Pembroke Learning Campus, Bush Hill, Pembroke

Archaeological Watching Brief on Trial Pits

Date: 25 March 2016
By: Dave Gilbert & Simon Ratty
Client: Bouygues UK
Project Code: PLCI 16

RUBICON HERITAGE

Pembroke Learning Campus, Bush Hill, Pembroke

Archaeological Watching Brief

Client	**Bouygues UK**
Project Code	**PLCI 16**
Prepared By	**Dave Gilbert**
Fieldwork Directed By	**Simon Ratty**
Illustrated By	**Rubicon Heritage**
Approved By	**Dave Gilbert**

Rev Number	Description	Undertaken	Approved	Date
1.0	Client Draft	SR	DG	25/03/2015

CONTENTS

FIGURES

1. EXECUTIVE SUMMARY

1.1.1 This report presents the results of archaeological monitoring in relation to a proposed Pembroke Learning Centre during the excavation of geotechnical test pits on behalf of Bouygues UK.

1.1.2 Site work was carried on between the 22nd and 24th March 2016. Seventeen trial pits were investigated during the course of the work

1.1.3 No sub-surface archaeological remains were found in the area although deposits of modern made ground were mapped to provide indicative areas suitable for a programme of geophysical survey.

2. INTRODUCTION

2.1 Project Background

2.1.1 Rubicon Heritage Services Ltd. (hereinafter Rubicon Heritage) was commissioned by Bouygues UK to undertake a programme of archaeological monitoring at the site of the proposed Pembroke Learning Centre during the excavation of geotechnical test pits.

2.1.2 A Written Scheme of Investigation (WSI) was submitted to the Local Authority Planning Archaeologist in March 2016 and approved. Fieldwork was carried out the same month.

2.2 Site Location & Description

2.2.1 Centred on National Grid Reference SM 97837 02568 the proposed site of the new Pembroke Learning Campus is situated off of Bush Hill, Pembroke. Previously an area used as a sports field for the present school.

2.2.2 The British Geological Survey website (http://maps.bgs.ac.uk/geologyviewer) was consulted to determine the underlying geological deposits across the site. The northern half of the site is located on deposits of Milford Haven Group – Argillaceous Rocks and Sandstone, interbedded. To the south is Ridgeway Conglomerate Formation, a sedimentary bedrock. The overlying superficial deposits are not recorded.

2.3 Proposed Development and planning background

2.3.1 Planning application 14/0901/PA, for the demolition of the existing school buildings and the construction of a new secondary school and leisure facilities, has been granted consent by Pembrokeshire County Council (January 2015).

2.3.2 The proposed redevelopment covers the site of the extant school and its playing fields, together with several surrounding fields.

2.3.3 This watching brief forms the first stage in a programme of evaluation to be carried out on the site by as part of the planning permission (planning ref. 14/0901/PA) for the Pembroke Learning Campus.

3. AIMS & METHODOLOGY

3.1 Scope of Works

3.1.1 The scope of the work is to carry out an archaeological watching brief to the satisfaction of the local planning authority and their archaeological advisors (DAT Development Management), to inform the requirements by the proposed planning condition. A programme of further mitigation will also be required following the results of the watching brief which will require an additional WSI. The overall objectives are to:

- identify all archaeological remains revealed during the course of ground disturbance within the agreed area;
- ensure the preservation by record of all archaeological remains revealed during the course of the ground disturbance;
- prepare an appropriate archaeological archive of the site, including the treatment and preservation of any finds, and an appropriate report describing the results and their significance.

3.2 Aims of Works

3.2.1 The aims of the watching brief proposed in this WSI are to:

- Determine the extent, condition, nature, character, date and significance of any archaeological remains encountered.
- Determine areas of made ground that would affect the results of a proposed geophysical survey.
- Establish the nature of the activity on the site and accurately sequence the different phases.
- Identify any artefacts relating to the occupation or use of the site.
- Provide further information on the archaeology of the site from any archaeological remains encountered.

3.2.2 These results will be used to inform any potential need for further archaeological mitigation works.

3.3 Methodology

3.3.1 All fieldwork was undertaken in accordance with current best practice and the CIfA's standards and guidance for archaeological watching brief (CIfA 2014). All invasive ground breaking works will be monitored by a suitably experienced and qualified archaeologist.

