



LIVERPOOL CANAL LINK, Liverpool, Merseyside

Archaeological Evaluation Report

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SUMMARY

A programme of archaeological evaluation was required in advance of the construction of a proposed Pier Head Canal Link, within the city centre of Liverpool (centred at NGR SJ 3386 9016), and were formulated to meet the requirements of the Merseyside Archaeologist. The Canal Link extends between Princes Dock and Canning Dock, and will allow for the passage of narrow boats between the end of the Leeds Liverpool canal, through a series of Liverpool Docks and leading ultimately to Albert Dock.

The work was commissioned by Fran Littlewood of British Waterways and facilitated by Galliford Try. The work was undertaken in July 2006 over a three week period by staff from OA North.

The city centre area of Liverpool is renowned for containing a very important assemblage of dockland, municipal, religious and associated sites. It is anticipated that the results of this archaeological investigation will inform a wider understanding of the area and contribute to a greater understanding of one of the most recent areas to be awarded World Heritage Site status. The proposed route of the Liverpool Canal Link has been assessed by Wardell Armstrong as having a moderate negative impact on the buried remains of a number of features including George's Basin, Chester Basin and Manchester Dock.

The main aims of the work were to establish the presence or absence of archaeological remains within the area of the proposed canal link and to determine the extent, condition, nature, character, quality and date of any remains present. The evaluation, comprising seven trenches targeted for the most part on the dock walls, demonstrated that there are surviving remains of George's Basin, Manchester Dock and Chester Basin walls and the associated quayside at Chester Basin. The walls survived to varying heights with Manchester Dock walls being about 0.1m below the present ground surface; Chester Basin walls and quayside at about 1.05m below the present ground surface; and George's Basin wall being between 1.3m and 1.96m below the present ground surface. Manchester Dock and Chester Basin were constructed of large pink sandstone blocks, well dressed and built in an ashlar manner. George's Basin was constructed of yellow sandstone blocks and reflects the use of yellow sandstone in earlier constructions such as the Old Dock, St Thomas' Church, the Second Customs House and the foundations of early buildings along Canning Place and South Castle Street. George's Basin was built by 1771 while Manchester Dock and Chester were slightly later constructions (1785-95) and made use of the less brittle and more hard-wearing pink sandstone.

The evaluation also revealed the remains of later brick structures including the shed on the north side of Manchester Dock, probably built around 1875 when the Great Western Railway company utilised the dock. There were also the remains of an as yet unidentified brick structure in proximity to what was George's Basin.

Finally, there were also two substantial circular brick structures dating to the mid twentieth century uncovered in the area north of the Edward VII monument, in front of the Cunard building on the Pierhead. The more northerly of these was found approximately 1.5m below the present ground surface and the more southerly one between 1.4m and 1.6m below the present ground surface. The structures would appear to be air raid shelters constructed within the roundabouts which were used by an earlier established tram system.

ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North), wish to thank British Waterways for commissioning the project and, in particular, Fran Littlewood for her interest and enthusiasm. Thanks are especially given to David Hodgkinson, of Wardell Armstrong, archaeological consultant for British Waterways, who provided considerable assistance and support during the instigation of the project

At Galliford Try thanks are due to Ian Gregory for his essential on site support and help. Chris, Jimmy and Nigel should also be thanked for their diligence while working alongside the archaeologists. Glyn Owen also provided essential assistance throughout the duration of the project. Bullens provided the plant hire, together with Andy the exemplary machine operator.

We would also like to thank Sarah-Jane Farr, the Merseyside Archaeological Officer, for providing information at short notice and support throughout the excavation.

Finally, thanks are given to all the public who showed an interest in the site as it progressed for their continued interest and assistance in the course of the excavations, and to Granada Television for their coverage of the works.

The evaluation work was undertaken by Vix Hughes with the assistance of Chris Healy, Andy Lane, Caroline Raynor, Simon Gibson, Jason Clarke and Neil Wearing. The report was compiled by Vix Hughes and the drawings produced by Anne Dunkley. The report was edited by Jamie Quartermaine, who was also responsible for overall project management.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 A project design (*Appendix 1*) was submitted in response to a request from British Waterways in advance of the construction of a proposed Pier Head Canal Link, within the city centre of Liverpool (centred at NGR SJ 340 900). The canal link is intended to provide a waterway link between the end of the Leeds Liverpool canal through various Liverpool docks and ending up at Albert Dock. It entails the establishment of a new section of canal between Princes Dock and Canning Dock, which would extend through Pier Head in front of the Three Graces. The evaluation follows on from an Environmental Statement prepared by Wardell Armstrong on behalf of British Waterways. The project design was formulated by OA North in accordance with a project brief prepared by Wardell Armstrong (2005), and was approved by the Merseyside Archaeologist. This programme of evaluation was undertaken in conjunction with a further phase of evaluation work has been subsequently supplemented by further archaeological investigations (OA North 2006) to inform a proposed commercial and retail development in the area of Mann Island, immediately to the north-east of the proposed canal link.
- 1.1.2 The area of works lies within the centre of Liverpool and includes the dockland area (Albert and Canning Docks) and is adjacent to the infilled Old Dock. The scheme lies within the extent of the Maritime Mercantile City of Liverpool, which was granted World Heritage Site status (WHS) in 2004. The proposed canal link specifically lies within the areas defined as; Area 1 Pier Head, which includes the Three Graces and Area 2 Albert Dock Conservation Area. Within the WHS area the buried archaeological deposits are regarded as “*a nationally significant resource*”, which is “*highly fragile and vulnerable to damage and destruction*” (LCC 2003, 99).
- 1.1.3 The area has been the subject of a series of desk-based assessments, which have identified the existence of the Liverpool Old Dock within the extent of the proposed works. This was the world's first commercial enclosed wet dock, constructed between 1709 and 1715-6 in the Pool area, which enabled the expansion of Liverpool as a port and, as such, represents a hugely significant part of the city's maritime history. Within less than 85 years it had generated such prosperity that it had become too small to accommodate the maritime traffic, and was superseded by the construction of further docks extending out into the Mersey river channel.
- 1.1.4 The Old Dock was filled in and a large Customs House was established on top in 1826. This Customs House was severely damaged by bombing during the Second World War, and in the post war rebuilding, during the 1960's, the Customs House remains were demolished to make way for a series of concrete structures. These were themselves demolished in 1999 and have allowed the establishment of the present Paradise Street development. The location of the Old Dock had been established from eighteenth and nineteenth century cartographic evidence, and has been confirmed by an extensive programme of evaluation and excavation undertaken by OA North in advance of the Paradise Street Development since 2001 (LUAU 2001 and OA North forthcoming).

1.2 LOCATION AND TOPOGRAPHICAL SETTING

1.2.1 The development involves a linear route extending approximately 2.5km (1.4mile) along the dockland areas of Liverpool, northwards from Canning Dock (Figs 1 and 2). Form the most part the route extends through existing docks, but a new section of canal is required between Canning Graving Docks and St Nicholas Place. It lies at c6.25m AOD. Much of the northern part of the canal link extends along the Pier Head Piazza, which is a public open space of both grass and cobble surfaces. The Piazza is located in front of the Three Graces and close to the Mersey Ferry terminal. The southern part of the canal link lies in an open area used as part of a car sales premises and as car parking, surrounded by both nineteenth century brick structures and modern buildings, which forms part of the proposed Mann Island development.

1.3 PHYSICAL BACKGROUND

1.3.1 The geology of this part of Liverpool consists of drift deposits of Boulder Clay in the area of Canning Place and Strand Street on the edge of the Pool, with narrow bands of alluvium along the coastal margins and within the Pool itself. The solid geology consists of Pebble Beds and Upper Mottled Sandstone (Philpott 1999).

1.4 HISTORICAL BACKGROUND

1.4.1 **Medieval Liverpool (1066-1500):** the establishment of the town of Liverpool is well documented. The name '*Liuerpol*' is first mentioned in a charter of 1190-4, with the town forming a part of the hundred of West Derby (Nicholson 1981). In 1207, a further charter was granted by King John which effectively elevated the settlement from a fishing and farming village to a royal borough. Between the granting of this charter and 1296, the population of the town had increased from 150 families to 168. The town then consisted of seven streets, the names of which are mentioned in documents from about 1300. These streets survive in the modern plan of the town, though they have been much widened. Important buildings were constructed throughout this period, including the castle, the Chapel of St Mary del Key, St Nicholas, and the Tower (*op cit*, 7).

1.4.2 The town was positioned next to the Pool, a prominent topographical feature and natural inlet; the place-name 'Liverpool' being derived from the Pool. The Pool lay south of a ridge of sandstone, overlain by boulder clay, and the ancient shore-line was along the line of The Strand. It was a natural tidal inlet or creek fed by streams arising further north, and was nearly 1.5km long at high tide (Stewart-Brown 1932, 88). The study area includes the major part of the mouth of this former tidal creek.

1.4.3 The Pool is believed to have formed an important part in the town's life and in its maritime trade, acting as an area where cargoes would have been unloaded, and ships built and repaired. However, no medieval records survive relating to the use of the Pool (Stewart-Brown 1932, 89).

1.4.4 **Post-Medieval Expansion (1540-1710):** in the 1660s a major Liverpool landowner, Sir Edward Moore, refers to the importance of the Pool for future shipping, writing '*if ever the Pool be cut navigable*', indicating that it was not suitable at that time (*op cit*, 90). By the turn of the eighteenth century, the Pool was probably shallow and unusable by anything other than relatively small ships, particularly as between

the Haymarket and the site of the Old Dock there was a fall of only five feet (*op cit*, 105).

- 1.4.5 Until the construction of the Old Dock, ships on the Mersey had a number of difficulties to contend with in order to unload their cargoes. The tidal range of the river, at 30', was exceptionally large, and rendered ships incredibly unstable in a river that was already dangerous from strong under-currents, sand spits and strong north-westerly winds (MacLeod 1982, 3). In the sixteenth century, the only form of protection for ships was a jetty or break-water at the mouth of the 'old haven' (*ibid*). Nevertheless, the shipping was constantly plagued by freak tides and storms, which could smash ships and lose precious cargo; a particularly violent storm in 1561 destroyed the breakwater, with catastrophic implications for trade. The mayor ordered the council to provide funds for an immediate replacement, and ordered one man from every house in every street to go and work on 'the new haven' (MacLeod 1982, 4).
- 1.4.6 With the demise of Chester's trade through the silting of the Dee by the late 1600s, Liverpool's trade began to rise in prominence, although, due to its problems, it faced competition from ships anchoring in the relatively safer waters of the Sloyne on the Cheshire side (*op cit*, 4). Shipping was increasing in terms of traffic in the area meant that the ports were becoming overcrowded. The sizes of ships were also increasing as transatlantic shipping became common, and incidents of rubbish tipping into the harbour also aggravated the problems of space (*op cit*, 6). The upsurge of the ship-building trade on the water's edge also exacerbated the problems (*ibid*).
- 1.4.7 **The Old Dock (1710-1826):** the limitation of the Pool brought increasing demand for better accommodation for ships. In 1707, the scheme was finally mooted for an enclosed wet dock, and in November 1708, the Town Council formally requested the two MPs to commission an appropriate person to 'draw a plan of the intended dock' (Ritchie-Noakes 1984). In 1709, the first Dock Act was passed, empowering the Mayor, Aldermen, Bailiffs, and Common Council as the trustees of the dock and allowing them to levy dock dues on ships entering the harbour.
- 1.4.8 The corporation gave a large piece of land forming the mouth of the Old Pool at the bottom of Pool Lane (later South Castle Street) for its construction, covering some four acres, called the 'old' or 'lower pool' (MacLeod 1982, 10). The construction of the dock was not without financial difficulties; the scheme was financed on the back of heavy borrowing, no one made a profit on the dock construction, and the dock was not fully finished until seven years after the act of 1709 (*op cit*, 9). The man appointed to build the dock, Thomas Steers, began work in May 1710. It is thought that he had been the chief engineer of the Howland Dock at Rotherhithe on the Thames, and the principal assistant of George Sorrocold, who had first agreed to help construct the dock (the Howland Dock, one of the first wet docks, was not, however, a commercial dock, but used for the fitting of ships after they had been launched).
- 1.4.9 Stewart Brown records that 'no satisfactory record exists of the construction of this Dock, the minute books of the Dock Trustees having been lost or destroyed' (1932, 105). Ritchie-Noakes discusses the water-encroaching design of the dock: 'the novelty of Steers' dock lay in its being formed by building within the tidal area of the Pool rather than by excavating on land (as had been Sorrocold's plan). This first dock subsequently became the prototype for most of the subsequent Liverpool

docks' (1984, 9). The construction of the dock was nevertheless a formidable task, particularly as it was built entirely by hand; the building work had to be undertaken in a sea-lake whose coffer-dam was constantly hammered by tidal currents, and from water flowing down into the Pool from the streams off the high ground of Mosslake (MacLeod 1982, 12). The ground was particularly unstable as well: Picton, writing in his *Memorials of Liverpool* (1873), says '*...the site was soft mud, through which the walls had to be carried down a considerable depth to reach the rock*' (Picton 1873). The dock took seven years to complete.

- 1.4.10 The plan of the dock was '*roughly rectangular, aligned east/west, with some 3½ acres of water area and a tidal entrance basin*' (Picton 1873). The Old Dock was described from documentary sources as being *195 yards long – 85 yards at the east and 95 yards at the west end with gates 33 feet wide by 25 feet three inches deep. Four acres in area, it also had a minimum depth of fourteen feet, and was capable of containing a hundred square rigged vessels at a time. The berthing space at the dock amounted to 2,106 feet.* Moss, writing when the Old Dock was still in use, records its area as 16,832 square yards (Moss 1796).
- 1.4.11 The Old Dock did not stand in isolation as there was also a 1½ acre octagonal tidal entrance basin, a graving dock off the north side and a landing stage projecting from the south side of the entrance to the entrance basin which provided short-term berthing and safe access to the dock (Jarvis 1996).
- 1.4.12 In 1714 a graving dock had been built by Alderman Norris and partners which was superseded by the construction of the Dry Dock (later Canning Dock) in 1740 (Ritchie-Noakes 1984). A second graving dock to replace that destroyed by construction of the Dry Dock was built in 1746 at the north end of the Dry Dock itself (*ibid*). It also seems likely that the northern extent of the Pool were covered over with the later development of Paradise Street, Whitechapel etc (Sharples 2004, 7).
- 1.4.13 The opening of the dock at Liverpool occurred 53 years ahead of the first commercial wet dock at Bristol, 63 years ahead of the example at Hull, and almost 100 years prior to the establishment of London's first commercial wet dock, which opened in 1802 (Macleod 1982, 1). The dock was completed in 1716 but had been opened the previous year. Nicholas Blundell recorded on 31 August 1715 that he had seen the first three ships in the dock; '*I went to Leverpoole and saw the Mulbury, the Batchlor & the Robert all in the Dock, they came in this Morning & were the first Ships as ever went into it; the Mulbury was the first*' (Tyrer 1970, 145). One of the major advance of the new dock was that ships could now unload in one and a half days, rather than the 12 to 14 days which it had previously taken, reducing the cost of handling cargo compared to other ports (MacLeod 1982, 13).
- 1.4.14 The impact of the opening of the Old Dock was immense; Chester, Bristol and London are all documented to have lost significant trade throughout the eighteenth century as a result of its opening (MacLeod 1982, 14). Liverpool developed into a major city of commerce, particularly in the valuable commodity of tobacco, and became the second greatest seaport in the kingdom; the number of seamen working from the port trebled, the number of ships it owned trebled, and the tonnage of ships entering the port increased by a factor of ten (*ibid*). The city was well-placed to carry out trade with Ireland and the continent, which began to occur increasingly with the demise of Chester's trade (*op cit*, 2). The position of the port meant that Liverpool was convenient for the slave trade, forming the apex of the slave trading

triangle between Africa and the West Indies and North America; by 1792, the port possessed over half of the English slave trade, having taken the lead from Bristol and London, and just under half of the European slave trade traffic (*ibid*). With the decline of slavery in the early 1800s (the last slave-ship leaving the port in 1807 – *ibid*), Liverpool began exploitation of the next commercial venture – the cotton industry. Liverpool became an important source for cotton, located as it was adjacent to the cotton and textile mills of Lancashire; raw cotton was imported and manufactured produce was exported in equal measure. The prominence of the town led to Liverpool's continued commercial prosperity and expansion in the eighteenth and nineteenth centuries.

