

# 19 ARCHAEOLOGY

## 19.1 INTRODUCTION

### 19.1.1 Company

Oxford Archaeology North

### 19.1.2 Author

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### 19.1.3 Chapter Purpose

This chapter of the ES assesses the likely significant effects of the proposed development on the environment in terms of archaeology. The chapter and its two supporting appendices describe the planning policy context and assessment methodology, followed by the baseline conditions at the application site and surroundings. A programme of trial trenching at the site in May/June 2020 has established that some heritage assets survive beneath the modern surfaces of the dockside, and two extant undesignated structures have been subject to Historic Building Survey. The likely significant effects of the proposed development and further mitigation measures required to prevent, reduce or offset them are outlined. In summary, the objectives of the chapter are to:

- establish, as far as possible, the nature and significance of non-designated archaeological heritage assets (sensitive receptors) within the application site, and the impact upon these heritage assets by the proposed development, and
- propose measures which will mitigate any harmful effects of the development upon these heritage assets.

This chapter should be read in conjunction with Chapter 18 Cultural Heritage of this ES, so that the combined approach to the assessment of the historic environment is understood.

### 19.1.4 Chapter Updates for Revised 2020 Submission

This Archaeology ES Chapter has been reviewed against the following aspects and for each it has been confirmed that there are no amendments required to the content of the chapter:

- Proposed development design changes: are of no specific relevance to this assessment;
- Legislation/policy revisions: there have been no related updates to legislation/policy that have affected either the methodology or findings of this assessment; and

- Additional cumulative schemes: the additional cumulative schemes have been reviewed and are considered not to have cumulative interactions with the proposed development due to their distance/form of development as described subsequently – therefore, they have not been further assessed within this chapter.

In response to the Archaeological Desk-based Assessment (Appendix 19.1), OA North submitted a Written Scheme of Investigation (WSI) to Merseyside Environmental Advisory Service (MEAS). MEAS provided a consultation response regarding Archaeology on 30th April 2020, with an updated WSI accepting the programme of archaeological works proposed as appropriate mitigation strategies in May 2020. Archaeological investigations were undertaken in May/June 2020, and these altered the baseline data submitted in the earlier Desk-based Assessment. A report presenting the results of the excavations (Appendix 19.2) was issued in August 2020.

Updates to the ES chapter have been made to reflect this work in Section 19.2, 19.3, 19.6, 19.7 and Appendix 19.2.

### 19.1.5 Figures

- The figures for this chapter are contained within Appendix 19.1.

### 19.1.6 Appendices

- Appendix 19.1: Bramley Moore Dock, Liverpool: Archaeological Desk-based Assessment
- Appendix 19.2: Bramley-Moore Dock, Regent Road, Liverpool: Building Survey and Evaluation Report

## 19.2 METHODOLOGY

### 19.2.1 Guidance

The assessment has been carried out in accordance with the relevant Chartered Institute for Archaeologists [1] and Historic England guidelines [2].

### 19.2.2 Legislation and Policy

#### 19.2.2.1 Liverpool Unitary Development Plan

Liverpool City Council's Local Plan of 2002 [3] the *Unitary Development Plan* (UDP) policy HD17, *Protection of Archaeological Remains*, states that the council will seek to protect sites of archaeological importance. Where development is proposed in areas of known or suspected archaeological importance, significant archaeological remains and their settings are permanently preserved in situ. However:

*"Where in situ preservation is not just justified and disturbance by development is acceptable in principle, the applicants undertake an agreed*

*programme of mitigation including investigation, excavation and recording before development begins, or as specified in the agreed programme."*

#### 19.2.2.2 Liverpool Maritime Mercantile City World Heritage Site Supplementary Planning Document

Liverpool Maritime Mercantile World Heritage Site (WHS) and its Buffer Zone are subject to a supplementary planning document providing guidance for the protection and enhancement of the city's historic waterfront [4]. The document refers back to the approach specified in UDP policy HD17 and states that 'The surviving areas of docks in the WHS and Buffer Zone, including historic dock retaining walls, quaysides, artefacts and their water spaces should be conserved, retained and enhanced' (section 4.7.6). Furthermore:

*"The WHS is an area of undoubted historical importance and is of international value. Archaeological remains associated with the site, whether below-ground or upstanding features e.g. buildings/structures, are an important non-renewable and finite resource, some of which are potentially of national importance. The archaeological remains of historic docks and other port related structures are potentially of outstanding universal value. The City Council considers that the entirety of the WHS is an area of suspected archaeological importance under the terms of UDP policy HD17" ([4], section 5.7.2).*

#### 19.2.2.3 National Planning Policy Framework

The National Planning Policy Framework (NPPF) sets out national planning policies relating to historic environment conservation [5]. Valued sites of archaeological or cultural heritage that merit consideration in planning decisions are grouped as 'heritage assets' and are an 'irreplaceable resource', the conservation of which can bring wider social, cultural, economic and environmental benefits ([5], section 16.184-5). The policy framework states that the 'significance of any heritage assets affected, including any contribution made by their setting' should be understood in order to assess the potential impact of any development ([5], section 16.189). In addition to standing features, heritage assets of archaeological interest can comprise sub-surface remains and, therefore, assessments should be undertaken for a site that 'includes or has the potential to include heritage assets with archaeological interest' ([5], section 16.189). The NPPF draws a distinction between designated heritage assets and other remains considered to be of lesser significance; 'great weight should be given to the asset's conservation' (and the more important the asset, the greater the weight should be) ([5] section 16.193). It is normally accepted that non-designated sites will be preserved by record, in accordance with their significance and the magnitude of the harm to/loss of the site, to minimise or avoid conflict between conservation and development proposals ([5], section 16.189). Non-designated heritage assets of archaeological interest will also be subject to the policies reserved for designated heritage assets if they are of equivalent significance to scheduled monuments ([5], section 16.194, footnote 63).

