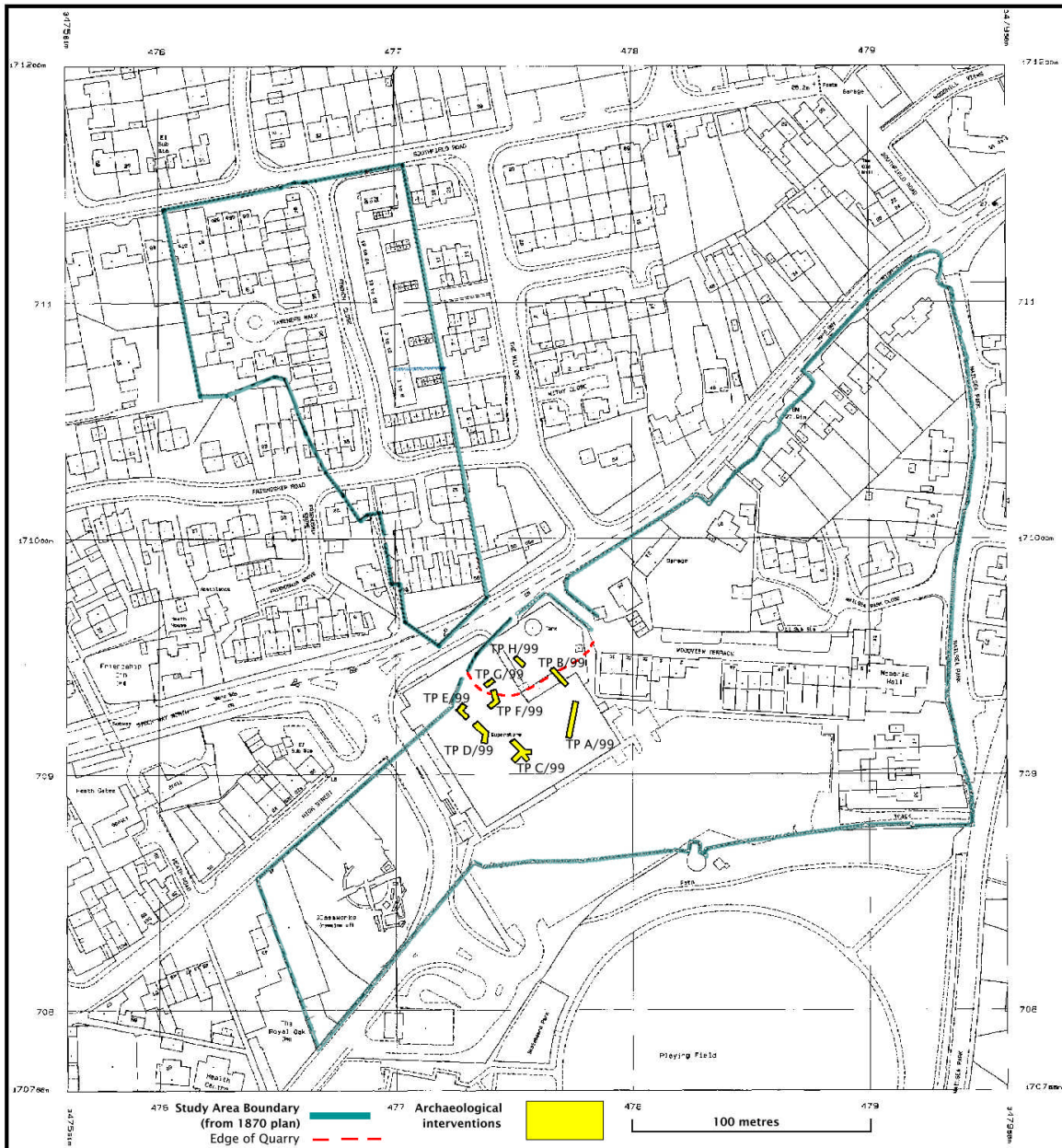


Figure 2.39: 1999 investigations on site-centred map

Test Pit G/99 at 31.48m AOD revealed, at a depth of about 500mm, over 150mm of historical domestic refuse landfill, sealed beneath modern demolition rubble, covered in turn by asphalt and hardcore. Most of the assemblage appeared to be early 20th century items with some few that were possibly earlier. For example there were “bottles from George’s Bristol Brewery, and containers for Virol, Marmite, Shippam’s Meat Paste, etc. All current until well after World War II.”

The conclusion was drawn that, “Masonry structures almost certainly associated with the Glass Works still survive below the Avon Motor Centre site and a small industrial structure of unknown function survives at least in part to the south west of the site.”

Figure 2.39 above shows the position of the test pits on the site-centred map, while Figure 2.40 below shows the same information in relation to the 1870 plan. The plan in the report²⁸ shows the quarry edge, largely determined by boreholes, apparently, and this corresponds reasonably well with earlier map/plan representations of the quarry.

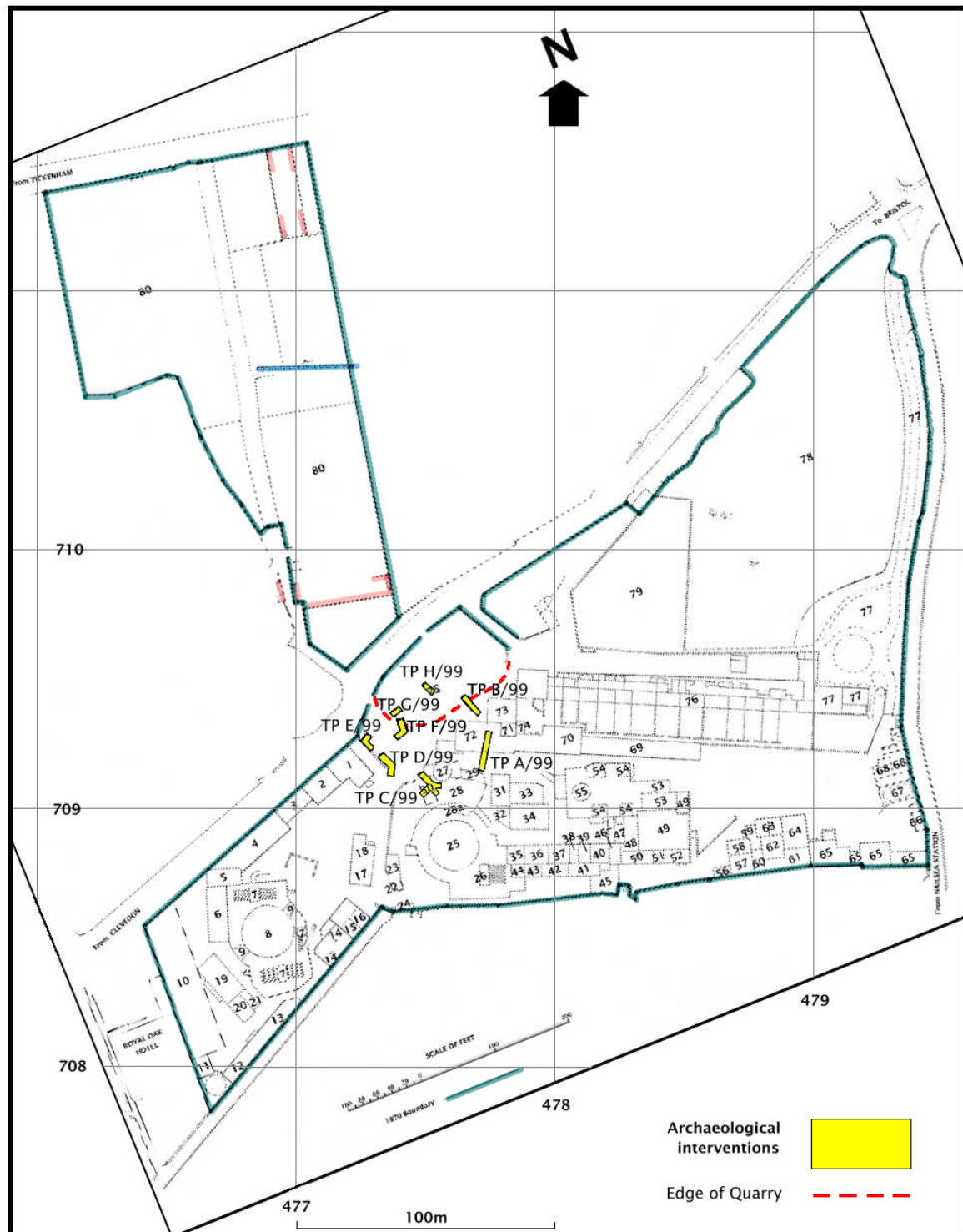


Figure 2.40: 1999 investigations superimposed on 1870 plan

²⁸ Erskine, JGP, 1999. *The Avon Motor Centre, Stockway, Nailsea, North Somerset*, AAU, Bristol.

9. 2001

The fieldwork in 2001 started on 14th March 2001 and took four days. The purpose of this archaeological recording project (NS SMR Event 46188) in the form of a watching brief was to observe the geotechnical trial trenches and environmental trial pits being opened up by Intégrale Consulting of Nailsea. In the Archaeological Watching Brief report²⁹, from which the information recorded in this section has been taken, they are described as ‘Geo Trenches’ (GT/ -) and ‘Test Pits’ (TP/ -) respectively. This work was on behalf of White Green Young Environmental as the proposed supermarket development was moving to final design stages. Four “Geo Trenches “ were proposed. In the event, No. 2 was not opened. Eleven “Test Pits” were opened.

The trenches/pits were excavated in the order in which they are described below, and were immediately back-filled and levelled after recording. In each case there were modern hard surfaces of concrete, tarmac and scalping, either separately or in combination, forming the upper layer(s). These have not been described. The modern surface level in metres AOD is quoted after each trench identifier. As in 1999, these ground level heights AOD were provided by courtesy of Intégrale Consulting, as was the location plan in the report.

TP 6/01 – 32m: At 200mm depth was the start of “300mm of undifferentiated glassworking waste overlying undisturbed a dark orange natural clay substrate. A short section of sandstone masonry was exposed at the extreme southern end of the cutting. The wall as formed of tabular sandstone rubble bonded with coarse lime mortar and possibly curved. The wall was preserved to a height of 350mm and lay above a 50mm thick layer of loose dark industrial waste.” It would appear that this might correspond with the easternmost outer wall of the “wing” to the east of the brick kiln, to the north of the Old House Cone, on both the 1830s and 1870 plans.

