

Location 8

TOBS terrace area – north corner planter crack detail



Notes:

- Existing crack in wall of concrete planter first observed during first inspection on 19th December 2017.
- Extent of crack remains unchanged since last inspection.
- No evidence to indicate that crack has widened since last inspection.
- No new cracks observed in wall of concrete planter.



Location 9

TOBS terrace area – north cornered brick wall detail



Notes:

- Adjoining brick wall at north boundary of Dohm Wharf river wall.
- Existing minor crack along horizontal mortar joints in brick wall first observed during first inspection on 19th December 2017.
- No evidence to indicate that crack has widened or extended since last inspection.
- No new cracks observed in brick wall.
- Note that condition of mortar is poor in places.



Location 10

TOBS terrace area – south corner



Notes:

- No new cracks observed in concrete parapet wall.
- No obvious indications of movement or settlement.



Location 11

TOBS terrace area – end face of adjacent wall to north



Notes:

- Adjoining river wall to north steps out from alignment of Dohm Wharf river wall.
- Reinforcement within concrete face of adjoining river wall exposed, first observed during first inspection on 19th December 2017. No obvious significant deterioration since last visit on 24th May 2019.
- No evidence of movement at interface between two river walls.



Location 12

Hard standing area – overview of hard standing



Notes:

- Taken from the upper deck of the TOBS roof terrace.
- Existing cracks in concrete hard standing first observed during first inspection on 19th December 2017.
- No new cracks or other evidence of movement or settlement within concrete hard standing observed.
- Further vegetation growth within concrete hard standing since the previous inspection on 24th May 2019.
- Borehole within concrete hardstanding, containing monitoring equipment. Presumed to be part of site investigation works by TfL for the Silvertown Tunnel.



Location 13

Hard standing area – overview of hard standing



Notes:

- Taken from the upper deck of the TOBS roof terrace.
- Existing cracks in concrete hard standing first observed during first inspection on 19th December 2017.
- No new cracks or other evidence of movement or settlement within concrete hard standing observed.
- Further vegetation growth within concrete hard standing since the previous inspection on 24th May 2019.
- Borehole within concrete hardstanding, containing monitoring equipment. Presumed to be part of site investigation works by TfL for the Silvertown Tunnel.



Location 14

Hard standing area – overview of hard standing



Notes:

- Taken from the upper deck of the TOBS roof terrace.
- Existing cracks in concrete hard standing first observed during first inspection on 19th December 2017.
- No new cracks or other evidence of movement or settlement within concrete hard standing observed.
- Further vegetation growth within concrete hard standing since the previous inspection on 24th May 2019.



Location 15

Hard standing area – view away from river wall



Notes:

- Existing cracks in concrete hard standing first observed during first inspection on 19th December 2017.
- No new cracks or other evidence of movement or settlement within concrete hard standing observed.
- Further vegetation growth within concrete hard standing since the previous inspection on 24th May 2019.
- Borehole within concrete hardstanding, containing monitoring equipment. Presumed to be part of site investigation works by TfL for the Silvertown Tunnel.



Appendix C BuroHappold January 2020 Thameside West Visual Inspection Report

Technical Note

Project Thames Side West

Subject River Wall Inspection – January 2020

Project no 035668

Date 3 February 2020

Revision	Description	Issued by	Date	Approved (signature)
00	For issue	JF	03.02.2020	
01	Clarifications to Section 4	JF	09.03.2020	

1 Introduction

Dohm Wharf Wall is a section of river wall on the north bank of the River Thames. The wall is 32m long, and comprises steel sheet piles, waling beams and ground anchors. The retained area behind the wall is occupied by hard standing and a warehouse.

Following the completion of a series of repairs to the steel sheet pile sections in September 2017, it was agreed with the Environment Agency (EA) that quarterly inspections of the river shall be carried out. The principal aim of these inspections is to ensure that the river wall remains in suitable condition to act as a flood defence, until the wall is fully replaced as part of the Thames Side West Operational Development works. The purpose of these visual inspections is twofold:

- To monitor the overall structural stability of river wall; and
- To monitor the repairs previously carried out to the steel sheet pile wall to confirm that the repairs remain in place and that no further degradation of the condition of the steel has taken place.

During a meeting between David Palmer of BuroHappold Engineering and Matt Arthur of the EA on the 22nd May 2019, it was agreed that since the previous inspections of Dohm Wharf indicate that the river wall appears to be stable, the frequency of the inspections could be reduced from three to six month intervals. This agreement was made on the condition that inspection is also carried out from the river side of the river wall, and is extended to include the entire frontage of the Thameside West site, to identify any other areas of possible failure.

