YORK ARCHAEOLOGICAL TRUST

ARCHAEOLOGICAL INVESTIGATIONS AT GYPSEY RACE PARK, BRIDLINGTON

By George Loffman

WATCHING BRIEF REPORT

Report Number 2018/83 June 2018

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BGL Below ground level

NON-TECHNICAL SUMMARY

Between the 9th of May 2018 and the 4th June 2017 York Archaeological Trust conducted a watching brief at Gypsey Race Park, Bridlington (TA 1778 6675). On the 10th of July 2018 a further visit was made to observe the uncovering of the revetment wall close to the Station Road Bridge.

The work was undertaken for ESH Construction to satisfy a planning condition imposed by the East Riding of Yorkshire Council (DC/16/0328/REG3) in accordance with a Written Scheme of Investigation (WSI) produced by YAT. The works involved the creation of a linear park along the course of the Gypsey Race. Archaeological monitoring was carried out on groundwork associated with this landscaping.

During the course of the watching brief structures dating to the 19th century were uncovered. These included the foundations for the Manure works/bone mill, as well as structures relating to lime cement manufacture.

A whale bone was also recovered during the watching brief. This is probably an indication of the utilisation of material from the whaling trade at the 19th century bone mill that previously occupied the site.

KEY PROJECT INFORMATION

Project Name	Gypsey Race Park, Bridlington
YAT Project No.	6060
Document Number	2018/83
Type of Project	Watching Brief
Client	ESH Construction
Planning Application No.	DC/16/0328/REG3
NGR	TA 1778 6675
Museum Accession No.	N/A
OASIS Identifier	yorkarch1-319618

REPORT INFORMATION

Version	Produced by		Edited by		Approved by	
	Initials	Date	Initials	Date	Initials	Date
1	GL	26/06/18	IDM	28/06/18	IDM	28/06/18
2	GL	18/07/18	IDM	14/08/18	IDM	14/08/18

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1 INTRODUCTION

Between the 9th May and the 4th June 2018 YAT conducted a watching brief at Gypsey Race Park, Bridlington (TA 1778 6675) (Figure 1). An additional visit was made on the 10th of July 2018 to observe the uncovering of the revetment wall near Station Road Bridge.

The work was undertaken for ESH Construction to satisfy the following archaeological condition imposed by East Riding Council:

'No development shall take place until the applicant, or their agents or successors in title, has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted by the applicant and approved by the Planning Authority. Development shall be carried out in accordance with the approved details.

The recommendation of a programme of observation and recording (watching brief) has been requested because the application site lies in an area where previous archaeological work has encountered evidence of post-medieval industrial activity, including the disarticulated remains of four individuals'

The WSI was prepared in response to a brief written by James Goodyear, Archaeology Development Management Archaeologist for Humber HER. The work was carried out in accordance with this WSI.

2 METHODOLOGY

The groundworks were carried out by Humberside Excavations on behalf of ESH Construction. Excavation was carried out using a tracked excavator equipped with a 1.8m bucket. During the course of the ground reduction an archaeologist was present at all times.

Ground reductions were observed to a depth of approximately 2m BGL for the foundations of the new retaining wall and retention pond (Figure 2).

On the 7th June 2018 the watching brief was curtailed after correspondence with James Goodyear Development Management Archaeologist for Humber HER. The reason for this was that a significant amount of the groundworks had been completed and results had been limited in terms of archaeological interest. An additional visit was made on the 10th of July 2018 as part of the revetment wall closest to Station Road Bridge was uncovered.

The methodology followed the WSI (Appendix 3).

Recording proceeded through written notes, scale drawings and digital photography.

3 LOCATION, GEOLOGY & TOPOGRAPHY

The development site is located on the western side of Bridlington directly to the south of Bridlington Railway Station (Figure 1. The site is bounded by the Hilderthorpe Road carriageway to the south, Station Road to the west, and a coach park to the north and east. The course of the Gypsey Race runs east west along the northern part of the site (Figure 1).

The bedrock geology consists of Flamborough Chalk Formation. Sedimentary bedrock formed approximately 72 to 86 million years ago in the Cretaceous Period. This is overlain by superficial deposits of alluvium – clay, silt and gravel formed up to 2 million years ago in the Quaternary Period.

The site was previously occupied by the former site offices of the 19th Century bone mill and long gabled warehouse 'sheds' along the Hilderthorpe Road, as well as a building backing on to the Gypsey Race (Brigham 2011). The rest of the site was covered by concrete and vegetation.

The buildings had been demolished, vegetation cleared and concrete removed prior to commencement of this watching brief (Plate 7). There is a gentle slope from Hilderthorpe Road to the Gypsey Race.

4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

A desk-based assessment was carried out by Humberside Archaeology that covers the development site (Brigham 2011). Below is a summary from this study relevant to the current site works.

By 1853 a bone mill was present at the junction of Hilderthorpe Road and Station Road. Immediately to the east of the bone mill was located the site of a contemporary Roman Cement Works. This process was patented by James Parker in 1796 and continued in use until its replacement by Portland cement from the mid 19th Century. It involved rendering cement by calcining limestone modules at low temperatures. The cement works included a lime kiln along the bend in the Gypsey Race, small circular structures to the west (possible mixing pits) and buildings on the Hilderthorpe frontage.

In 1868 the ownership of the bone mill passed to Medforth & Hutchinson., corn bone and manure merchants. At this time Roman Cement was no longer manufactured and the bone mill was extended east across the site. Around the turn of the century the bone mill became known as a 'Manure Works'.