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## 19.2.2.4 The Draft Liverpool Local Plan - Submission Version

The City of Liverpool Local Plan of 2018 (submission draft [6]) contains policies regarding the protection of the historic environment. These will supersede the UDP policy HD17, Protection of Archaeological Remains [3]. The 2018 Policy HD1 Heritage Assets: Listed Buildings; Conservation Areas; Registered Parks and Gardens; Scheduled Ancient Monuments states that:

“Proposals affecting archaeological sites of less than national importance should conserve those elements which contribute to their significance in line with the importance of the remains. In those cases where development affecting such sites is acceptable in principle, mitigation of damage will be ensured through preservation of the remains in situ as a preferred solution. When in situ preservation is not justified, the developer will be required to make adequate provision for excavation and recording before or during development. Subsequent analysis, publication and dissemination of the findings will be required to be submitted to the local planning authority and deposited with the Historic Environment Record”( [6], 221).

## 19.2.3 Scoping

The initial scoping responses from Historic England and MEAS indicated the importance of heritage assets within the application site and that non-designated heritage assets should be taken account of in addition to designated structures. Reference was made by MEAS to buried dock-related remains identified at Wellington Dock (Appendix 19.1; Section 7) and that it would not be unreasonable to expect a similar situation at BMD. An Archaeological Desk-based Assessment was commissioned and produced by OA North in 2017; this was updated in 2019 and again in 2020 (Appendix 19.1). This identified the potential for the survival of undesigned archaeological remains within the application site and made recommendations, in consultation with MEAS, as to appropriate mitigation measures.

## 19.2.4 Consultees

Consultation took place, by email in October 2019, with Ben Croxford at Merseyside Environmental Advisory Service (MEAS) regarding the significance of non-designated archaeological heritage assets identified within the application site and appropriate strategies to mitigate the effects of the proposed development. A Written Scheme of Investigation (WSI) to undertake the recommendations of the Archaeological Desk-based Assessment (Appendix 19.1, ES Volume III) was produced by OA North, submitted to MEAS, and accepted, on 6<sup>th</sup> January 2020. Several of the proposed evaluation trenches were subsequently re-located due to their proximity to listed structures and open water. A revised WSI was submitted to and accepted by MEAS on 28<sup>th</sup> April 2020. A Consultation response was issued by MEAS on 30<sup>th</sup> April 2020 and stated that the mitigation measures proposed by the Desk-based Assessment were appropriate and that archaeological excavation and building recording should be carried out strictly in accordance with the approved WSI. The programmes of work

detailed in the approved WSI took place in May/June 2020 and a report was issued to MEAS in August 2020 for comment (Appendix 19.2, ES Volume III). Comments from Alison Plummer at MEAS were provided in September 2020 confirming that the updated mitigation strategy, to be secured by condition, was acceptable.

## 19.2.5 Consideration of Climate Change

Climate change is not relevant to this technical area and has not been considered within the assessment.

## 19.2.6 Consideration of Human Health

Human health is not affected by this technical area and has not been considered within the assessment.

## 19.2.7 Consideration of Risk of Major Accidents and/or Disasters

A review of Section 5 Factors Affecting the Property of the Liverpool WHS Nomination [7], in particular sections 5b) Environmental Pressures and 5c) Natural Disasters and Risk Preparedness, does not include reference to archaeological heritage assets. Major accidents and/or disasters identified as relevant to the proposed development are not applicable to this technical area and have not been considered within the assessment.

## 19.2.8 Alternatives

A comprehensive alternative sites assessment has been undertaken and is addressed within Chapter 5 Alternatives and Design Evolution. This assessment included an appraisal of each site in terms of designations.

An alternative future baseline scenario has been included within the assessment for comparison purposes as stated in Chapter 2 EIA Methodology.

## 19.2.9 Assessment Approach

Analysis of archaeological data includes judgements regarding its value in terms of its potential to contribute to understanding the past. Whilst designated heritage assets have attributed values defined by the designation process, undesigned heritage assets may hold equal or more (albeit unrecognised) importance. Archaeological assets are often of uncertain value until their potential can be established through excavation. Whilst value judgements are based on professional experience/assessment, they are ultimately guided by legislation, national policy, designations, designation criteria and acknowledged research or period-specific priorities.

The assessment has been undertaken of construction phase activities as this is where impact on archaeological features would occur; the operation phase has not been considered as it is envisaged that archaeological conditions would be discharged during the construction phase.

As regards future baseline for the site, much of the research undertaken for the outline Liverpool Waters planning permission was specific to designated and extant buildings/dock furniture rather than non-designated archaeological sites (Appendix 19.1; Section 2.6). Whilst broad scale mitigation measures and safeguards were proposed, specific archaeological investigations would be undertaken at the reserved matters stage, as and when detailed masterplans for individual sites were rolled out [8] [9]. Both Liverpool Waters and Nelson Dock's development have been considered cumulatively but other cumulative schemes identified within Chapter 2 EIA Methodology have not been considered further due to their distance from the application site.

## 19.2.10 Assessment of Baseline Conditions & Receptor Sensitivity

A search of the Merseyside Historic Environment Record (MHER) was undertaken to establish the presence of recorded archaeological heritage assets within the application site and a wider 500m radial zone, the latter being used to provide a contextual understanding of heritage assets identified within the application site. This search also identified five archaeological event records within the surrounding 500m area (Appendix 19.1, section 7), indicating where archaeological research and excavations have been undertaken to discharge planning conditions. This identified works carried out during the re-development of Wellington Dock, immediately to the north of BMD, in 2011/12. The search did not identify the Liverpool Waters site as its centred NGR lies beyond the radius of the defined study area.