The most recent land side inspection was carried out on the 16th December 2019. The inspection was carried out from the land side of the river wall only, as access arrangements and tide times prevented access to the foreshore on the river side. A subsequent inspection was therefore carried out from the river side on the 24th January 2020, to supplement the 16th December 2019 land side inspection. Present at the inspection were Jack Foster and Sigrid Moeller, of BuroHappold Engineering.

In accordance with the 22nd May 2019 agreement with the EA, the inspection also included a visual survey of the full river frontage of the Thameside West site.

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This report therefore provides commentary on the following

- Update to the 16th December 2019 Dohm Wharf inspection, to include observations from the river side; and
- Visual inspection of the entire river frontage of the Thameside West site.

This Technical Note should be read in conjunction with the following reports from previous inspections and site visits carried out by BuroHappold:

- Dohm Wharf River Wall Inspection, 23rd February 2017
- Dohm Wharf Repairs Summary Report, 27th September 2017
- Dohm Wharf River Wall Quarterly Inspection, 19th December 2017
- Dohm Wharf River Wall Quarterly Inspection, 22nd March 2018
- Dohm Wharf River Wall Quarterly Inspection, 25th June 2018
- Dohm Wharf River Wall Quarterly Inspection, 26th September 2018
- Dohm Wharf River Wall Quarterly Inspection, 6th February 2019
- Dohm Wharf River Wall Quarterly Inspection, 24th May 2019
- Dohm Wharf River Wall Inspection, 16th December 2019

2 Dohm Wharf – Overall Structural Stability

A visual inspection of the river wall was carried out from the river side, with access to the river bed gained via a boat at low tide. The river bed consists of a mixture of sand, gravel and assorted debris including brick fragments and concrete, for approximately 2m from the river wall. Further than 2m from the river wall, the river bed consists of soft mud.

The purpose of the river side visual inspection was primarily to monitor the repairs previously carried out to the steel sheet pile wall to confirm that the repairs remain in place and that no further degradation of the condition of the steel has taken place.

Figure 2-1 shows the overall condition of the river wall at Dohm Wharf, taken from a boat approximately one hour after low tide. The patch repairs are no longer clearly visible from a distance due to the growth of vegetation and algae.



Figure 2-1: Overall view of the river wall at Dohm Wharf, taken from a boat at low tide

While there is minor corrosion to the steel sheet pile, no significant deterioration since the previous inspection was observed.

No evidence of movement or settlement of the existing river wall was observed, either at the interface with the adjacent river wall structures or overall.

3 Dohm Wharf – Steel Sheet Pile Repairs

3.1 Overview

During the 23rd February 2017 inspection, corrosion to the steel sheet pile sections of the river wall was observed. This was most significant in the splash zone above high water where voids were present behind perforations in the steel.

Following the inspection, it was recommended that short-term remedial works were carried out to preserve the structural integrity of the wall and the associated flood defence. These remedial works to the corroded areas of the steel sheet piling were carried out in August and September 2017, in the form of plates welded over the perforations.

As part of the 24th January 2020 monitoring described in this report, a visual inspection of the remedial works was carried out from the river side of the river wall to confirm that the repairs remain in place and that no further degradation of the steel has taken place.

3.2 Upper Level

The repairs to the upper part of the sheet pile wall above the upper waling beam were visible from the river side.

All plate repairs appear to remain securely welded to the existing sheet pile sections and there is no evidence of further degradation of the condition of the remaining steel. Figure 3-1 shows a typical photograph of the upper level of the river wall, showing the steel plate repairs securely welded to the sheet piling, with mastic sealant still in place.



Figure 3-1: Typical photograph of upper level of river wall, showing steel plate repairs to sheet piling, taken from the river side of the river wall

During the most recent river side inspection, carried out in March 2018, two locations where a perforation had not had a patch repair installed were observed. At the time, it was considered that the two perforations would not pose a risk of structural failure of the river wall and that additional repair would therefore not be required. The extent of these two perforations does not appear to have deteriorated significantly since the previous inspection. One of the perforations, immediately below the lower waling beam at the upstream end of the river wall is shown in Figure 3-2.



Figure 3-2: Location at north extent of river wall where patch repair to perforation steel sheet piling has been missed

3.3 Mid Level

All repairs at the mid level appear to be in good condition, with no new perforations. A typical example of one of the mid level repairs is shown in Figure 3-3

