Archaeology South-East

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DOCK WALLS AND CANAL & RIVER TRUST BUILDING WOOD WHARF, WEST INDIA DOCKS, LONDON BOROUGH OF TOWER HAMLETS

HISTORIC BUILDINGS RECORD
(Historic England Enhanced Level 2)

Prepared by Seth Price

August 2015

DOCK WALLS AND CANAL & RIVER TRUST BUILDING
WOOD WHARF, WEST INDIA DOCKS,
LONDON BOROUGH OF TOWER HAMLETS

HISTORIC BUILDING RECORD
(ENGLISH HERITAGE ENHANCED LEVEL 2)

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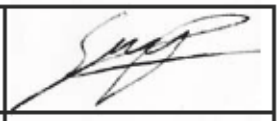
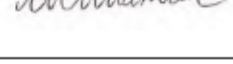
Prepared by:	Seth Price BA	Archaeologist	
Reviewed and approved by:	Amy Williamson BA	Project Manager	
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SUMMARY

In May 2015 Archaeology South-East (a division of the Centre for Applied Archaeology, UCL) carried out a programme of historic building recording of the Dock Walls and Canal and River Trust Building, Wood Wharf, West India Docks, London Borough of Tower Hamlets (NGR 538036 180093). The work was commissioned by Montagu Evans LLP on behalf of CWG (Wood Wharf Two) Limited in advance of the redevelopment of Wood Wharf, including the demolition of the Canal and River Trust Building and sections of the dock walls.

In August 2015, following revisions to the Wood Wharf Historic Building Recording Brief (Montagu Evans 2015), ASE carried out further recording work to document the unlisted dock walls and their relationship to the listed dock.

The site is located on the Isle of Dogs to the south of Blackwall Basin and to the west of Preston's Road. On its southern side it is bound by South Dock and its entrance lock and to the west by the East Quay of the Export Dock and the Middle Cut between the Export Dock and the South Dock, beyond which lies Canary Wharf and West India Docks. It is currently under development – having been largely cleared of the modern warehouse and office buildings which until recently occupied the site.

The docks were designed by the engineer William Jessop with Ralph Walker and John Rennie acting as surveyor and consulting surveyor respectively. Construction began on 12th July 1800 and the Import Dock and Blackwall Basin opened on 22nd August 1802. The Export Dock was completed in 1806. In 1853-55 Junction Dock was constructed linking the South Dock to the Blackwall Basin. In 1876-78 the first dry dock, the graving dock, was constructed southeast of Blackwall Basin. During the 1890s alterations within the basin included the quaying of its south side, to the east of the Junction Dock passage. Between 1926 and 1929 the West India Docks were massively rebuilt to allow access for larger ships - three cuts were made to improve movement of ships through the docks, including the Middle Cut linking the Export Dock to South Dock, the lock linking Export Dock with Blackwall Basin was infilled, and a new quay was constructed on the southwest of the basin. Additional alterations followed the Second World War, including the replacement of the granite coping on the south side of the Export Dock with granite-concrete and the rebuilding of the Graving Dock. The Junction Dock was filled in by the Port of London Authority (PLA) in 1979-80. The Canal and River Trust Building was constructed between 1927 and 1929. Evidence of each phase of redevelopment and alteration is evident in the existing structures.

The structures surveyed form a part of an evolved historic landscape which holds considerable historical significance in terms of the development of London as a centre of world trade, invariably tied to British dominance and trade in the West Indies, and as a world power.

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1.0 INTRODUCTION

1.1 In May 2015 Archaeology South-East (ASE) (a division of the Centre for Applied Archaeology, UCL) carried out a programme of historic building recording of the listed Dock Walls and Canal and River Trust Building, Wood Wharf, West India Docks, London Borough of Tower Hamlets (NGR 538036 180093; Figure 1). The work was commissioned by Montagu Evans LLP on behalf of CWG (Wood Wharf Two) Limited in advance of the redevelopment of the Wood Wharf, including the demolition of the Canal and River Trust Building and sections of the Dock Walls.

1.2 In August 2015, following revisions to the Wood Wharf Historic Building Recording Brief (Montagu Evans 2015), ASE carried out further recording work to document the unlisted South Dock walls and their relationship to the listed dock walls.

1.3 Applications for outline planning permission for mixed-use redevelopment of the Wood Wharf site, and listed building consent for *Demolition of and alteration to listed dock walls including the course of the wall to the Blackwall Basin and the East Quay of the Export Dock and Middle Cut between the Export Dock and the South Dock* were approved by Tower Hamlets Council on 24th December 2014 (Planning refs: PA/13/02966 & PA/13/02967).

Part A of Condition 24 of the planning permission states:

a) Prior to the carrying out of any Below Ground Works (excluding Enabling Works), a Cultural Heritage Strategy shall be submitted to and approved in writing by the Local Planning Authority. The Cultural Heritage Strategy shall include:

i. a programme for the recording and analysis of features of historical merit and details of the person or body recording these details; and

ii. measures for recording of the dock walls and how findings will be published.

Condition 6 of the listed building consent states:

No works shall take place until such time as a written scheme setting out a programme for building recording and analysis and details of the person or body recording these details is submitted to and approved by the Local Planning Authority in consultation with English Heritage.

The relevant works shall only be carried out in accordance with the details so approved.

1.4 The Blackwall Basin and the quay walls and copings at buttresses to Import Dock and Export Dock, West Ferry Road are statutorily listed Grade I (Historic England, National Heritage List refs. 1242449 and 1065783; Appendix 5). A small part of the site adjacent to its southern boundary, and including the Canal and River Trust Building, lies within the Coldharbour Conservation Area.

2.0 SCOPE & METHODOLOGY

2.1 A Cultural Heritage Strategy (Historic Building Recording Brief) was produced for by Montagu Evans LLP (2015), to satisfy Condition 24 of the planning permission. This sets out the requirements for the historic building recording and recommends that an

enhanced English Heritage Level 2 historic building record (English Heritage 2006) should be produced for the dock walls (both listed and unlisted) and the Canal & River Trust Building. Additionally, the written scheme of investigation produced by ASE (ASE 2015) outlines the methodology for the historic building recording.

2.2 The Dock Walls and Canal and River Trust Building were recorded to English Heritage[1] Enhanced Level 2 as defined in *Understanding Historic Buildings: A guide to good recording practice* (English Heritage 2006). A Level 2 record is essentially a descriptive record.

2.3 The site was visited by Seth Price and Katya Harrow on the 13th May 2015 in order to carry out the recording work of the listed dock walls, with further work conducted by Seth Price and Chris Curtis on the 11th August 2015 to document the unlisted dock walls in relation to their listed counterparts. This entailed the compilation of written notes, the verification of existing measured survey drawings, and the production of a photographic record.

2.4 A digital photographic record was made during the site visit. Within the report selected digital images have been reproduced as plates, together with a full index of the digital photography and location plots (Appendix 1, and Figures 2 – 4). A full catalogue of all photographs is included in the archive.

2.5 In drawing up this report, a variety of cartographic and documentary sources were consulted. Additional sources held within the Archaeology South-East library were utilised, and appropriate on-line databases interrogated. A search was made of the aerial photographs held by English Heritage Archive, as well as the Britain from Above website (2015) and Google Earth website. Material from other sources has been referenced separately within the text where necessary, and is listed in Section 7.0. Cartographic sources referred to within the text are reproduced as figures. The historic background information was largely drawn from Wood Wharf Dock Survey (Abwood Marine Ltd 2007) and the Assessment of Significance (CgMs 2007)

3.0 SITE LOCATION

3.1 The site is located on the Isle of Dogs to the south of Blackwall Basin and to the west of Preston's Road. On its southern side it is bound by South Dock and its entrance lock and to the west by the East Quay of the Export Dock and the Middle Cut between the Export Dock and the South Dock, beyond which lies Canary Wharf and West India Docks. It is currently under development – having been largely cleared of the modern warehouse and office buildings which recently occupied the site (Montagu Evans LLP 2015).

3.2 The areas documented include the dock walls alongside the southern bank of Blackwall Basin, the east and south walls of the West India Export Dock, east wall of the Middle Cut, the (unlisted) north wall of the South Dock, and the Canal and River Trust Building.

[1] Reorganised as 'Historic England' from April 2015

4.0 HISTORIC BACKGROUND

4.1 The historic background of the site is included in the Cultural Heritage Strategy (Historic Building Recording Brief) prepared by Montagu Evans LLP (2015), from which much of the following information is summarised.

4.2 18th-century maps show the site as undeveloped agricultural land. The West India Dock Company was formed in 1799. The West India Dock Act of the same year was the first of its kind and allowed a private company to invest, set up and run the docks in order to make profit without interference from the City Corporation. The Act required the docks to be a self-sustaining system with 30ft high walls and a 12ft deep ditch around the whole site. The new docks enabled ships to enter, unload and moor for up to six months and would enable the loading of goods for export back to the West Indies.

4.3 The docks were designed by the engineer William Jessop with Ralph Walker and John Rennie acting as surveyor and consulting surveyor respectively. The system comprised two docks: an import and export dock and two entrance basins, the Blackwall and Limehouse. Large storage warehouses were to be constructed around the docks for the storage of produce such as tea, sugar and spices. Construction began on 12th July 1800 and the Import Dock and Blackwall Basin opened on 22nd August 1802 (Figure 5). The Export Dock was completed in 1806. The Export Dock required some 21 million bricks for the quay walls, capped by Dundee gritstone copings (Hobhouse 1994). The walls of the Import and Export docks are concave in section (banana walls) – the banana shaped profile is both structurally stable and accommodated the curved hulls of wood-hulled ships (Telfer and Westman 2014). The banana walls were constructed of brick laid onto a coniferous timber frame and supported by wooden piles driven into the natural gravels, and are the earliest known example of reinforced brickwork (*ibid*.).

4.4 The Blackwall Basin was constructed with banked sides of puddled gravel rather than revetted quays, as initially there was no requirement for ships to moor up or unload while awaiting entry to the main docks. This gave the basin the appearance of a large pond without dockside furniture or warehousing. The basin was the first non-tidal basin in the Port of London. By 1820 a number of buildings had been erected around the basin including a constable's house and guard tower (Figure 6). In 1829 the West India Dock Company bought a canal from the City Corporation and named it South Dock, although it was not utilised as a working dock until much later.

4.5 The West India Docks began to change in size and character in the mid-19th century. As well as expansion north of the Blackwall Basin, associated with new railway links, the main docks were developed in 1853-55 (Figure 7). Junction Dock was constructed linking the South Dock to the Blackwall Basin, enabling better manoeuvrability of ships when inside the docks. By 1853-5 much of the South Dock had been quayed – to facilitate the mooring of multiple vessels. The employment in 1870 of a new secretary and general manager, Colonel du Plat Taylor, led to the company reinvesting in the upkeep of the docks and a number of warehouses and updated machinery were constructed on the land to the south of Blackwall Basin. In 1876-78 the first dry dock, the graving dock, was constructed southeast of Blackwall Basin.

4.6 Extensive alterations were made to the Blackwall Basin and the West India Docks during the 1890s. The basin was largely reconstructed and the locks widened to give access to larger ships (Figure 8). Alterations within the basin included the quaying of

its south side, to the east of the Junction Dock passage. Light railways for moving goods and for travelling cranes and sheds for storing timber had been constructed. The South Dock was also largely reconstructed – with newly quayed north walls and the new South Dock Basin to its east, with a swing bridge to facilitate the passage of the new railways. Between 1893 and 1916 the timber sheds were expanded, with virtually the whole site except for the Junction Dock and Graving Dock being occupied by sheds and warehousing.

4.7 Between 1926 and 1929 the West India Docks were massively rebuilt to allow access for larger ships (Figure 9). Three cuts were made to improve movement of ships through the docks. The first, Bellmouth Cut, was between the Import and Export docks, the second, Middle Cut, linked the Export Dock to South Dock and the third, Millwall Cut, connected South Dock with Millwall Dock. The railways to the north were remodelled and Limehouse Basin and the lock linking Export Dock with Blackwall Basin were infilled. A new quay was constructed on the southwest wall of the basin and new sheds and machinery constructed on the land between Blackwall Basin and East Quay. A new entrance lock to South Dock was constructed, replacing the South Dock Basin, and a permanent wall was built across the lock at the south end of Junction Dock. An aerial photo dated to 1928 shows the excavation and ongoing construction of the entrance lock to the South Dock, as well as the newly quayed Blackwall Basin (Plate 1).

4.8 Additional alterations followed the Second World War, including the replacement of the granite coping on the south side of the Export Dock with granite-concrete (Telfer and Westman 2014) and the rebuilding of the Graving Dock, due to bomb damage, in 1948-9 (Figure 11). The Junction Dock was filled in by the Port of London Authority (PLA) in 1979-80 as part of the lease agreement for the Teltsher Brothers Limited acquisition of the land, following the redundancy of the West India Docks (Figure 12).

4.9 The Canal and River Trust Building was constructed between 1927 and 1929 as a part of the larger works at that time. Originally the building was mirrored on the opposite side of the lock as seen on the 1938 aerial photograph (Plate 2, Figure 10), though this building was demolished and replaced with the existing scouts building in the 1980s.

5.0 DESCRIPTION OF THE STRUCTURES

5.0.1 The top of each wall section is set *c.* 0.8m above the waterline. The following descriptions of the walls are based largely on above water observations as made during the field review. Mooring bollards predating the late 20th/early 21st century are shown on the site plans (Figures 2 – 4).

5.1 South Wall of the Blackwall Basin

Description of the wall

5.1.1 The south wall of the Blackwall Basin consists of eight sections – differentiated by construction material and date. The description of the south wall of the Blackwall Basin follows the wall sections (numbered [1] – [8], Figure 2) from east to west.

5.1.2 The easternmost section of the wall [1], dating to 1878 and pertaining to the graving dock (dry dock) adjacent, exhibits late 19th-century purple-brown stock brickwork in English bond, set with what appears to be a lime mortar (Plate 3). The wall is capped

in large granite slabs, and curves to the south-east, leading to the graving dock. The dock wall measures *c.*8.5m long (within the study area) and *c.*7.0m from wall top to the silt bed (Appendix 3). According to a newspaper clipping dated 18 March 1878, the dry dock walls are constructed of 'concrete, with a facing of stock bricks, the altars being of York stone… The concrete in the walls is 13ft thick at the base, stepped off to 4ft at the top' (Figure 11). No concrete was visible behind the brickwork above the waterline to verify the above account. The top of the dock wall features a string of 20th-century iron bollards (likely pertaining to the 1980s residences along the dockside) with simple straight shafts interrupted at their middle points by circular knots and terminating in equally sized rounded finials (Plate 4). The knots and finials accommodate two chain runners which link the bollards. The bollards extend form the former dry dock to the southeast into the study area and then west along the basin side for approximately 35m. Patches of 20th-century repair work are evidenced by concrete parging and patches of later brickwork – some of this repair work may pertain to the reconstruction work carried out between 1948-9 (Hobhouse 1994).

5.1.3 The next section of wall [2] along features a timber revetment, masking any construction material behind (excepting in one location – see below). It appears that the 1878 brickwork may extend behind the timber revetment at its eastern end, though it is not certain, nor is it clear for how far it does so (Plate 3). The Abwood Marine Ltd report notes that the wall is formed of 'sloping landfill with a vertical wooden pile frontage' implying that no additional construction materials are behind the majority of the wall. This is supported in the area of a drain roughly midway along the wall, where the rear of the wall has been excavated (Plate 5). The timber revetment, which appears largely modern, is formed of two roughly square-sectioned horizontal beams capping a series of vertical posts of slighter scantling, which are in turn supported by a horizontal waling beam and a series of vertical king posts beneath the water line (Appendix 3, Plate 6). Steel plates bind the horizontal waling beams to the king posts. The horizontal beams capping the wall feature occasional half-lap splice curtain joints (Plate 7). The timber revetment wall section extends for *c.*94m in length, with a depth from wall top to silt bed of *c.*5m. At the west end of the wall section, the timber revetment has collapsed from the top of the wall (though it retains timber elements as described above below water level), revealing an underlying cast-in-place reinforced-concrete wall exhibiting two alternate forms of design (Plate 8) – the eastern half of the exposed concrete is banked, angling outwards as it descends, with concrete bracketing providing additional support (Plate 9), while the western half falls vertically into the basin, with impressions left from the former timber king posts and horizontal beams. The concrete was clearly cast against the former timber revetment, though it is not clear whether the revetment predates the concrete. The length of this wall section follows the late 19th-century realignment of the basin edge (1890s), and though it appears to date to at least the mid-20th century. Bollards (as described above) ornament the easternmost end of the wall section, surmounting the timber capping beam (Plate 10).

5.1.4 The next section [3] along is constructed of blue-brown engineering bricks in English bond, capped by concrete blocks above (Plate 11, Appendix 3). The brick section is mirrored on the opposite side of the former lock entrance to the Junction Dock, with the east section measuring *c.*7m in length and the west *c.*4m, both with a maximum depth of *c.*2m. Originally the entrance passages were straight-sided, with inverted-arched bottoms (Hobhouse 1994). The wall sections are largely masked below water level by silt and aggregate deposits for the infilling of the Junction Dock. It is likely that the wall sections reflect a late 19th-century rebuilding or repair of the Junction Dock entrance.

5.1.5 A small section of concrete wall [4], capped with concrete blocks runs for *c*.2m from the repaired brick section into the mouth of the former Junction Dock (Plate 12, Appendix 3). The concrete capping is the same as that in the brick section, and the two parts are likely roughly contemporaneous, reflecting repairs or alterations to the dock entrance. Only *c*.2m of the concrete wall is visible beneath the water, being largely masked by infill for the dock.

5.1.6 The entrance to the former Junction Dock [5] has been infilled with a mix of rubble and aggregate, and is overgrown with self-sown vegetation (Plate 13). Two extant single-bitt mooring bollards to either side of the blocked entrance likely relate to the former dock (Plate 14).

5.1.7 A small section of mid-19th-century brick quay wall [6] survives to the west side of the Junction Dock (Plate 15). It is likely that this wall section dates to the original 1853-1855 construction of the Junction Dock. The section measures *c*.2m in length with a visible depth below water of *c*.1.5m, being largely masked by fill deposits for the dock. The brickwork, which is in a poor state of repair, is of a soft purple-brown stock brick in English bond.

5.1.8 Following on from the western section of the engineering brick wall is a *c*.18m long section of Larssen sheet pile wall [7] with a maximum visible depth below water of *c*.3m, likely reflecting an early- to mid-20th-century phase of quay reconstruction (Larssen Sheet Piling was first developed in 1912) (Plate 16, Appendix 3). A rotten vertical timber element is visible to the west of the wall, suggesting that the sheet piling originally featured a timber revetment.

5.1.9 The final wall section [8] dates to 1927-9 and is constructed of reinforced concrete overlain with a row of concrete blocks, with a bull-nosed granite coping (Plate 17, Appendix 3). The concrete contains large pebble and flint inclusions. In one location the granite coping has been replaced with concrete. Below water the wall features a horizontal timber waling beam (at *c*.1.80m below the top of the wall) above flat steel piles. Occasional breaks in the wall accommodate short sections of steel ladders (Plate 18). The wall extends for *c*.90m, with a maximum depth to the silt bed of *c*.6m. At its western end the wall abuts the earlier (possibly original) quay wall constructed of orange-brown stock brickwork in English bond (Plate 19). The earlier wall is capped with a pinkish granite coping, and features evidence of ongoing later repair work (such as concrete parging). The angle at which the earlier wall meets the 1927-9 wall demarcates the original alignment of the lock linking the Blackwall Basin and Export Dock. An extant double-bitt T-head mooring bollard to the southwest of the western end of the 1927-9 wall (Plate 20) indicates where the east side of the former dock would have been situated.

5.1.10 A range of single-bitt mooring bollards of unknown origin and varying forms were observed where they had been set aside for salvage (Plate 21). The bollards were presumably associated with the later development of the south side of the Blackwall Basin, when the banks were quayed.

5.2 East Wall of the Export Dock

Description of the wall

5.2.1 The visible wall appears to be of consistent early 19th-century construction, albeit with later 20th-century alterations to the copings (Plate 22). The main dock wall is

constructed of a mid-orange stock brick in English bond with a bull-nosed concrete coping. The concrete coping likely dates to post-war repairs (Hobhouse 1994). The coping is in turn overlain with late 20th-/early 21st-century dark-brown brick paving, within the northern half of the dock wall, consisting of three rows of bricks in stretcher bond, and a soldier course coping (Plate 23). Late 20th-/early 21st-century concrete bollards form a regular series along the edge of the modern brick paving. The southern half of the wall features no brick paving, but is set with a number of late 20th-/early 21st-century single-bitt mooring bollards (Plate 24). The wall profile below water level curves outward to form the characteristic concave 'banana' section with a gradient of 77° (Abwood Marine Ltd 2007). The length of visible wall was *c.*100m, with a below water depth to silt bed of *c.*5m (Appendix 3). Below water voids in the brickwork, as seen on the elevation illustrations, can be partially explained as housings for timber frame elements for dockside buffers (Telfer and Westman 2014: 317). Two recessed ladders, featuring black bull-nosed brick quoins framing their openings, were visible extending from the top of the brickwork to *c.*1m below water level (Plate 23). Rungs were missing from both ladders. The northern-most section of the east wall of the Export Dock was not accessible during the field review – though the illustrated elevations inform that the wall is of similar construction to the westernmost wall section in the Blackwall Basin (Appendix 3).

5.3 South Wall of the Export Dock

Description of the wall

5.3.1 The South Wall of the Export Dock is largely identical to the East Wall as regards the construction of the brick banana walls. However, the wall features a differing coping, being constructed of granite-concrete blocks (Plate 25) (Hobhouse 1994). The coping likely dates to post-war repairs (*ibid.*). Patches of bluey-brown engineering brick laid in English bond mark late 19th-/early 20th-century repairs to the brickwork. Two staghorn mooring bollards, one at the east end of the wall and the other toward the west end, likely date to the post-war repairs (*ibid.*) (Plates 26 and 27). The wall is set with a number of Late 20th-/early 21st-century single-bitt mooring bollards. The length of wall recorded amounts to *c.*68m, with a depth to silt bed of *c.*6m. The wall has a gradient of 78° (Abwood Marine Ltd 2007)

5.3 East Wall of the Middle Cut

Description of the wall

5.3.1 The East Wall of the Middle Cut dates to 1927-29 and is of reinforced concrete construction with a granite concrete coping (Plate 28, Appendix 3). The coping has been reconstructed of reinforced concrete in sections at the north and south ends of the Middle Cut. An extant original T-head mooring bollard is situated within the southern half of the wall (Plate 29). Three late 20th-/early 21st-century single-bitt mooring bollards were also observed. The Middle Cut measures *c.*55m in length, with a depth to silt bed of *c.*9.5m.

5.4 North Wall of the South Dock

Description of the wall

5.4.1 The west end of the North Wall of the South Dock likely dates to the reconfiguration of the South Dock in the 1890s – considering its construction – while the majority of the wall dates to 1927-9 or later. Much of the wall has been patched or

reconstructed. The west end of the wall appears to be constructed of a dark blue-brown brick laid in English bond with a reinforced concrete capping beam and occasional concrete parging (Plate 30). The bricks measure 55x225mm (Appendix 3). The west section of wall runs from the Middle Cut to *c.*108m to the east. Below water there are many voids in the brickwork derived from decay and damage. The middle section of the wall is constructed of reinforced concrete, with smooth concrete facing. The eastern section of the wall has two concrete capping beams above the smooth faced concrete wall below (Plate 31) – the lower of the beams being large (1.2m in height), and of rough aggregate concrete. The rough aggregate concrete indicates that this section likely corresponds to the blocking of the Junction Dock in 1927-9. At the wall's easternmost end it is set with a granite coping. It is possible that the granite coping continues to the west but is masked by concrete (Plate 32). Along the length of the wall are a number of mooring bollards, including multiple late 20th-/early 21st-century single-bitt mooring bollards, a number of staghorn mooring, and a single-bitt mooring bollard which likely dates to the 1927-9 construction of the South Dock entrance lock (Plate 32). The total length of wall recorded amounts to *c.*226m, with a depth to silt bed of *c.*9m.

5.5 Canal and River Trust Building

Exterior Description

5.3.1 The Canal and River Trust Building dates to 1927-29, alongside the reconstruction of the South Dock entrance lock. The building has a rectangular footprint, orientated east-west, and is set within a working dockyard. The principal elevation of the building faces south onto the dock (Plate 33). The building is constructed of a mid-orange clinker brick in Flemish bond above concrete-block foundations, and surmounted by concrete wall plates. The building has a tiled roof with projecting sprocketed eaves and a wooden fascia and soffit with a moulded cornice (Plate 34). A brick chimney projects from the roof apex to the west of the building. The building is set with a number of timber-frame horned-sash windows with concrete lugsills (Plate 35).

5.3.2 The principal elevation is set with a timber door to its west side, with a three-pane overlight, framed by two sash windows. A blocked doorway is evident to the east side of the elevation, blocked with brickwork and rendered over, east of which are two narrow sash windows (Plate 36).

5.3.3 The east elevation is set with a timber door with a three-pane overlight, and two narrow sash windows (Plate 37). The west elevation is set with a timber door only (Plate 38), which is blocked within the building.

5.3.4 The north elevation (Plate 39) is set with two timber doorways within the east of the elevation, and two sash windows protected by iron bars to the west (Plate 40). The two doorways are blocked within the building. A bricked up doorway is evident at the centre of the elevation.

Interior Description

5.3.5 The interior of the Canal and River Trust Building has been fairly altered from its original layout. The interior walls are of painted brick unless stated otherwise. The building is accessed through the entrance on the west side of the principal elevation, which leads to a small hallway area. The hallway originally featured an arched doorway to its north, which has now been blocked with plastered brickwork.

5.3.6 To the east of the hallway, through a doorway set within an inserted brick wall constructed in stretcher bond, is a long narrow kitchen with modern fittings (Plate 41). North of the kitchen is a storage and locker room (Plate 42), leading east to a shower room (Plate 43) and toilet (Plate 44). The toilet has tiled lower walls and is replete with what appear to be original features, including two toilet stalls with chamfered timber jambs and panelled timber doors with intact original hardware (Plate 45).

5.3.7 To the west of the hallway is a recreational room with woodchip-wallpapered walls (Plate 46). A smaller recreational room is set to the east of the recreational room, north of the hallway. The small recreational room features a chimney stack on its south wall – any earlier fireplace has been blocked or removed.

6.0 DISCUSSION

6.1 The Blackwall Basin quay walls reflect the ongoing evolution of the West India Dock in their myriad phases of development, reconstruction, repair and disuse. The increasing importance of the docks as a centre of West India trade in the City of London during the 19th century is demonstrated in their rapid evolution over the course of the century, starting with the basin as a shallow-sided basin, to the development of the south side to facilitate the Junction Dock in 1853, and the construction of the first privatised dry-dock to the southeast of the basin in 1878, and finally the phased quaying of the south bank. This fast evolution is followed by a decreasing importance in the early 20th century, leading to its obsolescence by the mid-/late 20th-century – reflected by a period of neglect and disuse, including the infilling of the Junction Dock and the lock between the basin and Export Dock. The obsolescence of the Blackwall Basin reflects the increase in ship size during the late 19th and early 20th centuries beyond the capacity of the basin and associated docks, as well as the globalisation of world trade and the introduction of the aeroplane. The former alignment of the lock to the Export Dock likely remains evident below ground, the alignment being marked by the extant wall within the Blackwall Basin and an extant mooring bollard.

6.2 The East and South walls of the Export Dock retain much of their original fabric, demonstrating the quality and ingenuity of the Georgian engineering involved in the development of the banana wall quay walls. However, despite their build quality, they too saw an increasing obsolescence during the late 19th and early 20th centuries as the curved walls of the quays, so suited to wooden hulls, were not appropriate for the large iron-hulled ships which supplanted them. The last phase of major transformation occurred in the late 1920s, with the creation of several major cuts, a new entrance to the South Dock, and the blocking of the former Junction Dock. Following the Second World War a phase of redevelopment and repair followed. Eventually the docks fell into disuse, before being adopted into the Canary Wharf development, of which they form an integral landscape feature and a continued reminder of the site's heritage.

6.3 The Canal and River Trust Building reflects the rapid fall-off of development and use of West India Dock within the 20th century – being constructed during the last major period of marine development at West India Dock. Externally the building appears little altered, despite some changes to its interior layout, and it retains many original features, including windows, doors and toilet fittings. The building contributes actively to the dockside landscape within which it is situated, being aesthetically pleasing and having been expressly built as a part of the lock system. As the Canal and River

Trust Building, the building continues to play an active role in the functioning of the docks and waterways.

6.4 Overall, the structures surveyed form a part of an evolved historic landscape which holds considerable historical significance in terms of the development of London as a centre of world trade, invariably tied to British dominance and trade in the West Indies, and as a world power.

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8.0 DEPOSITION OF THE ARCHIVE

A full archive intended for deposition with the London Archaeological Archive and Research Centre (LAARC). The archive has been assigned the site code WUW15. The full site archive will be prepared in accordance with the principles of *Management of Research Projects in the Historic Environment (MoRPHE) (*English Heritage 2006) and the requirements of LAARC. The archive will comprise a hard copy of the full report, a pdf version of the report on CD, the full photographic record with registers, field notes and drawings. A copy of the final report will also be deposited with the GLHER.

9.0 ACKNOWLEDGEMENTS

Archaeology South-East would like to thank Montagu Evans LLP, for commissioning this Historic Building Record.

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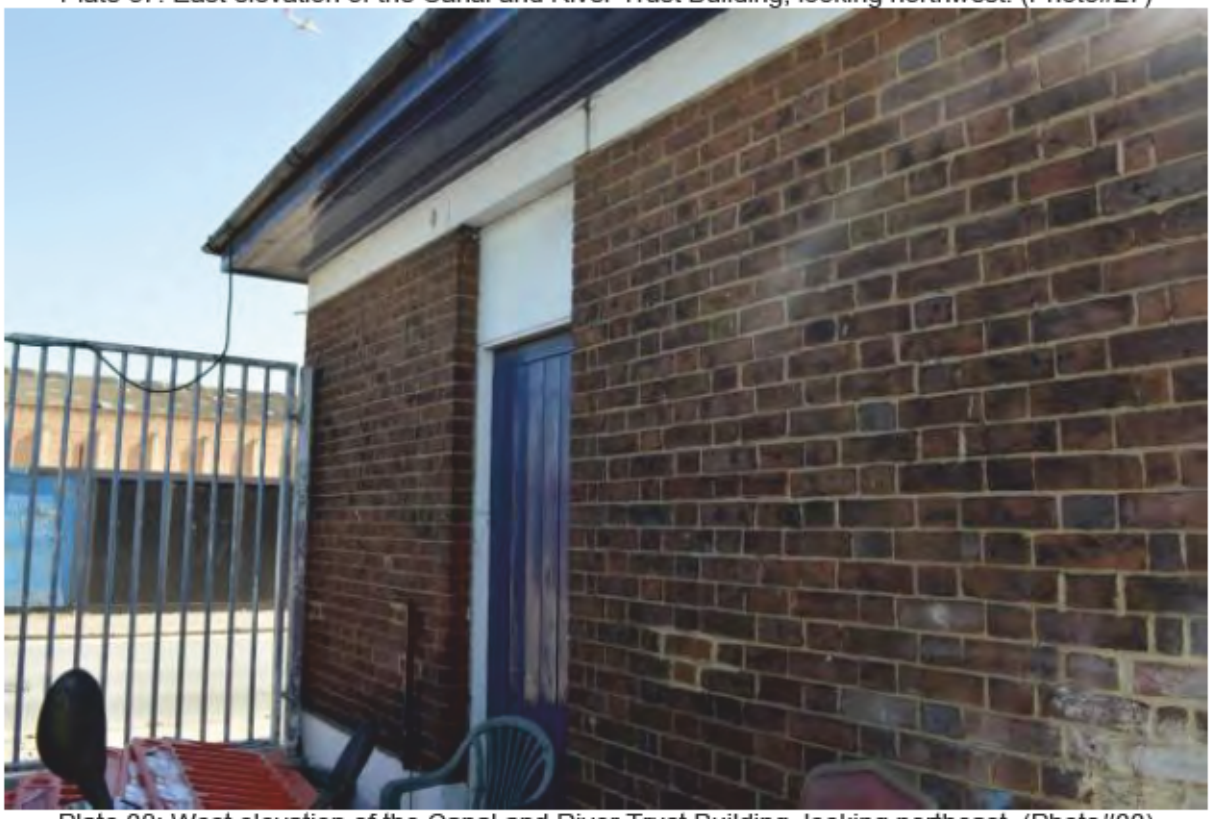

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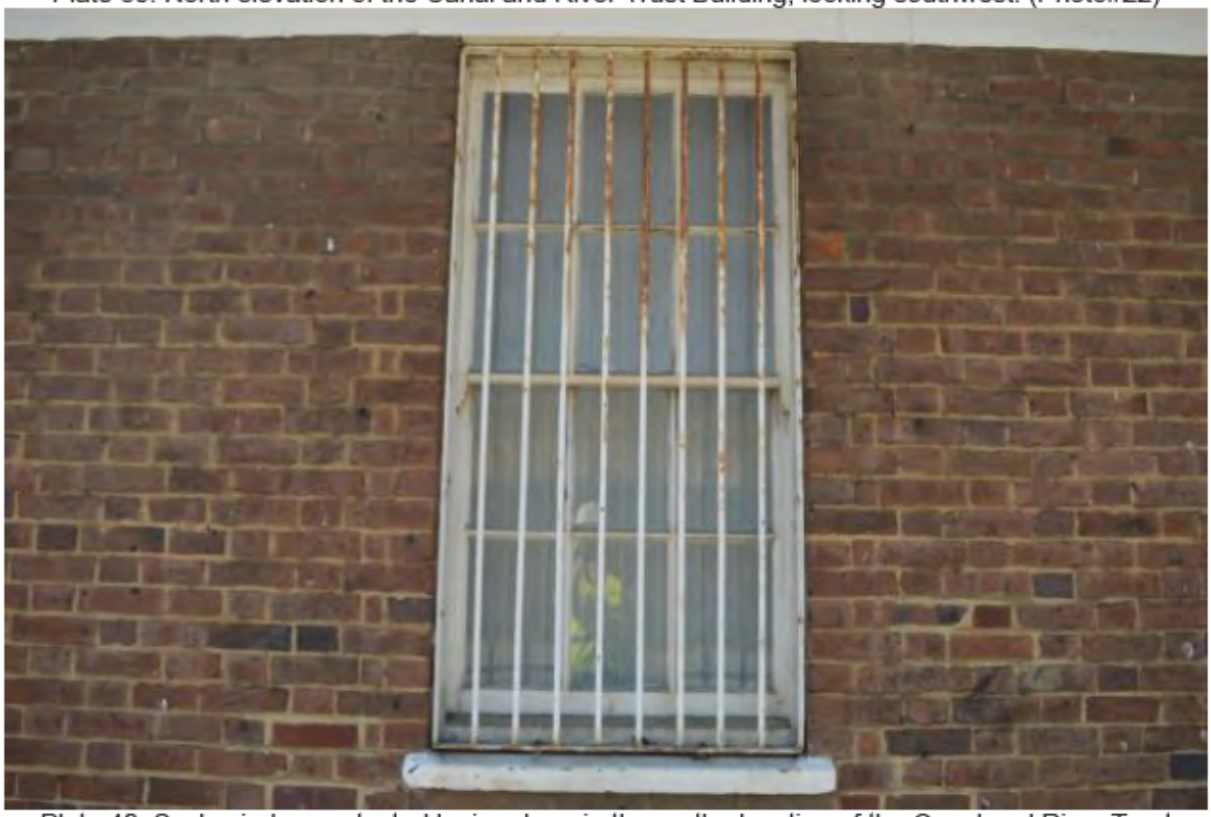

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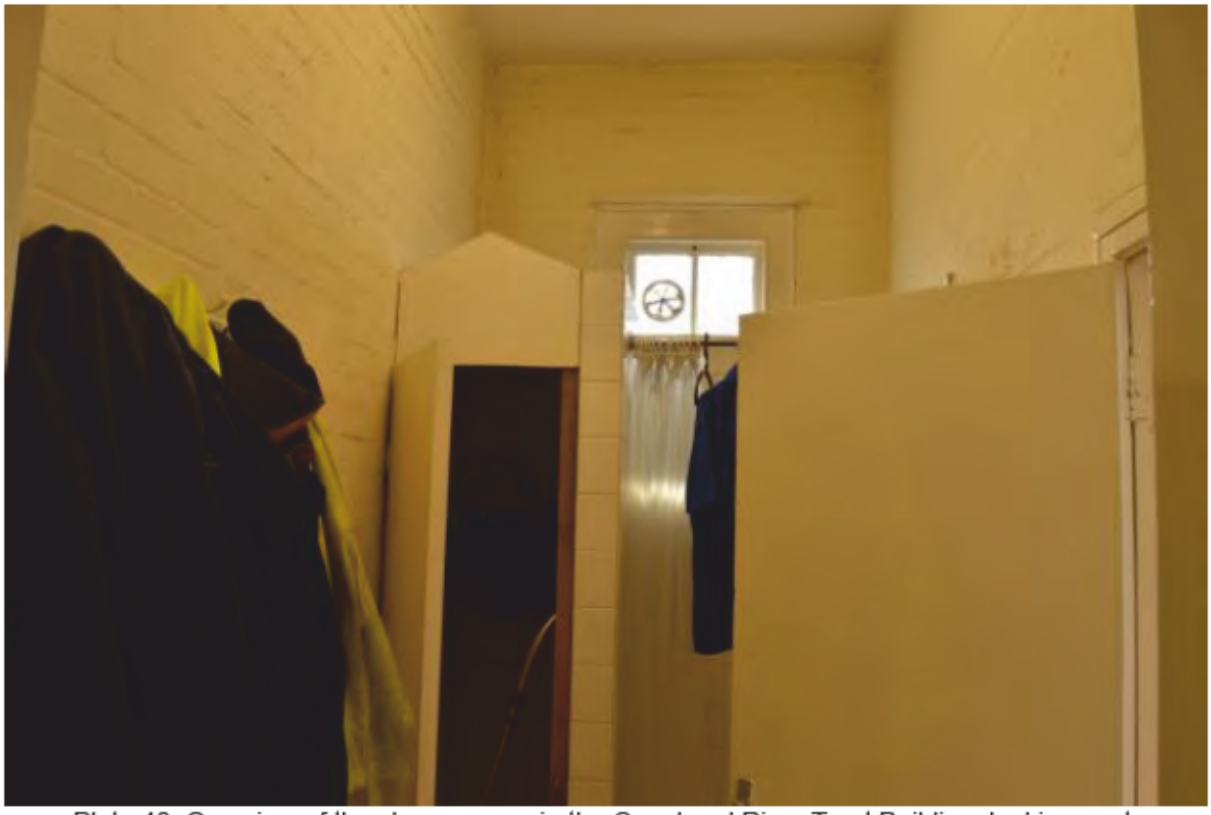

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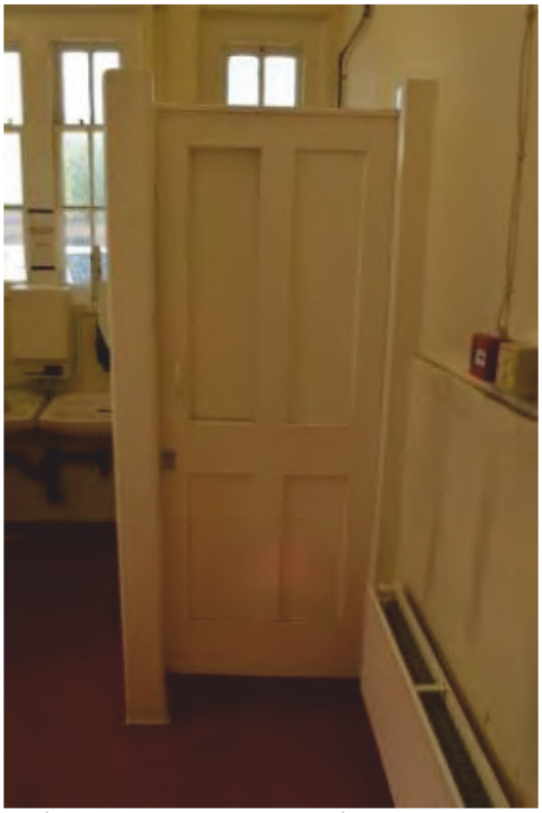

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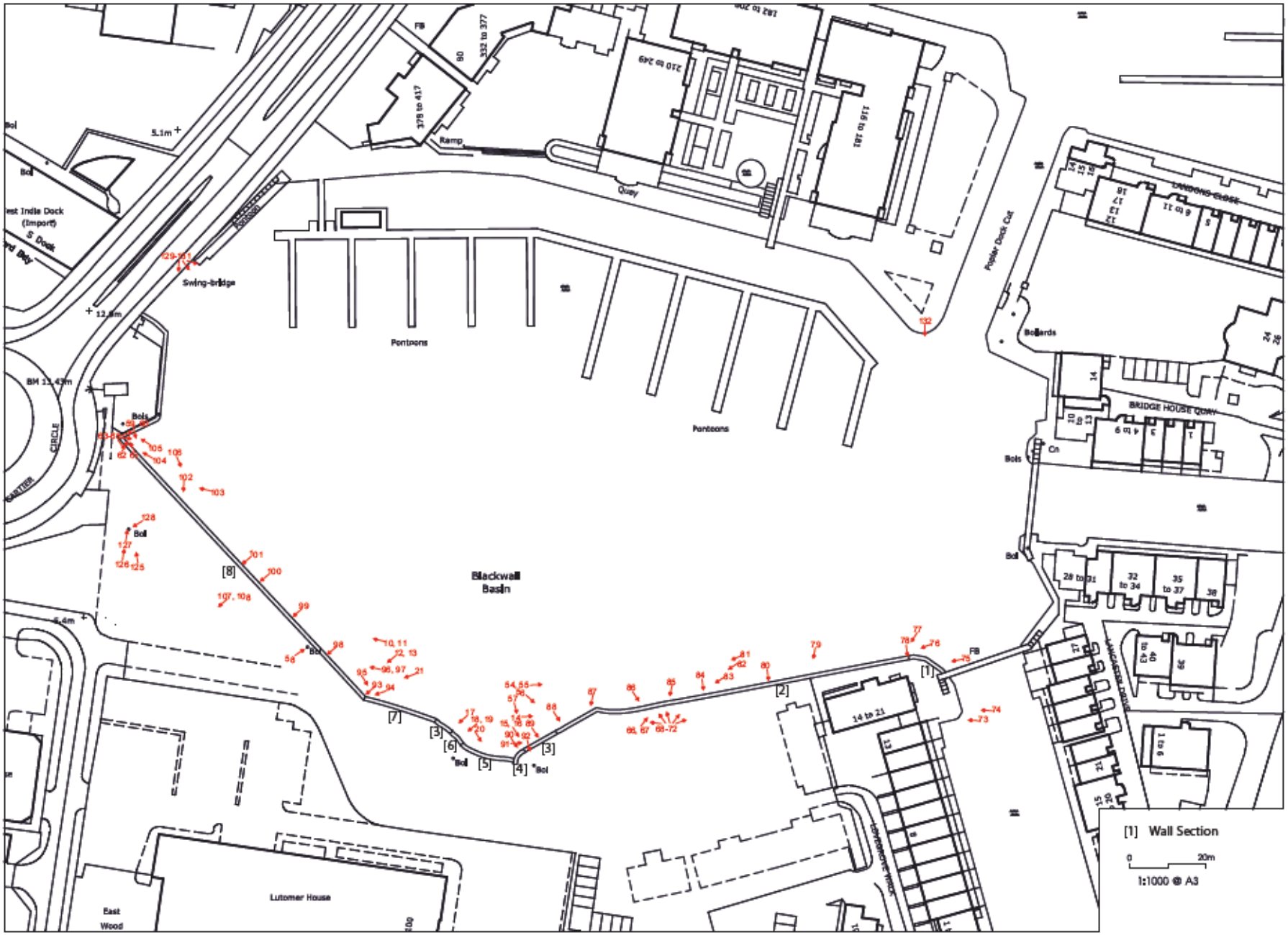
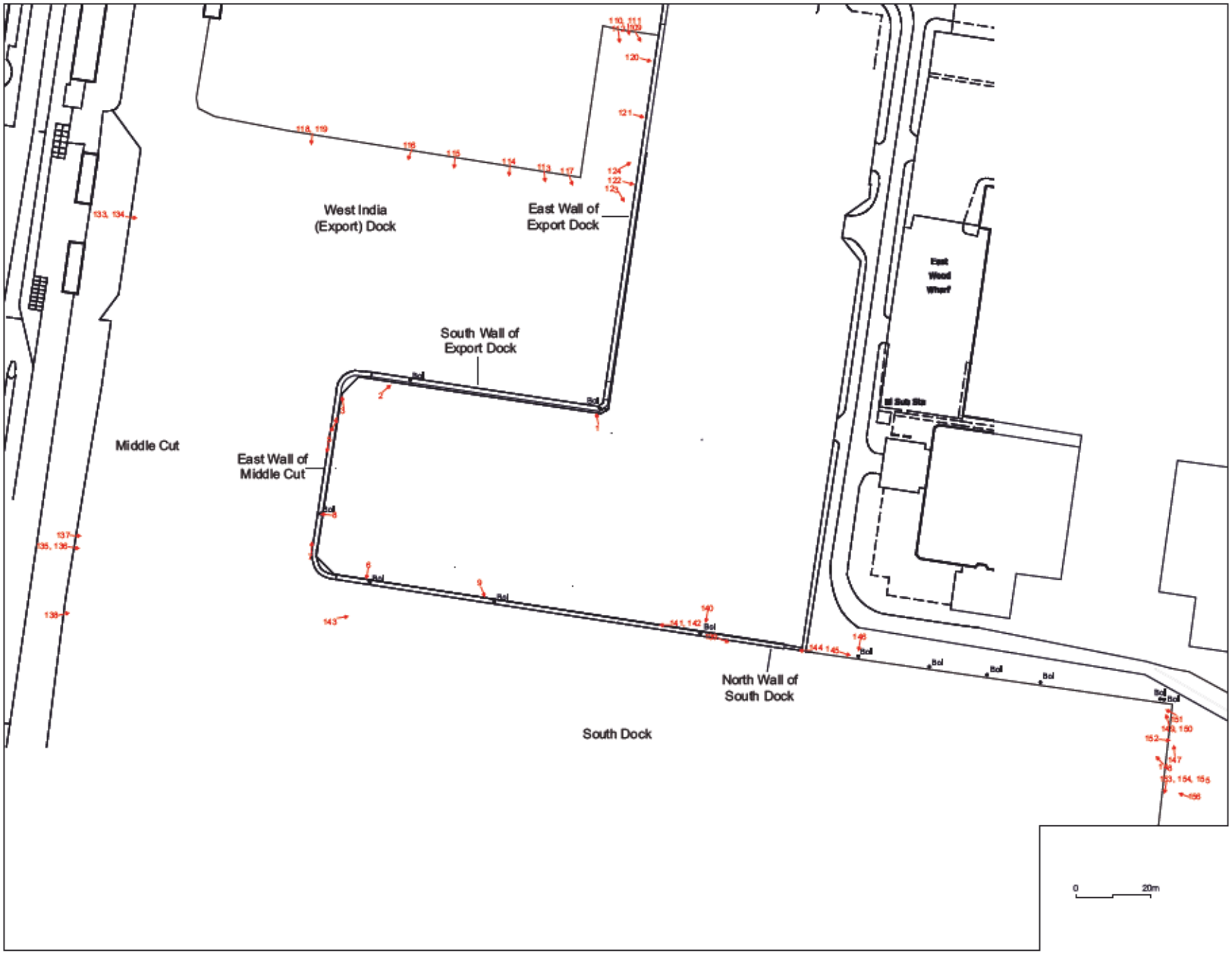
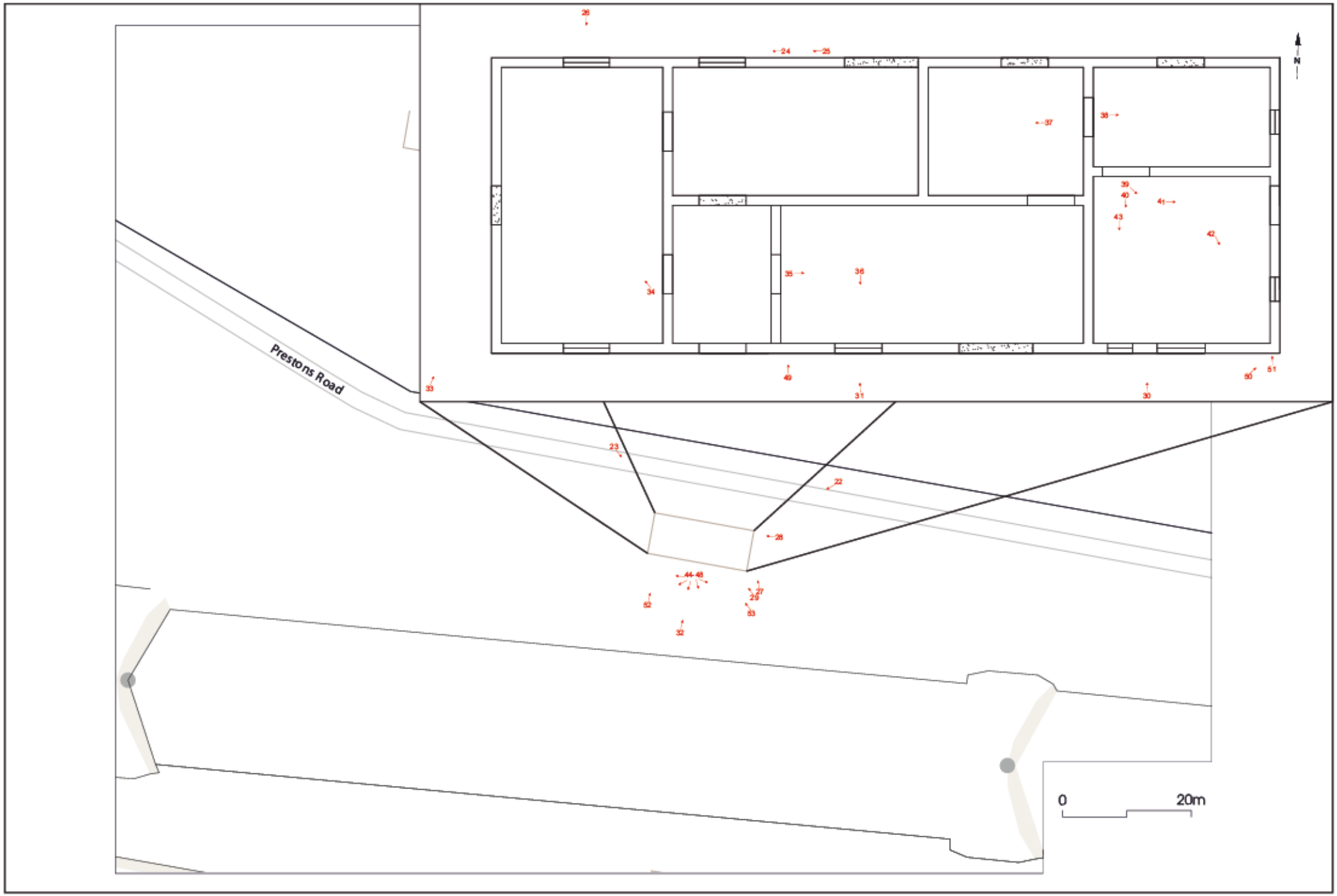
© Archaeology South-East		Dock walls and Canal & River Trust Building, Wood Wharf, West India Dock	Fig. 1
Project Ref: 7525	May 2015	Site location	
Report Ref:	Drawn by: KRH		



© Archaeology South-East		Dock Walls and Canal & River Trust Building, West India Docks	Fig. 2
Project Ref: 7525	May 2015	Blackwall Basin Digital Photo Locations (Reproduced from CgMs 2007)	
Report Ref: 2015171	Drawn by: SP		



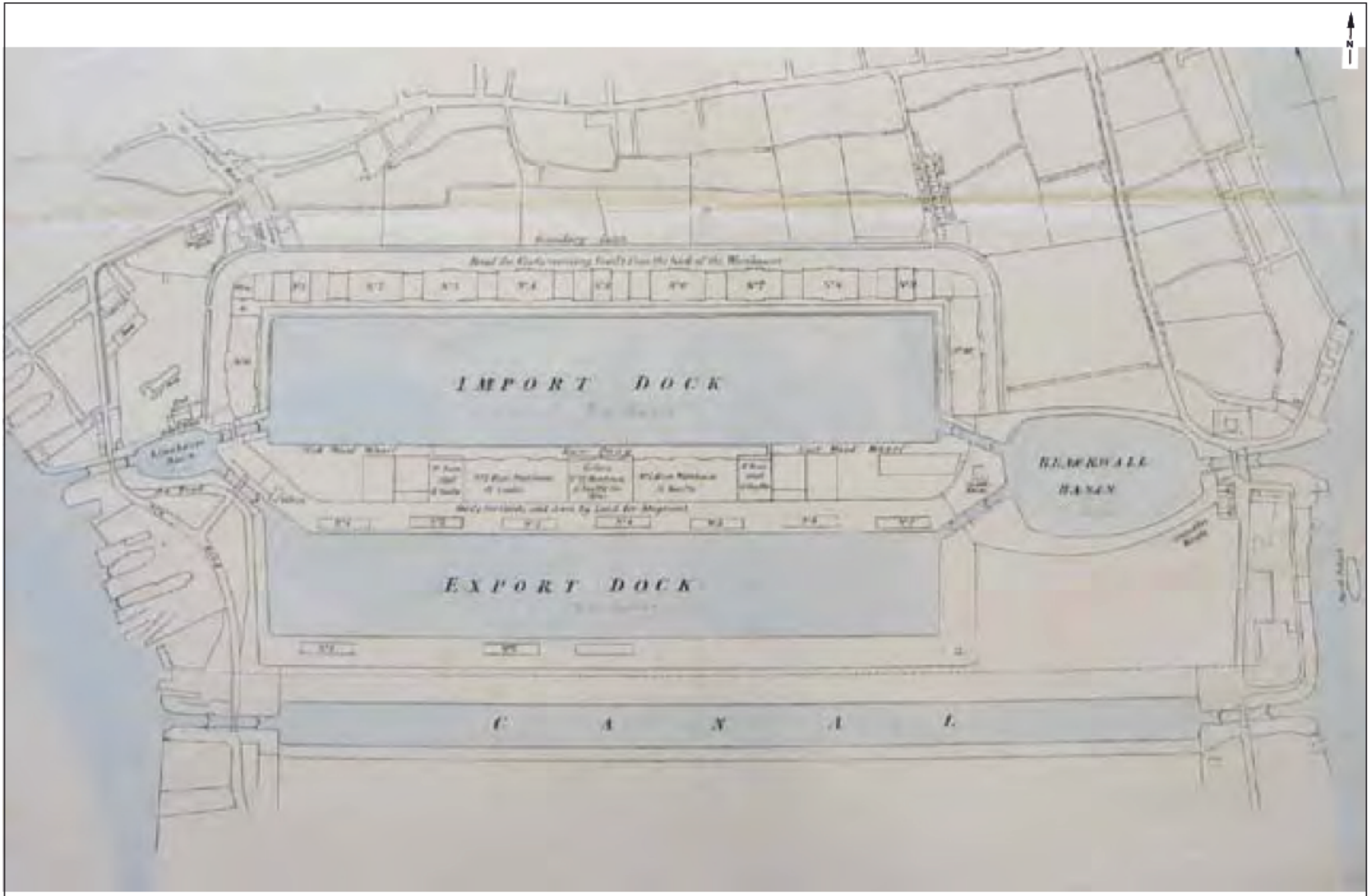
© Archaeology South-East		Dock Walls and Canal & River Trust Building, West India Docks	Fig. 3
Project Ref: 7525	May 2015	Export Dock, Middle Cut, and South Dock Digital Photo Locations (Partially reproduced from Cgms 2007)	
Report Ref: 2015171	Drawn by: SP		



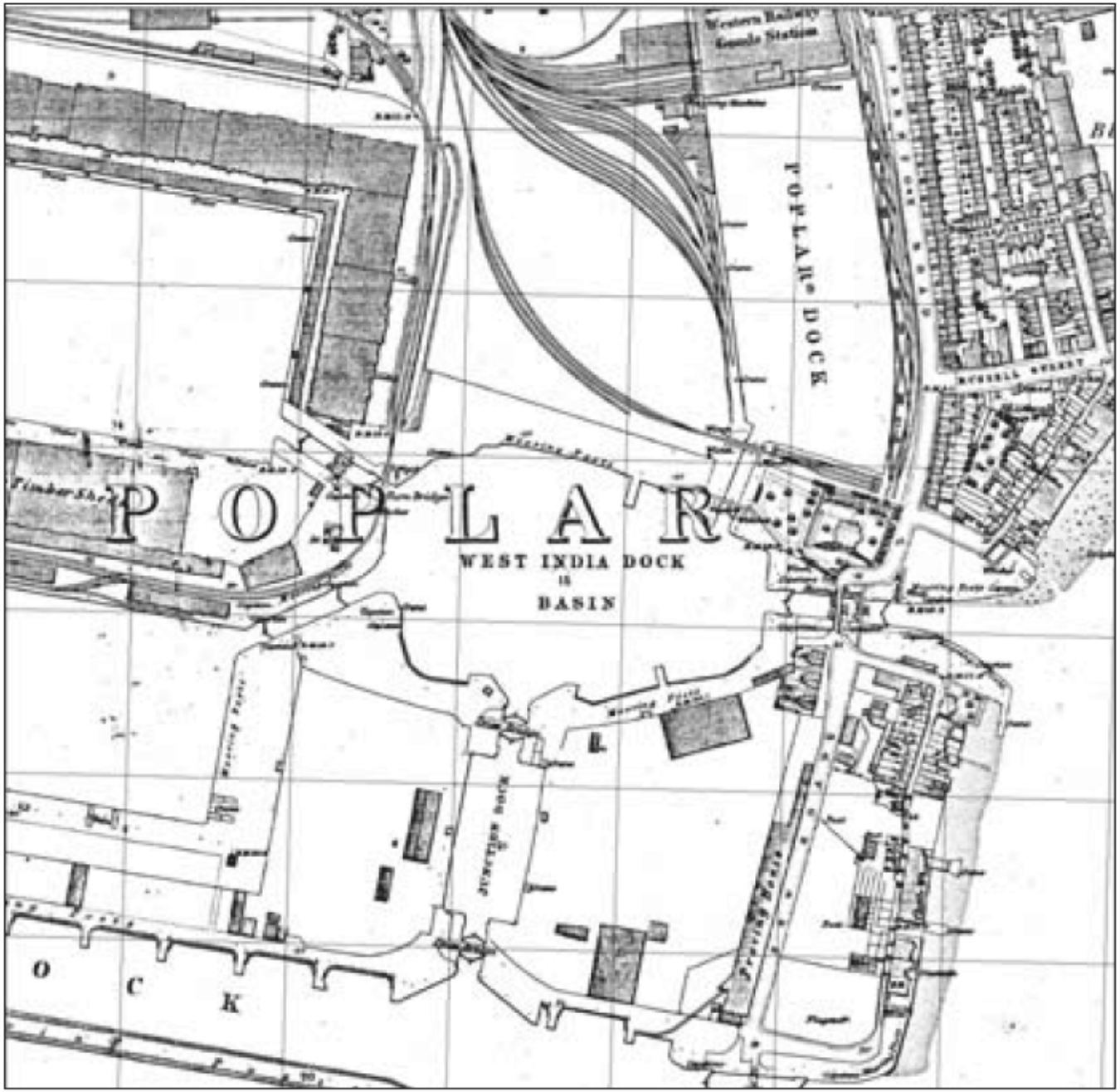
© Archaeology South-East		Dock Walls and Canal & River Trust Building, West India Docks	Fig. 4
Project Ref: 7525	May 2015	Canal & River Trust Building Digital Photo Locations (Sketch Plan - Not to Scale)	
Report Ref: 2015171	Drawn by: SP		

NEW DOCKS AND WAREHOUSES
ON THE EVE OF COMPLETION, 1802, ON THE ISLE OF DOGS, NEAR LIMEHOUSE.
By William Daniell.

© Archaeology South-East		Dock Walls and Canal & River Trust Building, West India Docks	Fig. 4
Project Ref: 7525	May 2015	Painting by William Daniell, 1802	
Report Ref: 2015171	Drawn by: SP		



© Archaeology South-East		Dock Walls and Canal & River Trust Building, West India Docks	Fig. 6
Project Ref: 7525	May 2015	Plan of the West India Docks, 1820	
Report Ref: 2015171	Drawn by: SP		



© Archaeology South-East		Dock Walls and Canal & River Trust Building, West India Docks	Fig. 7
Project Ref: 7525	May 2015	Plan of the West India Docks, 1852-3	
Report Ref: 2015171	Drawn by: SP		

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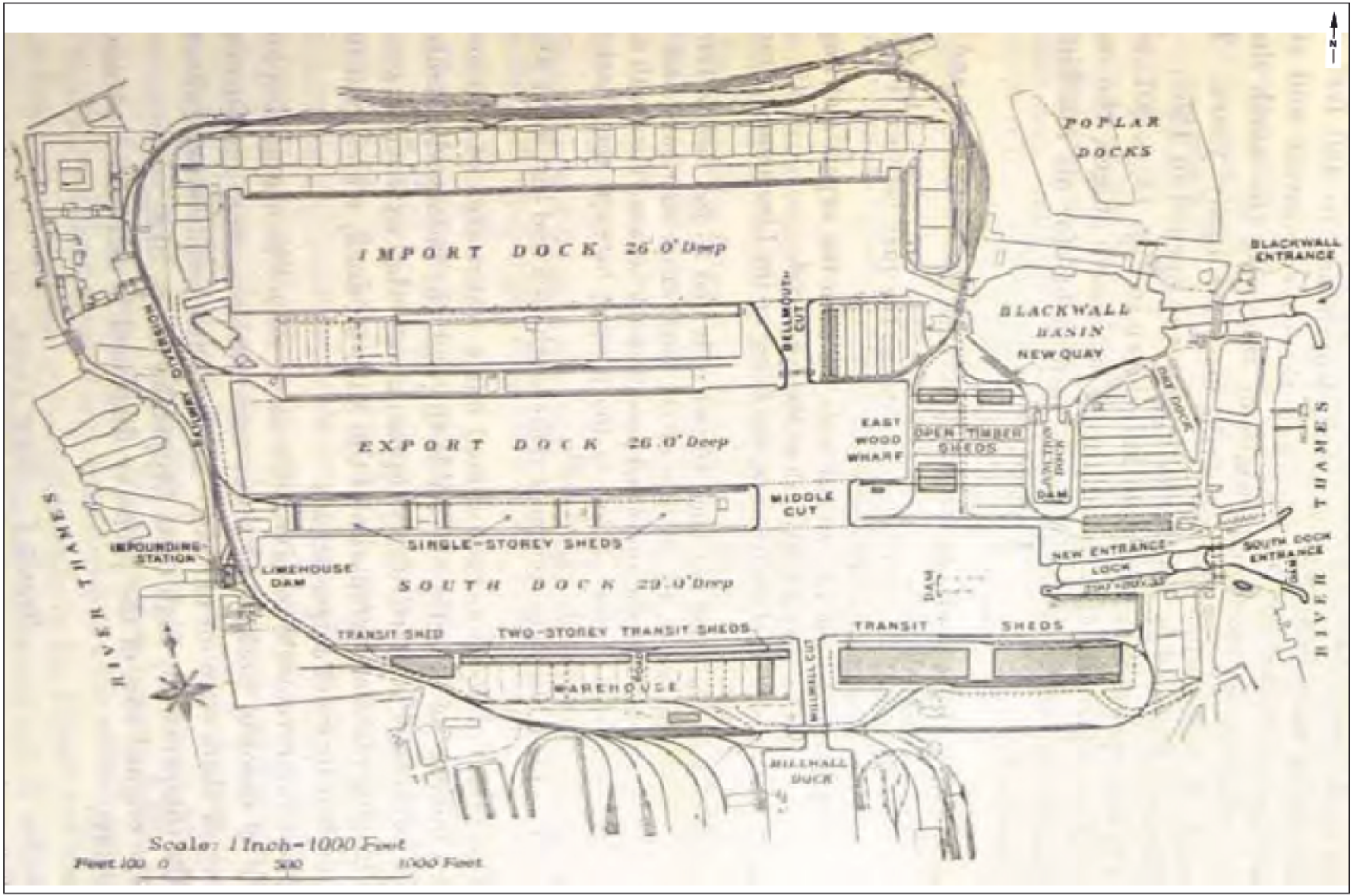
© Archaeology South-East		Dock Walls and Canal & River Trust Building, West India Docks	Fig. 8
Project Ref: 7525	May 2015	Ordnance Survey Map, 1896	
Report Ref: 2015171	Drawn by: SP		



© Archaeology South-East		Dock Walls and Canal & River Trust Building, West India Docks	Fig. 9
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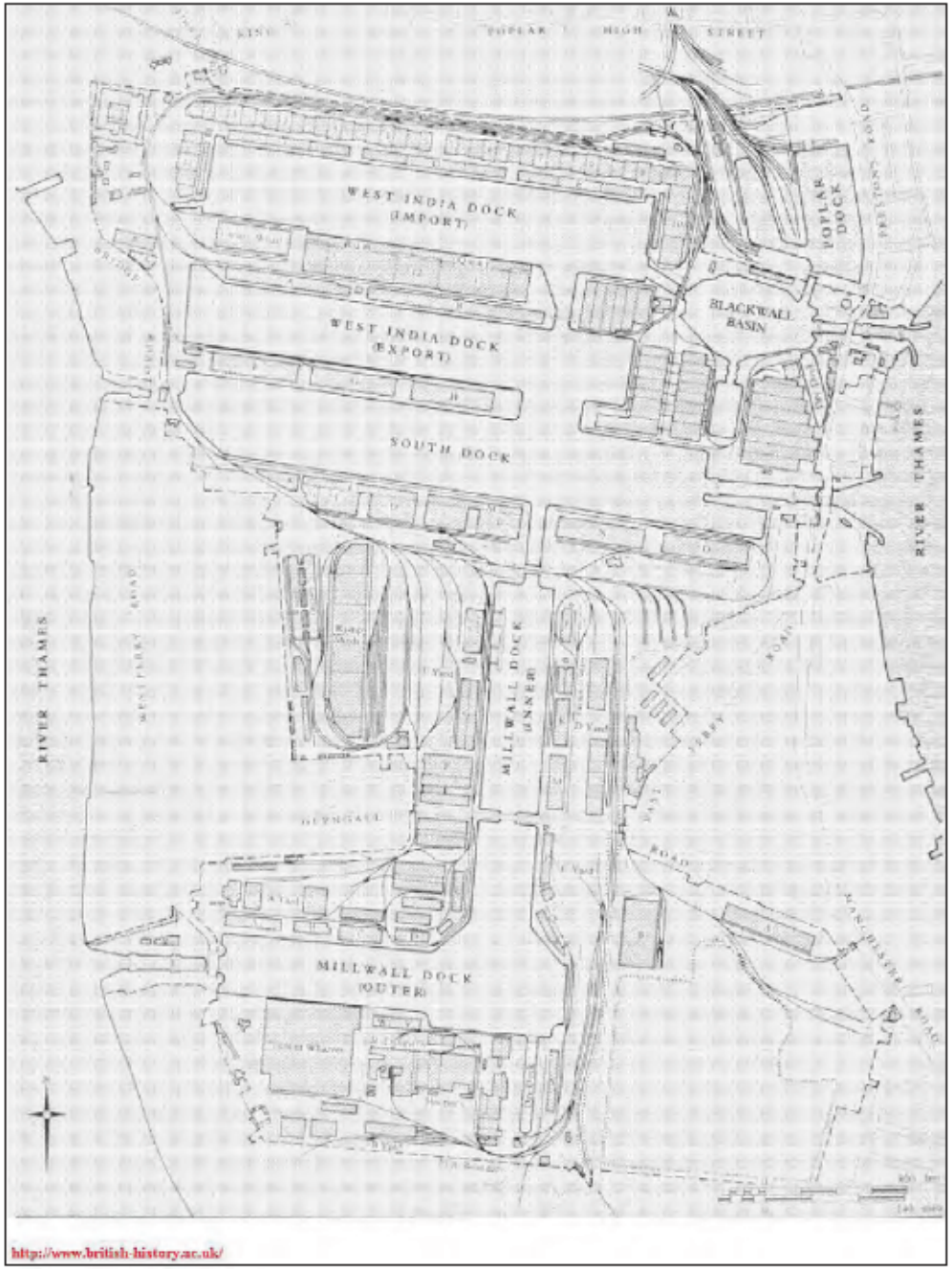
Report Ref: 2015171	Drawn by: SP		



© Archaeology South-East		Dock Walls and Canal & River Trust Building, West India Docks	Fig. 10
Project Ref: 7525	May 2015	Survey of London, Plan of West India Docks, 1938	
Report Ref: 2015171	Drawn by: SP		

© Archaeology South-East		Dock Walls and Canal & River Trust Building, West India Docks	Fig. 11
Project Ref: 7525	May 2015	Ordnance Survey Map, 1952	
Report Ref: 2015171	Drawn by: SP		

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© Archaeology South-East		Dock Walls and Canal & River Trust Building, West India Docks	Fig. 12
Project Ref: 7525	May 2015	Ordnance Survey Map, 1991	
Report Ref: 2015171	Drawn by: SP		

NEW DRY DOCK AT BLACKWALL.