- 1.4.15 Liverpool was the most easily accessible port and had good trading links and was the main port for the raw cotton imports. Lancashire dominated the English cotton industry continuously into the twentieth century and this was partly due to and responsible for Liverpool's ongoing success.
- 1.4.16 The Old Dock was such a success that it spawned further enclosed docks, including South Dock in 1753 (Fig 4) and Salterhouse Dock in 1760 (Jones 1996, 111). George's Dock was built under the 1761 Dock Act that commissioned a dock to be built north of Canning Dock, approximately where the Three Graces stand at present (Fig 11). The dock begun in 1762 endured some early rebuilding which resulted from storm damage but was completed by 1771. It was named after King George III in whose reign it was built. The dock was aligned north / south and covered a three acre area. It was entered from both the north end via George's Basin which was arranged perpendicular to the main dock, and to the south through a small passage connecting it to the Dry Dock, which became the present Canning Dock. To the east of the dock was warehousing area which included the impressive Goree Warehouses built in 1793 and rebuilt in 1810 after a fire, before being bombed in 1941. The name reflects the trade links with Goree Island, off Senegal, which was probably the largest slave trading centre on the African coast (now a World Heritage Site), (LCC 2005, 123). The dock was enlarged and repaired in the first quarter of the nineteenth century and the northern entrance closed off in 1871.
- 1.4.17 The dock was closed in 1900 and infilled and the area, known as The Pierhead saw the construction of the Three Graces which consist of the Royal Liver Building of 1908-11 (listed Grade I) at the north end. This building is noted as among the first reinforced concrete frame buildings in the country. South of this is the Cunard Building built 1913-16 (listed Grade II*) and at the south end of the three the Port of Liverpool Building of 1907 (listed Grade II*). All are clad in white Portland stone and form a varied and impressive group.
- 1.4.18 **Manchester Dock:** the Manchester Dock (Figs 5-11), was constructed and opened by 1785-9 for the purpose of harbouring the Mersey Flats, barges and lighters which were flat bottomed barges used for 'lightening' other ships loads or loading and unloading ships that could not be wharfed / docked (Jones 1996). The vessels were mostly transferring coal, corn and cotton between the Manchester area and markets and imported sources. By 1815 the dock was about an acre in size and could apparently contend with the loading and unloading of up to 33 vessels per day. The quayside area of the dock saw numerous sheds and warehouses built immediately adjacent, and partly overhanging, in order to house the goods during transhipment. This was particularly evident later in the nineteenth century when the North Western and Great Western Railway companies became involved, and both

leased and built structures specific to their requirements for coal haulage (Anderson 1996). The gradual change in transport systems from canals, to railways to roads led to the decline of the use of Manchester Dock and it was closed in 1928 and infilled by 1936. The dock was infilled using spoil from the Mersey Tunnel excavations.

- 1.4.19 **Chester Basin:** the Chester Basin (Figs 6-11), was constructed between 1785 and 1795 to meet the need for increased moorings for inland vessels with destinations in Cheshire, Lancashire and the Midlands and using the Shropshire Union canal, also opened in 1795. The basin was tidal and measured approximately 2 500 square yards. However the same shift in transport modes and the obstruction of the ferries arriving at the landing stage just north lead to the closure and infilling of the basin at the same time as the Manchester Dock (Jarvis 1996).
- 1.4.20 **George's Dock:** the construction of George's Dock was between April 1762 and 1771. In 1825 it was repaired, and considerably enlarged. It was infilled in the early twentieth century and now lies beneath the Liver, Cunard and Port of Liverpool buildings on the Pierhead. St George's Basin was constructed in conjunction with the George's Dock, and extended west from the northern entrance of the main dock connecting it to the Mersey. The basin was infilled in 1872 and a floating roadway, to provide vehicular access down to the ferry terminal, was established within it; however, this structure is no longer extant.
- 1.4.21 By 1824 Liverpool had approximately 50 acres of enclosed dock space, of which some docks were stopping points for ferries that ran to places like Chester. Others received goods for use in production in Liverpool itself, which included ground slate coming in from mills near Llandegai to be used at the Herculaneum Potteries. The docks also formed a stage in the journey of goods, so that china clay shipped from Charlestown, Cornwall was offloaded and then sent either overland or by canal to potteries in north Staffordshire. Thus Liverpool's success and growth was not only a product of the docks but also its geographical location and the reasonably well integrated transport system of firstly canals and then railways which focused on the growing port. It was common for raw materials to be shipped to Liverpool then transferred onto Mersey Flats and the goods could then be taken directly to warehouses in Manchester. This was particularly the case for cotton.
- 1.4.22 **Associated Buildings:** warehouses were present in Liverpool prior to the construction of the Old Dock but flourished after its construction and the increasing amount of trade coming into the city. Warehouses in the eighteenth century were often associated with or attached to the owner's dwelling. The warehouses were often between five and ten storeys in height, with gabled fronts, and long and narrow in plan. Distinctively they often had a central pulley below the gabled roof and the loading doors for each floor positioned below this (Giles 2004). The same form continued through the nineteenth century as well. Such features are still visible within the central area of Liverpool today and the later warehouses had further design refinements including loading doors recessed into the walls for better safety. Alongside Irwell Street exist some examples of early twentieth century warehouses, and represent a few surviving buildings of what was once a much more common form.
- 1.4.23 The area referred to as Nova Scotia was in the vicinity of Canning Dock and was an area frequented by the maritime population. As a result the area contained numerous shops, inns, hostelries, workshops and the like. These structures were

demolished to make room for the Irwell Street warehouses. Accounts suggest that there may have been 38 dwelling houses of various sizes, accommodating 212 people at about 1770 (Wakefield 1927, 44). In 1790 there are records showing that in Nova Scotia there were 17 houses and 15 cellars, occupied by 183 people and in Mann Island there were four houses and three cellars, occupied by 30 people. By the early nineteenth century the area was less salubrious and most of the larger houses had been converted to public houses.

- 1.4.24 The GWR building was constructed some time around 1890 and replaced an earlier structure. The building was constructed to hold cargo for the GWR depot at Birkenhead and was closely associated with the Manchester Dock.
- 1.4.25 **Canals:** part of the success of cities like Liverpool was the transport and infrastructure which developed alongside the growing port. The canal systems were the easiest and most economic means of transporting goods during the eighteenth century and by the end of the century there were about 2 000 miles of canalways in Britain (Hadfield 1984). The Leeds to Liverpool canal was commissioned under the Canal Act of 1770 and the section leading into Liverpool was begun first and completed by 1773, and was intended to connect the docks with the ports immediate hinterland. The complete length of the Leeds to Liverpool canal was around 127 miles and this was completed in 1816. There was obviously a demand for goods to be moved from the canal system to and form the dock system at the Liverpool end. Prior to 1846 this had been done using horse-drawn vehicles. After 1846 a series of locks connected the canal to Stanley Dock, which was itself opened in 1848. This then allowed the vessels to pass into the rest of the dock system somewhat inefficiently by using the Mersey.
- 1.4.26 **Trams:** As well as water transport the later tram network in Liverpool became another element of Liverpool's infrastructure and provided a means of transport for people to move along the miles of dock fronts, around the city centre and, also to bring people in from the surrounding suburbs to work into the city. Trams were initially wheeled vehicles, guided along routes using either a grove in a series of plates laid down or later along grooved rails set into the road. The earlier trams were horse drawn, then they were of steam, and then ultimately electric trams were developed, with the first one in use in Leeds in 1861 (Jones 1996, 397). The tram system was electrified between 1898 and 1902 and was then expanded and operated until September 1957 (*ibid*). By the end of 1875, there were approximately 61 miles of tramway lines, with 2894 horses in use pulling the trams and 207 tramcars rolling on the lines (Folkard 1978). The trams provided an easy and efficient route for people to travel into the city from the suburbs to work and reach the dock areas. After the second world war, the city of Liverpool followed the general trend set in many other British cities and abandoned the tram in favour of buses.
- 1.4.27 **Railways:** railways essentially began due to the need to connect Manchester and Liverpool using a fast and economical transport system. They developed from the use of railed linked wagons used in places such as mines but with the advent of steam power the use of 'trains' was more feasible as a method of moving both goods and people. One of the earliest railway companies formed was the Liverpool and Manchester Railway Company, which was initiated in 1826, three years before the Rainhill Trials which Robert Stephenson's *Rocket* won. The line between Liverpool and Manchester was opened in 1830 and notably saw the first death by train (of William Huskinsson MP) on the inaugural journey. In the first year of

business the Liverpool and Manchester Railway transported over 40 000 tons of goods and 11 000 tons of coal and by 1835 this had increased to over 200 000 tons of goods and 116 000 tons of coal (LCC 2005, 139). Throughout the mid nineteenth century numerous other lines and branches became established within and around Liverpool, and several other companies were set up including the London and North Western and Lancashire and Yorkshire Railways in 1855, the Chester and Birkenhead Railway and the Great Western Railway company (GWR), (Anderson 1996). The railways carried raw materials, finished goods and passengers both to work and for leisure, all of which continued to increase in volume and numbers. The GWR company had agents and space at Manchester Dock, which was owned by the Mersey Docks and Harbour Board, and eventually rented from the Board directly, and hired barges when required. The situation then developed with the area around Manchester Dock effectively becoming the GWR depot with warehouses specifically constructed and had its own fleet of barges (Anderson 1996). With the more recent decline in use of railway transport and the in-filling of Manchester Dock the depot was finally closed in 1960, although the fine warehouse on the south side of Manchester Dock remains in extant and has until very recently (August 2006) been the home of the Merseyside Sites and Monuments Records, Merseyside Archaeological Unit and part of the National Museums of Liverpool.

1.5 ARCHAEOLOGICAL WORKS

- 1.5.1 **Law Courts:** In 1976 a small area was excavated prior to the construction of the law courts at the top, northern, end of South Castle Street (Philpott 1999, Davey and MacNeil 1985). Although this lies outside the area of the docklands it was at the heart of medieval and post-medieval Liverpool and as such was part of the docks' hinterlands. The findings there included evidence of commercial town activities. There are also brief records of a deep well found while the courts were being constructed.
- 1.5.2 **Chavasse Park 1970s:** an archaeological investigation took place at the junction of Canning Place and what used to be South Castle Street. The work was a rescue excavation undertaken in the angle of Canning Place, Litherland Alley and South Castle Street in 1977 by Robina McNeil on behalf of the Merseyside Archaeological Society, Merseyside County Museums, the Department of the Environment and the University of Liverpool. This revealed a section of the foreshore on the west side of South Castle Street in the angle formed by that road, Canning Place, and Litherland Alley (centred at NGR SJ 3434 9039) (Philpott 1999, 4; Davey and MacNeil 1985).
- 1.5.3 These excavations showed that the Pool at that point contained two major phases of levelling, both of seventeenth century date. Finds included small but well-dated groups of pottery and clay pipes of the seventeenth and early eighteenth century. The 1977 excavation produced evidence for dense nineteenth century housing on the site, some with cellars, but also, more significantly, it located the edge of what was interpreted as the original Pool of Liverpool. Archaeological deposits within the Pool were consistent with infilling by soil, crushed sandstone and stones during the mid seventeenth century (Philpott 1999, 4; Davey and MacNeil 1985).
- 1.5.4 **Dock Road:** A watching brief was undertaken in September 1980 on works concerned with the widening and re-alignment of the Dock Road and the

construction of the ring road in Canning Place. Part of the wall of the Old Dock was uncovered and recorded by the Archaeological Survey of Merseyside: '*Severe time constraints prevented major excavation, but a yellow sandstone coping was uncovered, standing on top of a sturdy brick wall*' (Nicholson 1981, 3; Jarvis 1996, 7).

- 1.5.5 ***The Old Dock and Chavasse Park 2004-5:*** the programme of archaeological work that was required as part of the Paradise Street Development Area (PSDA), within the town centre of Liverpool (Fig 2, centred at NGR SJ 3430 9010) The project undertook to run both an evaluation programme and a large scale excavation concurrently. The main excavation area within Chavasse Park, covered an area of over 3500m² and the evaluations covered an area of 3160m².
- 1.5.6 The findings included: the surviving remains of the medieval town of Liverpool; the remains of the Pool and associated activities; the historic quayside, including deposits and structures connected with the Old Dock; other city centre activity, such as market places and residential remains, together with subsequent nineteenth century activity associated with the Customs House and the incredible growth and expansion of Liverpool as one of the world's foremost ports.
- 1.5.7 The work began in March 2004 and continued through to November 2005 and can be broken down into five main spatial areas: the Urban Area (CP 04 evaluation); Chavasse Park (CP 04 excavation); The Old Dock (OD 04); The Strand (LT 04); and Outlying Sites (LD 04).
- 1.5.8 The trenches revealed several facts, the most important being that the Old Dock was not cut directly into the Pool clays, instead it was clear that large areas where the walls were to be built were cleared of clay and then the walls built free-standing, before clay was used to backfill behind the dock wall. The clay used may have been from the Pool, since they were very similar, and could have been stockpiled on site.
- 1.5.9 On the north side of the dock it was found that that the rear face of the wall had only limited widening and that it rested on the underlying bedrock, along the northern edge of the Pool. Deep excavations also uncovered a timber over 4m long, keyed into the wall itself, and contemporary with the construction. It had an iron sheath along one side, presumably for strength. The timber was at right angles to the wall. The archaeological observation of a trench dug for piling foundations unearthed several more timbers and further work was carried out. It became apparent that they were at regular intervals of 4.5-5m and were up to 9m in length, with additional supporting timbers in each case. A trench in the location of the north-east corner of the dock uncovered the top of the wall and the inner and outer face of the dock were both tightly curved. The dock lay directly beneath several major modern services at this point.
- 1.5.10 The Old Dock was backfilled in the early nineteenth century prior to the construction of the grand third customs house. The customs house appeared to have been responsible for some areas of the upper part of the Old Dock wall being removed. The north-western most trench showed no sign of the wall surviving due to this fact. What was demonstrated were the numerous tip deposits for the backfilling, complete with ceramic assemblages.
- 1.5.11 On the south side of the Old Dock the wall had been constructed in the middle of the Pool rather than on the northern foreshore. Again the 'natural' clay was actually

deliberate backfill against the rear face of the dock wall. Surprisingly a north/south aligned wall was found keyed into the quayside and was contemporary with the dock itself. Looking on the earliest map Chadwick 1725, it is almost certainly the building, visible east of the dog-leg. Shown as a distinct separate entity the archaeological evidence proves it was clearly a structure planned and integrated with the Old Dock. The wall was of the same yellow sandstone as the quayside, of which four courses remained and below these were what appeared to be wooden foundations sitting on the back filled clay. Trenches dug along the east side of the Old Dock found the Third Customs House had significantly damaged the upper part of the wall. The Third Customs House was easily distinguishable as it was built of massive pink sandstone blocks rather than the yellow sandstone exclusive to the Old Dock and structures of that period.

- 1.5.12 Aside from the Old Dock, the excavations revealed surviving elements of the medieval landscape, along with artefactual material. The work also revealed elements of the urban centre from the time of the Old Dock, and included the street layouts, foundations of both secular and religious buildings, as well as some other elements of the city's infrastructure. Prior to the 1820s these buildings were typically built of a characteristic yellow sandstone; however, subsequently the trend was to use a red brick and as such provides a simple indicator of dating.
- 1.5.13 Within Chavasse Park the results of the evaluations revealed deep cellars, all of brick construction, although the bricks all appeared handmade and the origin of the structures probably dates from the late eighteenth to mid nineteenth century. In the larger areas examined the cellars were found to truncate areas of soils which produced ceramic assemblages of overall earlier date, including numerous sherds of Medieval pottery. The soils were probably plough soils or a mixed deposit of accumulated soil and perhaps related to agricultural / horticultural activity. The soils survived in areas which had never been cellared, in open plots within blocks of land. A number of ditches, distributed across the area, were also uncovered. They may have been boundary or drainage ditches but could also possibly have been the remains of furrows resulting from ploughing or other agricultural practices.
- 1.5.14 The project uncovered several streets lost after WWII, as the upper levels of areas were cleared sett road surfaces appeared complete with contemporary tram rails. Within Chavasse Park it was possible to also reveal two, differently aligned street frontages. The earlier one was on a square layout and corresponded with Gage's 1836 map town map. While the later alignment had a curving street corner, which is shown on the Ordnance Survey map of 1850. There was also a fundamental change in the size of the streets, the frontages were pushed back to increase the road width. What the cartographic sources could not demonstrate was the distinct switch from yellow sandstone to red brick building material between these two layouts.
- 1.5.15 The large scale works in this area uncovered an inter-linked complex of cellars. The majority of the cellars survived to the uppermost level where the ground floor would have begun. All of the cellars showed several phases of building and alterations, none of which would have been apparent from documentary sources. The cellars varied in size from small to large and have contained a large variety of features including fireplaces, lift shafts, stairwells, doorways and entrances windows, storage areas, alcoves, barrel vaulted ceilings and so on. There were also

areas of converging passageways, linking external and internal zones below ground with various lanes and streets. The material within the cellars demonstrated contrasting levels and types of occupation. There was a cellar with a surviving stack of port bottles, some partly heat affected as a result of the Blitz and another with a probable domestic fireplace. Test trenches were excavated in a number of the cellars with wells being sealed below the floor in several instances and included two wells that were connected to a drainage system which extended beyond into other cellars. The wells contained good assemblages of materials and were effectively sealed deposits.