TP 7/01 – 31.5m: The description here is not entirely clear, but natural clay substrate started at c. 30.75m AOD. It appears that over this was “c.200mm of mixed clean clay and rubble, the latter possibly reflecting a buried land surface.” Over this again was a 430mm thick deposit consisting “mainly of mixed industrial and glass waste and brick fragments.” This pit was positioned in what is shown as open space on both original plans.

TP 3/01 – 32.7m: “c. 650mm of stratified archaeological deposits including at least five units of interbedded industrial waste and demolition rubble” started at a depth of 250mm. “The northern face of a roughly faced rubble wall was exposed in the south-western end of the cutting. Natural stony marl was reached at c. 31.75m AOD.” There is no wall shown in this position on either of the original plans, but see the discussion on the 1995 report (above), where a wall was found on this alignment, corresponding with a line on both the 1840 and 1844 tithe maps.

TP 1/01 - 30.8m: At a depth of 400mm was a layer of “up to 800mm of highly mixed industrial waste, redeposited marl and rubble over a sloping surface of weathered natural marl at a depth of between 29.6m – 29.1m AOD.” This would appear to relate to the old quarry, as the long axis of this pit is perpendicular to, and bisected by, the northeastern edge of the quarry as shown on the 1830s plan.

TP 2/01 – 32m: A modern concrete inspection pit “appeared to have destroyed all archaeological deposits” in the northern third of the trench. The natural undisturbed clay substrata lay at c. 30.6m AOD and there were “at least four archaeological contexts” in “700 – 800mm of dark industrial soil and waste” overlying “a deposit of mixed rubble and clay” over

²⁹ Young, AC, 2001: *Site of the former Nailsea Glassworking Complex, Nailsea, North Somerset: Archaeological monitoring of geotechnical work.* AAU, Bristol

the natural. At c. 31m “A sandstone wall was exposed in cross section in the southern facing elevation of the cutting.” It was “formed of sandstone rubble bonded with coarse lime mortar and overlay 80mm of dark industrial soil. A pale soil layer exposed in section adjacent and to the southwest possibly represented part of a contemporary earth floor.” This would be the position in which one might expect to find the internal wall between {28} and {29} towards its eastern end, with the putative floor being that of {28}. Both {28} and {29} are described as “Brick Rooms” on the 1870 schedule, and the space is given over to “Pot Rooms & with a store in the same” on the 1830s plan, which shows no sub-divisions in this part.

TP 4/01 – 31.6m: This again contained c. 550mm of stratified dark industrial soil and demolition rubble underlain by a thin layer of clean clay with rubble, “possibly a remnant of a buried land surface that lay above undisturbed clay substrata at c. 30.8m AOD.” It would appear that this pit had just missed picking up structural features. It was either just outside a “Calcining house and Flattening Kilns” of the 1830s or just inside {72} “3 Storey Building. Cutting packing and assorting rooms.”

TP 9/01 – 31.4m: This was cut “through the floor of the former Managers House” [*sic*], Offices {1} fronting the High Street. Top of the natural was at c. 30.4m AOD with no significant archaeological features found. About 300mm of loose industrial waste including clinker and thin rods of glassworking waste overlay the natural. The pit appears to overlie a small, unidentified building on the east side of a yard on the 1830s plan, but the site was presumably completely cleared when the offices were built, sometime between 1844 and 1870.

TP 8/01 – 32.7m: This was in the area of the former car valeting shed. The sandy clay substratum was exposed at c. 31.3m AOD, overlain by up to 1.3m of very loose modern made ground. “A tip line exposed in the west facing section suggested the trench may have been cut through an archaeological cut feature.” This may have been part of the Old House Cone ancillary buildings to the north-west of the cone. The ground plan seems to have changed slightly by 1870, so a structure may have been totally demolished and the ground made up.

TP 10/01 – 32.0m: “The natural sandy substratum was revealed at c. 30m AOD” There were no archaeological features, the overlying fill being “highly mixed and unstable modern ground.....” Comparison with the original plans shows that this pit must have missed structures at each end by a very small margin, being laid transversely across what appears to have been an outside access-way on the north-east east side of the Old House Cone.

TP 11/01 – 31.9m: “The natural substratum of clean reddish-brown sandy clay was exposed at c. 31.2m AOD.” “Several distinct” [but not described] “archaeological units were visible within” the overlying “400mm of mixed dark soil and brick rubble with lime mortar fragments...” This pit lay within {28} – see the comments on this area in the section on TP 2/01 above.

TP 5/01 – 31.5m: “The natural substratum was not reached in the pit” which contained “in excess of 3m of highly unstable modern made ground” under 150mm of concrete. “the material appeared to reflect the fill of the former quarry, but did not seem to contain significant amounts of industrial residues.”

GT 1/01 – 31.8 to 31.9m: This trench, c. 15m long, was aligned a few degrees clockwise from north-south. The findings in this trench were consistent with the 1870 plan {31} “Pot Arch”, and the “later wall” found in the northern end of the trench could well be that going west-east from the easternmost corner of the former main garage building. What is not explained is “A well made stone culvert....c. 10m from the southern end of the trench, aligned approximately NW to SE.” It “was formed of flat sandstone rubble bonded with grey lime mortar and covered

with larger flat stones to form a squared central channel measuring c. 225mm x 200mm.” The direction of fall, if any, is not quoted, but it may have been a drainage channel from the building on the 1830s plan containing a “Room for breaking kelp”. Also, without more specific information no explanation can be offered for “A broad U-shaped cut feature....c. 2m from the southern end of the trench.”, other than that it might represent a robbed-out wall.

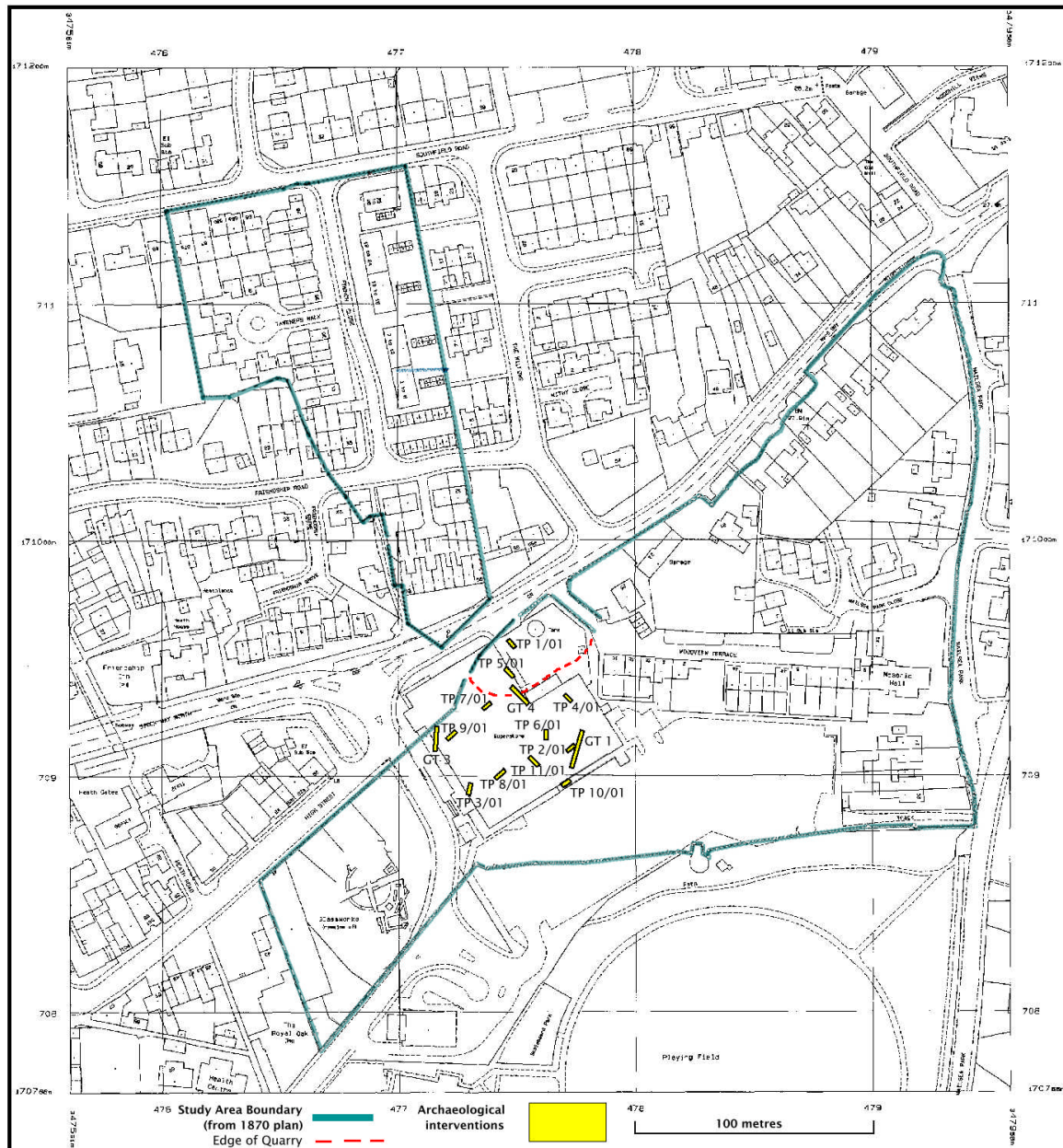


Figure 2.41: 2001 investigations on site-centred map.

GT 3/01 – 31.3m to 32.15m: No structural remains were revealed in this trench, which was taken deeper than c. 29.8m AOD, the level of the top of the weathered clay substratum. Under 400mm of hard cover lay up to 1m of loose industrial and glass working waste, being “particularly rich in thin rod-shaped glass fragments. This in turn overlay up to 1m of yellowish-brown clay containing sparse chunks of blue cullet glass.”

GT 4/01 – 31.5m: No archaeology was recorded in this trench, which overlay the edge of the former quarry.