3.3.2 The groundwork was undertaken between 22nd and 24th March 2016 by a mechanical excavator equipped with a flat bladed grading bucket, under archaeological supervision. The area around the test pit was stripped of topsoil before a smaller bucket was used to excavate the test pit. Any identified upper deposits were cleaned by hand to define their extent, nature, form and, where possible, date. No deposits below 1.2m were investigated by hand.

3.3.3 Where potential archaeology was encountered the mechanical excavator was halted in the affected area until the deposits had been resolved.

3.3.4 All information identified in the course of the site works was recorded stratigraphically, with sufficient pictorial record created to identify and illustrate individual features, had any been encountered. It should be noted that, where possible, data will be collected and stored digitally and in a format suitable for long term storage by the Archaeological Data Service (Richards et al, 2000). Primary records will be available for inspection at all times.

3.3.5 All potential archaeological deposits encountered were planned and recorded. The work included, as a minimum, the recording of individual contexts on appropriate pro-formas; plan and section drawings of appropriate single contexts and features (at 1:20 and 1:10 scales, as deemed commensurate with the subject); photographs and other appropriate drawn and written records.

3.3.6 The recording included where appropriate:

- The recording of individual contexts on pro-formas
- Overall excavation plans at 1:50 scale; planning and section drawing of single contexts and features (usually at 1:20 scale for plans and 1:10 scale for inhumations and sections)
- Photographs; and other drawn and written records.

3.3.7 Site photography was by high resolution (12 megapixel or greater) colour DSLR photography. Photography includes general site shots, shots of each trench, and shots of individual features and groups of features. All photographs are recorded on a photographic register detailing as a minimum the subject, feature number, location and direction of each shot.

Reporting and Archiving

3.3.8 The preparation of the report will follow the guidelines published by the Chartered Institute for Archaeologists. Details of style and format will be determined by Rubicon Heritage Services UK Ltd.

3.3.9 The results of the archaeological work will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (English Heritage, 2013), and compiled in line with RCAHMW and ADS digital records.

3.3.10 The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the CIfA in that organisation's code of conduct (CIfA, 2014). For this project archival material will be deposited with the RCAHMW. A copy of the final report will be deposited with the regional Historic Environment Record.

4. ARCHAEOLOGICAL RESOURCE BASELINE

4.1 Archaeology & History Background

4.1.1 An Archaeological Desk-based Assessment of the development site and its immediate environs was carried out by Archaeology Wales Limited in January 2011. This concludes that, although no evidence exists for archaeological remains within the redevelopment site, it lies within an archaeologically significant landscape (Pannett 2011).

4.1.2 The 1:2500 OS map of 1866 shows Bush House and Bush Farm with Cuckoo Woods to the west of the farm and woodland to the east of Bush House. The area currently occupied by the school and the playing fields appears to be farm land. The fields to the south of Bush House also appear to be farm land. Bush Lodge can be seen at the junction of the A4139 (Bush Hill) and the B4322 (Pembroke Road.) To the south of the site there is evidence of quarry workings on the banks of the Pembroke river.

4.1.3 The 1:2500 OS map of 1908 shows the development of a covered well to the south of Bush Lodge. A series of springs have also been identified to the north of Cuckoo Wood. There appear to have been some minor developments in the vicinity of Bush House and Bush Farm since the production of the earlier map. Two circular unlabelled features appear in the fields to the south of Bush House. The 1:10,560 OS map of 1938 shows the construction of a property adjacent to Pembroke Road on the northern boundary of the site.

4.2 Previous Archaeological Works in the Study Area

4.2.1 No previous archaeological work has been undertaken on the site.

4.2.2 Although not archaeologically monitored initial geotechnical investigation across the site suggested the presence of deep deposits of potentially recent made ground, possibly associated with the construction of the present school. The activity associated with the formation of this made ground may have previously removed any archaeological deposits. Trial pits were undertaken across the site in 2011 (Clarkebond) and again in 2013 (WYGE) made ground over 1m thick was seen across the area. The results of these trial pits is shown in Figures 2 and 3, the areas marked in green are those with deep deposits of modern made ground.

5. RESULTS

5.1 Summary results

5.1.1 Seventeen test pits were excavated across the area, these were numbered from 201 to 217. Each had a small area of topsoil stripped prior to the test pit being excavated to at least 2m deep.