- 1.5.16 ***Merseytram and The Strand:*** work near the entrance to Canning and Salthouse docks (Fig 2) revealed sandstone walling used to block the entrance to the Old Dock, which included a block with inverted Roman numerals, that had originally marked depths on a quayside elsewhere. The earlier alignment of Canning Dock wall was also uncovered, which tied in with historic mapping.
- 1.5.17 ***St Paul's Square:*** the works included an evaluation of six trial trenches at St Paul's Square (Fig 2; SJ 3390 9066). Archaeological stratigraphy was encountered to a maximum depth of 3m when the natural subsoil was revealed. Structural remains, including both sandstone and brick structures, were revealed across the site, with intermittent episodes of disturbance that had a significant impact on the surviving archaeology.
- 1.5.18 A series of yellow and white sandstone ashlar walls were revealed towards the north-east of the site and were thought to be the remains of the foundations of St Paul's Church, which was completed in 1769, and was described as a replica of St Paul's Cathedral, London. Six separate sections of wall were revealed, mostly aligned north-west/south-east, and the rest were north-east/south-west. No burials were found in the churchyard areas, although a deposit of disarticulated human bone has been identified beyond the churchyard. This suggests that there had been a systematic clearance of the site when the church was demolished in 1931, with the removal and reinternment of the burials beyond the church yard.

2. AIMS AND OBJECTIVES

2.1 PROJECT DESIGN

2.1.1 An initial project design (*Appendix 1*) for the work was prepared in conjunction with a project brief prepared by Wardell Armstrong (Wardell Armstrong 2005) for the Liverpool Canal Link. The emphasis of the brief was on the later mitigative recording phase of the project, and as the project design was primarily defining an evaluation it did not follow the brief precisely. The fieldwork programme adhered to OA North standard best practice, and the works undertaken were appropriate to meeting the aims and objectives stated in *Section 2*. All the work was consistent with the relevant standards and procedures of the Institute of Field Archaeologists, and generally accepted best practice.

2.2 OBJECTIVES

2.2.1 Previous excavations, evaluations and the assessments have demonstrated that within the docklands of Liverpool there is the potential for archaeological deposits and structures to survive from the post-medieval period. Areas of potentially significant archaeology have been highlighted, consequently the objectives of the present project are as follows:

- To establish the presence or absence of archaeological remains within the identified area.
- To determine the extent, condition, nature, character, quality and date of any archaeological remains present.
- To establish any ecofactual and environmental potential of archaeological deposits and features.
- To make an assessment of the impact of the scheme on any significant remains or deposits encountered to enable the appropriate level of mitigation recording as proposed in the Environmental Statement
- Where possible implement a programme of mitigation recording in advance of construction works, should this be achievable.

2.2.2 To these ends it was necessary to assess the thickness, depth and depositional history of any significant archaeological structures and/or deposits. Despite the likelihood that the dock structures extend to a depth of 9m, it was proposed to only excavate to a depth of 2-3m. The nature of the main stratigraphical units encountered was characterised in terms of their physical composition (stone, gravel, organic materials etc) and their archaeological formation (primary deposits, secondary deposits etc). This entailed excavation to the top of significant archaeology, together with localised sondages which explored in more detail the archaeological stratigraphy. The work involved the retrieval of all kinds of stratified artefactual evidence (including pottery, brick tile, stone, glass, metal, bone, small finds, etc), and ecofactual and environmental evidence (including animal bone, human bone, plant remains, pollen, peat, charcoal, molluscs, soils etc).

2.2.3 Trenches 401, 402, and 403 were intended to explore the eastern, southern and northern Manchester Dock walls respectively. Trench 404 was intended to explore the eastern wall of Chester Basin. Trench 405 was intended to explore a former sea wall. Trenches 406 and 407 were intended to explore the walls of George's Dock Basin.

3. METHODOLOGY

3.1 FIELDWORK INTRODUCTION

- 3.1.1 The evaluation programme investigated the sub-surface potential of the archaeological record. The trenches targeted the lines of documented docks and there was a flexibility of the trench locations to ensure that they located dock walls, where appropriate, or to avoid services. In all instances, adjustments to trench location were made in consultation with Wardell Armstrong, British Waterways and the Merseyside Archaeological Officer. The evaluation programme was intended to inform the requirements for any further mitigation.
- 3.1.2 Prior to any ground disturbance the extent of the trenches was appropriately fenced to allow safe working. The areas of work were recorded, by digital photograph, prior to any work to help in any required reinstatement after the archaeological investigation. The overburden was excavated by Galliford Try the lead contractor, who also undertook the reinstatement.
- 3.1.3 Once the trench locations were established, the topsoil/surfaces and any obvious overburden deposits were removed mechanically. Machine stripping of trenches was undertaken using a 360° mechanical excavator fitted with an appropriately sized toothless ditching bucket. It was also necessary to use a breaker to remove thick layers of concrete encountered. The work was constantly supervised by a suitably experienced archaeologist. Further machine excavation was then used to define carefully the extent of any surviving walls and other remains. Thereafter, structural remains were cleaned manually to define their extent, nature, form and, where possible, date. Spoil was retained on site and stockpiled at a safe distance from the evaluation trench before being used to backfill the trenches.

3.2 RECORDING METHODOLOGY

- 3.2.1 All elements of the work were recorded in accordance with current English Heritage guidelines (*MAP2*) and the best practices formulated by English Heritage's Centre for Archaeology (CfA).
- 3.2.2 **Survey Control:** a series of survey control points was established with respect to a survey control from an earlier survey undertaken on behalf of ARUP; further control stations were installed throughout the duration of the works, as required. Station descriptions were established for each principal new control station.
- 3.2.3 **Planning:** archaeological planning was undertaken using a data-logging total station (Leica) linked into a Penmap computer, utilising AutoCad version R14. All planning data was digitally incorporated into a CAD system in the course of the evaluation and was superimposed with the base survey provided by British Waterways. This process generated scaled plans which were subject to manual survey enhancement. The drawings were generated at an accuracy appropriate for 1:20 scale but can be output at any required scale. A digital adaptation of single context planning was used, where, as appropriate, each entity was ascribed a unique layer allowing all or selective features to be viewed as required.

- 3.2.4 **Context Recording:** archaeological stratigraphy was recorded using *pro-forma* sheets in accordance with those used by English Heritage. Similar object record and photographic record *pro-formas* were used. All written records of survey data, contexts, artefacts and ecofacts were cross-referenced from *pro-forma* record sheets using sequential numbering.
- 3.2.5 The full contextual details were incorporated into a Harris matrix essentially hand-drawn on site for checking purposes but which may be generated using specially designed Arched version 2 matrix generation software.
- 3.2.6 **Photography:** a full and detailed photographic record of individual contexts was maintained and, similarly, general views from standard view-points of the overall site at all stages of the evaluation were generated. Photography was undertaken using 35mm cameras on archivably stable black and white print as well as colour transparency film. Extensive use of digital photography was also undertaken throughout the course of the fieldwork for presentation purposes. Photographic records were maintained on special photographic *pro-forma* sheets.

3.3 FINDS

- 3.3.1 Finds recovery and sampling programmes were in accordance with current best practice (following IFA and other specialist guidelines) and subject to appropriate expert advice. Oxford Archaeology employs a wide range of in-house finds specialists and palaeoecologists, providing considerable expertise in the investigation, excavation, and finds management of sites of all periods and types, who were readily available for consultation and site visits.
- 3.3.2 In addition, OA North maintains close contact with Ancient Monuments Laboratory Conservators at the Universities of Durham and York, from whom advice and emergency access to conservation facilities was readily available. Finds handling, management and storage during and after fieldwork followed professional guidelines (IFA/UKIC).
- 3.3.3 Artefacts and ecofacts were collected systematically during the mechanical excavation of overburden when significant deposits were encountered. No finds category was neglected in order to provide as full a record as possible, including those relevant to World War II events. Other finds recovered during the removal of overburden were retained only if of significance to the dating and/or interpretation of the site or specific features. Subsequent to the removal of overburden artefacts and ecofacts were collected and handled as per best practice. All material was collected and identified by stratigraphic and spatial units. Hand collection by stratigraphic unit was the principal method of collection.
- 3.3.4 All finds were treated in accordance with OA North standard practice, which is cognisant of IFA and UKIC Guidelines. In general, this meant that (where appropriate or safe to do so) finds are washed, dried, marked, bagged and packed in stable conditions; no attempt at conservation has been made unless special circumstances require prompt action. In such a case guidance and/or expertise was sought from a suitably qualified conservator. Animal bone was recovered from stratified deposits only. It was recovered by hand, with no programme of sieving.

3.4 ARCHIVE

- 3.4.1 A full professional archive has been compiled in accordance with OA North standard best practice, and in accordance with current IFA and English Heritage guidelines (1991). The paper archive will be deposited with the Liverpool Record Office (Central Library, William Brown Street, Liverpool, L3 8EW), and the material archive (artefacts and ecofacts) will be deposited with National Museums Liverpool.

4. SUMMARY OF THE FIELDWORK RESULTS

4.1 INTRODUCTION

4.1.1 The following chapter details the significant results of the evaluation. Full context descriptions can be found in *Appendix 1*. In total seven trenches were excavated in order to investigate the defined aims and objectives (Section 2) and were located so as to investigate the various dock walls (Fig 3).

4.2 TRENCH 401

4.2.1 Trench 401 (Figs 3, 12, 13 and 14) was located to the west of the extant Mercedes Garage, and south of the Porsche Garage (Plate 1). The trench was on the edge of the proposed Mann Island development area, which is proposed to be immediately north-east of the Canal Link development area. As such it served to inform both developments and the results of this trench have been incorporated into the Mann Island evaluation report (OA North 2006). The trench was intended to investigate the eastern edge of Manchester Dock and the associated quay side. The trench was excavated using a 12 ton 360° excavator, alternating between a 1.8m ditching bucket and a smaller toothed bucket where required. The trench was aligned north/south, and measured 9.70m by 4.70m; it was excavated to a maximum depth of 2.00m with stepped and battered sides from a depth of 1.00m on the north-, south- and east-facing sections to allow safe entry and egress from the trench.

4.2.2 The trench revealed the eastern Manchester Dock wall and later associated features, which were overlain / surrounded by various backfill and made ground deposits. The eastern wall of the Manchester Dock, **3109**, was a substantial red and yellow sandstone structure, orientated north/south within the limits of the excavation and was the earliest feature identified (Plates 2 and 3).

4.2.3 The west-facing elevation of the wall (Fig 13 and Plate 4), was made of pink sandstone and would have probably come from a local quarry (possibly St James Cemetery Quarry behind the Anglican Cathedral), while the remainder of the wall was constructed of yellow sandstone. This pink sandstone is much more robust than the yellow sandstone and, consequently, the west-facing elevation of the wall survives to a much higher standard and the stones are tightly keyed into place with very little evidence of a mortar bond. The better quality of construction reflects that this is the face that was required to be waterproof and also that it would have been on display. The west-facing elevation was a vertical face, and the trench exposed a section of the wall that was ten courses of sandstone in length, four courses high and three courses wide with average block dimensions of 0.93m by 0.54m (Plates 3 and 4). The lower three courses were all carved with detailed linear tool mark borders and parallel herring bone-style tool marks at a 45 ° angle across the majority of the face of each block. The tool marks on the lowest course of the wall were abraded and in some places the decorative bordering of the blocks has almost been obliterated. This erosion probably indicates the upper level of the water within the dock while it was in use.

4.2.4 The top course of the west-facing elevation of the dock wall, **3109**, was a later phase of additional construction work carried out on the dock, where small stone

blocks were used and niches were added to facilitate the installation of a wooden platform, **3110**, or temporary sheltered quayside walkway that extended out over the water (*Section 4.2.8*). This upper course does not exhibit the same tool type or attention to aesthetic detail as the lower courses and the block size is relatively small by comparison with that used elsewhere on the Manchester Dock walls (eg in Trench 402). It was also slightly out of line with the rest of the wall as the top course over hangs the lower courses by up to 0.10m at the southern end of the trench. This upper course was also the only area on the west elevation of the wall, where any kind of mortar bond was visible; in this case a greyish white lime mortar bond was used.

- 4.2.5 The second course of the wall, from the top, also contained numerous small niches which measured 0.13m in length and 0.06m in width. Some of these contained rotten wood fragments and large iron nails still *in situ*. The presence of the wooden fragments and metal fixings was indicative of large wooden stays / fenders, probably similar to railway sleepers. These would have been affixed to the western elevation in order to provide a cushion between the wall and the docking boats.
- 4.2.6 The west-facing elevation of the Manchester dock wall also exhibits numerous mason marks (Fig 13; Plate 5), of which four were observed during the course of recording. All were simple geometric shapes which would have been specific to each mason; the fact that there were four individual marks indicate that at least four masons worked the stone blocks that made up the Manchester Dock wall at this point.
- 4.2.7 The reverse face of the dock wall, on the eastern side, consisted mainly of mid-yellow soft sandstone (Plate 2), and was stepped out in three places, which would have strengthened the wall at depth, helping it support the volume of water and the ships moored against it. Each step was on average of 0.60m in width, with each composite block of sandstone measuring on average 0.85m by 0.60m by 0.45m. A small machine-dug sondage at the southern end of the trench, against the east-facing elevation of the dock wall, showed that below the third step, the wall continued down as a vertical face. The yellow sandstone steps on the east-facing elevation were crudely hewn by comparison with the west-facing elevation of the wall; however, the herringbone pattern masons tool marks were still visible on the horizontal face of the yellow sandstone blocks.
- 4.2.8 Keyed into wall **3109** was timber structure, **3110**, which a later phase of activity within the dock's construction and probably supported the wooden jetties seen in in some of the aerial photographs of the dock, taken by P & P aerial photography shortly before the dock's closure in 1928; the pictures show that wooden structure **3110** was used by the smaller skiff and barge boats, which had shallower draughts, to unload cargo. A ground level photograph from 1929 (Plate 20) during the backfilling of the dock shows the final form of this covered jetty structure. The excavation of structure, **3110**, revealed three substantial untreated rectangular-shaped oak timbers keyed into wall **3109**, at the northern end of the trench. The two outer timbers were keyed in horizontally, perpendicular to the wall; the northern timber (Timber A) measured 1.8m by 0.17m by 0.4m and was located directly beneath the north niche in the upper course of the dock wall. This timber was pinned in the centre with a large iron bolt measuring 0.05m in diameter. Later activity, probably the backfilling of the dock, has badly damaged this timber and caused its truncation to the west. The southern timber (Timber C) measured 0.85m

by 0.17m by 0.35m and was similarly located directly beneath the south niche in the upper course of the dock wall. Also in a fairly poor state of preservation and partially truncated along its long axis, the full extent of this timber was never observed as it was obscured by the presence of the western trench step. The third, central timber (Timber B), measured 3m by 0.14m by 0.18m and was set into an iron housing bolted to the wall and projected at a 45° angle from the face of **3109**. Attached to this timber were an iron ring and chain and a similar item, with an iron chain with a hook (Object 11035) attached, was found adjacent to this, within pink sandstone dock backfill deposit **3111**. Compared to the other two timbers, this one was in a relatively good state of preservation, which was unusual given its position at a higher level within the trench when it would have been more prone to damage and truncation by the later construction of warehouses within the area of the dock.

- 4.2.9 A variety of made ground deposits were placed against the east-facing elevation as back fill and related to the construction of the wall. Stratigraphically, the earliest of these deposits was **3112**, a dark-brown, medium compact, heterogeneous silty clay layer which contained large, poorly sorted, fragments of crushed yellow sandstone rock. This deposit was excavated within a sondage at the southern end of the trench against the east-face of the dock wall which was intended to inform the wall's construction. This deposit was observed to a depth of 3m below surface and was at least 1m thick.
- 4.2.10 Overlying this was a loose homogeneous lens of crushed pink sandstone, **3113**, measuring 2m by 0.3m thick and made up of 60% sandstone fragments and 40% pink sand; this sterile layer was a further backfill deposit within the construction cut for the dock wall. Above this was a yellowish-white, compact homogeneous white sand layer with less than 10% small well-sorted grit and sandstone fragments, **3114**. The deposit extended along the length of the trench. This layer was also excavated by machine and appeared to be sterile in terms of artefacts; it was sealed beneath, **3115**, a mid brown compact silty clay layer that contained less than 10% small well sorted sub- rounded pebble inclusions.
- 4.2.11 Overlying **3115** was surface deposit, **3116**, comprising large sub-circular grey cobbles. There was no obvious bond to this surface and instead they were set directly into **3115**, which acted as a bedding layer. The cobble surface **3116** was only visible in the west-facing section but did extend across the entire surface of the trench. This phase of early cobbled surface may have been a quayside surface contemporary with the later stages of use of the Manchester Dock, as the surface exists at the same level as the top of the dock wall.
- 4.2.12 Surface **3116** was sealed by a 0.17m thick layer of grey concrete, **3117**, which covered the whole of the trench, and overlying this was **3118**, a 0.06m thick greyish-brown organic silty homogeneous deposit, which represents the bedding layer for surface **3119**. Surface **3119**, was a recent road surface of grey square regular-sized stone setts that extended beyond the limits of the trench, with each individual sett measuring on average 0.2m by 0.11m by 0.12m.
- 4.2.13 The dock fell out of use and was filled-in during the 1930s with crushed pink sandstone **3111**, obtained from the Mersey tunnel risings, as the backfilling of the dock coincided with the main construction phase of the Mersey Tunnel, which was close by. This fill material was located on the west face of the dock and was excavated by machine to a depth of 1.40m. This backfill material, **3111**, was a sterile deposit of sub-angular, crushed, friable bedrock material.