Historic mapping was consulted to identify archaeological heritage assets within the application site, which may survive as sub-surface features.

Oxford Archaeology North has an extensive archive of secondary sources relevant to the industrial and maritime history and archaeology of Liverpool, incorporating both published work and unpublished client reports. This was consulted in order to provide historical background information.

A site visit was also undertaken to assess the surface visibility of archaeological heritage assets. Additional aerial and topographic surveys have confirmed that infilled features are present within areas of granite setts on the north and east quays, and other potential archaeological features may be sealed beneath modern surfacing.

A total of 17 potential archaeological heritage assets (sensitive receptors) has been identified within the application site. All heritage assets within the application site were assigned gazetteer numbers during the production of the Archaeological Desk-based Assessment (Appendix 19.1). As some heritage assets are designated (and included in the Cultural Heritage chapter) and others were discounted during the assessment process, the numerical list used in Tables 19.3 onwards is not sequential.

Table 19.1 sets out the scale of sensitivity that has been applied to receptors identified and considered within this assessment.

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Table 19.1

Industry standard scale of archaeological sensitivity used in the assessment

SENSITIVITY	DESCRIPTION
Very High (International)	UNESCO World Heritage Sites and sites on the list of sites proposed for World Heritage Status.
High (National)	Designated scheduled monuments, grade I, II* and II listed buildings, and undesignated sites of potential national importance
Medium (Regional)	Conservation Areas, registered parks and gardens Undesignated sites recorded on Historic Environment Record and/or that contribute to regional research objectives
Low (Local)	Sites with a local/borough archaeological value or interest Sites that are so badly damaged that too little remains to justify inclusion into a higher grade
Negligible	Sites or features with no significant archaeological value or interest

19.2.11 Assessment of Magnitude

The assessment was undertaken based on the description of development contained in Chapter 3 Application Site & Proposed Development, of this volume of the ES. Table 19.2 indicates the scale of impact magnitude that has been used in undertaking the assessment.

Table 19.2

Scale of magnitude for archaeological impacts used in the assessment

MAGNITUDE	DESCRIPTION
Very large	<ul style="list-style-type: none"><li>Substantial change in environmental factors;</li><li>Complete destruction of the site or feature;</li><li>Change to the site, feature, its landscape or setting resulting in a fundamental change in ability to understand the resource and its cultural heritage or archaeological value/historical context.</li></ul>
Large	<ul style="list-style-type: none"><li>Significant change in environmental factors;</li><li>Change to the site, feature, its landscape or setting resulting in a significant change in ability to understand the resource and its cultural heritage or archaeological value/historical context.</li></ul>
Medium	<ul style="list-style-type: none"><li>moderate change in environmental factors;</li><li>Change to the site or feature resulting in an appreciable change in ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.</li></ul>
Small	<ul style="list-style-type: none"><li>Slight change to the site or feature resulting in a small change in our ability to understand and appreciate the resource and its cultural heritage or archaeological value/historical context and setting.</li></ul>

MAGNITUDE	DESCRIPTION
Negligible	<ul style="list-style-type: none"><li>Negligible</li></ul>

19.2.12 Assessment of Significance

The assessment of significance within this chapter is based on the matrix presented in Table 19.3.

Table 19.3

Significance Matrix

MAGNITUDE OF EFFECT	SENSITIVITY OF RECEPTOR				
	Very High	High	Medium	Low	Negligible
Very Large	Major Significance	Major Significance	[3]	Moderate Significance	[1]
Large	Major Significance	[3]	Moderate Significance	Minor Significance	[2]
Medium	[3]	Moderate Significant	Minor Significance	[2]	Negligible Significance
Small	Moderate Significance	Minor Significance	[2]	Negligible Significance	Negligible Significance
Negligible	[1]	[2]	Negligible Significance	Negligible Significance	Negligible Significance

[1] The choice between ‘Moderate Significance’, ‘Minor Significance’ and ‘Negligible Significance’ will depend on the specifics of the impact and will be down to professional judgement and reasoning.

[2] The choice between ‘Minor Significance’ and ‘Negligible Significance’ will depend on the specifics of the impact and will be down to professional judgement and reasoning.

[3] The choice between ‘Major Significance’ and ‘Moderate Significance’ will depend on the specifics of the impact and will be down to professional judgement and reasoning.

n.b. ‘Negligible Significance’ includes ‘Neutral’ and ‘No Impact’ assessments.

19.2.13 Relevant Associated Development

No associated development has been assessed within this chapter.

19.2.14 Assumptions/Limitations

In undertaking the archaeological assessment of the application site and wider surrounding area, there are several limitations and constraints affecting the outputs from this work. These include:

- The archaeology assessment is based predominantly on historic mapping and may not have identified potential sites/features not illustrated by the Ordnance Survey or which were built/demolished between map revisions/editions.

- Many potential archaeological heritage assets (which are predominantly the below-ground remains of demolished structures) are not surface-visible but probably infilled or sealed beneath modern surfacing. Survival and condition of potential features can only be proven through excavation.