5.2 Monitored Test Pits

TP 201

Topsoil area stripped: 4.00m L x 1.62m W; Main trial pit: 4.00m L x 0.64m W x 1.09m D

Context	Description	Thickness
20101	Topsoil - Dark brown clay silt of moderate compaction.	0.27m
20102	Bedrock - Red Sandstone bedrock.	

TP 202

Topsoil area stripped: 3.97mm L x 1.60m W x 0.70m

Context	Description	Thickness
20201	Topsoil - Dark brown clay silt of moderate compaction	0.28m
20202	Bedrock - Red Sandstone bedrock	

TP 203

Topsoil area stripped: 3.74m L x 1.60m W; Main trial pit: 3.74m L x 0.63m W x 2.30m D

Context	Description	Thickness
20301	Topsoil - Dark brown clay silt of moderate compaction.	0.27m
20302	Natural - Mid red brown clay silt containing frequent small and medium sized angular stone. Water ingress at 1.50m below ground surface,	2.03m
20502	Bedrock - Sandstone bedrock.	

TP 204

Topsoil area stripped: 3.20m L x 1.61m W; Main trial pit 3.20m L x 0.68m W x 1.50m D

Context	Description	Thickness
20401	Topsoil - Dark brown clay silt of moderate compaction	0.24m
20502	Natural - Mid red brown clay silt containing frequent small and medium sized angular stone.	1.99m
20503	Bedrock - Mid grey mudstone. Rises to east where it lies 0.41m below ground surface.	

TP 205

Topsoil area stripped: 2.45m L x 1.63m W; Main trial pit: 2.45m L x 0.64m W x 2.40m D

Context	Description	Thickness
20501	Topsoil - Dark brown clay silt of moderate compaction.	0.26m
20502	Natural - Mid red brown clay silt containing abundant small to medium sized angular stone. Water ingress at 2.40m.	2.14m

TP 206

Topsoil area stripped: 3.55m L x 1.52m W; Main trial pit 3.55m L x 0.64m W x 3.20m D

Context	Description	Thickness
20601	Topsoil - Dark brown clay silt of moderate compaction	0.23m
20602	Made Ground - Mid red brown clay silt containing frequent small sized angular stone	0.98m
20603	Natural - Mid red brown clay silt containing abundant small to medium sized angular stone.	1.99m

TP 207

Topsoil area stripped: 3.67m L x 1.60m W; Main trial pit: 3.67m L x 0.63m W x 2.01m D

Context	Description	Thickness
20701	Topsoil - Dark brown clay silt of moderate compaction	0.21m
20702	Made Ground (reworked natural) - Mid red brown clay silt containing frequent small to medium sized angular stone.	0.78m
20703	Natural - Mudstone bedrock	

TP 208

Topsoil area stripped: 3.80m L x 1.53m W; Main trial pit: 3.80m L x 0.62m W x 3.80m D

Context	Description	Thickness
20801	Topsoil - Dark brown clay silt of moderate compaction	0.28m
20802	Made Ground - Mid red brown clay silt containing frequent small to medium sized angular stone	1.73m
20803	Made Ground - Firm mid brown clay containing occasional charcoal and lime flecks. Modern saltglazed stoneware sewer pipe revealed at depth of 2.20m below ground surface	0.98m
20804	Natural - Mid red brown clay silt containing frequent small to medium angular stone.	0.63m

TP 209

Topsoil area stripped: 3.85m L x 1.60m W; Main trial pit: 3.85m L x 0.64m W x 1.07m D

Context	Description	Thickness
20901	Topsoil - Dark brown clay silt of moderate compaction	0.32m
20902	Natural - Mid red brown clay silt containing frequent small to medium angular stone	0.75m

TP 210 (located partially into bank)

Topsoil area stripped: 3.81m L x 1.60m W; Main trial pit: 3.82m L x 0.62m W x 3.81m D

Context	Description	Thickness
21001	Topsoil - Dark brown clay silt of moderate compaction	0.31m
21002	Made Ground - Mid red brown clay silt containing frequent small to medium sized angular stone	0.42m
21003	Natural - Mid red brown clay silt containing abundant small to medium sized angular stone.	3.08m

TP 211

Topsoil area stripped: 3.50m L x 1.60m W; Main trial pit: 3.50m L x 0.90m W x 1.11m D

Context	Description	Thickness
21101	Topsoil - Dark brown clay silt of moderate compaction	0.23m
21102	Made Ground (reworked natural) - Mid red brown clay silt containing frequent small to medium sized angular stone.	0.32m
21103	Natural - Mudstone bedrock	