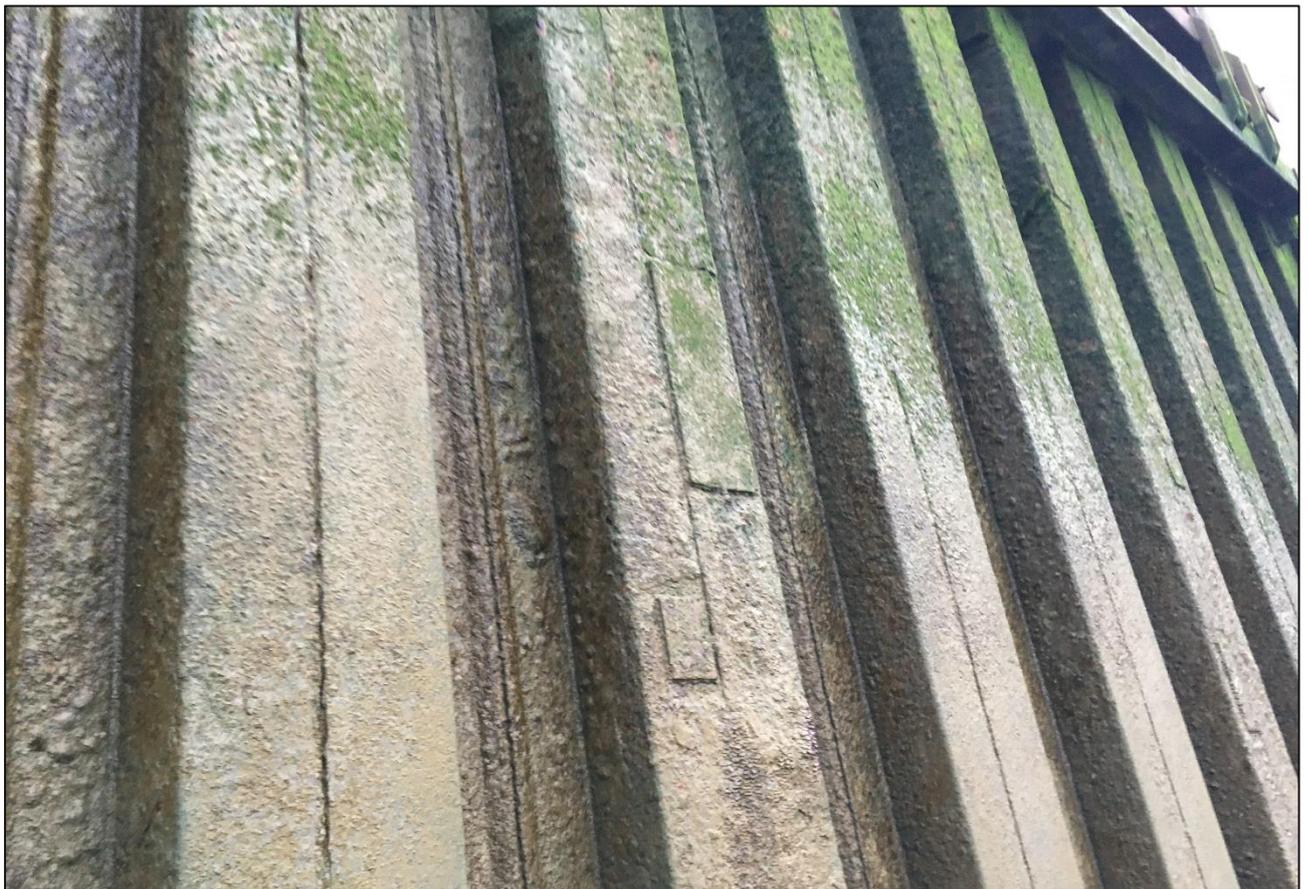


Figure 3-3: Typical patch repair to the mid level of the steel sheet pile wall, in good condition

3.4 Low Level

Figure 3-4 shows a typical repair to the low level of the sheet pile wall.



Figure 3-4: Typical patch repair to the low level of the steel sheet pile wall, in acceptable condition

The low level patch repairs are generally in acceptable condition. Each patch repair has a weep hole at the bottom to allow water to drain from behind the river wall, as was the case with the existing wall.

In all locations, the lower southern side of the plate has not been fully welded to the existing sheet pile. This is due to the continuous flow of water draining from behind the river wall, which prevented a weld from being completed.

It is considered that this missing length of weld would not pose a risk of structural failure of the river wall. However it is recommended that these areas are monitored during subsequent quarterly inspections to check that degradation of the repair does not occur.

4 Thameside West – Overall River Wall Visual Survey

4.1 Introduction

A condition survey of the river wall was previously carried out by Atkins in June/July 2015, on behalf of Transport for London, as part of the design work for Silvertown Tunnel. This identified the existing condition of the river wall, based on visual inspections. The survey was broken down to provide a summary for each part of the river frontage with a unique EA asset reference number.

This Technical Note represents an update to the 2015 Condition Survey, providing a summary of the construction type and structural condition of each of the flood defence assets within the Thameside West site boundary, shown in Figure 4-1.