In these days of large iron ships one of the most necessary appendages to a wet dock is a dry dock, in which ships may be examined externally and painted or repaired when necessary. With iron-built merchant vessels, dry docking is generally necessary after each voyage, and wet-dock companies, not having this accommodation are for the most part taking steps to secure it. The West India New Graving Dock, which was opened on Wednesday week, has been constructed by a private firm, Messrs. Johnson and Co., who purchased the land from the West India Dock Company. The graving dock is situated on the south side of the West India Dock basin at Blackwall. It is 450 ft. long over all, 80 ft. wide at the bottom, and 94 ft. wide at the top. It has an entrance 62 ft. 6 in. wide, finished with granite quoins, and having 23 ft. of water over the sill at Trinity high-water level. The entrance is closed by a wrought-iron caisson built in chambers, and which is ballasted with ordinary ballast, as well as with water. This caisson is floated out into the basin during the entrance of a vessel into the dock. This operation having been accomplished, the caisson is floated into position again, and effectually closes the entrance. The water in the dock is then run out, through a culvert at the head of the dock, and the vessel is shored up as she takes the ground. The culvert is 600 ft. long, of egg section, 5 ft. high. It is constructed of concrete with a blue-brick lining. The culvert opens into the Thames, and the dock is emptied at low tide. The dock is kept drained by means of pumps, which, however, are not yet in place. For undocking a vessel, sluiceways in the caisson are opened, and the water is admitted into the dock from the basin, and the ship is thus gradually floated, the caisson being removed from her exit. The dock walls are of concrete, with a facing of stock bricks, the altars being of York stone. The concrete in the walls is 13 ft. thick at the base, stepped off to 4 ft. at the top. The bottom of the dock is also of concrete 11 ft. thick, with a flooring of timber. The excavations were carried down through 16 ft. of mud and clay to the gravel and sand, which was found useful in making the concrete. The dock will accommodate two vessels at the same time—one of 420 ft. and the other of 380 ft. in length. This difference in length is necessitated by the shape of the dock in plan, one side of which is longer than the other, the head terminating in a diagonal line. This form was occasioned by a public road which crosses the head of the dock diagonally, and that line had to be followed in laying out the plan of the graving dock.

The opening ceremony was performed in the presence of the chairman of the West India Dock Company and other officials, and a number of ladies and gentlemen. Upon this occasion a fine vessel, the Edinburgh Castle, one of Messrs. Donald Currie's Cape Line ships, was docked amid the cheers of the assembled spectators. The Edinburgh Castle is 350 ft. long, with 38 ft. beam, and her docking was no easy matter, seeing that many of the minor details of the dock yet remain to be completed. It was, however, successfully accomplished, in the face of a stiff breeze.

The engineer to the new graving dock is Mr. D. Bayne, the contractors being Messrs. Merrill and Ashby. The cost of the dock was £70,000, and it will no doubt find ample employment from the vessels using the West India Docks. The firm of Messrs. Johnson and Co., who have constructed the dock, consists of Mr. Donald Johnson, Mr. Frank Gooch, and Mr. J. Denham Pender.

© Archaeology South-East		Dock Walls and Canal & River Trust Building, West India Docks	Fig. 13
Project Ref: 7525	May 2015	Newspaper Article, 16th March 1878	
Report Ref: 2015171	Drawn by: SP		

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7525-0024

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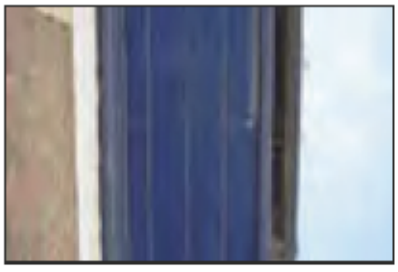

7525-0025

7525_West India Dock_Canal & River Trust Building_North Elevation_Soffit. Facing west

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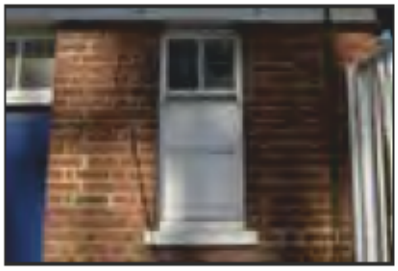


7525-0028

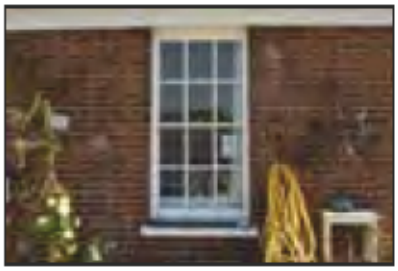
7525_West India Dock_Canal & River Trust Building_East Elevation_Sash Window. Facing west

7525-0029

7525_West India Dock_Canal & River Trust Building_South Elevation. Facing north-west

7525-0030

7525_West India Dock_Canal & River Trust Building_South Elevation. Facing north



7525-0031

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7525-0032

7525_West India Dock_Canal & River Trust Building_South Elevation. Facing north

7525-0033

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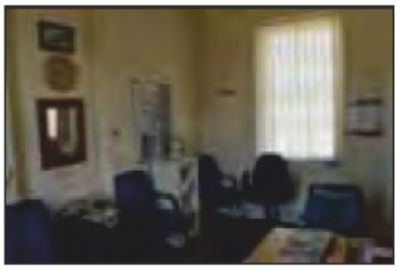
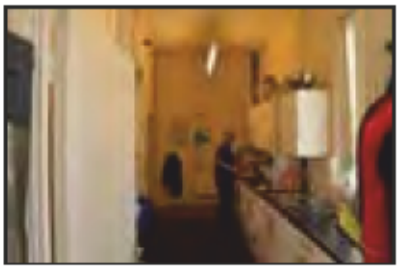


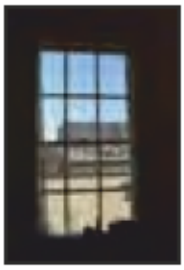
7525-0034

7525_West India Dock_Canal & River Trust Building_Recreational Room. Facing north-west



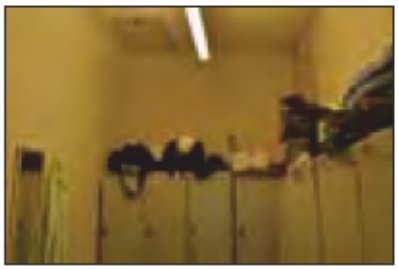
7525-0035

7525_West India Dock_Canal & River Trust Building_Kitchen. Facing east



7525-0036

7525_West India Dock_Canal & River Trust Building_Kitchen_Sash Window. Facing south

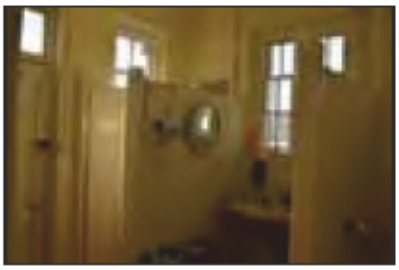


7525-0037

7525_West India Dock_Canal & River Trust Building_Locker Room. Facing west

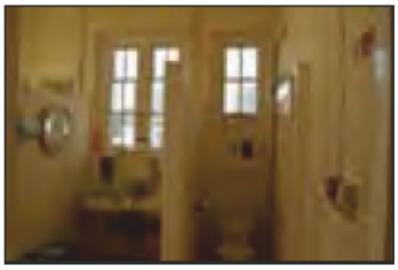
7525-0038

7525_West India Dock_Canal & River Trust Building_Shower Room. Facing east



7525-0039

7525_West India Dock_Canal & River Trust Building_Toilet. Facing south-east

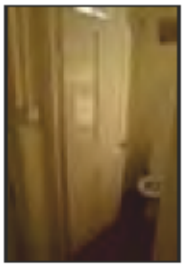


7525-0040

7525_West India Dock_Canal & River Trust Building_Toilet_Stall. Facing south

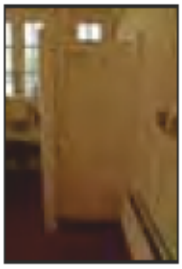
7525-0041

7525_West India Dock_Canal & River Trust Building_Toilet_Fire Exit. Facing east



7525-0042

7525_West India Dock_Canal & River Trust Building_Toilet_Stall. Facing south-east



7525-0043

7525_West India Dock_Canal & River Trust Building_Toilet_Stall. Facing south

7525-0044

7525_West India Dock_Canal & River Trust Building_Dockside. Facing south-east

7525-0045

7525_West India Dock_Canal & River Trust Building_Dockside. Facing south-east

7525-0046

7525_West India Dock_Canal & River Trust Building_Dockside. Facing south

7525-0047

7525_West India Dock_Canal & River Trust Building_Dockside. Facing south-west

7525-0048

7525_West India Dock_Canal & River Trust Building_Dockside. Facing west

7525-0049

7525_West India Dock_Canal & River Trust Building_South Elevation_Soffit. Facing north

7525-0050

7525_West India Dock_Canal & River Trust Building_South Elevation_Soffit and Fascia. Facing north-east

7525-0051

7525_West India Dock_Canal & River Trust Building_South Elevation_Foundation. Facing north

7525-0052

7525_West India Dock_Canal & River Trust Building_South Elevation_Chimney. Facing north

7525-0053

7525_West India Dock_Canal & River Trust Building_Room. Facing north-west

7525-0054

7525_West India Dock_Blackwall Basin_South Wall, East of Junction Dock. Facing east

7525-0055

7525_West India Dock_Blackwall Basin_South Wall. Facing east

7525-0056

7525_West India Dock_Blackwall Basin_South Wall. Facing south-east

7525-0057

7525_West India Dock_Blackwall Basin_South Wall. Facing south-east

7525-0058
7525_West India Dock_Blackwall Basin_T-head Mooring Bollard. Facing north-east

7525-0059
7525_West India Dock_Blackwall Basin_1926-9 Wall. Facing south-east

7525-0060
7525_West India Dock_Blackwall Basin_1926-9. Facing south-east

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7525_West India Dock_Blackwall Basin_1926-9. Facing west

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7525_West India Dock_Blackwall Basin_West Wall of the Basin. Facing north-west

7525-0063
7525_West India Dock_Blackwall Basin_Overview. Facing east

7525-0064
7525_West India Dock_Blackwall Basin_Overview. Facing east

7525-0065
7525_West India Dock_Blackwall Basin_Overview. Facing north-east

7525-0066
7525_West India Dock_Blackwall Basin_Exposed Rear of the Timber Revetment. Facing north-east

7525-0067
7525_West India Dock_Blackwall Basin_Exposed Rear of the Timber Revetment. Facing north-east

7525-0068
7525_West India Dock_Blackwall Basin_Overview. Facing north-east

7525-0069
7525_West India Dock_Blackwall Basin_Overview. Facing north

7525-0070
7525_West India Dock_Blackwall Basin_Overview. Facing north

7525-0071
7525_West India Dock_Blackwall Basin_Overview. Facing north-west

7525-0072
7525_West India Dock_Blackwall Basin_Overview. Facing west

7525-0073

7525_West India Dock_Blackwall Basin_1878 Wall Within Graving Dock. Facing south-west

7525-0074

7525_West India Dock_Blackwall Basin_1878 Wall within Graving Dock. Facing west

7525-0075

7525_West India Dock_Blackwall Basin_1878 Wall. Facing west

7525-0076

7525_West India Dock_Blackwall Basin_1878 Wall and Timber Reveted Wall. Facing south-west

7525-0077

7525_West India Dock_Blackwall Basin_1878 Wall and Timber Revetment Intersection. Facing south-west

7525-0078

7525_West India Dock_Blackwall Basin_1878 Wall and Timber Revetment Intersection. Facing south

7525-0079

7525_West India Dock_Blackwall Basin_Timber Revetment. Facing south

7525-0080

7525_West India Dock_Blackwall Basin_Timber Revetment. Facing south

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7525_West India Dock_Blackwall Basin_Overview. Facing south-west

7525-0082

7525_West India Dock_Blackwall Basin_Timber Revetment. Facing south-west

7525-0083

7525_West India Dock_Blackwall Basin_Timber Revetment. Facing south-west

7525-0084

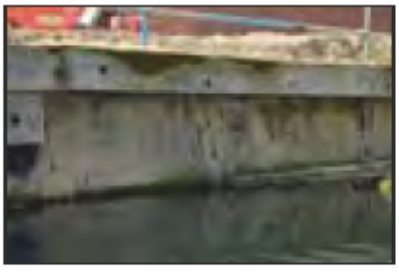
7525_West India Dock_Blackwall Basin_Timber Revetment. Facing south

7525-0085

7525_West India Dock_Blackwall Basin_Timber Revetment. Facing south

7525-0086

7525_West India Dock_Blackwall Basin_Timber Revetment. Facing south



7525-0087

7525_West India Dock_Blackwall Basin_Exposed Reinforced Concrete and Brackets. Facing south

7525-0088
7525_West India Dock_Blackwall Basin_Exposed Concrete. Facing south-east

7525-0089
7525_West India Dock_Blackwall Basin_Blue Brick Wall. Facing south-east

7525-0090
7525_West India Dock_Blackwall Basin_Concrete Wall and Blue Brick Wall. Facing south-east

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7525_West India Dock_Blackwall Basin_Concrete Wall, Blue Brick Wall, and Concrete Wall with Timber Facing. Facing east

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7525_West India Dock_Blackwall Basin_Mooring Bollard. Facing east

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7525_West India Dock_Blackwall Basin_Larssen Sheet Pile and 1926-9 Wall. Facing south

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7525_West India Dock_Blackwall Basin_Larssen Sheet Pile and 1926-9 Wall. Facing south-west

7525-0095
7525_West India Dock_Blackwall Basin_Larssen Sheet Pile. Facing east

7525-0096
7525_West India Dock_Blackwall Basin_1926-9 Wall. Facing west

7525-0097
7525_West India Dock_Blackwall Basin_1926-9 Wall. Facing west

7525-0098
7525_West India Dock_Blackwall Basin_1926-9 Wall. Facing south-west

7525-0099
7525_West India Dock_Blackwall Basin_1926-9 Wall. Facing south

7525-0100
7525_West India Dock_Blackwall Basin_1926-9 Wall. Facing south

7525-0101
7525_West India Dock_Blackwall Basin_1926-9 Wall. Facing south

7525-0102
7525_West India Dock_Blackwall Basin_1926-9 Wall. Facing south

7525-0103
7525_West India Dock_Blackwall Basin_1926-9 Wall. Facing west

7525-0104
7525_West India Dock_Blackwall Basin_1926-9 Wall. Facing west

7525-0105
7525_West India Dock_Blackwall Basin_Wall to the Lock between the Export Dock and Blacwall Basin. Facing west

7525-0106
7525_West India Dock_Blackwall Basin_1926-9 Wall. Facing south-east

7525-0107
7525_West India Dock_Blackwall Basin_Removed Mooring Bollards. Facing south

7525-0108
7525_West India Dock_Blackwall Basin_Removed Mooring Bollard. Facing south

7525-0109
7525_West India Dock_Export Dock_East Wall. Facing east

7525-0110
7525_West India Dock_Export Dock_East Wall. Facing south-east

7525-0111
7525_West India Dock_Export Dock_East Wall. Facing south

7525-0112
7525_West India Dock_Export Dock_East Wall. Facing south

7525-0113
7525_West India Dock_Export Dock_East Wall and South Wall. Facing south-east

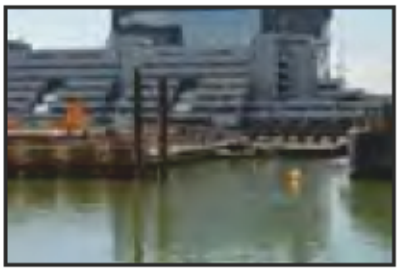
7525-0114
7525_West India Dock_Export Dock_South Wall. Facing south

7525-0115
7525_West India Dock_Export Dock_South Wall. Facing south

7525-0116
7525_West India Dock_Export Dock_South Wall. Facing south

7525-0117
7525_West India Dock_Export Dock_South Wall. Facing south-west

7525-0118
7525_West India Dock_Export Dock_Middle Cut. Facing south



7525-0119
7525_West India Dock_Export Dock_Middle Cut. Facing south

7525-0120
7525_West India Dock_Export Dock_East Wall. Facing east

7525-0121
7525_West India Dock_Export Dock_East Wall. Facing east

7525-0122
7525_West India Dock_Export Dock_East Wall. Facing east

7525-0123
7525_West India Dock_Export Dock_East Wall. Facing south-east

7525-0124
7525_West India Dock_Export Dock_East Wall. Facing north-east

7525-0125
7525_West India Dock_Blackwall Basin_Mooring Bollard. Facing north

7525-0126
7525_West India Dock_Blackwall Basin_Mooring Bollard. Facing north

7525-0127
7525_West India Dock_Blackwall Basin_Mooring Bollard. Facing north

7525-0128
7525_West India Dock_Blackwall Basin_Mooring Bollard. Facing south-west

7525-0129
7525_West India Dock_Blackwall Basin_Overview. Facing south-east

7525-0130
7525_West India Dock_Blackwall Basin_Overview. Facing south-east

7525-0131
7525_West India Dock_Blackwall Basin_Overview. Facing south-east

7525-0132
7525_West India Dock_Blackwall Basin_Overview. Facing south

7525-0133
7525_West India Dock_Export Dock_East Wall. Facing east

7525-0134
7525_West India Dock_Export Dock_East Wall. Facing east

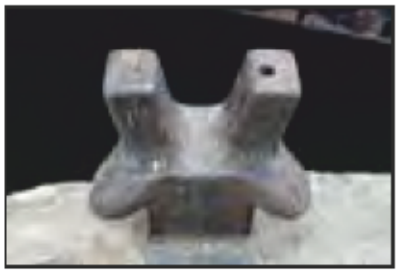
7525-0135
7525_West India Dock_Export Dock_Middle Cut. Facing east

7525-0136
7525_West India Dock_Export Dock_Middle Cut. Facing east

7525-0137
7525_West India Dock_Export Dock_Middle Cut. Facing east

7525-0138
7525_West India Dock_Export Dock_Middle Cut. Facing north-east

7525-0139
7525_West India Dock_South Dock_North Wall and Ongoing Construction. Facing east



7525-0140
7525_West India Dock_South Dock_North Wall_Staghorn Mooring Bollard. Facing south

7525-0141
7525_West India Dock_South Dock_North Wall. Facing west

7525-0142
7525_West India Dock_South Dock_North Wall. Facing west

7525-0143
7525_West India Dock_South Dock_North Wall Covered During Development. Facing north-east

7525-0144
7525_West India Dock_South Dock_North Wall. Facing west

7525-0145
7525_West India Dock_South Dock_East Wall_North of Lock. Facing east

7525-0146
7525_West India Dock_South Dock_North Wall_Staghorn Mooring Bollard. Facing south-east

7525-0147
7525_West India Dock_South Dock_North Wall_Staghorn and Single Bit Mooring Bollards. Facing north

7525-0148
7525_West India Dock_South Dock_North Wall_Note Concrete Parged Coping atop Large Aggregate Concrete Wall Material. Facing north-west

7525-0149
7525_West India Dock_South Dock_North Wall_Exposed Granite Coping in North East Corner of the South Dock. Facing north

7525-0150
7525_West India Dock_South Dock_North Wall_Exposed Granite Coping in North East Corner of the South Dock. Facing north

7525-0151
7525_West India Dock_South Dock_North Wall. Facing west

7525-0152
7525_West India Dock_South Dock_East Wall_Ladder set in Aggregate Concrete Below Granite Coping. Facing east

7525-0153
7525_West India Dock_South Dock_East Wall. Facing south

7525-0154
7525_West India Dock_South Dock_East Wall. Facing south

7525-0155
7525_West India Dock_South Dock_East Wall. Facing south

7525-0156
7525_West India Dock_South Dock_North Wall. Facing west

Appendix 2: OASIS Data Collection Form

OASIS ID: archaeol6-211526

Project details

Project name	DOCK WALLS AND CANAL and RIVER TRUST BUILDING WOOD WHARF, WEST INDIA DOCK, LONDON BOROUGH OF TOWER HAMLETS HISTORIC BUILD
Short description of the project	In May 2015 Archaeology South-East (a division of the Centre for Applied Archaeology, UCL) carried out a programme of historic building recording of the Dock Walls and Canal and River Trust Building, Wood Wharf, West India Dock, London Borough of Tower Hamlets (NGR 538036 180093). The work was commissioned by Montagu Evans LLP on behalf of CWG (Wood Wharf Two) Limited in advance of the redevelopment of the Wood Wharf, including the demolition of the Canal and River Trust Building and sections of the Dock Walls. The site is located on the Isle of Dogs to the south of Blackwall Basin and to the west of Preston's Road. On its southern side it is bound by South Dock and its entrance lock and to the west by the East Quay of the Export Dock and the Middle Cut between the Export Dock and the South Dock, beyond which lies Canary Wharf and West India Docks. It is currently used as a business park and contains modern warehouse and office buildings; the south side of Blackwall Basin is understood to lie derelict. The structures surveyed form a part of an evolved historic landscape with major significance to the development of London as a major centre of world trade, invariably tied to British dominance and trade in the West Indies, and as a world power.
Project dates	Start: 30-04-2015 End: 30-05-2015
Previous/future work	Yes / Yes
Any associated project reference codes	PA/15/00343 - Planning Application No.
Any associated project reference codes	PA/13/02966 - Planning Application No.
Any associated project reference codes	PA/13/02967 - Planning Application No.
Any associated project reference codes	WUW15 - Sitecode
Any associated project reference	7525 - Contracting Unit No.

codes

Type of project	Building Recording
Site status	Conservation Area
Site status	Listed Building
Current Land use	Vacant Land 3 - Despoiled land (contaminated derelict and ?brownfield? sites)
Current Land use	Industry and Commerce 4 - Storage and warehousing
Monument type	DRY DOCK Post Medieval
Monument type	DOCK BASIN Post Medieval
Monument type	DOCK Post Medieval
Monument type	DOCK HOUSE Modern
Significant Finds	NONE None
Methods & techniques	"Photographic Survey","Survey/Recording Of Fabric/Structure"
Prompt	Planning condition

Project location

Country	England
Site location	GREATER LONDON TOWER HAMLETS TOWER HAMLETS WOOD WHARF
Postcode	E14 9SB
Study area	7.20 Hectares
Site coordinates	TQ 38100 80117 51.5025913592 -0.0100566975372 51 30 09 N 000 00 36 W Point
Lat/Long Datum	Unknown

Project creators

Name of	Archaeology South-East

Organisation	
Project brief originator	Montagu Evans LLP
Project design originator	Montagu Evans LLP
Project director/manager	Amy Williamson
Project supervisor	Seth Price

Project archives

Physical Archive Exists?	No
Digital Archive recipient	LAARC
Digital Archive ID	WUW15
Digital Contents	"none"
Digital Media available	"Images raster / digital photography"
Paper Archive recipient	LAARC
Paper Archive ID	WUW15
Paper Contents	"none"
Paper Media available	"Drawing","Photograph","Report"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	DOCK WALLS AND CANAL and RIVER TRUST BUILDING WOOD WHARF, WEST INDIA DOCK, LONDON BOROUGH OF TOWER HAMLETS HISTORIC BUILDING RECORD (ENGLISH HERITAGE ENHANCED LEVEL 2)

Author(s)/Editor(s)	Seth Price
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Entered on	19 May 2015

ABWOOD MARINE LIMITED
Dock Office: 1, Onega Gate Surrey Quays, London SE16 7PF Tel 0845 230 2860

ARUP

520 – ARUP - WOOD WHARF – DOCK SURVEY

ARUP

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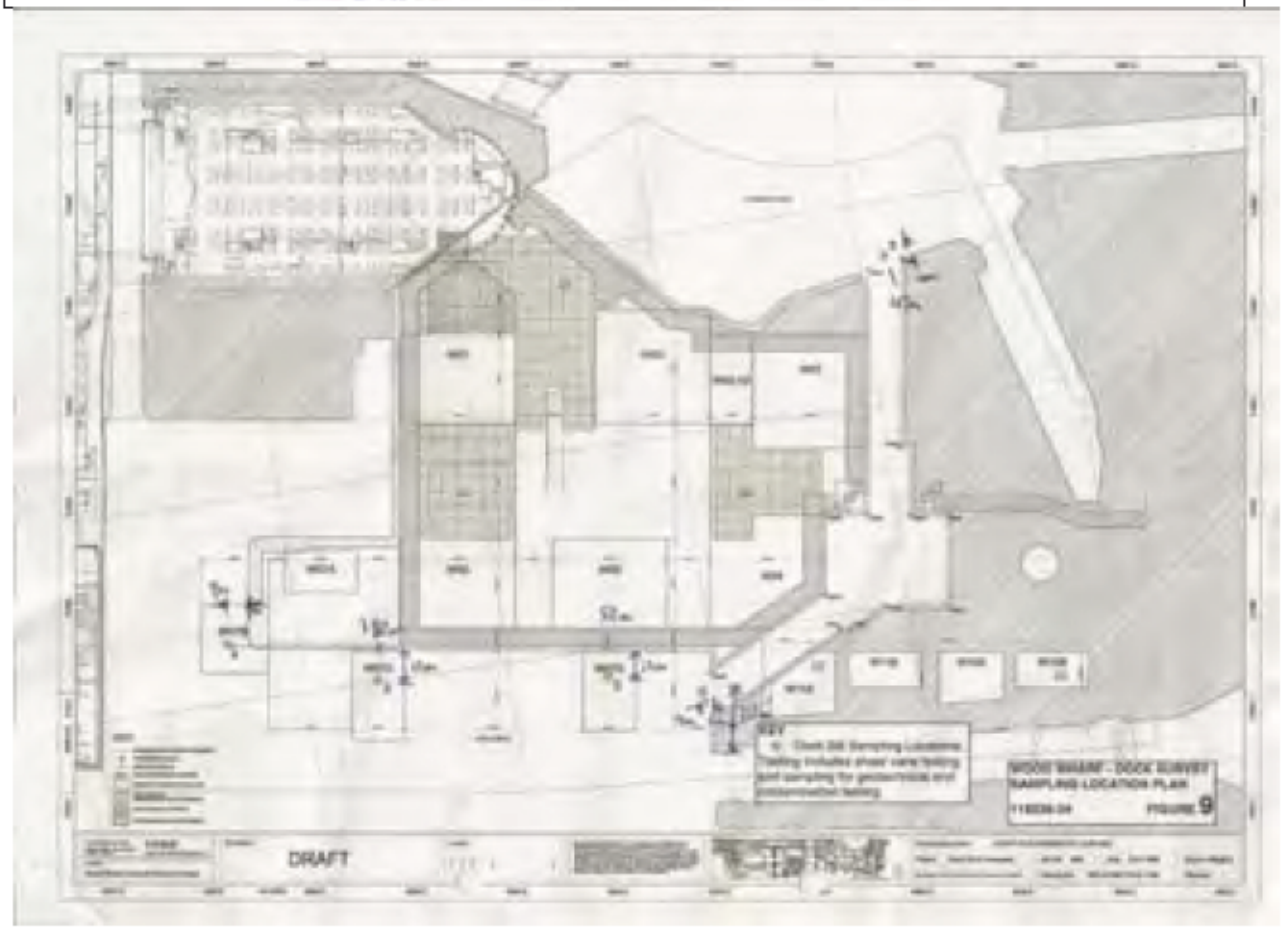


ARUP

1. Introduction

Abwood Marine Ltd. were commissioned by ARUP to undertake dock wall surveys of Wood Wharf, Blackwall Basin and Graving Dock.
The works were undertaken over a four week period commencing on the 9th July 2007.
This survey report details the services performed and accomplished results.

2. Survey Scope

Inspection survey is required to determine the general condition of the existing dock walls and dock bed. Diving is required to conduct a below water inspection to provide the full extent, type and condition of the walls.
The survey scope includes the following items:

a. Dock Wall General Survey.
b. Dock Wall Detailed Surveys.
c. Dock Bed Bathymetric Survey
d. Dock Bed Survey

3. Services Performed

The survey commenced on Monday 9th July 2007 utilising a five-man team.

a. Dock Wall General Survey
   - Visual and tactile 100% coverage survey of the full length of the wall.
   - Noting All general details, materials, construction, description, detail survey locations, any damage cracks, distortion, abnormalities and any other defects.
   - Full Video Survey of area inspected.
   - General description and defect locations on a scale drawing, size and location of cracks, wall construction materials, general description of condition of joints and pointing, other detail necessary to fully describe the current condition of the wall below water.
   - Visual survey of the dock bed within 2 metres of the dock wall, noting general profile, composition, debris and slope toward centre of dock.
   - Ultrasonic thickness measurements to be taken on sheet piled wall sections. On in pan, out pan and web, just below water level, mid water and at bed level at 15 metre intervals along the wall.

b. Dock Wall Detailed Surveys
   - To be conducted at changes of wall type and selected areas at 50 metre intervals.
   - Dock wall profiles.
   - Detailed measurements and sketches.
   - Photographic profile of the wall, depending on available visibility.
   - Dock silt surface levels and thickness to be carried out at Dock wall toe and offsets of 2.0m, 4.0m and 6.0m

c. Dock Bed Bathymetric Survey
   - The dive team will also probe the dock floor to correlate the bathymetric survey, carried out by the Port of London Authority.
     1. The probing survey will be carried out in 29 locations over the survey area on approximately a 50m x 50m grid.
     2. Diver to probe dock bed to access dock silt thickness. Also taking a Pnuemo (depth) reading at each location, noting type of bed, debris and ease of probe down to refusal.

d. Dock Bed Survey
   - Dive team to investigate 9 obstructions over the survey area, picked up by the Bathymetric survey and identified by the ARUP engineer as potential problems which may effect sheet piling within the dock.
     1. Obstructions to be measured, photographed (visibility permitting) and inspected to confirm their location, size, material type and likely origin.
     2. Obstructions not to be excavated, but probing through the silt may be appropriate to determine the likely size of the debris.
   - Silt Shear vane readings and silt samples to be taken at 5 locations over the survey area. Designated by the ARUP engineer.
     1. At least two Shear vane readings to be taken at each location. Noting bed type and taking pnuemo (depth) reading at bed level. Each reading will be taken at 3 depths into the silt bed. 80mm, 600mm and 1200mm (if possible to probe down to all depths).
     2. At least 7 silt samples will be taken from each of the 5 locations. These will be taken at bed level, 0.25m and 0.50m, as directed by the chemist who will be onsite to assist. Care is to be taken to ensure there is no cross contamination between samples and no chemically contaminated silt is sampled.

4. Report Summary

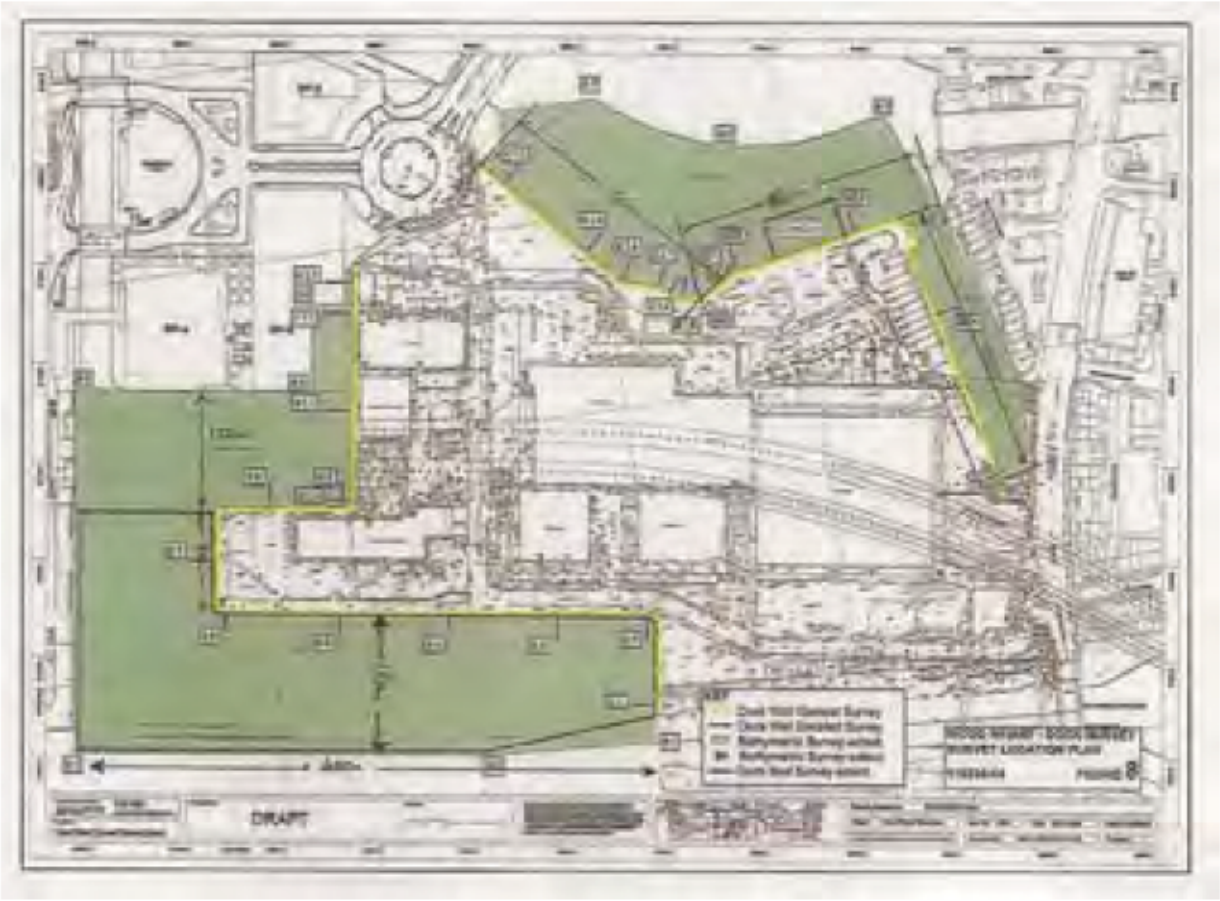
Overview of Detail Surveys & Dock Wall Features

Section	PLA (m)	Diver (m)	Description
Graving Dock 1	0	0	*Corner at Graving Dock and Blackwall Basin*
Graving Dock 1	**50**	**50**	***Detail 1***
Graving Dock 1	**100**	**100**	***Detail 2***
Graving Dock 1	144	144	*Section End*
Blackwall Basin 1	90	0	*Corner at Graving Dock and Blackwall Basin*
Blackwall Basin 1	**82**	**8**	***Detail 3, Change from Brick to Timber***
Blackwall Basin 1	**50**	**40**	***Detail 4***
Blackwall Basin 1	**4**	**86**	***Detail 5, Change in Timber wall direction***
Blackwall Basin 1	0	90	*Section End*
Blackwall Basin 2	70	90	*Corner in Blackwall Basin*
Blackwall Basin 2	**65**	**95**	***Detail 6, Change from Timber to Conc. Cope***
Blackwall Basin 2	**54**	**106**	***Detail 7, Change from Timber to Brickwork***
Blackwall Basin 2	**17.5**	**142.5**	***Detail 8,Change from Brickwork to Larson Piles.***
Blackwall Basin 2	0	160	*Section End*
Blackwall Basin 3	**94**	**160**	***Detail 9, Change from Larson to Sheet Piles***
Blackwall Basin 3	**51**	**203**	***Detail 10, Defect in Sheet Pile wall.***
Blackwall Basin 3	**20**	**234**	***Detail 11***
Blackwall Basin 3	0	254	*Section End*
Wood Wharf 1	120	-2	*Corner next to BP3*
Wood Wharf 1	**105**	**15**	***Detail 12, Change from Sheet Piles to Brickwork.***
Wood Wharf 1	**40**	**80**	***Detail 13***
Wood Wharf 1	0	118	*Section End*
Wood Wharf 2	70	118	*Corner at North East of Wine Quay (Bridge Barge)*
Wood Wharf 2	**40**	**150**	***Detail 14***
Wood Wharf 2	**15**	**173**	***Detail 15, Defect in Wall***
Wood Wharf 2	**8**	**180**	***Detail 16, Change from Brickwork to Conc.***
Wood Wharf 2	0	188	*Section End*
Wood Wharf 3	54	188	*Corner at North West of Wine Quay (Conc. Barge)*
Wood Wharf 3	**45.5**	**196.5**	***Detail 17, Defect/Crack.***
Wood Wharf 3	**10**	**232**	***Detail 18, Defect/Crack.***
Wood Wharf 3	0	242	*Section End*
Wood Wharf 4	226	242	*Corner at South West of Wine Quay (Conc. Barge)*
Wood Wharf 4	**221**	**247**	***Detail 19, Change from Concrete to Brick.***
Wood Wharf 4	**160**	**308**	***Detail 20***
Wood Wharf 4	**121 - 117**	**347 - 351**	***Detail 21, Change from Brick to Concrete.***
Wood Wharf 4	**20**	**448**	***Detail 22***
Wood Wharf 4	0	468	*Section End*
Wood Wharf 5	52	468	*Corner at South East of Wine Quay and Abwood Yard*
Wood Wharf 5	**30**	**490**	***Detail 23***
Wood Wharf 5	0	520	*Corner of Abwood Yard and West India Dock Entrance*

5. Abwood Marine Ltd. Dive Team

Drew Allan	Supervisor
James Jones	Deputy Supervisor
Mark Griffiths	Diver
Ben Walker	Diver
Andrew Fenn	Diver
Zach Hills	Diver
Werner Labuschagne	Diver
Marina Cintra	Diver

6. Survey Area Plan



ARUP

7. Detailed Surveys

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 01

Dock Wall Geographic Location: Graving Dock
Inspection Date: 24/07/2007
Chainage Reference Point: Graving Dock, Just Past Bridge
Chainage: 100 metres.

Detail Drawing Ref.:	**27**	**General Drawing Ref.:**	**11**
Related Photographs:	**DS01 (1-10)**	**DVD REF:**	**28**

Cope Details
Height: 700 mm. **Depth:** 270 mm. **Material:** Concete Face, Brick & Blockwork
Cope to Water Level Distance: 1.1 metres.
Cope to Dock Bottom: 7.7 metres.

Wall Details
Marine Growth Type: Light Algae **Thickness:** 20-50 mm.
Wall Material: Brickwork
Av. Block Size Height: 60 mm. **Width:** 220 mm.
Joints **Width:** 10 mm. **Penetration:** 10 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	1690	mm.	**Other Observations**
1 metre:	1270	mm.	Blockwork Step - Light Green Algae & Weed
2 metre:	740	mm.	Blockwork Step - 100%-20mm Green & 30% White Algae
3 metre:	220	mm.	Brickwork - & Some Mussels.
4 metre:	205	mm.	Brickwork - 100% Green Face Algae to Bed Level.
5 metre:	199	mm.	Brickwork
6 metre:	180	mm.	Brickwork - 100mm dia Horizontal Steel Pipe (6.5m)
7 metre:	140	mm.	Brickwork
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Heavy Black **Sample:** **Debris:** Mussels, Steel, Agg.
Silt Probing, Type of Probe: Staff **Probe to Refusal:** Concrete Bed
Length of Probe: 1 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 260 mm	5.8 metres	Soft Silt to Concrete Bed
Probe at 2 metre: 200 mm	5.9 metres	Soft Silt to Concrete Bed
Probe at 4 metre: 100 mm	6.0 metres	Soft Silt to Concrete Bed
Probe at 6 metre: 230 mm	5.8 metres	Soft Silt to Concrete Bed

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 02

Dock Wall Geographic Location: Graving Dock
Inspection Date: 24/07/2007
Chainage Reference Point: Graving Dock, Halfway between Bridge and Pontoon
Chainage: 50 metres.

Detail Drawing Ref.:	**27**	**General Drawing Ref.:**	**10**
Related Photographs:	**DS02 (1-17)**	**DVD REF:**	**29**

Cope Details
Height: 700 mm. **Depth:** 270 mm. **Material:** Concrete Face & Blockwork
Cope to Water Level Distance: 1.1 metres.
Cope to Dock Bottom: 8.2 metres.

Wall Details
Marine Growth Type: Light Algae **Thickness:** 20 - 50 mm.
Wall Material: Brick
Av. Block Size Height: 60 mm. **Width:** 220 mm.
Joints **Width:** 10 mm. **Penetration:** 10 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	1950	mm.	**Other Observations**
1 metre:	1850	mm.	Blockwork Step - 70%-20-40mm Light Algae & Weed
2 metre:	755	mm.	Blockwork Step - 70%-20mm Algae & 15% White Algae
3 metre:	430	mm.	Brickwork - 30% Mussels & 75% White Sponge Algae
4 metre:	370	mm.	Brickwork - 100% Green Face Algae to bed level.
5 metre:	300	mm.	Brickwork
6 metre:	240	mm.	Brickwork
7 metre:	160	mm.	Brickwork - 100mm dia Horizontal Steel Pipe (7.0m)
8 metre:	110	mm.	Brickwork
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Heavy Black **Sample:** **Debris:** Mussels, Steel, Agg
Silt Probing, Type of Probe: Staff **Probe to Refusal:** Concrete Bed
Length of Probe: 1 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 260 mm	6.2 metres	Soft Silt to Concrete Bed
Probe at 2 metre: 200 mm	6.2 metres	Soft Silt to Concrete Bed
Probe at 4 metre: 200 mm	6.2 metres	Soft Silt to Concrete Bed
Probe at 6 metre: 250 mm	6.2 metres	Soft Silt to Concrete Bed

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 03a

Dock Wall Geographic Location: Blackwall Basin Section 1
Inspection Date: 24/07/2007
Chainage Reference Point: Blackwall Basin, Change from Brick to Timber
Chainage: 82 metres.

Detail Drawing Ref.:	**28**	**General Drawing Ref.:**	**03**
Related Photographs:	**DS03 (1-35)**	**DVD REF:**	**29**

Cope Details
Height: 450 mm. **Depth:** N/a mm. **Material:** Concrete
Cope to Water Level Distance: 1.1 metres.
Cope to Dock Bottom: 7.25 metres.

Wall Details
Marine Growth Type: 100% Green Weed & White Sponge Algae **Thickness:** 25 mm.
Wall Material: Brickwork
Av. Block Size Height: 80 mm. **Width:** 200 mm.
Joints **Width:** 10 mm. **Penetration:** 20 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	720	mm.	**Other Observations**
1 metre:	710	mm.	Brickwork - 100%-25mm Green Weed Algae.
2 metre:	740	mm.	Brickwork - 100%-25mm Green/White Algae.
3 metre:	740	mm.	Brickwork
4 metre:	650	mm.	Brickwork - 60%-25mm Green MG & 5%-Mussels
5 metre:	590	mm.	Brickwork
6 metre:	580	mm.	Brickwork - 20%-Soft MG & 5%-Mussels
7 metre:	500	mm.	Brickwork - 10%-Soft MG. 400mm Diag Crack 10mm wdt
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Light **Sample:** **Debris:** Mussels and Construction Debris
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 100 mm	5.0 metres	Solid Material (Readings from 3b)
Probe at 2 metre: 0 mm	5.8 metres	Solid Material (Readings from 3b)
Probe at 4 metre: 100 mm	6.1 metres	Solid Material (Readings from 3b)
Probe at 6 metre: 600 mm	6.3 metres	Solid Material (Readings from 3b)

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 03b

Dock Wall Geographic Location: Blackwall Basin Section 1
Inspection Date: 24/07/2007
Chainage Reference Point: Blackwall Basin, Change from Brick to Timber
Chainage: 82 metres.

Detail Drawing Ref.:	**28**	**General Drawing Ref.:**	**03**
Related Photographs:	**DS03 (1-35)**	**DVD REF:**	**29**

Cope Details
Height: 350 mm. **Depth:** 350 mm. **Material:** Timber
Cope to Water Level Distance: 1.1 metres.
Cope to Dock Bottom: 6.51 metres.

Wall Details
Marine Growth Type: Soft/Light **Thickness:** 30 mm.
Wall Material: Timber Cladding
Av. Block Size Height: Dpth - 150 mm. **Width:** 350 mm.
Joints **Width:** 10-15 mm. **Penetration:** 420 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	620	mm.	**Other Observations**
1 metre:	940	mm.	Timber Cladding
2 metre:	620	mm.	300mm Timber Horizontal
3 metre:	1000	mm.	Timber Cladding
4 metre:	1030	mm.	Timber Cladding
5 metre:	1040	mm.	Timber Cladding
6 metre:	1070	mm.	Timber Cladding
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Light **Sample:** **Debris:** Hard Aggregate
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 100 mm	5.0 metres	Solid Material
Probe at 2 metre: 0 mm	5.8 metres	Solid Material
Probe at 4 metre: 100 mm	6.1 metres	Solid Material
Probe at 6 metre: 600 mm	6.3 metres	Solid Material

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 04

Dock Wall Geographic Location: Blackwall Basin Section 1
Inspection Date: 24/07/2007
Chainage Reference Point: Blackwall Basin
Chainage: 50 metres.

Detail Drawing Ref.:	**29**	**General Drawing Ref.:**	**02**
Related Photographs:	**DS04 (1-23)**	**DVD REF:**	**30**

Cope Details
Height: 350 mm. **Depth:** 350 mm. **Material:** Timber
Cope to Water Level Distance: 1.1 metres.
Cope to Dock Bottom: 5.32 metres.

Wall Details
Marine Growth Type: Soft Algae **Thickness:** 20 mm.
Wall Material: Timber Cladding
Av. Block Size Height: N/a mm. **Width:** 300 mm.
Joints **Width:** 20 mm. **Penetration:** 0 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	100	mm.	**Other Observations**
1 metre:	400	mm.	Timber Cladding
2 metre:	40	mm.	350mm Horizontal Timber
3 metre:	400	mm.	Timber Cladding
4 metre:	410	mm.	Timber Cladding
5 metre:	400	mm.	Timber Cladding
6 metre:		mm.	
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Light **Sample:** **Debris:** Steel & Rubble
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid Material
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre:	0 mm	4.7 metres	Solid Material
Probe at 2 metre:	200 mm	4.9 metres	Solid Material
Probe at 4 metre:	1200 mm	5.3 metres	Solid Material
Probe at 6 metre:	1600 mm	5.6 metres	Solid Material

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 05a

Dock Wall Geographic Location: Blackwall Basin Section 1 (Straight Timber Wall)
Inspection Date: 26/07/2007
Chainage Reference Point: Blackwall Basin, Change in Timber Wall Direction
Chainage: 4.5 metres.

Detail Drawing Ref.:	**30/31/32**	**General Drawing Ref.:**	**N/a**
Related Photographs:	**DS05a (1-63)**	**DVD REF:**	**31**

Cope Details
Height: 350 mm. **Depth:** 350 mm. **Material:** Timber
Cope to Water Level Distance: 0.9 metres.
Cope to Dock Bottom: 5.0 metres.

Wall Details
Marine Growth Type: White Sponge, Mussels & Green Weed Algae **Thickness:** 25 mm.
Wall Material: Timber
Av. Block Size Height: N/a mm. **Width:** 300 mm.
Joints **Width:** 0 mm. **Penetration:** 0 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	230	mm.	**Other Observations**
1 metre:	560	mm.	Timber Cladding
2 metre:	175	mm.	350mm Timber whaling
3 metre:	480	mm.	Timber Cladding
4 metre:	420	mm.	Timber Cladding
5 metre:	370	mm.	Timber Cladding
6 metre:		mm.	
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Soft Grey **Sample:** **Debris:** Aggregate & Rubble
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Easily down to Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 600 mm	3.1 metres	Easily down to Solid Debris (Readings from 5b)
Probe at 2 metre: 250 mm	4.7 metres	Easily down to Solid Debris (Readings from 5b)
Probe at 4 metre: 1800 mm	5.3 metres	Easily down to Solid Debris (Readings from 5b)
Probe at 6 metre: 2200 mm	5.4 metres	Easily down to Stiff Clay (Readings from 5b)

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 05b

Dock Wall Geographic Location: Blackwall Basin Section 1 (Recessed Corner)
Inspection Date: 26/07/2007
Chainage Reference Point: Blackwall Basin, Change in Timber Wall Direction
Chainage: 4 metres.

Detail Drawing Ref.:	**30/31/32**	**General Drawing Ref.:**	**N/a**
Related Photographs:	**DS05b (1-14)**	**DVD REF:**	**31**

Cope Details
Height: 350 mm. **Depth:** 350 mm. **Material:** Timber
Cope to Water Level Distance: 0.9 metres.
Cope to Dock Bottom: 5.08 metres.

Wall Details
Marine Growth Type: White Sponge, Green Weed Algae & Mussels **Thickness:** 25 mm.
Wall Material: Timber
Av. Block Size Height: N/a mm. **Width:** 300 mm.
Joints **Width:** 0 mm. **Penetration:** 0 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	620	mm.	**Other Observations**
1 metre:	620	mm.	Profile of Gap between Straight & Angled Wall
2 metre:	510	mm.	
3 metre:	520	mm.	
4 metre:	560	mm.	
5 metre:		mm.	
6 metre:		mm.	
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Soft Grey **Sample:** **Debris:** Aggregate & Rubble
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Easily down to Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 600 mm	3.1 metres	Easily down to Solid Debris
Probe at 2 metre: 250 mm	4.7 metres	Easily down to Solid Debris
Probe at 4 metre: 1800 mm	5.3 metres	Easily down to Solid Debris
Probe at 6 metre: 2200 mm	5.4 metres	Easily down to Stiff Clay

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 05c

Dock Wall Geographic Location: Blackwall Basin Section 1 (Angled Wall)
Inspection Date: 26/07/2007
Chainage Reference Point: Blackwall Basin, Change in Timber Wall Direction
Chainage: 3.5 metres.

Detail Drawing Ref.:	**30/31/32**	**General Drawing Ref.:**	**N/a**
Related Photographs:	**DS05c (1-15)**	**DVD REF:**	**31**

Cope Details
Height: 350 mm. **Depth:** 350 mm. **Material:** Timber
Cope to Water Level Distance: 0.9 metres.
Cope to Dock Bottom: 5.2 metres.

Wall Details
Marine Growth Type: 20% Light Green Weed Algae & 40% White Sponge **Thickness:** 25 mm.
Wall Material: Timber
Av. Block Size Height: N/a mm. **Width:** 300 mm.
Joints **Width:** 70 mm. **Penetration:** 400 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	350	mm.	**Other Observations**
1 metre:	355	mm.	310mm Horizontal Timber
2 metre:	350	mm.	250mm Diagonal Timber
3 metre:	490	mm.	Timber Cladding
4 metre:	440	mm.	Timber Cladding
5 metre:	390	mm.	Timber Cladding
6 metre:		mm.	
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Light Grey **Sample:** **Debris:** Aggregate & Rubble
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Easily down to Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 600 mm	3.1 metres	Easily down to Solid Debris (Readings from 5b)
Probe at 2 metre: 250 mm	4.7 metres	Easily down to Solid Debris (Readings from 5b)
Probe at 4 metre: 1800 mm	5.3 metres	Easily down to Solid Debris (Readings from 5b)
Probe at 6 metre: 2200 mm	5.4 metres	Easily down to Stiff Clay (Readings from 5b)

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 06

Dock Wall Geographic Location: Blackwall Basin Section 2
Inspection Date: 25/07/2007
Chainage Reference Point: Blackwall Basin, Change from Timber to Conc. Cope
Chainage: 65 metres.

Detail Drawing Ref.:	**33**	**General Drawing Ref.:**	**05**
Related Photographs:	**DS06 (1-19)**	**DVD REF:**	**30**

Cope Details
Height: 1000 mm. **Depth:** 360 mm. **Material:** Concrete (Slopes out 450mm/1000mm)
Cope to Water Level Distance: 1.1 metres.
Cope to Dock Bottom: 5.3 metres.

Wall Details
Marine Growth Type: Green Weed & White Sponge Algae **Thickness:** 10-20 mm.
Wall Material: Timber Cladding
Av. Block Size Height: N/a mm. **Width:** 140 mm.
Joints **Width:** 40 mm. **Penetration:** 370 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	1250	mm.	**Other Observations**
1 metre:	1000	mm.	Concrete Coping - 100% Green MG/40% White Sponge
2 metre:	700	mm.	300mm Horizontal Timber
3 metre:	420	mm.	Timber Cladding - 60% 20mm White Sponge
4 metre:	260	mm.	Timber Cladding
5 metre:	240	mm.	Timber Cladding
6 metre:		mm.	
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Fine Black **Sample:** **Debris:** Steel & Mussels
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 1200 mm	3.3 metres	Solid Debris
Probe at 2 metre: 250 mm	3.5 metres	Solid Debris
Probe at 4 metre: 100 mm	3.6 metres	Solid Debris
Probe at 6 metre: 400 mm	3.9 metres	Solid Debris

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520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 07a

Dock Wall Geographic Location: Blackwall Basin Section 2 (Timber)
Inspection Date: 25/07/2007
Chainage Reference Point: Blackwall Basin, Change from Timber to Brickwork
Chainage: 54 metres.

Detail Drawing Ref.:	**N/a**	**General Drawing Ref.:**	**05**
Related Photographs:	**DS07 (1-12)**	**DVD REF:**	**30**

Cope Details
Height: 1100 mm. **Depth:** 350 mm. **Material:** Concrete
Cope to Water Level Distance: 1.1 metres.
Cope to Dock Bottom: 2.5 metres.

Wall Details
Marine Growth Type: 100% Light Soft Green **Thickness:** 2 mm.
Wall Material: Timber Cladding
Av. Block Size Height: N/a mm. **Width:** 140 mm.
Joints **Width:** 0 mm. **Penetration:** 0 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	180	mm.	**Other Observations**
1 metre:	525	mm.	Timber Cladding
2 metre:	700	mm.	Timber Cladding
3 metre:		mm.	
4 metre:		mm.	
5 metre:		mm.	
6 metre:		mm.	
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Fine Black **Sample:** **Debris:** Steel, Aggregate & Mussels
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 400 mm	0.4 metres	Solid Debris (Readings from 7b)
Probe at 2 metre: 300 mm	0.9 metres	Solid Debris (Readings from 7b)
Probe at 4 metre: 200 mm	0.9 metres	Solid Debris (Readings from 7b)
Probe at 6 metre: 200 mm	1.0 metres	Solid Debris (Readings from 7b)

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 07b

Dock Wall Geographic Location: Blackwall Basin Section 2 (Brickwork)
Inspection Date: 25/07/2007
Chainage Reference Point: Blackwall Basin, Change from Timber to Brickwork
Chainage: 54 metres.

Detail Drawing Ref.:	**N/a**	**General Drawing Ref.:**	**05**
Related Photographs:	**DS07 (1-12)**	**DVD REF:**	**30**

Cope Details
Height: 600 mm. **Depth:** 350 mm. **Material:** Concrete Capping
Cope to Water Level Distance: 1.1 metres.
Cope to Dock Bottom: 2.5 metres.

Wall Details
Marine Growth Type: 100% Soft Light Green **Thickness:** 1 mm.
Wall Material: Brickwork
Av. Block Size Height: 65 mm. **Width:** 230 mm.
Joints **Width:** 10 mm. **Penetration:** 2-3 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	300	mm.	**Other Observations**
1 metre:	220	mm.	Brickwork
2 metre:	150	mm.	Brickwork
3 metre:		mm.	
4 metre:		mm.	
5 metre:		mm.	
6 metre:		mm.	
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Fine Black **Sample:** **Debris:** Steel, Aggregate & Mussels
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre:	400 mm	0.4 metres	Solid Debris
Probe at 2 metre:	300 mm	0.9 metres	Solid Debris
Probe at 4 metre:	200 mm	0.9 metres	Solid Debris
Probe at 6 metre:	200 mm	1.0 metres	Solid Debris

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520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 08a

Dock Wall Geographic Location: Blackwall Basin Section 2 (Brickwork)
Inspection Date: 25/07/2007
Chainage Reference Point: Blackwall Basin, Change from Brickwork to Larsons
Chainage: 17.5 metres.

Detail Drawing Ref.:	**N/a**	**General Drawing Ref.:**	**04**
Related Photographs:	**DS08 (1-13)**	**DVD REF:**	**31**

Cope Details
Height: 500 mm. **Depth:** N/a mm. **Material:** Concrete
Cope to Water Level Distance: 1.1 metres.
Cope to Dock Bottom: 1.7 metres.

Wall Details
Marine Growth Type: 100% Light Green Algae **Thickness:** 2 mm.
Wall Material: Brickwork
Av. Block Size Height: 67 mm. **Width:** 200 mm.
Joints **Width:** 8 mm. **Penetration:** 0 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	400	mm.	**Other Observations**
1 metre:	260	mm.	Brickwork
2 metre:	260	mm.	Brickwork (Depth 1.5m)
3 metre:		mm.	
4 metre:		mm.	
5 metre:		mm.	
6 metre:		mm.	
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Grey Silt **Sample:** **Debris:** Bricks, Gravel & Mussels
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 300 mm	0 metres	Solid Debris (Readings from 8b)
Probe at 2 metre: 570 mm	0.4 metres	Solid Debris (Readings from 8b)
Probe at 4 metre: 410 mm	1.2 metres	Solid Debris (Readings from 8b)
Probe at 6 metre: 500 mm	1.3 metres	Solid Debris (Readings from 8b)

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520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 08b

Dock Wall Geographic Location: Blackwall Basin Section 2 (Larson Piling)
Inspection Date: 25/07/2007
Chainage Reference Point: Blackwall Basin, Change from Brickwork to Larsons
Chainage: 17.5 metres.

Detail Drawing Ref.:	**N/a**	**General Drawing Ref.:**	**04**
Related Photographs:	**DS08 (1-13)**	**DVD REF:**	**31**

Cope Details
Height: N/a mm. **Depth:** N/a mm. **Material:** N/a
Cope to Water Level Distance: 1.1 metres.
Cope to Dock Bottom: 1.7 metres.

Wall Details
Marine Growth Type: 100% Light Green Algae **Thickness:** 2 mm.
Wall Material: Larson Steel Sheet Piles
Av. Block Size Height: Pan - 100 mm. **Width:** 380 mm.
Joints **Width:** 50 mm. **Penetration:** 100 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	370	mm.	**Other Observations**
1 metre:	370	mm.	Larson Pile. Surface Oxidisation
2 metre:	370	mm.	Larson Pile. Surface Oxidisation
3 metre:		mm.	
4 metre:		mm.	
5 metre:		mm.	
6 metre:		mm.	
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Grey Silt **Sample:** **Debris:** Bricks, Gravel & Mussels
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre:	300 mm	0 metres	Solid Debris
Probe at 2 metre:	570 mm	0.4 metres	Solid Debris
Probe at 4 metre:	410 mm	1.2 metres	Solid Debris
Probe at 6 metre:	500 mm	1.3 metres	Solid Debris

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 09

Dock Wall Geographic Location: Blackwall Basin Section 3
Inspection Date: 25/07/2007
Chainage Reference Point: Blackwall Basin, Change from Larson to Sheet Piles
Chainage: 0 metres.

Detail Drawing Ref.:	**34**	**General Drawing Ref.:**	**08**
Related Photographs:	**DS09 (1-31)**	**DVD REF:**	**31**

Cope Details
Height: 245 mm. **Depth:** N/a mm. **Material:** Concrete
Cope to Water Level Distance: 1.1 metres.
Cope to Dock Bottom: 3.95 metres.

Wall Details
Marine Growth Type: 100% Light Green Algae **Thickness:** 20 mm.
Wall Material: Flat Sheet Piling
Av. Block Size Height: N/a mm. **Width:** 400 mm.
Joints **Width:** Clutch-72 mm. **Penetration:** Clutch-85 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	450	mm.	**Other Observations**
1 metre:	290	mm.	Flat Sheet Piling
2 metre:	280	mm.	Flat Sheet Piling (1.5m)
3 metre:	280	mm.	Flat Sheet Piling (2.0m)
4 metre:		mm.	
5 metre:		mm.	
6 metre:		mm.	
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Grey/Black Silt **Sample:** **Debris:** Bricks, Aggregate & Construction Debris
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Through Aggregate to Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 130 mm	1.0 metres	Through Aggregate to Solid Debris
Probe at 2 metre: 200 mm	1.6 metres	Through Aggregate to Solid Debris
Probe at 4 metre: 510 mm	2.2 metres	Through Aggregate to Solid Debris
Probe at 6 metre: 520 mm	2.9 metres	Through Aggregate to Solid Debris

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ARUP

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 10

Dock Wall Geographic Location: Blackwall Basin Section 3
Inspection Date: 26/07/2007
Chainage Reference Point: Blackwall Basin, Defect in Flat Sheet Pile Wall
Chainage: 51 metres.

Detail Drawing Ref.:	**N/a**	**General Drawing Ref.:**	**07**
Related Photographs:	**DS10 (1-34)**	**DVD REF:**	**32**

Cope Details
Height: 24 mm. **Depth:** N/a mm. **Material:** Concrete
Cope to Water Level Distance: 1.0 metres.
Cope to Dock Bottom: 5.7 metres.

Wall Details
Marine Growth Type: 100% Green/Brown Algae, White Sponge & Mussels **Thickness:** 10 mm.
Wall Material: Steel Sheet Piles
Av. Block Size Height: N/a mm. **Width:** 400 mm.
Joints **Width:** Clutch-72 mm. **Penetration:** Clutch-85 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	125	mm.	**Other Observations**
1 metre:	55	mm.	Concrete
2 metre:	40	mm.	Concrete
3 metre:	425	mm.	Flat Sheet Pile
4 metre:	365	mm.	Flat Sheet Pile
5 metre:	329	mm.	Flat Sheet Pile
6 metre:		mm.	
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Soft **Sample:** **Debris:** Steel, Mussels, Construction Debris
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 600 mm	4.0 metres	Easy to Solid Debris
Probe at 2 metre: 400 mm	4.8 metres	Easy to Solid Debris
Probe at 4 metre: 1000 mm	5.1 metres	Easy to Solid Debris
Probe at 6 metre: 2600 mm	5.2 metres	Easy to Stiff Clay

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 11

Dock Wall Geographic Location: Blackwall Basin Section 3
Inspection Date: 26/07/2007
Chainage Reference Point: Blackwall Basin
Chainage: 20 metres.

Detail Drawing Ref.:	**N/a**	**General Drawing Ref.:**	**19**
Related Photographs:	**DS11 (1-20)**	**DVD REF:**	**32**

Cope Details
Height: 2400 mm. **Depth:** N/a mm. **Material:** Concrete
Cope to Water Level Distance: 1.0 metres.
Cope to Dock Bottom: 6.6 metres.