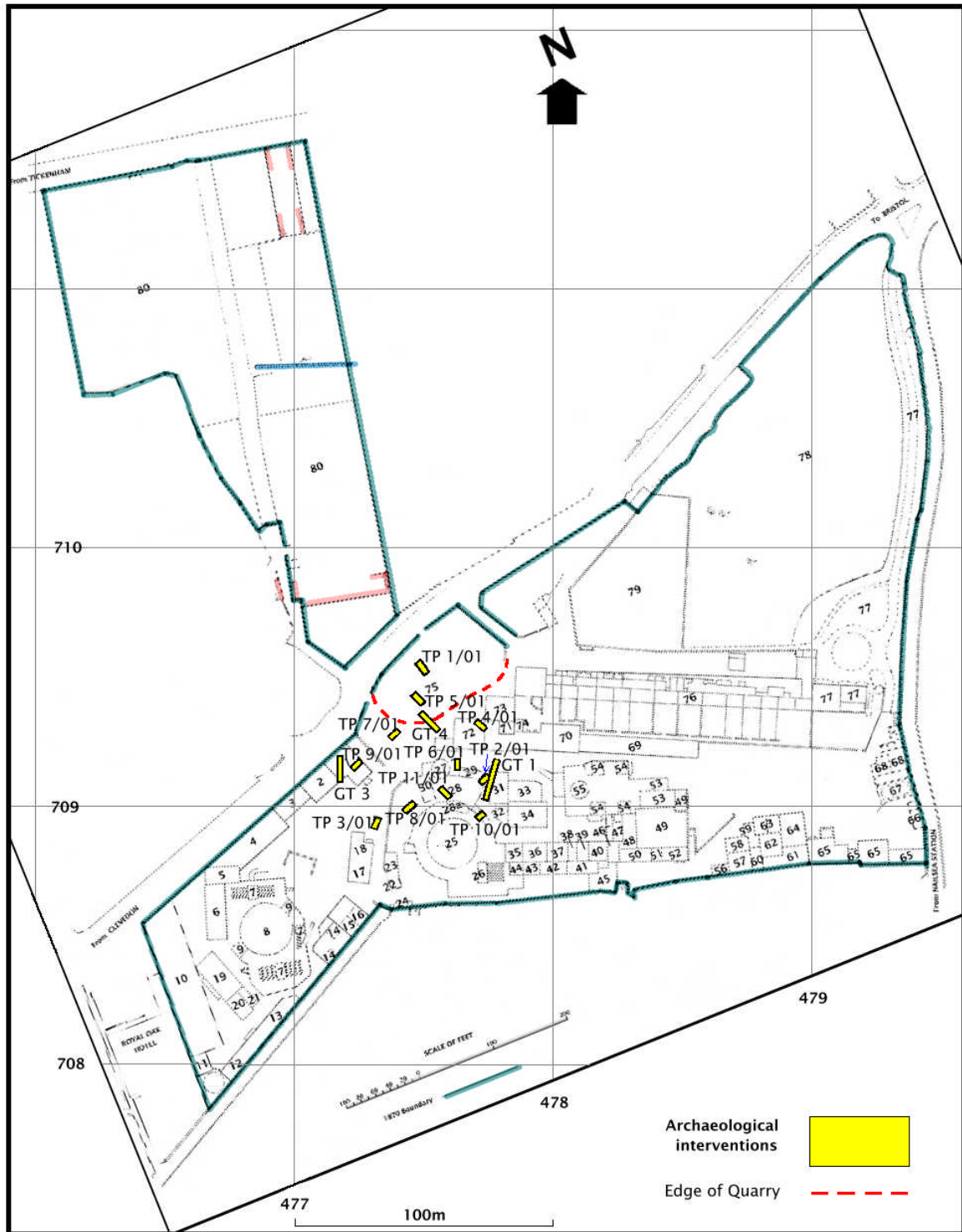


Figure 2.42: 2001 investigations superimposed on the 1870 plan.

In summary, the 2001 investigations confirmed that there were “significant archaeological deposits associated with the former Old House glass furnace in the area of the former Avon Motor Centre.” “The archaeological deposits were mostly preserved immediately below the modern concrete surfacing and were noted across the site to a depth between 1m – 1.5m.”

10. 2002

NS SMR Event 46503, in February 2002, was the penultimate intervention in this phase of the archaeology of the Nailsea Glassworks, and consisted of a “programme of Archaeological Observation and Recording undertaken by Avon Archaeological Unit on behalf of Tesco Stores Limited during January and February 2002. The project represented the final stage of archaeological work on a site off The High Street, Nailsea, and was designed to locate and record all significant archaeological remains associated with the important 18th to 19th century Nailsea Glassworks, as revealed during the course of the ground work for the construction of a new Tesco store.” “The archaeological work involved the monitoring of preliminary geotechnical work and the subsequent main earthmoving and store foundation stages. The central aim of the project was to locate and record all buried archaeological remains associated with the Old House Cone...”.

The records show that some sixty-four pits were observed, these being of varying sizes, from 1000mm square by 500mm minimum depth to 2750mm square by 1375mm minimum depth. This obviously took the contractors down to, or very close to, the level of any surviving archaeological remains. These pits were for the mass concrete bases for steel stanchions forming the frame of the building. One quarter of the pits had archaeological material in them to a greater or lesser degree. Because of the small areas involved, and the fact that they are now under mass concrete, only a quick examination has been made to correlate with the 1830s and 1870 plans, with some success principally in the vicinity of the Old House Cone and on a line running approximately north-east from the brick kiln {27} to {71} and {74}. (Figures 2.44 and 2.45 below). Only five could not be related to either plan, (e.g. No 50) which possibly leaves unanswered questions. Details are in the archive, which “will be deposited with North Somerset Museum ... under Accession Number WESTM 2004.14.”³⁰

This begs the question as to how much of the underlying archaeology had actually been destroyed by the construction and subsequent demolition of the garage complex. A typical pit, cutting archaeology, (No. 50), is shown in Figure 2.43, centred at NGR ST 47725 70898.



Figure 2.43: Foundation Pit No 50 from ESE.

³⁰ AAU Report, 2003, Summary, p.2

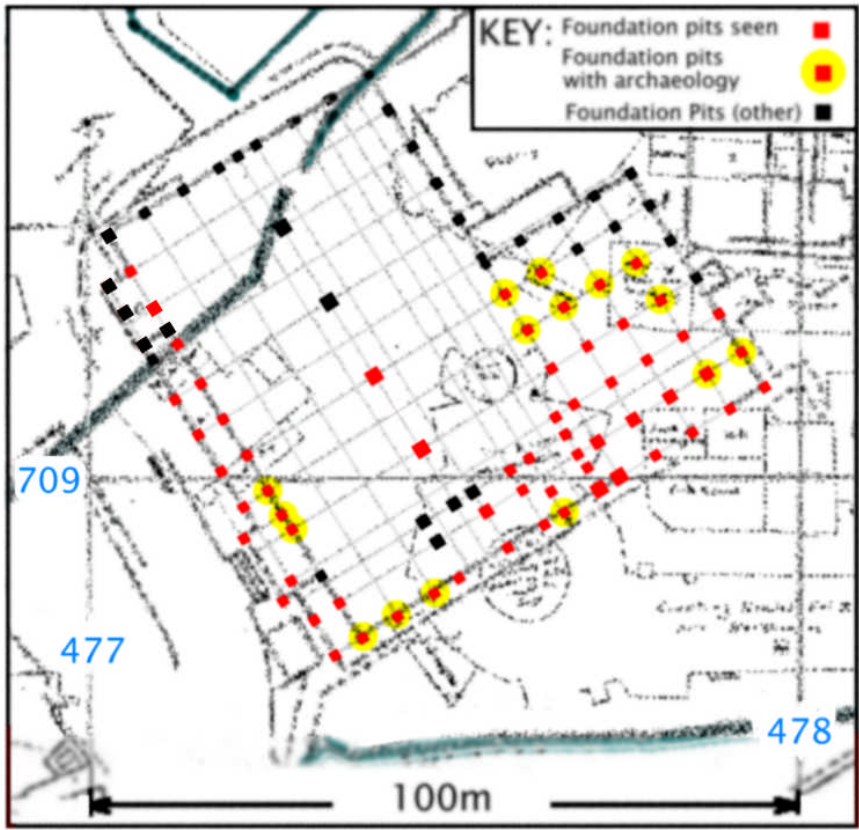


Figure 2.44: Superstore foundation pit plan superimposed on 1830s plan

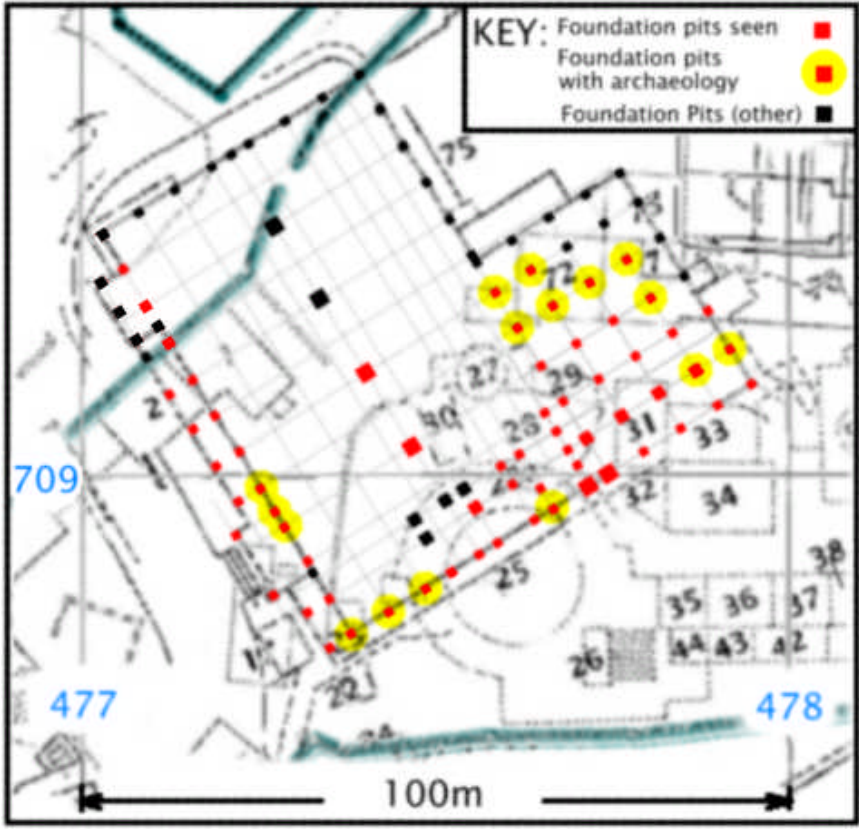


Figure 2.45: Superstore foundation pit plan superimposed on 1870 plan

It is clear from photographs that recording the foundations and such internal arrangements of the Old House Cone as remained was all that was going to be acceptable to the client. While these were being located “the area of the proposed new access and car parking was cleared using mechanical excavators.” Before going to the detail of the cone area, mention should also be made of three features exposed during this clearance. There is no mention of them in the report, but they are noted in the archive, two in writing, and one in the photographs.