A watching brief carried out at the site by Humber Field Archaeology uncovered a revetment or retaining wall of later 19th century date, that in one section overlay an earlier wall. It was believed that the wall related to the bone mill works. A lime kiln or brick lined pit was also recorded dating to the 19th century. During a second phase of demolition on the site disarticulated human remains of four individuals were uncovered. The condition of the bones and their proximity to the bone mill has led to suggestions that the bones were imported from Europe in the 19th century for use in manufacture of fertilizer.

5 RESULTS

The earliest deposit encountered was a natural clay deposit (1010) the top of which was found at a depth of 1.5m BGL at the western side of the site (Plate 1). The deposit contained substantial lenses of sand.

Above the natural deposit was context (1009) a silty clay deposit containing frequent brick and subangular limestone fragments. The top of this deposit was found at approximately 0.8m BGL. Finds from this context consisted of 19th century pottery and bottles (not retained). This

is probably a made ground or levelling deposit used to build up the land prior to construction in the 19th century.

At the western end of the site a construction cut (1008) for the retaining/revetment wall was visible (Plate 1 and 3). This contained two fills (1006) and (1007).

The revetment wall itself was constructed of limestone cobbles (1005) on its southern face (Plate 8). The uppermost five courses were relatively well coursed, compared to the lower coursing. The bottom 0.30m of the wall as exposed stepped out possibly indicating the footing. The base of the wall was not reached during the excavation. The northern face of the wall was enclosed with brick bonded in stretcher coursing (Plate 9). The retaining wall changes to the east and is constructed of concrete (Plate 11).

To the west of the retaining wall (1005) was a brick arched structure (1013) forming an opening onto the Gypsey Race (Plate 10).Above this was brick structure (1012) forming part of Station Road Bridge with modern brick additions (1011).

A rectangular brick structure (1004) was found when excavating the retention pond area (Figure 2) (Plate 6).This was found at 1.5m BGL. Within the structure was a deposit containing frequent limestone pebbles (1003). It was not possible to further excavate this deposit due to the rising water table.

To the east of (1004) was a deposit containing frequent limestone nodules (1002) (Plate 4), and a discrete concentration of oyster shells. A large whale bone was also recovered from within this context (see Appendix 4).

A number of foundations and footings for walls were uncovered during the course of the groundworks (Plate 2 and 5) (Figure 2). These included the foundation for long gabled warehouse sheds that fronted onto Hilderthorpe road and a structure that backed onto the Gypsey Race. These most likely relate to the late 19th century bone mill/manure works, some of which was still standing when the desk –based assessment was carried out (Brigham 2011).

6 SUMMARY

During the course of the watching brief structures and deposits were found dating to the 19th century. These included a possible lime kiln or brick lined pit and foundations relating to the bone mill later converted to a manure works in the 20th Century. The construction cut for the retaining wall of the Gypsey Race was also observed in the western part of the site.

The brick foundations at the western side of the site close to Station Road are most likely part of the buildings visible on the 1854 OS map and labelled as part of the bone mill or manure works.

The brick structures on the eastern side of the site are probably foundations for the buildings that formed part of the Manure Works and warehouse sheds. These buildings are visible in photographs within the desk-based assessment (Brigham 2011) and are present on 1912 OS map.

The rectangular brick structure (1004) and deposit of limestone nodules (1002) are possibly associated with the Roman Cement works documented on the eastern side of the site. The brick structure may have been a lime kiln or a storage building. The spread of limestone

nodules could perhaps have been raw material for the Roman Cement Works. Manufacture requires the breaking down of limestone nodules into fragments measuring 40-80mm. Therefore this may represent a store of material prior to it being broken down. Alternatively the deposit may be a base layer for a lime kiln structure.

Within context (1002) the fore-limb of a North Atlantic Right Whale or Fin Whale was recovered. The existence of whale remains on the site is probably connected with the Bone Mill industry. The use of products from the whaling industry is attested in historical sources for the Narborough Bone Mill in Norfolk(http://www.norfolkmills.co.uk/Watermills/narborough-bone-mill.html). Bone from whaling provided a source of material to ground into fertiliser for agricultural fields. Locally to the site a supply of whale bones would have been available from the whaling industry of the North Sea coast. The whale bone was found within deposit (1002) that might suggest that it was discarded or misplaced with raw materials for manufacturing lime cement.

LIST OF SOURCES

http://mapapps.bgs.ac.uk/geologyofbritain/home.html British Geological Society accessed on 15/06/18.

http://maps.nls.uk National Libraries Scotland accessed on 15/06/18.

REFERENCES

Brigham, T., 2011. *Bridlington Parade Redevelopment Bridlington, East Riding of Yorkshire: Assessment of Archaeological Potential.* Humber Archaeology Report No.372.

Humberside Archaeology., 2015. *Archaeological fieldwork at Old Mill Warehouse, Hilderthorpe Road, Bridlington 3*. Report No SHU11465

ACKNOWLEDGEMENTS

York Archaeological Trust would like to thank ESH Construction for their assistance during the course of the fieldwork.

APPENDIX 1 – INDEX TO ARCHIVE

Item	Number of items
Context sheets	15
Levels register	0
Photographic register	0
Sample register	0
Drawing register	0
Original drawings	2
B/W photographs (films/contact sheets)	0
Colour slides (films)	0
Digital photographs	64
Written Scheme of Investigation	1
Report	1