Wall Details
Marine Growth Type: 100% Green Weed, White Sponge & Mussels **Thickness:** 20 mm.
Wall Material: Steel Sheet Piles
Av. Block Size Height: N/a mm. **Width:** 400 mm.
Joints **Width:** Clutch-72 mm. **Penetration:** Clutch-85 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	240	mm.	**Other Observations**
1 metre:	240	mm.	Concrete
2 metre:	230	mm.	Concrete
3 metre:	570	mm.	Flat Sheet Piles
4 metre:	510	mm.	Flat Sheet Piles
5 metre:	460	mm.	Flat Sheet Piles
6 metre:	400	mm.	Flat Sheet Piles
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Soft Black **Sample:** **Debris:** Rubble, Steel & Mussels
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 2400 mm	4.9 metres	Soft to Stiff Clay
Probe at 2 metre: 2200 mm	5.3 metres	Soft to Stiff Clay
Probe at 4 metre: 2200 mm	5.7 metres	Soft to Stiff Clay
Probe at 6 metre: 2600 mm	5.9 metres	Soft to Stiff Clay

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 12a

Dock Wall Geographic Location: Wood Wharf Section 1 (Flat Sheet Piles)
Inspection Date: 26/07/2007
Chainage Reference Point: BP3, Wood Wharf. Change from SSP to Brickwork
Chainage: 105 metres.
Detail Drawing Ref.: N/a **General Drawing Ref.:** 13
Related Photographs: N/a **DVD REF:** 32

Cope Details
Height: 2.2 mm. **Depth:** N/a mm. **Material:** Concrete
Cope to Water Level Distance: 1.0 metres.
Cope to Dock Bottom: 5.42 metres.

Wall Details
Marine Growth Type: 100% Soft Green Weed **Thickness:** 20-30 mm.
Wall Material: Flat Steel Sheet Pile
Av. Block Size Height: N/a mm. **Width:** 400 mm.
Joints **Width:** Clutch-72 mm. **Penetration:** Clutch-85 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	500	mm.	**Other Observations**
1 metre:	460	mm.	Concrete
2 metre:	440	mm.	Concrete
3 metre:	1200	mm.	Sheet Piles
4 metre:	1100	mm.	Sheet Piles
5 metre:	1080	mm.	Sheet Piles
6 metre:		mm.	
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Light **Sample:** **Debris:** Sand & Construction Debris
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Hard Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 1300 mm	4.0 metres	Soft to Hard Debris
Probe at 2 metre: 1300 mm	4.2 metres	Soft to Hard Debris
Probe at 4 metre: 1200 mm	4.2 metres	Soft to Stiff Clay
Probe at 6 metre: 1150 mm	4.0 metres	Soft to Stiff Clay

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 12b

Dock Wall Geographic Location: Wood Wharf Section 1 (Brickwork)
Inspection Date: 26/07/2007
Chainage Reference Point: BP3, Wood Wharf. Change from SSP to Brickwork
Chainage: 105 metres.
Detail Drawing Ref.: N/a **General Drawing Ref.:** 13
Related Photographs: N/a **DVD REF:** 32

Cope Details
Height: 300 mm. **Depth:** N/a mm. **Material:** Stone Capping
Cope to Water Level Distance: 1.0 metres.
Cope to Dock Bottom: 5.9 metres.

Wall Details
Marine Growth Type: 100% Soft Green Weed **Thickness:** 10 mm.
Wall Material: Brickwork
Av. Block Size Height: 80 mm. **Width:** 170 mm.
Joints **Width:** 10 mm. **Penetration:** 0 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	550	mm.	**Other Observations**
1 metre:	550	mm.	Brickwork
2 metre:	400	mm.	Brickwork
3 metre:	200	mm.	Brickwork
4 metre:	0	mm.	Brickwork
5 metre:		mm.	
6 metre:		mm.	
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Soft Silt **Sample:** **Debris:** Sand & Construction Debris
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Hard Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 1300 mm	4.0 metres	Soft to Hard Debris (Readings from 12a)
Probe at 2 metre: 1300 mm	4.2 metres	Soft to Hard Debris (Readings from 12a)
Probe at 4 metre: 1200 mm	4.2 metres	Soft to Stiff Clay (Readings from 12a)
Probe at 6 metre: 1150 mm	4.0 metres	Soft to Stiff Clay (Readings from 12a)

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 13

Dock Wall Geographic Location: Wood Wharf Section 1
Inspection Date: 27/07/2007
Chainage Reference Point: BP3, Wood Wharf
Chainage: 40 metres.
Detail Drawing Ref.: N/a **General Drawing Ref.:** 15
Related Photographs: N/a **DVD REF:** 33

Cope Details
Height: 500 mm. **Depth:** N/a mm. **Material:** Concrete Blockwork (1.14m length)
Cope to Water Level Distance: 1.0 metres.
Cope to Dock Bottom: 5.8 metres.

Wall Details
Marine Growth Type: 100% Light Green Weed **Thickness:** 20 mm.
Wall Material: Brickwork
Av. Block Size Height: 80 mm. **Width:** 170 mm.
Joints **Width:** 10 mm. **Penetration:** 5-10 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	780	mm.	**Other Observations**
1 metre:	780	mm.	Brickwork
2 metre:	730	mm.	Brickwork
3 metre:	520	mm.	Brickwork
4 metre:	370	mm.	Brickwork
5 metre:	130	mm.	Brickwork
6 metre:		mm.	
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Soft Black **Sample:** **Debris:** Construction Debris
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre:	400 mm	4.1 metres	Soft to Hard Debris
Probe at 2 metre:	2200 mm	4.2 metres	Soft to Stiff Clay
Probe at 4 metre:	2000 mm	4.2 metres	Soft to Aggregate
Probe at 6 metre:	2400 mm	5.0 metres	Soft to Hard Material

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 14

Dock Wall Geographic Location: Wood Wharf Section 2
Inspection Date: 30/07/2007
Chainage Reference Point: Wine Quay, Wood Wharf
Chainage: 40 metres.
Detail Drawing Ref.: N/a **General Drawing Ref.:** 17
Related Photographs: N/a **DVD REF:** 33

Cope Details
Height: 510 mm. **Depth:** 1200 mm. **Material:** Granite Blockwork
Cope to Water Level Distance: 1.0 metres.
Cope to Dock Bottom: 5.31 metres.

Wall Details
Marine Growth Type: Light Green/Brown Weed **Thickness:** 50 mm.
Wall Material: Brickwork
Av. Block Size Height: 70 mm. **Width:** 220 mm.
Joints **Width:** 10 mm. **Penetration:** 15 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	730	mm.	**Other Observations**
1 metre:	670	mm.	Brickwork
2 metre:	680	mm.	Brickwork
3 metre:	530	mm.	Brickwork
4 metre:	290	mm.	Brickwork
5 metre:	60	mm.	Brickwork
6 metre:		mm.	
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Light Black **Sample:** **Debris:** Contruction, Agg.
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 700 mm	3.6 metres	Easy thru to solid debris.
Probe at 2 metre: 120 mm	3.9 metres	Easy thru to solid debris
Probe at 4 metre: 1020 mm	4.1 metres	Easy thru to solid debris
Probe at 6 metre: 1100 mm	4.1 metres	Easy thru to stiff clay

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 15

Dock Wall Geographic Location: Wood Wharf Section 2
Inspection Date: 27/07/2007
Chainage Reference Point: Wine Quay, Wood Wharf, Defect in Wall.
Chainage: 15 metres.
Detail Drawing Ref.: N/a **General Drawing Ref.:** 17
Related Photographs: N/a **DVD REF:** 33

Cope Details
Height: 500 mm. **Depth:** 1.2 mm. **Material:** Granite Blockwork (1.1m Length)
Cope to Water Level Distance: 1.0 metres.
Cope to Dock Bottom: 6.2 metres.

Wall Details
Marine Growth Type: 100% Soft Green Weed and White Sponge Algae **Thickness:** 20-30 mm.
Wall Material: Brickwork
Av. Block Size Height: 70 mm. **Width:** 220 mm.
Joints **Width:** 10-12 mm. **Penetration:** 50 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	1100	mm.	**Other Observations**
1 metre:	930	mm.	Brickwork
2 metre:	960	mm.	Brickwork (100mm Void)
3 metre:	970	mm.	Brickwork (100mm Void)
4 metre:	620	mm.	Brickwork
5 metre:	460	mm.	Brickwork
6 metre:	459	mm.	Brickwork
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Fine Black **Sample:** **Debris:** Cables, Steel, Mussels and Construction Debris
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 200 mm	5.0 metres	Aggregate thru to Solid Debris
Probe at 2 metre: 1080 mm	5.0 metres	Soft thru to Solid Debris
Probe at 4 metre: 2400 mm	5.1 metres	Soft thru to Stiff Clay
Probe at 6 metre: 2800 mm	5.1 metres	Soft thru to Stiff Clay

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 16a

Dock Wall Geographic Location: Wood Wharf Section 2 (Brickwork)
Inspection Date: 27/07/2007
Chainage Reference Point: Wood Wharf, Change from Brickwork to Conc.
Chainage: 8 metres.
Detail Drawing Ref.: N/a **General Drawing Ref.:** 17
Related Photographs: N/a **DVD REF:** 33

Cope Details
Height: 500 mm. **Depth:** 40 mm. **Material:** Concrete Pour
Cope to Water Level Distance: 1.0 metres.
Cope to Dock Bottom: 6.3 metres.

Wall Details
Marine Growth Type: 100% Green Weed & 30% White Sponge Algae **Thickness:** 50 mm.
Wall Material: Brickwork
Av. Block Size Height: 70 mm. **Width:** 220 mm.
Joints **Width:** 10-12 mm. **Penetration:** 50 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	1100	mm.	**Other Observations**
1 metre:	1080	mm.	Brickwork
2 metre:	1100	mm.	Brickwork
3 metre:	1000	mm.	Brickwork
4 metre:	730	mm.	Brickwork
5 metre:	490	mm.	Brickwork
6 metre:	350	mm.	Brickwork
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Fine Black **Sample:** **Debris:** Construction Debris
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Stiff Clay
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 1200 mm	5.4 metres	Soft to Stiff Clay (Readings from 16b)
Probe at 2 metre: 1400 mm	5.0 metres	Soft to Stiff Clay (Readings from 16b)
Probe at 4 metre: 1200 mm	5.0 metres	Soft to Stiff Clay (Readings from 16b)
Probe at 6 metre: 2200 mm	5.1 metres	Soft to Stiff Clay (Readings from 16b)

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 16b

Dock Wall Geographic Location: Wood Wharf Section 2 (Concrete)
Inspection Date: 27/07/2007
Chainage Reference Point: Wood Wharf, Change from Brickwork to Conc.
Chainage: 8 metres.
Detail Drawing Ref.: N/a **General Drawing Ref.:** 17
Related Photographs: N/a **DVD REF:** 33

Cope Details
Height: N/a mm. **Depth:** N/a mm. **Material:** Concrete
Cope to Water Level Distance: 1.0 metres.
Cope to Dock Bottom: 7.1 metres.

Wall Details
Marine Growth Type: 100% Green Weed, 10% White Sponge Algae **Thickness:** 30 mm.
Wall Material: Concrete
Av. Block Size Height: N/a mm. **Width:** N/a mm.
Joints **Width:** N/a mm. **Penetration:** N/a mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	1100	mm.	**Other Observations**
1 metre:	1060	mm.	Concrete Face
2 metre:	970	mm.	Concrete Face
3 metre:	870	mm.	Concrete Face
4 metre:	740	mm.	Concrete Face
5 metre:	590	mm.	Concrete Face
6 metre:	400	mm.	Concrete Face
7 metre:		mm.	
8 metre:		mm.	
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Fine Black **Sample:** **Debris:** Constructruction Debris
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Stiff Clay
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre:	1200 mm	5.4 metres	Soft to Stiff Clay
Probe at 2 metre:	1400 mm	5.0 metres	Soft to Stiff Clay
Probe at 4 metre:	1200 mm	5.0 metres	Soft to Stiff Clay
Probe at 6 metre:	2200 mm	5.1 metres	Soft to Stiff Clay

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 17

Dock Wall Geographic Location: Wood Wharf Section 3
Inspection Date: 30/07/2007
Chainage Reference Point: Wood Wharf, Defect/Crack
Chainage: 45.5 metres.

Detail Drawing Ref.:	**N/a**	**General Drawing Ref.:**	**18**
Related Photographs:	**DS17 (1-36)**	**DVD REF:**	**33**

Cope Details
Height: 450 mm. **Depth:** 840 mm. **Material:** Removed Coping Blocks (1.35m)
Cope to Water Level Distance: 1.0 metres.
Cope to Dock Bottom: 8.95 metres.

Wall Details
Marine Growth Type: Light Green Weed (10%) **Thickness:** 30 mm.
Wall Material: Concrete
Av. Block Size Height: N/a mm. **Width:** N/a mm.
Joints **Width:** N/a mm. **Penetration:** N/a mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	370	mm.	**Other Observations**
1 metre:	400	mm.	Concrete Face
2 metre:	370	mm.	Concrete Face
3 metre:	290	mm.	Concrete Face
4 metre:	240	mm.	Concrete Face
5 metre:	200	mm.	Concrete Face
6 metre:	160	mm.	Concrete Face
7 metre:	120	mm.	Concrete Face
8 metre:	110	mm.	Concrete Face
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Minimal Black **Sample:** **Debris:** Concrete, Agg.
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 50 mm	6.9 metres	Debris thru to solid debris
Probe at 2 metre: 900 mm	7.1 metres	Silt thru to solid debris
Probe at 4 metre: 1400 mm	7.2 metres	Silt thru to solid debris
Probe at 6 metre: 2000 mm	7.3 metres	Silt thru to stiff clay

520 – ARUP WOOD WHARF DOCK SURVEY

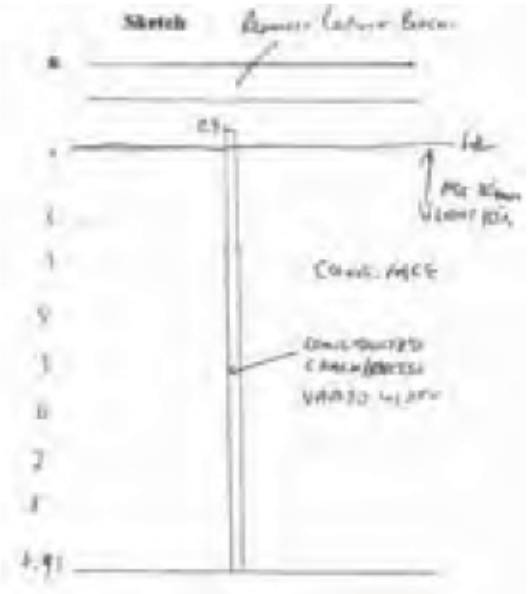
DEFECT / FEATURE INSPECTION SURVEY RECORD SHEET NO: 17

General Drawing Ref: 17 **Detail Drawing Ref: N/a**
Related Photographs: DS17 (1-36) **DVD REF:** 33

Dock Wall Geographic Location: Wood Wharf, Section 3
Inspection Date: 30/07/2007
Chainage Reference Point: Wood Wharf, Defect/Crack.
Chainage: 50 metres (to top left hand corner of defect / feature in elevation)
Defect / Feature Description: Constructed Recess Running from 0.9m to Bed Level.

Distance from Cope Level to Top Left Hand Corner: 0.9 metres.
Width: N/a mm. **Height:** N/a mm. **Depth / Penetration:** N/a mm.

Sketch



Cross Section

Depth	Width	Penetration
1.0 m	110mm	400mm
2.0 m	70mm	150mm
3.0 m	60mm	600mm
4.0 m	40mm	170mm
5.0 m	40mm	140mm
6.0 m	100mm	120mm
7.0 m	65mm	160mm
8.0 m	15mm	120mm
8.95 m	120mm	60mm

Other Observations:

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 18

Dock Wall Geographic Location: Wood Wharf Section 3
Inspection Date: 30/07/2007
Chainage Reference Point: Wood Wharf, Defect/Crack
Chainage: 10 metres.

Detail Drawing Ref.:	**N/a**	**General Drawing Ref.:**	**19**
Related Photographs:	**DS18 (1-50)**	**DVD REF:**	**33**

Cope Details
Height: 450 mm. **Depth:** 840 mm. **Material:** Removed Coping Blocks (1.35m)
Cope to Water Level Distance: 1.0 metres.
Cope to Dock Bottom: 9.2 metres.

Wall Details
Marine Growth Type: Fine Green/Brown Weed 100% & mussels 5% **Thickness:** 20 - 50 mm.
Wall Material: Concrete Face
Av. Block Size Height: N/a mm. **Width:** N/a mm.
Joints **Width:** N/a mm. **Penetration:** N/a mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	330	mm.	**Other Observations**
1 metre:	350	mm.	70mm recess in concrete face.
2 metre:	250	mm.	Concrete face
3 metre:	220	mm.	Concrete face
4 metre:	200	mm.	Concrete face
5 metre:	150	mm.	Concrete face
6 metre:	100	mm.	Concrete face
7 metre:	70	mm.	Concrete face
8 metre:	20	mm.	Concrete face
9 metre:	10	mm.	Concrete face
10 metre:		mm.	

Dock Bottom Type **Silt:** Fine Black **Sample:** **Debris:** Construction & Shells
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 800 mm	7.8 metres	Soft silt thru to solid debris
Probe at 2 metre: 1100 mm	7.9 metres	Soft silt thru to stiff clay
Probe at 4 metre: 1100 mm	8.0 metres	Soft silt thru to stiff clay
Probe at 6 metre: 1400 mm	8.0 metres	Soft silt thru to stiff clay

520 – ARUP WOOD WHARF DOCK SURVEY

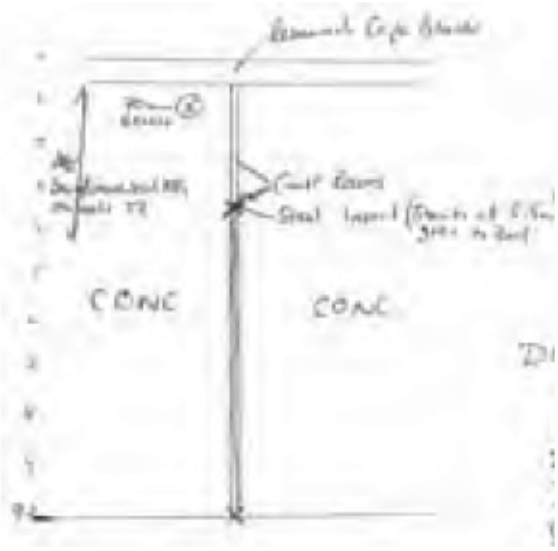
DEFECT / FEATURE INSPECTION SURVEY RECORD SHEET NO: 18

General Drawing Ref: 19 **Detail Drawing Ref:** N/a
Related Photographs: DS18 (1-50) **DVD REF:** 33

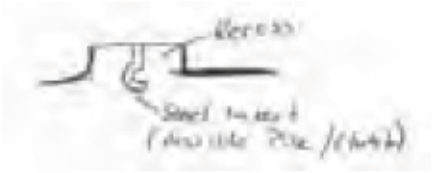
Dock Wall Geographic Location: Wood Wharf, Section 3
Inspection Date: 30/07/2007
Chainage Reference Point: Wood Wharf, Defect/Crack
Chainage: 5 metres (to top left hand corner of defect / feature in elevation)
Defect / Feature Description: Constructed Recess Running from 0.45m to Bed Level with Steel insert.

Distance from Cope Level to Top Left Hand Corner: 0.45 metres.
Width: N/a mm. **Height:** N/a mm. **Depth / Penetration:** N/a mm.

Sketch



Cross Section



Depth	Width	Penetration
1.0 m	30mm	100mm
2.0 m	70mm	300mm
3.0 m	20mm	200mm
4.0 m	120mm	70mm
5.0 m	150mm	170mm
6.0 m	160mm	160mm
7.0 m	170mm	180mm
8.0 m	150mm	180mm
9.0 m	120mm	70mm
9. m	150mm	120mm

Other Observations:

- Steel Insert in recess runs from 3.5 metres to bed level. Possible Steel Pile Clutch.
- 100% 20-50mm Green Weed Marine Growth.

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 19a

Dock Wall Geographic Location: Wood Wharf Section 4 (Concrete)
Inspection Date: 18/07/2007
Chainage Reference Point: Wood Wharf, Change from Concrete to Brick
Chainage: 221.5 metres.

Detail Drawing Ref.:	**35**	**General Drawing Ref.:**	**19**
Related Photographs:	**DS19a (1-7)**	**DVD REF:**	**19**

Cope Details
Height: N/a mm. **Depth:** N/a mm. **Material:** Concrete
Cope to Water Level Distance: 1.1 metres.
Cope to Dock Bottom: 8.83 metres.

Wall Details
Marine Growth Type: 100% Light Green Weed & White Sponge Algae **Thickness:** 20 mm.
Wall Material: Concrete
Av. Block Size Height: N/a mm. **Width:** N/a mm.
Joints **Width:** N/a mm. **Penetration:** N/a mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	495	mm.	**Other Observations**
1 metre:	345	mm.	Concrete Face
2 metre:	345	mm.	Concrete Face
3 metre:	310	mm.	Concrete Face
4 metre:	265	mm.	Concrete Face
5 metre:	220	mm.	Concrete Face
6 metre:	175	mm.	Concrete Face
7 metre:	135	mm.	Concrete Face
8 metre:	110	mm.	Concrete Face
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Heavy **Sample:** **Debris:** Granualar Debris
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Stiff Clay
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 0 mm	6.6 metres	Easy into Stiff Clay
Probe at 2 metre: 600 mm	7.0 metres	Easy into Stiff Clay
Probe at 4 metre: 1150 mm	7.1 metres	Easy into Stiff Clay
Probe at 6 metre: 1200 mm	7.1 metres	Easy into Stiff Clay

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 19b

Dock Wall Geographic Location: Wood Wharf Section 4 (Recess/Crack)
Inspection Date: 19/07/2007
Chainage Reference Point: Wood Wharf, Change from Concrete to Brick
Chainage: 220 metres.

Detail Drawing Ref.:	**35**	**General Drawing Ref.:**	**19**
Related Photographs:	**DS19b (1-11)**	**DVD REF:**	**20**

Cope Details
Height: N/a mm. **Depth:** N/a mm. **Material:** Concrete
Cope to Water Level Distance: 1.1 metres.
Cope to Dock Bottom: 8.9 metres.

Wall Details
Marine Growth Type: 100% Light Green Weed & White Sponge Algae **Thickness:** 20 mm.
Wall Material: Recess at join of Conc. & Brick
Av. Block Size Height: N/a mm. **Width:** N/a mm.
Joints **Width:** N/a mm. **Penetration:** N/a mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	375	mm.	**Other Observations**
1 metre:	375	mm.	Width - 0mm
2 metre:	365	mm.	Width - 0mm
3 metre:	300	mm.	Width - 0mm
4 metre:	320	mm.	Width - 100mm
5 metre:	325	mm.	Width - 160mm
6 metre:	510	mm.	Width - 600mm
7 metre:	920	mm.	Width - 200mm
8 metre:	400	mm.	Width - 200mm
9 metre:		mm.	Crack/Recess continues to bed.
10 metre:		mm.	

Dock Bottom Type **Silt:** Heavy **Sample:** **Debris:** Granular
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Easy into Hard Clay
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 200 mm	6.9 metres	Easy into Hard Clay
Probe at 2 metre: 1800 mm	7.2 metres	Easy into Hard Clay
Probe at 4 metre: 1400 mm	7.3 metres	Easy into Hard Clay
Probe at 6 metre: 1600 mm	7.3 metres	Easy into Hard Clay

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 19c

Dock Wall Geographic Location: Wood Wharf Section 4 (Brickwork)
Inspection Date: 18/07/2007
Chainage Reference Point: Wood Wharf, Change from Concrete to Brick
Chainage: 220.5 metres.

Detail Drawing Ref.:	**35**	**General Drawing Ref.:**	**19**
Related Photographs:	**DS19c (1-8)**	**DVD REF:**	**19**

Cope Details
Height: 1.5 mm. **Depth:** N/a mm. **Material:** Concrete
Cope to Water Level Distance: 1.1 metres.
Cope to Dock Bottom: 8.75 metres.

Wall Details
Marine Growth Type: 100% Light Green Weed & White Sponge Algae **Thickness:** 20 mm.
Wall Material: Brickwork
Av. Block Size Height: 55 mm. **Width:** 225 mm.
Joints **Width:** 15 mm. **Penetration:** 5-15 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	380	mm.	**Other Observations**
1 metre:	255	mm.	Vert. Crack goes Horiz. left into Conc - 1.3m
2 metre:	350	mm.	Vert. Crack 20mm wide
3 metre:	310	mm.	Crack extends to damaged area 400mm to left - 3.2m
4 metre:	255	mm.	Vert. Crack 10mm wide
5 metre:	225	mm.	Vert. Crack 10mm wide
6 metre:	180	mm.	Vert. Crack following pointing 10mm - 6.2m
7 metre:	135	mm.	Heavily Weathered Brickwork
8 metre:	100	mm.	Void 600mm to right. Loose/Missing Bricks.
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Heavy **Sample:** **Debris:** Brick & Contruction Debris
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Hard Clay
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre:	200 mm	6.9 metres	Easy to Solid Debris
Probe at 2 metre:	1800 mm	7.2 metres	Easy to Hard Clay
Probe at 4 metre:	1600 mm	7.2 metres	Easy to Hard Clay
Probe at 6 metre:	1600 mm	7.2 metres	Easy to Hard Clay

520 – ARUP WOOD WHARF DOCK SURVEY

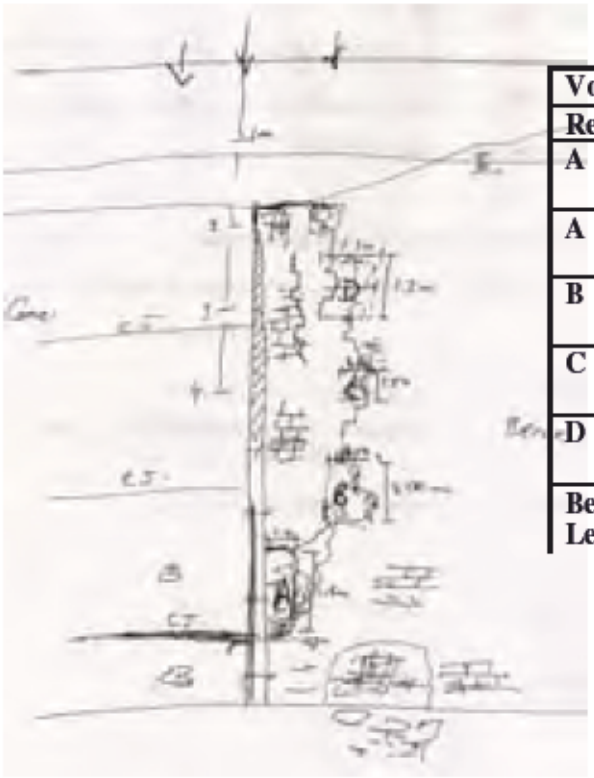
DEFECT / FEATURE INSPECTION SURVEY RECORD SHEET NO: 19

General Drawing Ref: 19 **Detail Drawing Ref:** 35
Related Photographs: DS19a (1-7), DS19b (1-11) & DS19c (1-8) **DVD REF:** 19

Dock Wall Geographic Location: Wood Wharf, Section 4
Inspection Date: 18/07/2007
Chainage Reference Point: Wood Wharf, Change from Concrete to Brick
Chainage: 221 metres (to top left hand corner of defect / feature in elevation)
Defect / Feature Description: Crack and Recesses running down right hand side of Chainage 220, Detail Survey 19.

Distance from Cope Level to Top Left Hand Corner: 1.3 metres.
Width: N/a mm. **Height:** N/a mm. **Depth / Penetration:** N/a mm.

Sketch



Cross Section

Void Details Relating to Sketch Opposite		
Ref	**Type**	**Dimension (h x w x d)**
A	Void	1.6m x 1.1m x 250mm
A	Concrete Block under Void	1.5m x 1.0m x 400mm
B	Void	400mm x 450mm x 150mm
C	Void	150mm x 400mm x 150mm
D	Void	1.2m x 1.1m x 130mm
Bed Level	Circular Void	1.3m x 1.0m x 250mm

Other Observations:

- Bed Level Circular Void, deepest in centre. 600mm to right of Change in Construction. Loose/Missing Brickwork at back of Void.

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 20

Dock Wall Geographic Location: Wood Wharf Section 4
Inspection Date: 30/07/2007
Chainage Reference Point: Wine Quay, Wood Wharf
Chainage: 160 metres.

Detail Drawing Ref.:	**N/a**	**General Drawing Ref.:**	**21**
Related Photographs:	**DS20 (1-6)**	**DVD REF:**	**33**

Cope Details
Height: 1.5 mm. **Depth:** N/a mm. **Material:** Concrete coping
Cope to Water Level Distance: 1.0 metres.
Cope to Dock Bottom: 8.44 metres.

Wall Details
Marine Growth Type: 90% Soft green weed & 50% White sponge algae. **Thickness:** 10 - 15 mm.
Wall Material: Brickwork
Av. Block Size Height: 70 mm. **Width:** 220 mm.
Joints **Width:** 10 mm. **Penetration:** 130 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	420	mm.	**Other Observations**
1 metre:	420	mm.	Concrete face
2 metre:	430	mm.	Brick work. 90% Green weed 10 - 15mm
3 metre:	580	mm.	130mm Missing brick face. 50% Weed/50% sponge.
4 metre:	440	mm.	120mm Missing brick face.
5 metre:	400	mm.	120mm Missing brick face. 30% White sponge algae.
6 metre:	270	mm.	Brickwork.
7 metre:	220	mm.	Brickwork.
8 metre:	170	mm.	Brickwork.
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Soft black. **Sample:** **Debris:** Brick, Agg and Shells.
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Stiff Clay
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 2800 mm	6.5 metres	Soft silt thru to stiff clay
Probe at 2 metre: 2000 mm	6.8 metres	Soft silt thru to stiff clay
Probe at 4 metre: 2400 mm	6.9 metres	Soft silt thru to stiff clay
Probe at 6 metre: 2200 mm	7.0 metres	Soft silt thru to stiff clay

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 21a

Dock Wall Geographic Location: Wood Wharf Section 4 (Brickwork)
Inspection Date: 31/07/2007
Chainage Reference Point: Wood Wharf, Change from Brick to Concrete
Chainage: 121 - 117 metres.
Detail Drawing Ref.: N/a **General Drawing Ref.:** 22
Related Photographs: N/a **DVD REF:** 34

Cope Details
Height: 1500 mm. **Depth:** N/a mm. **Material:** Concrete Face (Exposed Agg.)
Cope to Water Level Distance: 1.0 metres.
Cope to Dock Bottom: 8.3 metres.

Wall Details
Marine Growth Type: 100% Soft Green Weed **Thickness:** 20 mm.
Wall Material: Brickwork
Av. Block Size Height: 70 mm. **Width:** 220 mm.
Joints **Width:** 15 mm. **Penetration:** 35 mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	510	mm.	**Other Observations**
1 metre:	510	mm.	Concrete Cope
2 metre:	510	mm.	Brickwork
3 metre:	470	mm.	Brickwork
4 metre:	470	mm.	Brickwork
5 metre:	410	mm.	Brickwork
6 metre:	400	mm.	Brickwork
7 metre:	350	mm.	Brickwork
8 metre:	260	mm.	Brickwork
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Fine Black **Sample:** **Debris:** Brick, Shells & Aggregate
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Stiff Clay
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 1600 mm	6.5 metres	Soft Silt thru to solid debris (Readings from 21b)
Probe at 2 metre: 2200 mm	6.8 metres	Soft silt thru to stiff clay (Readings from 21b)
Probe at 4 metre: 2000 mm	6.9 metres	Soft silt thru to stiff clay (Readings from 21b)
Probe at 6 metre: 2100 mm	7.0 metres	Soft silt thru to stiff clay (Readings from 21b)

520 – ARUP WOOD WHARF DOCK SURVEY

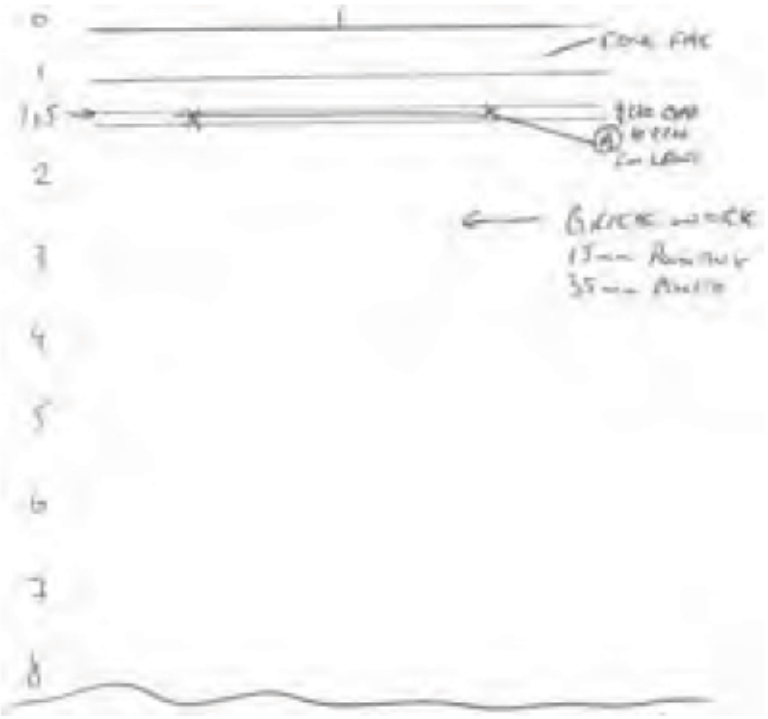
DEFECT/FEATURE INSPECTION SURVEY RECORD SHEET NO: 21a

General Drawing Ref: 22 **Detail Drawing Ref:** N/a
Related Photographs: N/a **DVD REF:** 34

Dock Wall Geographic Location: Wood Wharf, Section 4 (Brick)
Inspection Date: 31/07/2007
Chainage Reference Point: Wood Wharf, Change from Brick to Concrete.
Chainage: 121 - 117 metres (to top left hand corner of defect / feature in elevation)
Defect / Feature Description: Change in Construction at Detail Survey 21. Brickwork face next to vertical voids.

Distance from Cope Level to Top Left Hand Corner: 1.5 metres.
Width: N/a mm. **Height:** N/a mm. **Depth / Penetration:** N/a mm.

Sketch **Cross Section**



Other Observations:

- 117m Chainage. 1.5m from Datum – 220mm x 2.0m x 80m Horizontal Recess.
- 70mm x 220mm Brickwork face with 15mm Pointing, up to 35mm pointing loss.
- Bed is Soft Black silt, with mussel shell and brick debris.

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 21b

Dock Wall Geographic Location: Wood Wharf Section 4 (Concrete)
Inspection Date: 31/07/2007
Chainage Reference Point: Wood Wharf, Change from Brick to Concrete
Chainage: 121 - 117 metres.
Detail Drawing Ref.: N/a **General Drawing Ref.:** 22
Related Photographs: N/a **DVD REF:** 34

Cope Details
Height: 1300 mm. **Depth:** N/a mm. **Material:** Concrete Face
Cope to Water Level Distance: 1.0 metres.
Cope to Dock Bottom: 8.3 metres.
Wall Details
Marine Growth Type: 100% Soft Green Weed & White Sponge Algae **Thickness:** 15 - 20 mm.
Wall Material: Rough Poured Concrete
Av. Block Size Height: N/a mm. **Width:** N/a mm.
Joints **Width:** mm. **Penetration:** mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	290	mm.	**Other Observations**
1 metre:	250	mm.	Rough Pour Concrete
2 metre:	300	mm.	Rough Pour Concrete
3 metre:	310	mm.	Rough Pour Concrete
4 metre:	320	mm.	Rough Pour Concrete
5 metre:	430	mm.	Rough Pour Concrete
6 metre:	430	mm.	Rough Pour Concrete
7 metre:	670	mm.	Rough Pour Concrete Overspill
8 metre:	750	mm.	Rough Pour Concrete Overspill
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Fine Black **Sample:** **Debris:** Brick, Shells & Aggregate.
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Stiff Clay
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:
Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 1600 mm	6.6 metres	Soft Silt thru to solid debris
Probe at 2 metre: 2200 mm	6.7 metres	Soft silt thru to stiff clay
Probe at 4 metre: 2000 mm	6.6 metres	Soft silt thru to stiff clay
Probe at 6 metre: 2100 mm	6.9 metres	Soft silt thru to stiff clay

520 – ARUP WOOD WHARF DOCK SURVEY

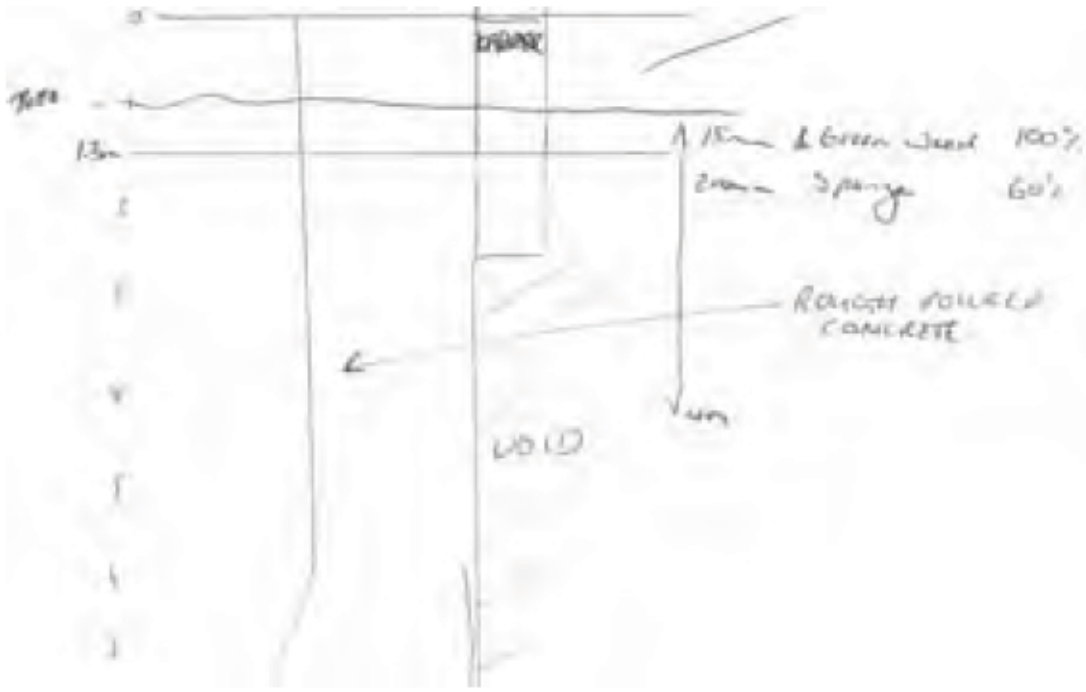
DEFECT / FEATURE INSPECTION SURVEY RECORD SHEET NO: 21B

General Drawing Ref: 22 **Detail Drawing Ref:** N/a
Related Photographs: N/a **DVD REF:** 34

Dock Wall Geographic Location: Wood Wharf, Section 4 (Concrete)
Inspection Date: 31/07/2007
Chainage Reference Point: Wood Wharf, Change from Brick to Concrete
Chainage: 119 metres (to top left hand corner of defect / feature in elevation)
Defect / Feature Description: Change in Construction at Detail Survey 21. Rough Concrete Pour between to 45 degree angled brick faces.

Distance from Cope Level to Top Left Hand Corner: 1.3 metres.
Width: N/a mm. **Height:** N/a mm. **Depth / Penetration:** N/a mm.

Sketch **Cross Section**



Other Observations:

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 22

Dock Wall Geographic Location: Wood Wharf Section 4
Inspection Date: 23/07/2007
Chainage Reference Point: Wine Quay, Wood Wharf
Chainage: 20 metres.

Detail Drawing Ref.:	**N/a**	**General Drawing Ref.:**	**24**
Related Photographs:	**DS22 (1-22)**	**DVD REF:**	**27**

Cope Details
Height: 500 mm. **Depth:** N/a mm. **Material:** Concrete
Cope to Water Level Distance: 1.1 metres.
Cope to Dock Bottom: 8.25 metres.

Wall Details
Marine Growth Type: 100% Soft Green Weed & 20% Mussels. **Thickness:** 30 mm.
Wall Material: Concrete
Av. Block Size Height: N/a mm. **Width:** N/a mm.
Joints **Width:** mm. **Penetration:** mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	550	mm.	**Other Observations**
1 metre:	470	mm.	Heavy Pitting of Concrete Face
2 metre:	480	mm.	Diagonal Crack 80mm wide x 60mm Penetration.
3 metre:	440	mm.	Horizontal Constr. Joint
4 metre:	400	mm.	Concrete Face
5 metre:	370	mm.	Concrete Face
6 metre:	300	mm.	Smooth/Flush Constr. Joint
7 metre:	270	mm.	Concrete Face
8 metre:	250	mm.	Concrete Face
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Soft **Sample:** **Debris:** Mussels & Construction Debris
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 2400 mm	6.5 metres	Easy to Solid Debris
Probe at 2 metre: 2400 mm	6.7 metres	Easy to Solid Debris
Probe at 4 metre: 2600 mm	6.8 metres	Easy to Solid Debris
Probe at 6 metre: 2800 mm	6.8 metres	Easy to Solid Debris

520 – ARUP WOOD WHARF DOCK SURVEY

WALL INSPECTION SURVEY RECORD SHEET NO: 23

Dock Wall Geographic Location: Wood Wharf Section 5
Inspection Date: 23/07/2007
Chainage Reference Point: Abwood Yard, Wood Wharf
Chainage: 30 metres.

Detail Drawing Ref.:	**N/a**	**General Drawing Ref.:**	**25**
Related Photographs:	**DS23 (1-23)**	**DVD REF:**	**27**

Cope Details
Height: N/a mm. **Depth:** N/a mm. **Material:** Concrete
Cope to Water Level Distance: 1.1 metres.
Cope to Dock Bottom: 8.48 metres.

Wall Details
Marine Growth Type: 100% Soft Green Weed & 30% Mussels **Thickness:** 30-40 mm.
Wall Material: Concrete
Av. Block Size Height: N/a mm. **Width:** N/a mm.
Joints **Width:** mm. **Penetration:** mm.

Wall Profile, Offsets to Plumb Line from Cope Level to Dock Bottom

Cope Level:	560	mm.	**Other Observations**
1 metre:	620	mm.	10-15mm Piiting to Conc Face & Construction Joint.
2 metre:	580	mm.	Concrete Face
3 metre:	480	mm.	Concrete Face
4 metre:	430	mm.	Concrete Face
5 metre:	370	mm.	Concrete Face
6 metre:	330	mm.	Concrete Face
7 metre:	280	mm.	Construction Joint
8 metre:	260	mm.	Smooth Concrete Face, no exposed aggregate.
9 metre:		mm.	
10 metre:		mm.	

Dock Bottom Type **Silt:** Light **Sample:** **Debris:** Some Construction Debris
Silt Probing, Type of Probe: Rebar **Probe to Refusal:** Solid Debris
Length of Probe: 4 metres **Length of Probe Projecting:** metres
Top of Probe to Water Level:

Depth Probed and Pneumo Reading at Bed Level

Probe at 0 metre: 1800 mm	6.7 metres	Easy to Solid Debris
Probe at 2 metre: 2000 mm	6.8 metres	Easy to Solid Debris
Probe at 4 metre: 2600 mm	6.8 metres	Easy to Solid Debris
Probe at 6 metre: 2200 mm	6.8 metres	Easy to Solid Debris

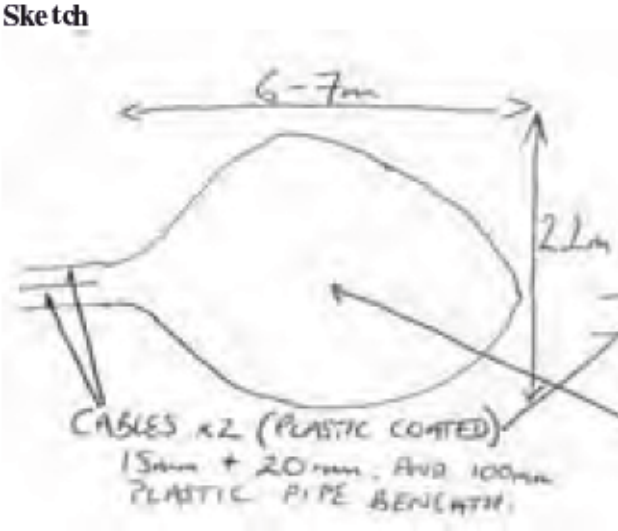
8. Obstructions Surveys

520 – ARUP WOOD WHARF DOCK SURVEY

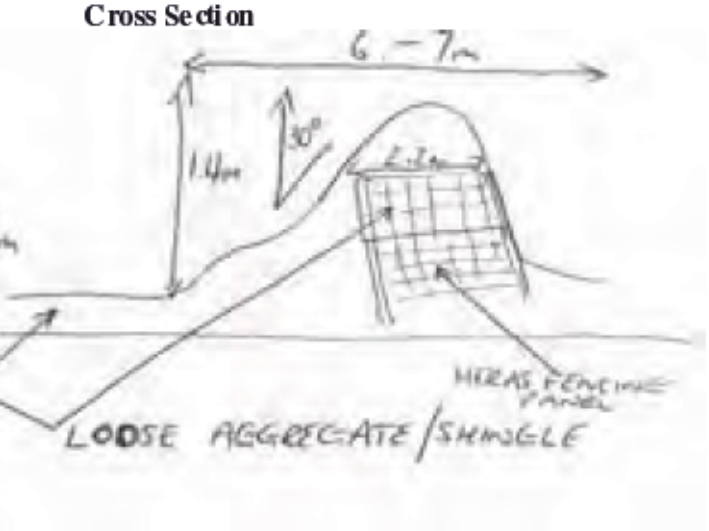
OBSTRUCTION INSPECTION SURVEY RECORD SHEET NO: WW2
DVD REF: 34
Related Photographs: N/a

Dock Wall Geographic Location: 40 metres out from Dock wall.
Inspection Date: 31/07/2007
Chainage Reference Point: Wood Wharf Section 3.
Chainage: -10 metres (to top left hand corner of defect / feature in elevation)
Obstruction Description: Mound of Aggregate/Shingle mid-channel south of Bellmouth Passage. Highest point is 1.4 metres from bed level. Approximately 6-7 metres in width. 2 x 15mm & 20mm Plastic Coated cables and 100mm pipe running due south from obstruction.
Distance from Water Level to Top of Obstruction: 4.9 metres (Pnuemo).

Sketch



Cross Section



Other Observations:

- Mound of Loose Aggregate/Shingle is 1.4m high, 6-7m wide.
- 2 x Cables 15mm & 20mm and 100mm plastic pipe running 10m due south from mound, then goes down under bed level. Covered by approximately 200mm wide loose Aggregate.
- Heras Fencing panel, 2.2m wide lying on side of mound, running top to bottom.
- Mound slopes up at 30 degrees from bed.

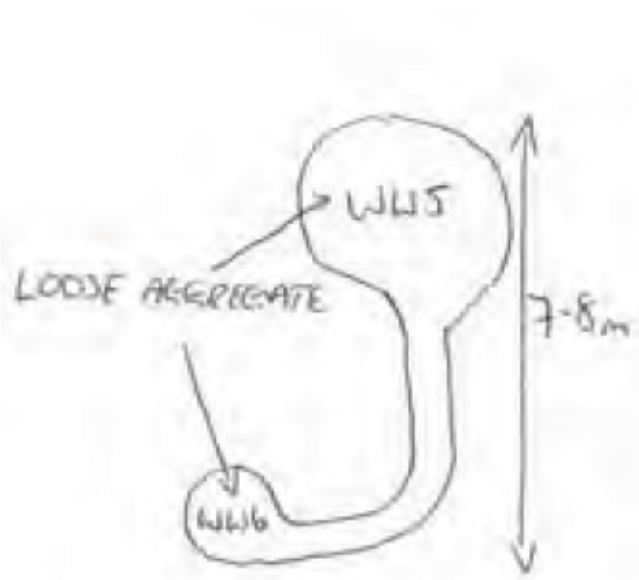
Also random loose debris around mound, rope, cable & steel pipe.

520 – ARUP WOOD WHARF DOCK SURVEY

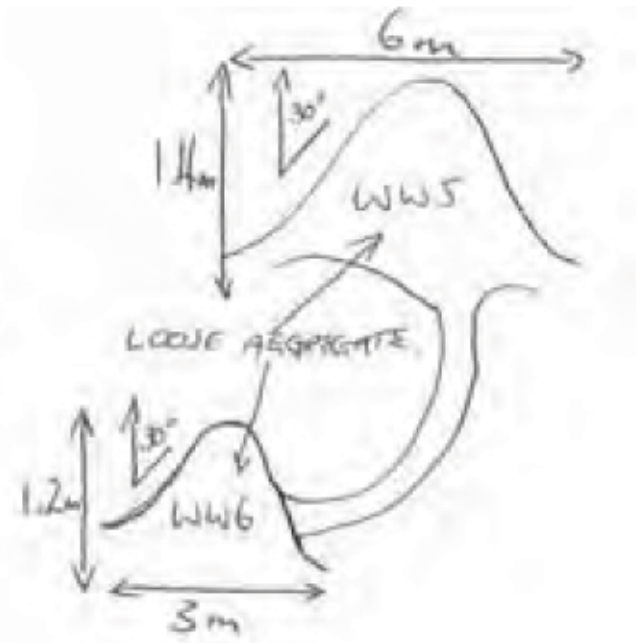
OBSTRUCTION INSPECTION SURVEY RECORD SHEET NO: WW5 & 6
DVD REF: 34
Related Photographs: N/a

Dock Wall Geographic Location: 40 metres out from Dock wall.
Inspection Date: 31/07/2007
Chainage Reference Point: Wood Wharf Section 3.
Chainage: 0 - 5 metres
Obstruction Description: Two Mounds of loose Aggregate/Shingle, connected by a ridge of loose aggregate, mid-channel south of Bellmouth Passage.
Distance from Water Level to Top of Obstruction: 4.6 & 4.5 metres (Pnuemo).

Sketch



Cross Section



Other Observations:

- 2 Mounds of Loose Aggregate is 1.4m & 1.2m high, 7 - 8 m across the two obstructions.
- Next to WW5 there is a large loose coil of steel cable. 600mm wide & 420mm high off bed.
- Both Mounds slopes up at approximately 30 degrees from bed level.

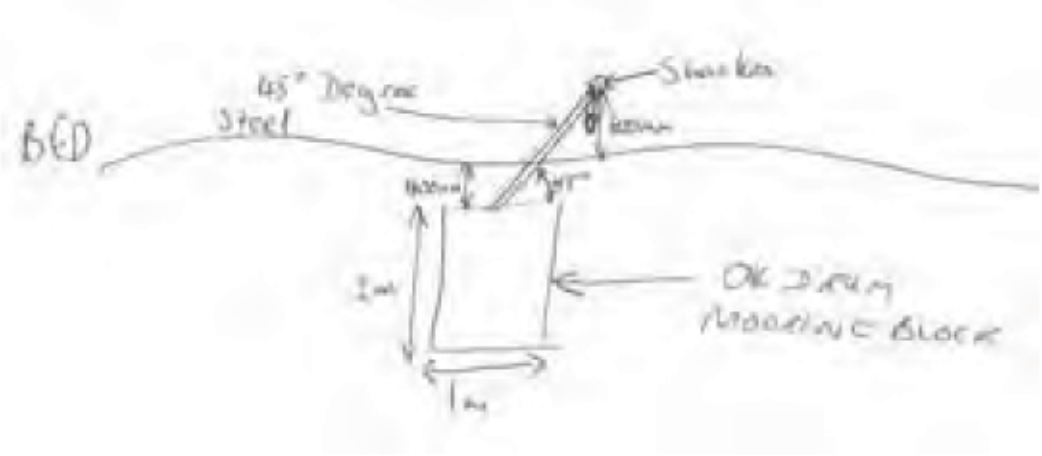
520 – ARUP WOOD WHARF DOCK SURVEY

OBSTRUCTION INSPECTION SURVEY RECORD SHEET NO: WW14
DVD REF: 34
Related Photographs: N/a

Dock Wall Geographic Location: 20 metres out from Dock wall.
Inspection Date: 31/07/2007
Chainage Reference Point: Wood Wharf Section 3.
Chainage: 63 metres
Obstruction Description: Mooring Block, 1 metre diameter x 2 metres height Oil Drum filled with concrete.

Distance from Water Level to Top of Obstruction: 5.2 metres (Pnuemo).

Sketch **Cross Section**



Other Observations:

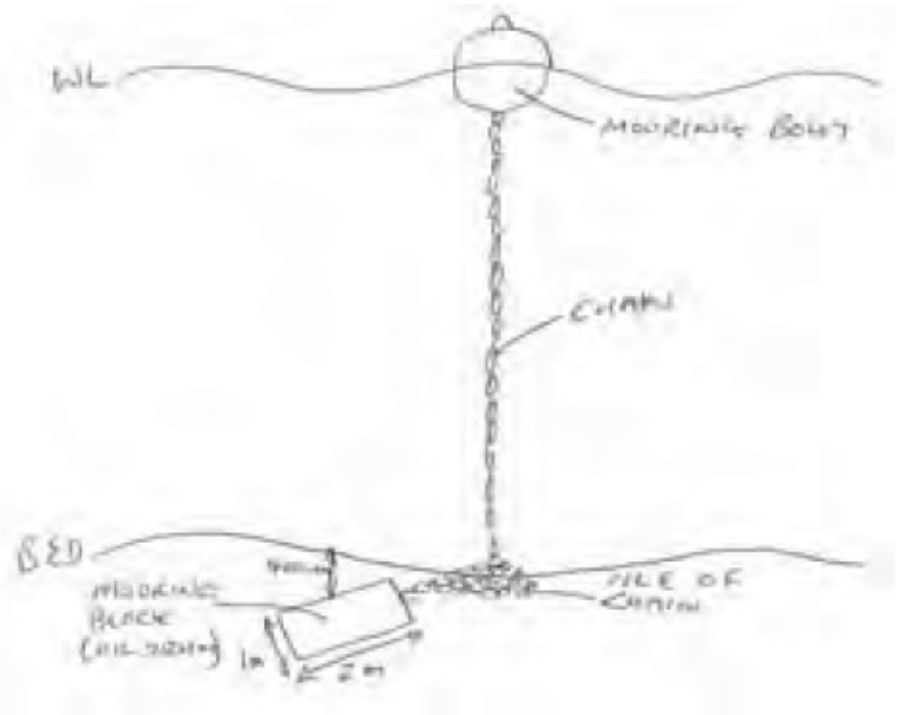
- Oil Drum mooring block is 400mm under silt.
- Steel bar 30mm wide coming out at 45 degree angle from Oil Drum.
- Shackles attached to end of Steel bar.
- Mooring block has no chain or mooring buoy.
- Configuration of mooring buoys on surface suggests that mooring buoy is missing.

520 – ARUP WOOD WHARF DOCK SURVEY

OBSTRUCTION INSPECTION SURVEY RECORD SHEET NO: WW15
DVD REF: 34
Related Photographs: N/a

Dock Wall Geographic Location: 20 metres out from Dock wall.
Inspection Date: 31/07/2007
Chainage Reference Point: Wood Wharf Section 4.
Chainage: 53 metres
Defect / Feature Description: Mooring Block, 1 metre diameter x 2 metres height Oil Drum filled with concrete. Chains running up to Mooring Buoy.
Distance from Water Level to Top of Obstruction: 6.0 metres. (Pnuemo)

Sketch **Cross Section**



Other Observations:

- Chains run along bed 1.5m under silt to Mooring block.
- Oil Drum mooring block is 400mm under silt.
- Diver carried out 6 metre circular search to confirm Chain and Mooring block were the obstruction.

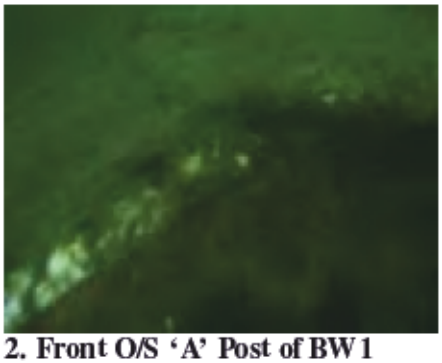
520 – ARUP WOOD WHARF DOCK SURVEY

OBSTRUCTION INSPECTION SURVEY RECORD SHEET NO: BW1
DVD REF: 35
Related Photographs: ObBW01 (1-17)

Dock Wall Geographic Location: 8 metres out from Dock wall.
Inspection Date: 02/08/2007
Chainage Reference Point: Blackwall Section 1
Chainage: 5 metres
Obstruction Description: Abandoned Vehicle. White Renualt 11 GTL. Reg. - B882 PLR (1984-85).
Distance from Water Level to Top of Obstruction: 3.5 metres (Pnuemo).

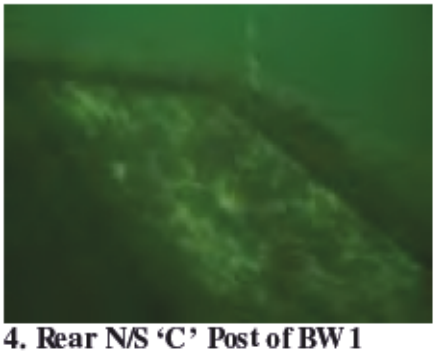
Sketches/Pictures

1. Example picture of Renault 11GTL



2. Front O/S 'A' Post of BW1

3. Picture of Badge on rear.



4. Rear N/S 'C' Post of BW1

Other Observations:

- All wheels are 60% (400mm) submerged into silt bed.
- Rear boot is locked/seized closed.
- Windows are intact and wound down.
- A, B and C posts (Chassis to roof) are rusted, but intact.

520 – ARUP WOOD WHARF DOCK SURVEY

OBSTRUCTION INSPECTION SURVEY RECORD SHEET NO: BW2
DVD REF: 35
Related Photographs: ObBW02 (1-28)

Dock Wall Geographic Location: 10 metres out from Dock wall.
Inspection Date: 02/08/2007
Chainage Reference Point: Blackwall Section 1
Chainage: 40 metres
Obstruction Description: Abandoned Vehicle. White Ford Cortina L. Reg. – EKa n60T (1978-79).

Distance from Water Level to Top of Obstruction: 4.0 metres (Pnuemo).

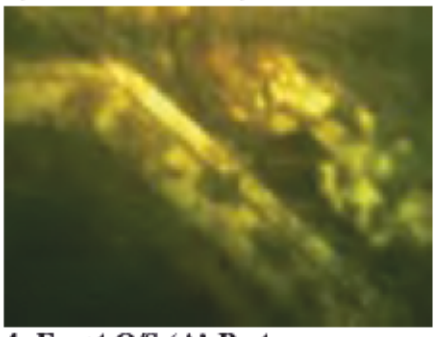
Sketch

1. Example of Ford Cortina L

Cross Section

2. Rear O/S Wheel.

3. Rear Number Plate.



4. Front O/S 'A' Post.

Other Observations:

- Sunk into silt at angle. Lower at near side front..
- Rear boot is locked/seized closed.
- Windows are intact and wound down.
- A, B and C posts (Chassis to roof) are rusted, but intact.

520 – ARUP WOOD WHARF DOCK SURVEY

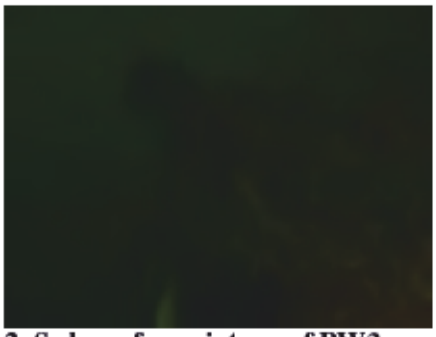
OBSTRUCTION INSPECTION SURVEY RECORD SHEET NO: BW3
DVD REF: 36
Related Photographs: ObBW03 (1-9)

Dock Wall Geographic Location: 25 metres out from Dock wall.
Inspection Date: 02/08/2007
Chainage Reference Point: Blackwall Section 2
Chainage: 20 metres
Obstruction Description: Steel Object. Possibly part of car engine/chassis. 2.5m long x 1m wide.

Distance from Water Level to Top of Obstruction: 3.2 metres (Pnuemo).

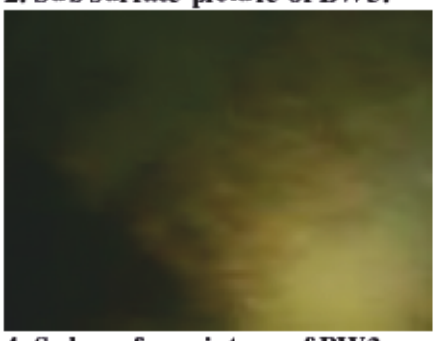
Sketches/Pictures

1. Part of structure Recovered to surface.



2. Sub surface picture of BW3.

3. Sub surface picture of BW3.



4. Sub surface picture of BW3.

Other Observations:

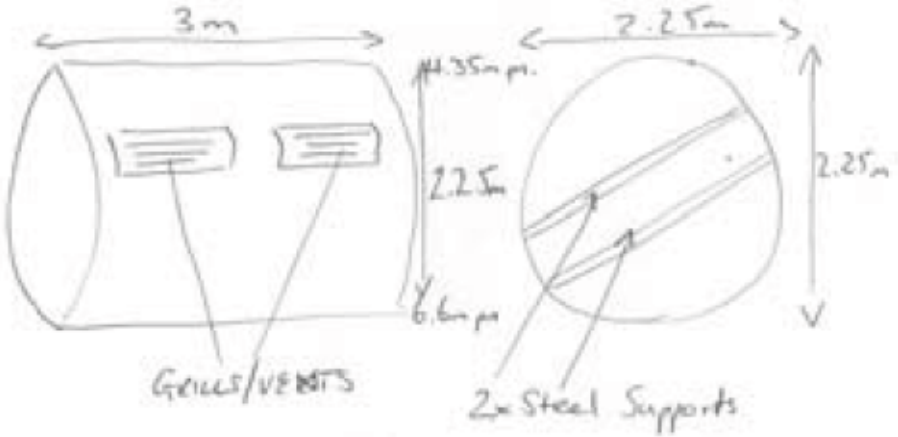
- 0.5 metres high from bed level.
- Twisted, rusted steel structure, possibly car engine/chassis.
- Part of object recovered to surface. Pictured top left.
- Would be possible to recover entire obstruction to surface.

520 – ARUP WOOD WHARF DOCK SURVEY

OBSTRUCTION INSPECTION SURVEY RECORD SHEET NO: BW11
DVD REF: 36
Related Photographs: ObBW11 (1-10)

Dock Wall Geographic Location: 30 metres out from Dock wall.
Inspection Date: 02/08/2007
Chainage Reference Point: Blackwall Section 3
Chainage: 55 metres
Obstruction Description: Large Steel Cylindrical Object. Object on its side. 2.0m long x 2.25m diameter.
Distance from Water Level to Top of Obstruction: 4.35 metres (Pnuemo).

Sketches/Pictures



1. Picture of outside of BW11 white painted steel

2. Picture of Grill/Vent

Other Observations:

- Large Cylindrical Object. 2.0 metres long, 2.25 metres diameter. Lying on its side.
- Sunk 200mm into silt.
- Coated with a white paint. Some surface rust. 100mm thick steel.
- 2 Grills/Vent on outside.
- Two steel supports in centre, running parallel to each other

9. Photographs

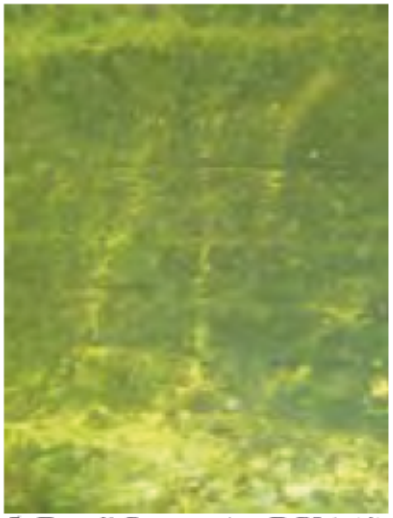
a. Detailed Survey 1 – Graving Dock, Chainage 100

1. Graving Dock - GD (4)

2. Detail Survey 1 – DS01 (1)

3. Detail Survey 1 – DS01 (2)

4. Detail Survey 1 – DS01 (3)



5. Detail Survey 1 – DS01 (4)

4. Detail Survey 1 – DS01 (5)

b. Detailed Survey 2 – Graving Dock, Chainage 50


1. Graving Dock – GD (2)


2. Detail Survey 2 – DS02 (1)


3. Detail Survey 2 – DS02 (2)


4. Detail Survey 2 – DS02 (6)


2. Detail Survey 2 – DS02 (7)


2. Detail Survey 2 – DS02 (8)

c. Detailed Survey 3 – Blackwall Basin 1, Chainage 8

- Change from Brick to Timber

1. Blackwall Basin 1 – BWS1 (4)

2. Detail Survey 3 – DS03 (1)

3. Detail Survey 3 – DS03 (2)

4. Detail Survey 3 – DS03 (3)

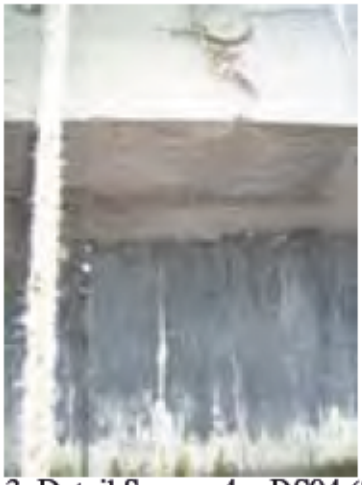
5. Detail Survey 3 – DS03 (4)

6. Detail Survey 3 – DS03 (5)

d. Detailed Survey 4 – Blackwall Basin 1, Chainage 50


1. Blackwall Basin 1 – BWS1 (13)


2. Detail Survey 4 – DS04 (1)


3. Detail Survey 4 – DS04 (2)


4. Detail Survey 4 – DS04 (3)


5. Detail Survey 4 – DS04 (4)


6. Detail Survey 4 – DS04 (5)

e. Detailed Survey 5 – Blackwall Basin 1, Chainage 4
- Change in Timber Wall Direction


1. Blackwall Basin 1 – BWS1 (14)


2. Blackwall Basin 1 – BWS1 (16)


3. Detail Survey 5 – DS05a (3)


4. Detail Survey 5 – DS05a (37)

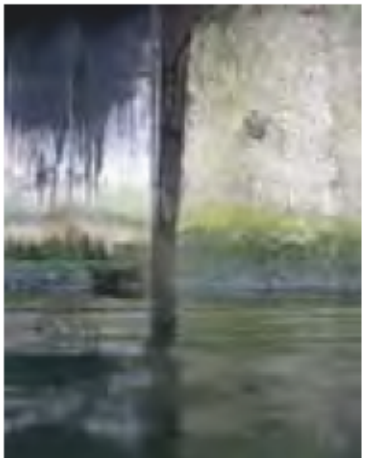

5. Detail Survey 5 – DS05b (3)

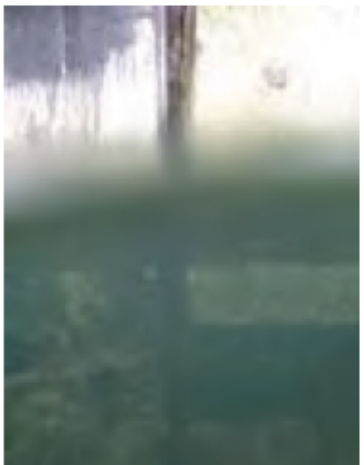

6. Detail Survey 3 – DS05c (7)

f. Detailed Survey 6 – Blackwall Basin 2, Chainage 65
- Change from Timber to Concrete Cope.