- 4.2.14 Overlying the dock infill **3111**, and the road surface **3119**, was a light grey reinforced concrete base, **3120**, which was laid to support structure **3121**, a series of very substantial iron beams orientated east/west (Plate 3). The beams formed a kind of prefabricated metal frame for a later GWR warehouse on the site of the infilled dock. Overlying this was **3122**, a heterogeneous backfill deposit consisting of loose brick demolition material mixed with mortar dust and a light brown sandy soil, which probably represents the demolition phase of the warehouses after they fell out of use.
- 4.2.15 Above this at the top of the sequence was the current car park surface **3123**, which was made of black tarmac and aggregates.

4.3 TRENCH 402

- 4.3.1 This trench was aligned north / south, measured 4.5m by 3.4m and was excavated to a maximum depth of 1.5m. It was positioned immediately north of the GWR building at its western end (Figs 3 and 15).
- 4.3.2 The earliest feature seen within this trench was a substantial wall, **3053** (Plate 6), constructed of large blocks of pink sandstone. The blocks were on average 1.1m long by 0.45m thick but the width of the wall was obscured by the GWR brick building which was constructed on top of the sandstone wall. The blocks were constructed in a cross bonded pattern and built courses, which varied somewhat in thickness. The finish of the visible face of the wall was smooth and the corners of each block had either been finished as rounded or have been worn to that form. The wall **3053** is consistent in form and location with the southern wall of Manchester Dock.
- 4.3.3 There was evidence of later alterations and repairs to the wall. A set of iron ladders appears to have been inserted into the wall of the dock and it is surmised that they were inserted, rather than being an original feature, since where the blocks are truncated by the ladder the finish is not consistent, and specifically the corners have not been rounded. There was also evidence of the wall face having been repaired in brick, **3054**; the repairs are only to the face and do not represent reconstruction of the wall at this point. It is evident that these reflect repairs to abraded areas of the face, that was either weathered through water action or more probably from mechanical damage caused by the ships docking.
- 4.3.4 After the dock had gone out of use it was infilled with a stoney deposit, comprising pink crushed sandstone fragments, that were medium in size and angular in nature; the deposit was at least over 1.6m thick. The source for the material was probably the excavated material from the construction, through pink sandstone bedrock, of the Mersey tunnel, in the 1930s.
- 4.3.5 Overlying the dock backfill was a 0.3m thick layer of clinker, **3056**, used as a sealing makeup layer. Above this was a 0.1m thick layer of sterile fine pink sand, **3057**, which was again probably a makeup layer, or preparation layer for the surface above. Directly over this was a mid-brown layer of slightly organic sandy silt, **3058**, which was only 0.07m thick. This layer may have been the original bedding layer onto which the surface setts, **3059**, were laid. It is also likely that the layer contains some material and detritus that has percolated through from the surface.

4.3.6 The setts, **3059**, extended across the entire area of the Trench 402 and were the current external surface. They are of grey granite or hard sandstone, and were laid one course thick (0.15m) in an irregular pattern. Each sett measured approximately 0.26m by 0.16m. The surface post-dates the construction of the GWR building, which they abut but were evidently in contemporary use with the building.

4.4 TRENCH 403

4.4.1 This trench was aligned north-west / south-east and was located so as to examine the northern dock wall of Manchester Dock; it measured 19.75 by 8.6m and was excavated to a maximum depth of 2m (Figs 3 and 16-17). The earliest feature in this trench was a very large sandstone wall, **3000** (Plate 7), which ran approximately east / west across the entire 6.65m width of the trench. The wall, **3000**, itself is consistent with the position of the original north wall of the Manchester Dock. The southern face of the wall was constructed of large, pink sandstone blocks of two different sizes with the thinner blocks effectively acting as a repeating string course. The face was absolutely vertical for the exposed depth of 2m and the bonding was in a cross bond pattern and all the blocks were flush to each other, and ashlar in nature (Plate 8). The northern, construction face of the wall, was of both pink and yellow sandstone blocks, the majority being pink, and suggests that there was some disregard in the selection of stone where it would remain unseen. The wall was built with an asymmetrical profile, the rear, construction, face demonstrated several steps outward, so that the wall was wider towards the lower portion than at the top. The width at the top of the surviving wall was 1.2m and at its lowest observed point was 1.95m in width. The wall appears to be largely undisturbed and, its upper level is consistent in height with the section of dock wall in Trench 401, suggesting that it survives to full height.

4.4.2 On the northern side of the wall the earliest deposit seen was a layer of mid-yellowish-brown sandy silt material, **3004**, that contained approximately 30% pebbles and 10% small sandstone fragments. This deposit is likely to be the backfill for the construction cut of the dock wall and served as a ground makeup. It is possible that the material resulted from dredging and was reused, as suggested by the high occurrence of pebbles.

4.4.3 Cut into this backfill and makeup layer were two features, the first of which, and probably the earlier of the two, was a single yellow sandstone block, **3001** (Plate 7). It was located at the rear of the dock wall, in the quayside area, and was at a lower level than the uppermost wall blocks. The block did not abut the wall nor was it keyed into it in any fashion. The block measured 1.06m by 0.98m and was 0.45m thick and although there were no tooling marks there were two slight indentations along the east and west sides at the top of the block, which may have been used to grip the block while hoisting it into place. On the uppermost surface of the block were two squared indentations (0.2m by 0.1m by 0.8m). The block is interpreted as a jib or crane base used to assist in loading and unloading the docked vessels, and the indentations may have been the fastenings for such a superstructure.

4.4.4 Overlying the block, **3001**, and extending across the northern part of the trench as far as the dock wall, was a 0.35m thick layer, **3006**. The layer was a mid-yellow sandy deposit with 30% crushed yellow sandstone fragments, that were angular in nature. The layer was used to make up the ground level.

- 4.4.5 The second feature cut into the construction fill, **3004**, was a wall, **3003** (Plate 7), which ran for over 4.25m north / south, towards the western side of the trench. It abutted the northern side dock wall **3000** and therefore post-dates it. The wall, **3003**, was constructed of machine-made red brick, built in an English Garden wall bond with buff coloured sandy lime mortar; it was 0.5m wide (4 headers wide) and over 2.1m deep (24 courses), extending beyond the excavated depth of the trench, on the eastern side. The wall is consistent with a large shed (probable warehouse) shown on OS maps from 1870 to 1927 (Figs 9-11), and was probably the eastern exterior wall of this shed.
- 4.4.6 To the immediate west of the brick wall, **3003**, was a linear alignment of sandstone blocks, **3002**, which were of pink sandstone but only one course thick (0.33m); stones were set against the brick wall, **3003**. At the northern end were three blocks while at the southern end there were only fragments of stones. It was unclear what the feature was although it is unlikely to be a wall foundation, but it may be the remains of a surface, either the original quayside or more likely the interior of the shed.
- 4.4.7 The sandstone block alignment **3002** overlay a series of deposits related to ground makeup, **3012** and **3011**, **3013** and **3014**. At the bottom was deposit **3012**, which was a greyish-brown silty clay layer that was 0.5m thick, with inclusions of red and yellow sandstone and pebbles. Deposit **3011**, which overlay **3012**, was a mid-pinkish-red gritty clay, 0.55m thick, with about 90% inclusions of small fragments of red sandstone. Above these two layers was a 0.1m thick deposit of organic grey clay, **3013**, which had surrounded an iron pipe and a 0.2m thick deposit of greyish brown silty clay, **3014**, which was makeup, or back fill associated with the pipe.
- 4.4.8 Overlying all the deposits in the northern part of the trench, including the uppermost part of the dock wall **3000**, was a 0.15m thick layer of concrete, **3007**. This concrete appeared to respect the brick wall **3003** and may represent the external surface around the shed. Above the concrete was a 0.2m thick layer of sand and hardcore, **3008** which was used as the bedding for the overlying setts **3009**. The setts were of grey granite or hard sandstone and were bonded using pitch. They formed an extensive, hardwearing, external surface across the entire area of the trench, and completely covered the backfilled Manchester Dock. In the location of this trench the setts had been subsequently covered by a thin layer of tarmac, **3010**, for use as a car park.

4.5 TRENCH 404

- 4.5.1 This trench was aligned east / west and was excavated to investigate the east wall of the Chester Basin; it measured 3.3m by 2.4m and was excavated to a maximum depth of 1.2m (Figs 3, 18 and 19).
- 4.5.2 The earliest features seen in this trench were a substantial sandstone wall, **3080**, and a surface, **3081**. The two features were contiguous and formed a uniform, upper surface. The wall **3080** was constructed of large pink sandstone blocks (Plate 9), which had an ashlar finish, although tooling marks and indentations were evident on the western face and at the uppermost surviving course the western edge of each block was rounded. The blocks measured approximately 0.95m by 0.85m by 0.65m and the wall was built in a cross bond arrangement. The wall was aligned north-

north-west / south-south-east and curved gently along the 2.6m length exposed. The position of the wall is consistent with the north-east corner of Chester Basin.

- 4.5.3 To the immediate east of the wall and forming a continuous surface from the top of the wall was surface, **3081**, which was built of smaller pink sandstone blocks laid in a rectilinear pattern, splaying out from the curved wall. The surface was over 2.6m by 1.6m and extended beyond the area of excavation. The blocks varied in size and all showed rounded upper corners and smoothed surfaces, presumably the result of wear. One block had an indentation which may have been for a fastening of some fashion, such as a mooring ring. The surface was obviously the quayside associated with Chester Basin and its survival demonstrates a high level of preservation and demonstrates that the dock wall survives to its full height at this point.
- 4.5.4 After the dock had gone out of use the dock was backfilled and the uppermost dock backfill consisted of a mid-brown silty sand, **3086**, with inclusions of concrete, sandstone fragments and tarmac. The quayside, **3081**, had an iron pipe, **3087**, running north / south over the top of it, which must have been laid after the quayside had gone out of use, although perhaps prior to the makeup of the ground level.
- 4.5.5 Seen only in the south-east corner of the trench was a small deposit **3084** of grey sand. This deposit and the iron pipe **3087** were both overlain by a 0.2m thick layer of mid brown silty sand, **3083**, seen to extend across the trench, containing infrequent small stones and cobbles. This layer was one of several deposited to raise the ground level after the dock was infilled. Above **3083** were two deposits, **3082** seen to the north and east and **3085** seen to the south. Layer **3082** was a 0.11m thick deposit of mid yellowish red silty sand which contained a large amount of broken bricks and mortar. The deposit is consistent with building rubble being used to make up the ground level. Layer **3085** was a 0.1m thick deposit of mid grey sand containing 50% concrete fragments and bitumen / tarmac fragments. The layer tipped downwards east to west at a gentle inclination. The tipping may suggest the need for more fill in the area of the dock itself, perhaps after settling of the earlier backfill deposits. Overlying both **3082** and **3085**, and extending across the entire trench was a 0.12m thick layer, **3079**. This layer was a mid brown silty sand containing small pebbles and fragments of bricks, which again was a levelling and makeup layer using material available.
- 4.5.6 Sealing the makeup layers was a 0.11m thick layer of sterile pale brownish yellow sand, **3078**. This was the preparation layer for the poured concrete layer **3077** above into which the present small square granite cobbles, **3076**, have been set. The cobbles form part of an extensive and intricately patterned external surface running from Canada Boulevard to George's Parade and are essentially part of the access to the public space in this area.

4.6 TRENCH 405

- 4.6.1 This trench was aligned east / west, measured 13.55m by 6.25m at the western end and 2.85m for the majority of the eastern end, and was excavated to a maximum depth of 4.96m (Figs 3, 20 and 21). It was intended to investigate the line of a former sea wall.
- 4.6.2 Stratigraphically, the earliest deposits within this trench were a mid-orangey-yellow compact sandy layer, **3094**, seen along the eastern part of the trench and a pale

yellow sand layer **3098**, *along the western side of the trench*. Both were sterile of finds and consistent with an extensive deposit of material for both makeup and levelling the area, probably imported from elsewhere and may perhaps be derived from marine/estuarine dredging.

- 4.6.3 Truncating both these layers was the construction cut, **3095** for a wall, **3097**. The wall, **3097** was aligned approximately north / south and was over 2.45m long, extending beyond the confines of the trench limits (Plate 11). The wall measured 0.75m wide by 0.46m in height and was built of irregular blocks of pink sandstone, built to course along the edges with the core of the wall containing rubble infill. Several of the uppermost stones had remaining patches of white mortar indicating that the original structure may have been higher. The wall appears to have been built free standing and once the foundations were complete the construction cut was infilled with a yellowish firm sand, **3096**. The wall was more consistent with a boundary wall rather than one which would have been capable of supporting a substantial superstructure.
- 4.6.4 In addition to cut **3095**, layer **3098** was also truncated by a substantial cut **3099** along the western side of the trench, forming the construction cut for a brick structure **3101**; although there is no stratigraphical relationship it seems more likely that sandstone wall **3099** would pre-date brick walling **3101** (Plate 10). Brick structure **3101** was aligned north / south and measured overall 4.8m by 2.5m and was over 0.97m in height (Plate 10). The bricks appeared to be hand-made, unfrogged red bricks, built in an English Garden Wall pattern with a pale-brown mortar. Although it was not fully excavated it was clear that the southern part of the structure, which had a curved top, resting on vertical walls, consistent with it being a culvert / sewer, was earlier than the northern part. The culvert appeared to have been blocked off 2.2m along its length by an east / west wall of double stretchers, built at least ten courses high. This northern part was rectangular in plan and may have been a later chamber added to the system. The brickwork was slightly different as it consisted of machine-made bricks. After the lower courses of the walls had been built, cut **3099** was backfilled with a firm mid brown sand. Either during or after the use of the culvert / sewer a deposit, **3108**, comprising a dark brownish grey silty sand which clinker and brick rubble inclusions in-filled structure. Brick structure **3101** was substantially truncated by a more recent ceramic pipe service, **3102**, which ran obliquely across the feature south-east to north-west.
- 4.6.5 Sealing the brick structure **3101**, its related contexts, and wall **3097** was a mid-brown silt layer, **3093** which was fairly extensive across the trench. Above this was a 0.14m thick layer of concrete, **3092** that extended beyond the limits of the trench. Overlying this was a sequence of deposits with a layer of 0.11m thick hardcore, **3091**, above which was a band of peagrit **3090**. These layers are the result of deliberate ground makeup and have used imported sterile materials specifically for the purpose. Covering the hardcore, **3090**, was a 0.1m thick layer of fine sand, **3089** and at the top was the present turf and topsoil layer, **3088**, measuring 0.3m thick and extending beyond the area excavated.

4.7 TRENCH 406

- 4.7.1 This trench was aligned north / south, measured 18.55m by 9.6m and was excavated to a maximum depth of 3.15m (Figs 3, 22 and 23). The trench was located west of the Three Graces in the open Pier Head area (Plate 12), and was intended to investigate the putative line of the former sea wall that extended south from the entrance of George's Basin.
- 4.7.2 There is some ambiguity as to the earliest feature in this trench. At the south end was a 0.96m thick layer of mid-reddish-brown silty sand, **3047**, which contained approximately 75% small to medium angular fragments of both pink and yellow sandstone. Along the eastern side of the trench was a series of brick-built walls **3036-3039** and **3069-3071** (Plate 13). What was not clear was whether the deposit **3047** had been dumped in as backfill or whether the deposit had been cut through and the outermost brick wall been built up against a cut for the wall. The evidence from the finds recovered from deposit **3047** are suggestive of a twentieth century date.
- 4.7.3 The brick structure, consisting of walls **3036-3039** and **3069-3071**, all integral to each other, was only partly seen within the confines of the trench. As seen it comprised three concentric, curved brick walls, with **3036** as the outer wall, **3037** the middle wall and **3070** as the inner wall. Keyed into these curved walls were four shorter walls that were built perpendicular to the curved walls and subdivided the internal space; walls **3038** and **3039** were between walls **3036** and **3037** and walls **3069** and **3071** were set in between walls **3037** and **3070**. All the walls were constructed using machine-made bricks of twentieth century date, built in English Garden Wall bond and bonded with hard grey cement. The shorter spur walls used manufactured rounded-edged bricks for the ends, which would prevent injury to people brushing past. The walls survived to 1.2m in height (16 courses), and were over 9.5m in length and 0.35m wide.
- 4.7.4 The western face of wall **3036** was evidently a non-visible external (earth retaining) wall as the cement had not been trimmed off and remained rough. The wall had also been widened by stepping out to the west by 0.12m. The remaining faces were all internal with traces of white wash on some lower sections. Within the structure the floor comprised poured, smoothed concrete **3050-3072**. The rounded edged ends of the internal walls, the white washed faces, and the size of the entrances between the inner spaces, demonstrates that the structure was intended for human occupation, albeit temporary.
- 4.7.5 After the structure had gone out of use the empty spaces were backfilled with brick rubble, **3048**, **3073**, **3074** and **3075**, and included chunks of wall that were still cemented together, implying that the brick structure was originally higher and had been partially demolished.
- 4.7.6 Overlying the backfill and brick structure was a 0.2m thick layer of pale-yellow sand, **3046**, which contained about 10-20% brick and sandstone fragments; it could be seen across the southern and western part of the trench. In the northern part of the trench was a deposit of pale-yellowish-brown sand, **3049**, 0.65m thick and contained a low proportion of small yellow sandstone fragments. Both deposits, **3046** and **3049**, were truncated by a large cut feature, **3040**, aligned approximately north-east / south-west and running across the width of the trench (Plate 14). It was over 4m long by 1.75m wide and 2.3m deep; the cut was vertical sided but the base

was not exposed. The lowest visible fill was a convex deposit of concrete, **3068**, that may have been capping a sub-structure beneath. Above the concrete was a series of fills, which were in sequence: **3067**, **3044**, **3043**, **3042**, **3041** and uppermost **3051**. All were mixed, and contained variously fragments of bricks, sandstone and pebbles with the uppermost **3041** having a large proportion of charcoal flecks. The fills are likely to have been material in the immediate vicinity that was disturbed and then replaced, rather than deliberately imported material.