Table 1 Index to archive

APPENDIX 2 – CONTEXT LIST

Context Number	Type	Description	Interpretation
1000	Layer	Friable, mid greyish brown, clayey silt. Moderate cbm fragments 20mm to 250mm, charcoal flecks, stones	Modern levelling deposit
1001	Brick and concrete structure	Constructed of red bricks measuring 230mm x 100mm x 75mm. Bonded with light grey lime mortar and concrete.	Foundations for 19th Century bone mill converted to manure works.
1002	Layer	Friable, light grey, sandy silt. Frequent large subangular limestone blocks measuring 200mm x 200mm to 400mm x 400mm.	Deposit related to lime manufacture.
1003	Deposit/fill	Loose to friable, light yellow brown, silty sand Frequent limestone pebbles 20mm x 20mm	Lime making deposit? Within structure 1004.
1004	Brick structure	Rectangular in plan measuring 2.42m (east –west) and 1.98m (north – south). The northern and southern walls of the structure are two bricks thick. The western wall is one brick thick and the eastern side is three bricks thick. All sides are laid in stretcher bonding. The height of the feature is not known as excavation was not possible due to rising water within the structure. Constructed of full bricks measuring 230mm x 110mm x 65mm as well as half bricks. Bonded with a light grey lime mortar.	Lime Kiln or storage of lime.
1005	Wall	Concrete and limestone blocks formed the lower part of the revetment wall. Above this was constructed with bricks bonded with a light grey lime mortar.	Lower part of the revetment wall.
1006	Fill.	Friable, dark grey, clayey silt. Frequent charcoal and clinker	Upper backfill of revetment construction cut.
1007	Fill	Friable, mid greyish brown, clayey silt. Moderate limestone pebbles	Fill of revetment construction cut.
1008	Cut	Cut is linear in plan and runs alongside the revetment wall 1005. Cut measures 1.0m in depth as exposed during excavations and 2.80m in width. Southern side has sharp break of slope at top to concave sides, base not exposed during excavations.	Construction cut for revetment wall.
1009	Layer	Friable, mid brownish grey, silty clay. Occasional cbm fragments, charcoal flecks.	Build-up/levelling deposit.
1010	Layer	Friable, mid brownish grey, clay with lenses of loose, mid yellow brown, sand.	Natural glacial deposits.
1011	Modern Brick	7 courses of modern bricks forming Station Road Bridge.	Modern addition to Station Road Bridge.

Context Number	Type	Description	Interpretation
1012	Brickwork on Station Road Bridge	Wall constructed of stretcher bonding. Forms Station Road Bridge.	Brickwork of Station Road Bridge
1013	Brick Structure	Arched opening through to the Gypsey Race. Measuring 0.85m in width and 0.56m in height.	Opening onto Gypsey Race possibly for removing industrial waste. Probably associated with 19th Century industrial activity
1014	Brick wall	Brickwork on northern face of revetment wall. 0.14m in thickness. Bricks laid in stretcher bond.	Brick lining on northern face of revetment wall.

Table 2 Context list

APPENDIX 3 – WRITTEN SCHEME OF INVESTIGATION

YORK ARCHAEOLOGICAL TRUST

WRITTEN SCHEME OF INVESTIGATION FOR

ARCHAEOLOGICAL WATCHING BRIEF

Site Location: **Site of Old Mill Warehouse, Hilderthorpe Road, Bridlington**

NGR: **TA 17789 66758**

Proposal: **Change of use of land to create a linear park along the Gypsey Race River including a floodwater retention pond, habitat creation and landscaping**

Planning ref: **DC/16/03268/REG3**

Prepared for: **Sweco**

Document Number: **2018/59**

Version	Produced by		Edited by		Approved by	
	Initials	Date	Initials	Date	Initials	Date
1: 2018/59	CJ	04/05/18	IDM	04/05/18	IDM	04/05/18

7 SUMMARY

1.1 Sweco have received planning consent for a park and floodwater retention pond at the Site of Old Mill Warehouse, Hilderthorpe Road, Bridlington (TA 17789 66758). The scheme will include habitat creation and landscaping.

1.2

1.3 The following archaeological condition has been imposed:

> *'No development shall take place until the applicant, or their agents or successors in title, has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted by the applicant and approved by the Planning Authority. Development shall be carried out in accordance with the approved details.*
> *The recommendation of a programme of observation and recording (watching brief) has been requested because the application site lies in an area where previous archaeological work has encountered evidence of post-medieval industrial activity, including the disarticulated remains of four individuals'*

1.4 This Written Scheme of Investigation (WSI) has been prepared in response to the condition written by James Goodyear, Archaeology Development Management Officer for Humber HER. The work will be carried out in accordance with this WSI.

8 SITE LOCATION & DESCRIPTION

2.1 The proposal site is at Site of Old Mill Warehouse, Hilderthorpe Road, Bridlington (Figure 1). The site is located on the south side of Bridlington, to the immediate south of Bridlington Railway station and comprises of a roughly linear strip of land fronting onto Hilderthorpe Road. The site is bounded to the north by a coach and car park, to the west by Station Road and by the access road to Tesco supermarket to the east. The ground surface on the site comprises of concrete and there are patches of scrub and trees present.

9 DESIGNATIONS & CONSTRAINTS

3.1 The site does not contain any Scheduled Monuments or Listed Buildings and is not within a conservation area.

10 ARCHAEOLOGICAL INTEREST

4.1 Bridlington was a focus for Romano-British settlement, with a port located at the point where the Gypsey Race entered Bridlington Bay, known as *Gabrantuicorum Sinus.* Evidence of Roman settlement has been recorded throughout the modern town, including by the quay and in the Hilderthorpe area. During the medieval period the Gypsey Race formed the boundary between the lordship and manor of Hilderthorpe and the principal settlement was located in the present Old Town area. There are few traces left of medieval Bridlington around the harbour area.

4.2 In the 19th century a bone mill existed on the site and a watching brief at the site by Humber Field Archaeology uncovered a revetment or retaining wall of later 19th century date, that in one section

overlay an earlier wall. It was believed that the wall related to the bone mill works. A lime kiln or brick lined pit was also recorded dating to the 19th century. During a second phase of demolition on the site disarticulated human remains of four individuals were uncovered. The condition of the bones and their proximity to the bone mill has led to suggestions that the bones were imported from Europe in the 19th century for use in manufacture of fertilizer.