Figure 4-1: Thameside West location plan

4.2 Survey Methodology

A river side inspection of the full river frontage of the Thameside West site was carried out by boat on 24th January 2020. The inspection was started at low tide, so that a detailed inspection of the repairs at Dohm Wharf could be carried out, with access to the foreshore. The remainder of the inspection was carried out from the boat as the tide rose, to allow closer inspection of the river wall where required.

The inspection observations and the condition of the river wall is summarised for each section of the river frontage with a unique asset reference number, in accordance with the EA Asset Information Management System (AIMS).

The condition of the river wall has been reported in accordance with the condition grading system provided in the EA Condition Assessment Manual, given in Table 4-1.

Table 4-1: Environment Agency condition grades (Source: Environment Agency Condition Assessment Manual)

Grade	Description of Condition	Extent of Defects
1	Very Good	Cosmetic defects that will have no effect on performance.
2	Good	Minor defects that will not reduce overall performance of asset.
3	Fair	Defects that could reduce performance of asset.
4	Poor	Defects that would significantly reduce performance of asset.
5	Very Poor	Severe defects resulting in complete performance failure.

The condition grade given to each asset generally applies to the whole length of the asset, however where different elements of the asset are in significantly different condition, or the asset is formed of different construction types, further detail is provided.

The condition of each asset has been determined by visual inspection only, with records taken by photos and written notes only. No intrusive work was carried out.

A summary of the condition grade given by each of the following inspections or sources of information is provided in Table 4-2, in Section 4.4:

- January 2020 inspection, carried out by BuroHappold;
- 2015 Atkins inspection, as reported in the Silvertown Tunnel River Wall Structural Condition Survey report (document reference: STWTN-ATK-VES-XXXX-RP-Y-0001 Rev P03); and
- The EA Spatial Flood Defences GIS data, accessed on the 31st January 2020.

4.3 Survey Findings

4.3.1 EA Asset ID 8509

Construction Type	Earth embankment, with significant vegetation growth. Embankment acts as flood defence.
Condition	Embankment considered to be generally in fair condition. No evidence of movement, settlement, or any other failure of the embankment. Paved walkway on land side of embankment not visible during river side inspection.
Condition Grade	3



Figure 4-2: Upstream extent



Figure 4-3: Downstream extent

4.3.2 EA Asset ID 14899

Construction Type	Earth embankment, with significant vegetation growth. Embankment acts as flood defence.
Condition	Embankment considered to be generally in fair condition. No evidence of movement, settlement, or any other failure of the embankment. Paved walkway on land side of embankment not visible during river side inspection.
Condition Grade	3
	
<p>Figure 4-4: Typical condition of earth embankment</p>	

4.3.3 EA Asset ID 8508

Construction Type	Upstream: blockwork wall with rock armour revetment. Downstream: steel sheet piling with concrete capping. Steel sheet pile cut off installed approximately 10m in front of river wall.
Condition	Blockwork generally in good condition and appears to be stable. Steel sheet piling and concrete capping in good condition, with only surface corrosion to steel. No evidence of vessel impact to sheet pile cut off. No evidence of degradation in condition since 2015 inspection.
Condition Grade	3
	
<p>Figure 4-5: Blockwork wall, rock armour revetment, sheet pile cut off</p>	
	
<p>Figure 4-6: Steel sheet pile river wall with concrete capping</p>	

4.3.4 EA Asset ID 14898

Construction Type	Masonry mass gravity wall with raised concrete parapet and 3 no. ground anchors at approx. 5m centres. Vertical timber fenders attached to older masonry at downstream extent of asset.
Condition	Masonry wall generally in poor condition. Horizontal cracks and occasional missing bricks throughout. Vertical crack in masonry at upstream extent continues into concrete parapet above. Large area of missing pointing at downstream extent, where timber fenders fixed to masonry. Large area of missing bricks and significant cracking at upper level, which appears to be unstable. No evidence of significant deterioration in condition since 2015 inspection.
Condition Grade	4 (masonry wall and concrete parapet)



Figure 4-7: Upstream extent



Figure 4-8: Downstream extent, showing older section of masonry with vertical timber fenders and loss of pointing