TP212

Topsoil area stripped: 3.97m L x 1.60m W; Main trial pit: 3.97m L x 0.65m W x 2.80m D

Context	Description	Thickness
21201	Topsoil - Dark brown clay silt of moderate compaction	0.28m
21202	Made Ground (reworked natural) - Mid red brown clay silt containing frequent small to medium sized angular stone and occasional fragments of anthracite. Modern saltglazed sewer pipe at east end of trench.	0.78m
21203	Natural - Mid red brown clay silt containing abundant small to medium sized angular stone. Water ingress at 2m below ground surface.	

TP 213

Topsoil area stripped: 3.82m L x 1.60m W; Main trial pit: 3.82m L x 0.62m W x 3.80m D

Context	Description	Thickness
21301	Topsoil - Dark brown clay silt of moderate compaction	0.26m
21302	Made Ground - Mid red brown clay silt containing frequent small to medium sized angular stone	1.42m
21303	Natural - Mid grey brown clay silt containing frequent small to medium sized angular stone Water ingress at 2.30m.	2.12m

TP 214

Topsoil area stripped: 3.45m L x 1.34m W; Main trial pit: 3.45m L x 0.63m W x 1.31m D

Context	Description	Thickness
21401	Topsoil - Dark brown clay silt of moderate compaction	0.18m
21402	Natural - Mid red brown clay silt containing frequent small to medium angular stone.	1.13m

TP 215

Topsoil area stripped: 3.50m L x 1.58m W; Main trial pit: 3.50m L x 0.76m W x 1.50m D

Context	Description	Thickness
21501	Topsoil - Dark brown clay silt of moderate compaction	0.24m
21502	Natural - Mid red brown clay silt containing frequent small to medium angular stone	1.26m

TP216

Topsoil area stripped: 3.60m L x 1.54m W; Main trial pit: 3.60m L x 0.68m W x 4.00m D

Context	Description	Thickness
21601	Topsoil - Dark brown clay silt of moderate compaction	0.24m
21602	Made Ground - Mid red brown clay silt containing frequent small to medium sized angular stone and occasional fragments of anthracite	0.56m
21603	Natural - Mid red brown clay silt containing abundant small to medium sized angular stone.	3.20m

TP 217 (located in area of former garden)

Topsoil area stripped: 3.96m L x 1.58m W; Main trial pit: 3.96m L x 0.66m W x 3.10m D

Context	Description	Thickness
21701	Topsoil - Dark brown humic clay silt of moderate compaction	0.65m
21702	Natural but possibly made ground - Firm mid red brown clay	0.40m
21703	Natural - Mid red brown clay silt containing frequent small to medium sized angular stone.	1.45m
21704	Natural - Grey siltstone bedrock.	

5.2.1 No archaeological features were noted during the monitoring of the test pits.

6. DISCUSSION

6.1 Archaeological Monitoring

6.1.1 The results of the programme archaeological monitoring proved negative for archaeological features.

6.1.2 Only one trial pit from the 2011 survey was located in this area. This was located close to the position of TP210 and recorded over a 1m of made ground. This was similar to the results of TP210 that recorded c. 0.8m of such deposits.

6.1.3 The survey of 2013 had a far more extensive coverage within the monitored area. There were some gaps in the coverage which the 2016 survey was designed to rectify. TP105 from 2013 did not show any made ground, however TP206 located just to the south shows that the border of the made ground deposit is located just between the two pits. This made ground continues to the east on a line that takes in WS106 and TP209 before turning south towards BH104.

6.1.4 OP101 lies to the north and east of the line. The made ground recorded here is likely to be associated with the gas main running through the area.

6.1.5 The made ground in the north half of the site lies to the south of this line up until the east-west scarp running across the area. The land to the south in noticeably lower in level. The survey of 2013 showed there was made ground deposits to the south of this lower area – BH105, BH106, BH107 and TP115. OP103 hinted that these deposits may continue to the north and join with those recorded above the scarp.

6.1.6 The 2016 test pits in this location confirmed the presence of made ground deposits in TP211, TP212, TP216 and TP217 although they might not be as thick as to the north.