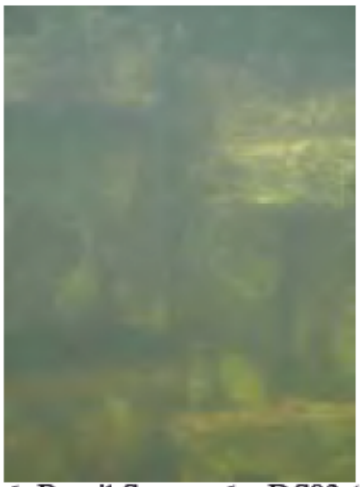

1. Blackwall Basin 2 – BWS2 (2)


2. Detail Survey 6 – DS06 (1)


3. Detail Survey 6 – DS06 (2)


4. Detail Survey 6 – DS06 (3)


5. Detail Survey 6 – DS03 (4)


6. Detail Survey 6 – DS03 (5)

g. Detailed Survey 7 – Blackwall Basin 2, Chainage 54
- Change from Timber to Brickwork

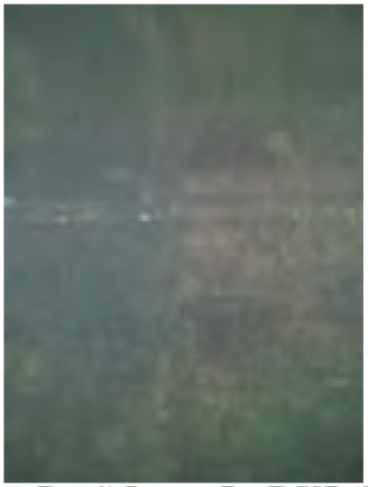

1. Blackwall Basin 2 – BWS2 (3)


2. Detail Survey 7 – DS07 (1)


3. Detail Survey 7 – DS07 (2)


4. Detail Survey 7 – DS07 (3)


5. Detail Survey 7 – DS07 (4)


6. Detail Survey 7 – DS07 (5)

h. Detailed Survey 8 – Blackwall Basin 2, Chainage 17.5
- Change from Brickwork to Larson Piles


1. Blackwall Basin 2 – BWS2 (6)


2. Detail Survey 8 – DS08 (1)


3. Detail Survey 8 – DS08 (2)


4. Detail Survey 8 – DS08 (10)


5. Detail Survey 8 – DS08 (11)


6. Detail Survey 8 – DS08 (5)

i. Detailed Survey 9 – Blackwall Basin 3, Chainage 94
   - Change from Larson to Sheet Piles


1. Blackwall Basin 3 – BWS3 (1)


2. Detail Survey 9 – DS09 (1)


3. Detail Survey 9 – DS09 (2)


4. Detail Survey 9 – DS09 (31)


5. Detail Survey 9 – DS09 (17)

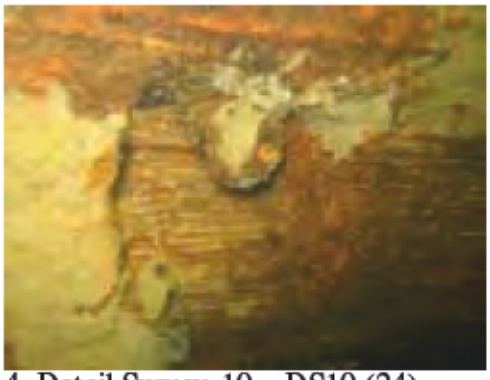

6. Detail Survey 9 – DS09 (22)

j. Detailed Survey 10 – Blackwall Basin 3, Chainage 51
- Defect in Sheet Pile Wall

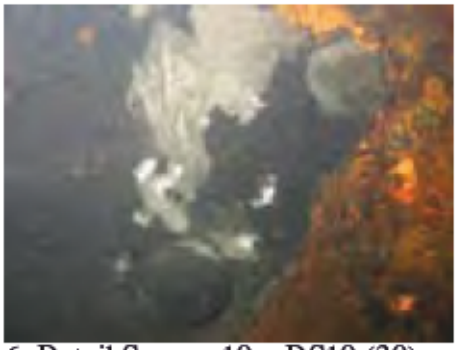

1. Blackwall Basin 3 – BWS3 (2)


2. Detail Survey 10 – DS10 (1)


3. Detail Survey 10 – DS10 (2)


4. Detail Survey 10 – DS10 (24)

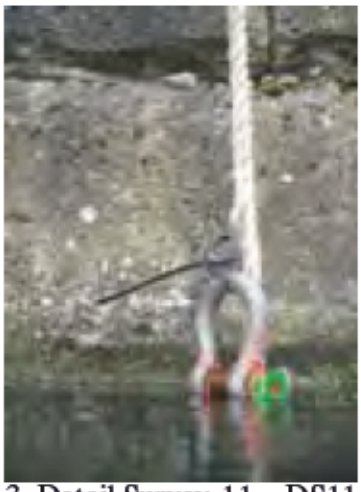

5. Detail Survey 10 – DS03 (25)


6. Detail Survey 10 – DS10 (30)

k. Detailed Survey 11 – Blackwall Basin 3, Chainage 20


1. Blackwall Basin 3 – BWS3 (4)


2. Detail Survey 11 – DS11 (1)


3. Detail Survey 11 – DS11 (4)


4. Detail Survey 11 – DS11 (5)


5. Detail Survey 11 – DS11 (6)


6. Detail Survey 11 – DS11 (7)

1. Detailed Survey 12–16, Wood Wharf (No Sub-surface shots due to poor visibility).

1. Detailed Survey 12, Chainage 105
Wood Wharf 1 – WWS1 (3)
Change from Sheet Piles to Brick work

2. Detail Survey 13, Chainage 40
Wood Wharf 1 – WWS1 (11)

3. Detailed Survey 14, Chainage 40
Wood Wharf 2 – WWS2 (1)

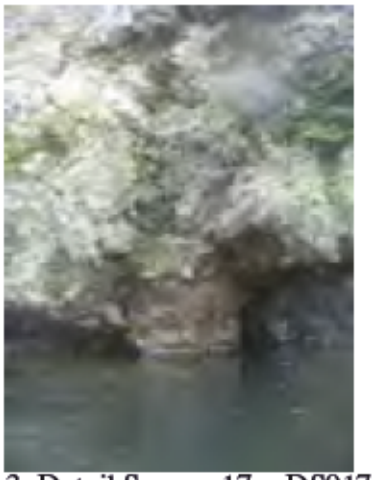
4. Detail Survey 15, Chainage 15
Wood Wharf 2 – WWS2 (3)
Defect in Wall

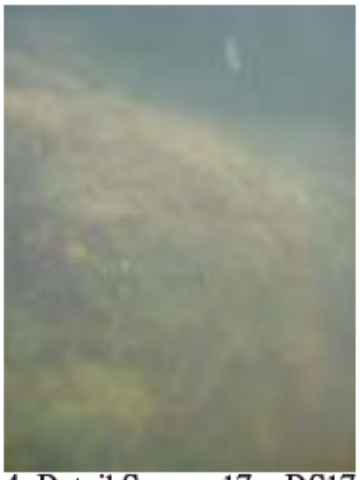
5. Detailed Survey 16, Chainage 8
Wood Wharf 2 – WWS2 (4)
Change from Brickwork to Concrete

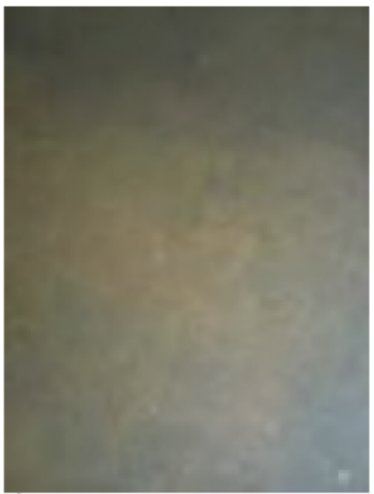
m. Detailed Survey 17 – Wood Wharf 3, Chainage 45.5
- Defect/Crack

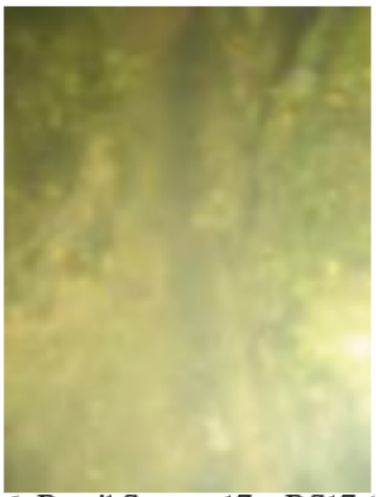

1. Wood Wharf 3 – WWS3 (2)


2. Detail Survey 17 – DS17 (1)


3. Detail Survey 17 – DS017 (2)


4. Detail Survey 17 – DS17 (3)

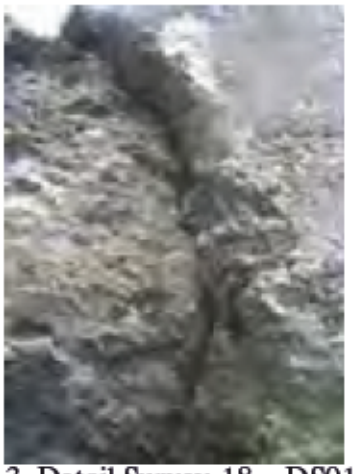

5. Detail Survey 17 – DS17 (4)


6. Detail Survey 17 – DS17 (5)

n. Detailed Survey 18 – Wood Wharf 3, Chainage 5
- Defect/Crack


1. Wood Wharf 3 – WWS3 (5)


2. Detail Survey 18 – DS18 (1)


3. Detail Survey 18 – DS018 (2)

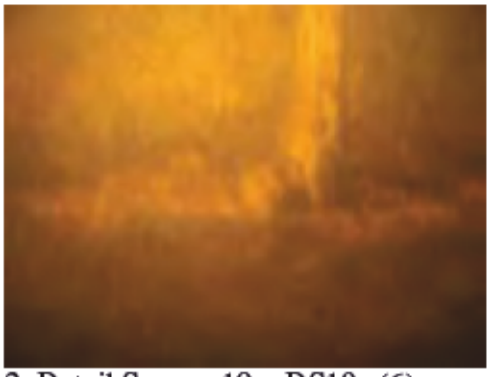

4. Detail Survey 18 – DS19 (3)

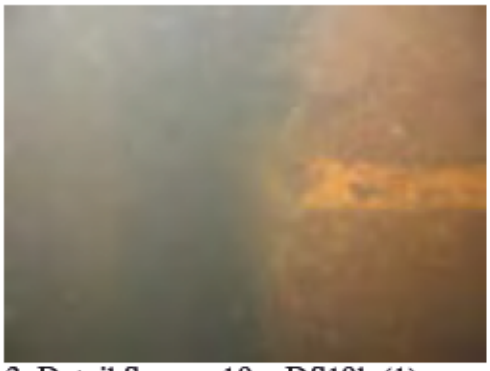

5. Detail Survey 18 – DS18 (4)


6. Detail Survey 18 – DS18 (5)

o. Detailed Survey 19 – Wood Wharf 4, Chainage 221
- Change from Concrete to Brick

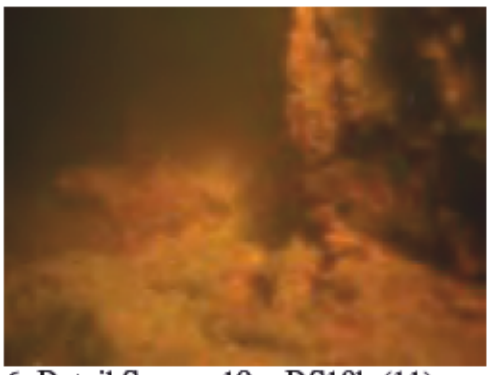

1. Wood Wharf 4 – WWS4 (1)


2. Detail Survey 19 – DS19a (6)


3. Detail Survey 19 – DS19b (1)


4. Detail Survey 19 – DS19b (2)

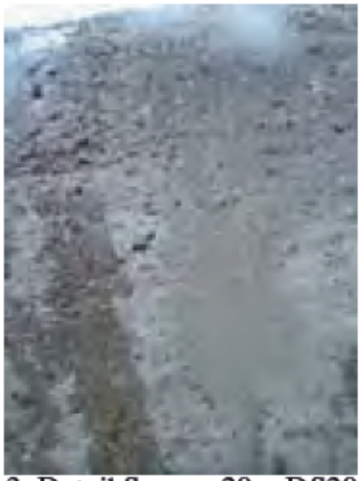

5. Detail Survey 19 – DS19c (8)

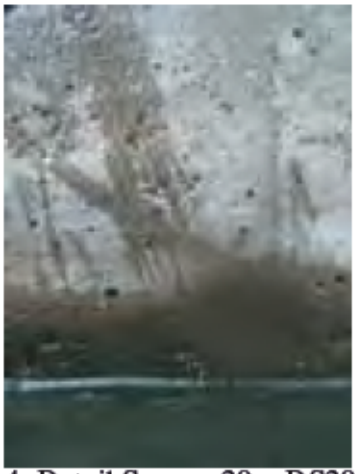

6. Detail Survey 19 – DS19b (11)

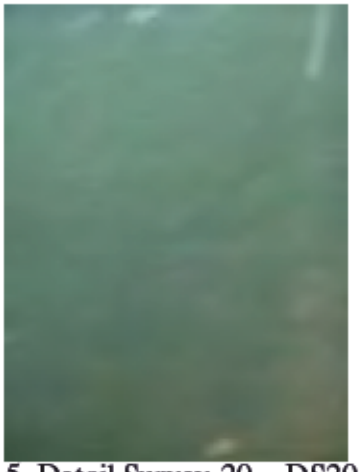
p. Detailed Survey 20 – Wood Wharf 4, Chainage 160

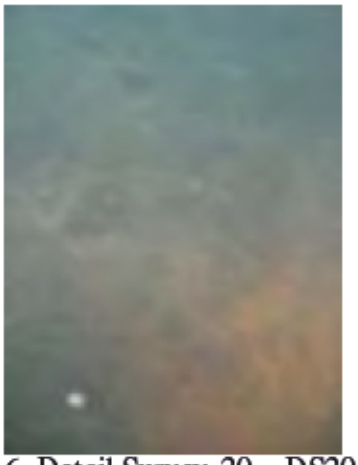

1. Wood Wharf 4 – WWS4 (10)


2. Detail Survey 20 – DS20 (1)


3. Detail Survey 20 – DS20 (2)


4. Detail Survey 20 – DS20 (3)


5. Detail Survey 20 – DS20 (5)


6. Detail Survey 20 – DS20 (6)

q. Detailed Survey 21 – Wood Wharf 4, Chainage 121 – 117
- Change from Brickwork to Concrete
- No Sub-surface shots due to poor visibility.


1. Wood Wharf 4 – WWS4 (11)

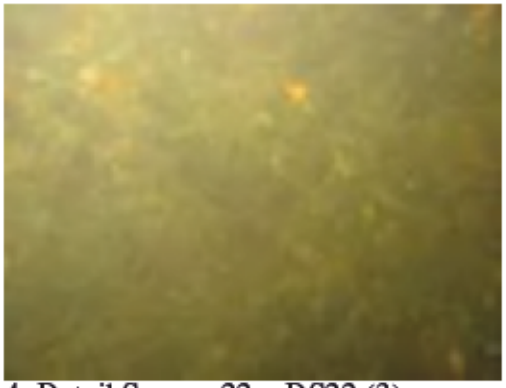

1. Wood Wharf 4 – WWS4 (12)

r. Detailed Survey 22 – Wood Wharf 4, Chainage 20

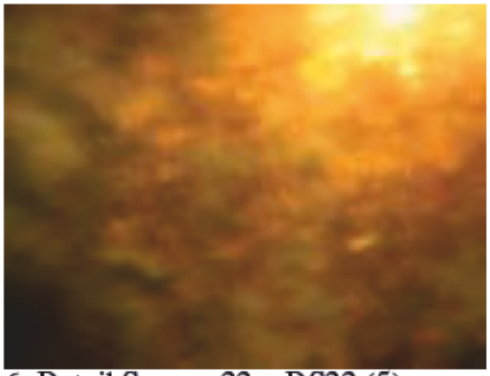

1. Wood Wharf 4 – WWS4 (13)


2. Detail Survey 22 – DS22 (1)


3. Detail Survey 22 – DS22 (2)


4. Detail Survey 22 – DS22 (3)

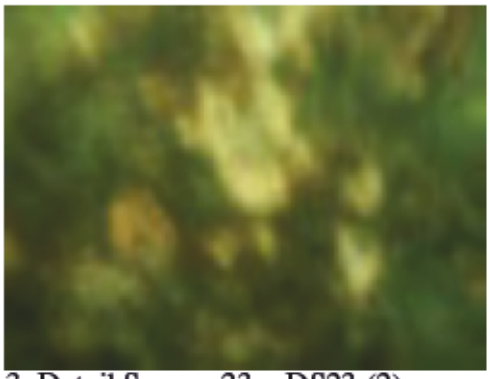

5. Detail Survey 22 – DS22 (4)


6. Detail Survey 22 – DS22 (5)

s. Detailed Survey 23 – Wood Wharf 5, Chainage 30


1. Wood Wharf 5 – WWS (4)


2. Detail Survey 23 – DS23 (1)

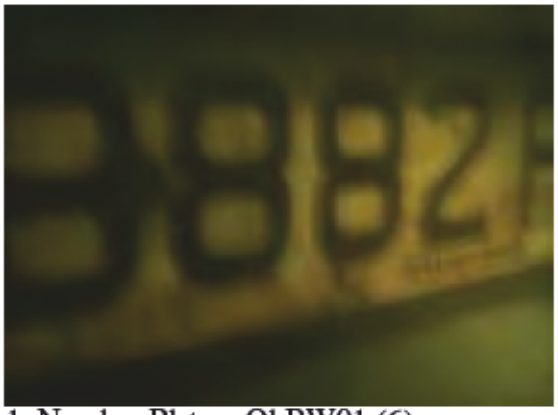

3. Detail Survey 23 – DS23 (2)


4. Detail Survey 23 – DS23 (3)

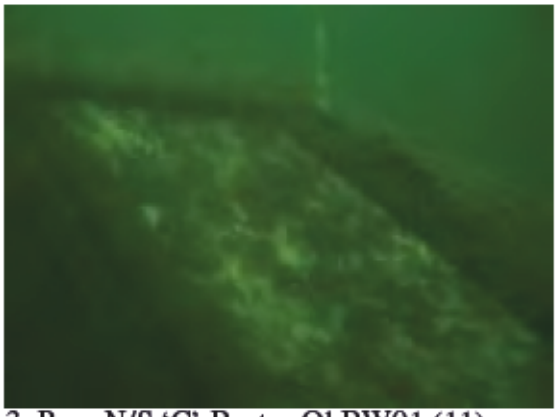

5. Detail Survey 23 – DS23 (4)

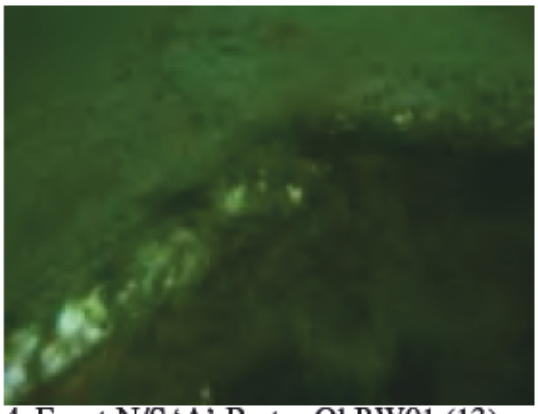

6. Detail Survey 23 – DS23 (5)

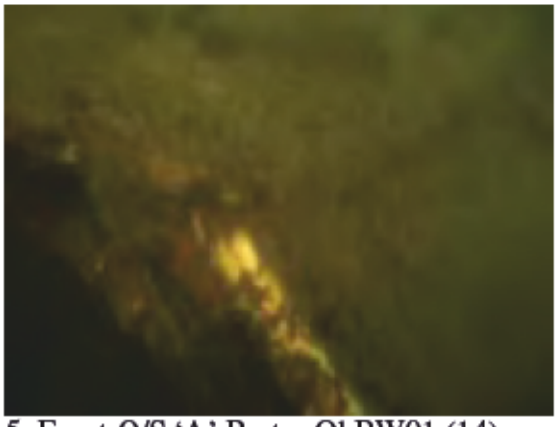
t. Obstruction Survey BW1 – Blackwall Basin
- Abandoned Car


1. Number Plate – ObBW01 (6)


2. Rear Model Badge – ObBW01 (9)


3. Rear N/S 'C' Post – ObBW01 (11)

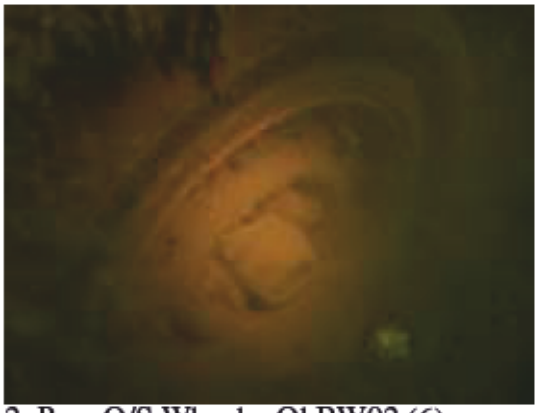

4. Front N/S 'A' Post – ObBW01 (13)

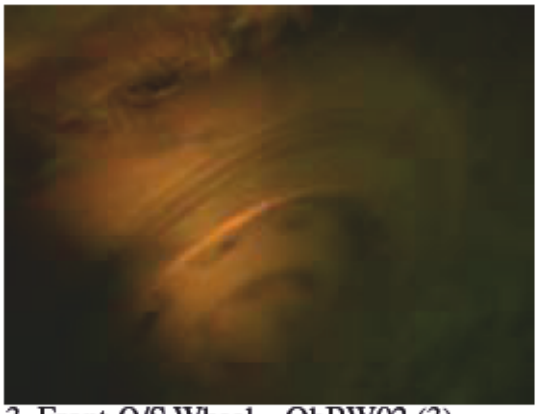

5. Front O/S 'A' Post – ObBW01 (14)

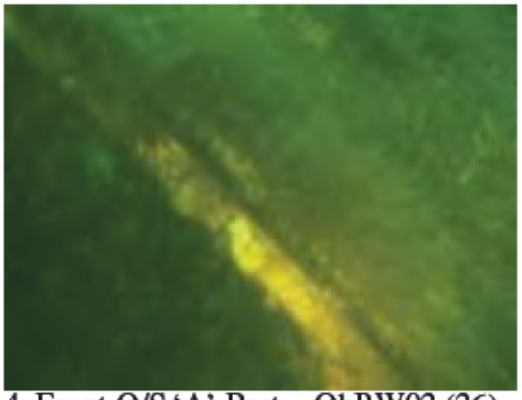

6. Rear Model Badge – ObBW01 (7)

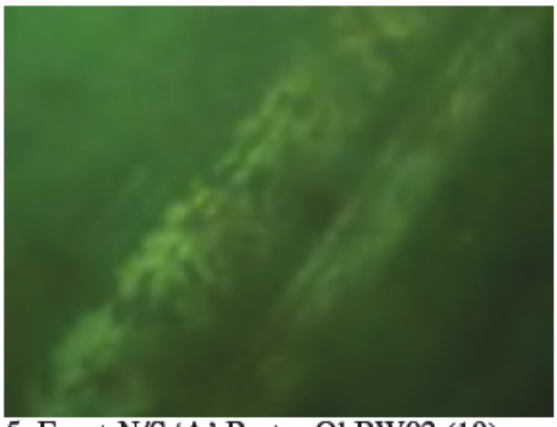
u. Obstruction Survey BW2 – Blackwall Basin
- Abandoned Car

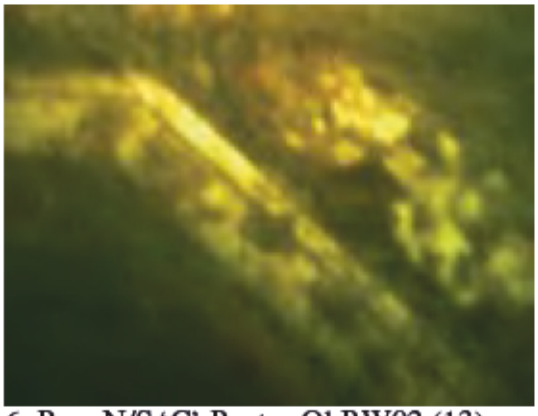

1. Number Plate – ObBW02 (28)


2. Rear O/S Wheel – ObBW02 (6)

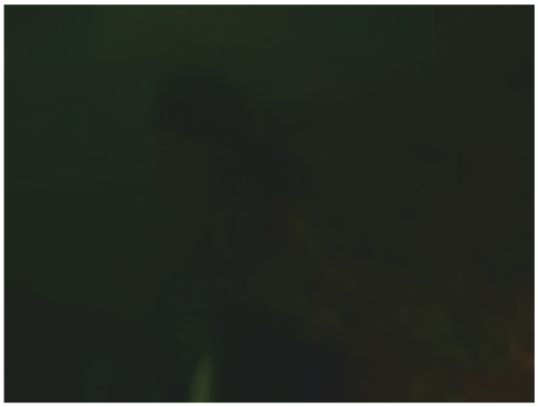

3. Front O/S Wheel – ObBW02 (3)

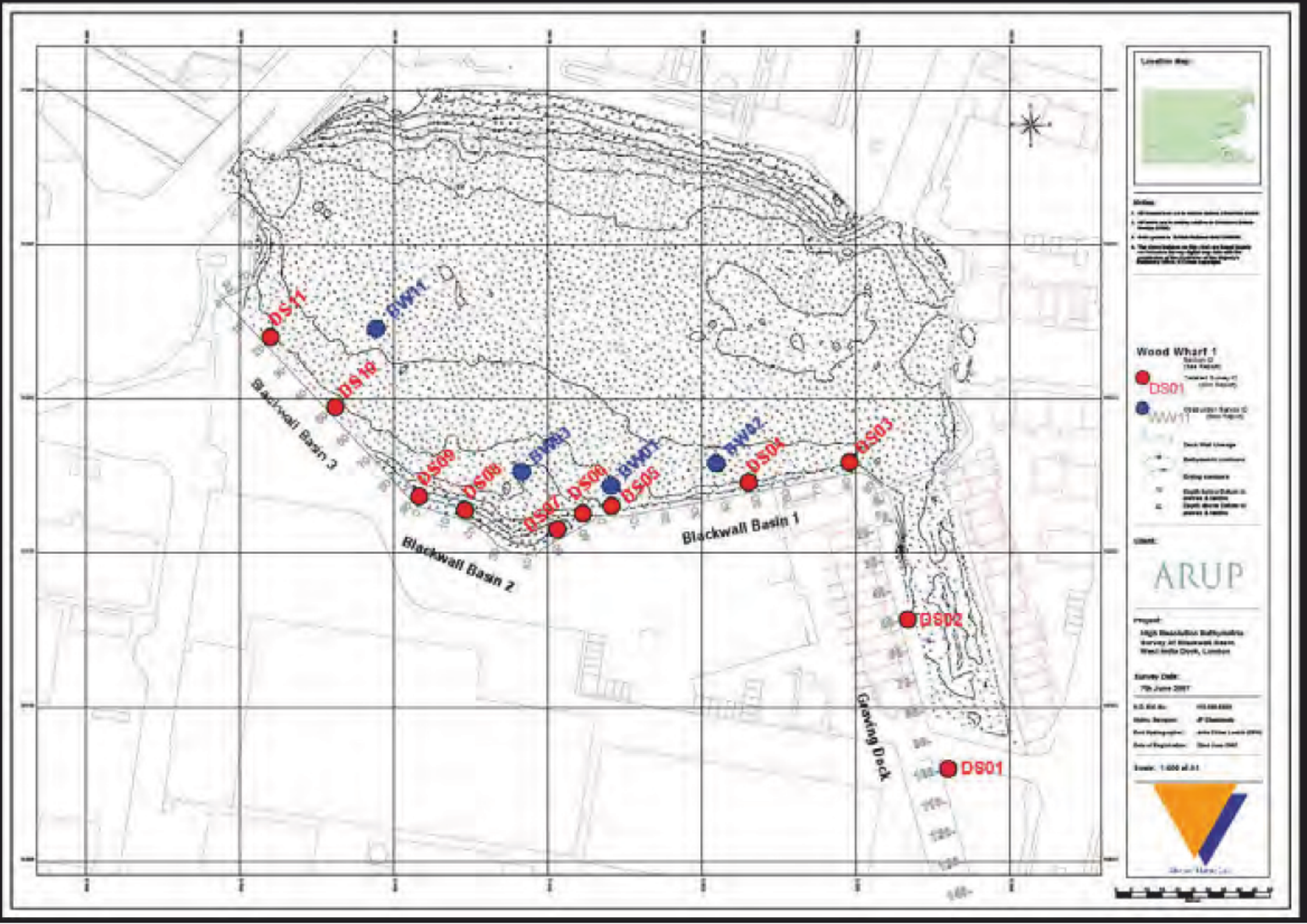

4. Front O/S 'A' Post – ObBW02 (26)

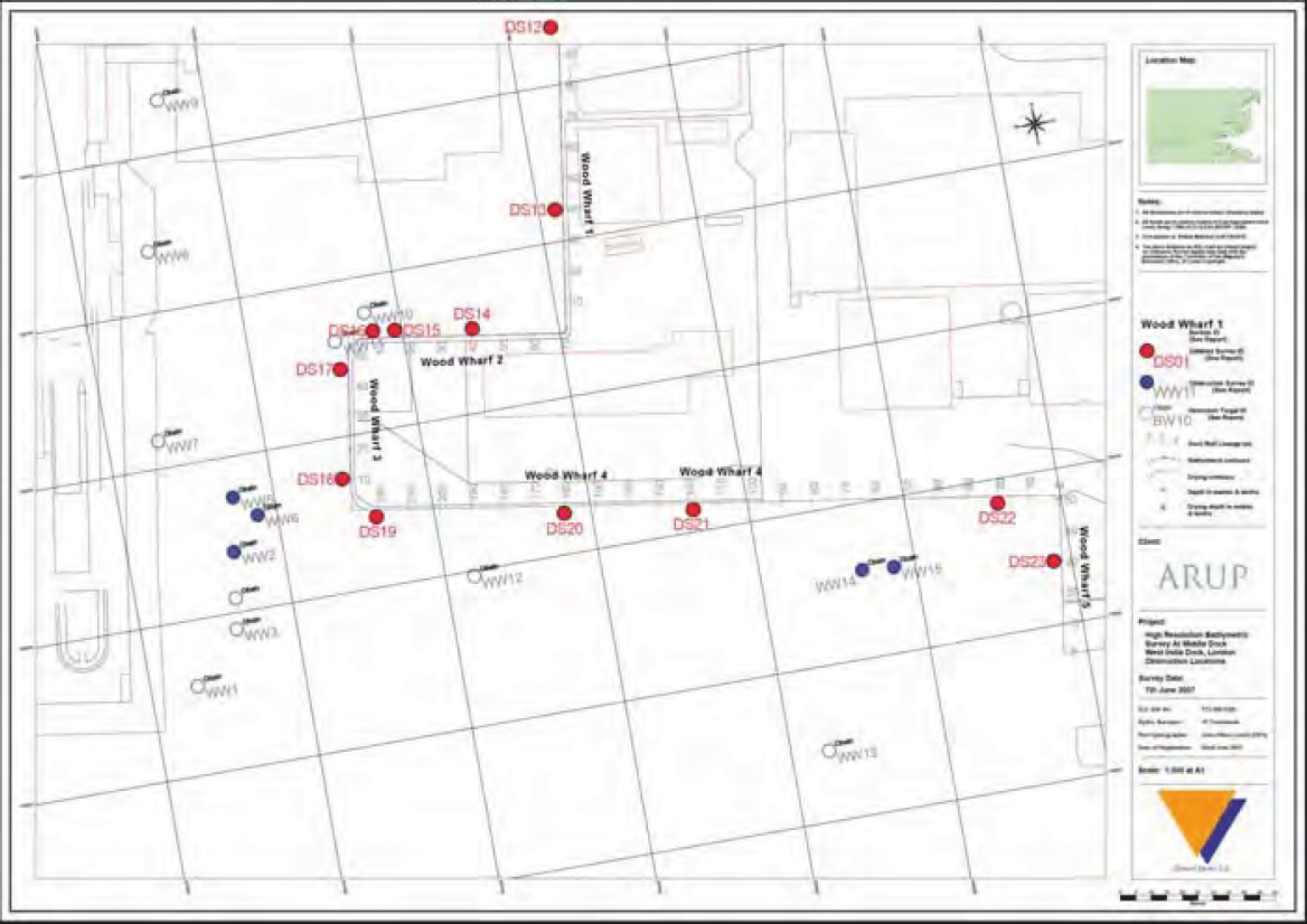

5. Front N/S 'A' Post – ObBW02 (19)

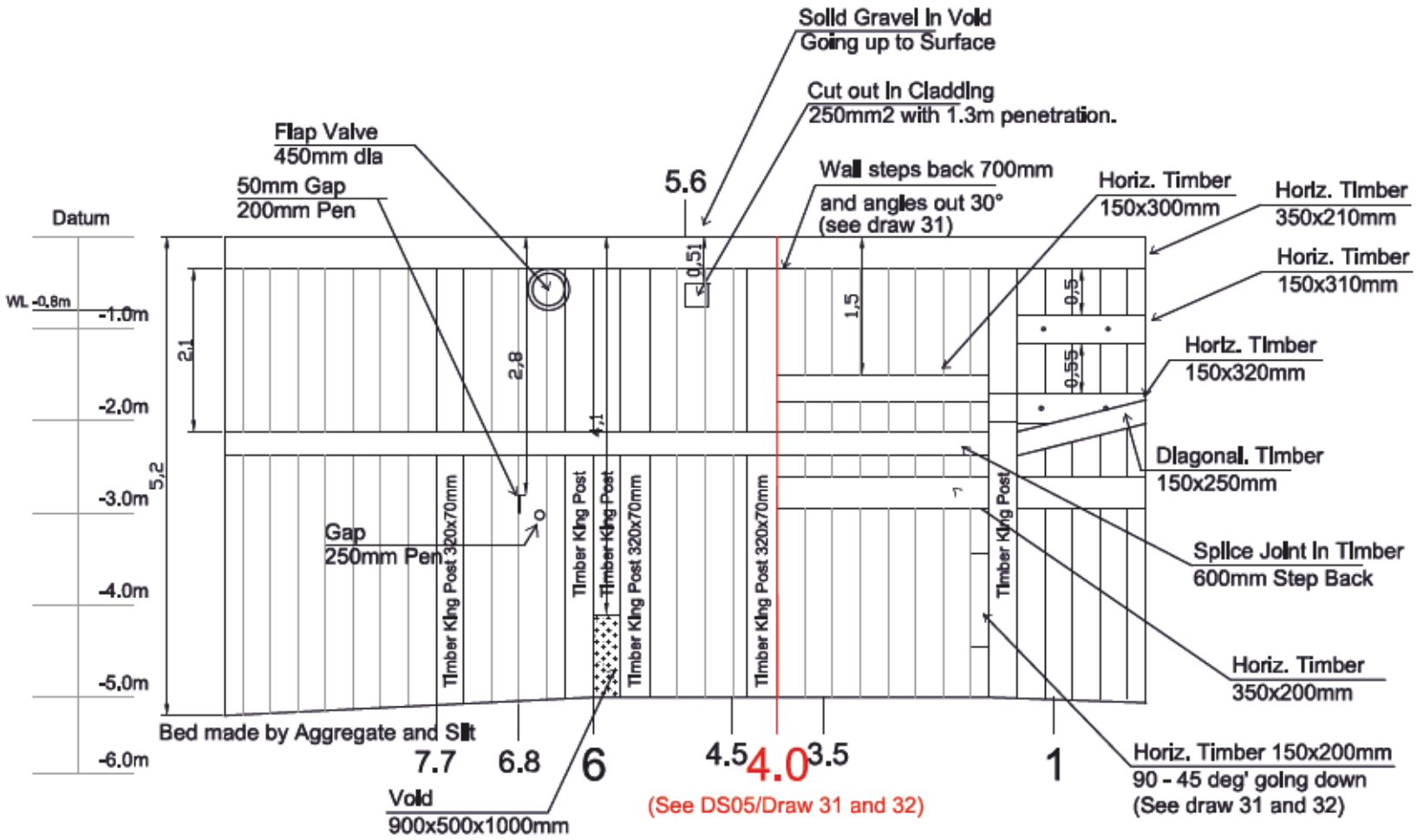

6. Rear N/S 'C' Post – ObBW02 (13)

v. Obstruction Survey BW3 – Blackwall Basin
- Metal Structure, possibly part of car engine/chassis.




DS11
BW11
DS10
Blackwall Basin 3
DS09
DS08
BW03
DS07
DS06
BW01
DS05
Blackwall Basin 2
BW02
DS04
DS03
Blackwall Basin 1
DS02
Graving Dock
DS01
Location Map
Wood Wharf 1
DS01
WW11
ARUP


DS12
DS13
Wood Wharf 1
DS14
DS15
Wood Wharf 2
DS17
Wood Wharf 3
DS18
Wood Wharf 4
Wood Wharf 4
DS19
DS20
DS21
DS22
DS23
Wood Wharf 5
WW1
WW2
WW3
WW5
WW6
WW7
WW8
WW9
WW10
WW11
WW12
WW13
WW14
WW15
Location Map
Notes:
Wood Wharf 1
DS01
WW11
BW10
Client:
ARUP
Project:
High Resolution Bathymetric Survey At Middle Dock West India Dock, London Observation Locations
Survey Date:
7th June 2007
Scale: 1:500 at A1



Height from Top of Capping Beam to Dock Bed

Chainage	Depths Dock Bed	Chainage	Depths Dock Bed
0	5.1	48	5.1
4	5.0	52	5.2
8	5.0	68	5.2
12	5.2	90	5.1
16	5.8	94	5.0
20	5.3	98	5.2
24	5.0	72	5.8
28	5.2	76	5.3
32	5.0	80	5.0
36	5.2	84	7.0
44	5.2	88	7.0

Notes

1) Refer to Abwood dock's for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) All detailed measurements are height x width x depth.

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

Abwood Marine Ltd
Dock Office
1 Onega Gate
Surrey Quays
London
SE16 7PF

Tel: 0845 230 2860
Fax: 0845 230 2870
Email: shoreside@abwood.co.uk
www.abwood.co.uk

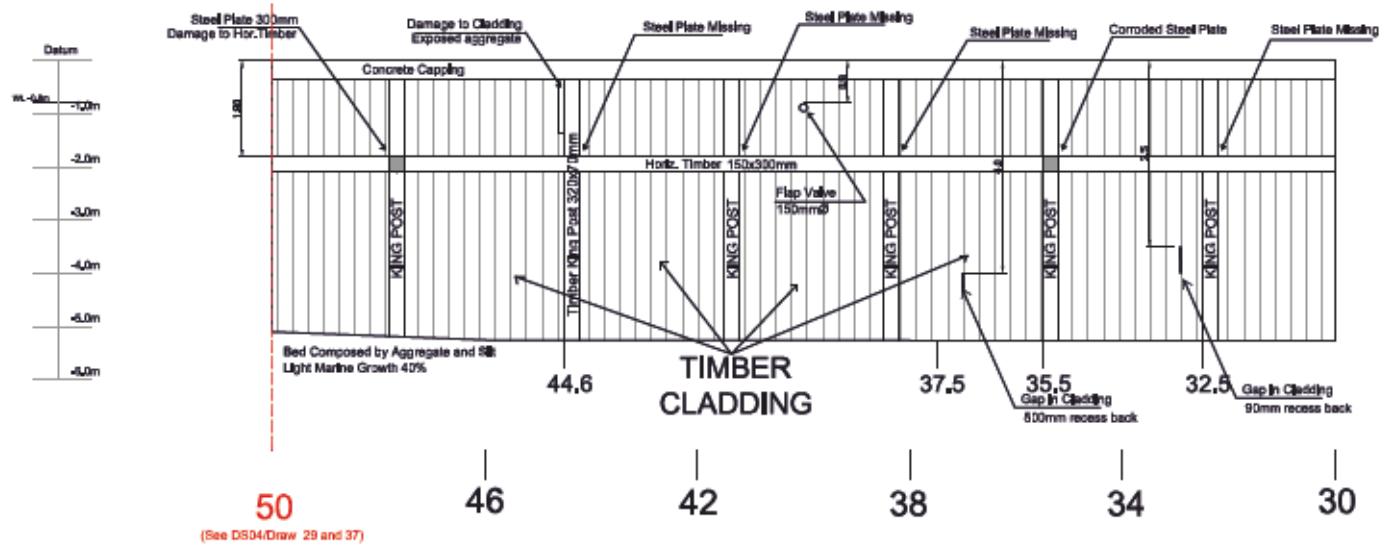
Project:
ARUP
Wood Wharf Development
West India

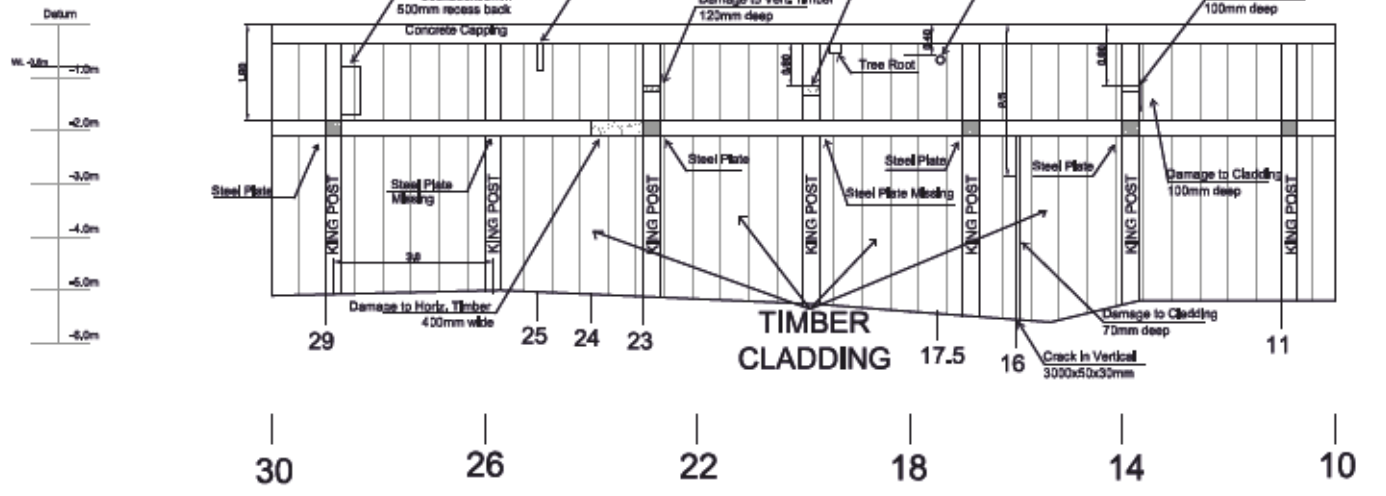
Drawing:
"General Dock Survey"
(Blackwall 1: 0-10m)
For Detail see Draws 31and 32

Scale:	Drawn by:
No Scale	M.C.
Desc:	App:
Date: 10/10/2007	Pro Code: / UPRN:

Drawing No:
Abwood / MC / 520 / 001-00

Revision A





Notes

1) Refer to Abwood docs for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Detailed measurements are height x width x depth.

Specific Challenges

Chainage for Detailed Surveys

General Challenge

Pen = Penetration

Rev.		Drawn	Date

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www.abwood.co.uk

Project:
ARUP
Wood Wharf Development
West India

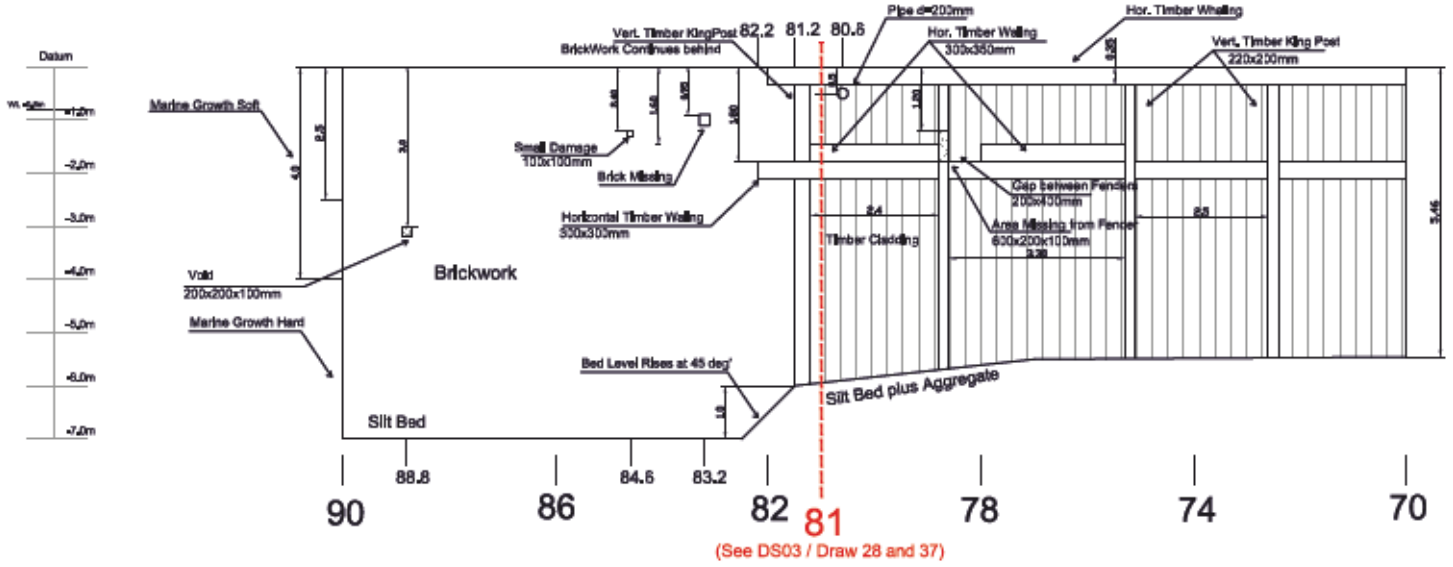
Drawing:
"General Dock Survey"
(Blackwall 1: 10-50)

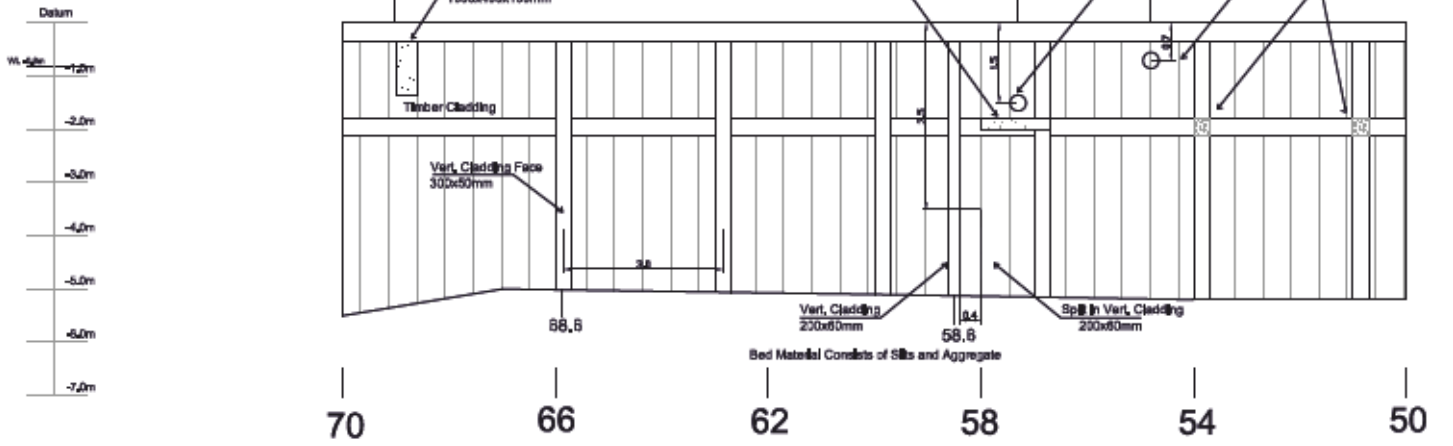
(For Detail see Draw 29)

Scale:	Drawn by:
No Scale	M.C.
Desc:	App:
Date: 10/10/2007	Pro Code:
	UPRN:

Drawing No:
Abwood / MC / 520 / 002-00

Revision	A					





Notes

1) Refer to Abwood docs for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Detailed measurements are height x width x depth.

x Specific Challenges

Challenge for Detailed Surveys

General Challenge

Pen = Penetration

Rev.		Drawn	Date

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www.abwood.co.uk

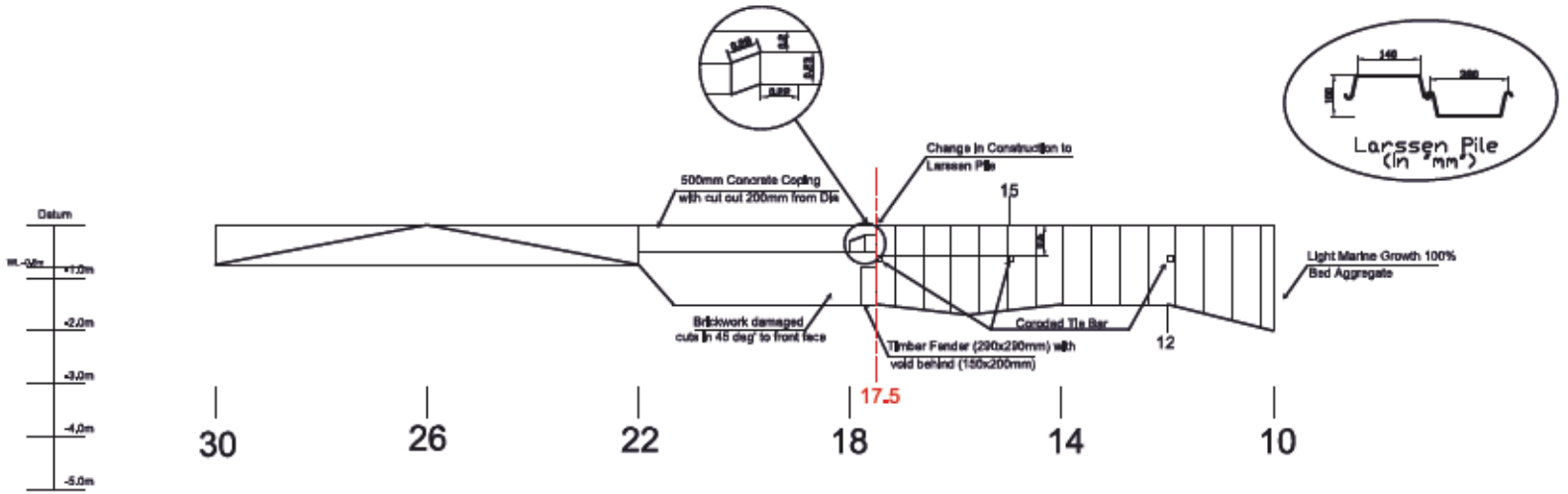
Project:
ARUP
Wood Wharf Development
West India

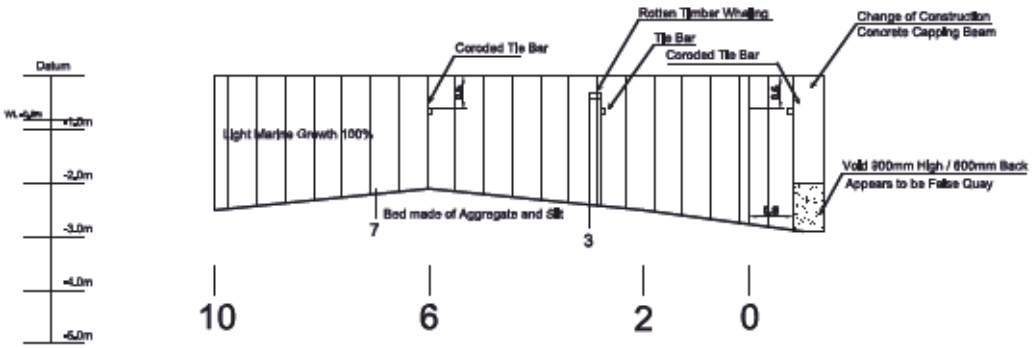
Drawing:
"General Dock Survey"
(Blackwall 1: 50–90m)

Scale:	Drawn by:
No Scale	M.C.
Desc:	App:
Date: 10/10/2007	Pro Code:
	UPRN:

Drawing No: Abwood / MC / 520 / 003–00

Revision A





Height from Top of Capping Beam to Dock Bed

Chainage	Depths Canal Bed	Chainage	Depths Canal Bed
0	3.0	36	2.0
4	2.5	44	2.3
8	2.0	48	1.9
12	1.8	52	1.8
16	1.5	56	2.5
20	1.5	60	3.8
24	1.5	64	4.0
28	1.5	68	5.4
32	1.7	70	5.4

NDT Thickness Readings (mm)

Chainage		Upper	Mid	Lower
17	0.9	13.7	7.6	6.4
	1.5	14.2	8.2	15.0
10	0.8	13.6	7.6	13.1
	2.0	14.1	8.2	15.0
0	0.8	14.4	8.2	13.6
	2.0	14.2	7.7	14.2
	3.0	14.2	7.7	14.2

Notes

X Specific Chainages

X Chainage for Detailed Surveys

X General Chainage

Rev.		Drawn	Date

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Email: shoreside@abwood.co.uk
www.abwood.co.uk

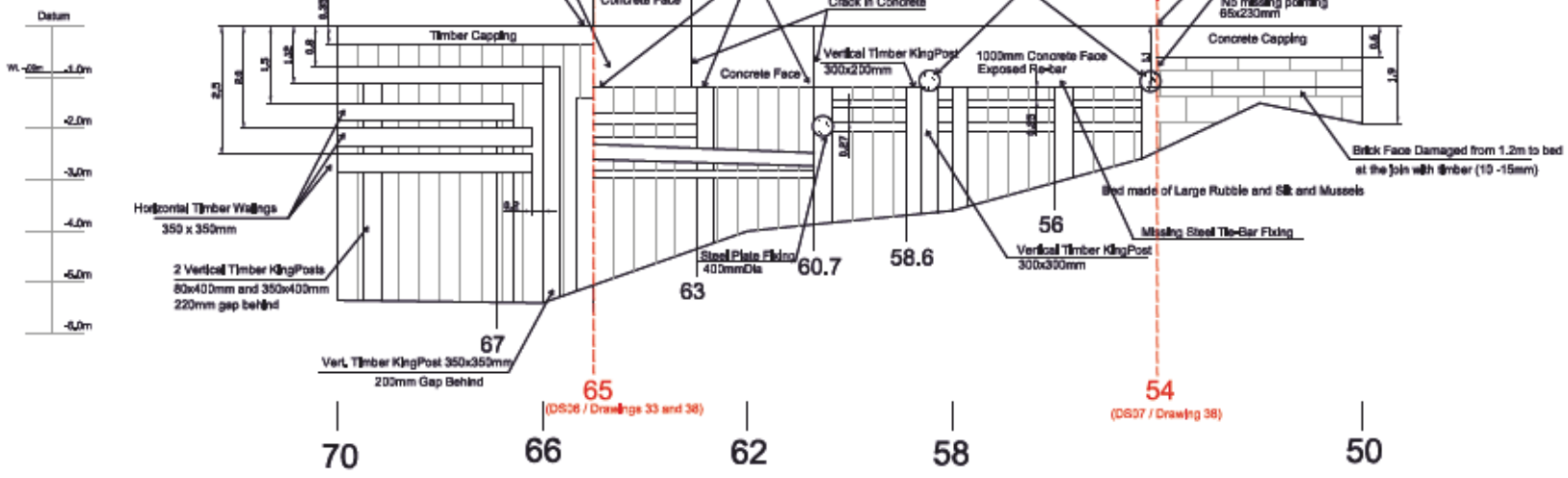
Project:
ARUP
Wood Wharf Development
West India

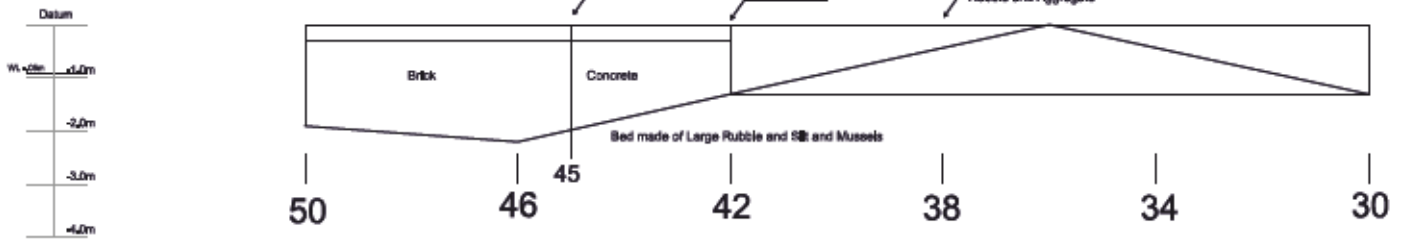
Drawing:
"General Dock Survey"
(Blackwall 2: 30–0m)
"Detailed Survey 8"

Scale: No Scale	Drawn by: M.C.
Des:	App:
Date: 11/07/2007	Pro Code: UPRN:

Drawing No: Abwood / MC / 520 / 004–00

Revision





Notes

1) Refer to Abwood dock's for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be height/depth

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

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Email: shoreside@abwood.co.uk
www.abwood.co.uk

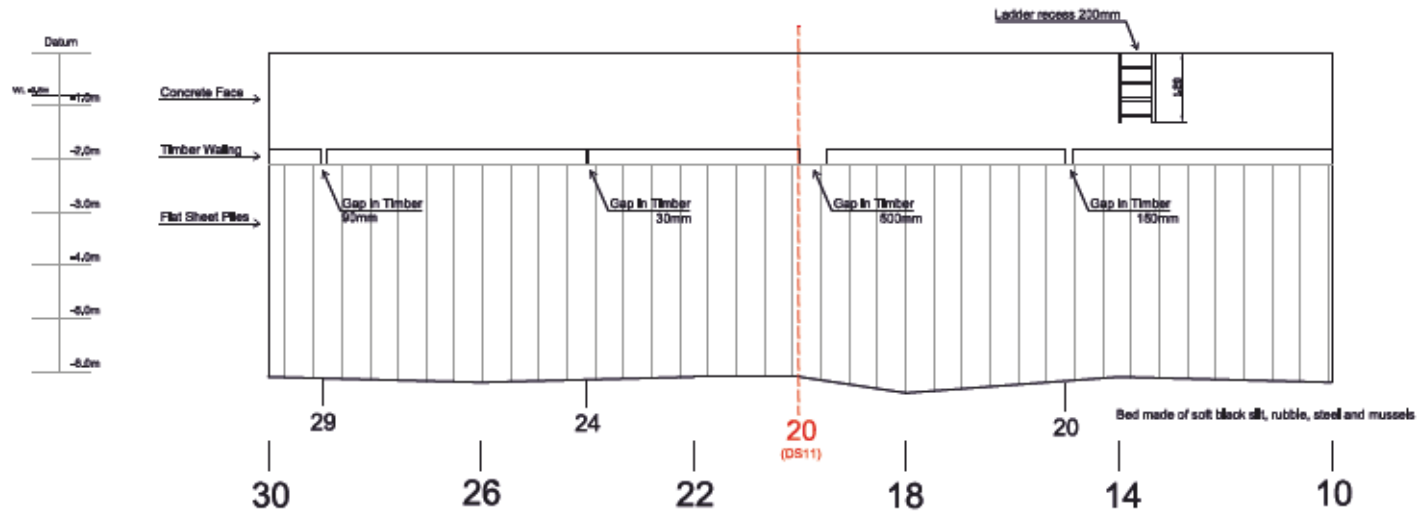
Project:
ARUP
Wood Wharf Development
West India

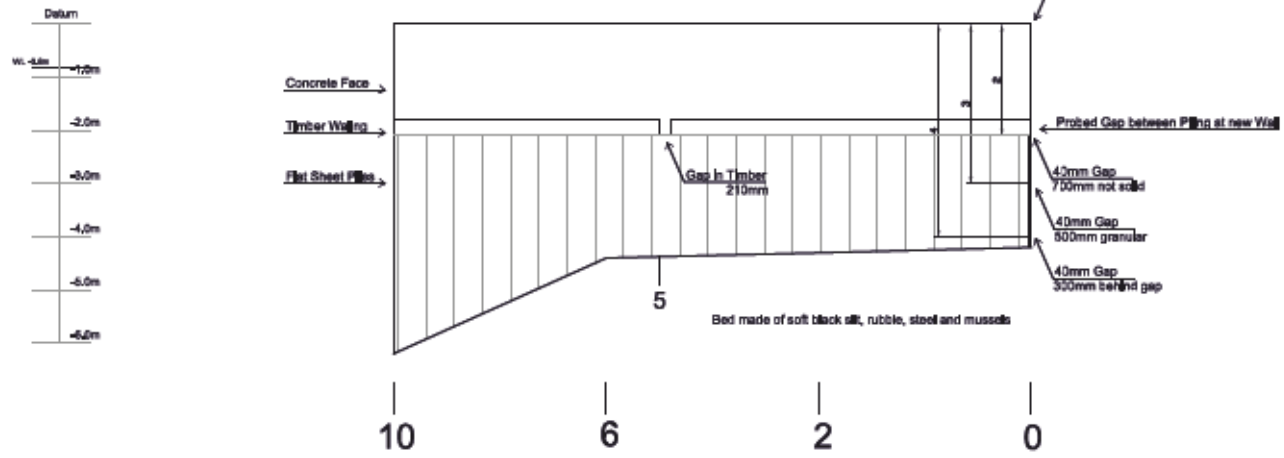
Drawing:
"General Dock Survey"
(Blackwall 2: 30—70)
"Detailed Survey 7"
(DS07/Draw 33)

Scale:	Drawn by:
No Scale	M.C.
Desc:	App:
Date: 11/07/2007	Pro Code:
	UPRN:

Drawing No:
Abwood / MC / 520 / 005—00

Revision	A					





Notes

1) Refer to Abwood dock for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be highest/thickest

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

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SE16 7PF

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Email: shoreside@abwood.co.uk
www.abwood.co.uk

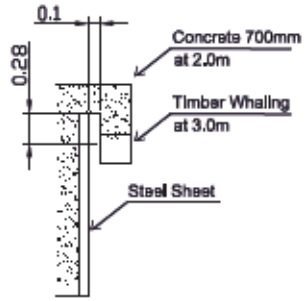
Project:
ARUP
Wood Wharf Development
West India

Drawing:
"General Dock Survey"
(Blackwall Basin 3: 0–30m)

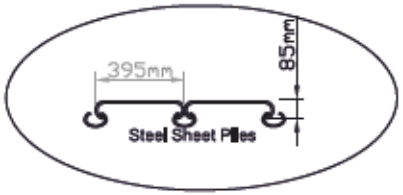
Scale:	Drawn by:
No Scale	M.C.
Desc:	App:
Date: 11/07/2007	Pro Code:
	UPRN:

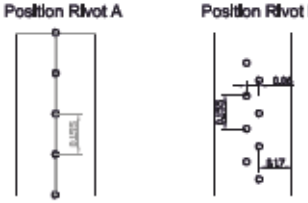
Drawing No: Abwood / MC / 520 / 006–00

Revision	A					

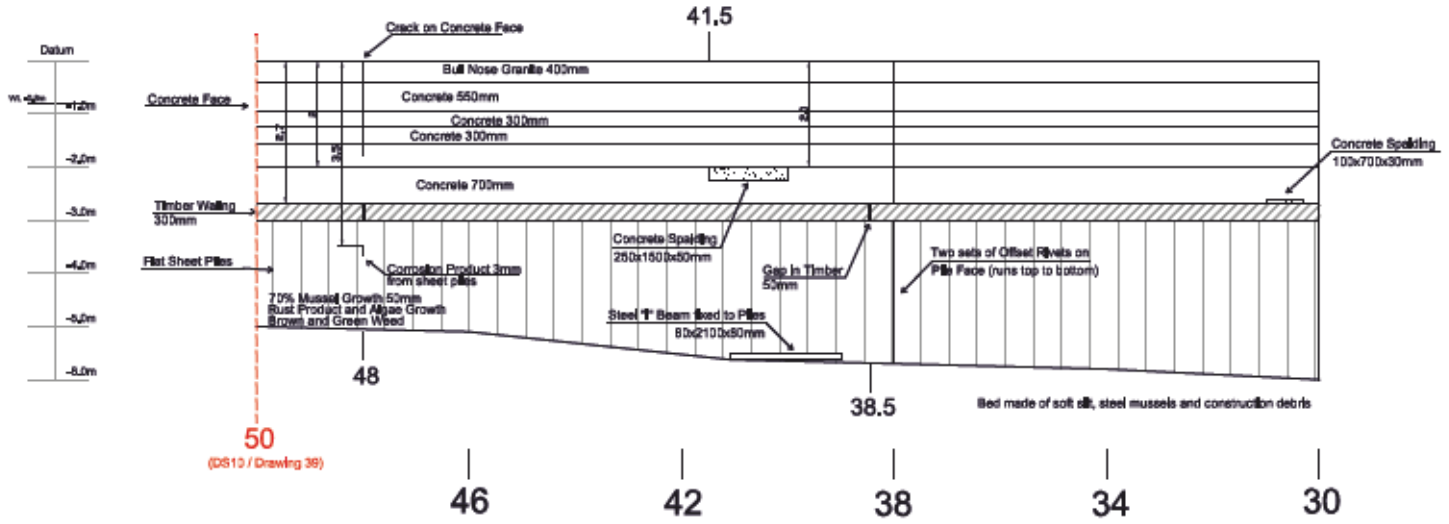


Side View Steel Sheet at 2,00m





20mm Head
Running down Top to Bed
Position A - Repeating every other Pile
Position B - Every 5th Pile 2 sets of Offset Rivots



Height from Top of Capping Beam to Dock Bed

Chainage	Depths Dock Bed	Chainage	Depths Dock Bed	Chainage	Depths Dock Bed
0	4,3	32	5,0	54	4,9
4	4,4	36	5,7	58	5,1
8	5,2	40	5,5	72	4,5
12	5,2	44	5,2	76	4,0
16	5,4	48	5,1	80	4,3
20	5,3	52	5,0	84	3,9
24	5,1	56	4,9	88	3,8
28	5,1	60	4,9	92	3,4

NDT Thickness Readings (mm)

Chainage		Mid	Chainage		Mid	Chainage		Mid
88	1.0	8.8	58	1.0	8.4	28	2.0	7.9
	2.0	8.0		3.5	9.2		4.0	7.4
	3.0	9.0		4.0	9.2		6.0	8.2
78	1.0	9.3	48	2.0	9.0	18	2.0	8.9
	3.0	9.6		3.5	9.1		4.0	9.0
	4.0	10.0		5.0	9.4		6.0	9.2
68	1.0	9.0	38	2.0	9.4	8	2.0	9.2
	3.5	9.4		3.5	8.9		4.0	9.0
	5.0	9.6		5.5	9.0		6.0	9.6

Note Due to limited number of Piles, only one reading taken at each location

Notes

1) Refer to Abwood dock's for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be highest/thickest

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

Abwood Marine Ltd
Dock Office
1 Onega Gate
Surrey Quays
London
SE16 7PF

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Fax: 0845 230 2870
Email: shoreside@abwood.co.uk
www.abwood.co.uk

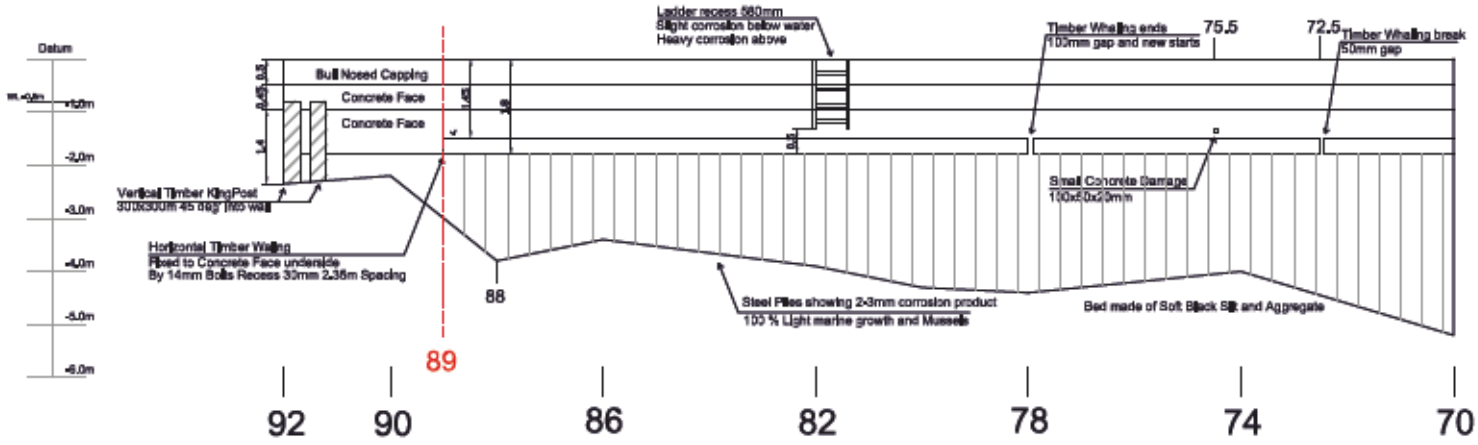
Project:
ARUP
Wood Wharf Development
West India

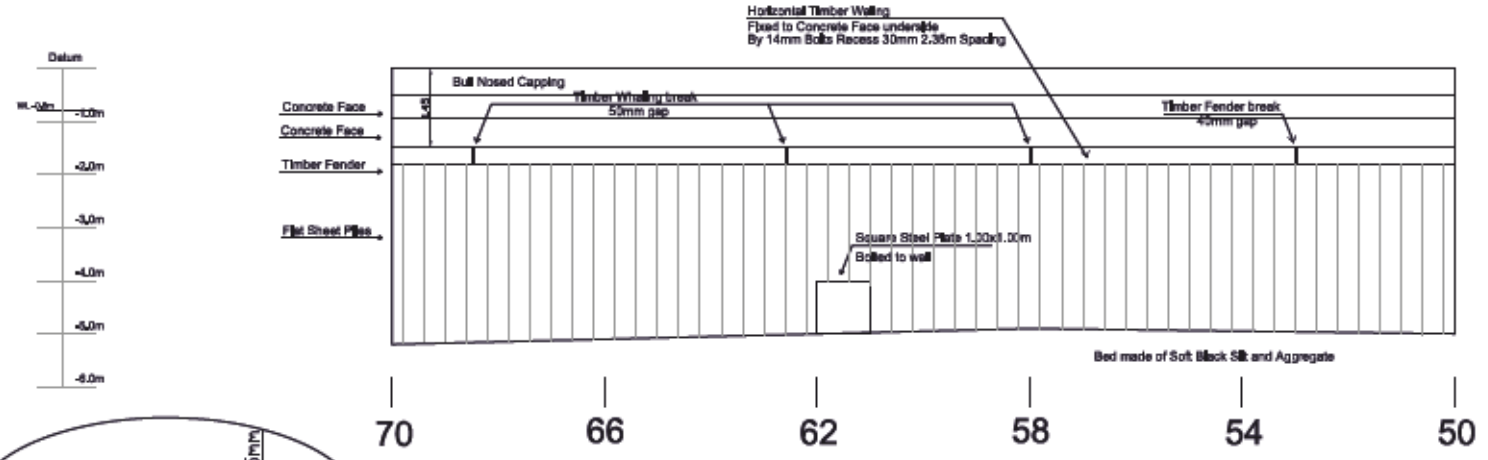
Drawing:
"General Dock Survey"
(Blackwall 3: 30-50)
DS10

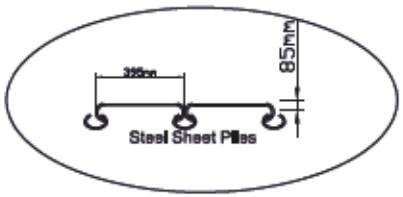
Scale:	Drawn by:
No Scale	M.C.
Desc:	App:
Date: 10/11/2007	Pro Code:
	UPRN:

Drawing No:
Abwood / MC / 520 / 007-00

Revision A







Notes

1) Refer to Abwood dock's for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Detailed measurements are height x width x depth.