Figure 4-9: Upstream extent, showing unstable masonry



Figure 4-10: Close-up of unstable masonry at upper level

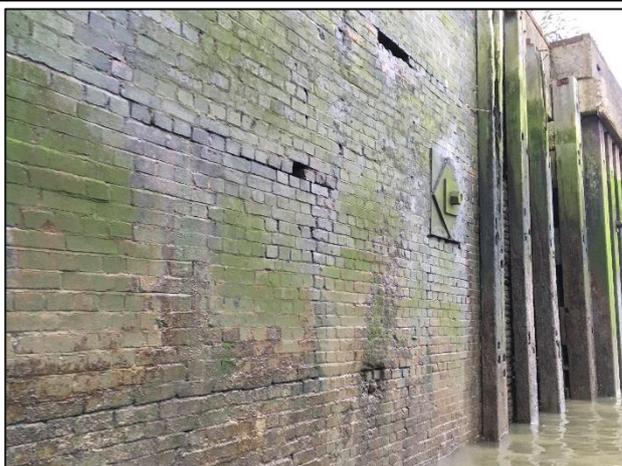


Figure 4-11: Horizontal crack, missing bricks and ground anchor

4.3.5 EA Asset ID 8507

Construction Type	Anchored steel sheet pile wall with concrete capping beam. The steel frame, used for spoil transfer, present during the 2015 inspection has since been removed.
Condition	Steel sheet pile and concrete capping generally in good condition. Minor cracking to concrete capping present. Accelerated corrosion to the sheet piles around the welded connections to the bracing structure for the spoil transfer frame, noted during the 2015 inspection. No significant further corrosion evident since removal of frame. No full-depth corrosion present. No evidence of degradation in condition since 2015 inspection.
Condition Grade	2 (steel sheet pile) 3 (concrete capping)



Figure 4-12: General condition of steel sheet pile and concrete capping



Figure 4-13: Downstream extent



Figure 4-14: No evidence of full-depth corrosion around former connections to spoil transfer frame



Figure 4-15: Minor cracking to concrete parapet

4.3.6 EA Asset ID 14897

Construction Type	Masonry mass gravity wall with timber cladding, concrete capping and sections of concrete repair.
Condition	Where exposed, masonry is in poor condition with missing pointing and vertical cracking. Separation lines between masonry and concrete repairs evident. Significant parts of masonry not visible behind timber cladding, which is severely degraded. Connections between horizontal steel beam appear to be loose. There is no visible cracking to the concrete capping. No evidence of significant degradation in condition since 2015 inspection.
Condition Grade	3 / 4



Figure 4-16: Upstream extent



Figure 4-17: Timber cladding severely degraded, condition of masonry wall not visible behind

4.3.7 EA Asset ID 14896

Construction Type	Concrete apron with masonry wing walls and a concrete upstand as a flood defence parapet.
Condition	<p>Frontage generally in poor condition.</p> <p>Significant voids present behind cracked concrete apron, including new voids at interface with upstream wing wall (Figure 4-18), not reported in 2015 Atkins inspection.</p> <p>Significant loss of pointing and cracking present in masonry wing walls on both upstream and downstream side of concrete apron. Previous repairs to masonry no longer well integrated with existing masonry.</p> <p>Although the condition of the concrete apron has deteriorated since the 2015 inspection, the condition grading remains the same.</p> <p>No evidence of significant degradation in condition of the wing walls since 2015 inspection.</p>
Condition Grade	<p>4 (masonry wing walls)</p> <p>5 (concrete apron)</p>



Figure 4-18: Upstream masonry wing wall, with loss of mortar
New void present in upstream extent of concrete apron



Figure 4-19: Downstream masonry wing wall and large void in concrete apron



Figure 4-20: Concrete apron, showing voids and cracking

4.3.8 EA Asset ID 8506

Construction Type	Masonry mass gravity wall, with concrete capping.
Condition	Masonry wall generally in poor condition. Significant loss of pointing and loss of brick facing throughout. Vertical timber fenders are degraded. Concrete capping appears to be in fair condition, although growth of vegetation present within joint between masonry and concrete, so overall grading given as poor. No evidence of significant degradation in condition since 2015 inspection.
Condition Grade	4 (masonry wall and concrete capping)



Figure 4-21: Upstream extent



Figure 4-22: Downstream extent



Figure 4-23: Masonry generally in poor condition, with loss of pointing and brick facing throughout
Vegetation growth at interface between masonry and concrete capping

4.3.9 EA Asset ID 14895

Construction Type	Steel sheet pile with concrete capping beam.
Condition	Steel sheet pile generally in fair condition, although superficial corrosion present throughout. Horizontal cracks in mass concrete 'plug' at downstream interface with adjoining masonry. Full thickness corrosion also present at upper level on pan at downstream extent of steel sheet pile wall. Note: photos of steel sheet pile not recorded. No evidence of significant degradation in condition since 2015 inspection.
Condition Grade	3 (steel sheet pile wall, generally) 4 (steel sheet pile wall, where full thickness corrosion present) 4 (mass concrete at downstream extent)



Figure 4-24: Downstream extent, showing full thickness corrosion to upper part of steel sheet pile and cracks in concrete 'plug'

4.3.10 EA Asset ID 8505

Construction Type	Masonry mass gravity wall, with concrete capping.
Condition	Masonry wall generally in poor condition. Significant loss of pointing and loss of brick facing throughout. Large vertical crack present in masonry, extending full height of wall. No evidence of significant degradation in condition since 2015 inspection.
Condition Grade	4