11 GROUNDWORKS TO BE MONITORED

5.1 This work will comprise a **continuous** watching brief, on the excavation of all groundworks including reduction, landscaping, foundations, trenches services and any subsequent groundworks involving excavation. The watching brief may be stepped down **to intermittent monitoring**, depending on the results, and following agreement from the Development Control Archaeologist.

12 DELAYS TO THE DEVELOPMENT SCHEDULE

6.1 All earth-moving machinery must be operated at an appropriate speed to allow the archaeologist to recognise, record and retrieve any archaeological deposits and material.

6.2 It is not intended that the archaeological monitoring should unduly delay site works. However, the archaeologist on site should be given the opportunity to observe, clean, assess and, where appropriate hand excavate, sample and record any exposed features and finds. In order to fulfil the requirements of this WSI, it may be necessary to halt the earth-moving activity to enable the archaeology to be recorded properly.

6.3 Plant or excavators shall not be operated in the immediate vicinity of archaeological remains until the remains have been recorded and the archaeologist on site has given explicit permission for operations to recommence at that location.

13 RECORDING METHODOLOGY

7.1 If a base plan of intervention areas is available, the areas being monitored will be determined using this information. If a plan is not available, or the watching brief work involves monitoring of long linear works, interventions which are not mapped, or large open areas, the location of the monitoring will be determined using a hand-held GPS, which will provide accuracy to c.2m.

7.2 Unique context numbers will only be assigned if artefacts are retrieved, or stratigraphic relationships between archaeological deposits are discernible. In archaeologically 'sterile' areas, soil layers will be described, but no context numbers will be assigned. Where assigned, each context will be described in full on a pro forma context record sheet in accordance with the accepted context record conventions.

7.3 Archaeological deposits will be planned at a basic scale of 1:50, with individual features requiring greater detail being planned at a scale of 1:20. Larger scales will be utilised as appropriate. Cross-sections of features will be drawn to a basic scale of 1:10 or 1:20 depending on the size of the feature. All drawings will be related to Ordnance Datum. Where it aids interpretation, structural remains will also be recorded in elevation. All drawings will

be drawn on inert materials. All drawings will adhere to accepted drawing conventions.

7.4 Photographs of archaeological deposits and features will be taken. This will include general views of entire features and of details such as sections as considered necessary. The photographic register will comprise 35mm format black and white prints and digital photography. All site photography will adhere to accepted photographic record guidelines.

7.5 Areas which are inaccessible (e.g. for health and safety reasons) will be recorded as thoroughly as possible within the site constraints. In these instances, recording may be entirely photographic, with sketch drawings only.

7.6 All finds will be collected and handled following the guidance set out in the CIfA guidance for archaeological materials. Unstratified material will not be kept unless it is of exceptional intrinsic interest. Material discarded as a consequence of this policy will be described and quantified in the field. Finds of particular interest or fragility will be retrieved as Small Finds, and located on plans. Other finds, finds within the topsoil, and dense/discrete deposits of finds will be collected as Bulk Finds, from discrete contexts, bagged by material type. Any dense/discrete deposits will have their limits defined on the appropriate plan.

7.7 All artefacts and ecofacts will be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication *First Aid for Finds,* and recording systems must be compatible with the recipient museum. All finds that fall within the purview of the Treasure Act (1996) will be reported to HM Coroner according to the procedures outlined in the Act, after discussion with the client and the local authority.

7.8 A soil sampling programme will be undertaken for the recovery and identification of charred and waterlogged remains where suitable deposits are identified. The collection and processing of environmental samples will be undertaken in accordance with Historic England guidelines (Campbell, Moffatt and Straker 2011). Environmental and soil specialists will be consulted during the course of the evaluation with regard to the implementation of this sampling programme. Soil samples of approximately 30 litres for flotation (or 100% of the features if less than this volume) will be removed from selected contexts, using a combination of the judgement and systematic methodologies.

- **Judgement sampling** will involve the removal of samples from secure contexts which appear to present either good conditions for preservation (e.g. burning or waterlogging) or which are significant in terms of archaeological interpretation or stratigraphy. (Given the nature of an archaeological watching brief, it is anticipated that the implementation of a systematic sampling methodology will not be possible).

7.9 The presence of industrial activity is likely, particularly relating to lime kilns and bone mills. If industrial activity of any scale is detected, industrial samples and process residues will also be collected. Separate samples (c. 10ml) will be collected for micro-slags (hammer-scale and spherical droplets) (Historic England 2015).

7.10 Other samples will be taken, as appropriate, in consultation with YAT specialists and the Historic England Regional Science Advisor, as appropriate (e.g. dendrochronology, soil micromorphology, monolith samples, C14, etc.). Samples will be taken for scientific dating where necessary for the development of subsequent mitigation strategies. Material removed

from site will be stored in appropriate controlled environments.

7.11 In the event of human remains being discovered during the evaluation these will be left *in-situ*, covered and protected, in the first instance. The removal of human remains will only take place in compliance with environmental health regulations and following discussions with, and with the approval of, the Ministry of Justice. If human remains are identified, the Ministry of Justice and curator will be informed immediately. An osteoarchaeologist will be available to give advice on site.

- If **disarticulated** remains are encountered, these will be identified and quantified on site. If trenches are being immediately backfilled, the remains will be left in the ground. If the excavations will remain open for any length of time, disarticulated remains will be removed and boxed, for immediate reburial by the Church.
- If **articulated** remains are encountered, these will be excavated in accordance with recognised guidelines (see 7.12) and retained for assessment.
- Any grave goods or coffin furniture will be retained for further assessment.