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

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www.abwood.co.uk

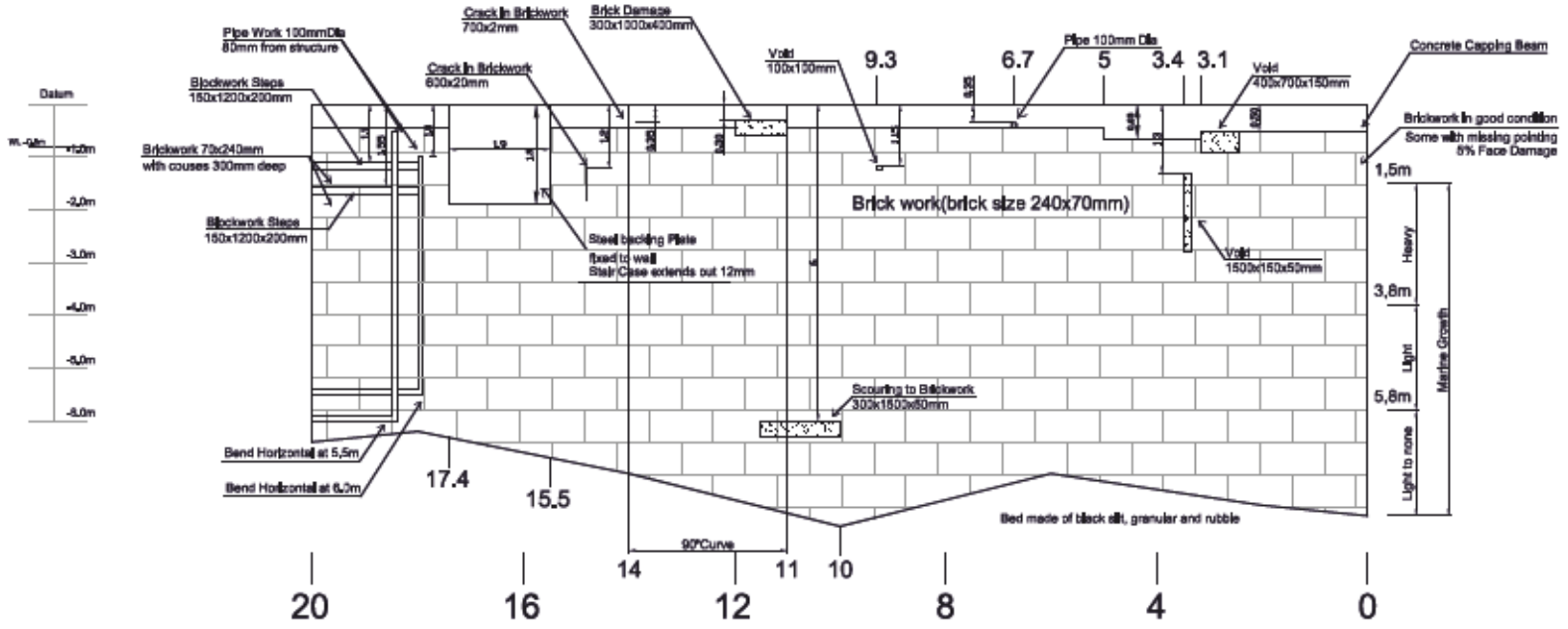
Project:
ARUP
Wood Wharf Development
West India

Drawing:
"General Dock Survey"
(Blackwall 3: 50–92m)
See Drawins 34 and 38 and DS09

Scale:	Drawn by:
No Scale	M.C.
Desc:	**App:**
Date: 11/07/2007	**Pro Code:** / **UPRN:**

Drawing No: Abwood / MC / 520 / 008–00

Revision	A						



Helght from Datum to Dock Bed

Chalnage	Height	Chalnage	Height	Chalnage	Height	Chalnage	Height
0	7.8	40	7.9	80	8.0	120	7.9
4	7.0	44	8.0	84	8.1	124	7.9
8	7.1	48	8.0	88	8.0	128	7.7
12	8.0	52	7.8	92	8.0	132	7.6
16	7.0	56	8.0	96	8.2	136	7.5
20	7.9	60	8.2	100	8.2	140	7.4
24	7.5	64	8.5	104	8.4	144	6.9
28	6.7	68	8.0	108	8.0		
32	6.6	72	8.5	112	8.0		
36	6.4	76	8.1	116	8.0		

Notes

1) Refer to Abwood dock for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be highest/thickest

Specific Chalnage

Chalnage for Detailed Surveys

General Chalnage

Pen = Penetration

Rev.		Drawn	Date

Abwood Marine Ltd
Dock Office
1 Onega Gate
Surrey Quays
London
SE16 7PF

Tel: 0845 230 2860
Fax: 0845 230 2870
Email: shoreside@abwood.co.uk
www.abwood.co.uk

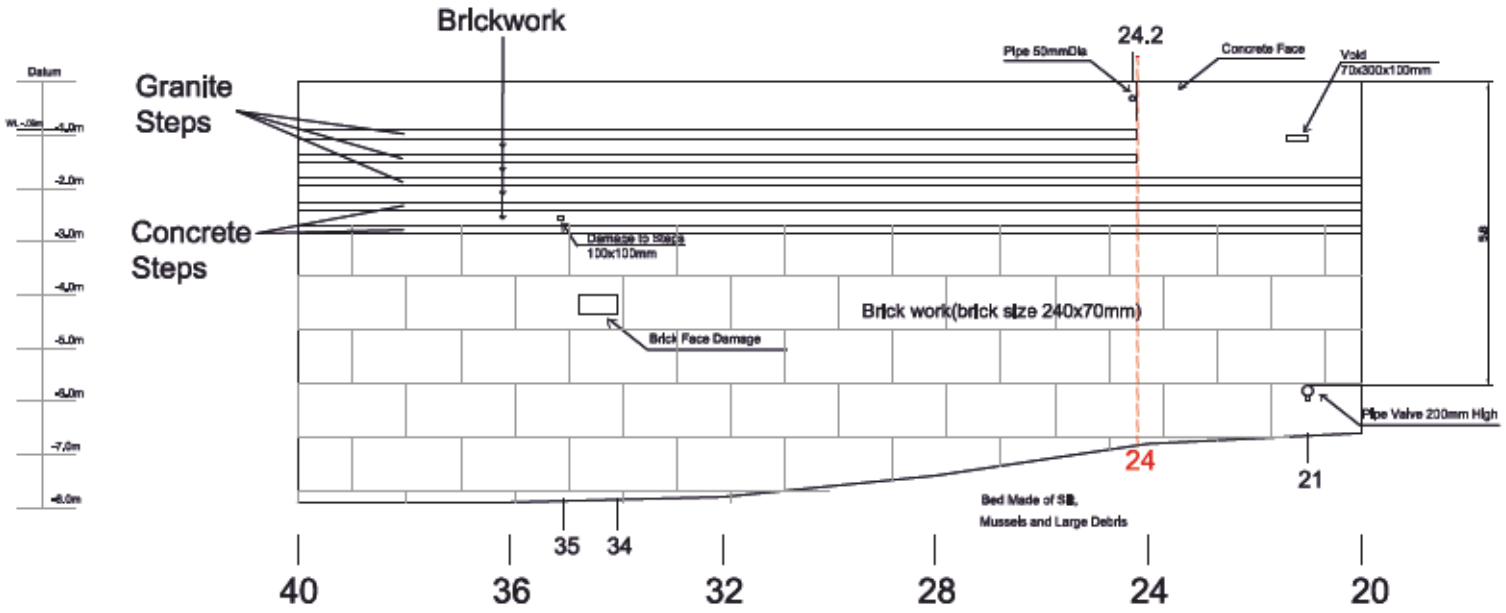
Project:
ARUP
Wood Wharf Development
West India

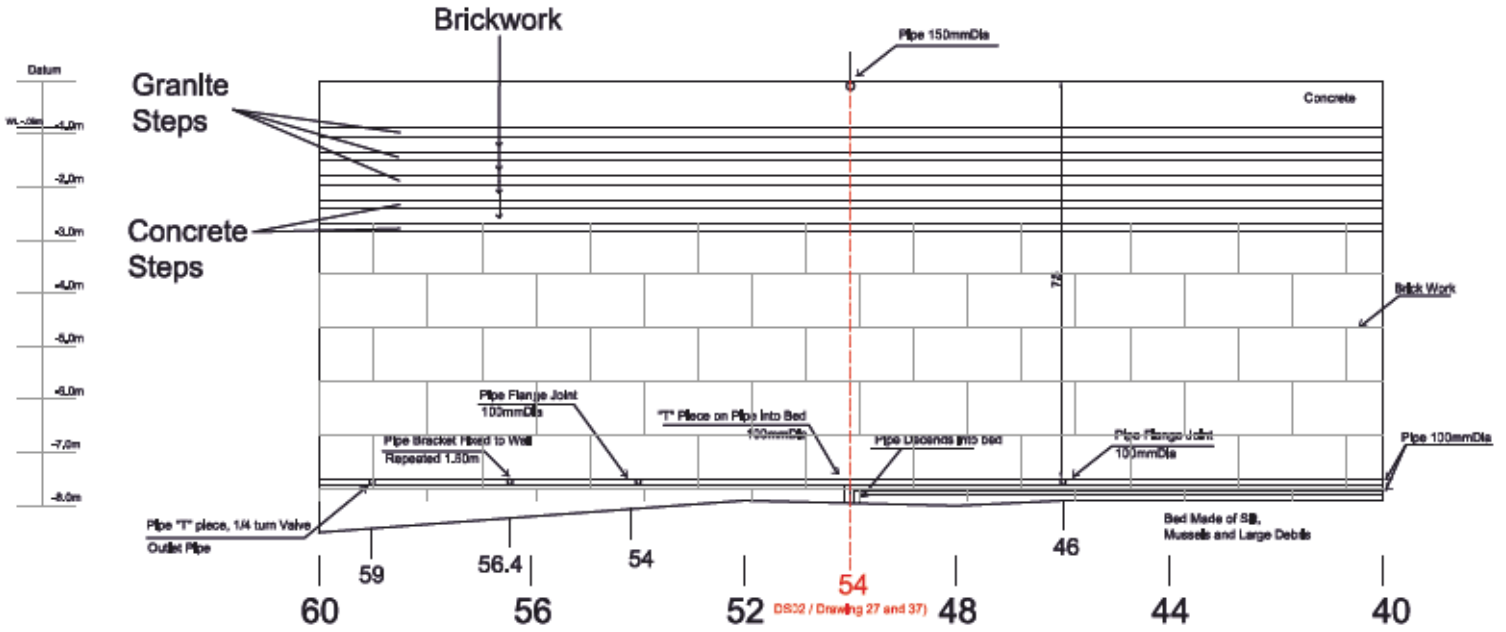
Drawing:
"General Dock Survey"
(Graving: 0–20m)

Scale: No Scale	Drawn by: M.C.
Desc:	App:
Date: 11/07/2007	Pro Code:
	UPRN:

Drawing No: Abwood / MC / 520 / 009–00

Revision: A





Notes

1) Refer to Abwood dock for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Detailed measurements are height x width x depth.

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

Abwood Marine Ltd
Dock Office
1 Onega Gate
Surrey Quays
London
SE16 7PF

Tel: 0845 230 2860
Fax: 0845 230 2870
Email: shoreside@abwood.co.uk
www.abwood.co.uk

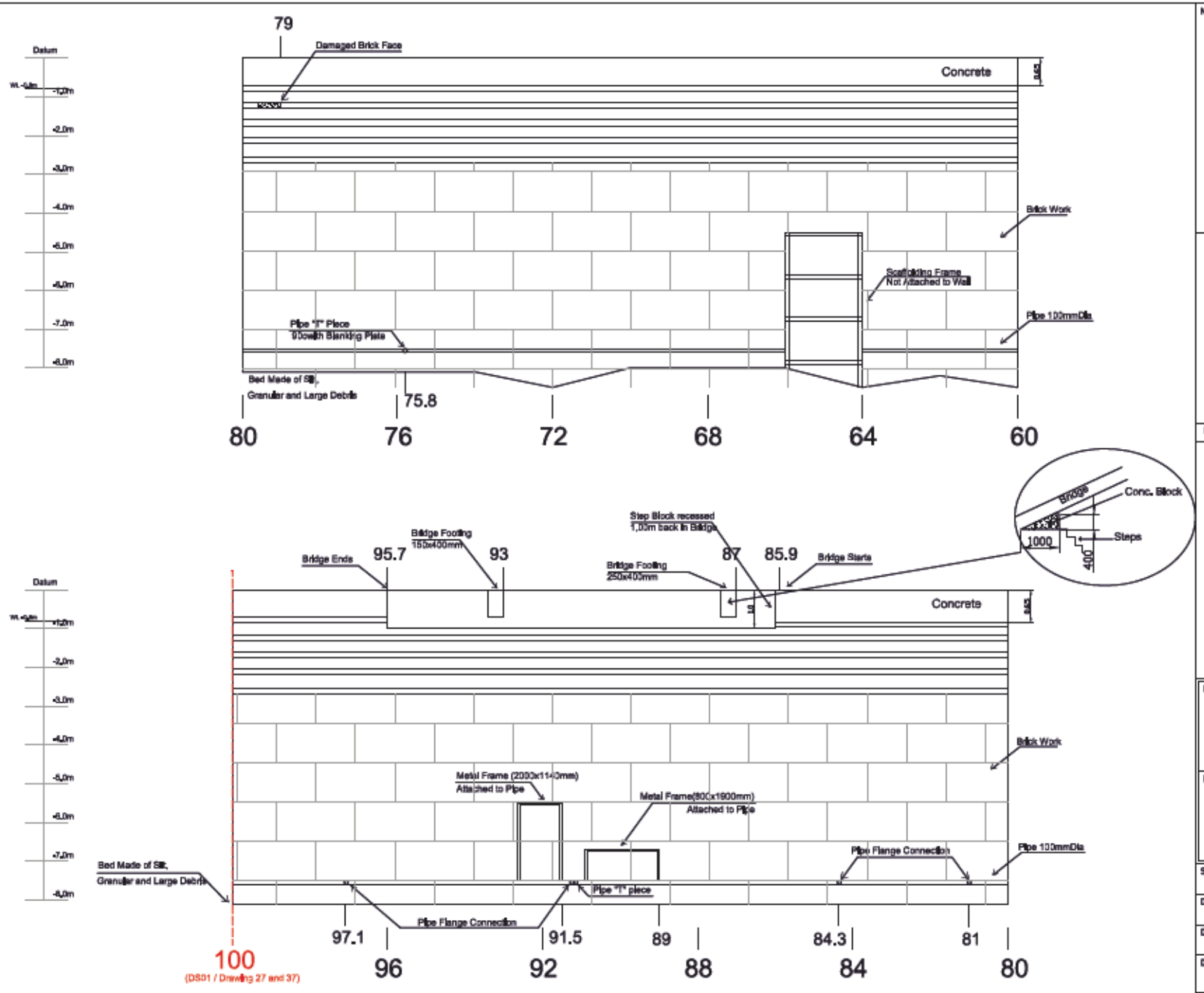
Project:
ARUP
Wood Wharf Development
West India

Drawing:
"General Dock Survey"
(Graving: 20–60m)
(For Detail see Draw 27)

Scale: No Scale	Drawn by: M.C.
Desc:	App:
Date: 10/10/2007	Pro Code: UPRN:

Drawing No: Abwood / MC / 520 / 010–00

Revision	A					



Notes

1) Refer to Abwood docs for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Detailed measurements are height x width x depth.

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

Abwood Marine Ltd
Dock Office
1 Onega Gate
Surrey Quays
London
SE16 7PF

Tel: 0845 230 2860
Fax: 0845 230 2870
Email: shoreside@abwood.co.uk
www.abwood.co.uk

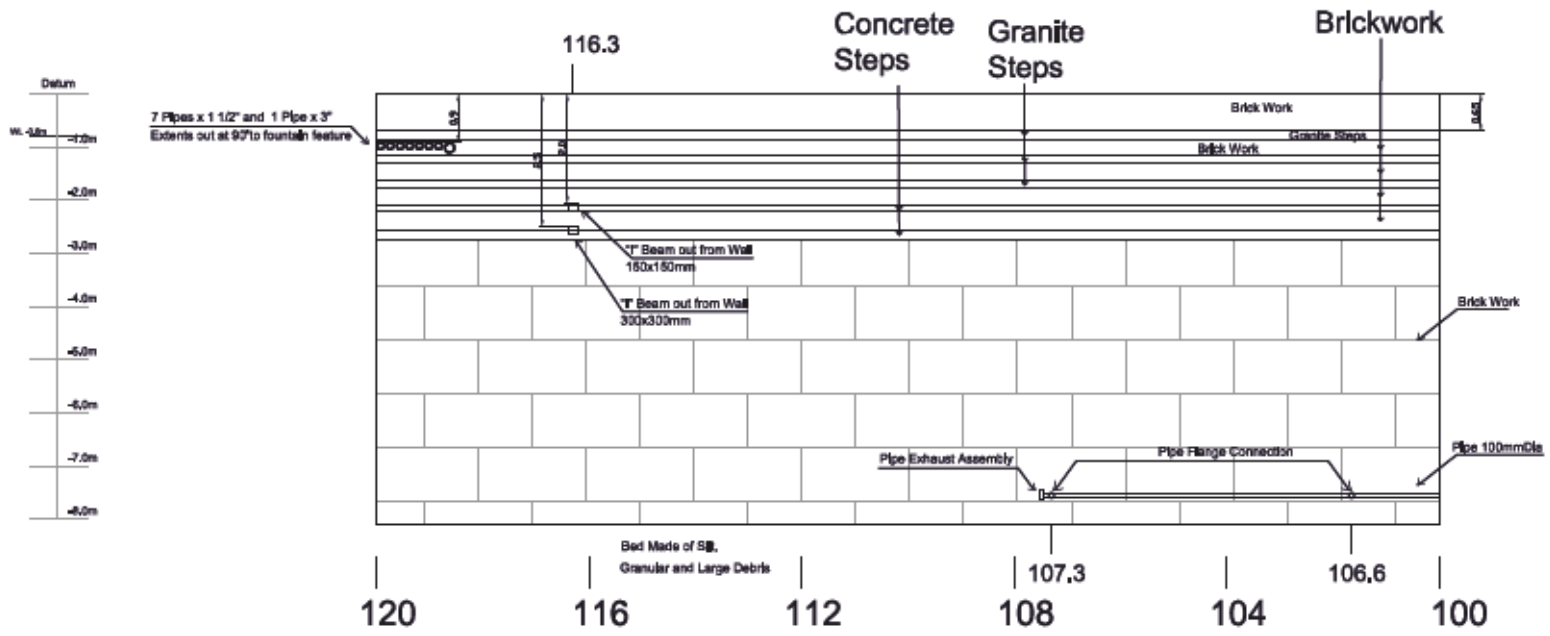
Project:
ARUP
Wood Wharf Development
West India

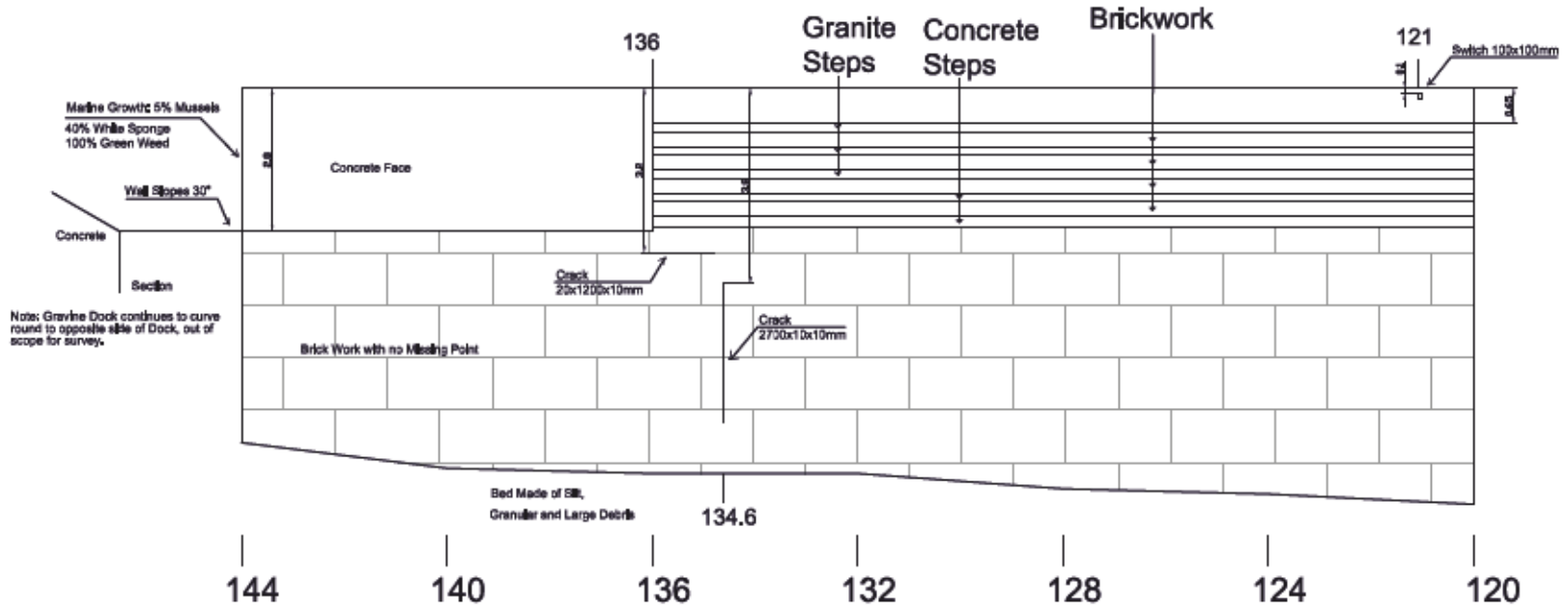
Drawing:
"General Dock Survey"
(Graving: 60—100m)
(For Detail see Draw 27)

Scale:	Drawn by:
No Scale	M.C.
Desc:	App:
Date: 10/10/2007	Pro Code:
	UPRN:

Drawing No:
Abwood / MC / 520 / 011—00

Revision	A						





Notes

1) Refer to Abwood dock's for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Detailed measurements are height x width x depth.

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

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Project:
ARUP
Wood Wharf Development
West India

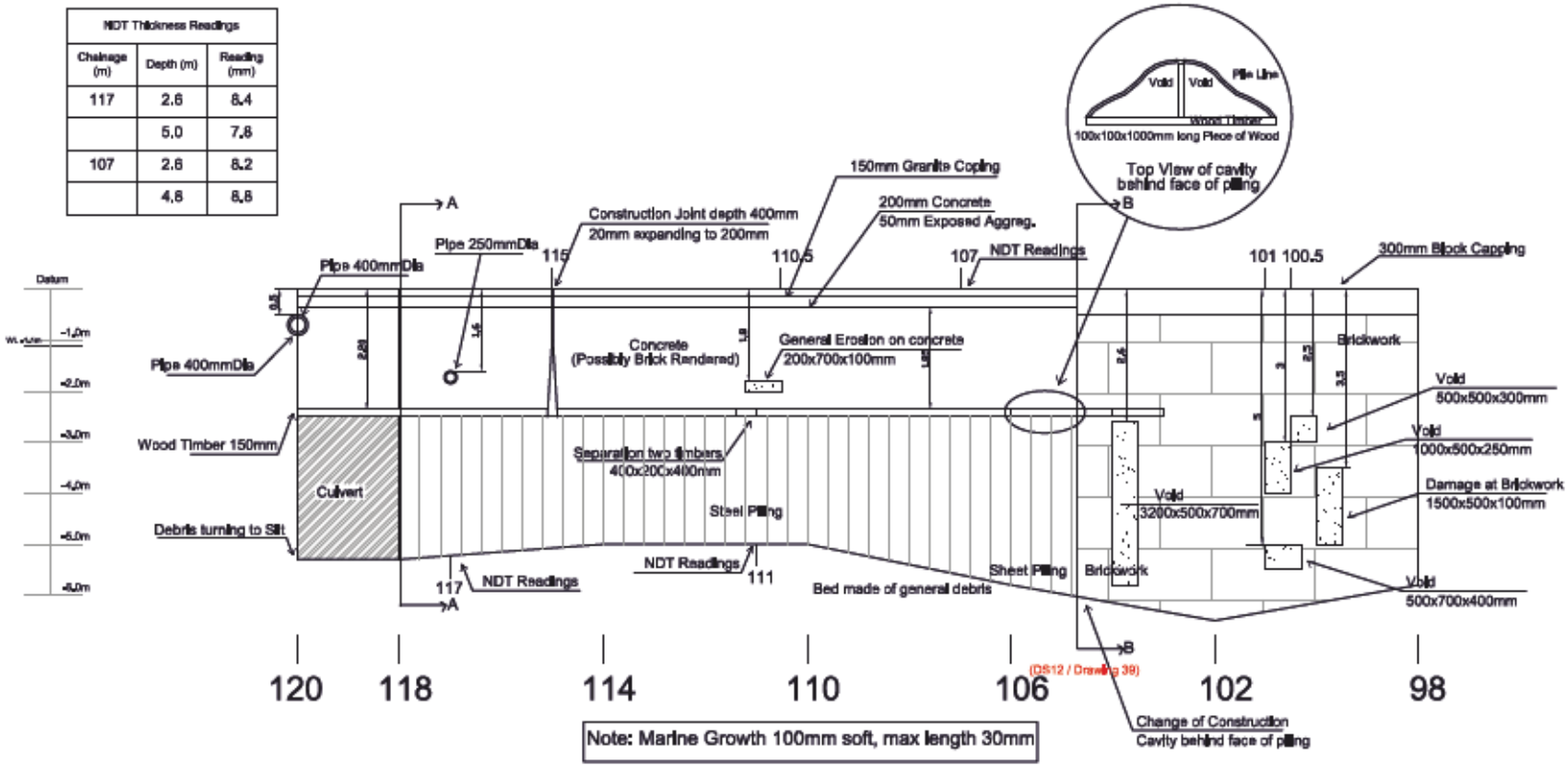
Drawing:
"General Dock Survey"
(Graving: 100–144m)

Scale:	Drawn by:
No Scale	M.C.
Desc	**App:**
Date:	**Pro Code:**
10/10/2007	**UPRN:**

Drawing No:
Abwood / MC / 520 / 012–00

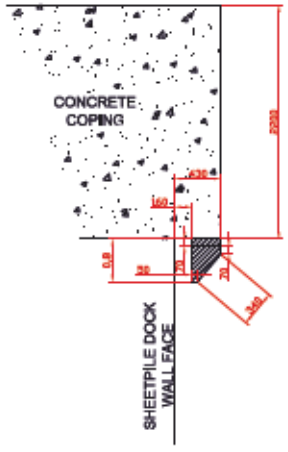
Revision	A						

NDT Thickness Readings		
Chainage (m)	Depth (m)	Reading (mm)
117	2.6	8.4
	5.0	7.8
107	2.6	8.2
	4.6	8.8

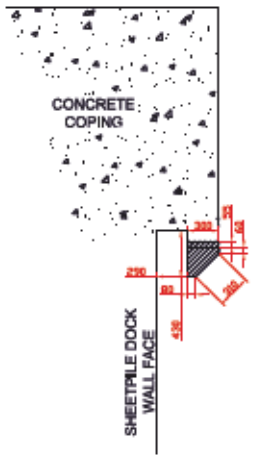


Note: Marine Growth 100mm soft, max length 30mm

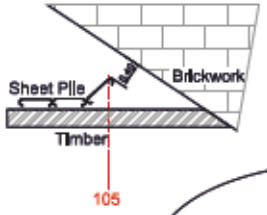
CROSS-SECTION A-A
AT CHAINAGE 118M

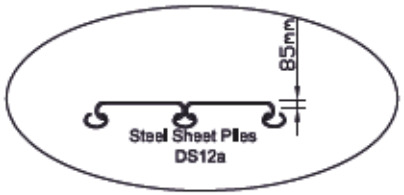


CROSS-SECTION B-B
AT CHAINAGE 105M

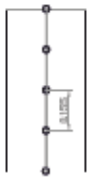


DETAIL SURVEY NO. 12
PLAN VIEW AT CH. 105m

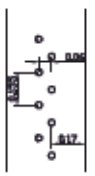




Position Rivot A



Position Rivot B



20mm Head
Running down Top to Bed
Position A - Repeating every other Pile
Position B - Every 6th Pile 2 sets of Offset Rivots

Notes

1) Refer to Abwood dock for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be highbowldthedepth

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

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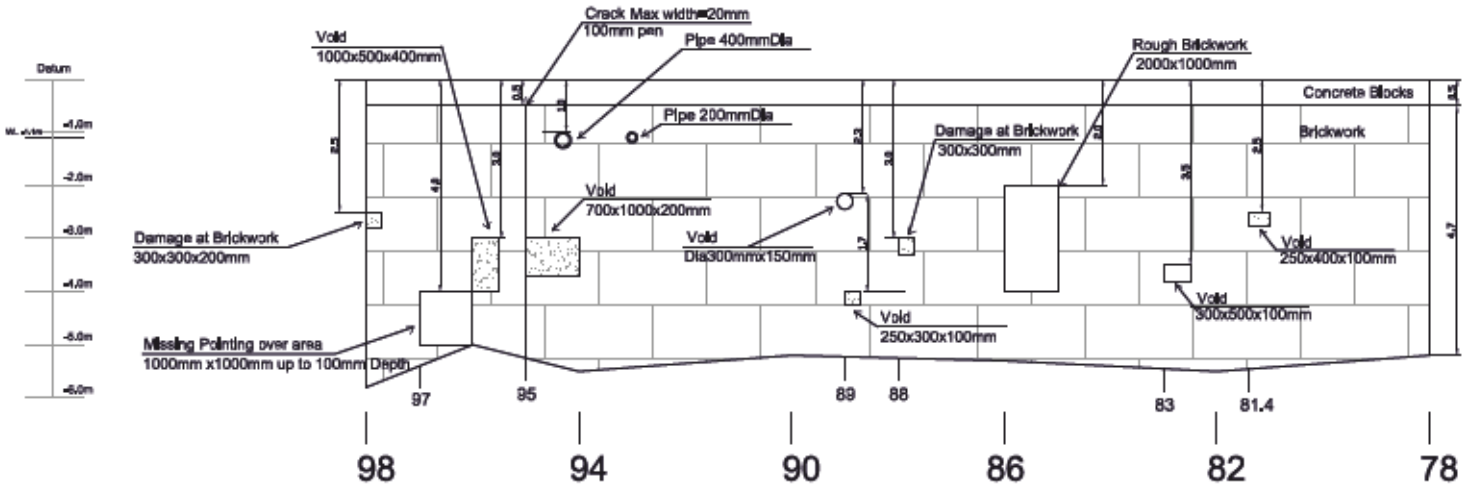
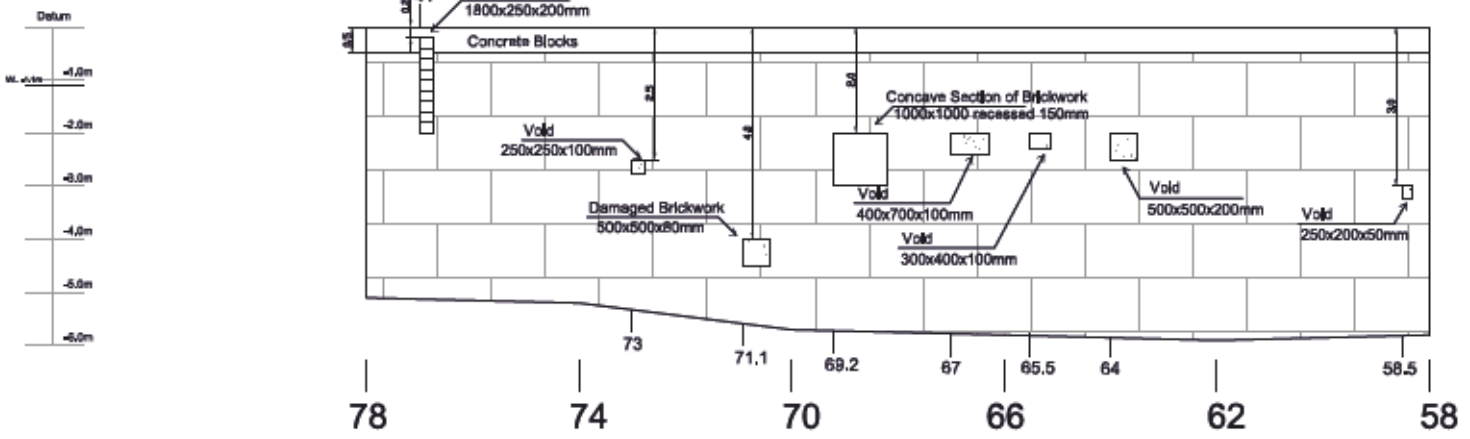
www.abwood.co.uk

Project: ARUP Wood Wharf Development West India	
Drawing: "General Dock Survey" (Wood Wharf 1: 98–120m) DS12	
Scale: No Scale	Drawn by: M.C.
Desc:	App:
Date: 16/07/2007	Pro Code: UPRN:
Drawing No: Abwood / MC / 520 / 013–00	
Revision: A	



Note1: Marine Growth 100% soft, max length 50mm
Note2: Pointing missing 100% of Face to Average, depth of 20mm



Note1: Marine Growth 100% soft, max length 50mm
Note 2: Bed composed by Rough Aggregate / Silt / Shingle with General Construction Debris
Note3: Pointing missing 100% of Face to Average depth of 20mm

Notes

1) Refer to Abwood dock for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be height x depth

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

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Email: shoreside@abwood.co.uk
www.abwood.co.uk

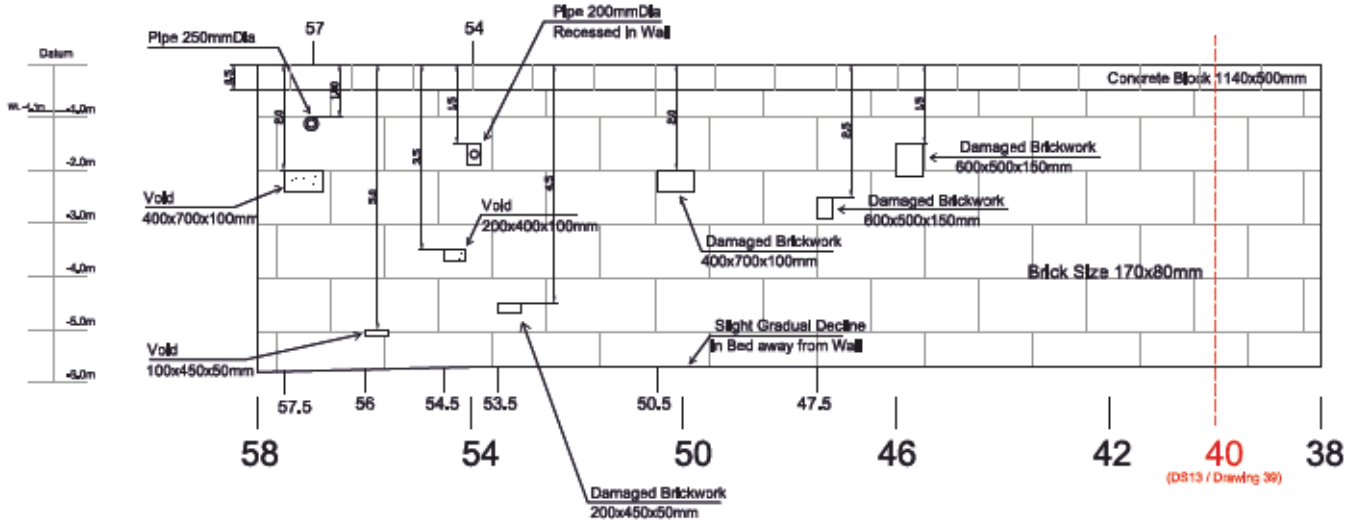
Project:
ARUP
Wood Wharf Development
West India

Drawing:
"General Dock Survey"
(Wood Wharf 1: 58–98)

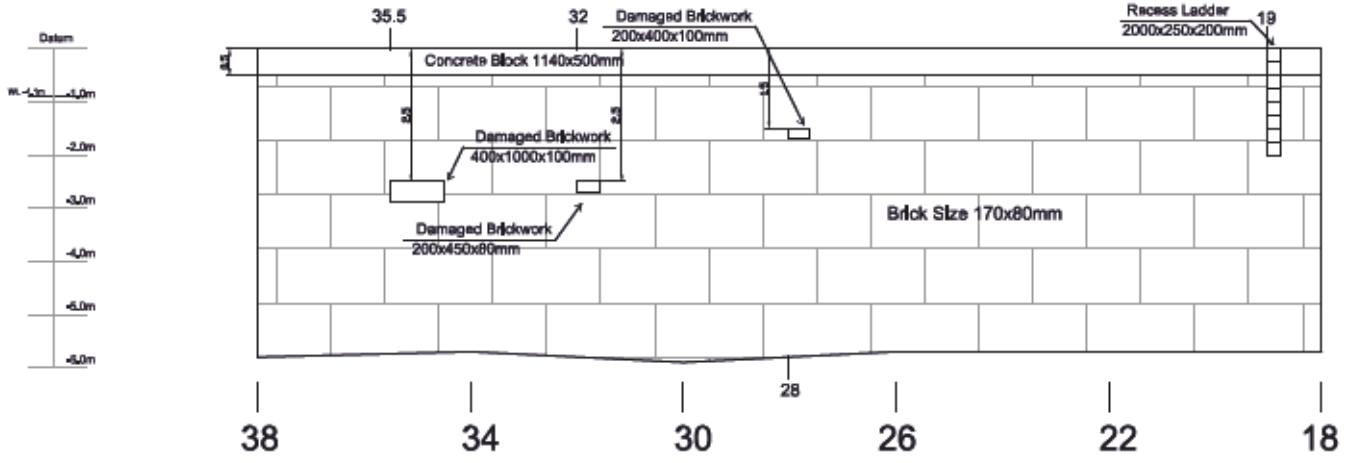
Scale:	Drawn by:
No Scale	M.C.
Desc:	**App:**
Date: 16/07/2007	**Pro Code:** / **UPRN:**

Drawing No: Abwood / MC / 520 / 014–00

Revision A



Note1: Marine Growth 100mm soft, max lenght 30mm
Note2: Bed composed by Silt and Loose Aggregate
Note3: Pointing missing 100% of Face to Average depth of 20mm



Note1: Marine Growth 100mm soft, max lenght:
Up to 4,00m: 30mm and After 4,00m: 10mm
Note2: Bed composed by Silt and Dead Marine Growth
Note3: Pointing missing 100% of Face to Average depth of 15mm

Notes

1) Refer to Abwood doc's for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be highbreadthdepth

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

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www.abwood.co.uk

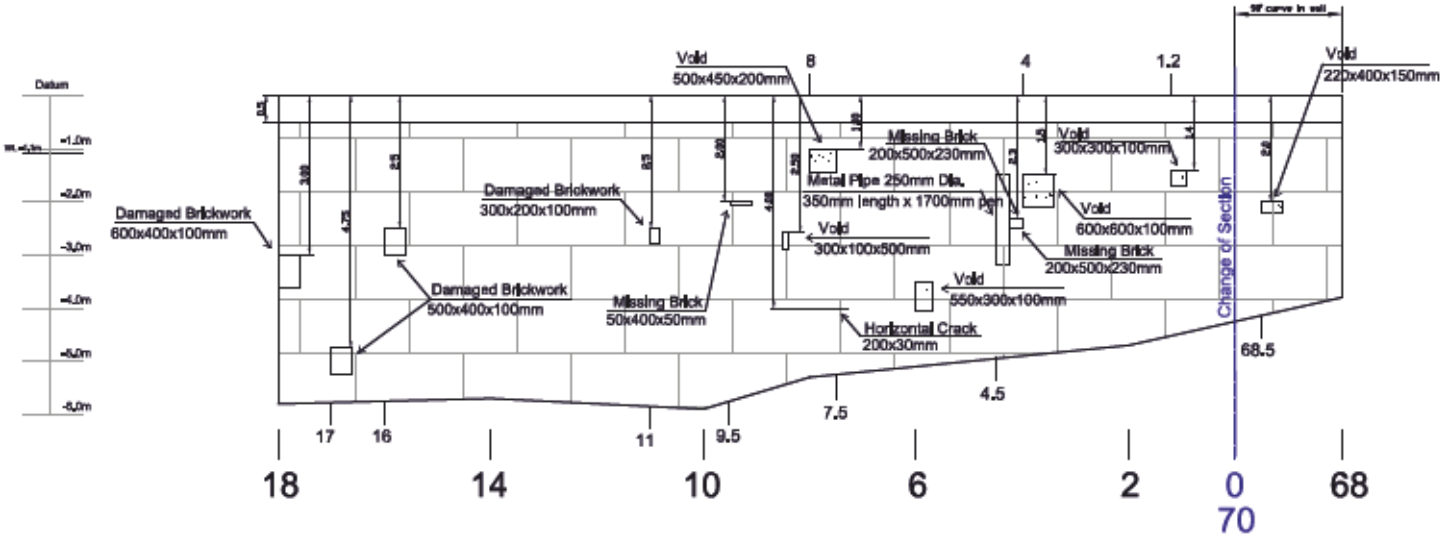
Project:
ARUP
Wood Wharf Development
West India

Drawing:
"General Dock Survey"
(Wood Wharf 1: 18–58m)
"Detailed Survey 13"

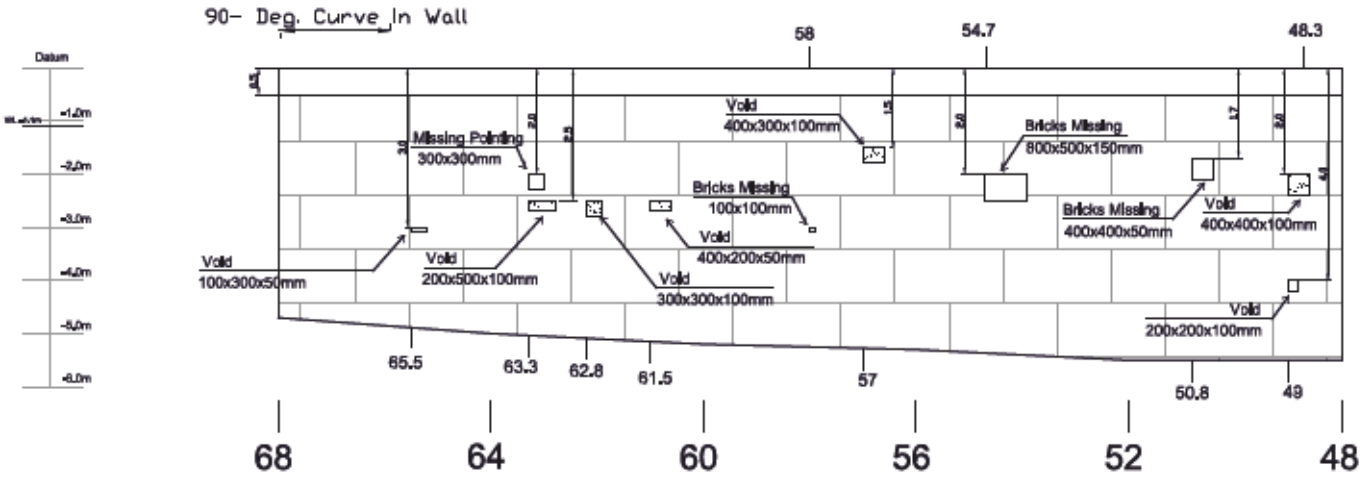
Scale:	Drawn by:
No Scale	M.C.
Desc	**App:**
Date: 16/07/2007	**Pro Code:** / **UPRN:**

Drawing No: Abwood / MC / 520 / 015–00

Revision	A					



Note1: Marine Growth 100mm soft, max lenght:
Up to 4,00mc 30mm and After 4,00mc 10mm
Note2: Bed composed by Silt and Dead Large Debris
Note3: Pointing missing 100% of Face to Average depth of 10mm



Notes

1) Refer to Abwood dock for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be height x depth

Specific Challenges

Challenge for Detailed Surveys

General Challenge

Pen = Penetration

Rev.		Drawn	Date

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Email: shoreside@abwood.co.uk
www.abwood.co.uk

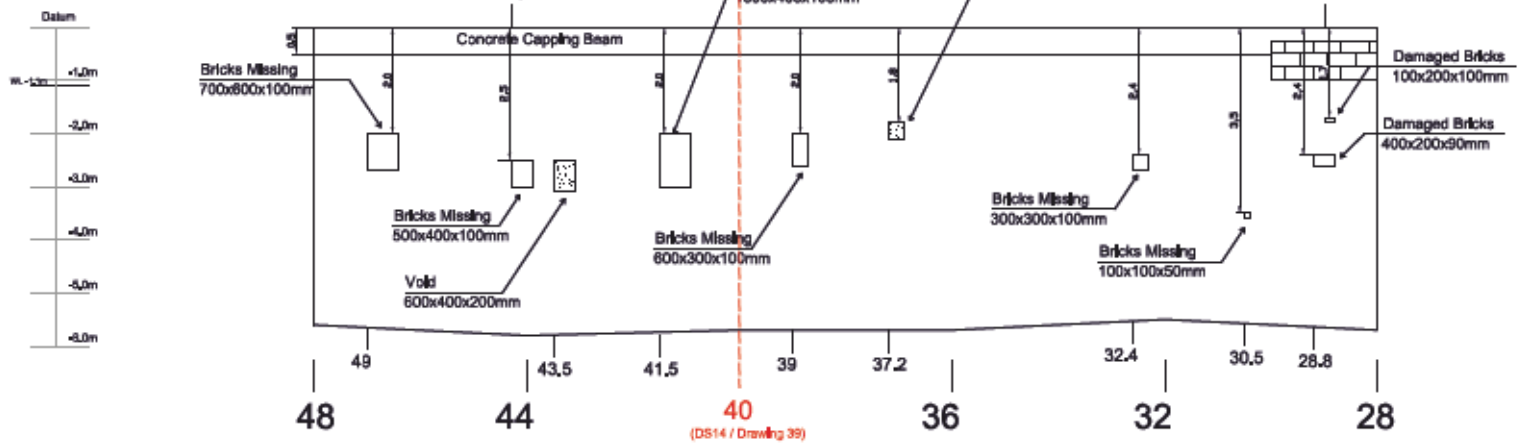
Project:
ARUP
Wood Wharf Development
West India

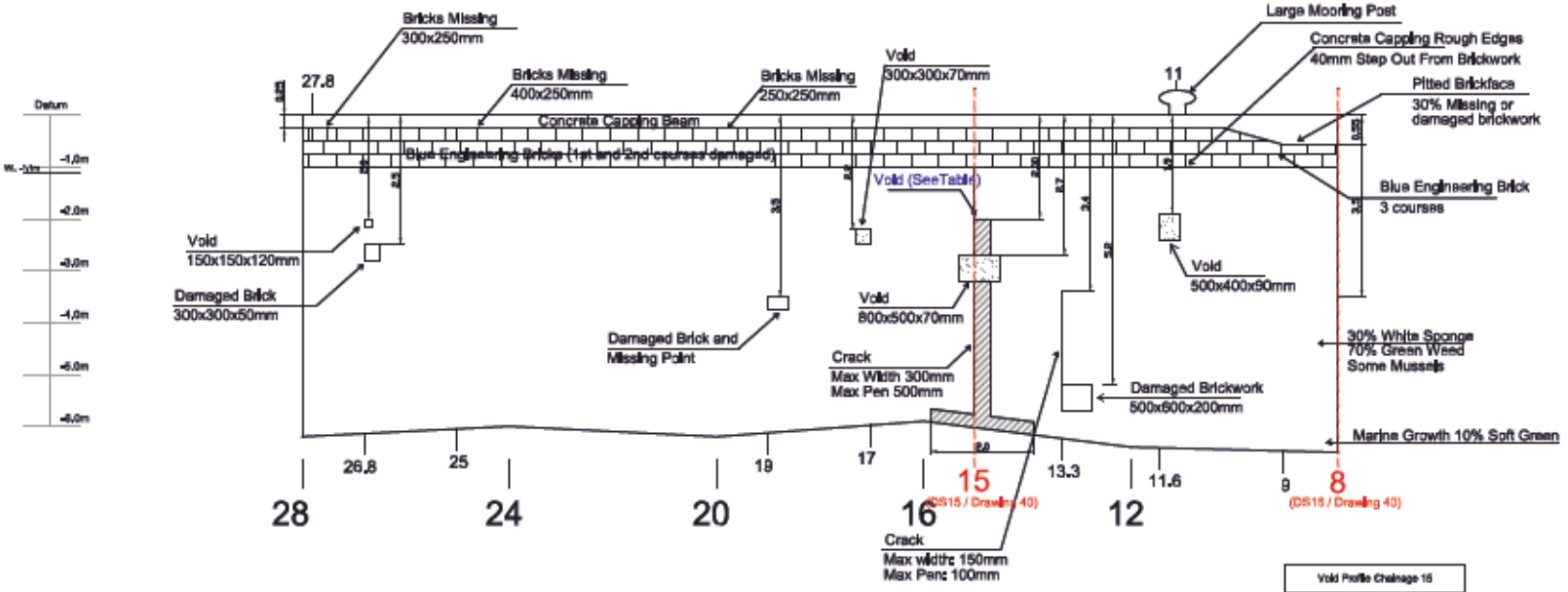
Drawing:
"General Dock Survey"
(Wood Wharf 1: 0–18m)
(Wood Wharf 2: 48–70m)

Scale:	Drawn by:
No Scale	M.C.
Desc:	App:
Date: 16/07/2007	Pro Code: / UPRN:

Drawing No: Abwood / MC / 520 / 016–00

Revision: A





Void Profile Chainage 15			
Depth (m)	Width (mm)	Pen (mm)	Retund
2	230	580	Silt
3	900	370	Silt
4	300	680	Granular
5	220	680	Granular
6	2000	250	Granular

Note1: Light Marine Growth from Water Level down to 3.0m
Note2: Bricks in good condition with some areas with Missing Point
Note3: Bed composed of Heavy Thick Silt and Medium aggregate
Bed is 90° from Wall

Notes

1) Refer to Abwood dock for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be highest/thickest

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

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Dock Office
1 Onega Gate
Surrey Quays
London
SE16 7PF

Tel: 0845 230 2860
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Email: shoreside@abwood.co.uk
www.abwood.co.uk

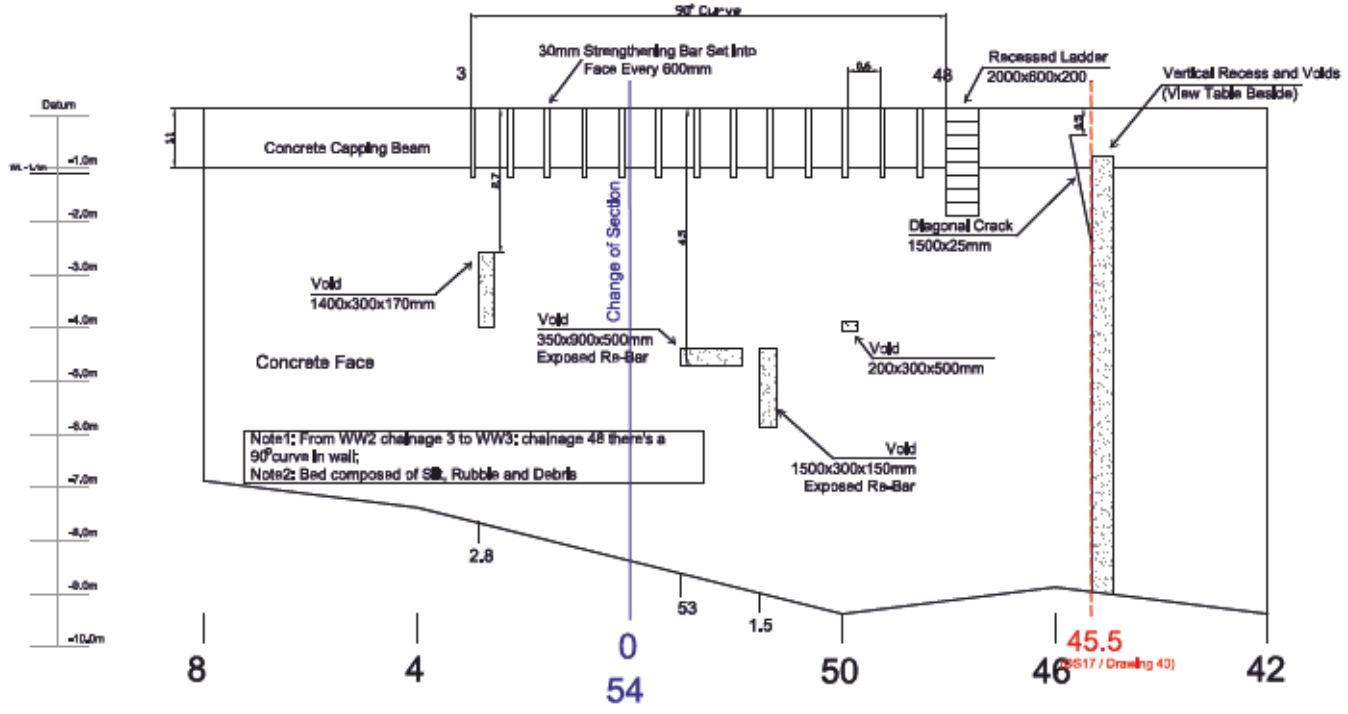
Project:
ARUP
Wood Wharf Development
West India

Drawing:
"General Dock Survey"
(Wood Wharf 2: 08–48m)
DS14 and DS15

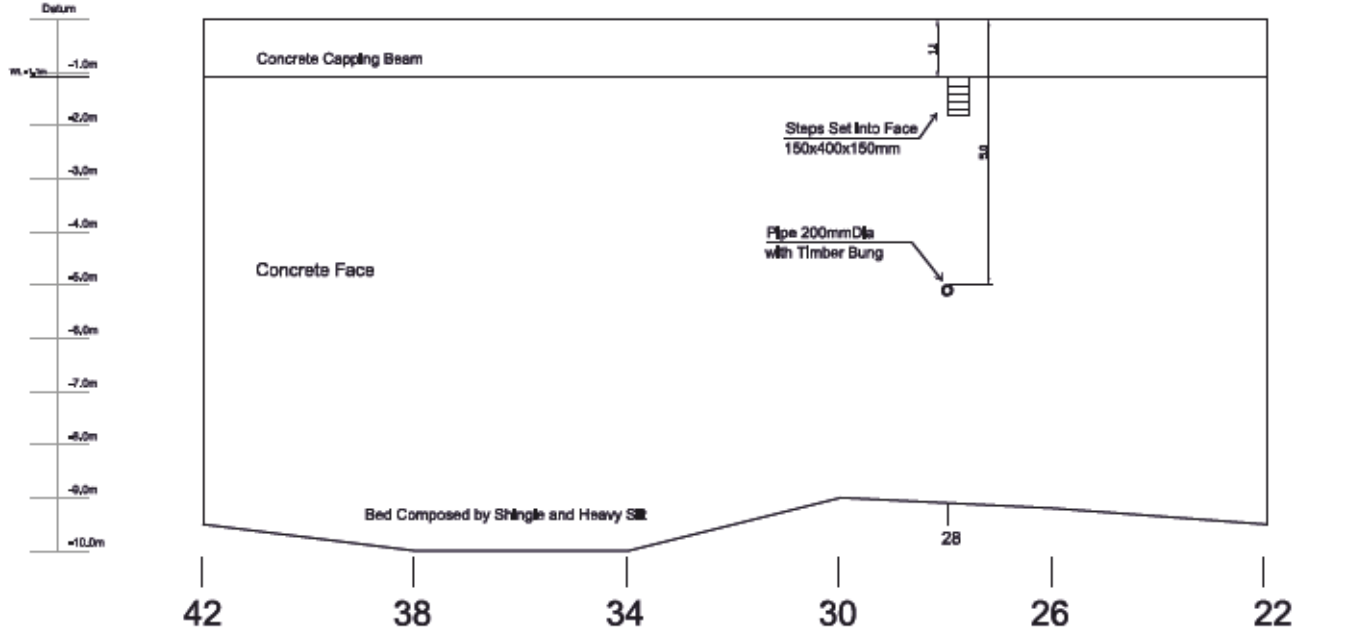
Scale:	Drawn by:
No Scale	M.C.
Desc:	App:
Date: 17/07/2007	Pro Code: / UPRN:

Drawing No: Abwood / MC / 520 / 017–00

Revision: A



Construction Crack Recess Chainage 45.5m		
Depth (m)	Width (mm)	Pen (mm)
1	110	400
2	70	150
3	60	600
4	40	170
5	40	140
6	100	120
7	85	160
8	15	120
8.95	120	80



Notes

1) Refer to Abwood dock's for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be highlow/thickepth

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

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SE16 7PF

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Email: shoreside@abwood.co.uk
www.abwood.co.uk