7. ARCHAEOLOGICAL SIGNIFICANCE & MITIGATION

7.1 Potential Archaeological Resource and significance

7.1.1 The monitored area uncovered no archaeological remains, however the sample area was very small. More importantly the monitoring identified and mapped the areas of made ground in the development area.

7.2 Outline Recommendations

7.2.1 The areas suitable for geophysical survey are indicated on Figure 1.

8. REFERENCES

Campbell, G, Moffett, L and Straker, V 2011 *'Environmental Archaeology. A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (second edition)*'. Portsmouth, English Heritage

Clarkebond 2011 Pembroke School Geoenvironmental Investigation Factual Report, Report No. WSR01879/R1

CIfA 2014 '*Code of Conduct*', Chartered Institute for Archaeologists

CIfA 2014 *'Standards and guidance Archaeological watching brief'*,

CIfA 2014 '*Standards and guidance for the collection, documentation, conservation and research of archaeological materials*',

English Heritage 1991 '*Management of Archaeological Projects' (2nd edition)*', Portsmouth, English Heritage

English Heritage 2013 '*Management of Research Projects in the Historic Environment PPN 6: Writing standards and guidance*', Portsmouth, English Heritage

McKinley, Jacqueline I and Roberts, Charlotte, 1993 *'Excavation and post-excavation treatment of cremated and inhumed human remains'* Chartered Institute for Archaeologists

Pannett, A , 2011 Pembroke School, Pembroke, Archaeological Desk-based Assessment

RCAHMW, 1991 '*An Inventory of the Ancient Monuments in Glamorgan'*

RCAHMW, 1976 '*An Inventory of the Ancient Monuments in Glamorgan: Pre-Norman v.1'*

Richards, J.C., Richards, J., and Robinson, D., (Eds), 2000, '*Digital Archives from Excavation and Fieldwork: Guide to Good Practice (Second Edition)'*, Archaeology Data Service

Welsh Museum Federation 2008 '*National Standards for Wales for Collecting and Depositing Archaeological Archives'*

WTGE 2013 *Pembroke Learning Academy Factual Ground Investigation Report*

Web Sources

British Geological Survey

http://mapapps.bgs.ac.uk/geologyofbritain/home.html?location=CF61+1ZG&gobBtn=go (assessed 16/03/2015)

Appendices

9. APPENDIX 1 ARCHIVE STATEMENT

The site archive is comprised of the following materials:

Item	Quantity
Field recording sheets	18
Plans	1
Sections	1 sheet
Photographs	18
Registers (Context, finds, drawing, sample, photo)	3
Notebooks	1

The archive material is contained within one box.

The archive is currently stored in the offices of Rubicon Heritage Services Ltd, Malthouse Avenue, Cardiff Gate Business Park, Cardiff, CF23 8RU, Wales.