Figure 4-25: Masonry generally in poor condition, with loss of pointing and brick facing throughout



Figure 4-26: Upstream extent, with vertical crack in masonry

4.3.11 EA Asset ID 14894

Construction Type	Steel sheet pile wall with ground anchors. No concrete capping present.
Condition	<p>Steel sheet piles are generally in fair to poor condition.</p> <p>Superficial corrosion of steel sheet pile is present throughout, with full thickness corrosion at low and high levels. Full thickness corrosion at low level not reported in 2015 Atkins inspection.</p> <p>Crumpling to tops of steel sheet piles throughout, previously observed.</p> <p>Impact damage to upper part of steel sheet pile in one location has revealed void below concrete slab, not reported in 2015 Atkins inspection. Access to view void no possible, so extent of void unknown.</p> <p>Condition of steel sheet pile has deteriorated since the 2015 inspection.</p>
Condition Grade	<p>3 (steel sheet pile, generally); 4 (steel sheet pile, where full thickness corrosion present)</p> <p>5 (damage to upper part of steel sheet pile, shown in Figure 4-28)</p>



Figure 4-27: Crumpling to tops of sheet pile throughout



Figure 4-28: Isolated damage to steel sheet pile, revealing void below concrete slab

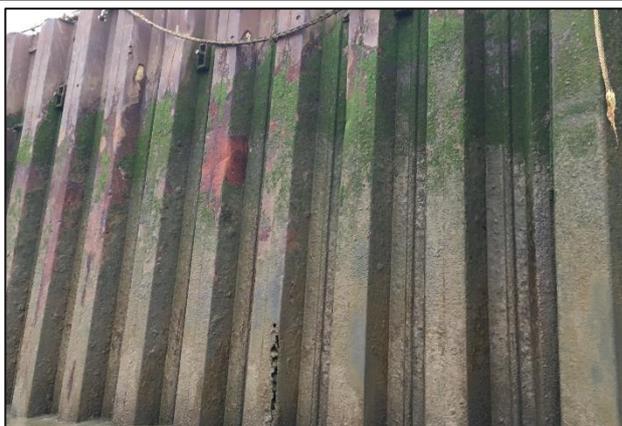


Figure 4-29: Full thickness corrosion within steel at low level



Figure 4-30: Close-up of full thickness corrosion at low level

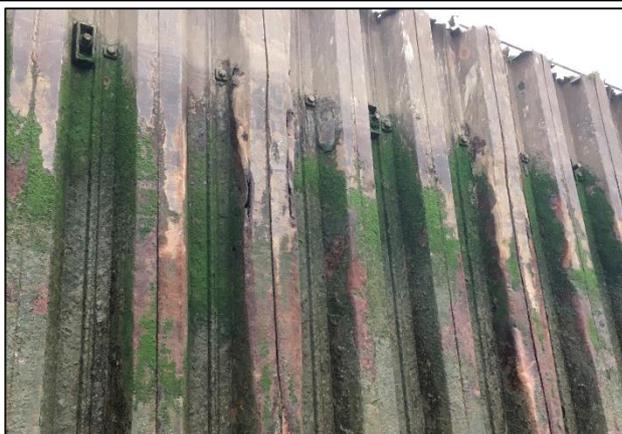


Figure 4-31: Evidence of previous patch repairs to steel sheet pile



Figure 4-32: Steel sheet pile generally in fair condition

4.3.12 EA Asset ID 8504

Construction Type	Sheet pile wall with ground anchors. No concrete capping present.
Condition	Steel sheet piles are generally in fair to poor condition. Superficial corrosion and crumpling to top of steel sheet pile is present throughout. Top of steel sheet piles lean back towards land side, which could indicate poor installation or movement of toe. General misalignment attributed to poor installation. No evidence of significant degradation in condition since 2015 inspection.
Condition Grade	3 (steel sheet pile, generally) 4 (misalignment of steel sheet pile at downstream extent)