Figure 2.46: Northern chamber.

[Right]

Figure 2.47: Southern chamber

The second was on the southern boundary of the main site. It is believed to lie “adjacent to and ? inside the former boundary wall separating the site from the playing fields.” [To the south.] Its dimensions were c. 7m x 2.5m x c. 2m deep, and it was “formed of sandstone rubble, faced and rendered with greenish-grey mortar.” The waterline was about 2.5m below modern ground surface. (See Figure 2.47, view looking approximately east.) The foundations of the boundary wall were not observed, so to that extent the position is conjectural, but its location as

The first was in the vicinity of the northern corner of the former garage building, which would put it in the area centred approximately at NGR ST 4777 7054. It is described as, “A vaulted stone cellar/chamber 3.1m x 3.5m x >1m deep exposed immediately below the foundations at the approx. N corner of the former garage.” With two inlets, “The structure appears to have been wholly intact prior to disturbance by plant and seem to represent a water store/cistern of c. 19th century date. The structure will be filled with inert fill and remain in situ (probably).” (See Figure 2.46, a view looking approximately WNW.) The location would put it in the vicinity of {72} and {73} in 1870 and/or possibly an “Engine House” in the 1830s.



recorded does correspond with an open feature shown on the 1988 OS 1:1250 Sheet 4770NE, centred on NGR ST 47772 70865. In this position it would have lain between the southernmost extension to the Old House Cone and the adjacent boundary, as shown on the 1870 plan.

The third lay to the west of the former garage building, and from the photographs appeared to have more brick used in its construction than the other two, and had a rectangular formed access hole in its vaulted brick roof. Its precise location does not seem to have been recorded.

Considering the remains of the Old House Cone, in 1994 the average level in the area occupied by Trench 1, to the south of the concrete block retaining wall, was recorded as 34m AOD. That of the Test Pit, to the north of the same retaining wall was 33m AOD. The more easterly area for car parking in the area of Trench 2 was, on average, 32m AOD³¹. These relationships can be seen in Figure 2.33, from 1995, where the retaining wall cuts across the bottom right-hand corner of the picture. The Test Pit was immediately beyond the wall in the same general level as the excavated area of the cone, and the area of car parking, at a lower level, is in the right background beyond the white fence. Figure 2.32 gives a close correspondence to the photograph, but in plan form.



Figure 2.48: New House Cone, showing foundation extension - western sector

It appeared from the photographs taken during the 2002 phase that the Old House Cone had been truncated even further since 1995. This was confirmed by the recorded levels. For example, in 1995 the level at the top of the cone wall on the left-hand side of the airway as one looked north-east towards the centre of the cone was 32.95m AOD. This would have been close to the average level for both sides of the airway and related structures. In 2002 the recorded level close to this point was 32.13m AOD, so material in the order of 80cms had been removed from the structures at some time in the intervening period. The net result can be seen in the photographs – there is no clear sign of where the airway crossed the line of the cone wall, at either end. What was left is shown in Figure 2.49, below (Figure 1a from the 2002 report.)

Despite this, and despite the work being undertaken in February, often under poor weather conditions, and as can be seen from the

photographic archive, contractor pressure, some further useful information came from the work. Not all of it is included in the report itself: some has been derived from the archive.

³¹ Parry, 1994, p5.

The following is largely taken verbatim from the report.³²

“Structural remains relating to the Old House glass cone, comprised the masonry foundations of the cone wall and the remnants of one of the main tunnels that provided access and air supply to the furnace at the centre of the cone.”

The foundation wall “which formerly supported the superstructure of the Old House Cone”, had a “pronounced inward batter”, with an overall diameter of approximately 21.5m. The masonry was built in a shallow foundation trench in the natural sandy substrata and formed of roughly coursed sandstone rubble bonded with pale lime-based mortar. The footings were slightly wider around the exterior face at a level of 31.6 m O.D.” (See Figure 2.48 above.) The wider foundation was not found on the interior, and did not seem to be of uniform width. (Context 1000 from archive.) No relieving foundation arches, such as were found in the New House Cone, were noted.

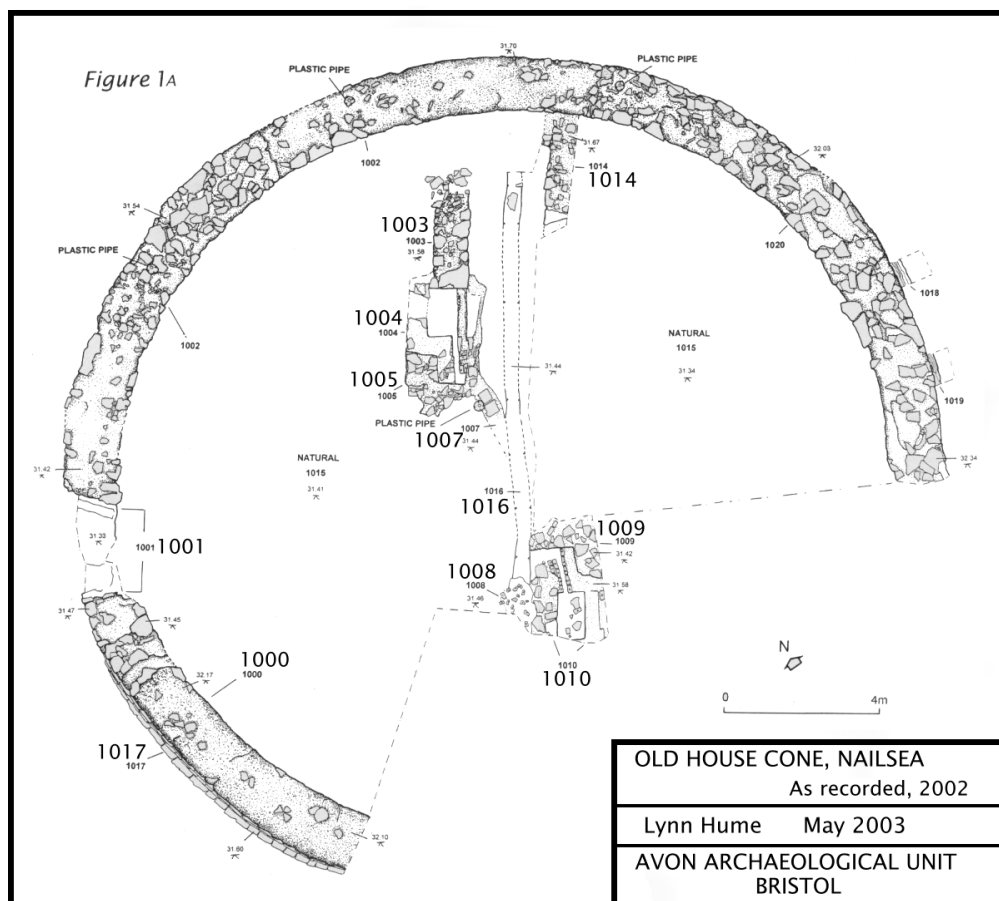


Figure 2.49: 2002 - Recording of Old House Cone, Nailsea – Figure 1A from 2002 report.

“The probable position of an entrance or airway (1001, **figure 1a** [Figure 2.49]) was indicated by a dark lime-based mortar with the impression of dressed stone on the north-western side of the cone.” Unfortunately this cannot be proved. However, the levels at the north-eastern end of the main airway had been reduced to 31.7m AOD and there was no sign of the airway cutting the cone foundation wall there, and 1001 lay lower at 31.33m. Additionally the top of the foundation wall at the opposite side was over 32m. and showed no sign of a breach nor, apparently, did the “natural” inside the cone which was also higher. On the relevant context sheet in the archive it is judged to be a later insert, with no function suggested. It is not known

³² AAU, May 2003

what normal practice might have been, but with the New House Cone as a model, the airways there were at approximately 90° to each other centred on the centre of the cone. Examination of the drawing shows that this configuration would not have applied here. Incidentally, the cone foundation as drawn is slightly ovoid, whereas one of the GPS based plots in the archive at 1:150 scale approximates much more closely to a circle.

“Two similar rectangular brick and stone built structures (Features 1004 [“North”] and 1010 [“South”]) were located approximately centrally inside the foundation wall. Both structures were bonded with ash flecked lime-based mortar and positioned along [and either side of] the central line of the cone structure. Each ... appeared to have originally contained a squared central void or chamber connected to a brick-lined drain or channel (1016). The same brick structure [1010, the southernmost] was located and recorded during the 1995 Excavation (Parry & Hume, 1995, context 363). The function of the ... structures was not determined with any certainty although it was suggested to represent either a furnace box or possibly an access point into the main airway ...”



Figure 2.50: Old House Cone South furnace box?



Figure 2.51: Old House Cone North furnace box?

From the context sheets both features, shown above in Figures 2.50 and 2.51 from the east and south-east respectively, were virtually identical in size and construction. The southernmost had a “main fill of black cinder/?fuel waste (sampled)” under “brick and sandstone demolition rubble”, and was “>250mm deep”. The other feature again contained demolition material some of which appeared to adhere to the internal surface in one corner, with a water-filled void of unknown depth below.