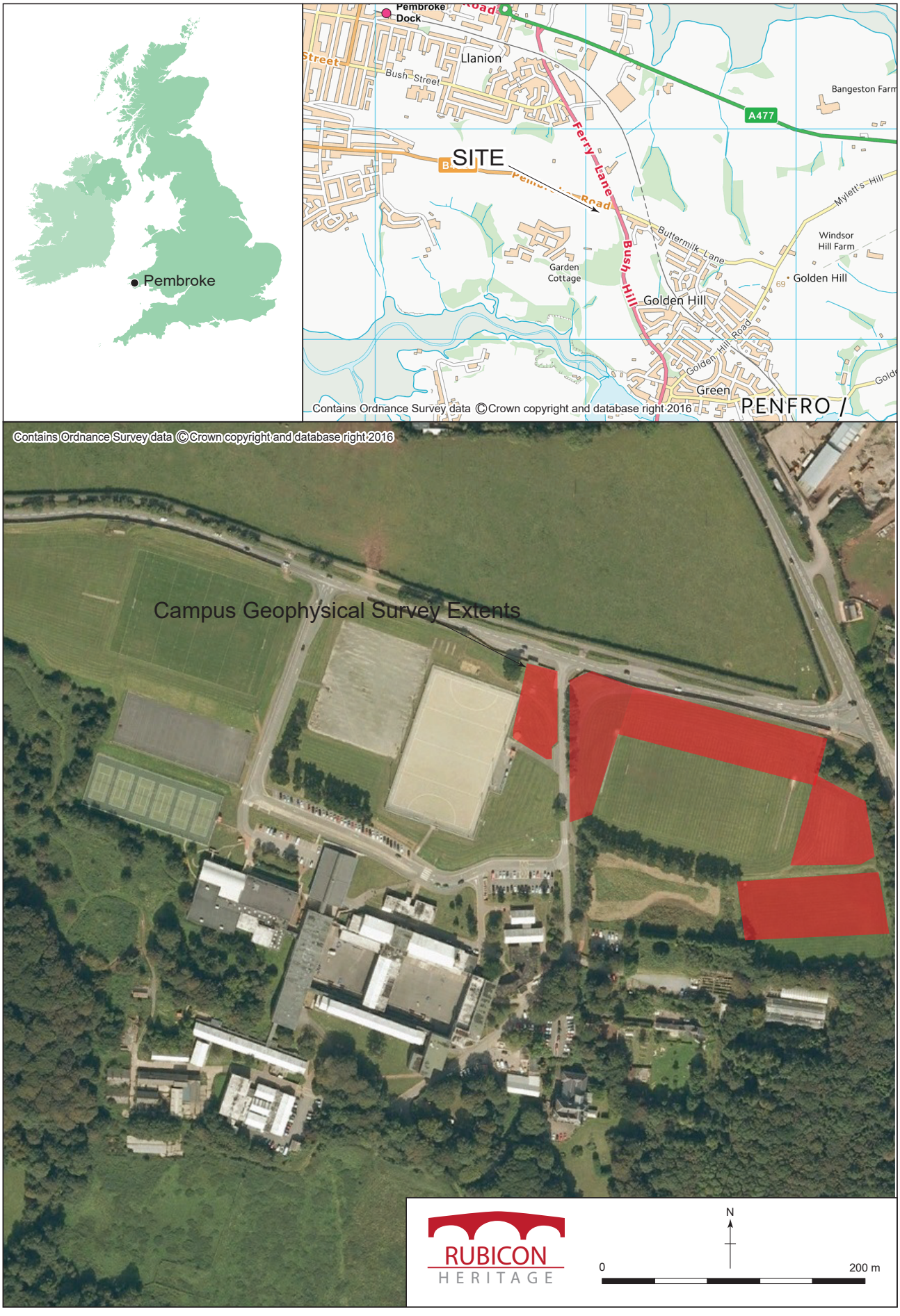

Figure 1 - Pembroke Learning Campus Geophysical Survey: Site location.

KEY:

TRIAL PIT LOCATION

Rev	Detail	By	Chk	Date

Revisions

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Engineering & Management Consultants

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London Manchester Swansea Abu Dhabi