Project:
ARUP
Wood Wharf Development
West India

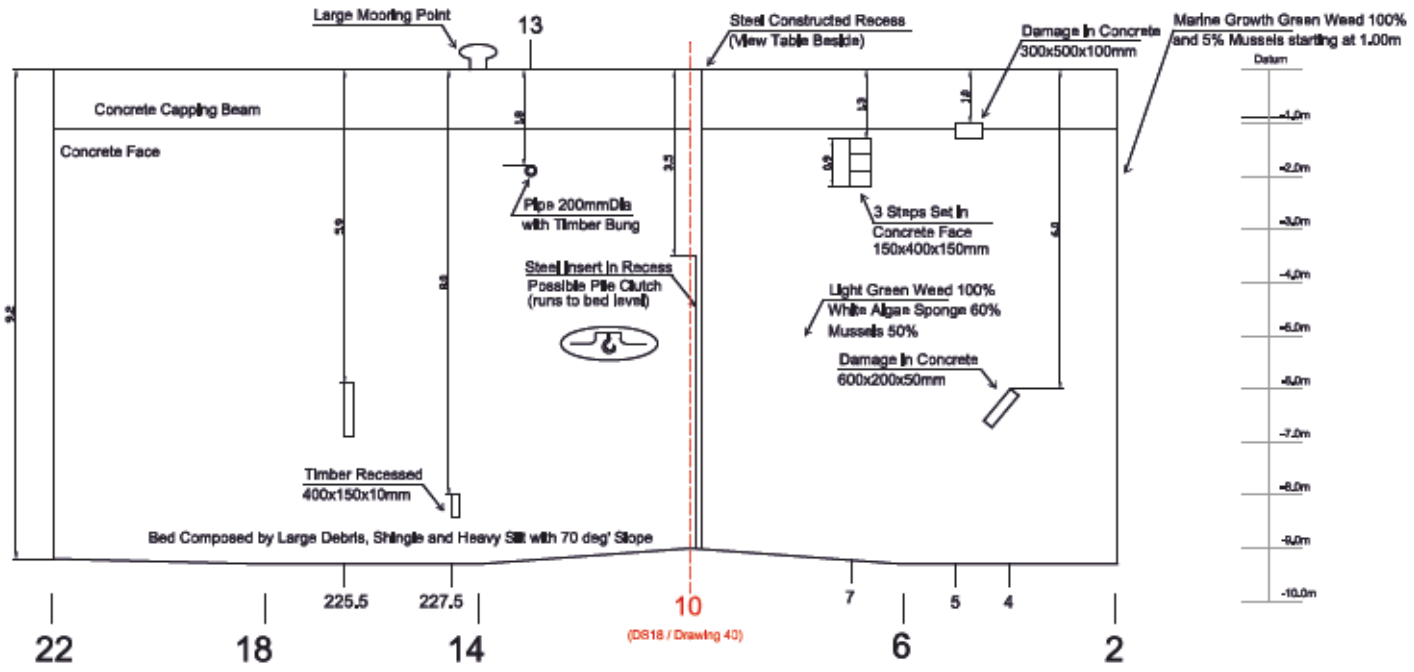
Drawing:
"General Dock Survey"
(Wood Wharf 2: 0–8m)
(Wood Wharf 3:22–54m)
"Detailed Survey 17"

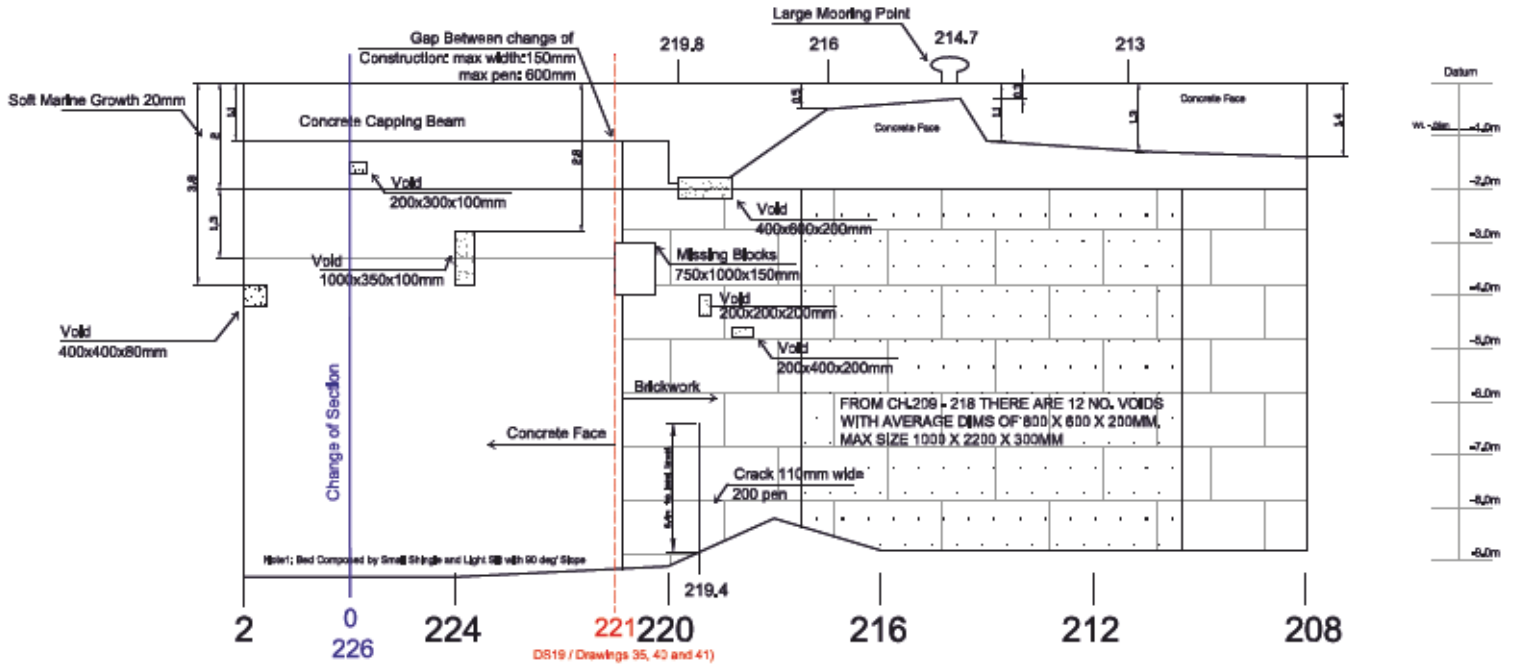
Scale:	Drawn by:
No Scale	M.C.
Desc:	**App:**
Date: 17/07/2007	**Pro Code:** / **UPRN:**

Drawing No: Abwood / MC / 520 / 018–00

Revision A

Recess Profile Chainage 10		
Depth (m)	Width (mm)	Pen (mm)
1	230	100
2	500	300
3	300	200
4	320	70
5	150	170
6	150	150
7	170	180
8	150	180
9	120	70
9.2	150	120





Notes

1) Refer to Abwood docs for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be highlow/thickepth

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

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Surrey Quays
London
SE16 7PF

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Fax: 0845 230 2870
Email: shoreside@abwood.co.uk
www.abwood.co.uk

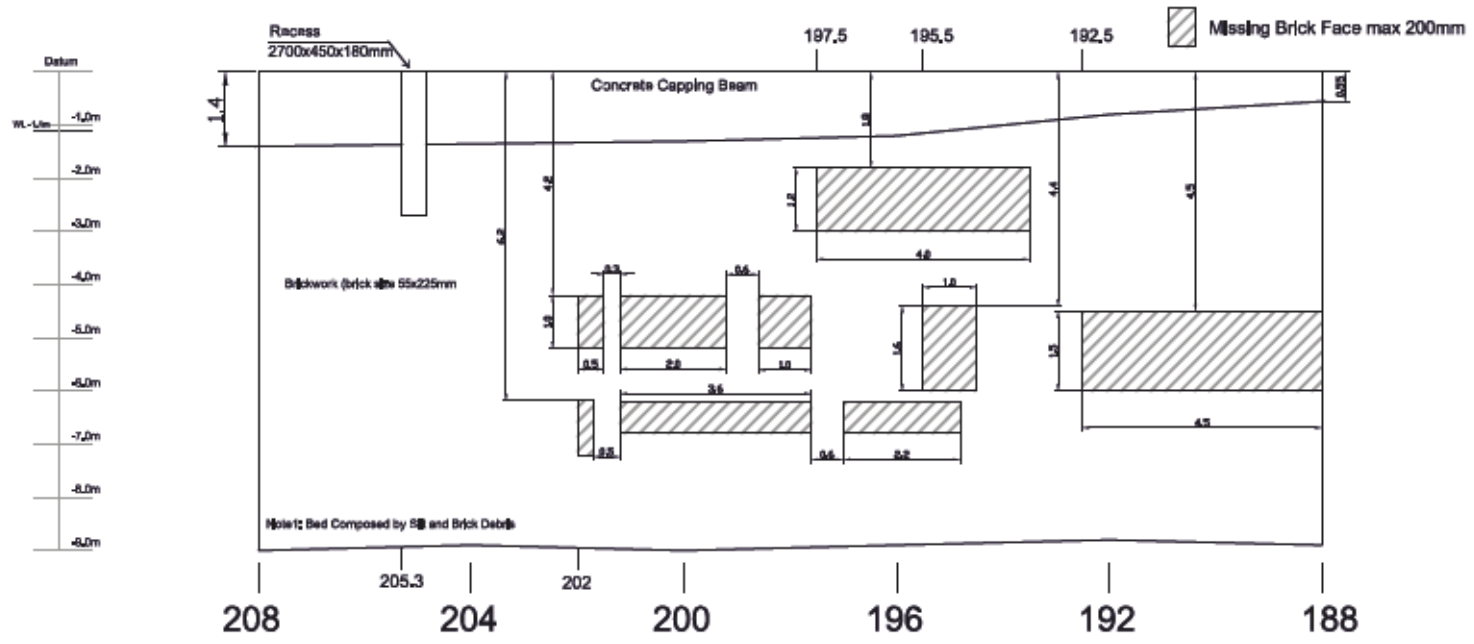
Project:
ARUP
Wood Wharf Development
West India

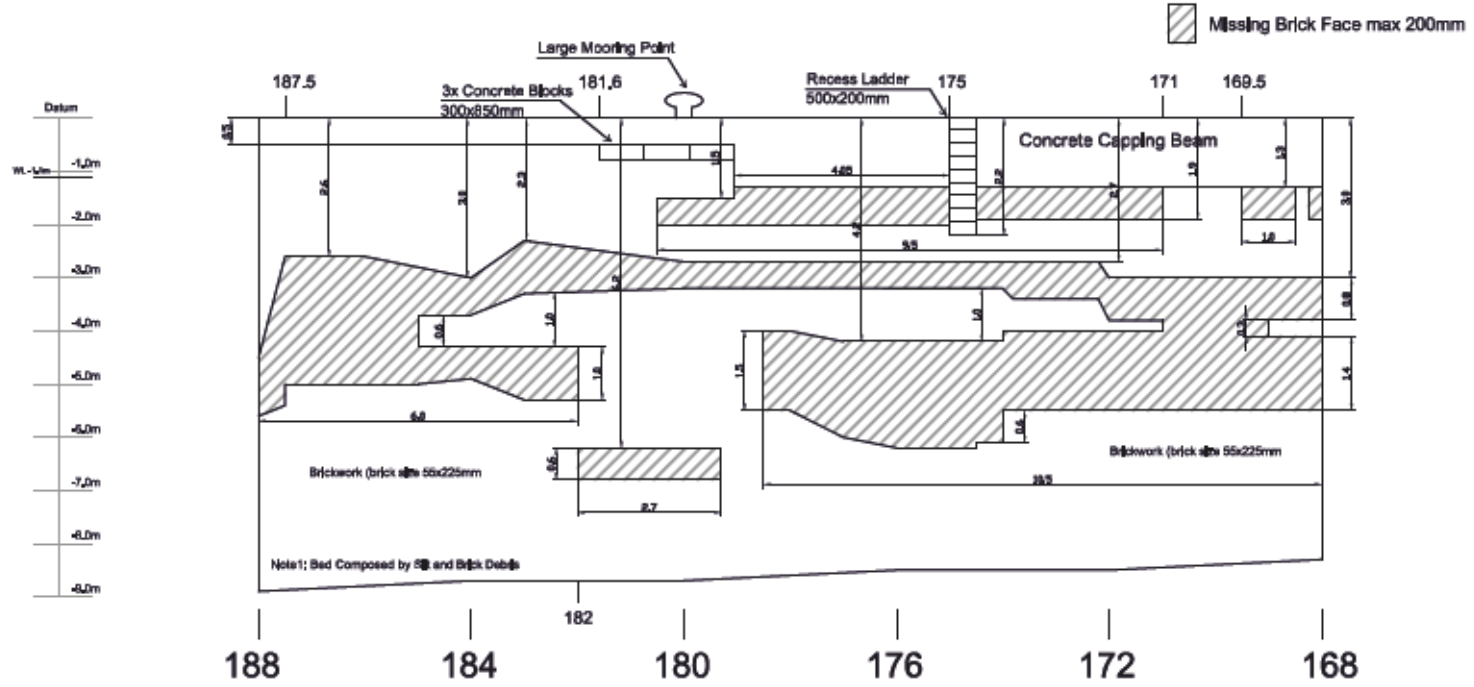
Drawing: "General Dock Survey"
(Wood Wharf 3: 0–22m)
(Wood Wharf 4: 208–226m)
DS18 and DS19

Scale: No Scale	Drawn by: M.C.
Desc:	App:
Date: 17/07/2007	Pro Code: UPRN:

Drawing No: Abwood / MC / 520 / 019–00

Revision	A					





Notes

1) Refer to Abwood dock for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be height/thickness

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

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1 Onega Gate
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SE16 7PF

Tel: 0845 230 2860
Fax: 0845 230 2870
Email: shoreside@abwood.co.uk
www.abwood.co.uk

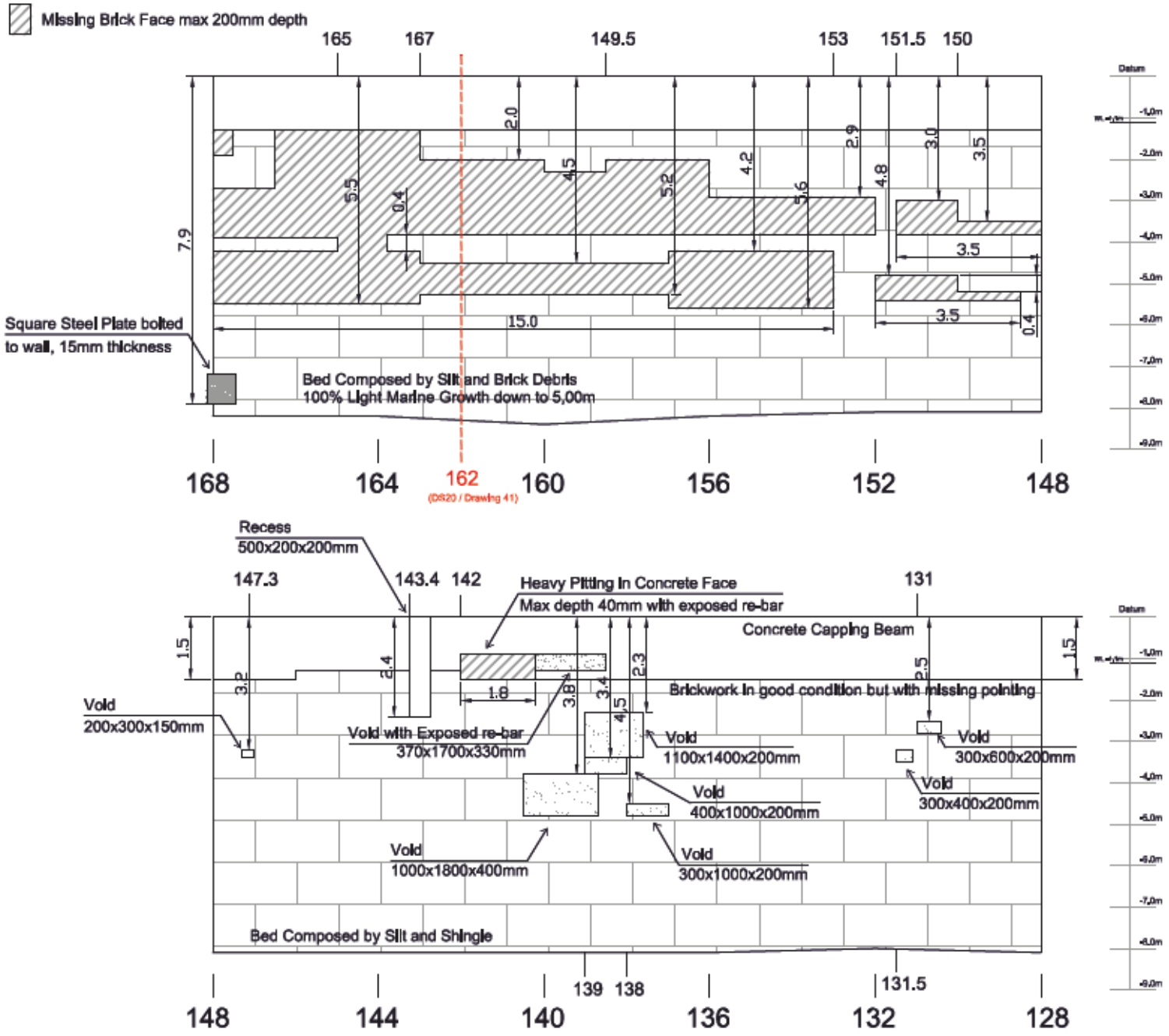
Project:
ARUP
Wood Wharf Development
West India

Drawing:
"General Dock Survey"
(Wood Wharf4: 168–208m)

Scale:	Drawn by:
No Scale	M.C.
Desc:	App:
Date: 19/07/2007	Pro Code:
	UPRN:

Drawing No:
Abwood / MC / 520 / 020–00

Revision	A					



Notes

1) Refer to Abwood dock for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be height/depth

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

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Email: shoreside@abwood.co.uk
www.abwood.co.uk

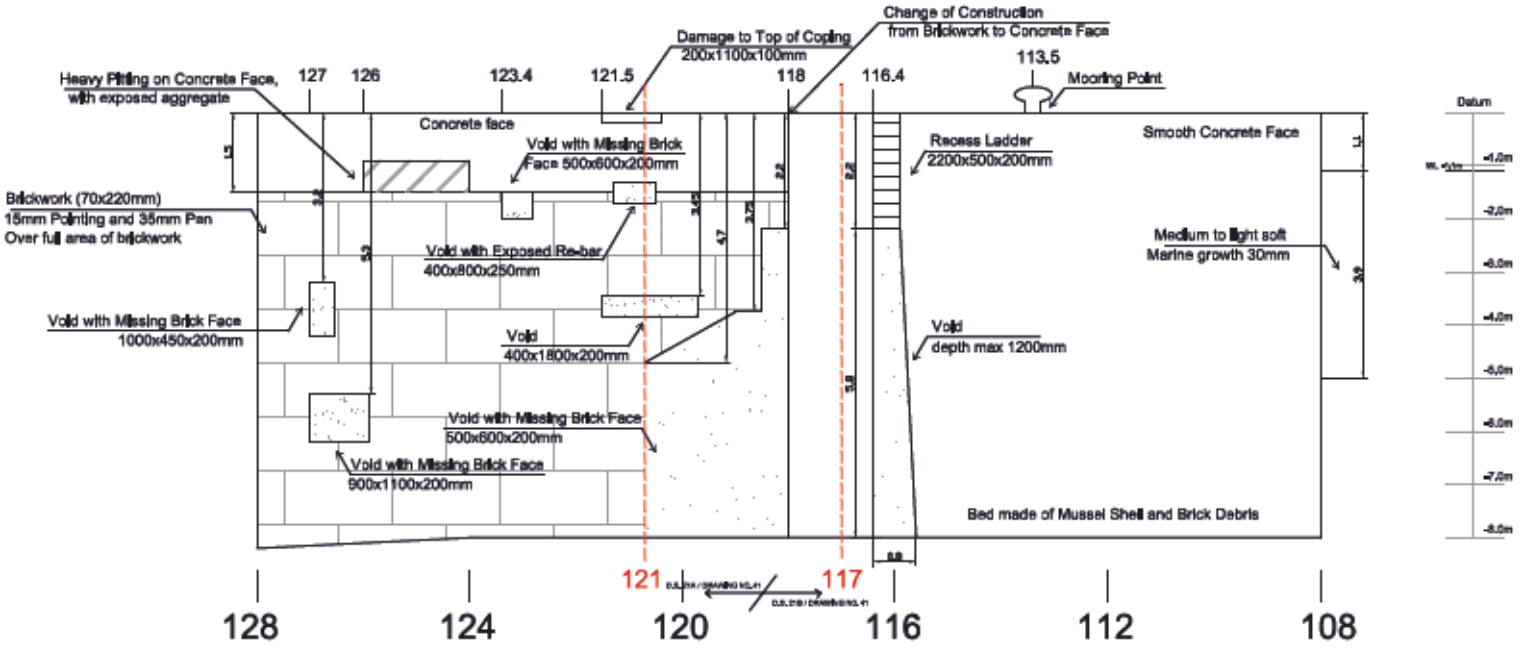
Project:
ARUP
Wood Wharf Development
West India

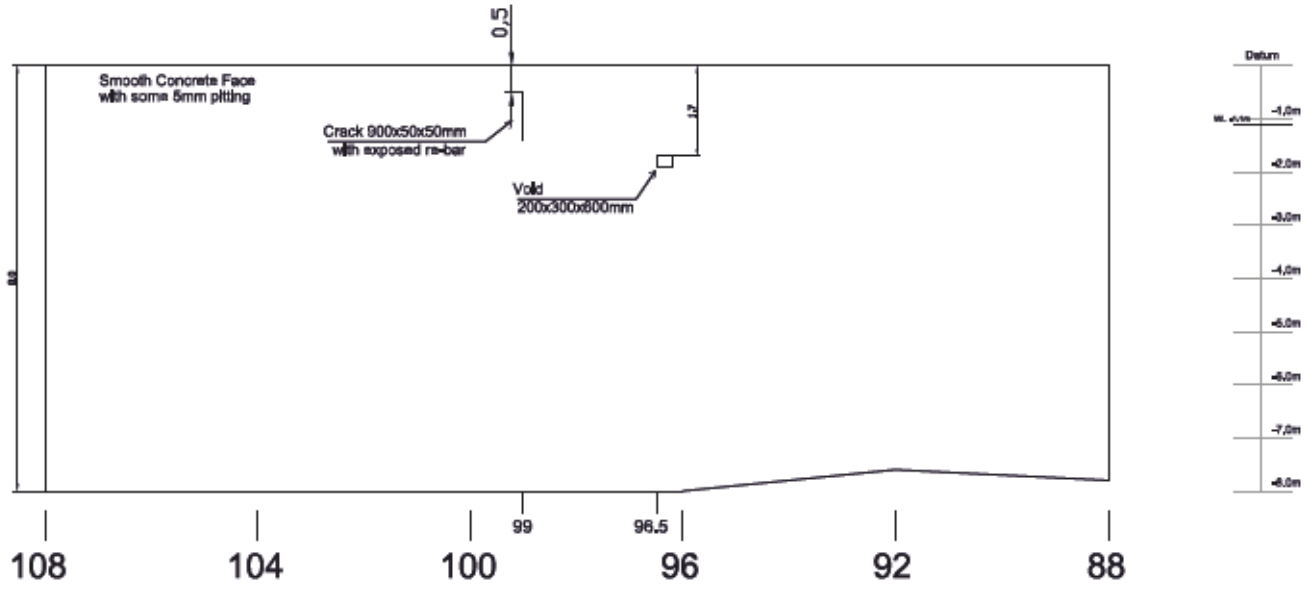
Drawing:
"General Dock Survey"
(Wood Wharf 4: 128–168m)
DS20

Scale: No Scale	Drawn by: M.C.
Desc:	App:
Date: 19/07/2007	Pro Code:
	UPRN:

Drawing No:
Abwood / MC / 520 / 021–00

Revision	A





Notes

1) Refer to Abwood dock for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be highest/thickest

Specific Challenge

Challenge for Detailed Surveys

General Challenge

Pen = Penetration

Rev.		Drawn	Date

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www.abwood.co.uk

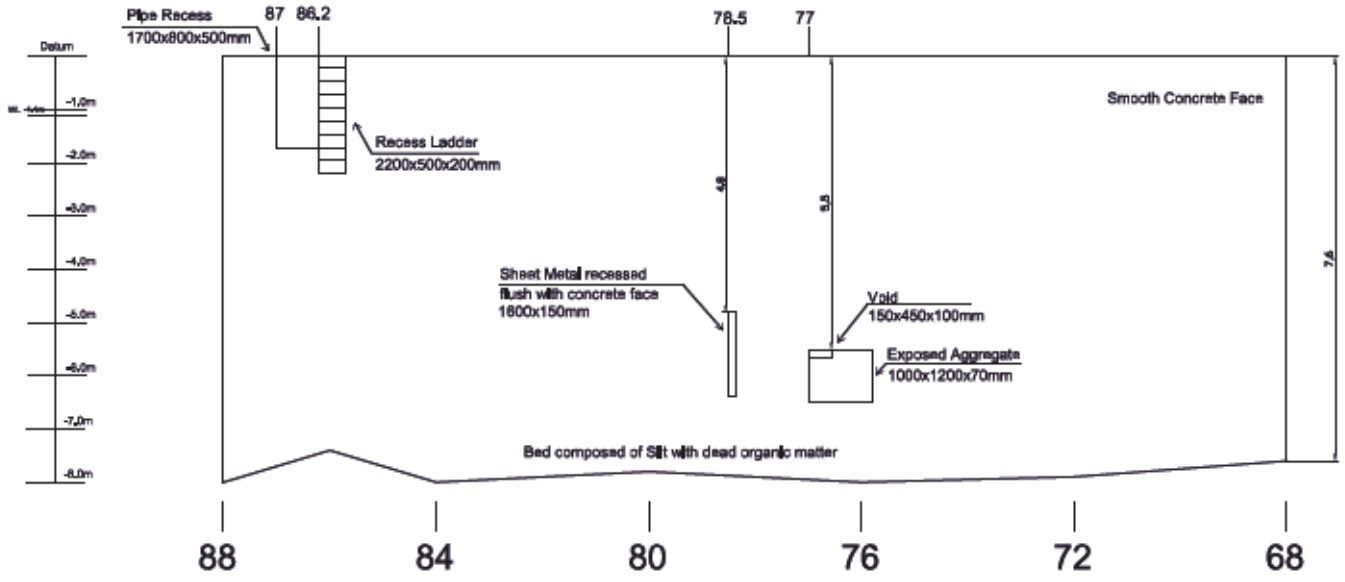
Project:
ARUP
Wood Wharf Development
West India

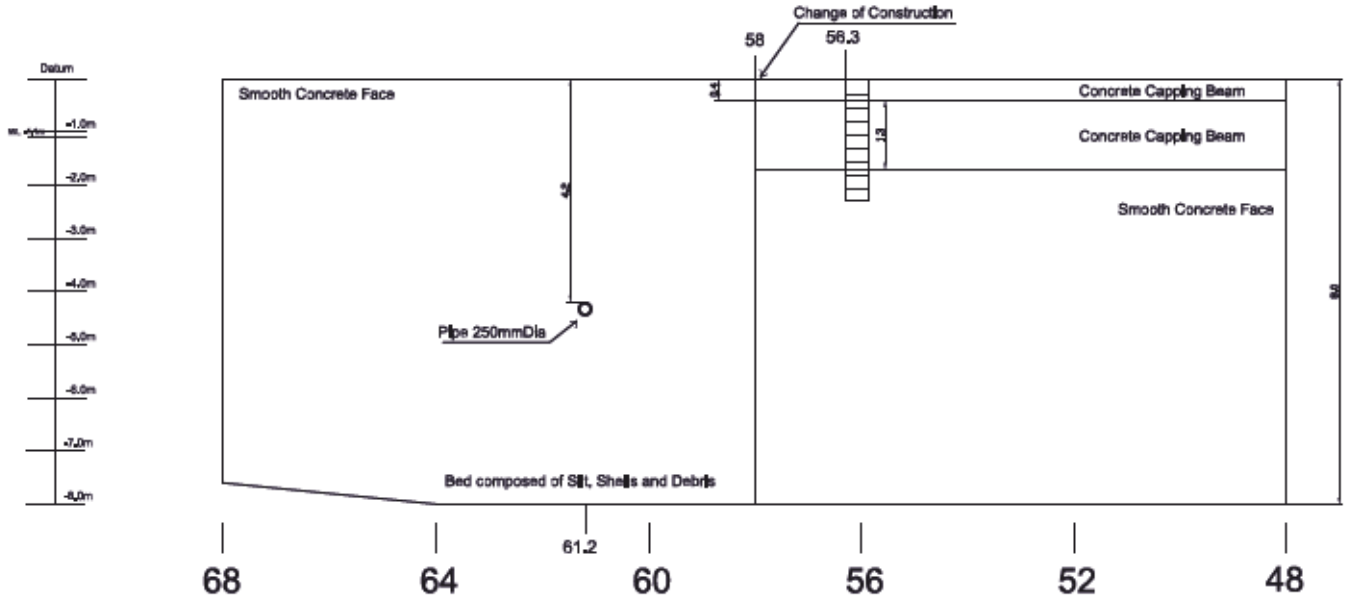
Drawing:
"General Dock Survey"
(Wood Wharf 4: 88–128m)
DS21a and DS21b

Scale: No Scale	Drawn by: M.C.
Desc:	App:
Date: 20/07/2007	Pro Code:
	UPRN:

Drawing No: Abwood / MC / 520 / 022-00

Revision	A					





Notes

1) Refer to Abwood dock for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be highest/thickest

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

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Fax: 0845 230 2870
Email: shoreside@abwood.co.uk
www.abwood.co.uk

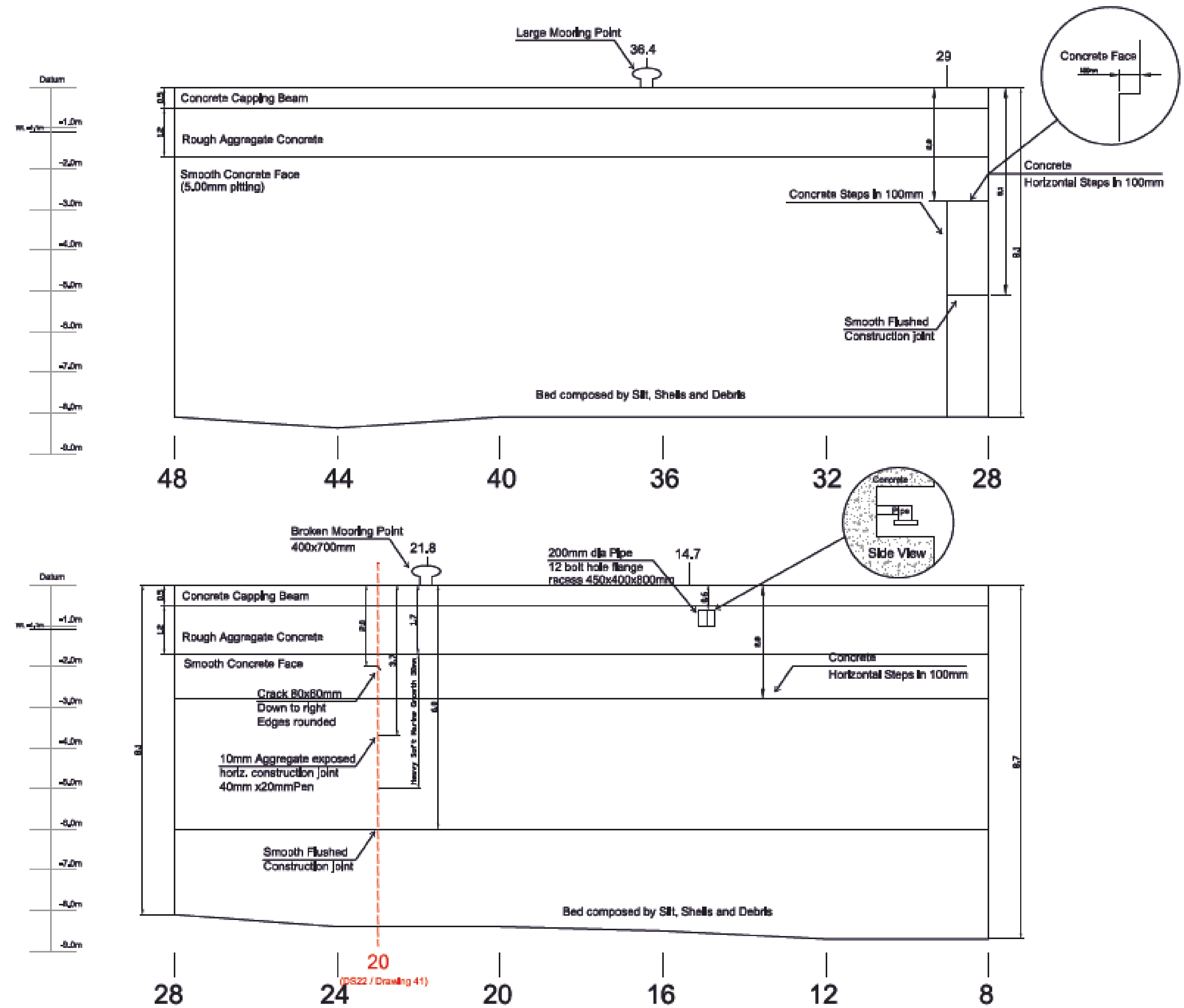
Project:
ARUP
Wood Wharf Development
West India

Drawing:
"General Dock Survey"
(Wood Wharf 4: 48–88m)

Scale: No Scale	Drawn by: M.C.
Desc:	App:
Date: 20/07/2007	Pro Code:
	UPRN:

Drawing No:
Abwood / MC / 520 / 023–00

Revision	A					



Notes

1) Refer to Abwood doc's for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be Hight x Width x Depth

Specific Chainages

Chainage for Detailed Surveys

General Chainage

Pen = Penetration

Rev.		Drawn	Date

Abwood Marine Ltd
Dock Office
1 Onega Gate
Surrey Quays
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SE16 7PF

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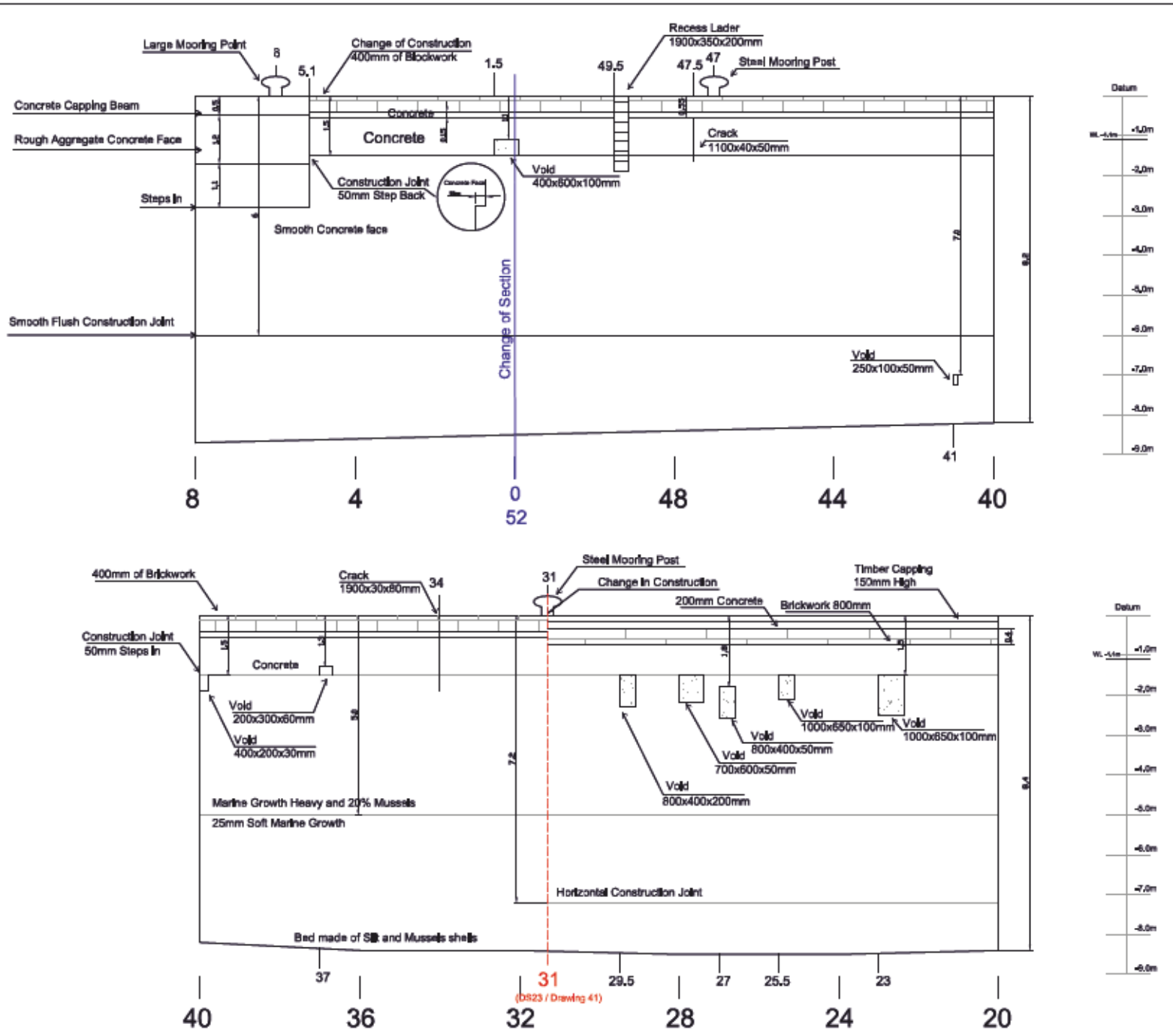
www.abwood.co.uk

Project:
ARUP
Wood Wharf Development
West India

Drawing:
"General Dock Survey"
(Wood Wharf4: 08–48m)
DS22

Scale: No Scale	Drawn by: M.C.
Des:	App:
Date: 21/07/2007	Pro Code:
	UPRN:
Drawing No: Abwood / MC / 520 / 024-00	
Revision	A



Notes

1) Refer to Abwood dock's for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Stated measurements are height x width x depth

Specific Challenge

Challenge for Detailed Surveys

General Challenge

Pen = Penetration

Rev.		Drawn	Date

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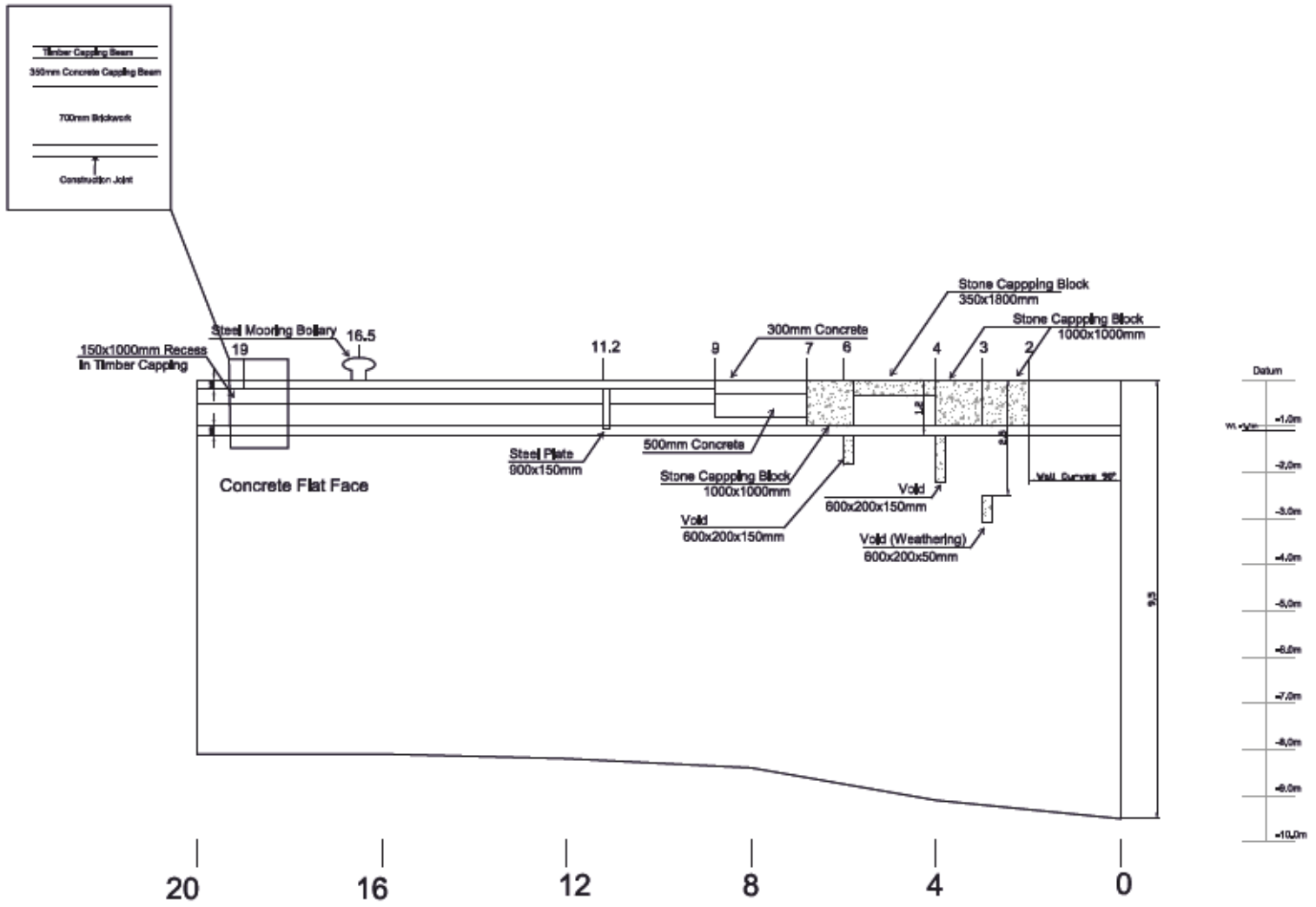
Project:
ARUP
Wood Wharf Development
West India

Drawing:
"General Dock Survey"
(Wood Wharf 4: 08–20m)
(Wood Wharf 5: 20–52m)
DS23

Scale: No Scale	Drawn by: M.C.
Desc:	App:
Date: 21/07/2007	Pro Code:
	UPRN:

Drawing No:
Abwood / MC / 520 / 025–00

Revision	A					



Notes

1) Refer to Abwood dock's for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Stated measurements are height x width x depth

Specific Challenges

Challenge for Detailed Surveys

General Challenge

Pen = Penetration

Rev.		Drawn	Date

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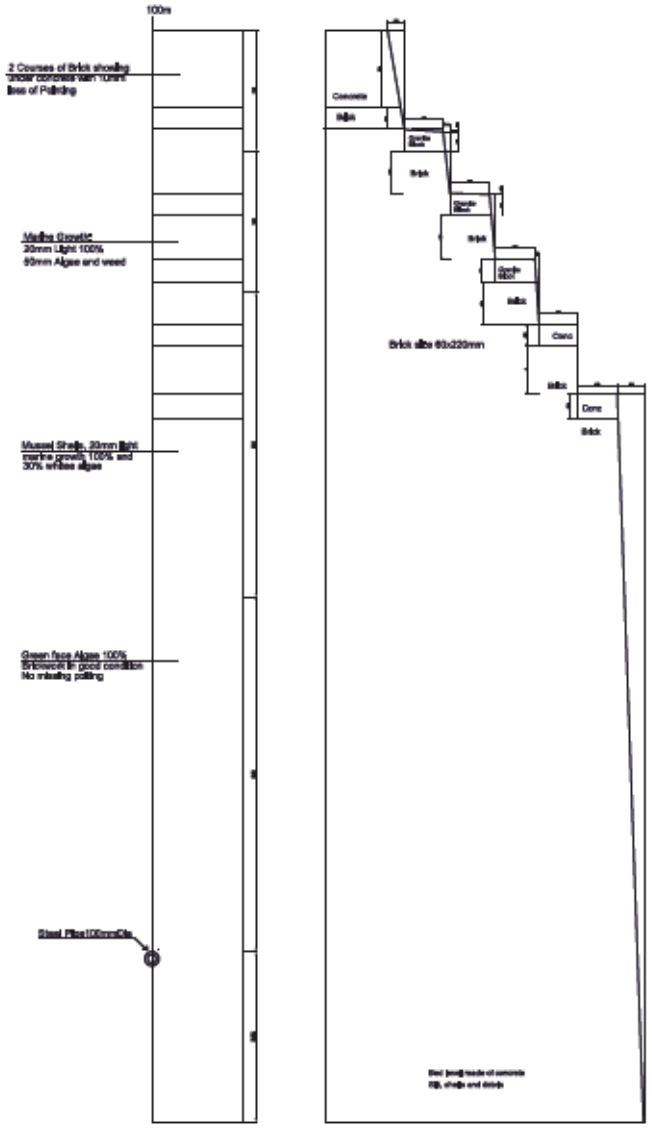
Project:
ARUP
Wood Wharf Development
West India

Drawing:
"General Dock Survey"
(Wood Wharf 5: 0–20m)

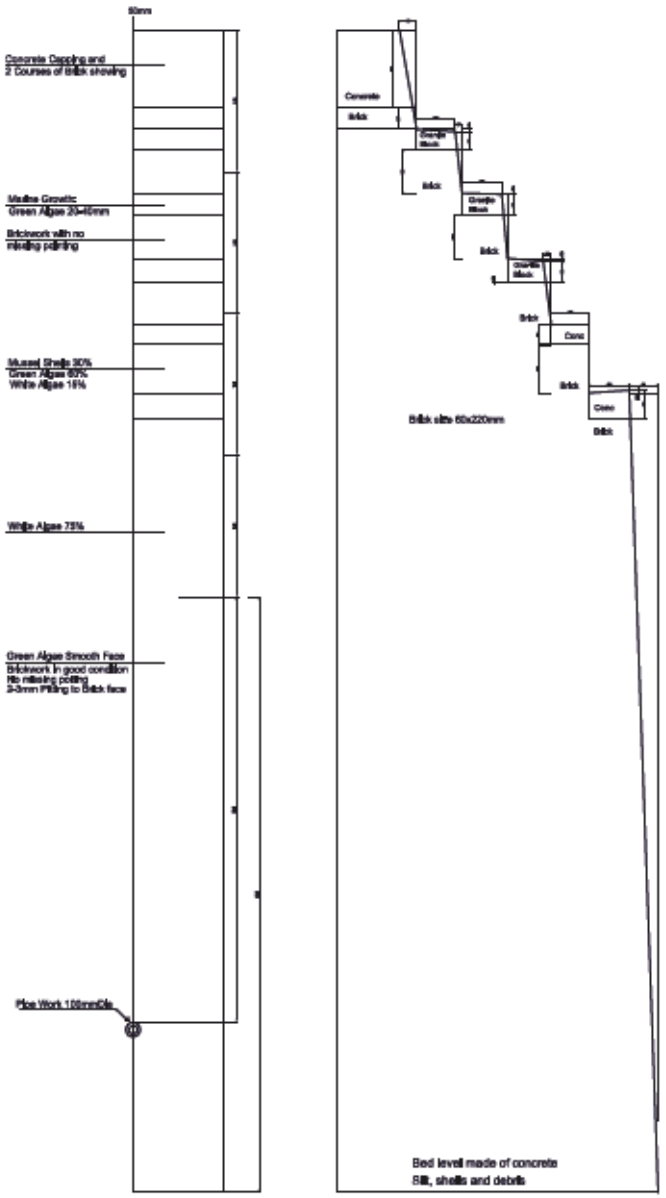
Scale:	Drawn by:
No Scale	M.C.
Desc	**App:**
Date: 21/07/2007	**Pro Code:** / **UPRN:**

Drawing No: Abwood / MC / 520 / 026–00

Revision A



Detail 01 - 100m
DS01



Detail 02 - 50m
DS02

Notes

1) Refer to Abwood doc's for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be Highwater/depth

Specific Chainage

Chainage for Detailed Survey

General Chainage

Pen – Penetration

Rev.		Drawn	Date

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www.abwood.co.uk

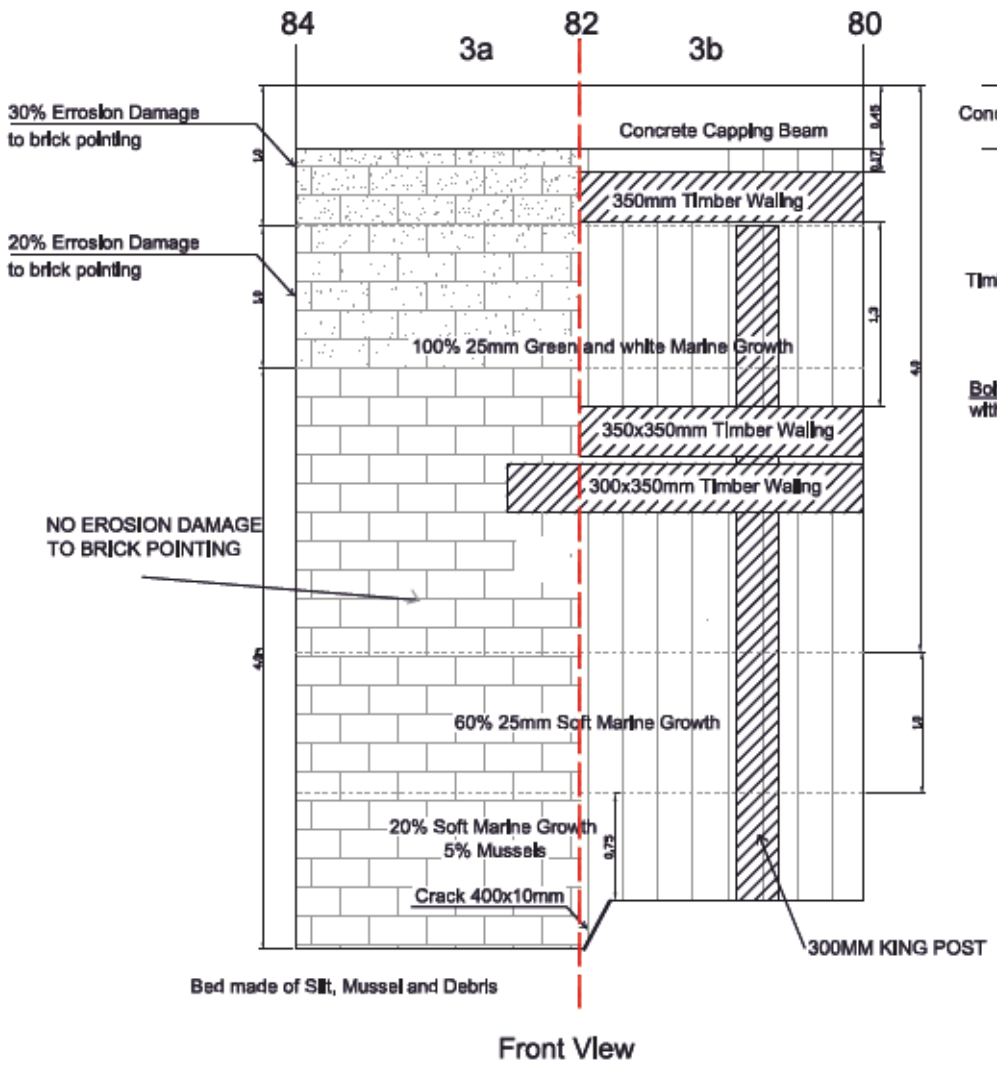
Project:
ARUP
Wood Wharf Development
West India

Drawing: "Dock Survey"
Detailed Survey Sheet 1 and 2
(Graving Dock: 50m and 100m)
DS01(Draw11) – DS02 (Draw10)

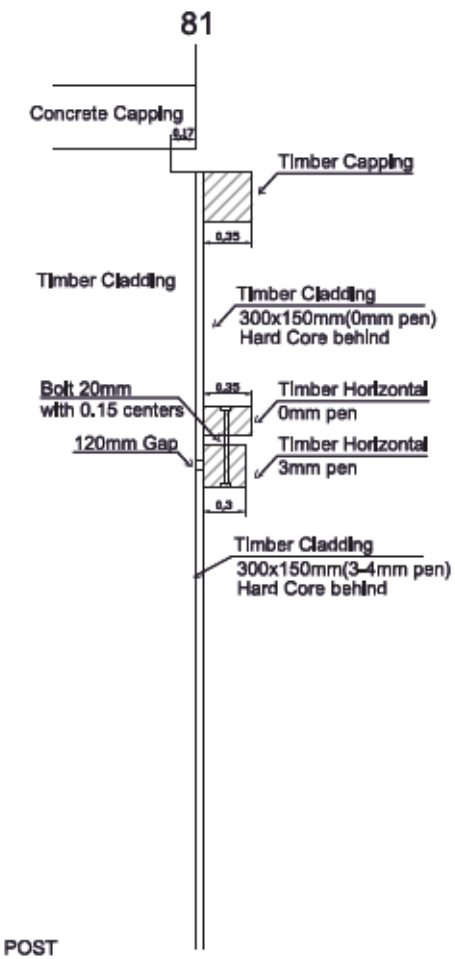
Scale: No Scale	Drawn by: M.C.
Desc:	App:
Date: 10/10/2007	Pro Code:
	UPRN:

Drawing No:
Abwood / MC / 520 / 027-00

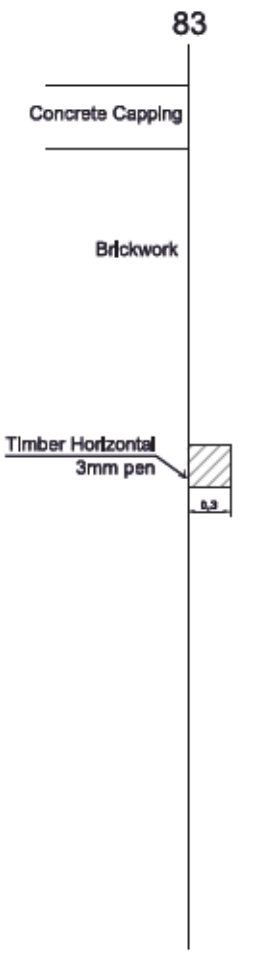
Revision	A					



Front View



Side View



Side View

Notes

1) Refer to Abwood doc's for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be Height x Width x Depth

Specific Chainage

Chainage for Detailed Survey

General Chainage

Pen – Penetration

Rev.		Drawn	Date

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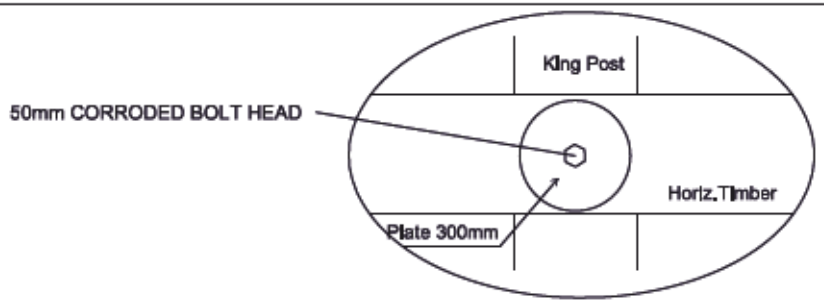
Project:
ARUP
Wood Wharf Development
West India

Drawing:
"Dock Survey"
Detailed Survey Sheet 3
(BlackWall Basin 1: 82m)
DS03 and Draw 03

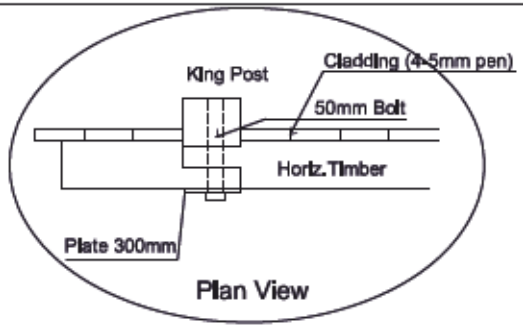
Scale:	Drawn by:
No Scale	M.C.
Desc:	App:
Date: 10/10/2007	Pro Code:
	UPRN:

Drawing No:
Abwood / MC / 520 / 028-00

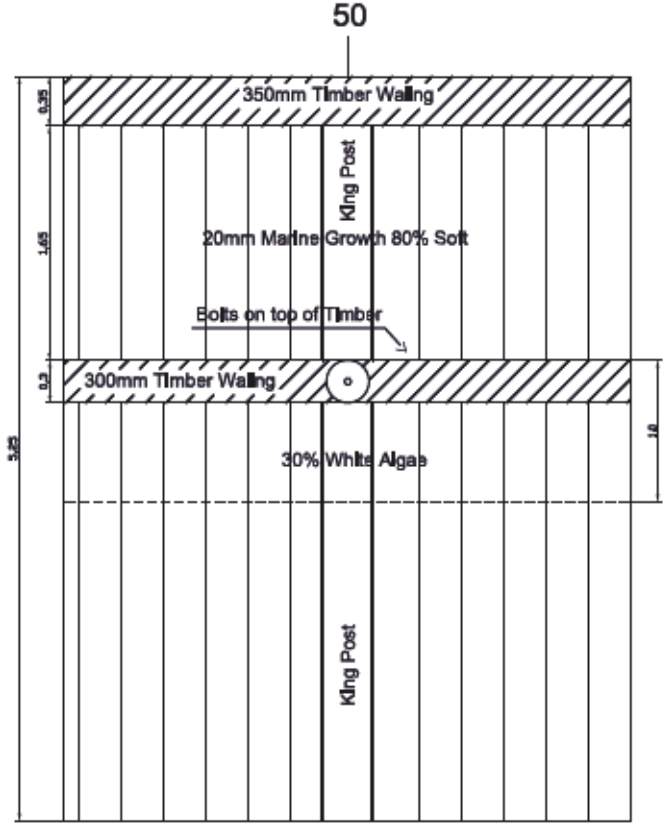
Revision A



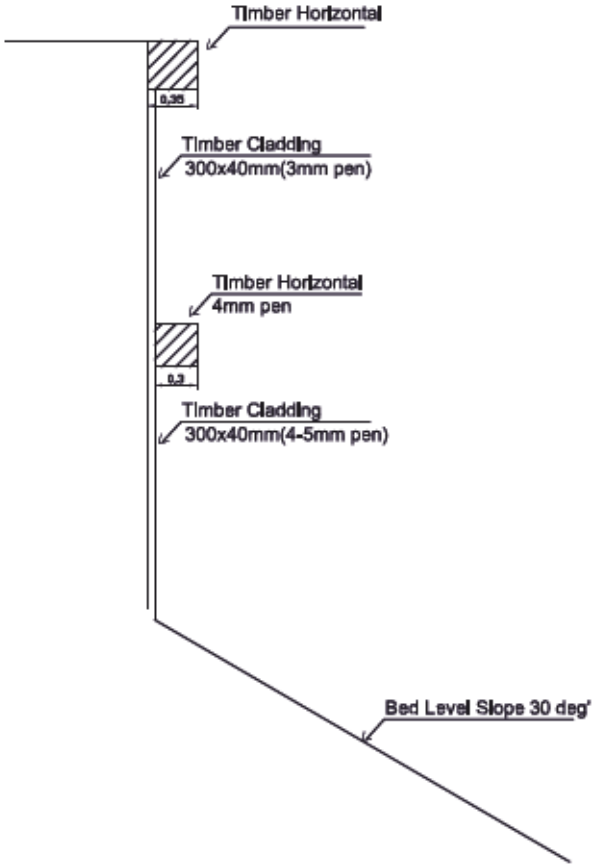
FRONT VIEW



Plan View



Bed made of Silt, Aggregate and Debris



Notes

1) Refer to Abwood doc's for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) All detailed measurements are height x width x depth.

Specific Chainage

Chainage for Detailed Survey

General Chainage

Pen = Penetration with down hole.