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19.3 BASELINE CONDITIONS

19.3.1 Existing Baseline

SITE NUMBER	KEY RECEPTORS (NAME)	DESCRIPTION	SENSITIVITY	FURTHER INFORMATION
08	BMD west quay shed	Transit shed/warehouse marked on the historic mapping from 1851 onwards. Goad’s plan of 1890 illustrates it was of brick/stone construction, open-fronted with apertures supported by cast iron columns. Google Earth imagery shows sheds present (but not roofed) in 2007; it is no longer extant. Not recorded on MHER, but of Medium/regional significance due to its long-term survival and the likelihood that the footings may remain largely intact. The area is now clear of sheds and covered with tarmac. Three sandstone column bases were identified by evaluation trenching in May/June 2020 below the modern surfacing.	Medium	Appendix 19.1; Section 4; Appendix 19.2; Section 4.2
10	BMD north quay shed	A transit shed/warehouse marked on OS 1851 which appears to have been demolished to make way for the High Level Coal Railway (Site 15) c1882. .Not recorded on MHER, Low/local significance as it was demolished and superseded by the arched accommodation beneath the High Level Coal Railway c1883 (Site 15). No evidence for this building was identified during the trial trenching undertaken in May/June 2020.	Low	Appendix 19.1; Section 4
11	BMD south quay shed	An extant brick-built transit shed/warehouse first shown on the first edition OS map of 1851. Goad’s map (1890) illustrates that its rear (south) wall was of brick/stone and the dock-facing frontage was of timber, with openings supported by cast iron columns. Although it has a modern roof, the present building is brick-built to the south and may incorporate elements of the warehouse depicted on historic mapping. Historic building survey identified the shed was built in the 1950s to replace the earlier structure.	Medium	Appendix 19.1; Section 4; Appendix 19.2; Section 3.1
12	Nelson Dock north quay shed	A transit shed/warehouse marked on the north quay of Nelson Dock from the first edition OS (1851) onwards. Goad’s map of 1890 shows it was built of brick/stone with a timber frontage and openings supported by cast iron columns. It is shown extant on a 1946 aerial photograph but is not depicted on the OS map of 1959-72. Not recorded on MHER, Medium/regional significance due to its long-term survival and the likelihood that the footings may remain largely intact beneath later surfacing. No archaeological evidence for this structure was identified by the evaluation trenching, the area having seemingly been truncated by later disturbance	Medium	Appendix 19.1; Section 4; Appendix 19.2; Section 4.3
13	BMD east quay ground-level railway	A 1946 aerial photograph shows a ground-level railway in use on the eastern quay. It may have existed beneath the High Level Railway (Site 14) and survived the latter’s demolition; the railway lines remain extant and are in some places sealed by concrete surfaces. Not recorded on MHER, Low/local significance as these railway lines, which probably date to the 19 <sup>th</sup> century, remain extant and are associated with extant granite setts. These were identified within evaluation trenching on the east quay and are illustrated on the photogrammetric survey of the site.	Low	Appendix 19.1; Section 4; Appendix 19.2; Section 4.5
14	High Level Coal Railway (east quay of BMD)	The High Level Coal Railway was constructed in 1856 and is first illustrated on the OS Town Plan of 1864. That on the east quay of BMD continued northwards to serve the east quay of Wellington Dock. The OS map of 1908 illustrates the presence of a chimney and pumping station (Site 29) at the south-eastern corner of the dock, where the railway had been shortened. Recorded on MHER (MME16662). Medium/regional significance as the High Level Coal Railway was important to the development of dock infrastructure and formed a significant local landmark; The High Level Coal Railway on the east quay is considered to be of slightly less significance than that on the north quay as nothing survives on the surface and it is not obviously connected to the designated accumulator tower (Site 06). Although it was demolished in the mid-twentieth century, sub-surface evidence of footings for the former structure survive and were identified by evaluation trenching.	Medium	Appendix 19.1; Section 3.2.16-17 and Section 4
15	High Level Coal Railway (north quay of BMD)	The High Level Coal Railway on the north quay of BMD was extended from the east quay in 1883/4 when the Grade II listed hydraulic accumulator tower (NHLE 1072981) was built to power capstons and cranes (Site 23) used to empty coal from railway trucks into waiting ships. It is first shown on the OS map of 1894 and continued in use until the 1970s when it was demolished. Some of the warehousing beneath the railway arches was refrigerated; the electricity-generation station to the Liverpool Overhead Railway (Site 17) was also beneath the High Level Coal Railway deck. Recorded on MHER (MME16662). High/national significance; the brick-built decked structure attached to the Grade II listed hydraulic/accumulator tower is part of the High Level Coal Railway (Site 15) and is therefore potentially of national importance. Although the remainder of the structure has been demolished, sub-surface evidence of its footings and associated/ancillary structures such as crane bases (Site 23) appear to survive. What may have been a former supporting wall was identified by evaluation trenching.	High	Appendix 19.1; Section 3.2.16-17 and Section 4; Appendix 19.2; Section 4.3
16	Ground-level railway on north quay of BMD	Ground level dock railway lines to the north of the High Level Coal Railway, marked on OS mapping of 1894. Two lines are visible on aerial photographs of 1946 and discernible on the ground Not recorded on MHER, Medium/regional significance due to their longevity and association with the High Level Coal Railway and stores/warehousing beneath. These are illustrated on the photogrammetric survey of the site.	Medium	Appendix 19.1; Section 4
17	Liverpool Overhead Railway of 1893	Liverpool Overhead Railway was opened in 1893 and ran within the walls of BMD, parallel to Regent Road. It was the first electric line in England and its coal-fired electricity generating station was at BMD beneath the High Level Coal Railway. The Liverpool Overhead railway, which sat on a cast iron superstructure, was closed in 1956 following bomb damage. Recorded on the MHER (MME18105); medium/regional significance due to the railway being suspended and demolished in the mid-twentieth century. Site 28, which remains partially extant and abuts the Regent Road wall, may be associated with the Liverpool Railway. A trench proposed to investigate this feature during the archaeological excavations undertaken in May/June 2020 was re-located due to its proximity to the listed Dock Wall.	Medium	Appendix 19.1; Section 3.2.18-20 and Section 4