The location of the cone is uncertain with respect to the OS national grid (there are two GPS plots in the archive that give (a) slightly different grid references from each other, and (b) both place the cone too far north and east. This, combined with a doubt about the accuracy of the final drawing, Figure 2.49 referred to above (as it was combined from several individual sector

drawings), has meant that it has not been possible to determine the exact relationship between the results of this intervention and that of 1995. However after some examination it does appear that the structure described here as the “South furnace box?” is in fact the base of the chamber revealed in 1995 and discussed in that section. The concern was the possibility of there having been two or more phases of construction. The presence of the residue here does reinforce the “furnace feeder” hypothesis for this part of the structure. However, the function of the narrow virtually right-angled connection to the channel in the airway (obviously part of the design, because it appears on both sides) is not yet understood, nor is the fact that the bottom of these features appear to be lower than the airway floor, no trace of which seems to have been found at this time. [See further discussion in Part 3.]

“The remains of two parallel rubble walls (**figure 1a**; Features 1014/1009 and 1003/1005) appeared to be bonded with Structures 1004 and 1010 and possibly represented a continuation of the side-walls of the under-floor airway initially recorded during the 1995 excavations (Parry & Hume, *Ibid.*, **figure 2a**, Contexts 306, 307 and 308).”

“An area of disturbance (1008), containing brick fragments loosely bonded in lime-based mortar, was located immediately adjacent to Structure 1010 (**figure 1a**). The deposit was not fully excavated but appeared to represent the disturbed remnants of a replaceable brick or refractory lining, the type which would have been originally attached to the inner face of the airway walls...” [c.f. Figure 2.31 above.]

“The location and dimensions of a narrow duct (1007), aligned north to south and capped with sandstone slabs laid within a grey lime-based mortar bed, appeared to represent a continuation of a duct which ran along the eastern side of Airway 364 and recorded during the 1995 excavation (Parry & Hume, *Ibid.*; context 379). The close association between the duct (1007/379) and the airway (364 [1995]) suggested that the former acted as a flue which served the central area of the cone.” [This interpretation has already been queried above, pps. 42, 46.]

“The function of a second narrow northeast to southwest aligned gully (1016) was not ascertained.” It appears to be a continuation of contexts 357 and 359 from 1995 which were not interpreted in that report. It appears from the drawing that 1016 cuts 1007, which would support the interpretation of 1007 above, because 379[1995] was on the opposite side of 1016-359-357 from 1007. In 1995, 379 abutted the south-eastern airway wall. The recorded level of 32.01m AOD (1995) some 12.5m south-west from the centre of the cone and that of 31.44m AOD (2002) about 2.7m to the north-east, might indicate a drainage function. However, there was no recorded breach in the cone foundation wall (31.70m AOD on an extension to the line of 1016), or indications of a soak-away pit, to support this as an interpretation.

In summary, “The archaeological monitoring enabled the location and recording of a large part of the foundations that supported the 18th century Old House Glass Cone prior to their destruction.”

“In combination with the evidence recorded during the 1995 excavation (Parry & Hume, 1995) the work enabled” [virtually] “the total footprint of the furnace cone” [with the exception of approximately a 40° sector to the south-east] “to be defined and recorded archaeologically. Unfortunately, the construction of the former petrol station had either severely truncated or totally destroyed the glass working structures and features originally sited within and located on the north side of the Old House cone. In the area of the latter what remained consisted of an extensive deposit of mixed rubble, mortar and industrial waste that was revealed in some of the foundations for the new store but which provided no new evidence concerning the layout or function of the buildings and structures originally present.”

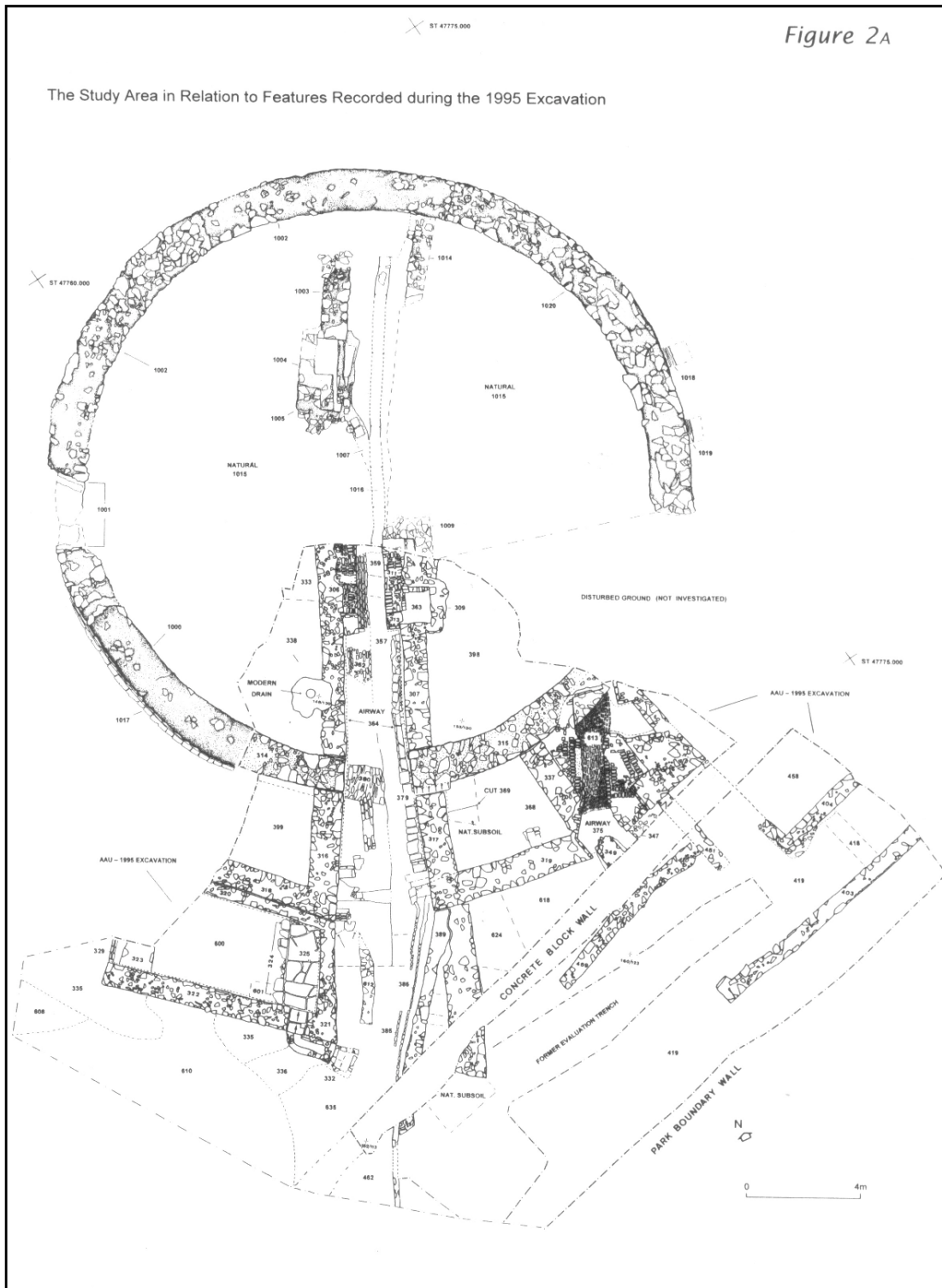


Figure 2.52: Old House Cone composite 1995 + 2002 - Figure 2A from 2002 report

It should be noted that the grid references shown on Figure 2.52 are not accurate. This is not reflected in the positioning of the excavated area in Figures 2.54, 2.55, 2.56 and 2.57 below. These show the cone foundation in the position corresponding to that from the 1870 plan and also as confirmed by the 1995 excavation



As the recording was being completed, so there was encroachment on the site, and the final destruction of the Old House Cone was photographed before the archaeologists had left site (Figure 2.53.)

Figure 2.53: Old House Cone - Final destruction, 2002

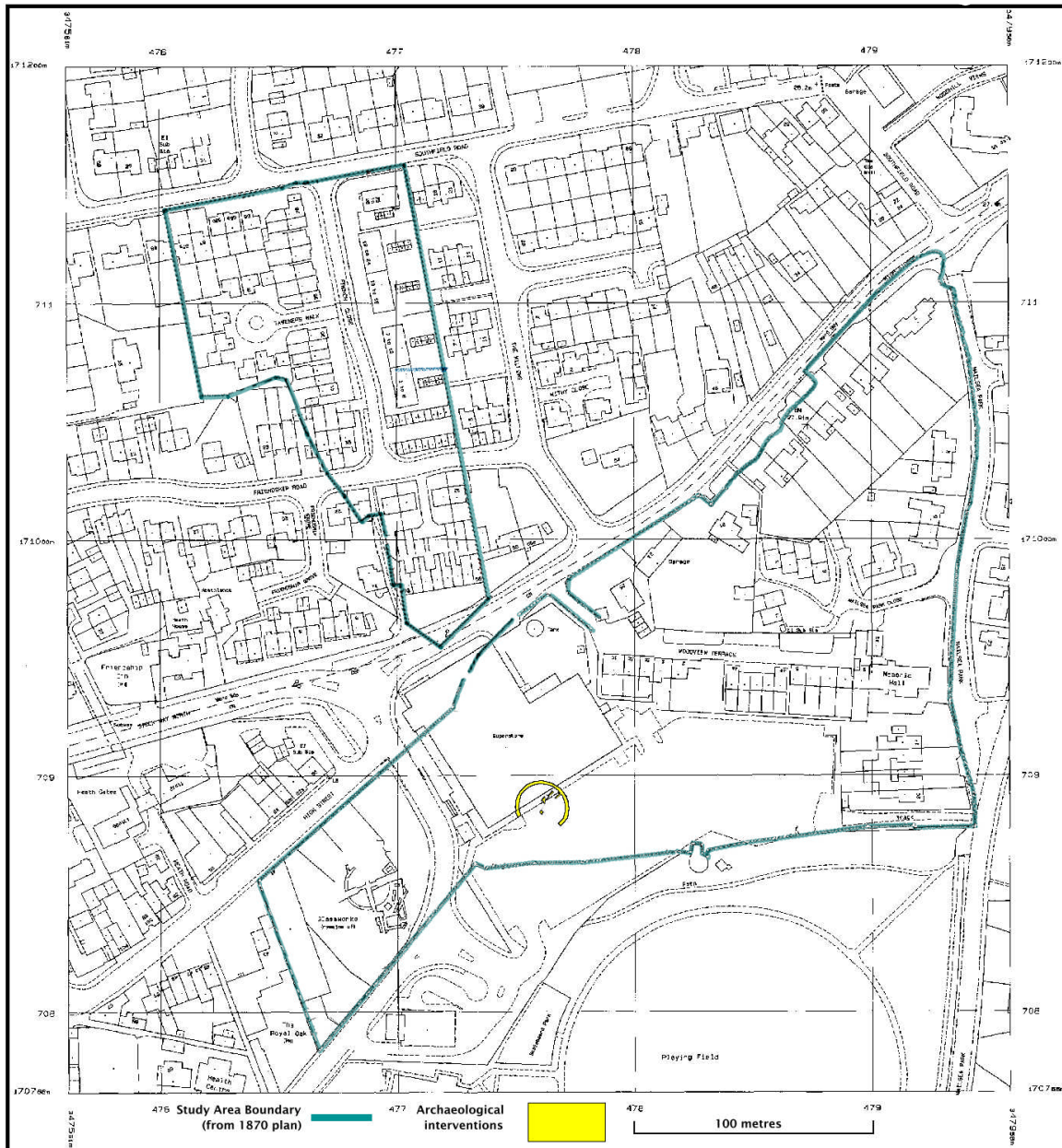


Figure 2.54: 2002 salvage/watching brief recording on site-centred map.