Rev.		Drawn	Date

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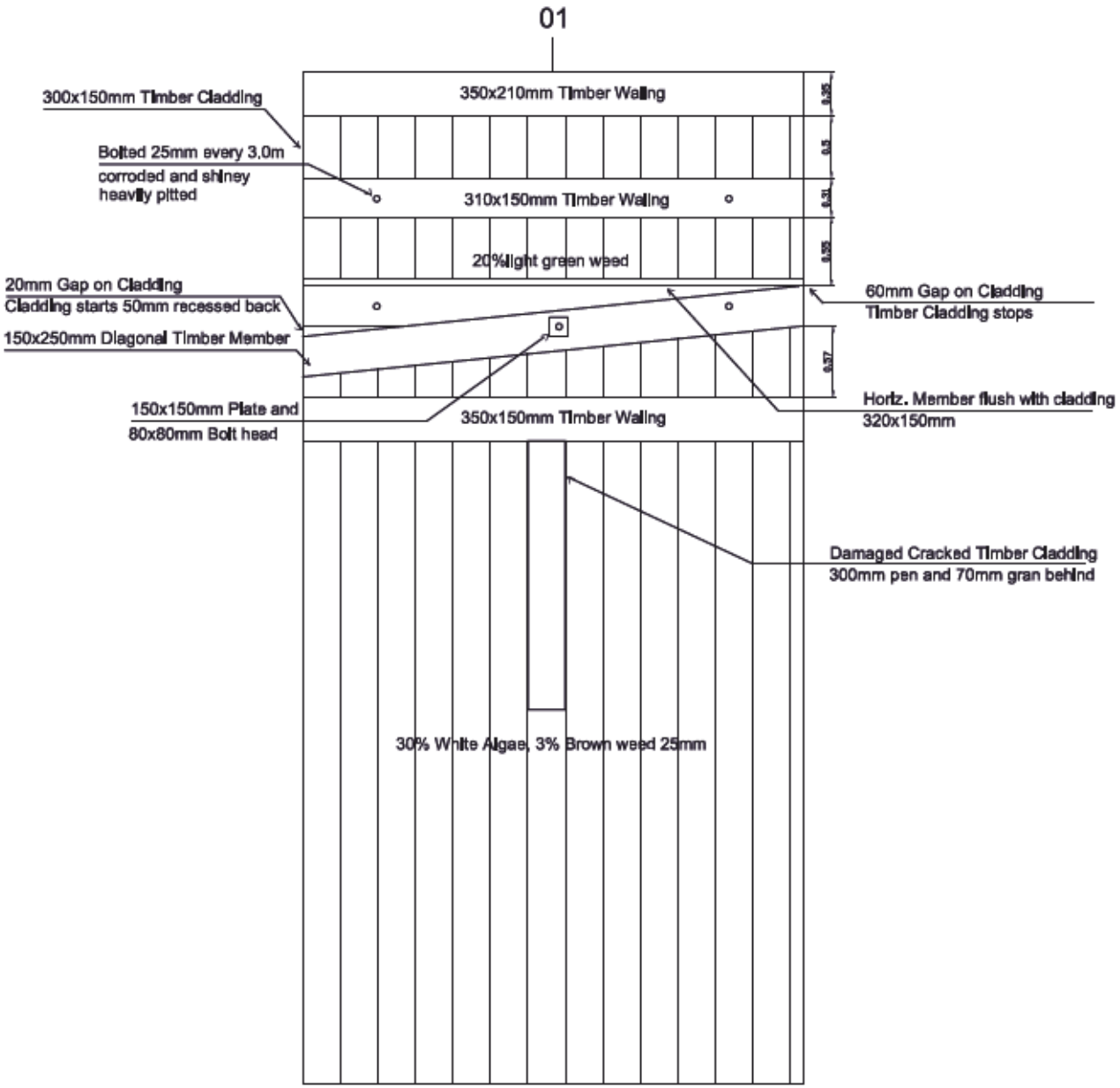
Project:
ARUP
Wood Wharf Development
West India

Drawing:
"Dock Survey"
Detailed Survey DS. 04
(BlackWall Basin 1 : CH. 50m)

Scale:	Drawn by:
No Scale	RWB
Desc:	App:
Date: 27/11/07	Pro Code:
	UPRN:

Drawing No:
Abwood / MC / 520 / 029-01

Revision 01



Notes

Rev.		Drawn	Date

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www.abwood.co.uk

Project:
ARUP
Wood Wharf Development
West India

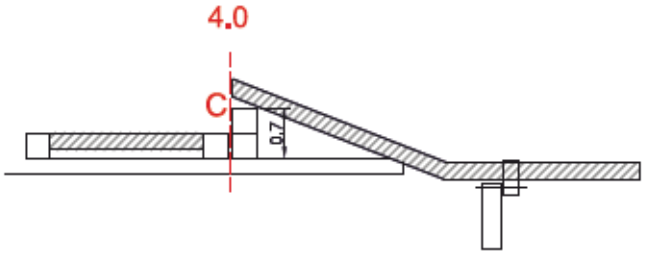
Drawing:
"Dock Survey"
Detailed Survey Sheet 5
(BlackWall Basin: 1m)

Scale:	Drawn by:
No Scale	M.C.
Desc:	App:
Date: 24/07/2007	Pro Code: / UPRN:

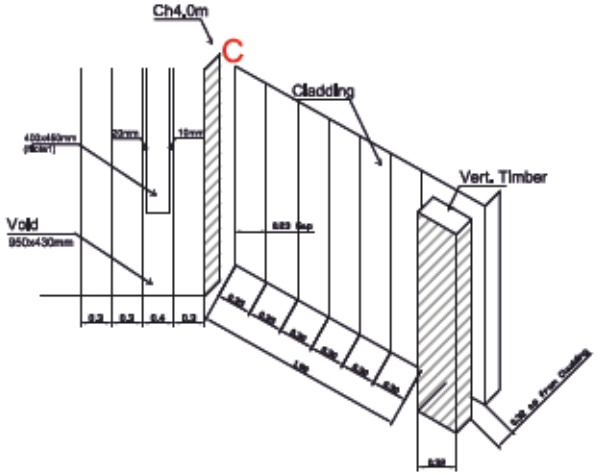
Drawing No:
Abwood / MC / 520 / 030-00

Revision

Side View



Top View



A Pen at Void (WL)
0-1.9m - Probe 1.85m Back of Void
Inks to Void on Left.
Debris down to horizontal at 1.9m

B Bed Material Slope 45o into Void
Pen 1200mm - Top of Void
Pen 0mm - Bottom of Void
Pen 1600mm 45o angle Up level
Muddy Silt at bottom
Block of Concrete and Brickwork at Top

C Probe back 1.8m
Joins "B" Void
Void is 1600x180xx950mm

Profile
Below Capping - 620mm
01 - 620mm
02 - 510mm
03 - 520mm
04 - 560mm

Notes

Pen - Penetration

Rev.		Drawn	Date

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Email: shoreside@abwood.co.uk
www.abwood.co.uk

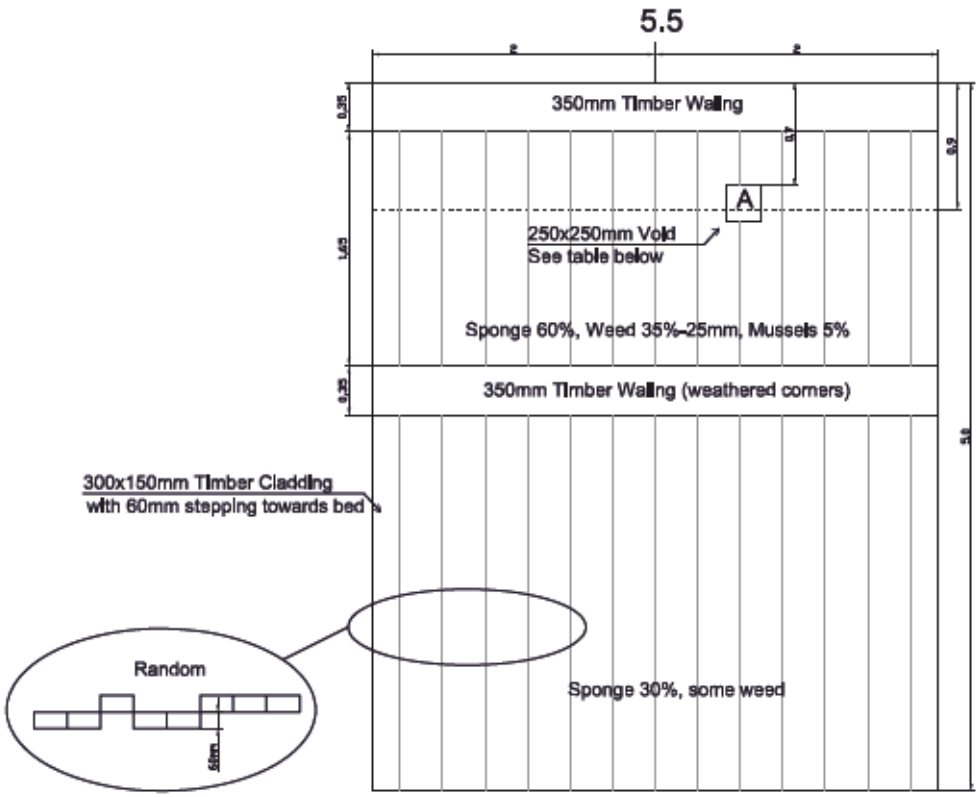
Project:
ARUP
Wood Wharf Development
West India

Drawing:
"Dock Survey"
Detailed Survey Sheet 5
(BlackWall Basin: 6m)

Scale: No Scale	Drawn by: M.C.
Desc:	App:
Date: 09/07/2007	Pro Code:
	UPRN:

Drawing No:
Abwood / MC / 520 / 031-00

Revision



"A" - Void Probes:
Loose debris and Roots
1600mm pen to back void
700mm pen to left
2400mm pen left to right links to void on right
Botton of void level with cut out
Gravel on botton

Notes

1) Refer to Abwood doc's for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) Always the measurements will be Height:width:depth

Specific Chainage

Chainage for Detailed Survey

General Chainage

Pen – Penetration

Rev.		Drawn	Date

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www.abwood.co.uk

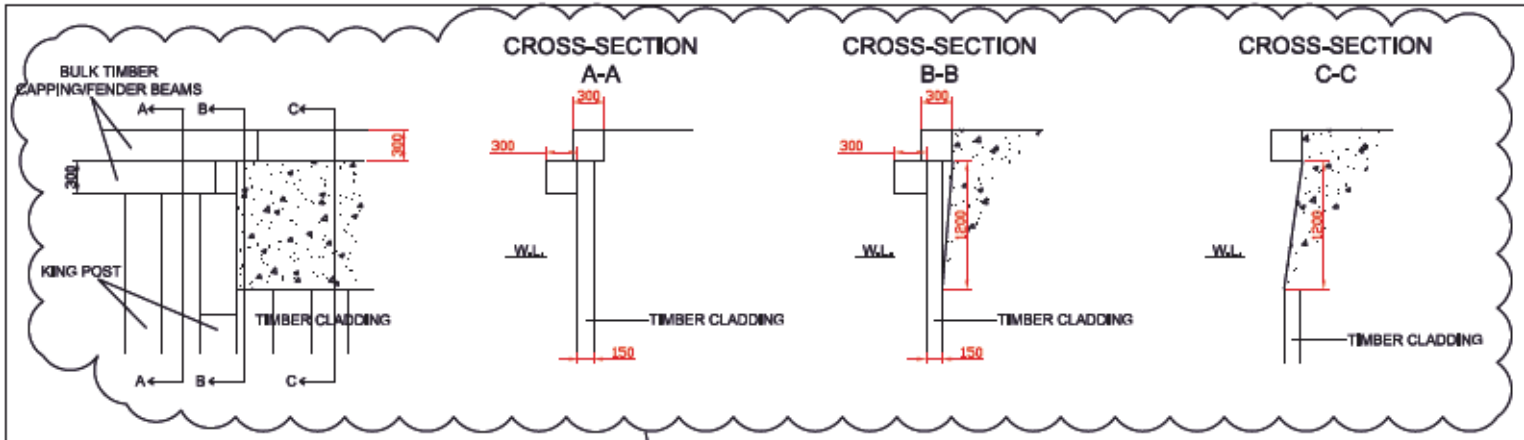
Project:
ARUP
Wood Wharf Development
West India

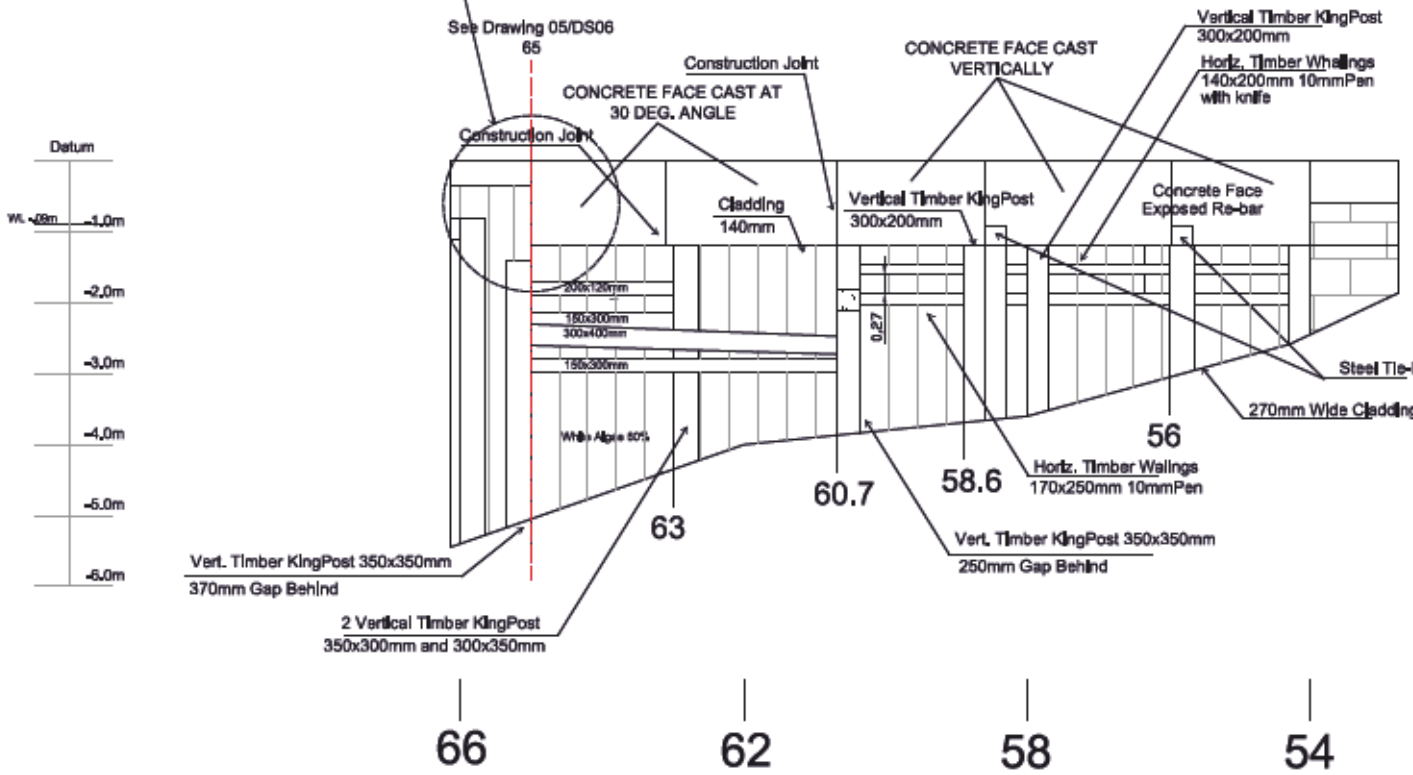
Drawing:
"Dock Survey"
Detailed Survey Sheet 5
(BlackWall Basin: 5.5m)
DS05

Scale:	Drawn by:
No Scale	M.C.
Desc:	App:
Date: 24/07/2007	Pro Code: / UPRN:

Drawing No: Abwood 032WDQ/ 520 / 032-00

Revision: A





Notes

7 Specific Chainages

13.3 Chainage for Detailed Surveys

20 General Chainage

Pen - Penetration

Rev.		Drawn	Date

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www.abwood.co.uk

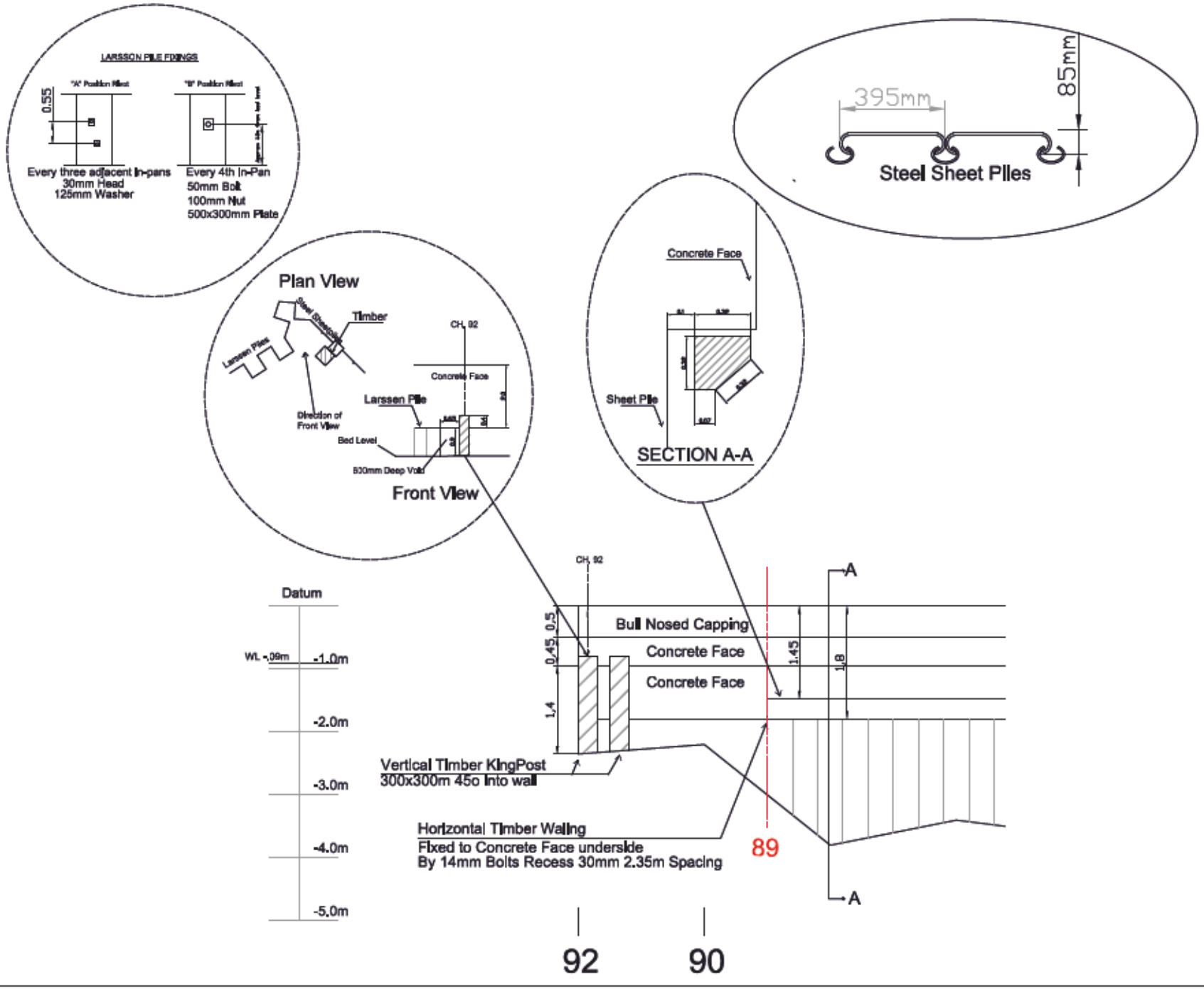
Project:
ARUP
Wood Wharf Development
West India

Drawing:
"Dock Survey"
Detailed Survey DS 06
(Blackwall Basin 2: 65m)

Scale: No Scale	Drawn by: R.B.
Desc:	App:
Date: 10/12/2007	Pro Code:
	UPRN:

Drawing No: Abwood / MC / 520 / 033-00

Revision



Notes

1) Refer to Abwood docs for further information of detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) All detailed measurements are height x width x depth.

Specific Challenges

Challenge for Detailed Surveys

General Challenge

Rev.		Drawn	Date

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Tel: 0845 230 2860
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Email: shoreside@abwood.co.uk
www.abwood.co.uk

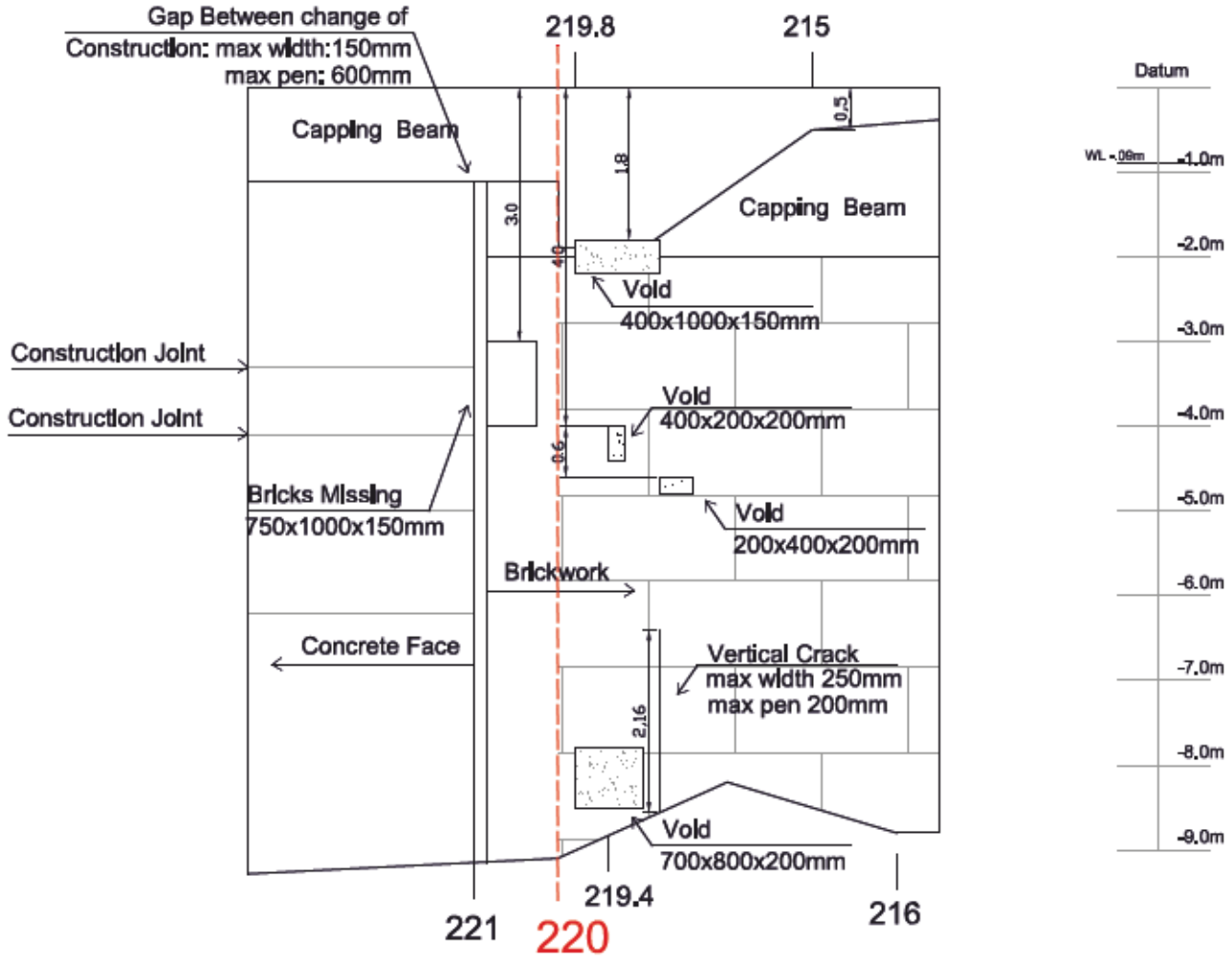
Project:
ARUP
Wood Wharf Development
West India

Drawing:
"Dock Survey"
Detailed Survey DS. 09
(Blackwall Basin 3 : 89m)

Scale: No Scale	Drawn by: RWB
Desc:	App:
Date: 27/11/07	Pro Code:
	UPRN:

Drawing No:
Abwood / MC / 520 / 034-01

Revision 01



Note1: Bed Composed of small shingle and Light Silt with 90° Slope

Notes

1) Refer to Abwood dock's for further information at detailed survey locations

2) Wall height taken from top of capping beam. Capping beam level may not be horizontal as shown.

3) All measurements detailed as height x width x depth

Specific Challenges

Challenge for Detailed Surveys

General Challenge

Pen = Penetration

Rev.		Drawn	Date

Abwood Marine Ltd
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www.abwood.co.uk

Project:
ARUP
Wood Wharf Development
West India

Drawing:
"Dock Survey"
Detailed Survey Sheet 19
(Wood Wharf 4: 220m)
DS19 and Draw19

Scale: No Scale	Drawn by: M.C.
Desc:	App:
Date: 10/10/2007	Pro Code:
	UPRN:

Drawing No:
Abwood / MC / 520 / 035-00

Revision	A					

Height from Datum to Dock Bed-Section 1

Chainage	Height	Chainage	Height	Chainage	Height
120	5.3	76	5.3	32	5.5
116	5.0	72	5.7	28	5.7
112	5.0	68	5.9	24	5.7
108	5.8	64	5.9	20	5.8
104	5.8	60	5.8	16	5.7
100	6.5	56	5.7	12	5.7
96	5.5	52	5.7	8	5.3
92	5.2	48	5.6	4	4.7
88	5.3	44	5.7		
84	5.3	40	5.9		
80	5.2	36	5.9		

Height from Datum to Dock Bed-Section 2

Chainage	Height	Chainage	Height
0	3.5	26	6.1
66	4.7	22	6.2
62	5.1	18	6.0
58	5.3	14	6.4
54	5.5	10	6.2
50	5.5	6	7.4
46	5.6	2	8.5
42	5.7		
38	5.6		
34	5.4		
30	5.9		

Height from Datum to Dock Bed-Section 3

Chainage	Height	Chainage	Height
50	9.5	18	9.3
46	9.0	14	9.3
42	9.2	10	9.0
38	9.3	6	9.4
34	9.5	2	9.2
30	9.0		
26	9.2		
22	9.3		

Height from Datum to Dock Bed-Section 4

Chainage	Height	Chainage	Height	Chainage	Height	Chainage	Height	Chainage	Height	Chainage	Height
224	9.3	204	8.9	160	8.2	116	8.1	72	8.0	28	8.1
220	9.1	200	8.9	156	8.2	112	8.0	68	7.6	24	8.3
216	8.8	196	8.9	152	8.1	108	8.0	64	8.0	20	8.3
212	8.8	192	8.8	148	8.1	104	8.0	60	8.0	16	8.5
208	8.8	188	8.8	144	8.1	100	8.0	56	8.0	12	8.7
		184	8.7	140	8.1	96	8.0	52	8.1	8	8.7
		180	8.7	136	8.1	92	7.7	48	8.0	4	8.8
		176	8.6	132	8.0	88	7.6	44	8.2	0	8.5
		172	8.3	128	8.2	84	8.0	40	8.1		
		168	8.3	124	8.0	80	7.8	36	8.1		
		164	8.2	120	8.0	76	8.0	32	8.1		

Height from Datum to Dock Bed-Section 5

Chainage	Height	Chainage	Height
0	8.5	36	8.4
48	8.5	32	8.4
44	8.5	28	8.5
40	8.2	24	8.2
		20	8.4
		16	8.1
		12	8.0
		8	8.4
		4	9.1
		0	9.5

Notes

1) Refer to Abwood doc's for further information of detailed survey locations

2) Wall height taken from top of [illegible]. [illegible] as shown.

3) [illegible]

Specific Chainage

Chainage for Detailed Surveys

General Chainage

Pen – Penetration

Rev.		Drawn	Date

Abwood Marine Ltd
Dock Office
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SE16 7PF

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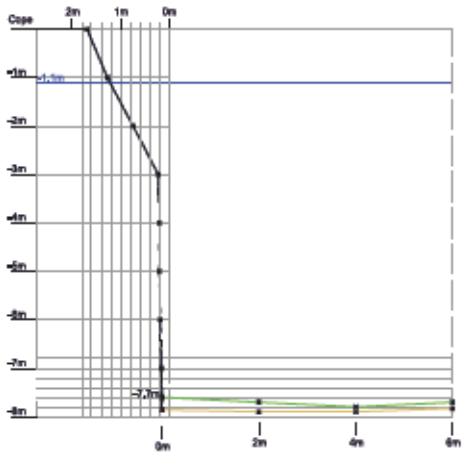
Email: shoreside@abwood.co.uk
www.abwood.co.uk

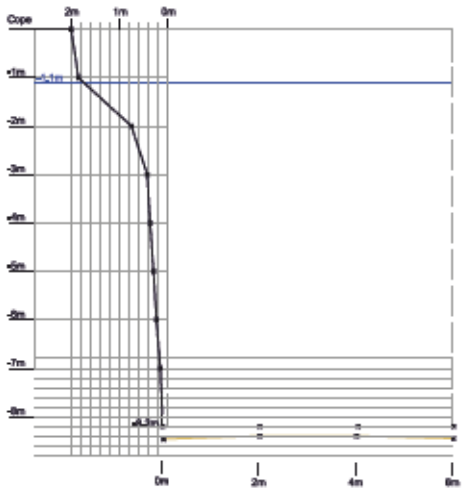
Project:
ARUP
Wood Wharf Development
West India

Drawing:
"General Dock Survey"
WoodWharf Depths Table

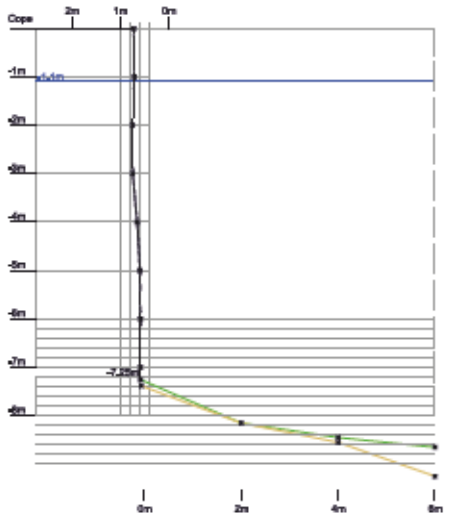
Scale: No Scale	Drawn by: M.C.
Des:	App:
Date: 10/10/2007	Pro Code: UPRN:
Drawing No: Abwood / MC / 520 / 036-00	
Revision	A



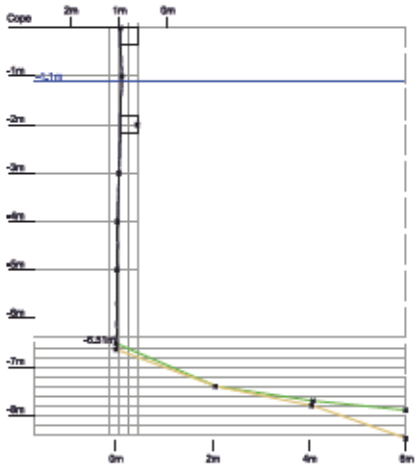
GRAVING DOCK
JUST PAST BRIDGE
DETAILED WALL SURVEY NO. 01
CHAINAGE 100M
GENERAL DRAWING REF. 11
DVD REF. 28



GRAVING DOCK
HALFWAY BETWEEN BRIDGE AND PONTOON
DETAILED WALL SURVEY NO. 02
CHAINAGE 50M
GENERAL DRAWING REF. 02
DVD REF. 29



BLACKWALL BASIN SECTION 1
CHANGE FROM BRICK TO TIMBER
DETAILED WALL SURVEY NO. 03a
CHAINAGE 82M
GENERAL DRAWING REF. 03
DVD REF. 29



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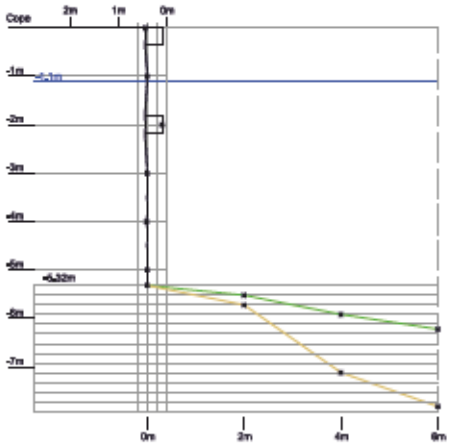

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CHAINAGE 50M
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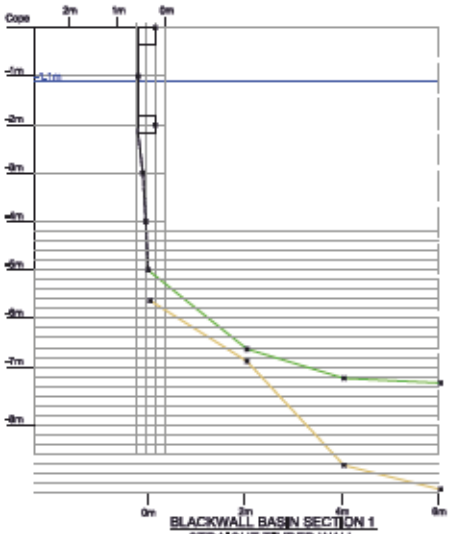

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STRAIGHT TIMBER WALL
DETAILED WALL SURVEY NO. 05a
CHAINAGE 4.5M
GENERAL DRAWING REF. N/A
DVD REF. 31

Notes

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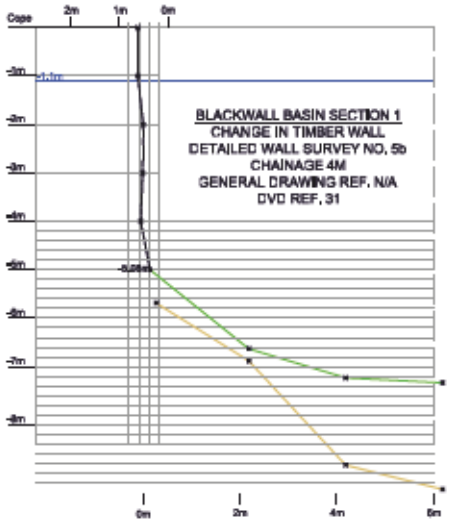

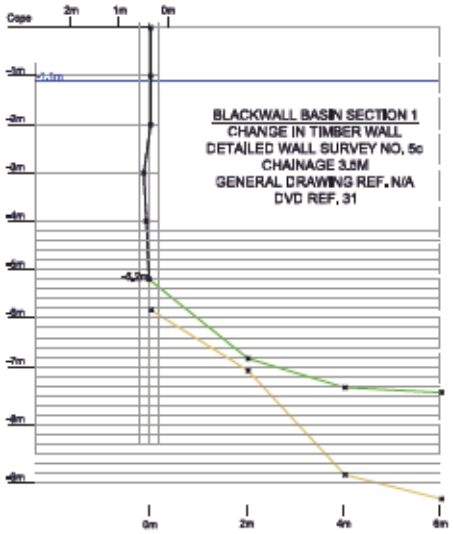

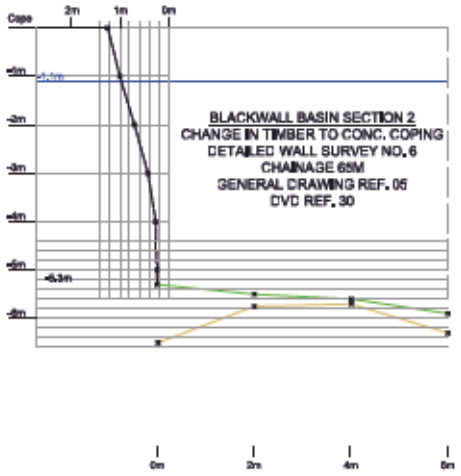

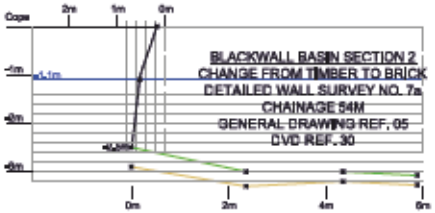

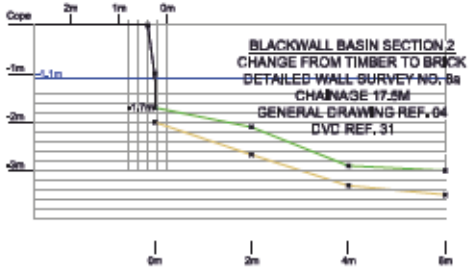

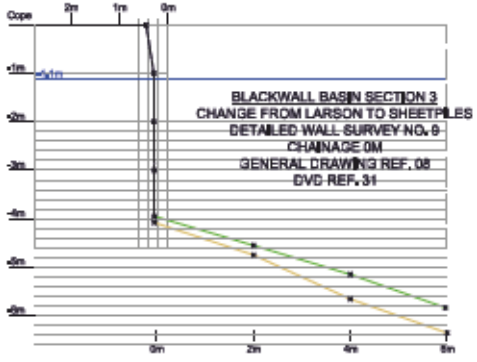

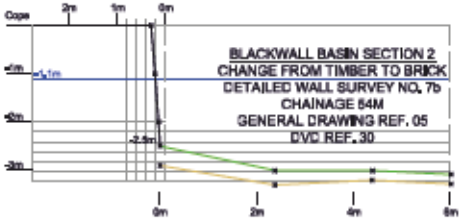

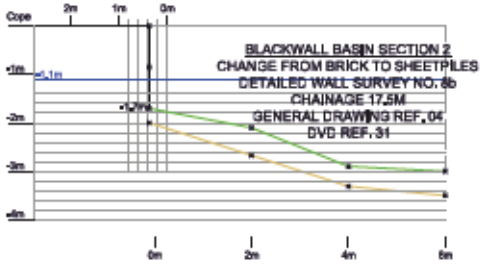

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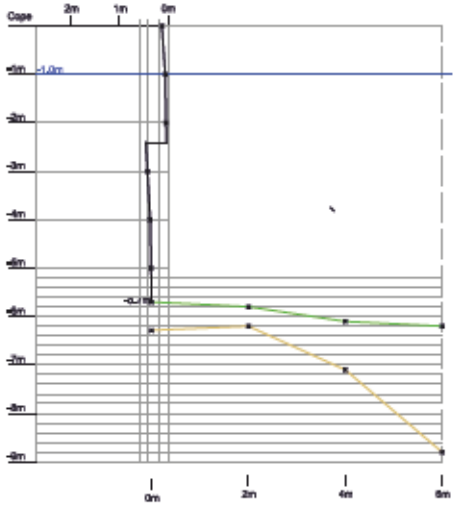

DEFECT IN FLAT SHEETPILE WALL
DETAILED WALL SURVEY NO. 10
BLACKWALL BASIN SECTION 3
CHAINAGE 51M
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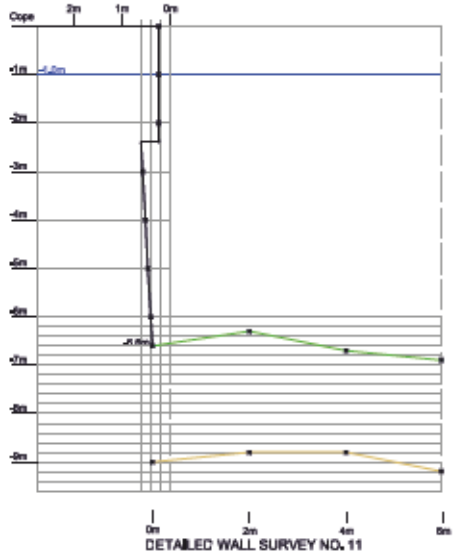
DVD REF. 32



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BLACKWALL BASIN SECTION 3
CHAINAGE 20M
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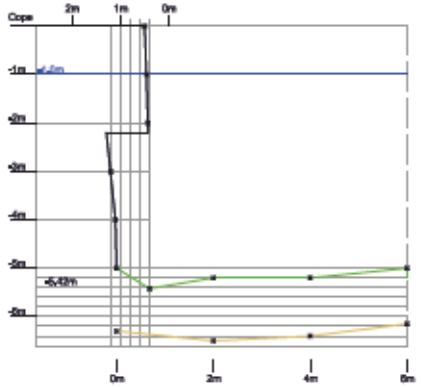
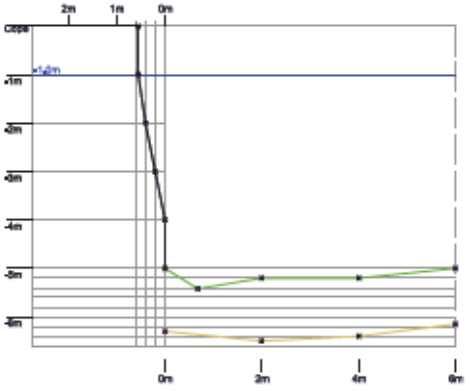
DVD REF. 32



BP3, WOOD WHARF
CHANGE FROM SSP TO BRICKWORK
DETAILED WALL SURVEY NO. 12A
WOOD WHARF SECTION 1
CHAINAGE 105M
GENERAL DRAWING REF. 13
DVD REF. 32



BP3, WOOD WHARF
CHANGE FROM SSP TO BRICKWORK
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WOOD WHARF SECTION 1 (BRICKWORK)
CHAINAGE 105M
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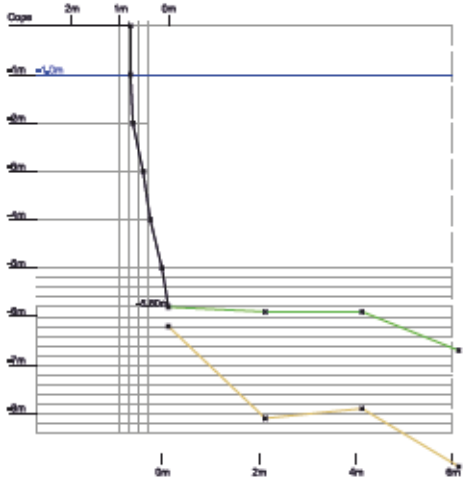

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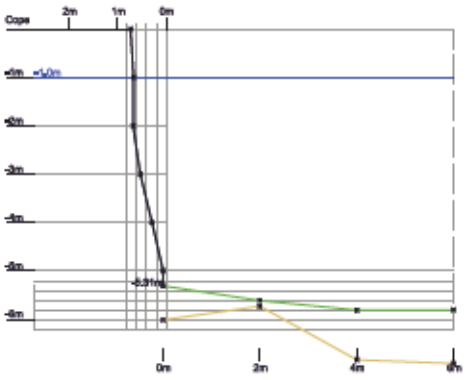
WOOD WHARF SECTION 1
CHAINAGE 40M
GENERAL DRAWING REF. 15
DVD REF. 33



WINE QUAY WOOD WHARF
DETAILED WALL SURVEY NO. 14
WOOD WHARF SECTION 2
CHAINAGE 40M
GENERAL DRAWING REF. 17
DVD REF. 33

Notes

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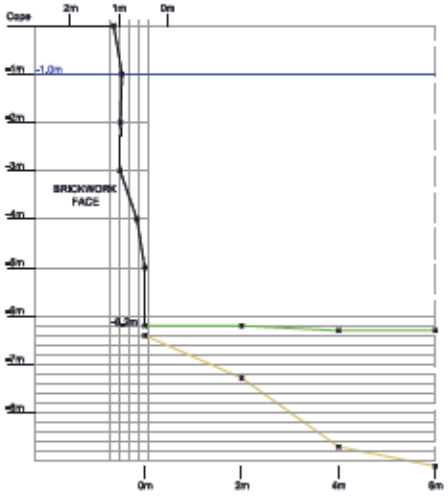
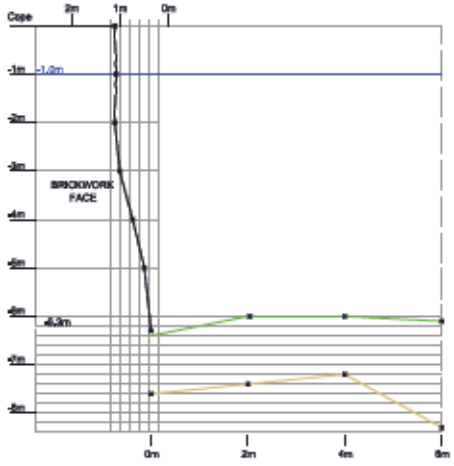


WOOD WHARF SECTION 2
WINE QUAY, DEFECT IN WALL
DETAILED WALL SURVEY NO. 15
CHAINAGE 15M
GENERAL DRAWING REF. 17
DVD REF. 33



WOOD WHARF, SECTION 2 (BRICKWORK)
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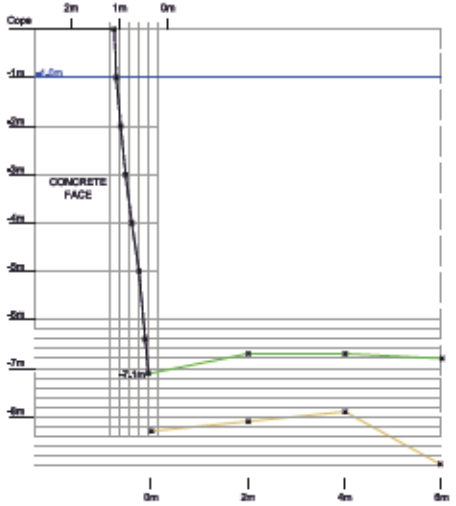
CHAINAGE 8M
GENERAL DRAWING REF. 17
DVD REF. 33



WOOD WHARF SECTION 2 (CONCRETE)
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CHAINAGE 8M
GENERAL DRAWING REF. 17
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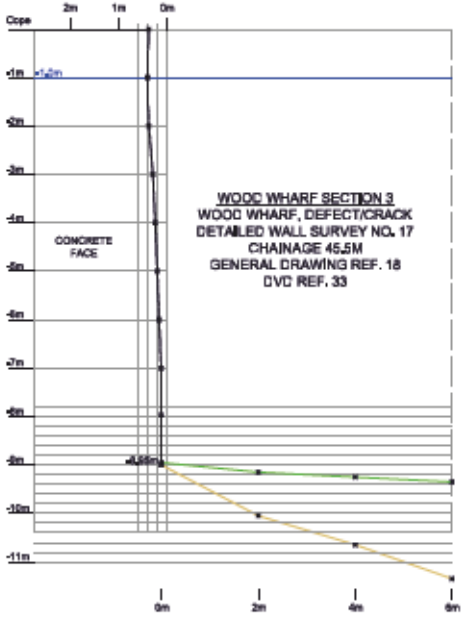

WOOD WHARF SECTION 3
WOOD WHARF, DEFECT/CRACK
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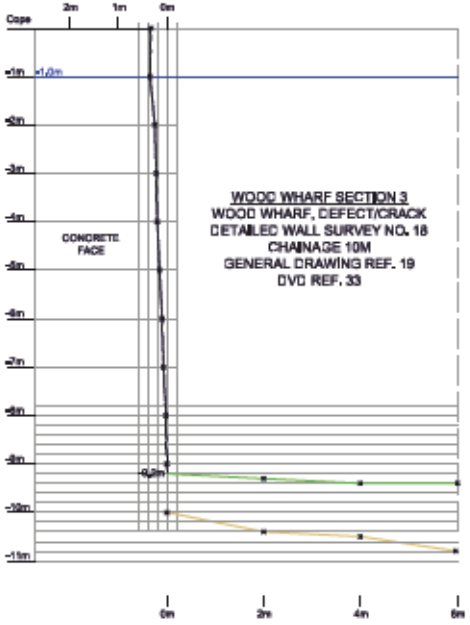
CHAINAGE 45.5M
GENERAL DRAWING REF. 18
DVD REF. 33



WOOD WHARF SECTION 3
WOOD WHARF, DEFECT/CRACK
DETAILED WALL SURVEY NO. 18
CHAINAGE 10M
GENERAL DRAWING REF. 19
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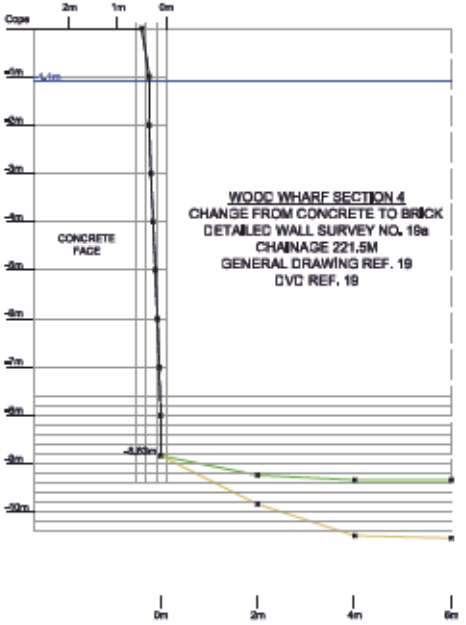

WOOD WHARF SECTION 4
CHANGE FROM CONCRETE TO BRICK
DETAILED WALL SURVEY NO. 19a
CHAINAGE 221.5M
GENERAL DRAWING REF. 19
DVD REF. 19

Notes

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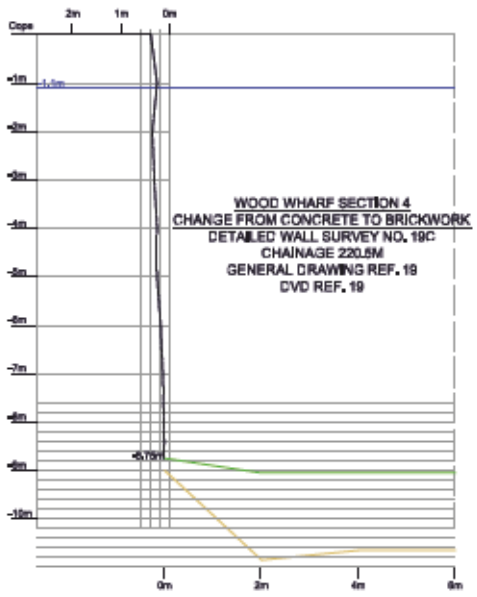

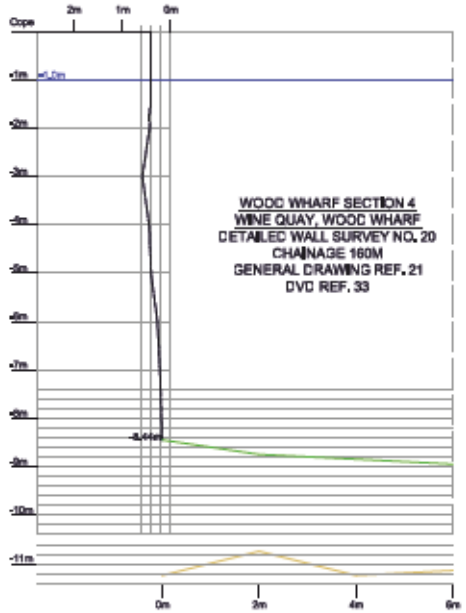

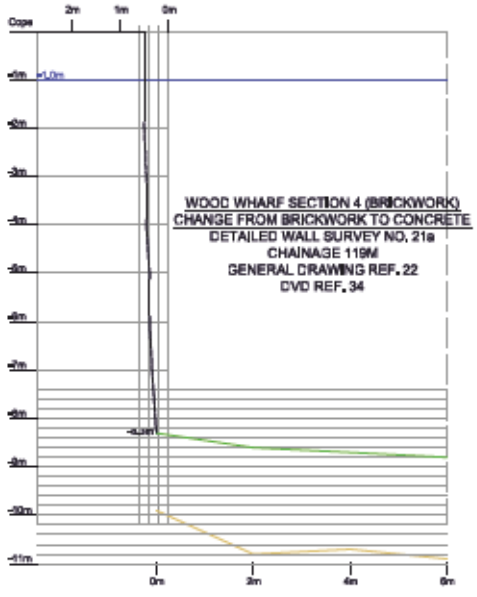

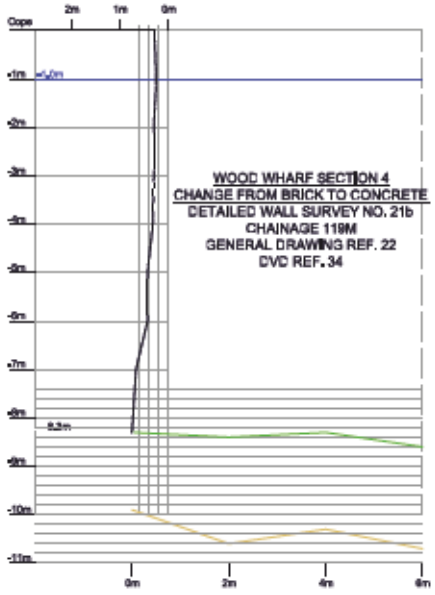

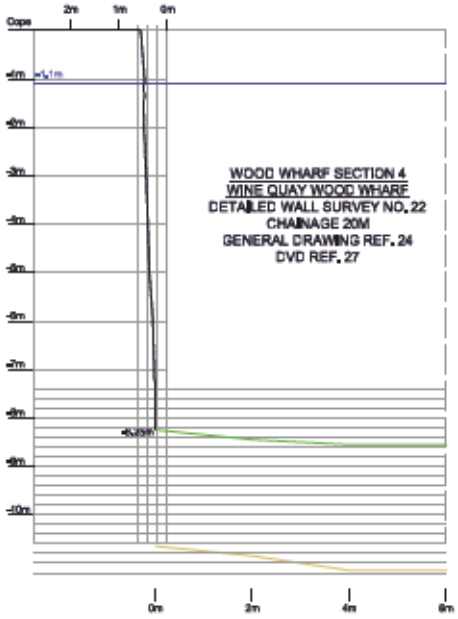

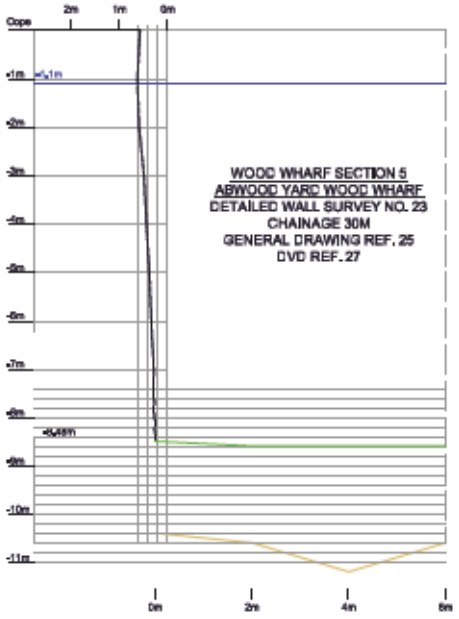

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Revision 01

ASSESSMENT OF SIGNIFICANCE

In respect of

THE BLACKWALL BASIN AND EAST QUAY OF THE WEST INDIA (EXPORT) DOCK, ISLE OF DOGS, LONDON

On behalf of

WOOD WHARF (GENERAL PARTNERS) LIMITED

CgMs Ref: KH/AB/7587

DATE: MARCH 2007

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4 1820 plan
5 Plan of Colliers Dock
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EXECUTIVE SUMMARY

Blackwall Basin was built c.1800-1802 by the engineer William Jessop, to link the Import and Export Docks of the West India Dock to the River Thames. It is the earliest non-tidal basin in the Port of London, and possibly the earliest in the world.

The basin has been altered and extended on a number of occasions during the 19th and 20th centuries, with new and enlarged locks, docks and linking structures. Little or nothing of the original basin wall survives as a water-edge feature.

Blackwall Basin was listed Grade I in 1983. The historical significance of the basin is not disputed, but the following assessment establishes that the current listed description is vague. As such, it will not be helpful as a management tool during the forthcoming redevelopment of the Wood Wharf site to the south.

It is recommended that the present listing is revised to identify the surviving structures of special interest more clearly, and to exclude the modern walls of the basin that are not of special interest.

It is also recommended that buried parts of the original wall, and the infilled Junction Dock to the south of the basin, are dealt with as archaeological under the provisions of PPG16 rather than PPG15. These structures do not in our view form part of the present listing of Blackwall Basin, and should be excluded from any future revision of the lists.

1.0 INTRODUCTION AND SCOPE OF STUDY

1.1 This assessment of the structures which form the Blackwall Basin and East Quay of the West India (Export) Docks, Isle of Dogs, London, has been researched and prepared by Karl Hűlka and Elizabeth Stephen of CgMs Limited under the Direction of Dr Jonathan Edis of CgMs and on behalf of Wood Wharf (General Partner) Limited.

1.2 The report provides a detailed historical account and assessment of the Blackwall Basin and the Export Dock which re separately listed Grade I, in advance of proposals which are currently being formulated for the redevelopment of Wood Wharf.

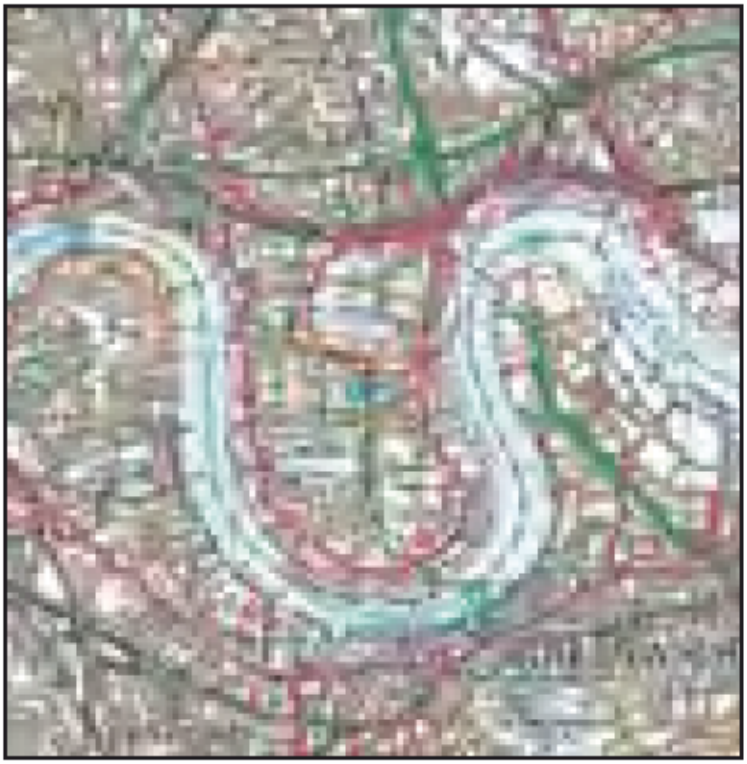


Figure 1: Site Location

1.3 Blackwall Basin was the first non-tidal basin in the Port of London, and was constructed c.1800-1802 by the engineer William Jessop. It has been altered and enlarged since that date, notably in the 1890s, and it was listed Grade I on 1 July 1983[1]. A copy of the list description appears at Appendix 1A, and a copy of the

[1] Note that both structures were first listed on the 1 July 1983 but that the description of the Export Dock was amended on 1 April 1985 and that in its present form it also refers to the locks of the Blackwall Basin. These locks connect eastwards to the River Thames, not westwards with the docks

associated list description of the Import and Export Docks of the West India Dock appears at Appendix 1B.

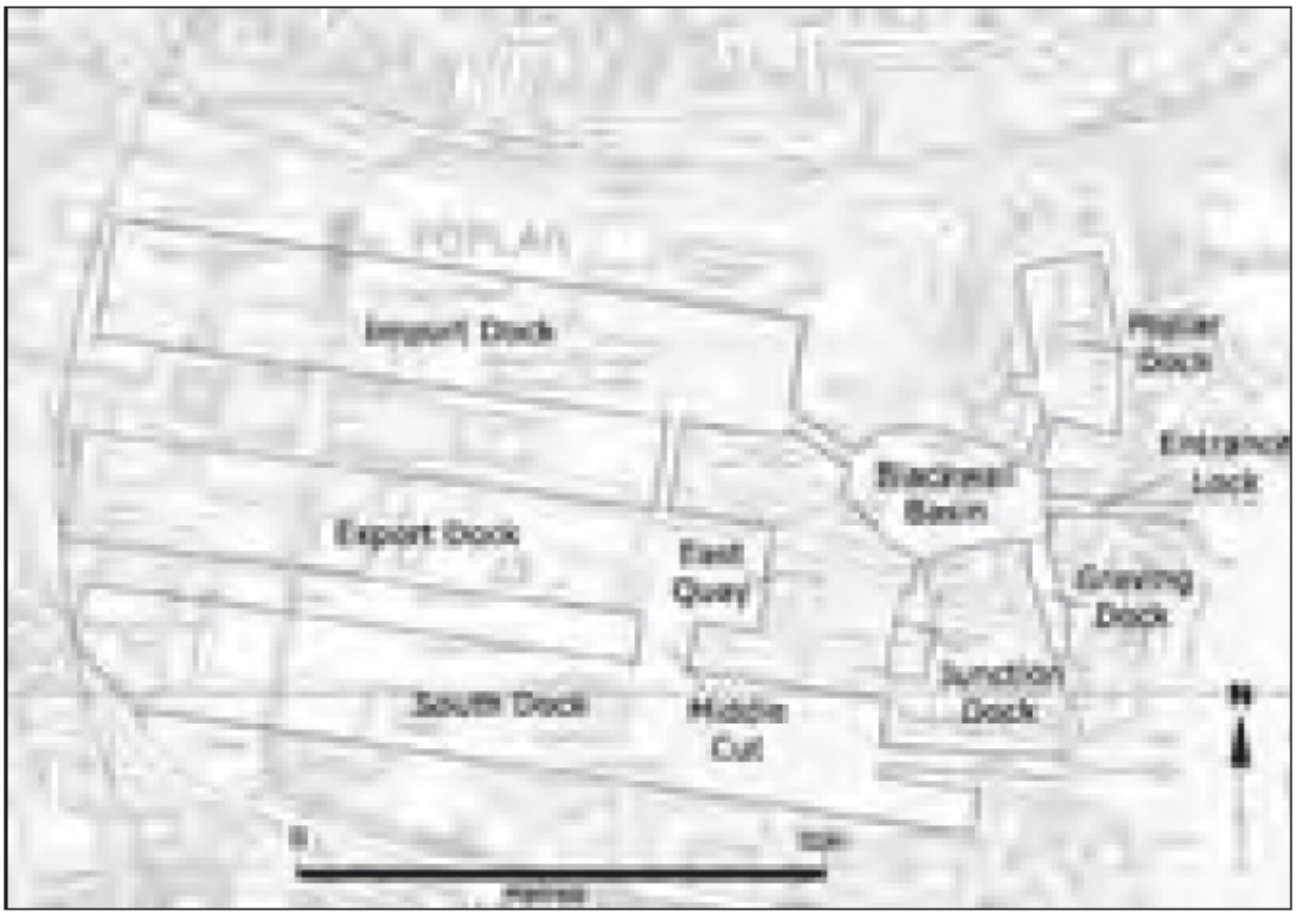


Figure 2: Plan showing key features

1.4 The following account of the Blackwall Basin establishes that the list descriptions are vague, particularly insofar as they fail to describe the surviving locks and structures that form the water-edge – indeed, very little of the original structure of c.1800-1802 survives next to the water. As a result it is difficult to justify the Grade I listing of the Blackwall Basin. The following considerations are material to the assessment in this report:

(i) The majority of the surviving early (pre-1850) fabric has either been destroyed by extension of the basin, or has been buried behind later walls. Some areas have clearly been infilled (e.g. Junction Dock) and survive as below-ground archaeological structures rather than buildings or structures in the normal sense. Therefore, this assessment considers whether listing is an appropriate form of designation, and whether the issues would be best dealt with under the

provisions of PPG16.

(ii) The majority of later extant fabric that is clearly of architectural and historical interest has been omitted from the list description (notably the eastern lock and the Graving Dock).

1.5 This report has regard to considerations in PPG15, PPG16 and local planning policy relating to the historic built environment. It approaches the issue from first principles, with the intention of understanding the significance of the Blackwall Basin and its associated structures with a view to forming a clear strategy for its future management and the preservation of its special architectural and historic interest.

Figure 3: Site Boundary

1.6 CgMs Limited is the UK's leading private-sector specialist on development within the historic environment and on recording and analysing historic buildings during the planning process. With a specialist staff of 18 in offices in London and Cheltenham, the Historic Buildings team has worked on Westminster Abbey, Battersea Power Station, and the Maze Prison in Belfast - the latter for the Northern Ireland Office.

2.0 CONSERVATION POLICY BACKGROUND

2.1 The Main Issues

2.1.1 The main conservation policy issues in this case arise from the designation of the Blackwall Basin and West India Docks as Grade I listed buildings as the site does not fall within a conservation area. Relevant guidance and policy is contained in Planning Policy Guidance Note 15 (PPG15) (1994) and in the Tower Hamlets Local Plan. Advice on below ground remains is contained in Planning Policy Guidance Note 16 (PPG16) (1990)

2.2 Legislation

2.2.1 Legislation regarding buildings and areas of special architectural or historic interest is contained in the Planning (Listed Building and Conservation Areas) Act 1990 (the 1990 Act). Sections 16 and 66 of the 1990 Act are of particular relevance. They state that special regard must be given by the decision maker in the exercise of planning functions to the desirability of preserving a listed building and its setting.

2.3 Planning Policy Guidance Note 15 (1994)

2.3.1 The most authoritative and comprehensive advice on the sustainable re-use and alteration of listed buildings is found in Planning Policy Guidance Note 15 (PPG15, 1994).

Paragraph 1.1: "It is fundamental to the Government's policies for environmental stewardship that there should be effective protection for all aspects of the historic environment. The physical survivals of our past are to be valued and protected for their own sake, as a central part of our cultural heritage and our sense of national identity…The historic environment is also of immense importance for leisure and recreation".

Paragraph 1.5: "Conservation can itself play a key part in promoting economic prosperity by ensuring that an area offers attractive living and working conditions which will encourage inward investment….The historic environment is of particular importance for tourism and leisure…" The regeneration of the Wood Wharf site will bring about significant investment in the area.

Paragraph 2.11: "The Secretary of State attaches particular importance to early consultation with the local planning authority on development proposals which would affect historic sites and structures…"

Paragraph 2.16: "Sections 16 and 66 of the (1990) Act require authorities considering applications for planning permission or listed building consent for works which affect a listed building to have special regard to certain matters, including the desirability of preserving the setting of the building. The setting is often an essential part of the building's character, especially if a garden or grounds have been laid out to complement its design or function. Also, the economic viability as well as the character of historic buildings may suffer and they can be robbed of much of their interest, and of the contribution they make to townscape or the countryside, if they become isolated from their surroundings, e.g. by new traffic routes, car parks, or other development"

Paragraph 2.17: "the setting of a building may be limited to obviously ancillary land, but may often include land some distance from it. Even where a building has no ancillary land - for example in a crowded urban street - the setting may encompass a number of other properties. The setting of individual listed buildings very often owes its character to the harmony produced by a particular grouping of buildings (not necessarily all of great individual merit) and to the quality of the spaces created between them. Such areas require careful appraisal when proposals for development are under consideration, even if the redevelopment would only replace a building which is neither itself listed nor immediately adjacent to a listed building. Where a listed building forms an important visual element in a street, it would probably be right to regard any development in the street as being within the setting of the building. A proposed high or bulky building might also affect the setting of a listed building some distance away, or alter views of a historic skyline."

Paragraph 2.18: "There should be a general presumption in favour of the preservation of listed buildings…"

Paragraph 3.5: In summary, the issues that are generally relevant to the consideration of all listed building consent applications are:

i. The importance of the building

ii. The particular physical features of the building

iii. The building's setting and its contribution to the local scene

iv. The extent to which the proposed works would bring substantial benefit.

Paragraph 3.15: "Achieving a proper balance between the special interest of a listed building and proposals for alterations or extensions... is rarely impossible, if reasonable flexibility and imagination are shown by all parties involved. Thus, a better solution may be possible if a local planning authority is prepared to apply normal development control policies flexibly; or if an applicant is willing to exploit unorthodox spaces rather than set a standardised requirement; or if an architect can respect the structural limitations of a building and abandon conventional design solutions in favour of a more imaginative approach".

2.3.2 The Secretary of State's policy and principles for the listing of such buildings is set out in paragraphs 6.10-6.16 of PPG15. The following criteria are those which the Secretary of State applies in determining whether to include a building in the statutory lists:-

ARCHITECTURAL INTEREST - including architectural design, decoration, craftsmanship, particular building types and techniques and plan forms.

HISTORIC INTEREST - buildings which illustrate important aspects of the nation's social, economic, cultural or military history.

CLOSE HISTORICAL ASSOCIATIONS - with nationally important people or events.

GROUP VALUE - where buildings comprise an important architectural or historic unity or a fine example of planning i.e. squares, terraces etc.

Paragraph 6.11: States that not all of the criteria will be relevant to every case, but a particular building may qualify for listing under more than one of them. The advice on the statutory listing of buildings dating to 1800 is that most buildings of about 1700 to 1840 are listed, though some selection is necessary. After about 1840, because of the greatly increased number of buildings erected and the much larger numbers that have

survived, greater selection is necessary to identify the best examples of particular building types, and only buildings of definite quality and character are listed.

Paragraph 6.13: States that where a building qualifies for listing primarily on the strength of its intrinsic architectural quality or its group value, the fact there are other buildings of similar quality elsewhere is not likely to be a major consideration.

2.3.3 These criteria have also been supplemented by further guidelines issued by English Heritage.

2.4 The London Borough of Tower Hamlets Local Plan

2.4.1 The London Borough of Tower Hamlets Local Plan was adopted in 1998. The chief policies which are relevant to this report and are applicable to the Wood Wharf Development are set out below:

POLICY NUMBER	DESCRIPTION
DEV/36	Demolition or partial demolition to a listed building *A case must be made for demolition having regard to; relative importance of building both architecturally and historically, condition of the building and cost of repair and the importance of an alternative use*
DEV/37	Alteration of a listed building *These should endeavour to retain the original plan form and any architectural features. Should allow for recording of the building by a professional and be carried out using traditional materials.*

2.4.2 The site is also subject to policy within the London Plan (2004). The policies relevant to the historic environment are covered in 4B.10-13.

2.5 Supplementary Planning Guidance

2.5.1 Wood Wharf has been designated as a development site by the London Borough of Tower Hamlets and as such has specific policies connected to it in the Tower Hamlets UDP. In conjunction with general policies on development sites for the Isle of Dogs, the Local Authority has produced a Master Plan for Wood Wharf (December 2003) which has been adopted as Supplementary Planning Guidance. The master plan sets out to;

a. *Establish a layout suitable to its context*

b. *Promote permeability*

c. *Integrate public spaces and an active waterfront*

d. *Incorporate gateway/landmark buildings to create an identity for Wood Wharf with a primary focus on commercial development capitalising on the site transport links.*

2.5.2 The plan states that "it will be necessary to ensure the development is not detrimental to the character or appearance of the conservation area, nor to the listed structures and their settings. Any works for the alteration of a listed structure will be subject to listed building consent and referable to English Heritage."

3.0 HISTORY AND DEVELOPMENT OF THE SITE

3.1 The West India Dock company was formed in 1799 out of the 123 subscribers to the new West India Docks. A number of different proposals for new docks around Wapping, the Isle of Dogs and Blackwall had been put forward to Parliament in the previous two years, but it was the Isle of Dogs Scheme that won out, against fierce opposition from the existing businesses that depended on the existing docks.

3.2 The West India Dock Act (1799) was the first of its kind and allowed a private company to invest, set up and run the docks in order to make profit without interference from the City Corporation. The Act required the docks to be a self sustaining system with 30ft high walls and a 12ft deep ditch around the whole site.

3.3 Under the Act all ships trading in goods from the West Indies had to pay to use the new docks, thus creating a monopoly on the West Indies trade. The new docks would enable ships to enter, unload and stay moored for up to six months, and would enable the loading of goods for export back to the West Indies. However the repair and maintenance of ships had to be done outside of the docks by existing companies causing ship builders considerable difficulties in getting their ships in and out of the docks for repair.

3.4 The docks were designed by the engineer William Jessop with Ralph Walker and John Rennie acting as surveyor and consulting surveyor respectively. Rennie by this time was famous for his extensive civil engineering works in designing many of the canals during the late 18th century before moving into the field of bridge design (Waterloo Bridge 1811-17, Southwark Bridge 1815-19 and London Bridge 1824-31). He was also responsible for numerous other commercial docks including those at Grimsby (1797-1800) and Leith (1801-17). His largest projects were the works for Royal Navy dockyards which included Sheerness Dockyard (1813-21) and the great breakwater at Plymouth (1812-21). By the time of his death in 1821 he was considered to be one of the greatest engineers of his era.