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SITE NUMBER	KEY RECEPTORS (NAME)	DESCRIPTION	SENSITIVITY	FURTHER INFORMATION
18	Nelson Dock Customs depot	Small building at the north-east of Nelson Dock, just inside the dock gates, between the main goods railway and the Nelson Dock railway (Site 19). Shown on the 1894 OS map, and a 1946 aerial photograph to have been a two storey H-shaped brick-built structure. Labelled as a police station on 1959-1972 OS map. It is no longer extant. Not recorded on MHER; Low/local significance as it was demolished in the mid-20 <sup>th</sup> century. It was not possible to evaluate the presence of this structure during the archaeological trial trenching in May/June 2020 due to an existing business occupying the site.	Low	Appendix 19.1; Section 4
19	Single track railway, north quay of Nelson Dock	Single line railway extending from the dock railway (Site 30) on the east quay of BMD, past the customs house (Site 18) to the warehouse on the north quay of Wellington Dock (Site 12). Not recorded on MHER. Medium/regional significance as this railway is visibly extant and appeared to terminate close to the former Customs Depot (Site 18). Illustrated on the photogrammetric survey of the site.	Medium	Appendix 19.1; Section 4
23	Cranes (5 of), north quay of BMD	Cranes marked on the OS map of 1890; five crane pits, between warehouse bays, are marked on Goad's map of 1890 beneath the High Level Coal Railway (Site 15). These were built alongside the grade II listed accumulator tower/engine house (NHLE 1072981) in 1883/4, to power machinery on the extended High Level Coal Railway. Not recorded on MHER. Low/local significance due to the large number of examples and that they have been demolished; infilled crane-bases are likely, however, to survive as sub-surface remains; several large infilled holes are identifiable on the ground amongst patches of stone setts. Not identified by the evaluation trenching undertaken in May/June 2020 as the proposed trench was re-located due to its proximity to the listed dock wall.	Low	Appendix 19.1; Section 4; Appendix 19.2; Section 4.4
24	Red brick building, west end of north quay of BMD	An early-to-mid-20 <sup>th</sup> century brick building of several phases, possibly incorporating part of the north quay warehouse (Site 10). Not recorded on MHER. Low/local significance due to its late date; it is presently extant but in poor condition. Historic Building Survey undertaken	Low	Appendix 19.1; Section 4; Appendix 19.2; Section 3.3
25	Cranes (2 of), east quay of BMD	Two cranes marked on the OS map of 1908 on the east quay of BMD. These were probably powered by the pumphouse (Site 29) at the south end of the east quay, which was built between 1894 and 1908. Not recorded on MHER and of Low/local significance due to the large number of examples and that they have been demolished; infilled crane-bases are likely, however, to survive as sub-surface remains. One infilled crane base is clearly identifiable at the south end of the quay. Not identified by the evaluation trenching undertaken in May/June 2020 as the proposed trench was re-located due to the proximity of the crane bases to the listed dock wall.	Low	Appendix 19.1; Section 4; Appendix 19.2; Section 4.5
28	Red brick structure abutting Regent Road dock wall, BMD	A brick-built buttress and a stretch of brick which runs for several metres abutting the dock wall adjacent to Regent Road, opposite its junction with Blackstone Street. The structure is not shown on historic mapping but may be visible at deck-level of the Liverpool Overhead Railway on aerial photographs of 1927 and 1946. Not recorded on MHER; medium/regional significance due to its probable association with the Overhead Railway of 1893 (Site 17) and the Regent Road dock wall. Not identified by the trial trenching undertaken in May/June 2020; a trench proposed to investigate this feature was re-located due to its proximity to the listed Dock Wall	Medium	Appendix 19.1; Section 4; Appendix 19.2; Section 4.6
29	Pumping house and chimney south end of east quay, BMD	A brick-built chimney not shown on the OS map of 1894 but is present on that of 1908. It was probably a pumphouse, used to power cranes on the High Level Coal Railway on the eastern quay of Bramley Moore Dock (Site 14). It is visible on an aerial photograph of 1927. The chimney seems to be attached to a building (not illustrated on the historic mapping) with a roof just slightly higher than the deck of the High Level Coal Railway (Site 14). Both had been demolished by 1946. Not recorded on MHER. Medium/regional significance due to its association with the High Level Coal Railway (Site 14); the site of the pumphouse presently lies beneath a tarmac car park and sub-surface remains of the structure may survive. It was not possible to evaluate the presence of this structure during the archaeological trial trenching in May/June 2020 due to an existing business occupying the site.	Medium	Appendix 19.1; Section 4
30	Dock railway	The line, which remains partly extant east of BMD's east quay, was originally intended to move spoil and materials for the construction of new northern dock in the 1840s, so it part of Hartley's original northern docks development. It was extended to join LYR's North Docks station in 1855. All movement was by horse with a maximum of six wagons per train. Recorded on MHER (MME 16873); Medium/regional significance due to its association with Hartley's original dock layout and its survival; although much of the dock railway was removed in the late 20 <sup>th</sup> century, elements survive within the eastern part of the Site Area. These have been recorded by the photogrammetric survey.	Medium	Appendix 19.1; Section 4; Appendix 19.2; Figure 3