Client
PEMBROKESHIRE COUNTY COUNCIL

Project
PEMBROKE SCHOOL
GEOENVIRONMENTAL
INVESTIGATION

Drawing Title
EXPLORATORY HOLE
LOCATION PLAN

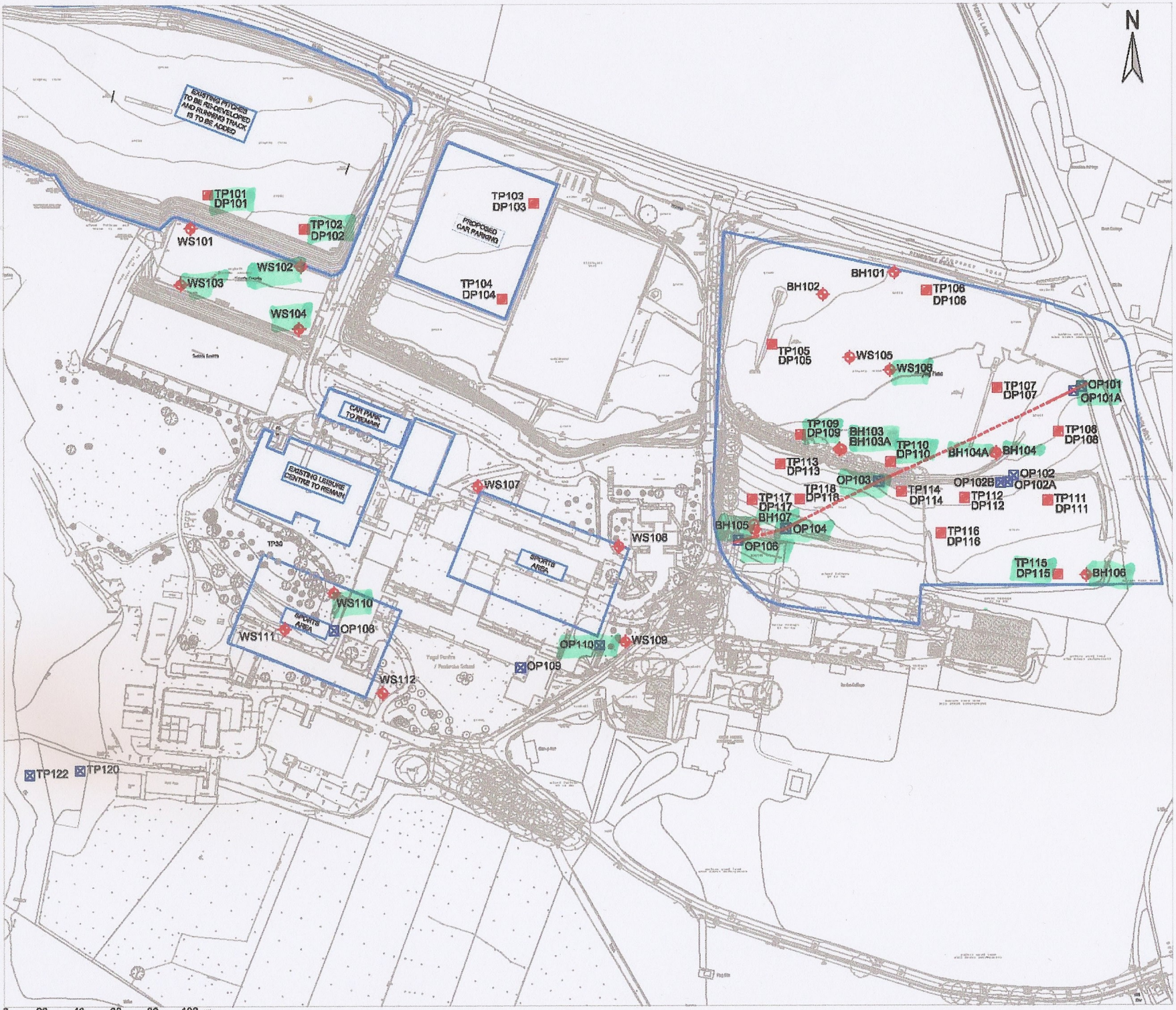
Drawing Status
FINAL

Project No.	Discipline	Drawing No.
WS01879	G	R1/F2

Scale	Date	Revisions
1:2500	13.04.11	

Drawn	Checked	Sheet Size
SHD	DE	A3

DO NOT SCALE: CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS



LEGEND:

- BOREHOLE LOCATIONS
- TRIAL PIT/ DYNAMIC PROBE LOCATIONS
- OBSERVATION PIT LOCATIONS
- GAS MAIN (MEDIUM PRESSURE)

NOTE: LOCATION OF GAS MAIN PROVEN BY OBSERVATION PITS, AND ASUMED/INFERRED IN BETWEEN.

REV	DESCRIPTION	BY	CHK	APP	DATE

Client:
PEMBROKESHIRE COUNTY COUNCIL

6th FLOOR, LONGCROSS COURT
47 NEWPORT ROAD
CARDIFF
CF24 0AD

TEL: +44 (0)29 2092 9200
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e-mail: cardiff@wyg.com

Project:
PEMBROKESHIRE LEARNING ACADEMY

Drawing Title:
SITE INVESTIGATION LAYOUT PLAN

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
1:2000	PJ	01.10.13	ND	01.10.13	CBP	01.10.13