7.12 Where a licence is issued, all human skeletal remains must be properly removed in accordance with the terms of that licence. Where a licence is not issued, the treatment of human remains will be in accordance with the requirements of Civil Law, CIfA Technical Paper 13 (1993) and Historic England guidance (2005).

14 REPORT & ARCHIVE PREPARATION

8.1 Upon completion of the groundworks, a report will be prepared to include the following:

a) A non-technical summary of the results of the work.

b) An introduction which will include the planning reference number, grid reference and dates when the fieldwork took place.

c) An account of the methodology and results of the operation, describing structural data, associated finds and environmental data.

d) A selection of photographs and drawings, including an overall plan of the site accurately identifying the areas monitored.

e) Specialist artefact and environmental reports as necessary.

f) Details of archive location and destination (with accession number, where known), together with a catalogue of what is contained in that archive.

g) A copy of the key OASIS form details

h) Copies of the Brief and WSI

i) Additional photographic images may be supplied on a CDROM appended to the report

8.2 Copies of the report will be submitted to the commissioning body and the HER/SMR (also in PDF format).

8.3 The requirements for archive preparation and deposition will be addressed and undertaken in a manner agreed with the recipient museum. In this instance The Treasure House, Beverley is recommended and an agreed allowance should be made for the curation and storage of this material.

8.4 Provision for the publication of results, as outlined in the Brief, will be made.

8.5 The owner of the Intellectual Property Rights (IPR) in the information and documentation arising from the work, would grant a licence to the County Council and the museum accepting the archive to use such documentation for their statutory functions and provide copies to third parties as an incidental to such functions. Under the Environmental Information Regulations (EIR), such documentation is required to be made available to enquirers if it meets the test of public interest. Any information disclosure issues would be resolved between the client and the archaeological contractor before completion of the work. EIR requirements do not affect IPR.

15 HEALTH AND SAFETY

9.1 Health and safety issues will take priority over archaeological matters and all archaeologists will comply with relevant Health and Safety Legislation.

9.2 A Risk Assessment will be prepared prior to the start of site works.

16 TIMETABLE & STAFFING

10.1 The timetable will be as agreed with the client.

10.2 Specialist staff available for this work are as follows:

- Human Remains - Malin Holst (York Osteoarchaeology Ltd)
- Palaeoenvironmental remains – PRS Ltd
- Head of Curatorial Services - Christine McDonnell
- Finds Researcher - Nicky Rogers
- Medieval Pottery Researcher - Anne Jenner
- Finds Officers – Nienke Van Doorn
- Archaeometallurgy & Industrial Residues – Dr Rod Mackenzie & Dr Roger Doonan
- Conservation – Ian Panter

17 MONITORING OF ARCHAEOLOGICAL FIELDWORK

11.1 As a minimum requirement, James Goodyear, Archaeology Development Management Officer for Humber HER will be given a minimum of one week's notice of work commencing on site, and will be afforded the opportunity to visit the site during and prior to completion of the on-site works so that the general stratigraphy of the site can be assessed. York Archaeological Trust will notify James Goodyear, Archaeology Development Management Officer for Humber HER of any discoveries of archaeological significance so that site visits can be made, as necessary. Any changes to this agreed WSI will only be made in consultation with James Goodyear, Archaeology Development Management Officer for Humber HER.

18 COPYRIGHT

12.1 York Archaeological Trust retain the copyright on this document. It has been prepared expressly for Sweco, and may not be passed to third parties for use or for the purpose of gathering quotations.

19 KEY REFERENCES

Brown, D. H., 2007. *Archaeological Archives: A Guide to Best Practice in Creation, Compilation, Transfer and Curation.* CIfA/AAA

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

CIfA. Chartered Institute for Archaeologists, 1993. McKinley, J. I., and Roberts, C. (eds.). Ex*cavation and Post-Excavation Treatment of Cremated and Inhumed Human Remains*. Technical Paper No. 13

CIfA. Chartered Institute for Archaeologists, 2011. Brown, D.H. *Archaeological Archives: A Guide to Best Practice in Creation, Compilation, Transfer and Curation (second edition).*

CIfA. Chartered Institute for Archaeologists, 2014. *Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials.*

CIfA. Chartered Institute for Archaeologists, 2014. *Standard and Guidance for Archaeological Field Evaluation*

Department for Communities and Local Government, 2012. National Planning Policy Framework.

HFA. 2011. *Bridlington Parade Development, Bridlington East Riding of Yorkshire Assessment of Archaeological Potential.* Report no. 372

Historic England, 2002. *With Alidade and Tape – Graphical and Plane Table Survey or Archaeological Earthworks.*

Historic England, 2005. *Guidance for Best Practice for Treatment of Human Remains Excavated from Christian Burial Grounds in England*.

Historic England, 2006. *Guidelines on the X-Radiography of Archaeological Metalwork*.

Historic England, 2007. *Understanding the Archaeology of Landscape – a Guide to Good Recording Practice.*

Historic England, 2015. *Archaeometallurgy*. *Guidelines for Best Practice.*

Historic England, 2015. *Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record.*

Historic England, 2015. *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide.*

Historic England, 2015. *Piling and Archaeology. Guidelines and Best Practice.*

Historic England, 2015. *Where on Earth are We? The Role of Global Navigation Satellite Systems (GNSS) in Archaeological Field Survey.*

Historic England, 2016. *Preserving Archaeological Remains. Decision-taking for Sites under Development.*

Historic England, 2008. *Investigative Conservation. Guidelines on How the Detailed Examination of Artefacts from Archaeological Sites can Shed Light on their Manufacture and Use.*

Leigh, D., Neal, V., and Watkinson, D. (eds.), 1998. *First Aid for Finds: Practical Guide for Archaeologists.* United Kingdom Institute for Conservation of Historic & Artistic Works, Archaeology Section; 3rd Revised Edition.