19.3.2 Future Baseline-based on descriptions of outline plans in Liverpool Waters Heritage Impact Assessment [9]

KEY RECEPTORS	DESCRIPTION	SENSITIVITY	FURTHER INFORMATION
08, 11, 12	Residential development	Medium	Liverpool Waters Heritage Impact Assessment [9]
10	Residential development	Low	Liverpool Waters Heritage Impact Assessment [9]
13, 16, 19, 30	Historic surfacing to be retained and restored; residential development	Medium	Liverpool Waters Heritage Impact Assessment [9]
14, 17	Residential development	Medium	Liverpool Waters Heritage Impact Assessment [9]
15	Residential development	High	Liverpool Waters Heritage Impact Assessment [9]
18	Residential development	Low	Liverpool Waters Heritage Impact Assessment [9]
23, 25	Residential development	Low	Liverpool Waters Heritage Impact Assessment [9]

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KEY RECEPTORS	DESCRIPTION	SENSITIVITY	FURTHER INFORMATION
24	Demolition of workshop west end of BMD north quay	Low	Liverpool Waters Heritage Impact Assessment [9]
28, 29	Residential development	Medium	Liverpool Waters Heritage Impact Assessment [9]

19.4 POTENTIAL SIGNIFICANT IMPACTS

PHASE	DESCRIPTION	ADVERSE/BENEFICIAL
Construction	Demolition of existing buildings	Adverse
Construction	Site stripping (including of historic surface materials)	Adverse
Construction	Movement of heavy plant including installation of cranes and pile-drilling equipment	Adverse
Construction	Construction of car parking structure (will impact upon the eastern quay of BMD)	Adverse
Construction	Hard landscaping	Adverse
Construction	Road-building infrastructure	Adverse
Construction	Stadium construction (will include extensive piling of BMD and Nelson Dock quaysides)	Adverse
Construction	Accidental damage to/destruction of unrecorded/unrecognised archaeological features during sub-surface interventions	Adverse

19.5 DESIGN INTERVENTIONS

DESIGN INTERVENTION	DESCRIPTION	REASON FOR INTERVENTION	FURTHER INFORMATION
Recording and removal of extant dock furniture including granite setts and railway lines (Sites 13, 16, 19, 30)	Following their removal (under archaeological supervision) materials will be stored and re-instated/reused within the application site as part of the proposed development landscape strategy	To safeguard extant heritage assets/historic artefacts which may be damaged during the construction phase by site stripping, landscaping and vehicular movement etc	Cultural Heritage Chapter/Historic Artefacts survey

19.6 ASSESSMENT PRE-MITIGATION (INCLUDING DESIGN INTERVENTIONS)

19.6.1 Proposed Development Scenario

PHASE	RECEPTOR(S) AFFECTED	IMPACT	MAGNITUDE PRE-MITIGATION	SIGNIFICANCE PRE-MITIGATION	MITIGATION PROPOSED?	FURTHER INFORMATION
Construction	08	Destruction of archaeological heritage asset; trial excavation has recorded remains of heritage asset	Negligible	Moderate/Major	Trial trenching investigation already undertaken. No further mitigation is necessary	Appendix 19.1; Section 8.2-8.3
Construction	10	Destruction of archaeological heritage asset; trial excavation did not locate heritage asset, suggesting no archaeological evidence survives	Negligible	Moderate	Trial trenching investigation already undertaken. No further mitigation is necessary	Appendix 19.1; Section 8.2-8.3
Construction	11	Destruction of extant heritage asset; Historic Building Survey has taken place and established a mid-twentieth century date for the extant structure	Negligible	Moderate/Major	Historic Building Survey already undertaken. No further mitigation is necessary	Appendix 19.1; Section 8.2-8.3
Construction	12	Probable destruction of archaeological heritage asset; sample excavation has established that no archaeological deposits remain	Negligible	Moderate/Major	Trial trenching investigation already undertaken. No further mitigation is necessary	Appendix 19.1; Section 8.2-8.3
Construction	13	Probable destruction of archaeological heritage asset; photogrammetric survey and sample excavation have recorded extant and sub-surface remains	Very Large	Moderate	Mitigation partially achieved through photogrammetric survey and sample excavation completed to date. Further measures are set out in Section 19.7 below.	Appendix 19.1; Section 8.2-8.3
Construction	14	Probable destruction of archaeological heritage asset; trial excavation has identified footings on east quay	Negligible	Moderate/Major	Trial trenching investigation already undertaken. No further mitigation is necessary	Appendix 19.1; Section 8.2-8.3