- 4.7.7 Overlying the top fill, **3041**, was a 0.15m thick layer of mid-brown silty clay, **3051**. The layer was quite small, seen only on the eastern side of the trench; it was thickest towards the south and became thinner towards the north. Above this was a 0.05m thick layer of dark-grey silty clay, **3045**, which extended across the entire trench. This layer may represent a layer of trample prior to the laying of concrete, **3035**. The concrete, **3035**, was 0.3m thick and had reinforcing throughout. Above this were two layers, up to 0.5m thick, of hardcore, **3034**, the lower one of coarser larger aggregate and the upper one finer. These layers were the result of deliberately making up the ground and have used imported sterile materials specifically for the purpose. Covering the hardcore, **3034**, was a 0.1m thick layer of fine sand, **3033**, and at the top was the present turf and topsoil layer, **3032**, measuring 0.3m thick and extending beyond the area excavated.

4.8 TRENCH 407

- 4.6.1 This trench was aligned east / west, measured 17.5m by 9.25m and was excavated to a maximum depth of 2m (Figs 3, 24 and 25) and lay north of Trench 406. It was intended to investigate the edge of George's Basin.
- 4.6.2 The earliest features within this trench were two walls **3015** and **3018**, both of yellow sandstone. Wall **3015** was aligned approximately east / west although it curved slightly northwards at the visible western end (Plates 15 and 17). The surviving remains of the wall showed that it was a substantial wall built of large yellow sandstone blocks which varied in sizes (on average 1m by 1m). It was over four blocks in length, measuring at least 3.6m and was one block in width, 0.9m. The wall **3015** was consistent in position with the original southern wall of George's Basin. Three courses were revealed during the excavation but it is certain that more survive at depth. The remains are not likely to survive to full height at this point and there was no evidence of an associated quayside. The blocks of wall **3015** had a rough squared finish with varied tooling marks evident along the northern face. This face would have been the dock side of the wall, while that to the south was the construction trench and quayside. To the south of the wall was a deposit, **3019**, of small to medium yellow sandstone fragments at the rear of the wall, and which may represent the original construction backfill. The western end of the wall had been truncated by a later brick circular structure (similar to that seen in Trench 406) (*Section 4.6.10*).
- 4.6.3 To the west of wall **3015** was a smaller wall, **3018**, which was approximately aligned north / south and was 3.45m in length, by 0.56m wide (two blocks) and at least two courses deep, measuring 0.7m. The blocks were roughly squared, with coarse tool marks on the eastern face and measured on average 0.45m by 0.35m by 0.3m. This wall was also truncated by the circular brick structure, but although damaged where the wall traversed it, it did survive beneath the concrete floor (Plate

- 18). At the northern end of the extent of wall **3018**, it had been truncated by the cut, **3103**, for brick wall **3104**, which now has patchy survival. The wall **3104** was of hand-made brick bonded with buff coloured limey mortar and was in turn truncated by the later brick circular structure. No relationship could be established between walls **3015** and **3018** within the scope of this trench, although the fact that both are of yellow sandstone suggests that they were broadly contemporary.
- 4.6.4 Apparently cut into backfill deposit **3019** was a pillar of at least two vertically aligned pink sandstone blocks, **3016**. The feature was located at the rear of George's Dock wall, in the quayside area. The uppermost stone of **3016** was at a higher level than the uppermost blocks of wall **3015** indicating the truncation of the latter. Feature **3016** did not abut wall **3015** and measured 0.96m by 0.72m, with and was 0.45m thick with rough tooling marks visible on the west face. There were no indentations in the upper surface of the top block to indicate the use of the structure as a crane or jib base, although it is possible that the feature did not survive to full height. There was no evidence of it having been more spatially extensive and it would not appear to be a wall. Its function remains obscure.
- 4.6.5 Abutting the yellow sandstone dock wall **3015**, at the east end of the trench was a brick wall, **3020** (Plate 19), that ran for over 2.45m north / south; this wall clearly post-dates the dock wall. Wall **3020** was constructed of hand-made, unfrogged mid-red bricks, built in an English Garden wall bond with buff coloured sandy lime mortar; it was 0.6m wide (three headers wide) and over 0.68m deep (nine courses). The western face of the wall was in good condition and the masonry was well dressed indicating that it was an exposed face. The wall is consistent with a building or standing structure but none is shown on any of the historic maps in this position.
- 4.6.6 Possibly associated with this wall was a small section of brick wall, **3052**, abutting the visible western end of the wall **3015** (Plate 16). Brick wall **3052** was of similar brick and mortar construction as wall **3020** and may have run east / west. There is a trace of mortar on the upper surface of **3015** between walls **3052** and **3020** and it is suggested that these two brick walls were associated, being parts of the same structure, and constructed using the yellow sandstone wall **3015** as foundations. Wall **3052** was truncated by the brick circular structure, **3024**.
- 4.6.7 Overlying block **3016** was a 0.68m thick layer of pale yellow sand, **3027** (Fig 25). The layer contained a low proportion of small fragments of yellow sandstone and it sloped downwards from east to west. It did not extend across the entire width of the trench, and petered out against wall **3015**. Also sloping downwards, following the pattern of deposit **3027**, was a thin layer of dark-grey silt, **3105**. Sealing this was a layer **3026** which also sealed the probable backfill **3017**, which filled the area north of wall **3015**, and west of **3020**. This was a pale-yellowish brown sandy silt that contained approximately 40% small sandstone fragments. The deposit was over 3.4m by 2.6m and 0.85m thick and is likely to be a backfill deposit, for the reclamation of the land after the basin had gone out of use.
- 4.6.8 Layer **3026** overlay the southern extent of **3017** and layer **3105**, and was a mid-brown silty sand that covered the eastern and southern sides of the trench. It was 0.18m thick and contained between 5-10% sandstone fragments and pebbles, and was consistent with use for the makeup and levelling of the area. This deposit, **3026**, was truncated by the cut, **3023**, for the brick circular structure.

- 4.6.9 The circular brick structure consisted of walls **3024** and **3028-3030**, all integral to each other. The structure was essentially two concentric, curved brick walls, with **3024** as the outer wall, and **3030** as the inner wall. Keyed into these curved walls were two shorter walls, **3028** and **3029**, that were built perpendicular to the curved walls and effectively subdivided the internal space. All the walls were constructed of machine-made bricks of twentieth century date, built in English Garden Wall bond and were bonded with hard, grey cement. The curved walls were about 0.85m high (11 courses), over 13.65m in length and 0.4m wide. The floor of the structure was of poured concrete, **3031**, below which remains of both sandstone walls **3052** and **3018** were found. After the structure had gone out of use the empty spaces were backfilled with brick rubble, **3025**, including chunks of wall still cemented together, implying that the brick structure was originally higher and had been partially demolished / collapsed.
- 4.6.10 The structure was directly compatible with that seen in Trench 406 and both were likely to be contemporary. The structure seen in Trench 407 lies to the north of that in Trench 406 and there may also be a third surrounding the Edward VII monument, to the south of Trench 406, although this is speculation at present.
- 4.6.11 After the brick walls had been constructed the intervening space was filled with a mid-brown sandy silt, **3022**, that contained fragments of sandstone and earlier brick. Truncating the circular brick structure was a ceramic duct / pipe, **3065**, the cut of which, **3066**, was aligned north-east / south-west and extended across the entire width of the trench (Fig 25); it measured 5.5m long by 0.5m wide. Overlying this was a layer of reinforced concrete **3064**, that was 0.3m thick. Above this was a layer of coarse hardcore, **3063**, and then a layer of finer hardcore, **3062**. These layers are the result of deliberate ground makeup and have used imported sterile materials specifically for the purpose. Covering the hardcore was a 0.1m thick layer of fine sand, **3061**, and at the top was the present turf and topsoil layer, **3060**, measuring 0.18m thick which extended beyond the excavated area.

5. FINDS RESULTS

5.1 INTRODUCTION

5.1.1 The finds have been assessed, an outline catalogue has been produced (*Appendix 3*) and the overall results of the assessment are presented below.

5.2 POTTERY

5.2.1 In total, 132 fragments of pottery were recovered during the evaluation at Liverpool Canal Link, of which just under 80% were from stratified deposits. The date ranges and estimated dates of the contexts are shown in Table 1, below.

Context number and type	Quantity of pottery fragments	Date range	Estimated context date
TRENCH 401			
Dock backfill layer 3111	3	Late 17 th – 18 th century to mid – late 18 th century	Mid – late 18 th century
Makeup/backfill layer 3112	16	17 th – 18 th century?	17 th – 18 th century?
Unstratified finds 3258	28	Late 17 th – 18 th century to mid 19 th – 20 th century	N/A
TRENCH 405			
Wall construction cut fill 3096	2	Late 17 th – 18 th century to late 18 th – early 20 th century	Late 18 th – early 20 th century
Brick culvert cut fill 3100	2	Late 17 th – early 18 th century	Late 17 th – early 18 th century
Brick culvert fill 3108	11	Late 18 th – early 19 th century to 19 th century	19 th century
TRENCH 406			
Service trench fill 3043	6	Mid – late 18 th century to 19 th – early 20 th century	18 th – early 20 th century
Makeup/backfill layer 3047	17	17 th century? to mid – late 18 th century	Mid – late 18 th century
Makeup layer 3027	13	18 th century to late 17 th – early 20 th century	18 th century
TRENCH 407			
Makeup/backfill layer 3017	31	Late 17 th – 18 th century to 19 th – 20 th century	18 th – early 19 th century?
Makeup/backfill layer 3019	2	Late 17 th – 18 th century	18 th century
Wall construction backfill 3022	1	Very late 19 th – 20 th century	Very late 19 th – 20 th century

Total	132		
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Table 1: Estimated dates of individual contexts based on the pottery present

5.2.2 The range of fabrics is presented in Table 2, below, and a breakdown of the contextual origins of these fabrics is presented in *Appendix 3*. In general, the fragments of fineware vessels were more closely dateable than the coarseware vessel fragments in the assemblage. The earliest fineware fabric present was a fragment of possible bellarmine, tentatively dated to the seventeenth century. It was recovered from makeup/backfill layer **3047**, in Trench 406, which appeared to date to the mid to late eighteenth century. Other pre-industrial fineware fabrics included slipware, black-glazed and brown-glazed red earthenware, and tin-glazed earthenware.

Fabric type	Date range	Quantity
Brown tiger-glazed grey-bodied stoneware (bellarmine? fineware)	17 th century?	1
Brown salt-glazed grey-bodied stoneware	17 th – 18 th century	2
Black-glazed red slip-coated buff-coloured earthenware (coarseware)	Late 17 th – early 18 th century	1
Slipware (fineware)	Late 17 th – early 18 th century	1
Black-glazed red earthenware (fineware)	Late 17 th – 18 th century	2
Brown-glazed red earthenware (fineware)	Late 17 th – 18 th century	3
Light brown-glazed pale orange earthenware with brown/black streaks (coarseware)	Late 17 th – 18 th century	1
Brown- or purple-glazed purple earthenware (high-fired, coarseware)	Late 17 th – 18 th century	4
Black-glazed red earthenware (coarseware)	Late 17 th – early 20 th century	42
Brown-glazed red earthenware (coarseware)	Late 17 th – early 20 th century	4
Red earthenware (coarseware)	Late 17 th – early 20 th century	27
Tin-glazed earthenware (fineware)	18 th century	2
Soft chalky white earthenware, possibly originally tin-glazed?	18 th century?	1
White salt-glazed stoneware (fineware)	18 th century	1
Porcelain (fineware)	18 th century?	2
Brown-glazed low-fired stoneware	18 th – 19 th century?	1
Creamware (fineware)	Mid – late 18 th century	19
Pearlware (fineware)	Late 18 th – early 19 th century	4
White earthenware	Late 18 th – 20 th century	10
Buff-coloured earthenware (fineware)	Late 18 th – 20 th century	2
Ironstone (fineware)	Very late 19 th – 20 th century	1

Table 2: Quantities and date ranges of pottery fabric types

5.2.3 The earliest factory-produced fineware fabrics present were white salt-glazed stoneware, porcelain, creamware, and pearlware. White earthenware, buff-coloured

earthenware, and ironstone were the fabrics latest in date. The single most common fineware fabric type was creamware. Where vessel shape was identifiable, breakfast or teawares and dinnerwares were seen to be represented. The decoration types present on the factory-produced finewares are shown in Table 3, below.

Fabric type	Decoration type present
Porcelain (fineware)	Polychrome enamels painted
Creamware (fineware)	Relief-moulded silver shape
Pearlware (fineware)	Blue painted, blue transfer-printed pattern, factory-produced slip decoration
White earthenware	Blue transfer-printed patterns ('Willow' and 'Broseley'), factory-produced slip decoration, blue painted
Buff-coloured earthenware	Factory-produced slipware, black transfer-printed text
Ironstone	Painted stripes

Table 3: Decoration types present on factory-produced finewares

5.2.4 The coarseware component of the assemblage comprised mainly black-glazed red earthenware kitchenware vessels such as crocks. Fragments of large unglazed red earthenware vessels were also numerous, although very few diagnostic elements were present so it was not possible to identify the vessel types represented.

5.3 THE GLASS

5.3.1 Seven fragments of glass were recovered from the evaluation. All but one were from dark olive-green wine bottles, which was a common post-medieval type, that was introduced in the later seventeenth century. The fragments were relatively large and unabraded, but in all cases the surfaces were iridescent and laminating as a result of inimical soil conditions. The earliest vessel identified was an unusually large bottle (perhaps holding a quart) with a triangular applied string rim, from service cut fill **3043** (Trench 406). The form suggests a late seventeenth to early eighteenth century date, probably comparable to the fragments of tin-glazed pottery. Other vessels, from make up layer **3017** (Trench 407), backfill layer **3111**, and make-up layer **3112** (Trench 401), are all appreciably later, being tall cylindrical forms dating to the late eighteenth to early nineteenth century. The final fragment of glass, from culvert fill **3108/11031** (Trench 405) comprises the neck and applied rim of a pale natural blue/green bottle, and is of late nineteenth century date.

5.4 THE CLAY PIPE

5.4.1 In total, 14 fragments of clay pipe were collected from the Canal Link evaluation. All were relatively small, but unabraded. Most were plain stem fragments, the bore suggesting a general nineteenth century or later date, a range borne out by the presence of two narrow heel fragments, both from culvert fill **3108/11029** (Trench 405). A single fragment of decorated bowl from the same context is likely to be of mid-late nineteenth century date.

5.5 THE COPPER ALLOY

- 5.5.1 Seven fragments of copper alloy were recovered, of which only two were identifiable; both are small flat-headed nails from make-up layers **3017** and **3019** (Trench 407) respectively. Copper nails are frequently used where durability is required in wet conditions. Thus, in a maritime city like Liverpool, this could be associated with ship-building, although it must be stressed that these are not ships nails in the accepted sense.

5.6 THE IRONWORK

- 5.6.1 The ironwork recovered included a large hook and a short length of chain and three possible nails and a bone-handled tool all from backfill layer **3111** (Trench 401). The former is substantial enough to have been used with a hoist, on a shearlegs or mounted on a building, or a small crane. In addition, there was a small fragment of tapping slag from backfill layer **3019** (Trench 407). In the absence of other evidence for primary iron-working, it must be assumed that it reached the site indirectly, perhaps in dumped soil or ballast.

5.7 THE MARINE MOLLUSCS

- 5.7.1 Although 14 fragments of marine shell were recovered from the excavations, they represent only a few valves and even less individual molluscs. Those from backfill layer **3047** (Trench 406) are from native oysters, and those from make-up layer **3112** (Trench 401) are common mussels; both are well known food species, consumed in large quantities in the later nineteenth and earlier twentieth century at all levels in society. In addition, both species are common in the coastal waters of the Irish Sea, and these few examples could as easily represent isolated individuals from the local populations rather than deliberately collected food debris.