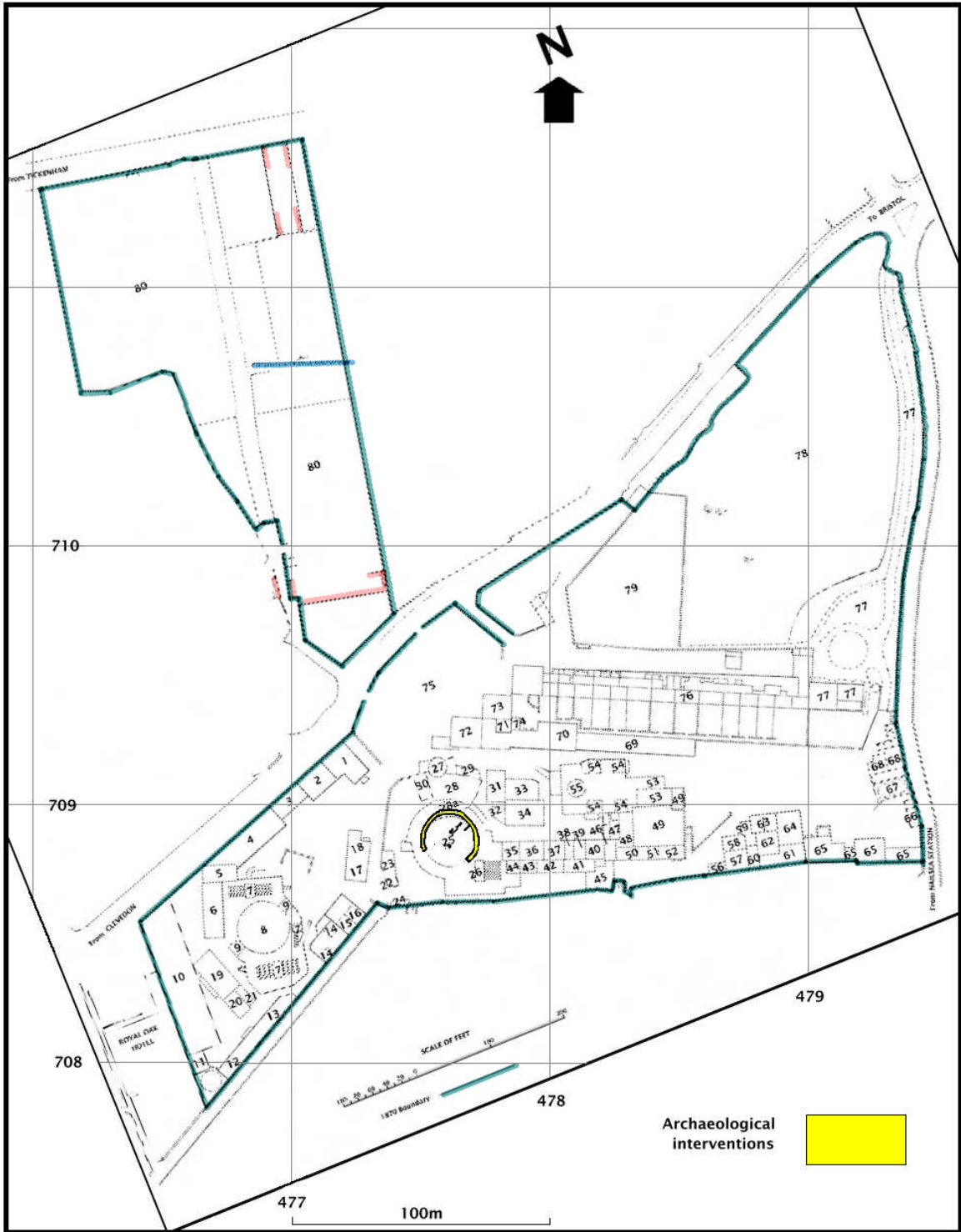


Figure 2.55: 2002 salvage/Watching Brief recording superimposed on 1870 plan.

11. 2003-4

This has seen what might prove to be the most significant archaeological intervention for twenty years, namely the proposal by English Heritage to schedule the remaining elements of the glassworks. [Thanks to ADS there was an opportunity to update this section before final release.] After some negotiation the scheduled area has been agreed, and consists of the

remaining extant structures associated with the New House Cone and everything below floor/ground level in the remainder of the scheduled area. This is the area bounded by the High Street to the north, the new road between the New House Cone environs and the superstore, the continuation of that road running to the south-west approximately parallel to the High Street and the north-north-west to south-south-east boundary with 'The Royal Oak.' The former French Kiln building {10}, is excluded from the scheduled area. Broadly speaking the superstore car park, and the engine house etc on the playing field, are understood to be the basis for the remaining area. Details are given in Appendix 2.

SUMMARY

Continuing the diagrammatic representation of the interventions, Figures 2.56 and 2.57, below, show the overall picture, as recorded in the respective reports etc., on the modern site-centred map and the 1870 plan respectively.