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PHASE	RECEPTOR(S) AFFECTED	IMPACT	MAGNITUDE PRE- MITIGATION	SIGNIFICANCE PRE- MITIGATION	MITIGATION PROPOSED?	FURTHER INFORMATION
Construction	15	Probable destruction of archaeological heritage asset; trial excavation identified possible footings on north quay	Very Large	Major	Mitigation partially achieved through trial trenching investigation completed in May/June 2020. Further measures are set out in Section 19.7 below.	Appendix 19.1; Section 8.2-8.3
Construction	16	Probable destruction of archaeological heritage asset; railway lines and granite setts have been recorded by photogrammetric survey	Very Large	Moderate/Major	Mitigation partially achieved through photogrammetric survey completed to date. Further measures are set out in Section 19.7 below.	Appendix 19.1; Section 8.2-8.3
Construction	17	Probable destruction of archaeological heritage asset. A trench proposed to investigate this feature was re-located due to its proximity to the listed Regent Road Dock Wall	Very Large	Moderate/Major	Yes - set out in Section 19.7 below	Appendix 19.1; Section 8.2-8.3
Construction	18	Probable destruction of archaeological heritage asset. It was not possible to evaluate the presence of this structure during the archaeological trial trenching due to an existing business occupying the site	Very Large	Moderate	Yes - set out in Section 19.7 below	Appendix 19.1; Section 8.2-8.3
Construction	19	Probable destruction of archaeological heritage asset. Railway lines and granite setts were identified on the photogrammetric survey of the site	Very Large	Moderate/Major	Mitigation partially achieved through photogrammetric survey completed to date. Further measures are set out in Section 19.7 below.	Appendix 19.1; Section 8.2-8.3
Construction	23	Probable destruction of archaeological heritage asset. Not identified by evaluation trenching as the proposed trench was relocated due to its proximity of the crane bases to the listed Dock Wall	Very Large	Moderate	Yes - set out in Section 19.7 below	Appendix 19.1; Section 8.2-8.3
Construction	24	Destruction of extant archaeological heritage asset; Historic Building Survey undertaken	Negligible	Moderate	Historic Building Survey already undertaken. No further mitigation is necessary	Appendix 19.1; Section 8.2-8.3
Construction	25	Probable destruction of extant archaeological heritage asset. Not identified by evaluation trenching as the proposed trench was relocated due to its proximity of the crane bases to the listed Dock Wall	Very Large	Moderate	Yes - set out in Section 19.7 below	Appendix 19.1; Section 8.2-8.3
Construction	28	Probable destruction of extant archaeological heritage asset. A trench proposed to investigate this feature was re-located due to its proximity to the listed Regent Road Dock Wall	Very Large	Moderate/Major	Yes - set out in Section 19.7 below	Appendix 19.1; Section 8.2-8.3
Construction	29	Probable destruction of extant archaeological heritage asset. It was not possible to evaluate the presence of this structure during the archaeological trial trenching due to an existing business occupying the site	Very Large	Moderate/Major	Yes - set out in Section 19.7 below	Appendix 19.1; Section 8.2-8.3
Construction	30	Probable destruction of extant archaeological heritage asset. Railway lines and granite setts were identified on the photogrammetric survey of the site	Very Large	Moderate/Major	Mitigation partially achieved through photogrammetric survey completed to date. Further measures are set out in Section 19.7 below.	Appendix 19.1; Section 8.2-8.3

19.6.2 Proposed Development + Liverpool Waters Scenario

As with BMD, Nelson Dock immediately adjacent lies within the Liverpool Waters site which has been granted outline planning permission. It was subject to the same broad-scale research as BMD as part of the Liverpool Waters ES chapter [8] and subsequent Heritage Impact Assessment [9]. It should be noted that with the permitted scheme along the length of Liverpool Waters, there will be a significant cumulative impact on archaeology, and reserved matters approval will be required following the roll out of detailed masterplans for individual sites. As at BMD, these are likely to be subject to planning conditions based on more detailed research and heritage impact assessment. The potential inter-development cumulative effects for archaeology within the application site and the Liverpool Waters site at Nelson Dock are therefore considered to be neutral as mitigation is likely to be achieved through archaeological recording and excavation, the gaining of knowledge and public dissemination of the results.

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19.7 MITIGATION & ENHANCEMENT MEASURES

Most of the mitigation measures initially recommended by the Archaeological Desk-based Assessment (Appendix 19.1) were undertaken in May/June 2020, in the form of a Historic Building Survey and archaeological evaluation trenching according to a WSI approved by MEAS (Appendix 19.2). Not all features targeted were identified due to the relocation of trenches originally placed close to listed structures and open water, or businesses operating on the site at the time (Appendix 19.2). The mitigation measures proposed were approved by MEAS in September 2020.

PHASE	POSSIBLE EFFECT BEING MITIGATED	RECEPTOR	MITIGATION MEASURE	HOW SECURED / TRIGGER	MAGNITUDE POST-MITIGATION	ADVERSE/BENEFICIAL	FURTHER INFORMATION
Construction	Destruction of archaeological heritage asset	08	Trial excavation undertaken in May/June 2020 has recorded remains of heritage asset No further mitigation is considered necessary.	Already completed	Negligible	Adverse	Appendix 19.1; Section 8.3
Construction	Destruction of archaeological heritage asset	10	Trial excavation undertaken in May/June 2020 did not locate heritage asset, suggesting no archaeological evidence survives. No further mitigation is considered necessary.	Already completed	Negligible	Adverse	Appendix 19.1; Section 8.3
Construction	Destruction of extant archaeological heritage asset	11	Historic building survey (Historic England 2016; Level 2) has taken place and established a mid-twentieth century date for the extant structure. No further mitigation is considered necessary.	Already completed	Negligible	Adverse	Appendix 19.1; Section 8.3
Construction	Destruction of archaeological heritage asset	12	Sample excavation already completed has established that no archaeological deposits remain. No further mitigation is considered necessary.	Already completed	Negligible	Adverse	Appendix 19.1; Section 8.3
Construction	Destruction of archaeological heritage asset	13	Photogrammetric survey and sample excavation already completed. It is proposed that an archaeological watching brief is undertaken during stripping of historic surfaces. It is proposed that this is secured by planning condition.	Planning condition	Negligible	Adverse	Appendix 19.1; Section 8.3; Appendix 19.2; Section 4.4
Construction	Destruction of archaeological heritage asset	14	Trial excavation undertaken in May/June 2020 has identified footings on east quay of footings. No further mitigation is considered necessary.	Already completed	Negligible	Adverse	Appendix 19.1; Section 8.3
Construction	Destruction of archaeological heritage asset	15	Trial excavation undertaken in May/June 2020 has identified possible footings on north quay and is considered complete. It is proposed that an archaeological watching brief is undertaken during pre-construction works. It is proposed that this is secured by planning condition.	Planning condition	Negligible	Adverse	Appendix 19.1; Section 8.3
Construction	Destruction of archaeological heritage asset	16	Photogrammetric survey and sample excavations have been completed. It is proposed that an archaeological watching brief is undertaken during stripping of historic surfaces. It is proposed that this is secured by planning condition.	Planning condition	Negligible	Adverse	Appendix 19.1; Section 8.3
Construction	Destruction of archaeological heritage asset	17	Sample/selective excavation complete. It is proposed that an archaeological watching brief is undertaken during pre-construction works. It is proposed that this is secured by planning condition.	Planning condition	Negligible	Adverse	Appendix 19.1; Section 8.3
Construction	Destruction of archaeological heritage asset	18	Evaluation trenching followed by full excavation if appropriate to be secured by planning condition.	Planning condition	Negligible	Adverse	Appendix 19.1; Section 8.3
Construction	Destruction of archaeological heritage asset	19	Photogrammetric survey and sample excavations have been completed. An archaeological watching brief is proposed during stripping of historic surfaces. It is proposed that this is secured by planning condition.	Planning condition	Negligible	Adverse	Appendix 19.1; Section 8.3
Construction	Destruction of archaeological heritage asset	23	An archaeological watching brief is proposed during pre-construction works. It is proposed that this is secured by planning condition	Planning condition	Negligible	Adverse	Appendix 19.1; Section 8.3; Appendix 19.2; Section 4.4
Construction	Destruction of extant archaeological heritage asset	24	Historic Building Survey already completed	Already completed	Negligible	Adverse	Appendix 19.1; Section 8.3
Construction	Destruction of archaeological heritage asset	25	An archaeological watching brief is proposed during pre-construction works. It is proposed that this is secured by planning condition.	Planning condition	Negligible	Adverse	Appendix 19.1; Section 8.3; Appendix 19.2; Section 4.5