3.5 The system consisted of two docks, an import (2,600 ft x 500ft) and export dock (2,600ft x 400ft) and two entrance basins, the Blackwall and Limehouse. Ships and lighters came through different entrances to avoid congestion, the lighters through the

smaller (1 acre) Limehouse Basin to the west and the ships through the much larger (6 acres) Blackwall Basin at the east end (Appendix 2).

3.6 Around the docks were to be large storage warehouses for a variety of produce like tea, sugar, and spices. At 5 storeys high these warehouses negated the use of any of the existing warehouses further inland, thus depriving many of their main source of business.

3.7 The first stone was laid on 12th July 1800, (it now stands under No.5 Warehouse). Two years later on 22nd August the Import dock and Blackwall Basin were opened. The Export dock was not finished until 1806. During the first ten years of trade the West India Docks were a prosperous enterprise with revenues peaking in 1813. Although the revenues never again reached this peak, they did not decline until much later.

3.8 Excavated by Holmes & Bough, the Blackwall Basin was constructed with banked sides of puddle gravel rather than revetted quays as initially there was no requirement for ships to moor up or unload whilst awaiting entry to the main docks. Consequently the basin gave the appearance of a large pond without any kind of dockside furniture or warehousing as can be seen in the illustration by William Daniell (Appendix 3). However by 1820 a number of buildings had been erected around the Blackwall Basin, such as constable's houses and a guard house to the west (Appendix 4).

3.9 The City Corporation also carried out construction works on the Isle of Dogs during the early 1800s. Unfortunately the principal element, a canal designed to considerably shorten the route from Limehouse to Blackwall by cutting through the peninsular immediately south of the new docks failed to make a profit. The 'Canal', finished in 1805, was unpopular as it was too narrow and overly congested. In 1829 the West India Dock Company bought it from the City and named it South Dock. A lack of finance and organisation meant the canal was not really utilised as a working dock until much later. Plans drawn up in 1825 for a Colliers Dock (Appendix 4) to the south of the canal were never realised.

3.10 To the north of the Blackwall Basin was an additional body of water, now called the Poplar Dock. This was formerly a raised reservoir which was fed by two smaller

reservoirs and was constructed to replenish the entire dock system which lost water the outer locks discharged into the Thames. It was reused as a timber pond for the storage of timber in 1833.

3.11 1831 saw another parliamentary Act, this time to amalgamate the West India Dock Company and their rivals the East India Dock Company, based at Blackwall. The former had spare warehouse space that could easily be filled by the surplus of goods coming into the latter's docks. By 1838 the two companies had completely merged.

3.12 The West India Docks began to change in both size and character from the middle of the 19th century. In 1850 the East and West India Docks and Birmingham Junction Railway (later The North London Railway) came to the docks and rebuilt the timber pond to the north of the basin. This was leased from the East and West India Dock Company and was renamed Collier Dock, London's first railway dock, designed to accommodate coal and goods export traffic. The dock was subsequently enlarged with smaller 'arm', parallel and to the west in 1877. The East and West India Company were also developing the main docks and in 1853-55, Junction Dock was constructed linking the South Dock to the Blackwall Basin, enabling ships more manoeuvrability when inside the docks. Two draw bridges were constructed at the either end of this dock (Appendix 6).

3.13 Despite these changes it was not until 1870 and the employment of a new Secretary and General manager, Colonel du Plat Taylor, that the company really began to reinvest in the upkeep of their docks. Taylor's plans began with the construction of a number of warehouses and updated machinery on the land to the south of Blackwall Basin. The new cranes and other machinery allowed for the manipulation of mahogany and teak, the two main types of timber coming in to the dock.

3.14 In 1878 the first dry dock was constructed to the south of Blackwall Basin. It was only three years previous to this that the law had changed to allow ships to be repaired within the walls of the West India Docks (a pursuit which until that time had been fiercely opposed by external competitors). A newspaper article from the time describes its construction and opening (Appendix 6).

3.15 As the 19th century drew to a close the West India Docks became evermore unsuitable for the increasingly large vessels wishing to use them. Most of the locks were 45 feet wide, designed to accommodate ships in the region of 1200 tons. However by 1894 there had to be some major reworking of the docks. Blackwall Basin was largely reconstructed in this year and the locks widened to give access to larger ships (Appendix 8 and 9). Two years later, the relatively small size of the Limehouse Basin forced its complete closure.

3.16 Further works were undertaken in 1912 when Sir Fredrick Palmer oversaw a programme in which many of the quays were reconstructed and plans for a new entrance lock at the east end of South Dock were drawn up. Permission for this new lock was granted in 1917 but plans were changed and construction deferred until 1925 (Appendix 10).

3.17 The new scheme substituted the original idea of a turning basin in favour of three cuts which would enable ships to move more freely throughout the dock system. The first of these, Bellmouth Cut, was between the Import and Export dock, the second, Middle Cut linked the Export Dock to South Dock and the third, Millwall Cut, connected South Dock with Millwall Dock.

3.18 The second stage of the works involved the remodelling of the railways to the north and the infilling of the Limehouse Basin. This was followed by the infilling of the lock linking the Export Dock with Blackwall Basin and the construction of a new quay on the southwest wall of the basin. This then enabled new timber sheds and machinery to be constructed on the land between Blackwall Basin and East Wood Wharf. In fact all the land directly to the south of the basin was occupied at this point by timber sheds and travelling cranes to move the timber. The infilling of this lock was achieved by erecting steel sheet piling with a concrete topped wall.

3.19 The final stage of work involved the construction of the new entrance lock to South Dock. It was said that in the 1920s ships were having difficulty entering the Blackwall Basin due to the high flood tides and currents and so a new entrance to the docks was needed further upstream. During construction a permanent wall was built across the lock at the south end of Junction Dock. All these alterations took place between 1927-1929.

3.20 The West India Docks played an important role in both World Wars but as a consequence were heavily bombed in 1940s (Appendix 11). This led to the rebuilding of the Graving Dock at Blackwall Basin in 1948-9. Throughout the first half of the 20th century the land south of Blackwall Basin was dominated by travelling cranes and timber sheds as demonstrated in aerial photographs taken at the end of the war (Appendix 12) as well as on the 1952 Ordnance Survey Map (Appendix 13).

3.21 This landscape was dramatically altered at the beginning of the 1980s when the West India Docks finally became redundant. The Graving Dock at Blackwall Basin closed for ship repair in 1979 and the Marine Engineering company warehouses erected close by were demolished at the same time. Junction Dock was totally infilled and the warehouses, still present today, were erected on the site in 1986. Some residential development also took place to the eastern side of the basin and around the Graving Dock at the same time.

3.22 The smaller part of Poplar Dock was infilled during the early 1990s to make way for a large residential development which also considerably altered both fabric and location of the northern wall of the Blackwall Basin (Appendix 12).

4.0 LISTED BUILDINGS: MAIN ISSUES

4.1 Blackwall Basin

4.1.1 General Assessment

4.1.1.1 The Blackwall Basin forms the northern boundary of the site and is a Grade I listed building. However the Statutory Listing Description which details the extent of a listed building or structure is, in this case vague and does not clearly define the element to which the listing relates. For this reason it is the opinion of CgMs Limited that the various parts of the basin be assessed in order to clarify this issue.

4.1.1.2 Architectural Interest

(i) In its original form, the basin comprised little more than a large pond with edges formed of puddled banks (Appendix 3). Timber revetment was reserved for the areas immediate surrounding the locks on the east side, from the Thames and on the west, linking the basin to the import and export docks. An 1802 plan of the original dock system overlaid with the 1991 Ordnance Survey map (Appendix 15) demonstrates that nothing of this original structure survives to the present day.

(ii) The consolidation of the remaining banks was begun in 1817 along the north bank whilst jetties, erected in 1828, 1841 and 1863 served as moorings for the ships. Between 1853 and 1855 a large perpendicular dock, Junction Dock was constructed to the south of the basin and it is likely that the banks surrounding the entrance lock were rebuilt in red brick with granite capping at this time. Much of the red brick walls which remain exposed have subsequently been refaced in 'blue' brick, probably during the 1890s. Only a small section of the exposed red brick wall survives (Appendix 16: Sheets 4 and 5), immediately to the west of the lock entrance although the granite capping remains in place and extends across the derelict site to the south (Plate 1). These structures represent the oldest surviving element of the extant southern basin wall. An archaeological watching brief (PCA, 2005) carried out during ground investigations of the vacant site to the south, have shown that although the lock was infilled during the late 20th century (1986), its walls survive beyond the rubble bank which currently extends across the northern end and well below the granite coping seen on the surface.

(iii) In March 1878 a Graving Dock was constructed at the southeast corner of the basin and the entrance to this was similarly treated. Detailed contemporary accounts of the structural masonry (Appendix 7) describe features which can still be seen in the walls around the entrance from Blackwall Basin (Plate 2 and Appendix 16: Sheet 1) and it is likely that in the most part these structures survive. The Graving Dock itself is not listed and was largely rebuilt during the post-war reconstruction effort (1948 – 9) although it is clear from a visual inspection of the structure that some original fabric has been retained.

(iv) The remaining parts of the south bank were re-formed in masonry in c.1890. Despite this it is clear that the existing facing to the east, between the entrances to the Graving Dock and Junction Dock, dates from the second half of the 20th century, comprising for the most part of modern timber boarding (Appendix 16: Sheets 1,2 and 3). It has not been possible to identify the structural fabric which lies behind this modern cladding although map evidence suggests that this part of the basin was set some distance behind its current position until after 1881. It is possible that the late 19th century basin wall survives although it is equally possible that it has been replaced or partly rebuilt in the intervening years. A short length of wall immediately to the east of the Junction Dock entrance is formed of concrete and is likely to date to works carried out in 1925 – 30 during the establishment of a new quay to the west (Appendix 16: Sheet 5).

(v) To the west of the entrance to Junction Dock the basin wall comprises interlocking steel sheet piling which formed the wall of a quay built during the early 20th century (1925 – 1930). This gives way to a long section of wall, rebuilt in concrete at the same time and extending across the mouth of the lock formerly linking the Blackwall Basin to the Export Dock (Appendix 16: Sheets 6 and 7). Contemporary documentary evidence suggests that the earlier walls to the east of the canal entrance were, at least in part, removed. Furthermore, the majority of this early 20th century structure was constructed some distance to the north of the earlier wall which may survive as a sub surface structure within the derelict site to the south.

(vi) The south western corner of the basin (Appendix 16: Sheet 7) also shows signs of having been remodelled during the early 20th century works described above,

although here the earlier fabric of granite coping appears to have been reset onto brick walls refaced with concrete. The date for the original construction of this area is less clear with both red and 'blue' brick being used in the walls but it is unlikely to predate the remodelling of the wall between the two western canals which an overlay of the 1991 Ordnance Survey map onto the 1881 map (Appendix 17) appears to have taken place during the 1890 works.

(vii) The walls forming the canal from the west side of the basin to the Import Dock appear to have been similarly affected by the 1925 - 30 works, with obviously re-set granite coping blocks overlying walls refaced with concrete (Plate 3).

(viii) The entire north quay of the basin is wholly modern in form and fabric comprising of large section, interlocking steel sheet piling capped with concrete blocks formed with an aggregate of chipped granite, presumably deriving from the former granite coping of the 19th century wall (Plate 4). It is possible that an earlier wall survives behind this modern revetment although documentary evidence suggests that any such remains are unlikely to be earlier than 1901.

(ix) Extending from the north east side of the basin is the canal linking it with Poplar Dock. This canal was constructed in masonry in 1850 and although much of the coping to the west side has been replaced with concrete blocks similar to those on the north of the basin, the walls beneath appear to be largely composed of red brick. The eastern side survives in better condition with much of the granite coping still in place. Significant elements of the original dock furniture can be seen set into the canal wall, including part of a swinging railway bridge (Plate 5) in the east wall. The canal walls are likely to be the oldest part of the structure associated with the Blackwall Basin which survives and are therefore of the greatest significance.

(x) To the east side of the basin is the main entrance lock leading from the Thames and is known to have been completely rebuilt in 1894. The structure of red brick walls capped with granite survives in part but has been refaced in concrete in a number of places. Despite this the inner lock gates are still in place and although clad in modern timbers, much of the original fabric remains (Plate 6). As with the canal to Poplar Basin this structure, as far as the road bridge which now divides the lock mid way along its original length, forms part of the

Blackwall Basin listing and is within the Coldharbour Conservation Area. The level of surviving late 19th century fabric, including the lock gates gives this structure a level of significance greater than much of the adjacent Blackwall Basin, but less than that of the canal to Poplar Dock.

(xi) Around the openings of entrance lock and the canal to the Import Dock, the 'knuckles' (the point of intersection between two walls at different angles) have been remade in massed concrete which is protected from damage by horizontally set steel rails (Plate 7) which are attached by means of square headed bolts. The knuckles to the east of the Poplar Dock canal have been similarly remade, but with vertical reinforcing bars set into the concrete (Plate 8). These repairs probably date to the early 20th century refurbishment works and in the case of the entrance lock and poplar dock canal, detract from historical value of the structure. However, it is not clear from the listing description whether the knuckles to these openings form part of the Blackwall Basin listing description or not.

(xii) As already mentioned, the knuckles to the 1878 Graving Dock remain largely as constructed although the Graving Dock itself has been largely rebuilt.

4.1.1.3 Historical Interest

(i) It is clear from historical descriptions, drawings and maps that apart from its general location, any material associations with the original entrance basin have now been lost. General connections with the great early 19th century engineer, John Rennie were lost when the puddled banks of the basin were replaced. The structural walls were not constructed under the supervision of renowned engineers or to the designs of significant architects. The majority of the dock furniture is of twentieth century date with the exception of that on the canal, entrance lock and Graving Dock at the eastern end of the basin. Despite the original basin being the first impounded entrance basin ever built, by the time that the oldest extant fabric of the existing basin was constructed, numerous other examples had been constructed such as those of the Keyham Steam Yard, Plymouth (1844) and the 'Floating Harbour' at Bristol Docks (1804 – 09). Historical interest of the basin, therefore, is limited and focused more heavily on the canal, entrance lock and Graving Dock at the eastern end.

4.1.1.4 Condition

(i) The structure above the water-line is in a variable state of repair. The areas in the best state of repair are those which have been rebuilt most recently such as the north side of the basin, west side of Poplar Dock canal and the reclad eastern section of the basins south wall. The 1945 rebuild of the Graving Dock, although not obviously part of this listing, also survives in reasonable condition. The 1925 – 30 elements of the basin have more serious defects with damage to both the capping blocks which have clearly been removed and re set as well as to the interface between the concrete wall and coping, where the relentless action of lapping water has worn the joints. Where the 19th century brickwork survives it is in most instances badly eroded by the water and in places the facing has been lost. This is less true of the 'blue' brick facing which survives well.

(ii) It has been reported to us that an underwater survey of parts of the structure has been carried out in the last two years but the results of this survey have not been sourced at this time. Consequently this report cannot make comment on the structures below the waterline. However, given the nature of the basin and its connection to the main East India Docks and Poplar Dock, repairs to the retaining structures would need to be carried out in a piecemeal fashion using localised coffer dams. In order to fully understand the level of deterioration to the walls of the basin, an underwater survey will need to take place. This would also serve to identify the survival of historic fabric which is not visible by observation from above the water line.

4.1.2 Proposals for Alteration

4.1.2.1 Any formal proposals to the LPA for the alteration of the listed building will have to satisfy a number of tests in PPG15 and Policies DEV36 and DEV37 of the Tower Hamlets Local Plan. There are six main requirements, and these can be summarised as follows.

i. The importance of the building: This can be demonstrated to be relatively low, in terms of architectural and historical quality (see sections 4.1.2 and 4.1.3). The absence of any original fabric from the basin, along with the poor quality of

repair and replacement of the walls during subsequent development, has significantly diminished the historical and architectural value of the listed structures. In our opinion, the importance lies in the location of an open body of water rather than in the structure which retains it.

ii. The physical features of the structure: These appear to be fairly standard for their age and type. Details such as the dock furniture relate to much later developments, primarily in the early 20th century. Given the need to retain a watertight structure to the walls it may not be possible to retain existing fabric without re-facing, but the substantial nature of the walls would allow much of the fabric to be retained behind, as has been carried out across the majority of the basin wall already. Consideration should be given to the salvage and re-use of the granite coping where it is affected by any programme of alteration, in order to satisfy the test.

iii. Setting and the contribution made by the structure: The original dockland setting is in a very fragmentary condition. As suggested above, the intrinsic value is in the open body of water connected to the main docks rather than in the relatively modern structure which retains it.

iv. Redevelopment Proposals: Detailed proposals for the site are not yet formulated and their quality and extent will be critical to the outcome of an application.

v. Whether there will be substantial benefit to the community: The development of the land to the south of the basin will bring substantial benefit to the community which will far outweigh the proposed minor alterations to the listed structure.

vi. The adequacy of efforts to keep the building in use: Effectively, any proposals for the south side of the basin will comprise only a small level of alteration in a localised area. As the majority of the southern wall is currently bounded by derelict land with no public access, any development could be argued to be returning the listed structure into use. There would seem to be little case to argue that the basin wall be returned to commercial use as the docks are no longer in operation.

4.1.2.2 Therefore, a case for alteration is already emerging for five of the tests (i, ii, iii, v, vi), but the other test (iv) needs further work before a convincing approach can be made to the LPA.

4.2 East Quay Of West India (Export) Dock

4.2.1 General Assessment

4.2.1.1 The East Quay and part of the southern side of the West India (Export) Dock along with the east side of the Middle Cut form the eastern boundary of the site. Whilst the two elements of the Export Dock form part of the Grade I listed building (Appendix 1B), it is unclear from the statutory listing description as to whether the listing extends to the walls of the middle cut. The following assessment has been carried out in order to clarify this issue.

4.2.1.2 Architectural Interest

(i) In its original form, the East Quay of the Export Dock was interrupted at the north end by the canal leading to the Blackwall Basin (Appendices 2 and 3). The structure formed the eastern end of the massive rectangular wet dock and comprised a brick wall set on a foundation of timber piles and capped with a granite coping. The oldest surviving element of this structure can still be seen along much of the East Quay (Appendix 18: Sheets 1 and 2) although it is now capped for the most part with reinforced concrete. The retaining wall beneath is of red brick faced with large 'purple' bricks which extends below the water line. This is pierced in places by more modern pipes which have caused localised damage to the listed structure, but it retains some original features such as inset ladders with badly corroded iron rungs. On the whole this element of the east quay is of great significance being part of the 1804 – 06 construction, despite the alterations to the capping.

(ii) At the southern end of this wall are two columns of rectangular stone blocks set flush with the face of the wall and approximately 2.5m apart (Appendix 18: Sheet 2). These are thought to represent the end of a timber slip constructed in 1825 in order to haul timber which had been floated in the Export Dock, onto the quay side. Four slips were originally constructed, but all except this one were infilled in 1874. The historic maps suggest that this slip remained in operation until some time after 1916 (Appendix 9) and it is likely that it was infilled during the 1925 – 30 works. This in my view does not detract from the significance of the original wall as it relates to the evolving use of the export dock during the height of its operations.

(iii) The return wall forming the south side of the export dock comprises a short length to the east of the 'middle cut' (Appendix 10) and is less easy to evaluate as it has two large metal pontoons moored against it. However, the visible elements, principally those at the east and west end appear to retain less of their original fabric than the East Quay. At the eastern end the wall has been refaced, largely with 'blue' brick (Plate 9) and is capped with a concrete coping. The western end of the wall is formed principally of massed concrete (Plate 10), the western corner containing vertical steel reinforcing strips similar to those seen at the mouth of the canal to Poplar Dock. This concrete clearly dates to the construction of middle cut which took place in 1925. The refacing of the eastern end of this wall is likely to have taken place in the late 19th century and may relate to the closing of the timber slips which can be seen on the 1869 Ordnance Survey map (Appendix 4). Both the southern wall of the Export Dock and part of east side of Middle Cut are listed (Grade I) under the West India Docks listing despite the later alterations. Clearly the significance of the western end of this wall is diminished with relation to the original fabric of the dock.

(iv) Also dating to the Port of London Authority works in 1925 – 30 is the closing of the canal to the Blackwall Basin. This event is clearly visible at the north end of East Quay where the fabric of the wall changes to concrete although here the capping appears to comprise partly of reused granite coping blocks (Appendix 18: Sheet 1). The significance of this section of the wall is considerably lower than that of both the 1804 – 06 wall to the south and the refaced areas of the southern wall of the Export Dock.

4.2.1.3 Historical Interest

(i) As can be seen from the overlay of the historical maps (Appendices 15 and 17) this part of the Export Dock has not changed in form or location since its original construction with the exception of the interruption of the southern wall by Middle Cut. This suggests that even where the walls have been refaced, the majority of the historic structure may well survive behind. Consequently the structure retains its connections with the pioneering engineer John Rennie who acted as consulting engineer along with the more general association with the wide ranging improvements of the Port of London during the emergence of Britain as the greatest trading nation of the time. Despite all the dock furniture being of

twentieth century date along with the capping to the walls the historic significance can be considered to be high and deserving of its listing status.

4.2.1.4 Condition

(i) The structure above the water-line is in a variable state of repair. The areas in the best state of repair are those which have been rebuilt most recently such as the north end of East Quay and the return wall of the Export Dock. Despite this, even the original brickwork of the East Quay is in reasonably good condition except where intrusions through the fabric have diminished the integrity of the facing. In these areas the brickwork has suffered from the relentless action of lapping water and has caused some of the surrounding brickwork to collapse. The 'blue' brick facing has in general terms survived well but has become badly worn at the interface with the coping above, probably as a result of the abrasive action of moored vessels.

(ii) As with the Blackwall Basin, this report cannot make comment on the structures below the waterline, but any repairs to these structures would need to be carried out in a piecemeal fashion using localised coffer dams. In order to fully understand the level of deterioration to the walls of the East Quay and relevant parts of the Export Dock, an underwater survey will need to take place. This would also serve to identify the survival of historic structures which are not visible above the water line.

4.2.2 Proposals for Alteration

4.2.2.1 Any formal proposals to the LPA for the alteration of the listed Export Dock will have to satisfy a number of tests in PPG15 and Policies DEV36 and DEV37 of the Tower Hamlets Local Plan. There are six main requirements, and these can be summarised as follows.

(i) The importance of the building: This can be demonstrated to be high, in terms of architectural and historical quality. CgMs' view is that the importance lies in the historical associations with the original dock construction and to a lesser extent, in the surviving fabric of the early 19th century. In this regard the test cannot be proved.

(ii) The physical features of the building: These appear to be fairly standard for their age and type. Details such as the original dock furniture are in a very poor state of corrosion with better preserved features relating to much later developments, primarily in the early 20th century. Given the need to retain a watertight structure to the walls it may not be possible to retain existing fabric without re-facing, but the substantial nature of the walls would allow much of the fabric to be retained behind, as has been carried out at the Blackwall Basin. Consideration should be given to the salvage and re-use of any granite coping where it is affected by any programme of demolition, in order to satisfy the test.

(iii) Setting and the contribution made by the building: The original dockland setting is in a very fragmentary condition. Strong arguments could be brought to bear to the effect that its contribution is of relatively little value as the main dock area has been so visibly overshadowed by the Canary Wharf and even current developments which will almost totally obscure the structure. The intrinsic value is in the open body of water comprising the main docks rather than in the listed structure which retains it which has been irretrievably damaged by neglect and unsympathetic repair.

(iv) Redevelopment Proposals: Detailed proposals for the site are not yet formulated, but their quality and extent will be critical to the outcome of an application.

(v) Whether there will be substantial benefit to the community: Although substantial benefit to the community is possible, if not probable, it needs to be demonstrable and definable before a formal application can be made. This exercise can only be completed when plans for development are known more fully.

(vi) The adequacy of efforts to keep the building in use: There would seem to be little case to argue that the basin wall be returned to commercial use as the docks are no longer in operation.

4.2.2.2 Therefore, although a case for alteration is emerging for three of the tests, the other three tests either need further work before a convincing approach can be made to the

LPA or cannot be proved. For this reason alteration to the historic fabric of East Quay may prove to be problematic.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 The list description for the Blackwall Basin is, in its current form, extremely vague. It does not identify the special interest of the structure in a way that justifies listing as Grade I, and it does not describe the surviving structural components of the basin or the extent of listing.

5.2 Parts of the early fabric remain in a buried archaeological context and would be best dealt with under the provisions of PPG16 rather than PPG15 and the Planning (Listed Buildings and Conservation Areas) Act 1990

5.3 It is recommended that Junction Dock, which is a discrete structure that has been wholly backfilled, should be dealt with under the provisions of PPG16. Our assessment is that it does not form part of the listing of Blackwall Basin, and is not connected to that structure. Even if it were considered to be linked to the basin by virtue of attachment or past use, it is not of special architectural or historic interest.

5.4 Further recommendations are to be finalised following discussions with English Heritage and representatives of the local planning authority (LB of Tower Hamlets).

Report Author(s): Karl Hulka/Elizabeth Stephen/Jonathan Edis.....

Reviewed by: Jonathan Edis .....

Date of Issue: 6 March 2007

PLATES

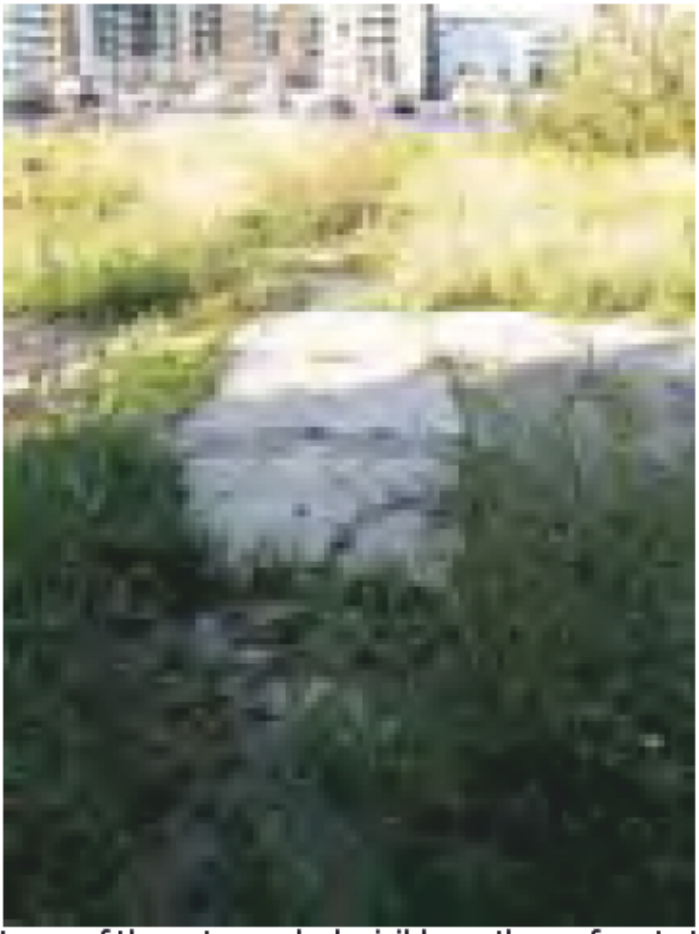


Plate 1: Coping stones of the entrance lock visible on the surface to the south of the basin

Plate 2: 'Blue' bricks of the 1878 culvert associated with the graving dock

Plate 3: Concrete walls of the canal to the Import Dock extending below the water line

Plate 4: Modern reconstruction of the northern side of the basin

Plate 5: Surviving part of the swing bridge at the entrance to poplar dock

Plate 6: Surviving inner lock gates of the entrance lock to the basin

Plate 7: Knuckle at the inner end of the entrance lock

Plate 8: Steel reinforcing bars on the knuckle between the basin and the canal to poplar dock

Plate 9: 'Blue' brick refacing and concrete capping to the south side of the Export Dock

Plate 10: Concrete north eastern corner of the middle cut

APPENDICES

© Mr Colin Carron

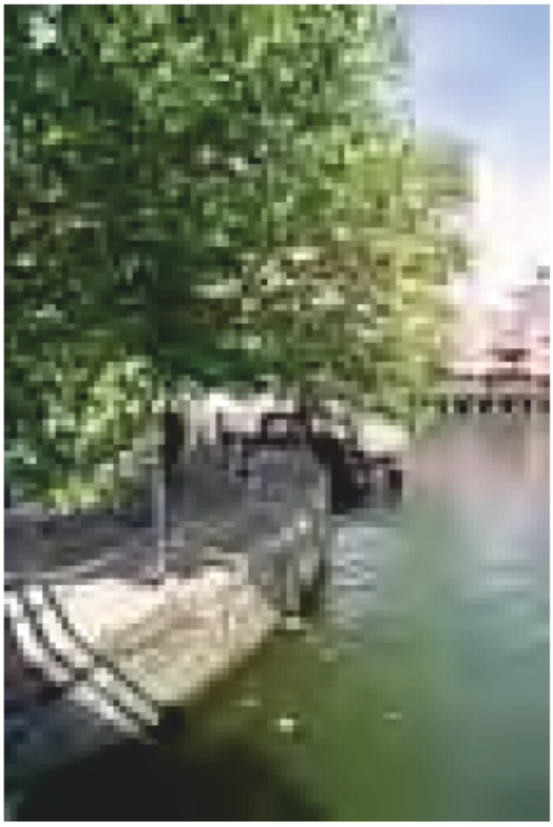
IoE number:	441847
Location:	BLACKWALL BASIN, WEST INDIA DOCKS POPLAR, TOWER HAMLETS, GREATER LONDON
Photographer:	Mr Colin Carron
Date Photographed:	24 May 2002
Date listed:	01 July 1983
Date of last amendment:	01 July 1983
Grade	I

1 WEST INDIA DOCKS
4431
TQ 3880 26/904 Blackwall Basin

I

1 WEST INDIA DOCKS 4431 TQ 3880 26/904 Blackwall Basin I 2. 1800-02 William Jessop engineer. The first non tidal basin in the Port of London. Same construction as Import and Export Docks with concave buttressed quay walls, the copings, mostly, surviving here, of good ashlar masonry. The locks enlarged in the 1890s follow in the tradition with brick lined chambers and granite quays. The lock into the Poplar Railway Dock dates from the 1890s, see under Preston's Road.

APPENDIX 1A: Statuory Listing Description – Blackwall Basin



© Mr Colin Carron

IoE number:	206451
Location:	IMPORT DOCK AND EXPORT DOCK, WEST INDIA DOCKS POPLAR, TOWER HAMLETS, GREATER LONDON
Photographer:	Mr Colin Carron
Date Photographed:	13 July 2002
Date listed:	01 July 1983
Date of last amendment:	01 April 1985
Grade	I

WEST INDIA DOCKS

Isle of Dogs

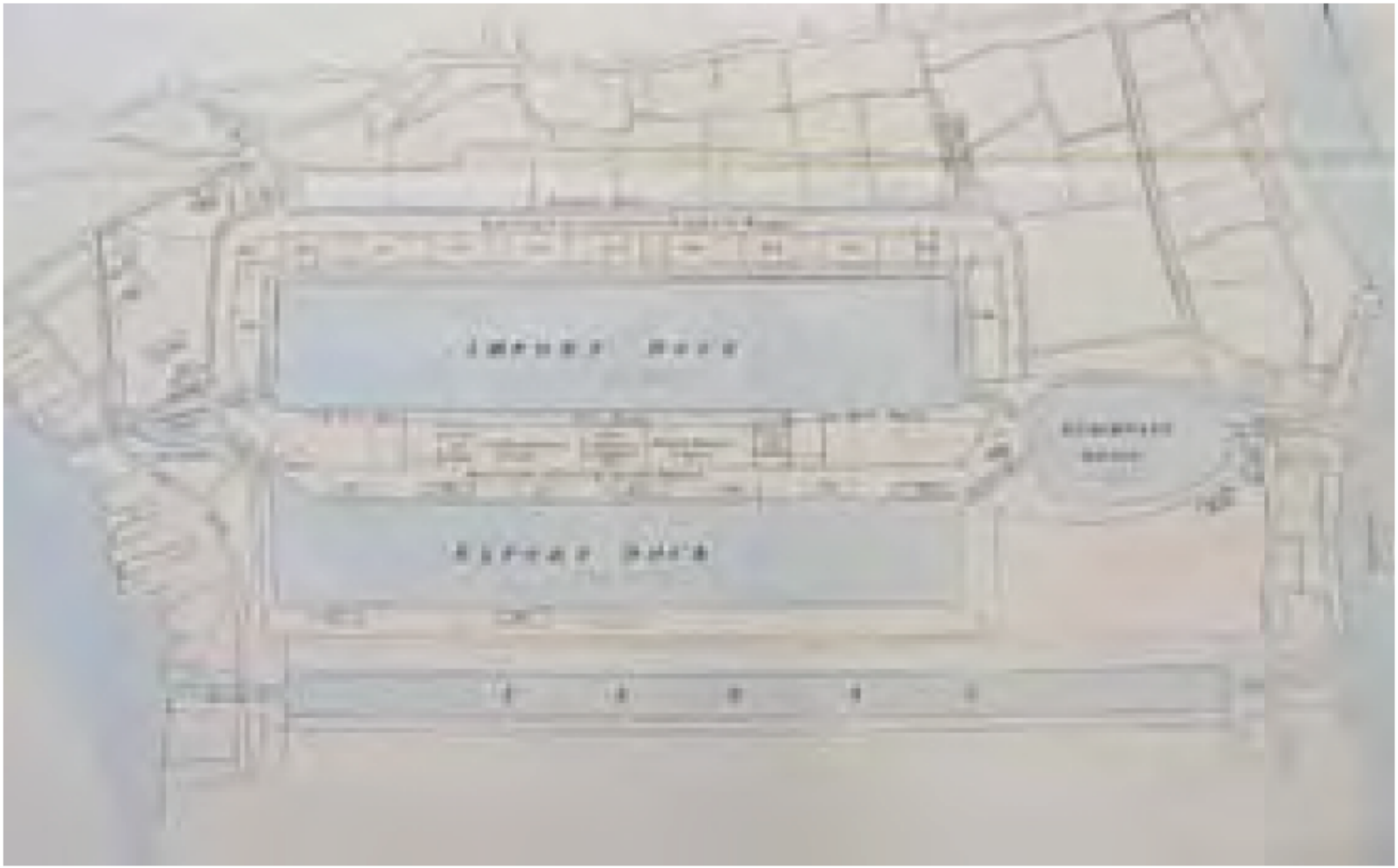
Quay walls, copings an

WEST INDIA DOCKS Isle of Dogs Quay walls, copings an buttresses to Import Dock and Export Dock. I Following the Act of 1799, the West India Docks were opened in 1802, the first and greatest of the enclosed security commercial docks, a pioneering civil engineering design by William Jessop with Ralph Walker, that created the modern Port of London after 1000 and set the precedent for commercial dock design. The Import Dock is the earliest, 1800-02, followed to south by the Export Lock of 1803-06. Totalling 54 acres and 2,600 ft long with an original impounded south of 23 ft, the quay wall are of sophisticated brickwork having a profile and counterfort buttresses, on a gravel bed. The ashlar granite copings have largely been renewed or concealed by jetties. The locks to the Blackwall Basin were enlarged later in the C19 but see West Ferry Road for the Limehouse Entrance lock to the former City Canal subsequently in the 1860s enlarged as the present South Dock. Expenditure on works from 1800 to 1806 amounted to the vast sum of ¿l.1 million. These docks with Nos 1 and 2 warehouses (qv) are now the only surviving examples of the first intensive period of London dock construction: 1800-10.

APPENDIX 1B: Statutory list description – West India Docks

APPENDIX 2: 1800 Proposal Plan

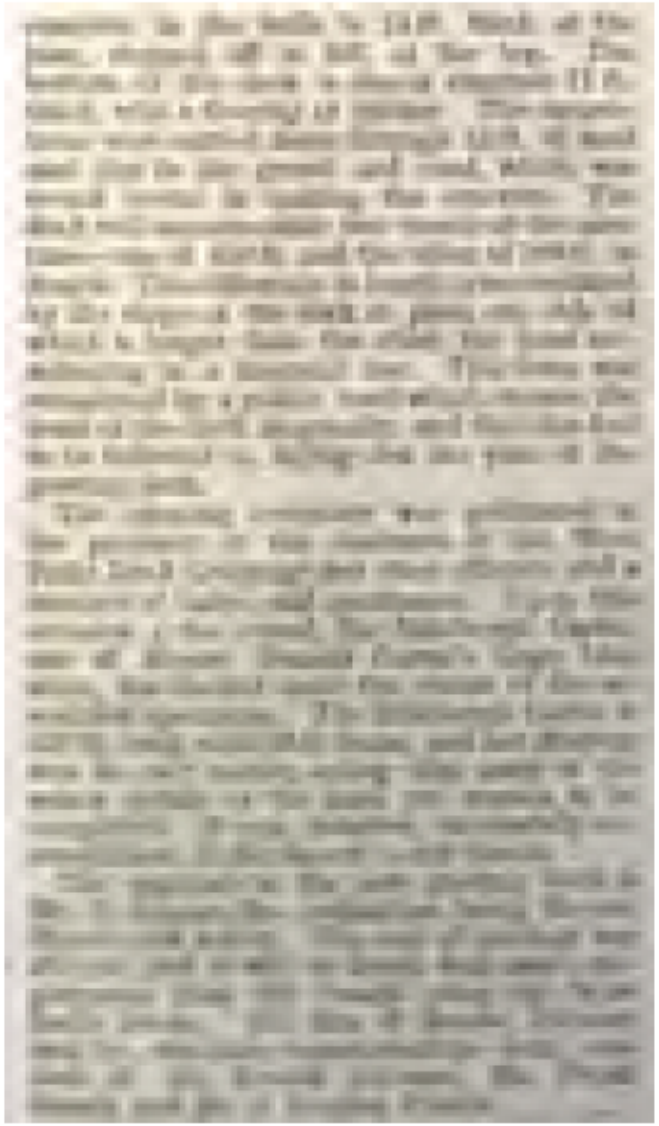
APPENDIX 3: Painting by William Daniell (1802)



APPENDIX 4: 1820 Plan

APPENDIX 5: Plan of proposed Colliers Dock (c.1825)

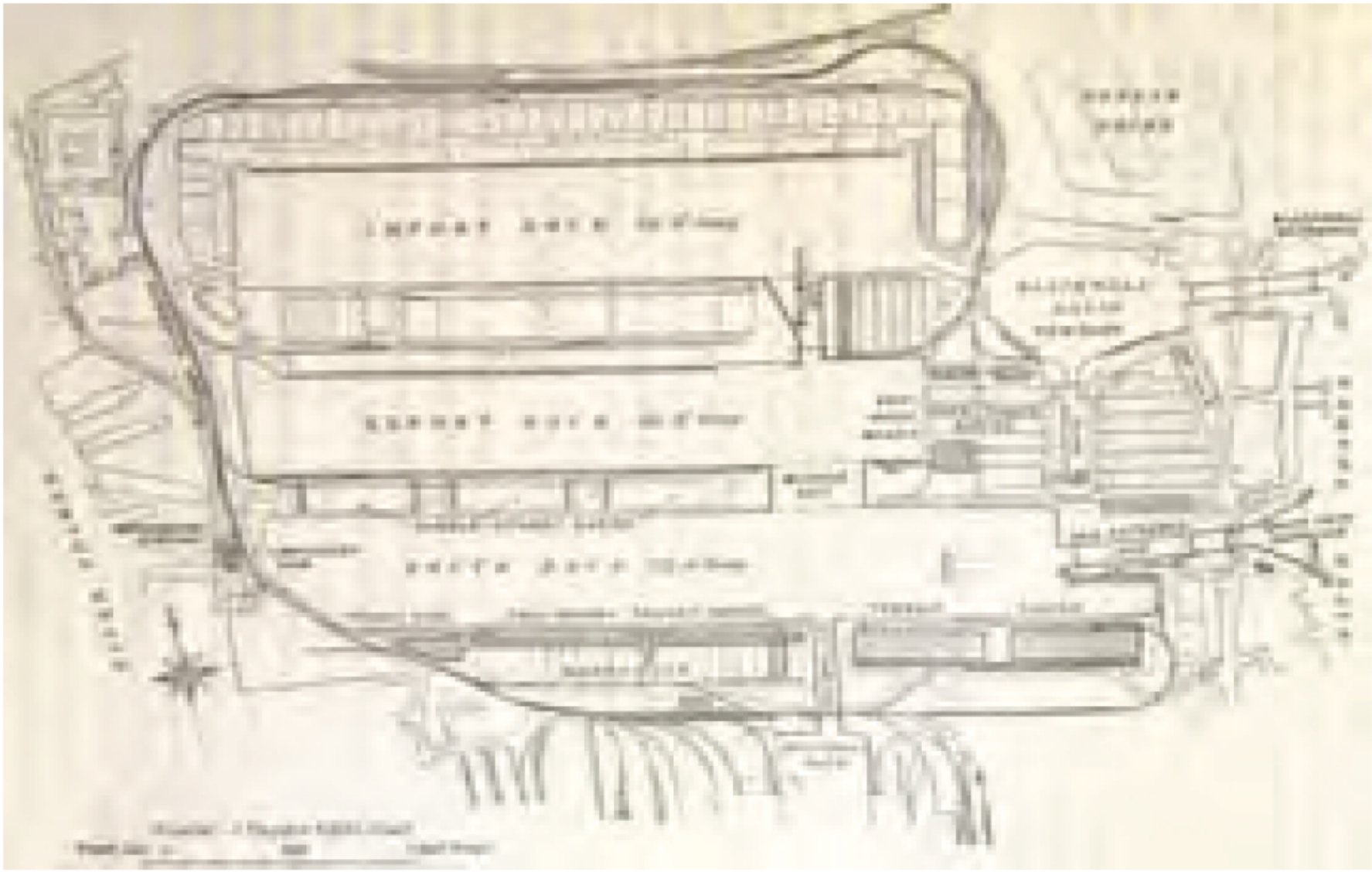
APPENDIX 6: 1896 Ordnance Survey map



APPENDIX 7: Unattributed newspaper article dated 16th March 1878

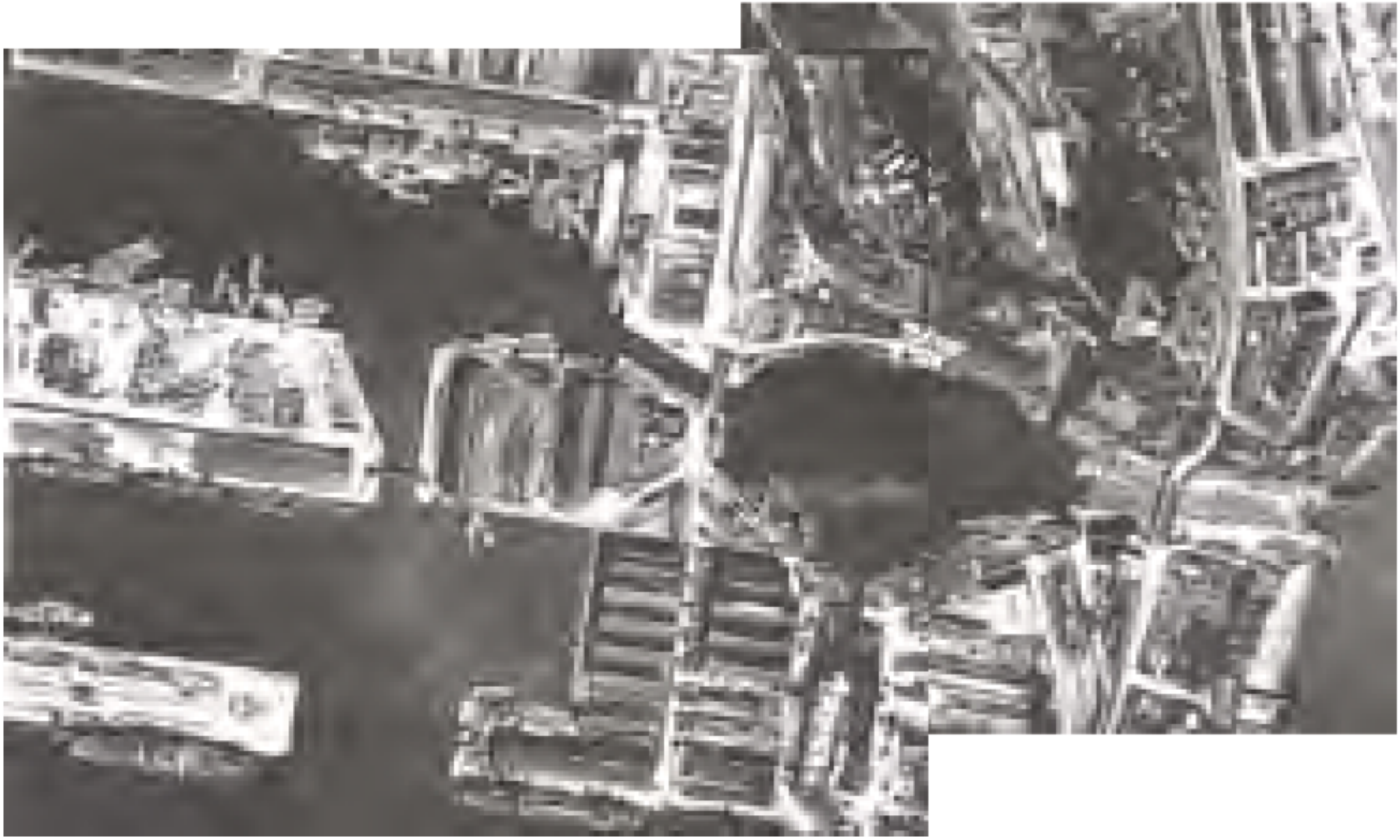
APPENDIX 8: 1896 Ordnance Survey map

APPENDIX 9: 1916 Ordnance Survey map



APPENDIX 10: Plan by the Port of London Authority showing changes made between 1925 - 30

APPENDIX 11: Bomb Damage Map



APPENDIX 12: Aerial photograph(1945)

APPENDIX 13: 1952 Ordnance Survey map

APPENDIX 14: 1991 Ordnance Survey map

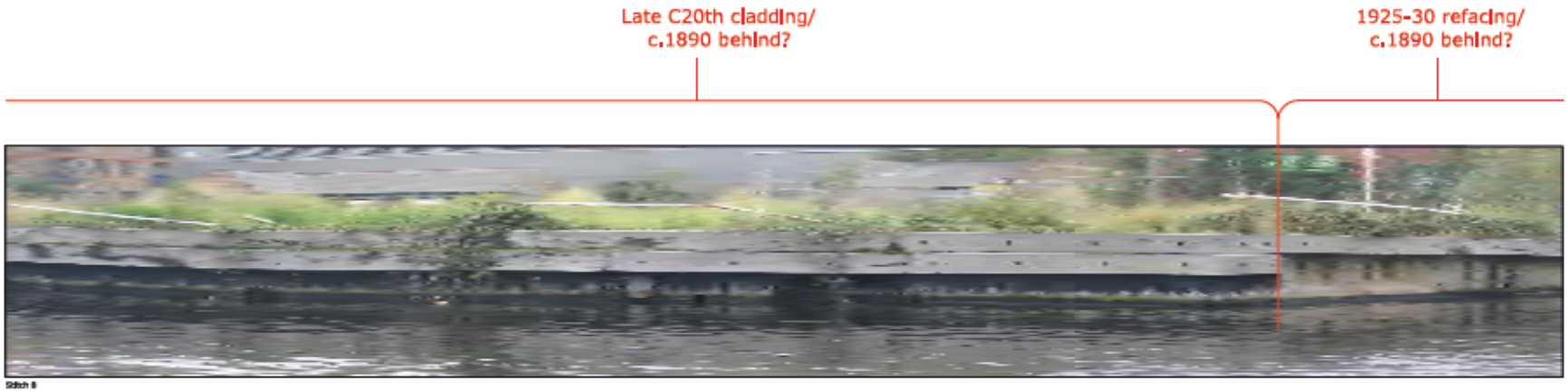
1:1000 1802 1991 **APPENDIX 15:** 1802 plan of the docks overliad with the 1991 Ordnance Survey

APPENDIX 16: Sheet 1

Late C20th cladding/
c.1890 behind?

Late C20th cladding/
c.1890 behind?

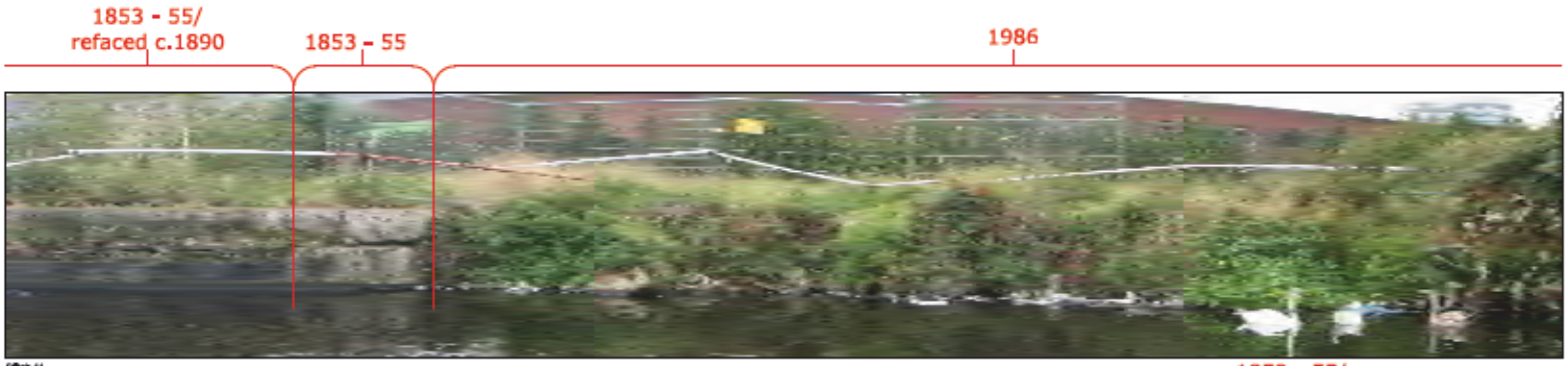
APPENDIX 16: Sheet 2

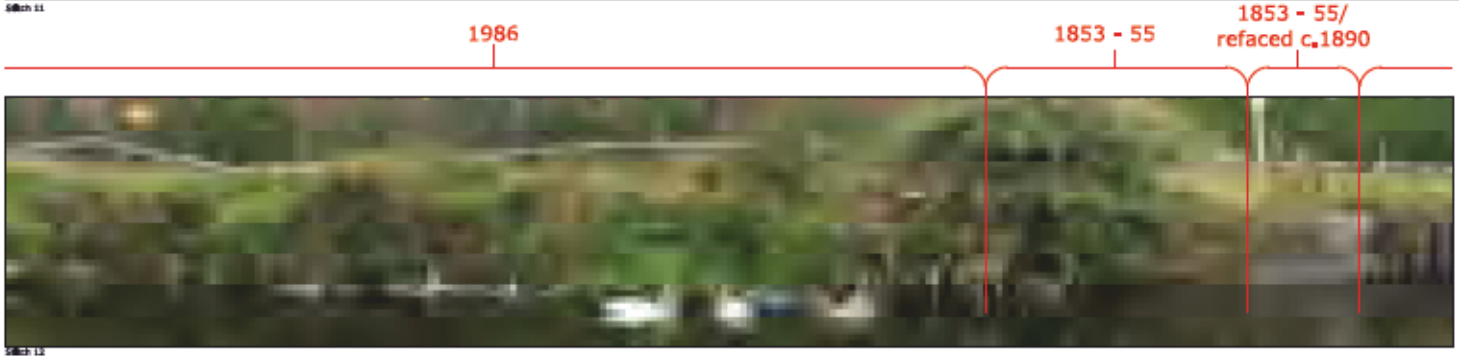


Stitch 8

APPENDIX 16: Sheet 3

APPENDIX 16: Sheet 4

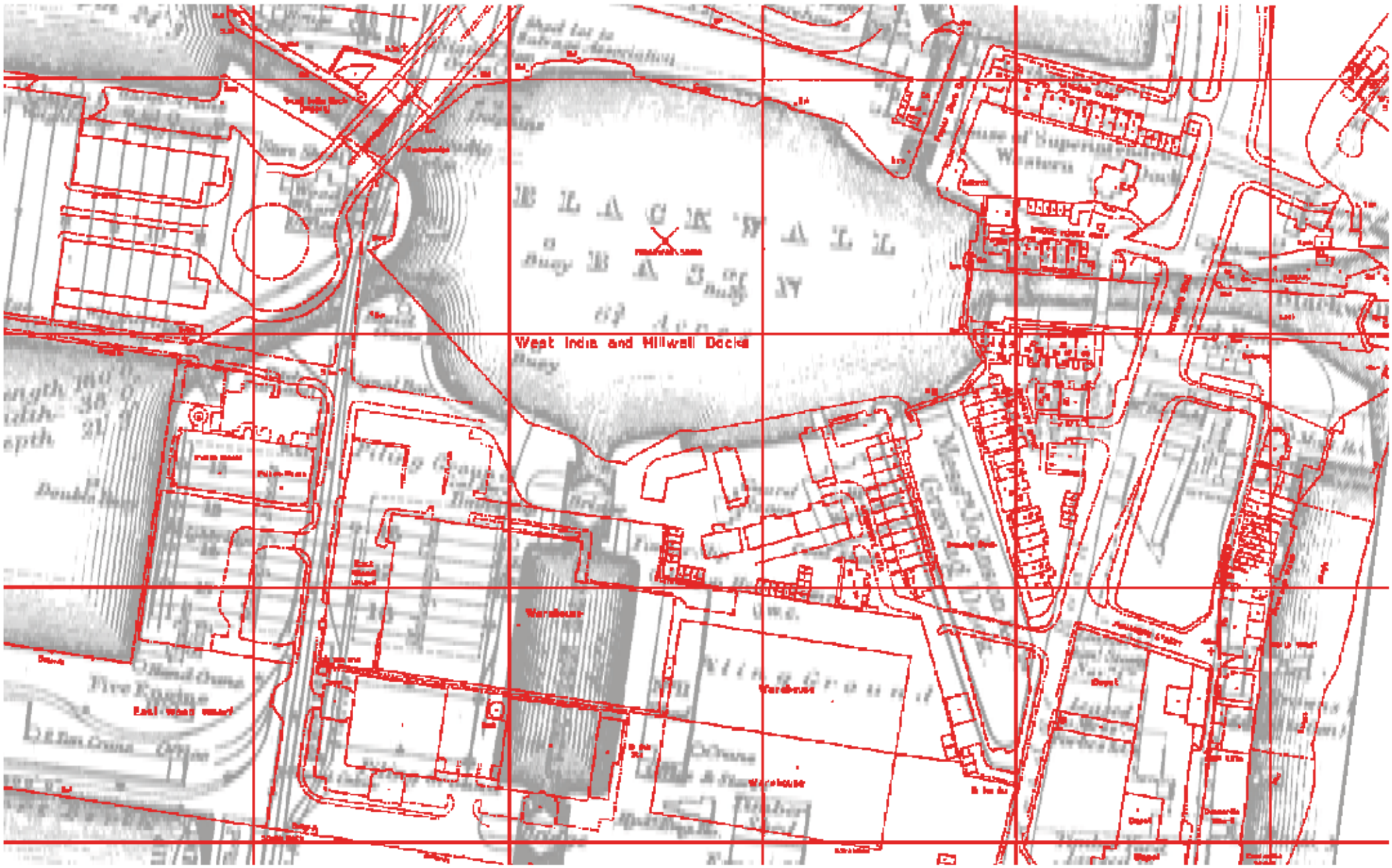




APPENDIX 16: Sheet 5

1925 – 30 quay construction

1925 – 30 rebuild

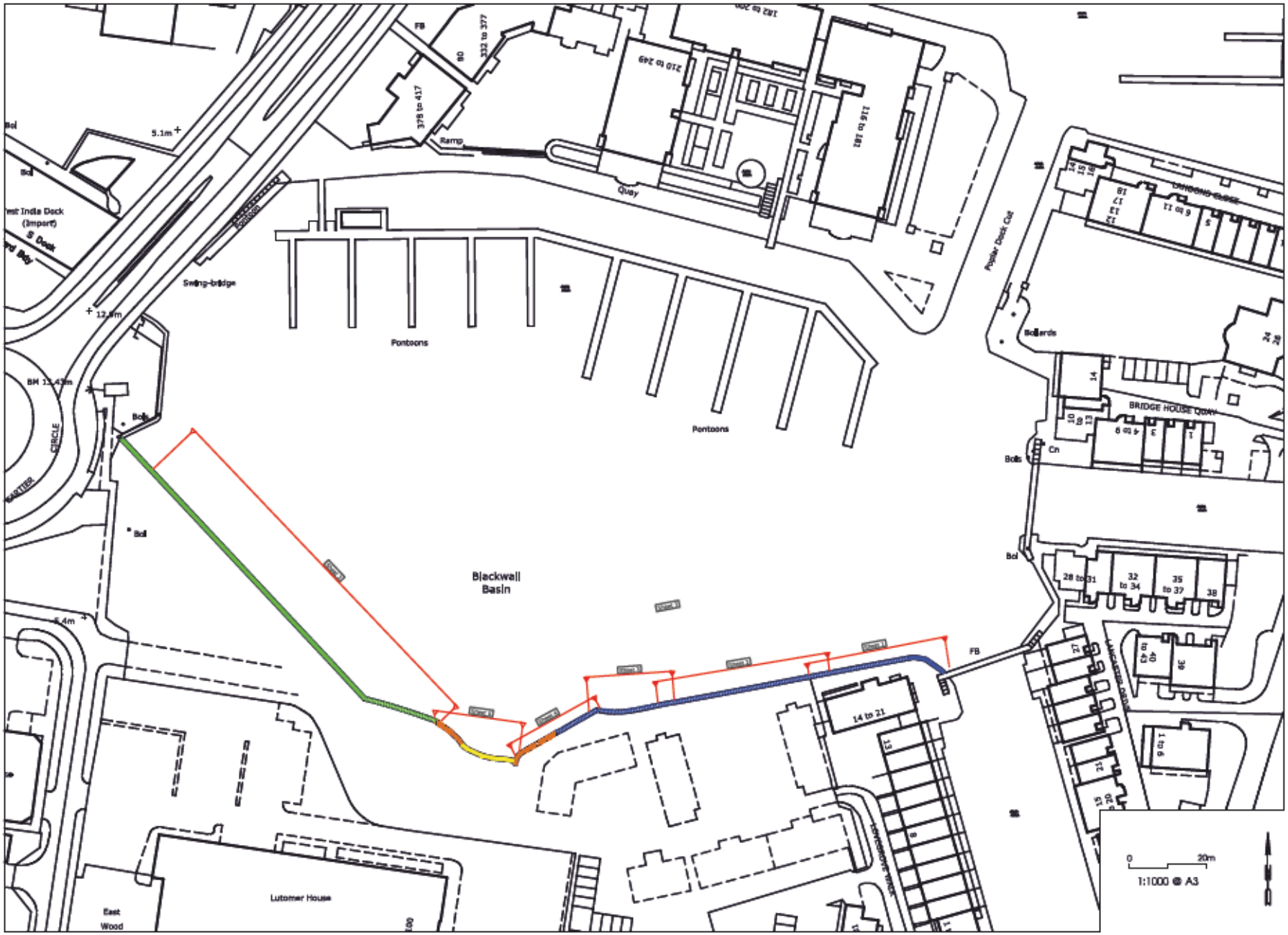


1:1000 ——— 1881 ——— 1991

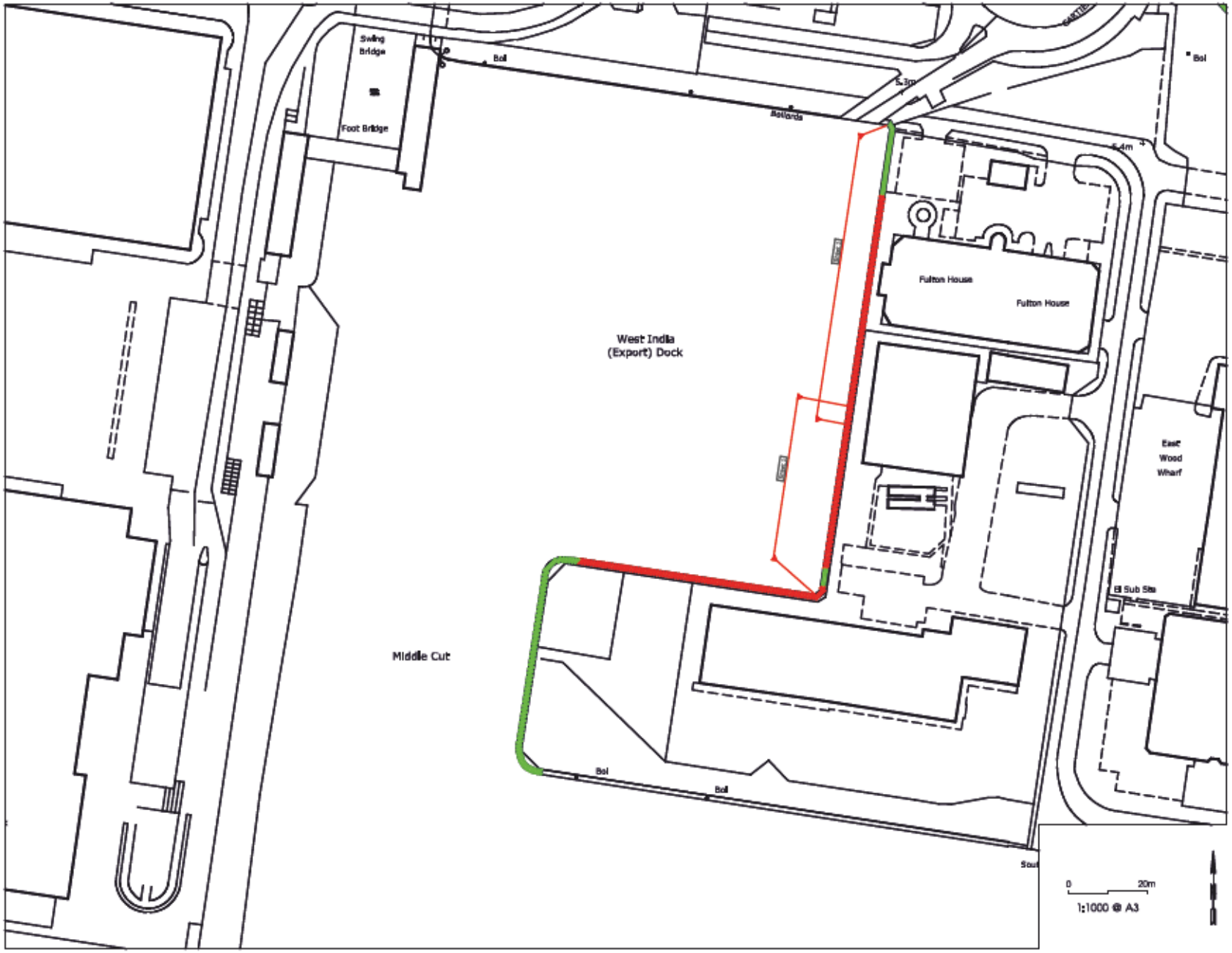
APPENDIX 17: 1882 Ordnance Survey map overlaid with the 1991 Ordnance Survey map

APPENDIX 19: Sheet 1

APPENDIX 18: Sheet 2



Appendix 19: Sheet location and phase plan - Blackwall Basin



Legend

- Location of Sheets
- Early 19th century
- Early 19th century with early 20th century repairs
- Mid 19th century
- Mid 19th century with late 19th century repairs
- Late 19th century
- Late 19th century with late 20th century repairs
- Early 20th century
- Early 20th century with late 20th century repairs
- Late 20th century

APPENDIX 20: Sheet location and phase plan - East Quay

Appendix 5: List Descriptions

Name: BLACKWALL BASIN

List Entry Number: 1242449

Location

BLACKWALL BASIN, WEST INDIA DOCKS

The building may lie within the boundary of more than one authority.

County: Greater London Authority
District: Tower Hamlets
District Type: London Borough
Parish:

National Park: Not applicable to this List entry.

Grade: I

Date first listed: 01-Jul-1983

Date of most recent amendment: Not applicable to this List entry.

Legacy System Information

The contents of this record have been generated from a legacy data system.

Legacy System: LBS

UID: 441847

Asset Groupings

This List entry does not comprise part of an Asset Grouping. Asset Groupings are not part of the official record but are added later for information.

List Entry Description

Summary of Building

Legacy Record - This information may be included in the List Entry Details.

Reasons for Designation

Legacy Record - This information may be included in the List Entry Details.

History

Legacy Record - This information may be included in the List Entry Details.

Details

1 WEST INDIA DOCKS 4431 TQ 3880 26/904 Blackwall Basin

2. 1800-02 William Jessop engineer. The first non tidal basin in the Port of London. Same construction as Import and Export Docks with concave buttressed quay walls, the copings, mostly, surviving here, of good ashlar masonry. The locks enlarged in the 1890s follow in the tradition with brick lined chambers and granite quays. The lock into the Poplar Railway Dock dates from the 1890s, see under Preston's Road.

Listing NGR: TQ3813080156

Name: QUAY WALLS,COPINGS AND BUTRESSES TO IMPORT DOCK AND EXPORT DOCK

List Entry Number: 1065783

Location

QUAY WALLS,COPINGS AND BUTRESSES TO IMPORT DOCK AND EXPORT DOCK, WEST INDIA DOCKS

The building may lie within the boundary of more than one authority.

County: Greater London Authority
District: Tower Hamlets
District Type: London Borough
Parish:

National Park: Not applicable to this List entry.

Grade: I

Date first listed: 01-Jul-1983

Date of most recent amendment: 01-Apr-1985

Legacy System Information

The contents of this record have been generated from a legacy data system.

Legacy System: LBS

UID: 206451

Asset Groupings

This List entry does not comprise part of an Asset Grouping. Asset Groupings are not part of the official record but are added later for information.

List Entry Description

Summary of Building

Legacy Record - This information may be included in the List Entry Details.

Reasons for Designation

Legacy Record - This information may be included in the List Entry Details.

History

Legacy Record - This information may be included in the List Entry Details.

Details

WEST INDIA DOCKS Isle of Dogs

Quay walls, copings an buttresses to Import Dock and Export Dock.

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Listing NGR: TQ3757380490

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