5.8 ANIMAL BONE

- 5.8.1 In total, eight fragments of animal bone were recovered from the trenches. These were all in reasonable condition and from sheep/goat, cow/deer or horse. The very small size of the assemblage, however, does not provide any useful information about work animals or diet.

6. DISCUSSION OF THE RESULTS

6.1 INTRODUCTION

6.1.1 The evaluation has demonstrated that there are surviving remains of George's Basin, Manchester Dock and Chester Basin walls and the associated quayside at Chester Basin. In addition, there was a small yellow sandstone wall uncovered at the southern side of George's Basin (**3018** (Trench 407)) which is also likely to be of early date. There are also the remains of a later phase of brick constructions including the shed on the north side of Manchester Dock (eg **3003** (Trench 403)) and an as yet unidentified brick structure in proximity to what was George's Basin (**3020** (Trench 407)). Finally there were also two substantial circular brick structures (**3024** and **3036** (Trenches 407 and 406)) dating to the mid twentieth century uncovered in the area north of the Edward VII monument.

6.2 CONDITION OF THE DOCK STRUCTURES

6.2.1 For the most part the docks were found to be in a good condition, and the surviving heights of the Docks and principal structures are given in Table 4 below.

Structure	Trench	Surviving Height / mAOD
Manchester Dock – east side	401	6.90
- south side	402	6.11
- north side	403	5.66
Chester Basin and quayside	404	5.69
Walling – possibly related to George's Baths (<i>Section 6.2.5</i>)	405	6.85
Twentieth century circular brick walls	406	5.72
	407	5.70
George's Basin - south side	407	5.68

Table 4: Heights of main features

6.2.2 **Manchester Dock:** the remains of Manchester Dock were seen in Trenches 401, 402 and 403 and are in a good state of preservation in these locations, and a ladder to enter the dock survives *in situ* in Trench 402. The wall is mostly of large pink sandstone blocks although yellow sandstone was found to have been used in the construction as well. Repairs to the dock face were seen to have been made using red brick in Trench 402. The wall was built with an asymmetrical profile, the rear, construction face demonstrated several steps outward, so that the wall was wider towards the base than the top. The face of the wall, as far as was visible, was vertical. The remains are very close to the present ground surface level and will survive to depth. The only evidence of quayside furniture was a probable jib / crane base, **3001**, in Trench 403.

- 6.2.3 **Chester Basin:** Chester Basin was revealed in Trench 404 and was found to be in excellent condition. It survived to full height and the associated quayside was also present. The wall was constructed of large blocks of pink sandstone and at this point was seen to curve corresponding with the north-eastern corner of the dock.
- 6.2.4 **George's Basin:** to the north, George's Basin wall was seen in Trench 407. The state of preservation was patchy as the wall had been truncated both vertically and horizontally at this point. The wall was constructed of yellow sandstone blocks, which typically indicates that the wall was an eighteenth century structure, and was earlier than those utilising pink sandstone. This change in source stone is evident across Liverpool, and may represent a depletion of the yellow sandstone source coupled with a realisation that the pink sandstone was less brittle, would be more hardwearing and less susceptible to damage (OA North forthcoming).
- 6.2.5 **Pier Head:** the area between George's Dock and the Mersey has historically been relatively open (Figs 4-11) and George's Baths were built here in the early nineteenth century and there is cartographic evidence of a very long narrow structure along the west side of George's Dock, which would have been warehouses (Fig 7). The two trenches located in this vicinity, Trenches 406 and 405 revealed a variable amount of information. Trench 406 uncovered only twentieth century structures (see below). Trench 405, however, produced a brick culvert and a sandstone wall / foundation, both aligned north / south. Overlaying the data with the 1848 Ordnance Survey map, indicates that these features may have been associated with George's Baths (Fig 8). In particular the sandstone wall, which was more consistent with a boundary wall rather than one which would have been capable of supporting a substantial superstructure, could have been an external garden style wall around the perimeter of the baths. The culvert may also have been part of the baths system but since only a small area was uncovered the remains are somewhat ambiguous in date and function.
- 6.2.6 **Nineteenth to Twentieth Century Brick Structures:** the later brick structures vary in survival from highly fragmentary and disjointed remains as seen in Trench 407 (eg **3104**) to more substantial and recognisable walls such as that seen in Trench 403, **3003**, and another in Trench 407, **3020**. The evaluation identified a series of later twentieth century brick circular structures, of which two were identified in the field (Trenches 406 and 407) and a third was shown on cartographic sources to the south (OS 3rd edition map 1927, Fig 11). The two that were observed were vertically truncated to some extent. These structures would appear to be air raid shelters that were constructed within the roundabouts used by the earlier tram system (Fig 11).

6.3 ENVIRONMENTAL POTENTIAL

- 6.3.1 The aims of the evaluation included the need to establish if there was any ecofactual and environmental potential of archaeological deposits and features. Almost no ecofactual material was retrieved from the deposits encountered. The only material was occasional animal bone fragments and marine shells. However, the nature of the backfill deposits was such that there was no evidence of domestic rubbish being used and the potential of any ecofactual material is minimal. No environmental material was retrieved from the evaluation since no waterlogged or organic-rich deposits of any significance were encountered. However, since the

evaluation did not exceed more than 3m from the present ground surface, it does not preclude the possibility of more significant deposits surviving at depth, with the potential to inform about human activities in the past.

7. IMPACT OF THE DEVELOPMENT

7.1 IMPACT

- 7.1.1 The principle aim of the evaluation was to assess the impact of the scheme on any significant remains or deposits encountered to enable the appropriate level of mitigation recording as proposed in the Environmental Statement.
- 7.1.2 The proposed Liverpool Canal Link will have a moderate adverse impact on the structures encountered during the evaluation, including significant sections of George's Basin, Chester Basin and Manchester Dock. This also extends to associated construction features and quayside remains, such as sheds, surfaces and crane / jib bases.
- 7.1.3 The impact on the later probable air raid shelters is also moderate and adverse and despite their relative late date, the social connotations of their existence and use would indicate some consideration of the remains during the proposed scheme.

8. RECOMMENDATIONS

8.1 INTRODUCTION

- 8.1.1 The overall objective of the evaluation, in conjunction with the established assessment by Wardell Armstrong, was to, where possible, define a programme of mitigation recording in advance of construction works, should this be achievable.
- 8.1.2 It is recommended that a programme of further archaeological research be carried out linking the documentary archive, in particular photographic evidence, plans of individual properties, and trade directory entries, with the work that has already been undertaken. Following this, it is recommended that a programme of archaeological recording be implemented prior to and during the construction of the Liverpool Canal Link in order to preserve by record the remains of significant elements of Liverpool's mercantile maritime heritage. It is anticipated that three differing levels of recording should be employed commensurate upon where the excavation is being undertaken.

8.2 WATCHING BRIEF

- 8.2.1 Within areas of low archaeological potential, typically within the backfill of the infilled Manchester Dock, Chester Basin and George's Basin, a programme of watching brief should be undertaken during the bulk excavations. This would investigate the potential for buried components, and record the stratigraphy of the backfill. Significant discoveries would require rapid recording by a larger team.

8.3 QUAYSIDE RECORDING

- 8.3.1 There are areas of greater archaeological potential, typically between and around the dock perimeters where there is the potential for quayside commercial structures. This will entail a programme of watching brief during bulk excavated groundworks for the construction works to investigate potential for buried components, and to record the stratigraphy of the backfill. Subject to the identification of significant quayside structures there may be need for a programme of open area excavation to record stripped areas. This will entail hand cleaning, planning and the recovery of artefacts and the taking of bulk environmental samples. The Irwell Street warehouse will also need to be recorded and to English Heritage (2006) level 3 standard.

8.4 DOCK WALL RECORDING

- 8.4.1 There will be a need to record the dock walls that are exposed and breached as a result of the canal construction and will include elements of Manchester Dock, Chester Basin and George's Basin. Where possible those walls that are already exposed will be recorded in advance of the ground works; otherwise they will be exposed by supervised mechanical excavation during the ground works. This process will be subject to a watching brief. Once exposed the walls will be subject

to English Heritage (2006) level 4 recording, which will entail the production of a full mitigation record of the structure, providing a photographic record, fully drawn record and a written account. It is recommended that a detailed record of the surfaces be obtained by means of laser scanning, which will provide a precise, very comprehensive 3d modelled record of the surfaces. The dismantling of the walls should be subject to close archaeological supervision and will entail the production of a drawn section through the wall.

8.5 CONCLUSIONS

- 8.5.1 These recommendations are in line with those proposed within the Environmental Statement and it is considered that the implementation of these proposed archaeological recording measures will adequately mitigate for the loss of elements of historic and archaeological resource. This will reduce the significance of the impacts upon heritage features within the application area from major in significance to moderate. The detailed archaeological information gained as a result of the recording measures will have a beneficial residual impact as it will add greatly to the understanding of the historical development of the Liverpool Waterfront.

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APPENDIX 1: PROJECT DESIGN

**Oxford
Archaeology
North**

June 2006

**LIVERPOOL CANAL LINK,
LIVERPOOL,**

ARCHAEOLOGICAL EVALUATION AND MITIGATION RECORDING PROJECT DESIGN

Proposals

The following project design is offered as a methodology for works subject to archaeological evaluation, to be carried out prior to the construction of the Liverpool Canal Link, Liverpool.

1. BACKGROUND

1.1 CIRCUMSTANCES OF PROJECT

- 1.1.1 This project design defines the overall strategy and methodology for an archaeological evaluation and mitigation recording in advance of the construction of a proposed Pier Head Canal Link, within the city centre of Liverpool (centred at NGR SJ 340 900). The project design has been formulated to meet the requirements of the Merseyside Archaeologist.
- 1.1.2 The area of works lies within the centre of Liverpool and includes the dockland area (Albert and Canning Docks); and is adjacent to the Old Dock. The scheme lies within the extent of the Maritime Mercantile City of Liverpool World Heritage Site, more specifically within the areas defined as; Area 1 Pier Head, which includes the Three Graces and Area 2 Albert Dock Conservation Area.

1.2 ARCHAEOLOGICAL BACKGROUND

- 1.2.1 The Maritime Mercantile City of Liverpool was recently granted World Heritage Site status (WHS). Within this the buried archaeological deposits are regarded as “*a nationally significant resource*”, which is “*highly fragile and vulnerable to damage and destruction*”. Much of the scheme’s area contains listed structures including large proportions of Canning Dock, and Albert Dock and most crucially among the Listed Buildings are the Retaining Walls of Canning Docks (all Grade II). The general area has been the subject of a series of desk-based assessments, which have identified the existence of the Liverpool Old Dock within it (Adams 2000; Wardell Armstrong 2003). This was the world’s first commercial enclosed wet dock, constructed in 1715, which enabled the expansion of Liverpool as a port, and as such represents a very important part of the city’s maritime history. In less than 85 years it had generated such prosperity that it had become too small to accommodate the maritime traffic, and was superseded by the construction of further docks extending out into the river channel, including the Canning Dock in 1740 and Albert Dock in 1845.
- 1.2.2 **Medieval Liverpool (1066-1500):** the establishment of the town of Liverpool is well documented. The name ‘Liuerpol’ is first mentioned in a charter of 1190-4, the town forming a part of the hundred of West Derby (Nicholson 1981). In 1207, a further charter was granted by King John which effectively elevated the settlement from a fishing and farming village to a royal borough. The town then consisted of seven streets, the names of which are mentioned in documents from about 1300 and include Dale Street and Water Street. These streets survive in the modern plan of the town, though they have been much widened. The original castle was probably built between 1232 and 1237, where the Victoria Monument now stands, and would have been one of the main foci of the medieval town. Important buildings were constructed throughout this period, including the Chapel of St Mary del Key and St Nicholas, and the Tower (Philpott 1999).
- 1.2.3 The town was positioned next to the Pool, a prominent topographical feature and natural inlet, the place-name ‘Liverpool’ being derived from the Pool. The Pool comprises part of a ridge of sandstone covered with Boulder clay, and part of the ancient shore-line, the Strand. It was a natural tidal inlet or creek fed by streams arising further north, and was nearly 1.5km long at high tide (Stewart-Brown 1932, 88). The study area includes the major part of the mouth of this former tidal creek. The Pool would have formed another important focus for the town, providing access for maritime trade, acting as an area where cargoes were unloaded, and ships built and repaired (Stewart-Brown 1932, 89).
- 1.2.4 Recent archaeological excavations, carried out by OA North, within the area of Chavasse Park have demonstrated that identifiable medieval remains do survive within the centre of Liverpool.
- 1.2.5 **Post-Medieval Expansion (1500-1710):** the earliest references to the Pool as an entity date to the seventeenth century; references in the Town Books in the last two decades of that century show that the ‘lower pool’ and the Waterside were indeed used for boat and shipbuilding. References suggest ships were set on stocks on the south and north side of the Pool, and houses were built to assist in shipbuilding (Stewart-Brown 1932, 89-92). In the sixteenth century, the only form of protection for ships was a jetty or break-water at the mouth of the ‘old haven’ (MacLeod 1982, 3). A particularly violent storm in 1561 destroyed the breakwater, with catastrophic implications for trade. The mayor ordered the council to provide funds for an immediate replacement, and ordered one man from every house in every street to go and work on ‘the new haven’ (MacLeod 1982, 4).

- 1.2.6 The earliest encroachments into the Pool itself were undertaken by private landowners from the sixteenth century onwards. Land on the western side of the Pool, held by a series of major landowners, was also reclaimed around this time and records exist of these instances (op cit, 103-4). The main encroachment on the Pool did not begin in earnest until the later seventeenth century, and was particularly prevalent in the first decade of the eighteenth century. The mechanism of reclamation was by granting Pool lands on cheap rentals with the obligation to reclaim adjacent areas (ibid). This form of infilling is recorded in the later seventeenth century in corporation leases, and enclosures were made from 1679-80 onwards on the former Pool belonging to the corporation. Excavations in Chavasse Park in the 1970s revealed clear evidence of infilling along the Pool edge, showing two major phases of levelling, both during the seventeenth century (Davey and MacNeil 1985; Philpott 1999, 4).
- 1.2.7 With the demise of Chester's trade through the silting of the Dee by the late 1600s, Liverpool's trade began to rise in prominence, although, due to its problems, it faced competition from ships anchoring in the relatively safer waters of the Sloyne on the Cheshire side (MacLeod 1982, 4). Prior to the construction of the Old Dock there were several constraints on any further development. They included the large tidal range; the dangerous river conditions which could seriously damage ships and cargoes trying to load or unload; and the, by then, shallow draught of the Pool. The size of ships was also increasing as transatlantic shipping became common, and incidents of rubbish tipping into the harbour also aggravated the problems of space (op cit, 6). The construction of the Old Dock meant that these constraints were overcome and led to the exponential growth of Liverpool.
- 1.2.8 **Later Post-Medieval Activity 1710-1837:** the opening of the dock at Liverpool occurred 53 years ahead of the first commercial wet dock at Bristol, 63 years ahead of an example at Hull, and almost 100 years prior to the establishment of London's first commercial wet dock, which opened in 1802 (MacLeod 1982, 1). The dock was completed in 1716 and meant that ships could unload in one and a half days, rather than the 12 to 14 days which it had previously taken, reducing the cost of handling cargo compared to other ports (MacLeod 1982, 13). The Old Dock was such a success that it spawned further enclosed docks, including Salterhouse Dock in 1760 (Jones 1996, 111). By 1824 Liverpool had approximately 50 acres of enclosed dock space.
- 1.2.9 The impact of the opening of the Old Dock was immense; Chester, Bristol and London are all documented as having lost significant trade throughout the eighteenth century as a result (op cit, 14). Liverpool developed into a major city of commerce, particularly in the valuable commodity of tobacco, and became the second greatest seaport in the kingdom; the number of seamen working from the port trebled, the number of ships it owned trebled, and the tonnage of ships entering the port increased by a factor of ten (ibid). The position of the port meant that Liverpool was convenient for the slave trade, forming the apex of the slave trading triangle between Africa and the West Indies and North America; by 1792, the port possessed over half of the English slave trade, having taken the lead from Bristol and London, and just under half of the European slave trade traffic (ibid).
- 1.2.10 **Victorian to Modern Activity 1837-1945:** with the decline of slavery in the early 1800s, Liverpool began exploitation of the next commercial venture – the cotton industry. Liverpool became an important source for cotton, located as it was adjacent to the cotton and textile mills of Lancashire; raw cotton was imported and manufactured produce was exported in equal measure. The prominence of the town led to Liverpool's continued commercial prosperity and expansion in the eighteenth and nineteenth centuries. This period saw vast changes socially and culturally which are often reflected in the archaeological record. Changes in fashion and the city's increasing affluence meant that building forms and fabrics altered. William Brown Street has a group of magnificent classical buildings including the Liverpool Museum, William Brown Library, Hornby Library, Walker Art Gallery and others. These large, monumental buildings visibly demonstrate Liverpool's prominence by this stage both nationally and internationally. Less visible aspects of the city include the institution of public services such as sewerage, the police service, recreational parks and so on.
- 1.2.11 Aside from the docks and the associated commercial nature, part of the success of cities like Liverpool was the transport and infrastructure which developed alongside the economic activities. The tram network in Liverpool was one element of this and provided a means of transport for people to move along the miles of dock fronts, around the city centre and, importantly, to bring people in from the surrounding suburbs to work in the city. Trams were initially wheeled vehicles, guided along routes using either a groove in a series of plates laid down or later along grooved rails set into the road. The earlier trams were horse drawn and later trams were of steam, until electric trams were developed, with the first one in use in Leeds in 1861 (Jones 1996, 397). Elements of the Victorian tram network in Liverpool were uncovered during the 2004-2005 Chavasse Park excavations.