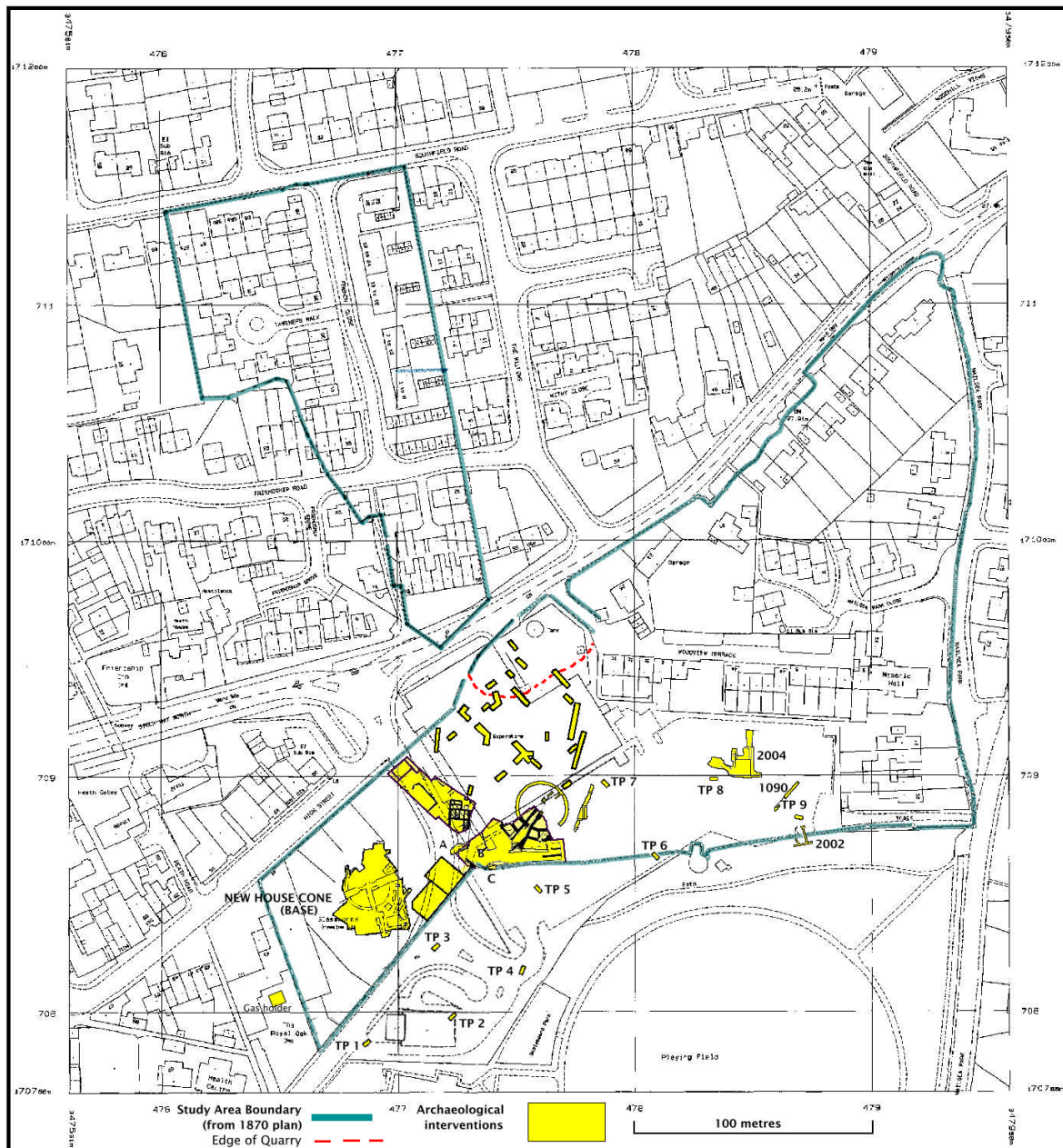


Figure 2.56: Summary of interventions on the site-centred map

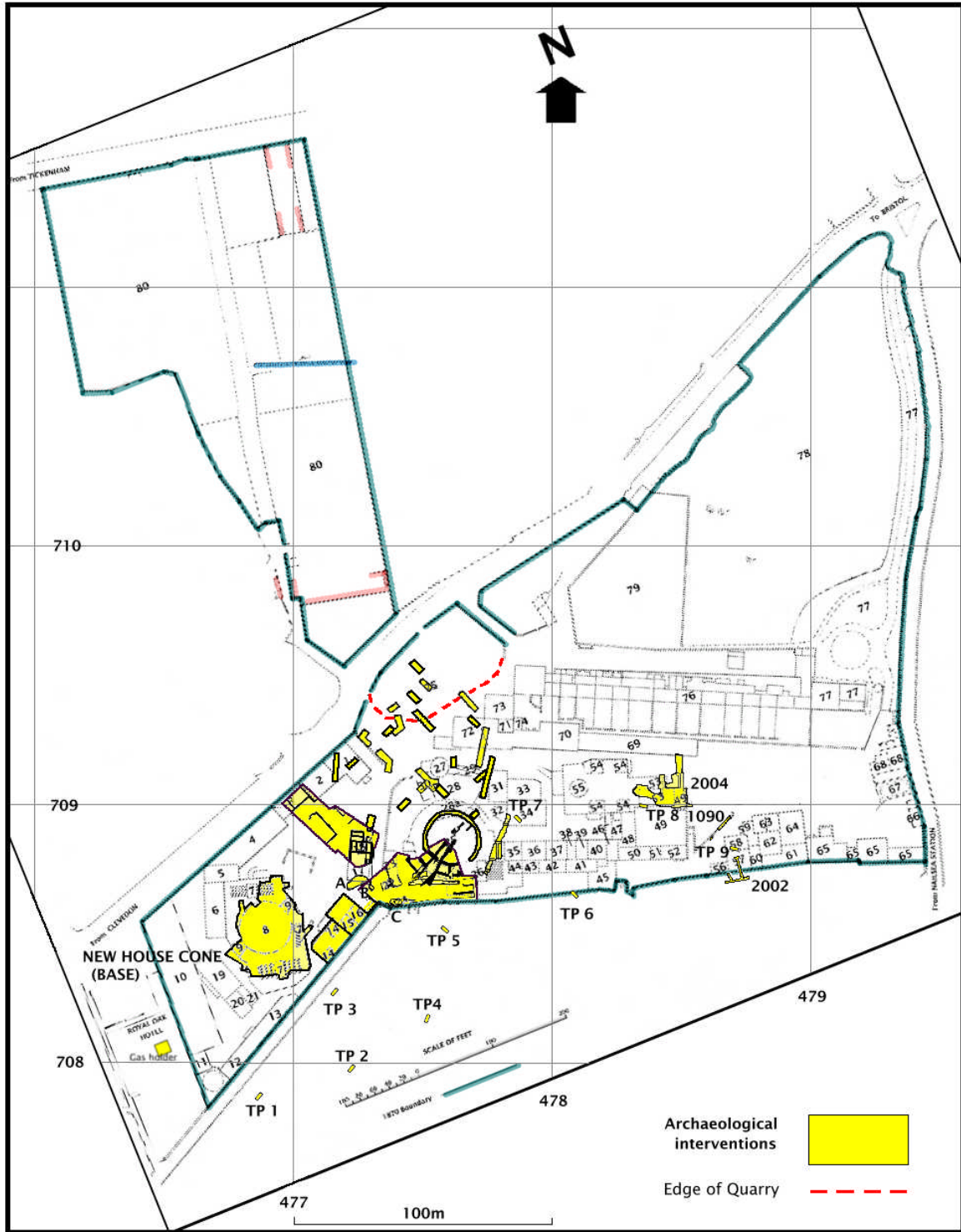


Figure 2.57: Summary of interventions superimposed on 1870 plan

It can be seen by inspection that really only a very small portion of the site has been sampled, and the emphasis has largely been on the cone areas, with little of real value being gained from the remainder, other than as commented below.

In summary, there is little else to say, other than it is a great pity that the details from the earliest excavations appear to have been lost, and that the later interventions had not occurred before the overall development of the site. This is not a criticism — it is merely that the

background that has been explored in this study has, with the benefit of hindsight and time, raised a number of questions. Unfortunately most of these have not been answered.

In 1992, Mumford, with some foresight, wrote, “Taken together, the remaining archaeological features form an integral and important part of the glassworks complex at Nailsea, and in particular, some of the best surviving remains of a post-medieval glassworks site in the west of England. This glassworks site played an important role in the development of the technology of the production of window glass in the nineteenth century. It was also crucial in the development of the settlement of Nailsea and formed an economic basis for its nineteenth century expansion.”³³ He went on to make some very worthwhile recommendations, but it does not appear that they were heeded to any great extent, for reasons not known.

Nailsea and [industrial] archaeology have therefore both missed a real opportunity to examine and record in considerable detail what appears to have been an extensive and significant site, even post-demolition, and are the poorer for it. This is understandable – in any given period things seem to have a permanency, and when they are abandoned are recent enough not to be of interest. Furthermore, development had started on the site before the advent of changes in planning policies and practices with respect to known archaeology, namely Planning Policy Guidance Note No. 16 in November 1990. [The writer has come across this attitude in another context – having been told that a considerable effort has been made to conserve and/or record South Wales brass works from the 19th century, considerable surprise was expressed by the speaker when he was asked what efforts had been made to record municipally owned electricity generating stations from the early 20th century in the same area.]

It is recognised that there is a certain amount of hindsight being applied here. Initially, what was essentially a rural County probably did not have the resources to deal with, or even possibly any interest in, the industrial archaeology of a community on its northern perimeter. Then came a Local Government re-organisation and the new Local Authority probably had other priorities. The situation was not helped by a repeat performance of a further re-organisation a few years later. Additionally, perceptions of the wider public have changed over the intervening years. [Certainly there was for a long time a very enthusiastic pressure group for the preservation of the glassworks site within the local community, but it appears that when it mattered they were unable to command wider support.] Landowners naturally wish to maximise the return on their investment, and a site like this in proximity to the town centre must have appeared to have the potential to be very worthwhile. If the decision had been made to purchase even a significant portion of the site somehow, there would still have been major problems with funding, maintenance and security.

Having said that, the principal benefit from the interventions appears to have been the confirmation of quite a lot of the two ground plans of the major part of the actual glassmaking part of the site. Sufficient has been learned, it is suggested, to give assurance that these plans can be relied on for accuracy. The 1870 version seems to be very accurate, as far as it was tested, and that of the 1830s slightly less so. We already have, therefore, a certain, very limited, amount of preservation by record. It should be noted that it appears that throughout the entire period of investigation the original 1870 drawing does not seem to have been referred to very much, if at all. In most reports it is a later, more schematic, transcription that is used. Neither are any comparisons with the 1830s plan obvious. [The reference to ‘comparisons’ is a reminder that it should maybe explained that many ‘comparisons’ between plans mentioned in the study were made not by inspection or by eye, but by translating them to a common scale

³³ Mumford, 1992 Chapter 5, p 11

and having the reference plans printed on tracing paper. In this way direct comparisons were possible.]

We still have unanswered points of detail about the Nailsea glass works, the processes employed and how they functioned as a whole. Neither do we have an accurate timeline, as there appears to have been virtually no dating evidence recorded, or datable material recovered from the interventions. It must also be recognised that a glassworks does not spring up overnight, and that there will have been a finite time between site acquisition and initial production. It is also clear that there were almost certainly continuing developments within the works other than those currently recognised. All these may now only be determined by extrapolation from other sites.

It may well be that this publication might just stimulate some further details from private papers, etc., coming to cast some further light. It is very much to be hoped that this might be the case, and indeed it would be most welcome.

[As a postscript, it should be noted that there was an item in the *Bristol Evening Post* of 22nd February, 2005, p. 36, reported by Gerry Brooke under the heading “Town glassworks was big business”. It included the statement, “Now, since the beginning of the year, things have at last started moving. The owners, Hobbs Properties and North Somerset Council, in consultation with English Heritage, are clearing trees and undergrowth from the [New House Cone] site and filling in the potentially dangerous glass-making pits with sand and aggregate. And the council has appointed architects to carry out an option survey to decide on a blueprint for its future.” I am grateful to John Hunt of the Bristol and Avon Archaeological Society for drawing my attention to this article and to Trevor Bowen for telling me about the clearing. The purpose has been to stabilise the site archaeologically to prevent further damage by vegetation and vandalism and weather, at last, until its future is resolved.]

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AC indicates Ashton Court Collection. The Ashton Court estate was sold to Bristol Corporation in 1947, but many of the documents were sold by public auction. A large number, though, remain in the Bristol Record Office.

Sturge Deposit 32395 (25) 1830s annotated plan of glassworks main site

Sturge Deposit 37959 (22) 1870 annotated plan of glassworks

APPENDIX 1 - Samples from Weston-super-Mare Museum to English Heritage

(With thanks to Dr D Crossley for compiling this list.)