Figure 4-33: Steel sheet piling



Figure 4-34: Crumpling to top of steel sheet piling

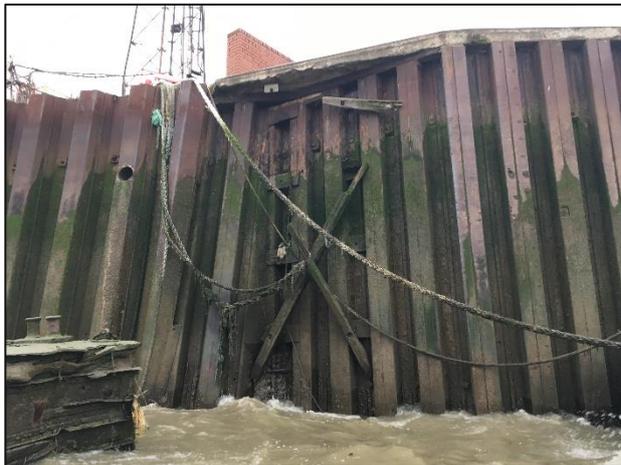


Figure 4-35: Misaligned steel sheet piling at downstream extent

4.3.13 EA Asset ID 14782

Construction Type	Steel sheet pile wall with concrete capping. Large concrete Thames Water outfall present within steel sheet pile wall.
Condition	Steel sheet piles and concrete generally in good to fair condition, with no evidence of damage. Moored and disused barges present along frontage. River wall vulnerable to impact damage due to lack of fenders, however no significant damage to steel sheet pile evident. Misalignment of steel sheet piling at upstream extent, attributed to poor installation. Detailed inspection of Thames Water outfall not possible due to presence of boats and barges. No evidence of significant degradation in condition since 2015 inspection.
Condition Grade	2 / 3 (steel sheet pile, generally) 4 (misalignment of steel sheet pile at upstream extent)



Figure 4-36: Downstream extent



Figure 4-37: Barges and boats obscure large concrete Thames Water outfall



Figure 4-38: Disused barge present in front of upstream extent

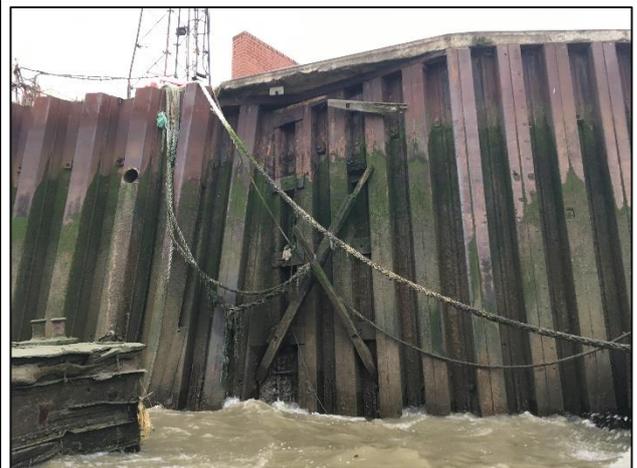


Figure 4-39: Upstream extent with misaligned steel sheet piling

4.3.14 EA Asset ID 14781

Construction Type	Steel lock gates to Royal Victoria Dock, including concrete abutment walls.
Condition	Steel lock gates appear to be in fair condition, although significant deterioration of timber cladding present, particularly at high tide level. Timber cladding obscured detailed inspection of lock gates. Concrete abutments are in good condition, with only surface corrosion to steel guide rails. Significant accumulation of debris since 2015 inspection, on foreshore in front of lock gates, as well as disused and damaged barges. No evidence of significant degradation in structural condition since 2015 inspection.
Condition Grade	2 (concrete abutments), 3 (steel lock gates), 4 (debris and other obstructions present)



Figure 4-40: Upstream concrete abutment with steel guide rails



Figure 4-41: Detail of upstream abutment



Figure 4-42: Former entrance to Royal Victoria Dock



Figure 4-43: Downstream concrete abutment



Figure 4-44: Steel lock gate with timber cladding

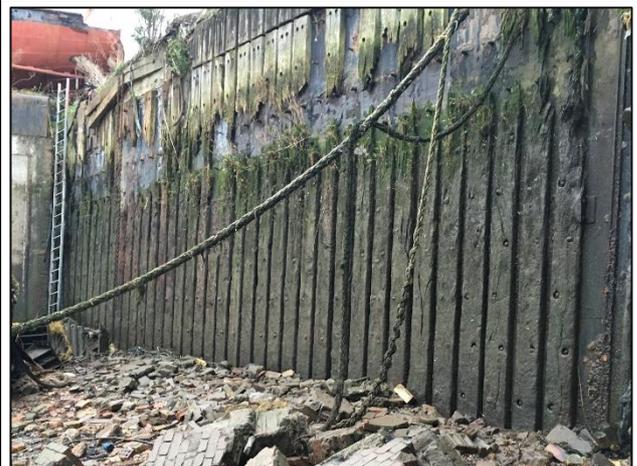


Figure 4-45: Debris present in front of lock gates

4.3.15 EA Asset ID 8503

Construction Type	Steel sheet pile wall with ground anchors and concrete capping.
Condition	Steel sheet pile generally in fair condition, with superficial corrosion only. Concrete capping generally in fair condition, however localised spalling and exposure of reinforcement present at underside of capping (Figure 4-49). No evidence of significant degradation in condition since 2015 inspection.
Condition Grade	2 (steel sheet pile, generally) 3 (concrete capping)