Project No.	Office	Type	Drawing No.	Revision
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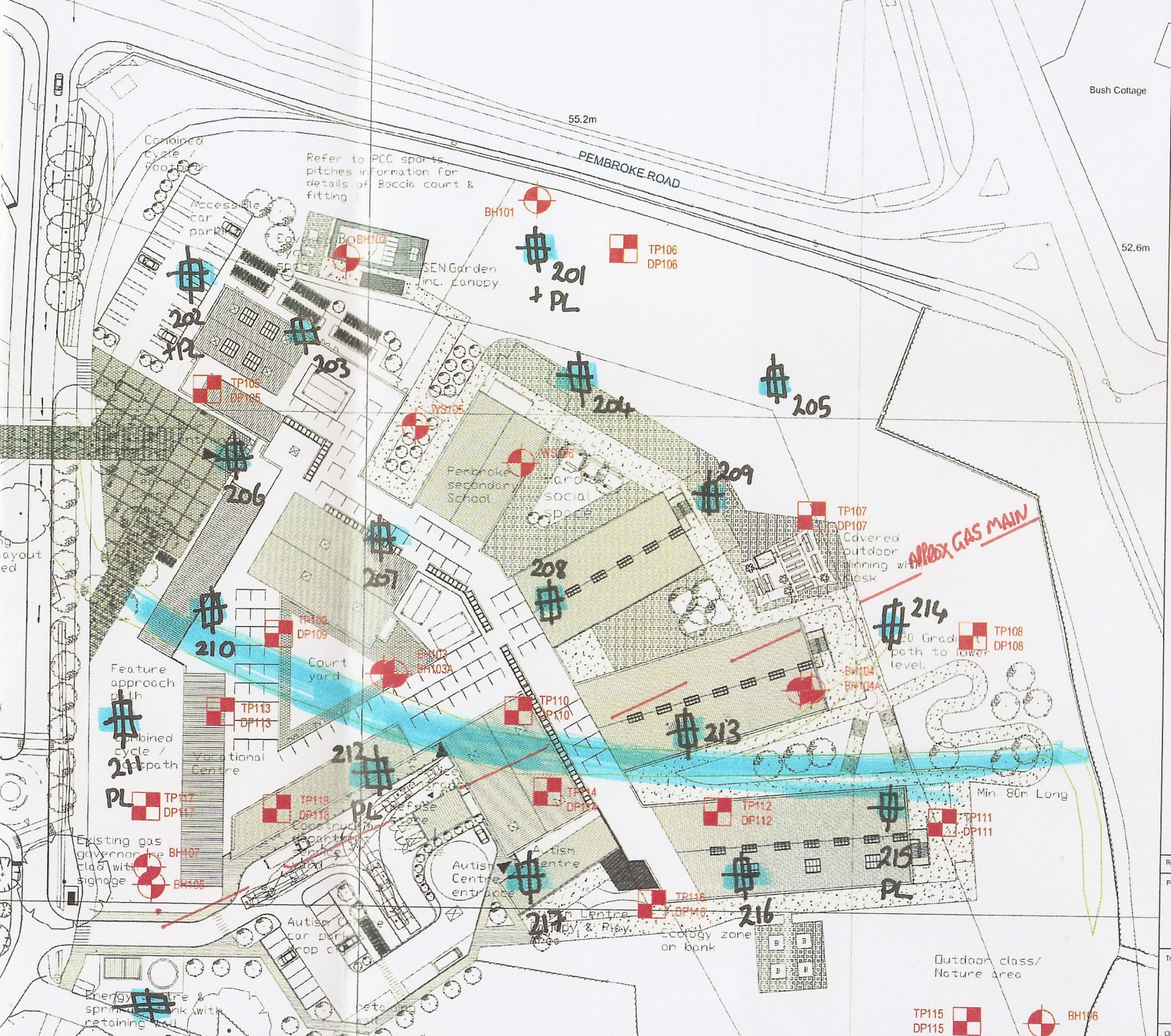
PEMBROKE ROAD
55.2m
52.6m
Bush Cottage
Combined Cycle / Footpath
Refer to PCC sports pitches information for details of Boccia court & fitting
Accessible car park
BH101
BH102
TP106
DP106
SEN Garden inc. canopy
201 + PL
202 PL
203
204
205
206
207
208
209
210
211 PL
212 PL
213
214
215 PL
216
217
TP105
DP105
WS105
WS106
Pembroke secondary School
hard social space
TP107
DP107
Covered outdoor learning with kiosk
APPROX GAS MAIN
TP108
DP108
20 Grad path to lower level
BH104
BH104A
TP109
DP109
Court yard
BH103
BH103A
TP110
DP110
TP113
DP113
Feature approach path
Combined cycle / footpath
Educational Centre
TP117
DP117
TP118
DP118
Existing gas governor kiosk with signage
BH107
BH108
Autism Centre entrance
Autism Centre
TP114
DP114
TP112
DP112
TP111
DP111
Min. 80m Long
TP116
DP116
ecology zone on bank
Outdoor class/ Nature area
TP115
DP115
BH106
Trial Pit
PL Plate load test
Rev
Date
Description
By
Apvd
Project
Title
Client