- 1.2.12 The most recent historical events which have had an impact on the present day landscape and can already be identified in the archaeological record, were those connected to World War II. In particular for Liverpool the Blitz of 1941, which centred on the docks and commercial heart of Liverpool.

1.3 PREVIOUS WORK

- 1.3.1 Previous archaeological work within the proposed development area include assessments have been carried out on Chavasse Park (Philpott 1999) the Old Dock (MacLeod 1982) and the Pier Head (Wardell Armstrong 2003). The only below ground investigations to have taken place, until the recent evaluation of the Old Dock in 2001, were two areas investigated between 1976 and 1977. The 1976 trench (30m x 16m) was located just north of the present Law Courts, revealing a sequence of deposits which included seventeenth century features cut into the geology; eighteenth century market remains; eighteenth century levelling; nineteenth century drainage, and road surfaces. The 1977 trench measured 30.3m x 13.5m and encountered mid-late seventeenth century deposits and a possible revetment wall; eighteenth to nineteenth century drainage features, walls and floors; and twentieth century features and debris. It was noted that while work was being carried out on the Law Courts site in 1977 a well, cutting the geology and containing a good finds assemblage, was uncovered.
- 1.3.2 OA North (formerly Lancaster University Archaeological Unit) undertook a programme of evaluation of the Old Dock, targeting the documented line of the dock edge in 2001 (OA North 2001). Three trenches were excavated on the north side and four trenches on the south side of the dock. In all but one the dock was identified and revealed to be in good condition, with brick facing and sandstone kerb stones. The maximum depth of this trenching revealed that the wall extended below 6m from the modern surface. Against the northern side of the dock wall organic deposits were discovered but further investigation was prevented because of chemical contamination. More recent investigation in 2004 has revealed further evidence pertaining to the Old Dock
- 1.3.3 As part of the Liverpool Canal Link application, a programme of Ground Penetrating Radar surveys were undertaken at various locations along the Pier Head and were specifically sited to confirm the presence of the dock walls. The results from this survey tentatively identified the presence of the Albert Dock basin, the north wall of Chester Dock and the north wall of Manchester Dock.
- 1.3.4 Further archaeological work undertaken in advance of the Liverpool Canal Link included the instrument survey of the east facing elevation of the Canning Dock wall at the point of entry for the new canal.
- 1.3.3 A major programme of work has been undertaken as part of the Paradise Street development exploring the Quay side and also further explorations of the Old Dock. A further programme of work was undertaken by OA North on the west side of the Strand in advance of the then proposed Merseyside Tramline, which recorded the Old Dock and also substantial elements of Canning Dock. In September and November 2004 two evaluation trenches were opened in an area adjacent to the south-east corner of Canning Dock, where a section of sandstone wall had been identified in an earlier test pit (OA North 2005). The top of the wall was identified at a depth of 1.5m from the surface and although excavation proceeded to a depth of 3.8m below ground level, the bottom of the wall was not reached. The construction date and function of this wall remain enigmatic but could relate to the draining and infilling of the Old Dock prior to the construction of the New Customs House in 1826.

1.4 OXFORD ARCHAEOLOGY NORTH

- 1.4.1 Oxford Archaeology North has over 30 years of experience in professional archaeology, and can provide a professional and cost-effective service. We are the largest employer of archaeologists in the country (we currently have more than 200 members of staff) and can thus deploy considerable resources with extensive experience to deal with any archaeological obligations you or your clients may have. We have offices in Lancaster and Oxford, trading as Oxford Archaeology North (OA North), and Oxford Archaeology (OA) respectively, enabling us to provide a truly nationwide service. OA is an Institute of Field Archaeologists Registered Organisation (No 17), and is thus bound by the IFA's Code of Conduct and required to apply the IFA's quality standards.

1.4.2 Given the geographical location of Liverpool, it is intended to co-ordinate the project from our northern office in Lancaster, though the project team will use the most appropriate resources from both offices. Between our two offices our company has unrivalled experience of working on post-medieval sites, and is recognised as one of the leading archaeological units in the country with regard to dealing with large-scale archaeological projects. OA North has considerable experience of the assessment, evaluation and excavation of sites of all periods, and has particular experience of archaeology in the North West having undertaken in recent years excavation, survey, building recording and post-excavation projects in both urban and rural environments. Watching briefs, evaluations and excavations have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. In particular OA North has been involved in the archaeological investigations at Canning Place, Liverpool, since 2001, and has recently completed the field work of a further phase of evaluation/excavation on the Old Dock, Chavasse park and Canning Dock areas.

2. AIMS AND OBJECTIVES

2.1 OBJECTIVES

2.2.1 Previous excavations, evaluations and the assessments have demonstrated that within the docklands of Liverpool there is the potential for archaeological deposits and structures to survive from the post-medieval period. Areas of potentially significant archaeology have been highlighted and such sites are subject to evaluation. Consequently the objectives of the present project are as follows:

- to establish the presence or absence of archaeological remains within the identified area.
- to determine the extent, condition, nature, character, quality and date of any archaeological remains present.
- To establish any ecofactual and environmental potential of archaeological deposits and features.
- To make an assessment of the impact of the scheme on any significant remains or deposits encountered to enable the appropriate level of mitigation recording as proposed in the Environmental Statement
- Where possible implement a programme of mitigation recording in advance of construction works, should this be achievable.

2.2.2 To these ends it will be necessary to assess the thickness, depth and depositional history of any significant archaeological structures and/or deposits. However, it is anticipated that the dock structures could extend to a depth of 9m, but in this instance it is proposed to only excavate to a depth of 2m. The nature of the main stratigraphical units encountered will be characterised in terms of their physical composition (stone, gravel, organic materials etc) and their archaeological formation (primary deposits, secondary deposits etc). This will entail excavation to the top of significant archaeology, together with localised sondages to explore in more detail the archaeological stratigraphy. The work will involve the collection of all kinds of stratified artefactual evidence (including pottery, brick tile, stone, glass, metal, bone, small finds, industrial residues etc), and ecofactual and environmental evidence (including animal bone, human bone, plant remains, pollen, peat, charcoal, molluscs, soils etc).

3. METHOD STATEMENT

3.1 GENERAL

3.1.1 The evaluation programme will investigate the sub-surface potential of the archaeological record. The trenches will be targeted on the lines of documented docks. However, our experience in the past (on the Old Dock and earlier line of Canning Dock) that the cartographic depictions are in error by up to 5m, so it is possible that a small trench located on the basis of such sources may miss the wall. It may therefore be necessary to extend the trench, as required in order to find the dock edges. The intention is to retain flexibility throughout the project design to allow decisions on the extent of the excavation to be made on site in consultation with British Waterways and the Merseyside

Archaeological Officer as the investigation progresses. The evaluation programme is intended to inform the requirements for any further mitigation.

3.2 EVALUATION METHODOLOGY

- 3.2.1 **Fieldwork Methodology:** a program of trenches within the course of the proposed development works, will target areas of archaeological sensitivity and accurately record the location, extent, and character of any surviving archaeological features and/or deposits.
- 3.2.2 Prior to any ground disturbance the extent of the trenches will be appropriately fenced to allow safe working. The areas of work will be recorded, by digital photograph prior to any work to help in any required reinstatement after the archaeological investigation. The overburden will be excavated by Galliford Try the lead contractor, who will also undertake the reinstatement.
- 3.2.3 Once the trench locations have been established the topsoil/surfaces and any obvious overburden deposits will be removed mechanically. Machine stripping of trenches will be undertaken using a 360° mechanical excavator (provided by the main contractor) fitted with an appropriately sized toothless ditching bucket. The work will be constantly supervised by a suitably experienced archaeologist. Machine excavation will then be used to define carefully the extent of any surviving walls and other remains. Thereafter, structural remains will be cleaned manually to define their extent, nature, form and, where possible, date. Spoil will be retained on site and stockpiled at a safe distance from the evaluation trench (a horizontal distance equivalent of the depth of excavation).
- 3.2.4 The advance archaeological recording works will be undertaken to sufficient depth in order to establish the character and where possible preserve by record the archaeological remains. If a depth of greater than 1.2m is required then it is proposed to step in the trenches to reduce the risk of trench collapse. If this is not possible then it is proposed to shore the trenches. The shoring may comprise acroprops supporting small metal trench sheets or box shoring. Once in place, the acroprops / box shoring will limit any mechanical excavation and will constrain manual excavation. The shoring will be provided by the main contractor Galliford Try, to include insertion and maintenance throughout the work on site.
- 3.2.5 Work may involve cleaning features by hand, using either hoes, shovel scraping, and/or trowels depending on the subsoil conditions and the extent of features. Following this, the accurate recording of all archaeological features and horizons, and any artefacts, identified during observation will take place. Recording will comprise a full description and preliminary classification of features or materials revealed. In normal circumstances, field recording will also include a continual process of analysis, evaluation, and interpretation of the data, in order to establish the necessity for any further more detailed recording that may prove essential.
- 3.2.6 Any significant features will be sample excavated (ie. selected pits and postholes will normally only be half-sectioned, linear features will be subject to no more than a 10% sample, and extensive layers will, where possible, be sampled by partial rather than complete removal). The aim of any manual excavation will be to determine the date, condition, form and function of the archaeological remains, sufficiently to allow a confident interpretation and a realistic record to be produced of any elements to be damaged during the works. It is intended that the exposed sections of walls are recorded as comprehensively as possible, both in plan and elevation, at this stage. Although it is intended that mitigation recording of the principle structures be undertaken as much as possible at this stage it is accepted that in some cases the majority of the recording works will be undertaken during construction. The aim of the exercise is to evaluate and mitigate in key areas which are available for inspection.
- 3.2.7 **Written Record:** archaeological stratigraphy will be recorded using *pro-forma* context sheets which are in accordance with those used by English Heritage. These provide an objective and systematic description of archaeological remains. Similar object record and photographic record *pro-formas* will be used. All written records of survey data, contexts, artefacts and ecofacts will be cross-referenced from *pro-forma* record sheets using sequential numbering. The contextual details will be incorporated into a Harris matrix essentially hand-drawn on site for checking purposes but which is normally generated during the post-excavation phase of the project using specially designed Arched version 2 matrix generation software.
- 3.2.8 **Drawn Record:** any deposits or features will be accurately located, either independently or on drawings provided by the client. The archaeological remains will, where necessary, be planned and

vertical sections or elevations produced. This will be done either manually or digitally, depending on circumstances. For example any intricate features will require manually planning but larger, more simplistic areas may be more effectively and rapidly recorded using survey equipment. Any features that require planning will be done so accurately, at appropriate scales (ranging from 1:10 to 1:50) and annotated. The structural detail will be recorded using a survey instrument with respect to survey control established by ARUP.

- 3.2.9 **Photographic Record:** a full and detailed photographic record of individual contexts will be maintained and similarly general views from standard view-points of the overall site at all stages of the evaluation will be generated. Photography will be undertaken using 35mm cameras on achievable black and white print film. Extensive use of digital photography will also be undertaken throughout the course of the fieldwork for presentation purposes. Photographic records will be maintained on special photographic *pro-forma* sheets.
- 3.2.10 **Finds Record:** finds recovery and sampling programmes will be in accordance with current best practice (following IFA and other specialist guidelines). All finds will be treated in accordance with OA North standard practice, which is cognisant of IFA and UKIC Guidelines. In general this will mean that (where appropriate or safe to do so) finds are washed, dried, marked, bagged and packed in stable conditions; no attempt at conservation will be made unless special circumstances require prompt action. In such a case guidance and/or expertise will be sought from a suitably qualified conservator.
- 3.2.11 Neither artefacts nor ecofacts will be collected systematically during the mechanical excavation of overburden unless significant deposits, for example pottery or clay tobacco pipe waster dumps, are encountered. Other finds recovered during the removal of overburden will be retained only if of significance to the dating and/or interpretation of the site or specific features.
- 3.2.12 Subsequent to the removal of overburden artefacts and ecofacts will be collected and handled as per best practice. Material will aim to be collected and identified by stratigraphic unit. Hand collection by stratigraphic unit will be the principal method of collection. The material which is envisaged to be collected will include; ceramic objects, animal bone, glass, metal – both as objects and potentially slag.
- 3.2.13 Any waterlogged finds will be treated as necessary to ensure their continued survival. In the case of large deposits of waterlogged environmental material (eg unmodified wood) discussion will be sought with the client and archaeological curator with regard to an appropriate sampling strategy.
- 3.2.14 Any gold and silver artefacts recovered during the course of the excavation will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act, 1996/7.
- 3.2.15 The recovery of human remains is not anticipated, but if encountered they will, if possible, be left *in situ* covered and protected. If removal is necessary, then the relevant Home Office permission will be sought, and the removal of such remains will be carried out with due care and sensitivity as required by the *Burials Act 1857*.
- 3.2.16 Environmental samples (bulk samples of 30-40 litres volume, to be sub-sampled at a later stage) will be collected from suitable deposits (i.e. the deposits are reasonably well dated and are from contexts the derivation of which can be understood with a degree of confidence). Samples will be collected for technological, pedological and chronological analysis as appropriate.

3.3 OTHER MATTERS: WELFARE AND FACILITIES

- 3.3.1 Access to the site will be arranged via the client/main contractor. The main contractor for the archaeological works (Galliford Try), will be responsible for the provision of a secure enclosed area for the archaeological work to take place within.
- 3.3.2 The client/main contractor is asked to provide OA North with information relating to the position of live services on the site. Identification of services will be established by the main contractor in advance of any machine excavation. It is hoped that all non-essential services could be either turned off or capped in some fashion.
- 3.3.3 Plant hire and shoring will be provided by (Galliford Try) on behalf OA North, site reinstatement will also be dealt with by (Galliford Try).

3.4 HEALTH AND SAFETY

- 3.4.1 The main site contractor (Galliford Try), will have overall responsibility for health and safety on site. However, OA has its own Health and Safety policy and OA will work closely with the main contractor to ensure that safety standards are met. A risk assessment will be prepared by OA North in advance of all stages of field work. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers (3rd Edition, 1997). OA North will liaise with the client/main contractor to ensure all health and safety regulations are met. In instances of confined spaces, competent, trained staff will be used.
- 3.4.2 OA North has professional indemnity to a value of £2,000,000, employer's liability cover to a value of £10,000,000 and public liability to a value of £15,000,000. Written details of insurance cover can be provided if required.
- 3.4.3 Normal OA North working hours are between 9.00 am and 5.00 pm, Monday to Friday, though adjustments to hours may be made to maximise daylight working time in winter and to meet travel requirements. It is not normal practice for OA North staff to be asked to work weekends or bank holidays and should the client require such time to be worked during the course of a project a contract variation to cover additional costs will be necessary.

3.5 REPORT PRODUCTION

- 3.5.1 **Archive:** the results of the fieldwork will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*The Management of Archaeological Projects, 2nd edition, 1991*) and the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. 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 IFA in that organisation's code of conduct.
- 3.5.2 The paper and finds archive for the archaeological work undertaken at the site will be deposited with the Liverpool Museum, in accordance with their guidelines, (under accession number Liv.2001.23) as this is the nearest museum which meets Museums' and Galleries' Commission criteria for the long term storage of archaeological material (MGC 1992). This archive can be provided in the English Heritage Centre for Archaeology format, both as hard and digital copy. The archive will be deposited with the Liverpool Museum within six months of the completion of the fieldwork.
- 3.5.3 Except for items subject to the Treasure Act, all artefacts found during the course of the project will be donated to the receiving museum with the permission of the relevant landowners.
- 3.5.4 A synthesis (in the form of the index to the archive and a copy of the publication report) will be deposited with the Merseyside Sites and Monuments Record. A copy of the index to the archive will also be available for deposition in the National Archaeological Record in Swindon/London.
- 3.5.5 **Report:** a short report indicating the main findings of the evaluation will be prepared within two weeks of the completion of all fieldwork. The main purposes of this report will be;
- to outline the results; including a summary of the site's histories, illustrations and a catalogue of artefacts recovered
 - indicate the importance of the remains,
 - aid in the engineering design process,
 - suggest any mitigation measures which may be possible.
- 3.5.6 In addition, three copies of a bound and collated final report will be submitted to the client within ten weeks of the completion of all the fieldwork relating to archaeological work in advance of the proposed tramway. Further copies will be sent to the Merseyside Archaeologist, the Merseyside Sites and Monuments Record, and Liverpool Museum. The final report will include a copy of this project design, and indications of any agreed departure from that design. It will include an historical and archaeological background to the study area, an outline methodology of the investigation, and present, summarise, assess, and interpret the results of the programme of archaeological works

detailed above. The report will also include a complete bibliography of sources from which data has been derived, and a list of further sources identified during the programme of work, but not examined in detail. The report will include a description of the methodology and the results. It will have a list of the finds, and a description of the collective assemblage. Recommendations for any further mitigation works and details of the final deposition of the project archive will also be made.