Museum and Galleries Commission, 1992. *Standards in the Museum Care of Archaeological Collections.*

RCHME, 1999. *Recording Archaeological Field Monuments – a Descriptive Specification.*

Standing Conference of Archaeological Unit Managers (SCAUM), 2007. *Health and Safety in Field Archaeology*

For the latest Historic England guidance documents see:

https://historicengland.org.uk/advice/latest-guidance/

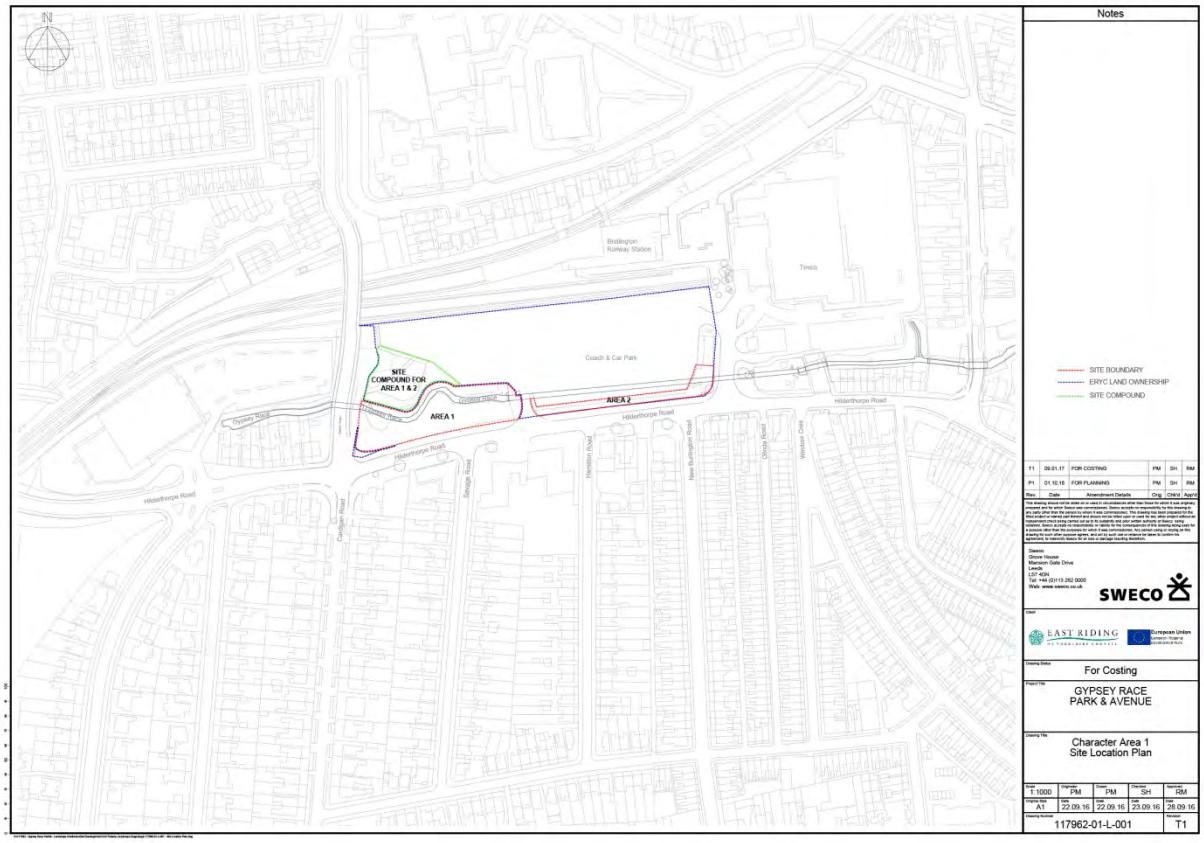


Figure 1 Site location, illustration supplied by client

APPENDIX 4 – WHALE BONE ASSESSMENT BY EMMA BOAST MA

The whale bone recovered is fragmentary and survives approximately 56cm in width and 64cm in length. Across many surfaces the bone has been crushed, making it difficult to measure its full and complete size and form. The condition of the bone is poor; much of the interior dense 'spongy' trabecular bone has been exposed. The surviving exterior periosteum surface is in fair preservation but thin and it has several striation marks across the dorsal and palmar surfaces (Figure.1).

Figure 1. 3D rectified images of the whalebone dorsal view (left) palmar view (right). ©York Archaeological Trust.

The anatomical form, shape and size of the bone suggest it to be part of the fore-limb or flipper of a whale, enough characteristic shape is present to state this bone is part of a *humeri*. This is based on comparative material studies in anatomy and evolution of the cetacean forelimb (Cooper, 2007:1127). There are grooves present on the top of the *humeri* head which possibly suggest a lack of epiphysial fusion has taken place at time of death, this could suggest a juvenile animal. The whale is most likely to be from the *Balaenopteridae* family, which is notable for their baleen teeth-plates. When looking at comparative studies from this family and genus, the most appropriate species suggests the humeri to belong to *Balaeonoptera Physalus (Fin Whale)* or *Eubalaena glacialis* (Northern Atlantic Right Whale). The distinguishable upper surfaces of the *humeri* are damaged due to the crushing of the surfaces, which makes it difficult to distinguish species identification any further. Both these whales were heavily hunted around the Bridlington and North Sea coast during the 19th Century and given the provenance of the site as a 'Bone Mill' during those times, it would not be uncommon to find this type of animal remains in such a context.

Cooper, S, et al (2007) *Neuromuscular Anatomy and Evolution of the Cetacean Forelimb.* The Anatomical Record. Volume 290. Issue 9. Pgs 1121-1137.