Context	Box label	Description of contents [And GR if any]	Date excavated
1	NG83	Area E: glass and clay pipes	1983
[F]2	F5	lumps in clear to pale green	
3	NG83 Box 2	Entrance through cone wall to furnace: 2C green glass 2D colourless moulded fragments; ?prism; 29 vials. 2F fragments – various 2H clay tobacco pipes 2I glass lumps and distorted flat glass 2J clay ring fragments	
[F]5	F5	lumps in clear to pale green	
8	NG83A	Cullet	1983
9	NG83A	Cullet	1983
10	NG83 box 5	Soil sample 8 [bag 5R]	1983
		Soil sample 5 [bag 5P]	1983
	1983 – 10	Labelled cylinder glass	1983
11	NG83A	Cullet	1983
12	NG83A	Cullet	1983
13	NG83A	Cullet	1983
14	NG 83A	Cylinder glass [marked]	1983
	NG83 box 5	Soil sample 9 [bag 5Q]	1983
[A14]	Box 1, A14	lumps and stands in clear/pale green	
16	NG83A	Cullet	1983
18	13	fragments of ?press-moulded glass Formerly ‘domestic life’ bottle fragments	
	11	bottle fragments and lumps; large lump of ‘black’ glass	
19	NG86 C19	Clear vessel and lump	1986

22	NG83	Area B: glass and clay pipes		1983
24	NG83	Area A: glass and clay pipes		1983
	NG86 Samples	Soil sample		18/11/86
26	NG83	Area B: glass and clay pipes		1983
	NG86 Samples	Soil sample from SW airway: bottom of C18		
		004008		1986
27	NG83	Area B: glass and clay pipes		1983
	NG86 Samples	SW airway: soil sample from below C 18 & 26	004 088	18/10/86
28	NG83	Area B: glass and clay pipes		1983
29	1989.66 NH	Pale green lump from crucibles		1989
		Colourless trails		
	NG86 Samples	Sample 01 [or 07]		27/11/86
30	NG86 Samples	Soil sample 02		27/11/86
31	NG86 Samples	Soil sample SA06		8/12/86
	NG86 Samples	Soil 'Sample B'	280 010	2/12/86
	NG86 Samples	Soil 'Sample A'	330 005	8/12/86
33	NG86 Samples	Soil Sample 07	270 010	9/12/86
42	NG86 Samples	Soil Sample 08	279 002	6/1/87
43	NG86 Samples	Soil Sample 09	290 010	26/1/87
44	NG86 Samples	Soil Sample 10	297004	26/1/87
	1989.66 NH	Small bags of very dark opaque trails		
45	NG86 Samples	Soil sample	290010	22/1/87
333	No mark	'Glass from below lifted floor		
335	'Complan carton'	Variegated Blue and clear glass strand		
338	'Complan carton'	Sample 25: ?gall		10/2/88
340	No mark	North trench: 'north ten stage blowing hole': clear lump		

The analysis results appear in the Report by Gareth Hatton from English Heritage in Part 3, Appendix 7.

APPENDIX 2 – Scheduled Area details (courtesy of English Heritage)

In chapter 11 an outline is given of the area proposed for scheduling as understood at the time of completion of the text. In November 2004 the final decisions were taken over the scheduling of the Nailsea Glassworks site. The outlines of the scheduled areas of Scheduled Monument SM28884 are shown on the site centred map as Figure 2.57, and on the 1870 plan as Figure 2.58, below. I am very grateful to Nina Walburg of English Heritage for providing me with the information to complete this aspect of the study, included as an Appendix to minimise re-ordering the original text.

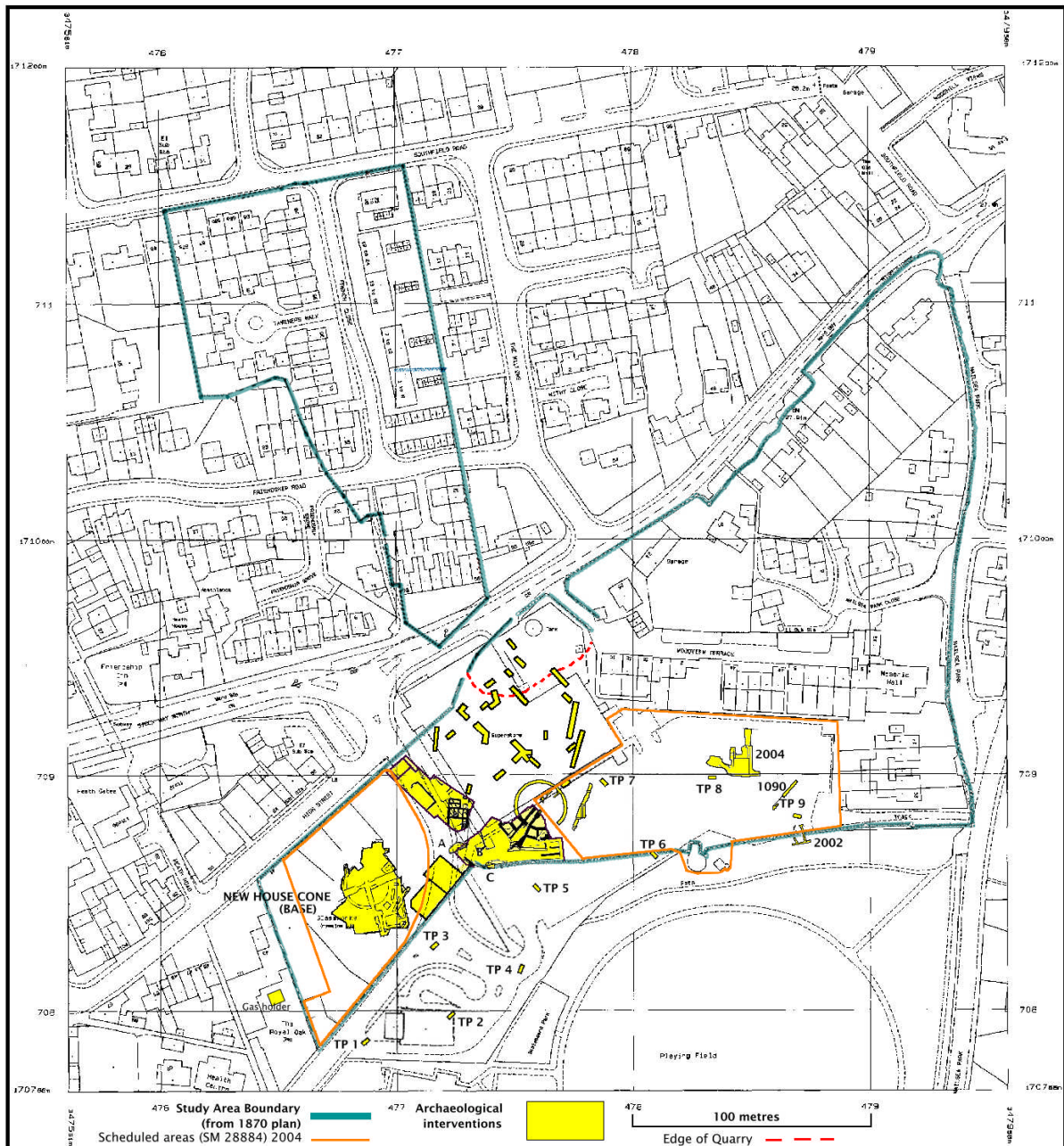


Figure 2.58: Scheduled areas in relation to the summary of interventions on the site-centred map

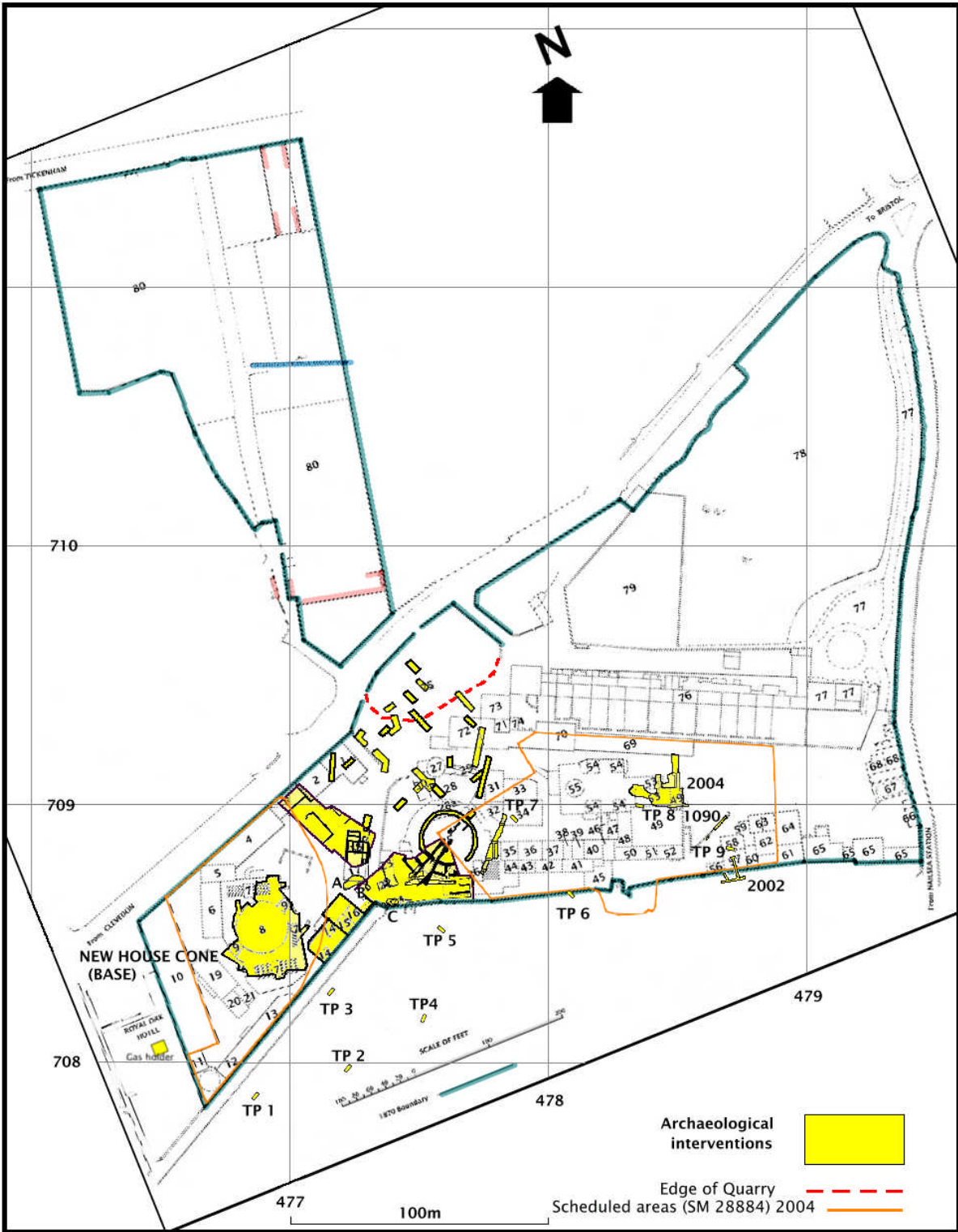


Figure 2.59: Scheduled areas in relation to the summary of interventions superimposed on 1870 plan

There is concern about the content of the “Description of the Monument”, included in the scheduling document, which is at some variance with the content of this study, so it has not been reproduced here. The matter is being pursued with English Heritage separately.

AFS. February 2005.