- 3.5.7 Illustrative material will include a location map, site map, a trench location map, trench plans, survey maps, and also pertinent photographs. It can be tailored to the specific requests of the client (eg particular scales etc), subject to discussion.
- 3.5.8 **Confidentiality:** the final report is designed as a document for the specific use of the client, and should be treated as such; it is not suitable for publication as an academic report, or otherwise, without amendment or revision. Any requirement to revise or reorder the material for submission or presentation to third parties beyond the project brief and project design, or for any other explicit purpose, can be fulfilled, but will require separate discussion and funding.

4. STAFFING PROPOSALS

- 4.1 The project will be under the direct management of **Jamie Quartermaine BA Hons Surv Dip, MIFA** (Project Manager) to whom all correspondence should be addressed.
- 4.2 It is anticipated that the project would be led by **Vix Hughes** who will be directing the evaluation and reporting elements of the project.
- 4.3 Assessment of the finds from the evaluation will be undertaken by OA North's in-house finds specialist **Christine Howard-Davis BA, MIFA** (OA North project officer). Christine acts as OA North's in-house finds specialist and has extensive knowledge of all finds of all periods from archaeological sites in northern England. However, she has specialist knowledge regarding Roman glass, metalwork, and leather, the recording and management of waterlogged wood, and most aspects of wetland and environmental archaeology.
- 4.4 Assessment of any palaeoenvironmental samples which may be taken will be undertaken by **Elizabeth Huckerby MSc** (OA North project officer). Elizabeth has extensive knowledge of the palaeoecology of the North West through her work on the English Heritage-funded North West Wetlands Survey.

5. INSURANCE

- 5.1 OA North has a professional indemnity cover to a value of £2,000,000; proof of which can be supplied as required.

6. MONITORING

- 6.1 Monitoring of the project will be undertaken by the Merseyside Archaeologist, Sarah Jane Farr.
- 6.2 Access to the site for monitoring purposes will be afforded to the Merseyside Archaeologist at all times. Resources have been allocated for at least one site meeting between all interested parties to review the archaeological work.

APPENDIX 2: CONTEXT LIST

Context Number	Trench	Description
3000	403	Dock wall - Manchester, e/w
3001	403	Sandstone block - crane base ?
3002	403	Sandstone footings - n/s
3003	403	Brick wall - n/s
3004	403	Layer - makeup / backfill
3005	403	Layer - dock backfill
3006	403	Layer - makeup
3007	403	Layer - concrete
3008	403	Layer - bedding for setts
3009	403	Layer - surface of setts
3010	403	Layer - tarmac surface
3011	403	Layer - makeup
3012	403	Layer - makeup
3013	403	Service fill
3014	403	Layer - other
3015	407	Dock wall -George's Basin, curving e/w
3016	407	Sandstone blocks / pillar
3017	407	Layer - makeup / backfill
3018	407	Wall - yellow sandstone, n/s
3019	407	Layer - makeup / backfill
3020	407	Brick wall - n/s
3021	407	Cut for wall 3020
3022	407	Deposit - wall construction backfill in 3023
3023	407	Cut for curved brick walls
3024	407	Brick wall - curved
3025	407	Deposit - backfill within curved brick walls
3026	407	Layer - makeup
3027	407	Layer - makeup
3028	407	Brick wall - short wall part of 3024
3029	407	Brick wall - short wall part of 3030
3030	407	Brick wall - curved
3031	407	Layer - concrete surface within curved brick structure
3032	406	Layer - topsoil
3033	406	Layer - makeup

3034	406	Layer - hardcore
3035	406	Layer - reinforced concrete
3036	406	Brick wall - curved
3037	406	Brick wall - curved
3038	406	Brick wall - short wall part of 3037
3039	406	Brick wall - short wall part of 3036
3040	406	Cut - service ?
3041	406	Fill of 3040
3042	406	Fill of 3040
3043	406	Fill of 3040
3044	406	Fill of 3040
3045	406	Layer - makeup / backfill
3046	406	Layer - makeup / backfill
3047	406	Layer - makeup / backfill
3048	406	Deposit - backfill within curved brick walls
3049	406	Layer - makeup / backfill
3050	406	Layer - concrete surface within curved brick structure
3051	406	Layer - makeup / backfill
3052	407	Brick wall - below floor 3031, cut by 3023
3053	402	Dock wall - Manchester, e/w
3054	402	Wall - brick repairs to 3053
3055	402	Layer - dock backfill
3056	402	Layer - makeup / backfill
3057	402	Layer - makeup / backfill
3058	402	Layer - bedding for setts
3059	402	Layer - surface of setts
3060	407	Layer - topsoil
3061	407	Layer - sand bedding for topsoil
3062	407	Layer - hardcore
3063	407	Layer - hardcore
3064	407	Layer - reinforced concrete
3065	407	Fill - of drain / duct
3066	407	Cut - for drain / duct
3067	406	Fill of 3040
3068	406	Fill of 3040 - concrete
3069	406	Brick wall - short wall part of 3037
3070	406	Brick wall - curved
3071	406	Brick wall - short wall part of 3070

3072	406	Layer - concrete surface within curved brick structure
3073	406	Deposit - backfill within curved brick walls
3074	406	Deposit - backfill within curved brick walls
3075	406	Deposit - backfill within curved brick walls
3076	404	Layer - surface of setts
3077	404	Layer - concrete
3078	404	Layer - sand bedding for concrete
3079	404	Layer - makeup / backfill
3080	404	Dock wall -Chester Basin , curving sandstone
3081	404	Deposit - quayside surface
3082	404	Layer - makeup / backfill
3083	404	Layer - makeup / backfill
3084	404	Layer - makeup / backfill
3085	404	Layer - dock backfill
3086	404	Layer - makeup / backfill
3087	404	Iron Pipe / Service
3088	405	Layer - topsoil
3089	405	Layer - makeup
3090	405	Layer - makeup
3091	405	Layer - hardcore
3092	405	Layer - concrete
3093	405	Layer - makeup / backfill
3094	405	Layer - makeup / backfill
3095	405	Cut for construction of wall 3097
3096	405	Fill of 3095
3097	405	Structure - n / s wall
3098	405	Deposit
3099	405	Cut for brick culvert
3100	405	Fill of 3099
3101	405	Structure - brick culvert
3102	405	Structure - brick sewer culvert
3103	407	Cut for construction of brick wall 3104
3104	407	Structure - brick wall
3105	407	Layer - makeup / backfill
3106	407	Layer - makeup / backfill
3107	407	Layer - makeup / backfill
3108	405	Fill of culvert 3101
3109	401	Dock wall -Manchester Basin , east wall

3110	401	Structure - timbers for possible platform
3111	401	Layer - dock backfill
3112	401	Layer - makeup / backfill
3113	401	Layer - makeup / backfill
3114	401	Layer - makeup / backfill
3115	401	Layer - makeup / backfill
3116	401	Layer - cobbled surface
3117	401	Layer - concrete
3118	401	Layer - bedding for 3119
3119	401	Layer - surface of setts
3120	401	Layer - concrete
3121	401	Structure -iron girders / beams
3122	401	Layer - brick rubble
3123	401	Layer - tarmac
3258	401-7	Unstratified deposits

APPENDIX 3: FINDS CATALOGUE

POTTERY CATALOGUE

Object Number	Context Number	Trench Number	Quantity	Material	Description	Date range
11005	3017	407	3	Ceramic	Unglazed red earthenware from large hollow-ware vessels	Late 17 th – early 20 th century
11000	3017	407	1	Ceramic	White salt-glazed stoneware fineware rim	18 th century
11000	3017	407	1	Ceramic	Tin-glazed earthenware tile rim with mortar attached, white-glazed	18 th century
11000	3017	407	3	Ceramic	Creamware – small hollow-ware vessel rim, ashet base, tea pot (?) shoulder	Mid to late 18 th century
11000	3017	407	1	Ceramic	White earthenware plate base	19 th – 20 th century
11000	3017	407	8	Ceramic	Unglazed red earthenware from large hollow-ware vessels, including one rim or spigot hole from globular vessel	Late 17 th – early 20 th century
11000	3017	407	7	Ceramic	Black-glazed red earthenware coarseware	Late 17 th – early 20 th century
11000	3017	407	1	Ceramic	Fine black-glazed red earthenware	Late 17 th – 18 th century
11000	3017	407	4	Ceramic	Brown-glazed red earthenware coarseware	Late 17 th – early 20 th century
11000	3017	407	3	Ceramic	High-fired self-glazed purple earthenware (fired to stoneware), including crock rim	Late 17 th – 18 th century
11003	3019	407	1	Ceramic	Tin-glazed earthenware with light blue glaze – top of ewer handle?	18 th century
11003	3019	407	1	Ceramic	Light brown-glazed pale orange earthenware crock (?) rim with brown/black streaks	Late 17 th – 18 th century
11002	3022	407	1	Ceramic	Ironstone plate rim, slightly burnt, with red and orange stripes, re-inforced on underside for extra strength	Very late 19 th – 20 th century
11001	3022	407	1	Ceramic	Red fireclay drain/tile with mortar attached	19 th – 20 th century
11004	3027	407	1	Ceramic	Tin-glazed earthenware with blue stripes	18 th century
11004	3027	407	1	Ceramic	Creamware base fragment	Mid - late 18 th century
11004	3027	407	5	Ceramic	Unglazed red earthenware including two refitting base fragments from jar/flower pot	Late 17 th – early 20 th century

Object Number	Context Number	Trench Number	Quantity	Material	Description	Date range
11004	3027	407	5	Ceramic	Black-glazed red earthenware coarseware from crocks etc, including two rims	Late 17 th – early 20 th century
11004	3027	407	1	Ceramic	Fine brown-glazed red earthenware cup (?) handle	18 th century?
11022	3043	406	1	Ceramic	Very burnt white earthenware (?) hollow-ware vessel rim, sausage-shaped and hollow	19 th – early 20 th century
11019	3043	406	1	Ceramic	Creamware hollow-ware fragment	Mid – late 18 th century
11019	3043	406	4	Ceramic	Black-glazed red earthenware, two high-fired, one lug handle	Late 17 th – early 20 th century
11009	3047	406	5	Ceramic	Creamware, including three refitting plate base fragments, one bowl base	Mid – late 18 th century
11009	3047	406	6	Ceramic	Black-glazed red earthenware coarseware fragments, including lug handle	Late 17 th – early 20 th century
11009	3047	406	1	Ceramic	Fine brown-glazed red earthenware	Late 17 th – 18 th century
11009	3047	406	1	Ceramic	Black-glazed red slip-coated buff-coloured earthenware	Late 17 th – early 18 th century
11009	3047	406	2	Ceramic	Refitting porcelain saucer base fragments with enamel painted flowers, unglazed on recessed footrim	18 th century?
11009	3047	406	1	Ceramic	Soft chalky white earthenware, unglazed, possibly originally tin-glazed? Rim from large hollow-ware vessel	18 th century?
11009	3047	406	1	Ceramic	Brown tiger-glazed grey-bodied stoneware rim, possibly bellarmine or similar	17 th century?
11033	3096	405	1	Ceramic	Buff-coloured industrially-produced earthenware with partial white slip-coating and black mocha decoration	Late 18 th – early 20 th century
11033	3096	405	1	Ceramic	Very high-fired brown-glazed purple earthenware	Late 17 th – 18 th century
11027	3100	405	1	Ceramic	Black-glazed red earthenware coarseware	Late 17 th – early 18 th century
11027	3100	405	1	Ceramic	Fine yellow-glazed white earthenware with red slip-trailed decoration (Staffordshire-type slipware)	Late 17 th – early 18 th century

Object Number	Context Number	Trench Number	Quantity	Material	Description	Date range
11030	3108	405	5	Ceramic	Refitting white earthenware 'Willow' transfer-printed plate, 70% complete, single footrim, marked with a wreath and bow 'Genuine / J. / Stone China'	19 th century
11030	3108	405	1	Ceramic	White earthenware saucer rim to base, 'Broseley' transfer-printed pattern	19 th century
11030	3108	405	3	Ceramic	Pearlware: saucer base with blue painted pattern, plate (?) base with recessed footrim, plate base with double footrim and blue transfer-printed pattern	Late 18 th – early 19 th century
11030	3108	405	1	Ceramic	White earthenware/pearlware bowl rim with factory-produced slipware decoration	Late 18 th – early 20 th century
11030	3108	405	1	Ceramic	Brown-glazed low-fired stoneware fragment, not diagnostic	18 th – 19 th century?
11036	3111	401	1	Ceramic	Black-glazed red earthenware coarseware	Late 17 th – early 20 th century
11036	3111	401	1	Ceramic	Black-glazed red earthenware fineware plate (?) rim	Late 17 th – 18 th century
11036	3111	401	1	Ceramic	Creamware fragment	Mid – late 18 th century
11039	3112	401	2	Ceramic	Creamware, including plate base	Mid – late 18 th century
11039	3112	401	4	Ceramic	Unglazed red earthenware flower pot (?) fragments	Late 17 th – early 20 th century
11039	3112	401	8	Ceramic	Black-glazed red earthenware coarseware, including two crock rims, one with lug handle	Late 17 th – early 20 th century
11039	3112	401	2	Ceramic	Brown salt-glazed grey-bodied stoneware	17 th – 18 th century?
11023	3258		7	Ceramic	Unglazed red earthenware fragments – flower pot or similar	Late 17 th – early 20 th century
11023	3258		5	Ceramic	Creamware, including two silver-shape plate rims	Mid – late 18 th century
11023	3258		1	Ceramic	Pearlware with factory-produced slip decoration, some cut in and filled	Late 18 th – early 19 th century
11023	3258		1	Ceramic	Creamware with factory-produced slip stripes	Late 18 th century
11023	3258		1	Ceramic	White earthenware / pearlware with blue painted decoration	Late 18 th – early 19 th century
11023	3258		10	Ceramic	Black-glazed red earthenware coarseware, including two rims and three bases	Late 17 th – early 20 th century

Object Number	Context Number	Trench Number	Quantity	Material	Description	Date range
11023	3258		1	Ceramic	Fine brown-glazed red earthenware hollow-ware rim	Late 17 th – 18 th century
11023	3258		1	Ceramic	Factory-produced buff-coloured earthenware with internal white slip coating and black transfer-printed text 'Sanitary'	19 th – early 20 th century
1102	3258		1	Ceramic	White earthenware toilet fragment	Mid 19 th – 20 th century

CLAY PIPE AND NON-CERAMIC CATALOGUE

Object Number	Context Number	Quantity	Material	Free description
11016	3017	1	glass	Complete base of bottle possibly blown, dark coloured with opalescence
11021	3043	1	glass	Moulded bottle neck large, dark coloured
11031	3108	1	glass	Moulded bottle neck fragment , pale blue/green coloured
11037	3111	1	glass	Fragment of bottle base, dark coloured
11042	3112	2	glass	Complete base of bottle possibly blown, dark coloured with opalescence
11006	3017	2	ceramic	Clay pipe stems, undecorated
11043	3112	2	ceramic	Clay pipe stems, undecorated
11017	3047	2	ceramic	Clay pipe stems, undecorated
11018	3043	1	ceramic	Clay pipe stem, undecorated
11029	3108	6	ceramic	Clay pipe; 3 stems, undecorated; 2 heels; 1 fragment of bowl with vegetation patterning
11032	3096	1	ceramic	Clay pipe stem, undecorated
11007	3047	1	copper alloy	Small accretion attached to a stone
11008	3047	1	copper alloy	Ambiguous, possible bonding cement
11010	3019	2	copper alloy	undiagnostic objects
11015	3017	4	copper alloy	1 complete sub-round headed tack/nail, plus fragments
11011	3019	1	iron	Amorphous slag
11035	3111	1	iron	Hook and chain, large possibly structural
11038	3111	4	iron	3 Square cross sectioned possible nails/bolts, max 100mm long; 1 screw fixture and sheath
11012	3047	7	mollusc	Oyster shells, heavily ridged
11041	3112	7	mollusc	Mussel shells
11013	3017	1	bone	Sheep/goat 1st phalanx
11014	3047	2	bone	Sheep/goat tibia; sheep/goat/roe deer rib
11020	3043	1	bone	Cow/red deer femur
11028	3108	2	bone	Horse tibia
11034	3096	1	bone	Cow/red deer rib

11040	3112	1	bone	Cow/red deer rib
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Plate 20: View of Manchester Dock, with overhanging warehouse in 1929, looking east from the dock entrance



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