PLATES

Plate 1 Construction cut 1008 and natural 1010 (facing east 0.5m scale)

Plate 2 Context 1001 (facing north 0.5m scale)

Plate 3 Construction cut 1008 of revetment wall (facing north west 0.5m scale)

Plate 4 Limestone deposit 1003 (facing north east)

Plate 5 Context 1001 (facing east 1.0m scale)

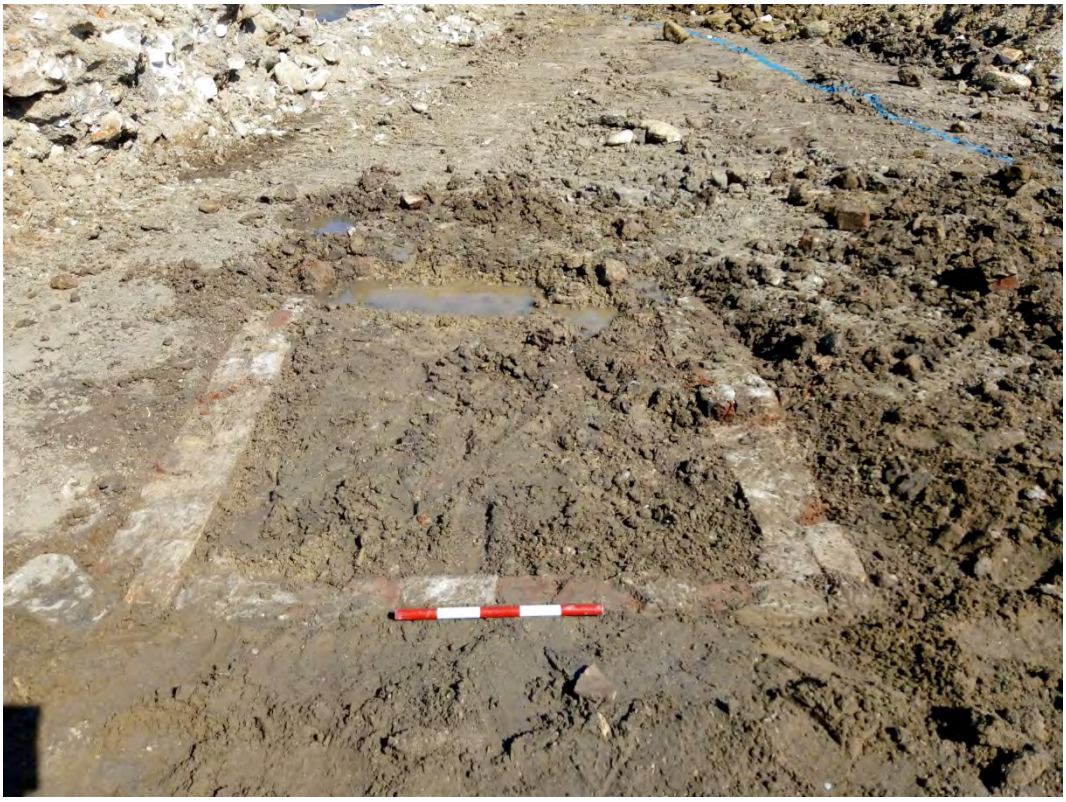


Plate 6 Context 1004 (facing north east 0.5m scale)

Plate 7 Site before excavation (facing east)

Plate 8 Retaining wall 1005 (facing north 1.0m scale).

Plate 9 Northern face of Retaining wall 1014 (facing south west 1.0m scale)

Plate 10 Arched structure 1013 (facing north 0.5m scale)

Plate 11 revetment wall 1005 and concrete wall 1015 (facing north east 1.0m scale)