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PHASE	POSSIBLE EFFECT BEING MITIGATED	RECEPTOR	MITIGATION MEASURE	HOW SECURED / TRIGGER	MAGNITUDE POST-MITIGATION	ADVERSE/BENEFICIAL	FURTHER INFORMATION
Construction	Destruction of archaeological heritage asset	28	To record extant structure and full excavation if appropriate. It is proposed that this is secured by planning condition.	Planning condition	Negligible	Adverse	Appendix 19.1; Section 8.3; Appendix 19.2; Section 4.6
Construction	Destruction of archaeological heritage asset	29	Evaluation trenching followed by full excavation if appropriate. It is proposed that this is secured by planning condition.	Planning condition	Negligible	Adverse	Appendix 19.1; Section 8.3
Construction	Destruction of archaeological heritage asset	30	Photogrammetric survey and sample excavations have been completed. An archaeological watching brief is proposed during stripping of historic surfaces. It is proposed that this is secured by planning condition.	Planning condition	Negligible	Adverse	Appendix 19.1; Section 8.3

19.8 ASSESSMENT POST-MITIGATION

All on-site effects will be mitigated prior to, or during the construction phase, as such residual effects from the proposed development are Neutral as set out in the below table.

19.8.1 Proposed Development Scenario

PHASE	RECEPTOR	RESIDUAL IMPACT	SIGNIFICANCE	ADV/BEN	ST/MT/LT	D/IND	P/T	R/IRR
Construction	08	Negligible	Neutral	ADV	LT	D	P	IRR
Construction	10	Negligible	Neutral	ADV	LT	D	P	IRR
Construction	11	Negligible	Neutral	ADV	LT	D	P	IRR
Construction	12	Negligible	Neutral	ADV	LT	D	P	IRR
Construction	13	Negligible	Neutral	ADV	LT	D	P	IRR
Construction	14	Negligible	Neutral	ADV	LT	D	P	IRR
Construction	15	Negligible	Neutral	ADV	LT	D	P	IRR
Construction	16	Negligible	Neutral	ADV	LT	D	P	IRR
Construction	17	Negligible	Neutral	ADV	LT	D	P	IRR
Construction	18	Negligible	Neutral	ADV	LT	D	P	IRR
Construction	19	Negligible	Neutral	ADV	LT	D	P	IRR
Construction	23	Negligible	Neutral	ADV	LT	D	P	IRR
Construction	24	Negligible	Neutral	ADV	LT	D	P	IRR
Construction	25	Negligible	Neutral	ADV	LT	D	P	IRR
Construction	28	Negligible	Neutral	ADV	LT	D	P	IRR
Construction	29	Negligible	Neutral	ADV	LT	D	P	IRR
Construction	30	Negligible	Neutral	ADV	LT	D	P	IRR
Key: ADV/BEN = Adverse/Beneficial; ST/MT/LT = Short-term/Medium-term/Long-term; D/IND = Direct/Indirect; P/T = Permanent/Temporary; R/IRR = Reversible/Irreversible								

19.9 ARCHAEOLOGY: INTER-DEVELOPMENT CUMULATIVE SCHEME EFFECTS

The potential inter-development cumulative effects for archaeology within the application site and the Liverpool Waters site at Nelson Dock are considered to be neutral. Archaeological sites will be impacted and these developments and impacts, although potentially significant, have been and will be mitigated through archaeological recording and excavation, the gaining of knowledge and public dissemination of the results.

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## 19.10 WORKS CITED

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[5] Communities and Local Government (MHCLG) Ministry of Housing, "National Planning Policy Framework," London, 2019.

[6] Liverpool City Council, "Liverpool Local Plan submission draft January 2018," 2018.

[7] Liverpool City Council. (2003) Nomination of Liverpool - Maritime Mercantile City for Inscription on the World Heritage List.

[8] OA North, "Liverpool Waters Environmental Statement: Archaeology and Cultural Heritage," 2010.

[9] P de Figueiredp, "Liverpool Waters Heritage Impact Assessment," Liverpool, 2011.