FIGURES

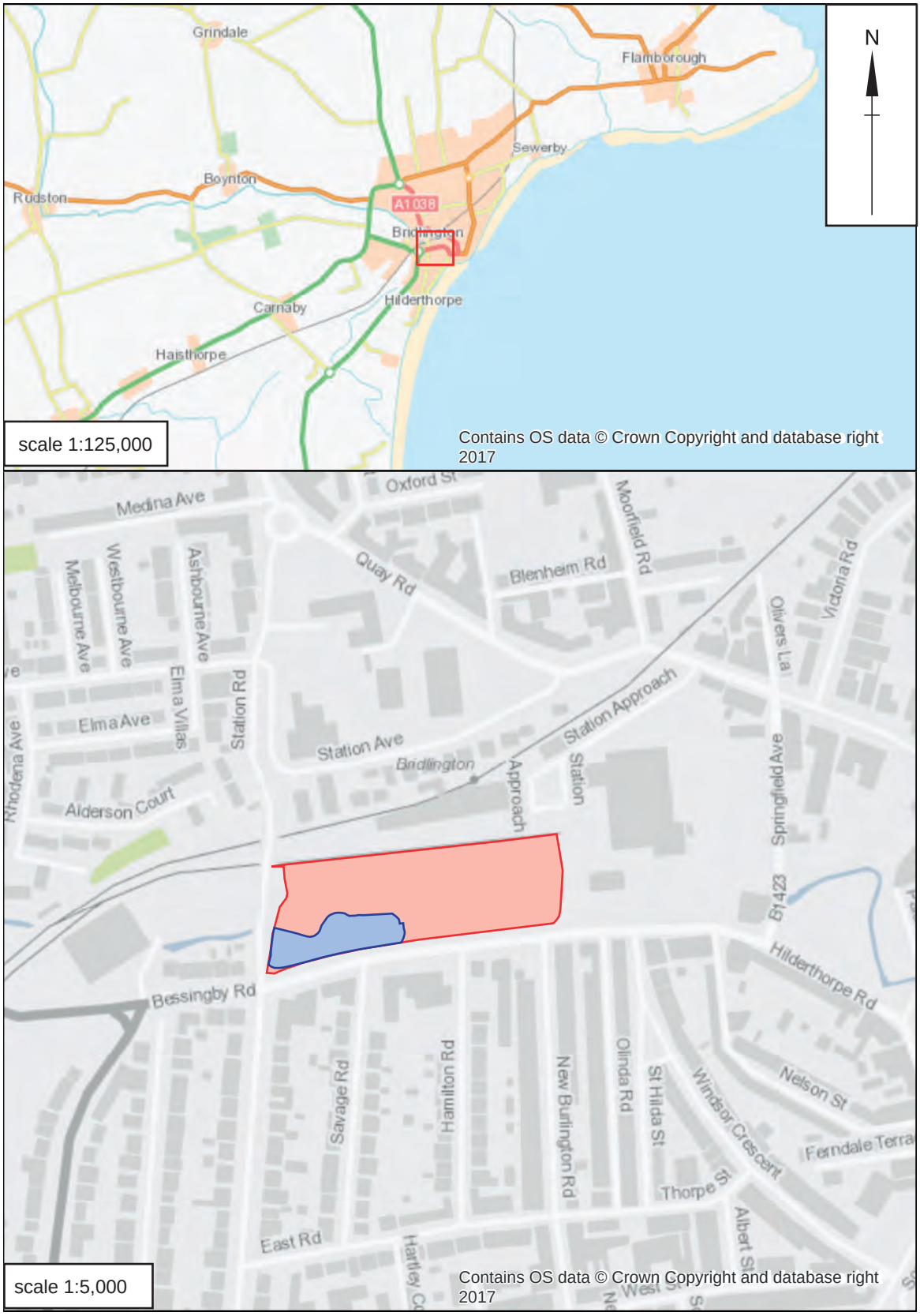
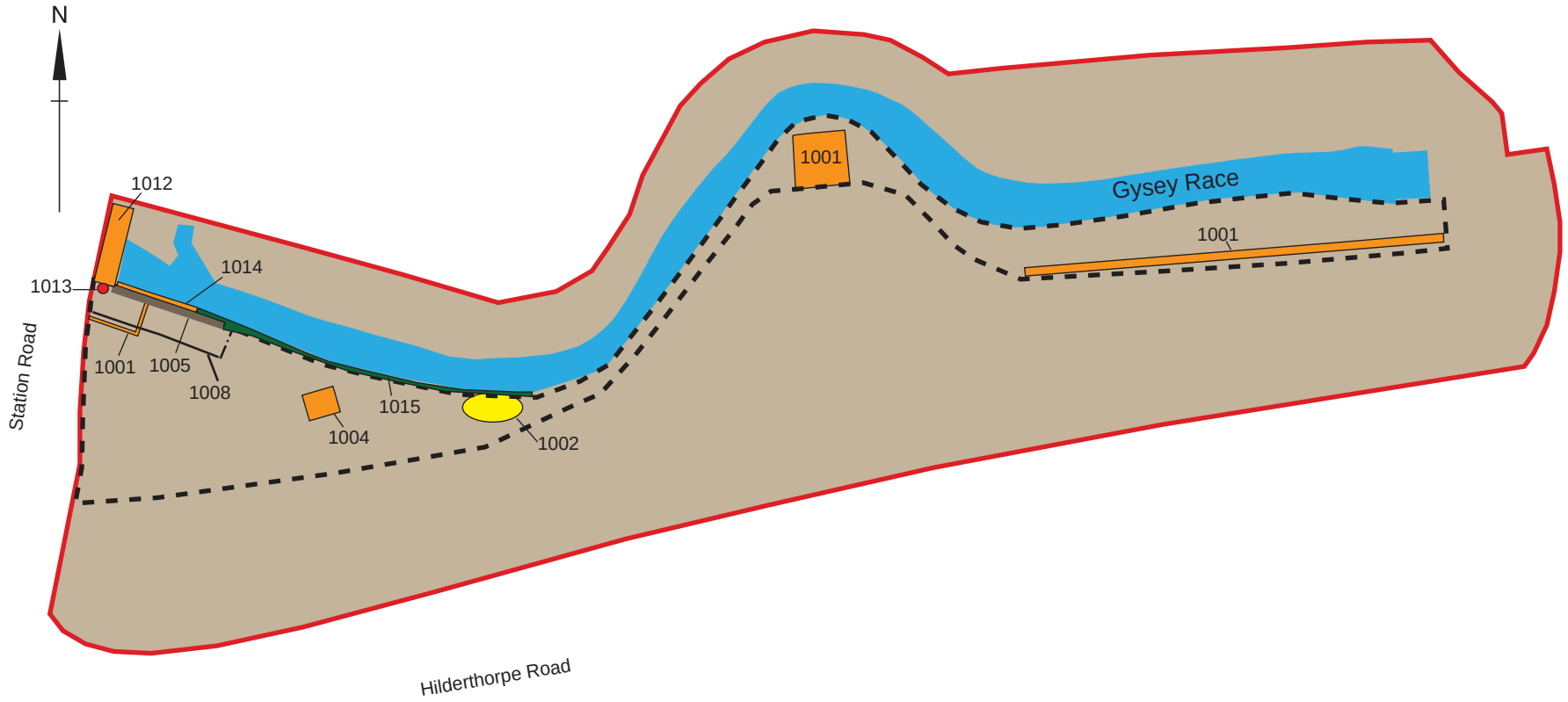


Fig. 1 Site location



Key

Site boundary

Excavation of retention pond and retaining wall

0 10 50 m

1:500 at A4

Fig. 2 Site plan

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