Figure 4-46: Downstream extent, at interface with Dohm Wharf



Figure 4-47: Steel sheet pile generally in fair condition



Figure 4-48: Localised corrosion of former fender fixings



Figure 4-49: Localised corrosion of underside of concrete capping



Figure 4-50: Concrete capping generally in fair condition

4.3.16 EA Asset ID 14780 (Dohm Wharf)

Construction Type	Steel sheet pile wall with external waling beam, ground anchors and concrete parapet. Sheet pile is raked back. As built drawings confirm this is as constructed and not due to failure.
Condition	Steel sheet pile in fair condition following patch repairs to full thickness corrosion, carried out in August to September 2017.
Condition Grade	3



Figure 4-51: Raked steel sheet pile wall



Figure 4-52: External waling beam



Figure 4-53: Patch repairs to steel sheet pile wall remain securely fixed at upper level, above external waling beam

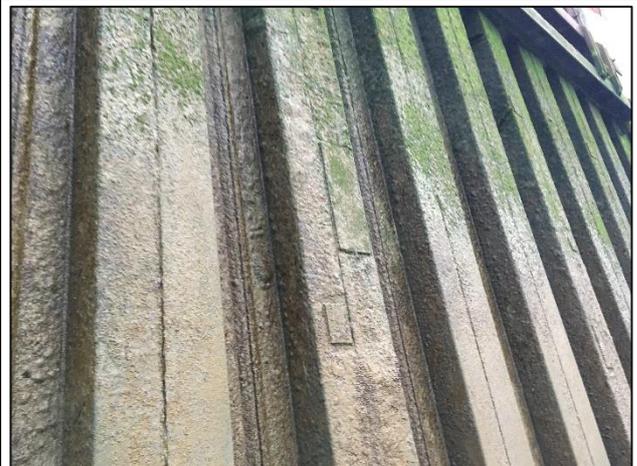


Figure 4-54: Patch repairs to steel sheet pile at mid and lower level remain securely fixed

4.4 Summary

Table 4-2 provides a description of each of the flood defence assets within the Thameside West site, the condition grade given by each of the most recent inspections, a summary of the current condition of each asset, and a comparison to the condition reported in the 2015 Atkins inspection.

Generally there has been no significant deterioration in the condition of the river wall and flood defence for the Thameside West site, since the last full inspection carried out in 2015. However the concrete apron of Asset ID 14896 and the steel sheet pile of Asset ID 14894 have both deteriorated since 2015.

Table 4-2: Summary of condition of existing Thameside West flood defence assets

EA Asset ID	Description	2015 Atkins Condition Rating ¹	EA Condition Rating ²	2020 BuroHappold Condition Rating ³	Notes
8509	Earth embankment	N/A	3 (3)	3	Embankment not covered by 2015 Atkins inspection
14899	Earth embankment	N/A	2 (2)	3	Embankment not covered by 2015 Atkins inspection
8508	Blockwork wall, steel sheet pile wall with concrete capping	3 / 2	3 (3)	3	Fair condition, no evidence of deterioration
14898	Masonry wall with raised concrete parapet	4	4 (4)	4	Masonry in poor condition, no evidence of deterioration
8507	Anchored steel sheet pile wall with concrete capping	2 (3)	2 (3)	2 / 3	Steel sheet pile in fair condition, no deterioration observed
14897	Masonry wall with timber cladding and concrete capping	4	3 (4)	3 / 4	Masonry in poor condition, no evidence of deterioration
14896	Concrete apron with masonry wing walls	4 (5)	3 (4)	4 / 5	Poor masonry, very poor concrete, Concrete apron deteriorated since 2015 Atkins inspection
8506	Masonry wall, with concrete capping	4	4 (4)	4	Masonry in poor condition, no evidence of deterioration
14895	Steel sheet pile wall with concrete capping	3 (4)	4 (4)	3 / 4	Steel sheet pile fair to poor, mass concrete poor, no evidence of deterioration
8505	Masonry wall, with concrete capping	4	4 (4)	4	Masonry in poor condition, no evidence of deterioration
14894	Steel sheet pile wall, no capping	4	4 (4)	3 / 4 / 5	Variable condition, fair to very poor Condition has deteriorated since 2015 Atkins inspection
8504	Steel sheet pile wall, no capping	4	4 (4)	3 / (4)	Fair to poor condition, no evidence of deterioration
14782	Steel sheet pile wall with concrete capping	2 / 3 (4)	4 (4)	3 / (4)	Fair to poor condition, no evidence of deterioration
14781	Steel lock gates, concrete abutment walls	3 / 2 / 3 (4)	3 (3)	2 / 3 / 4	Fair to poor condition, no evidence of deterioration in structural condition, however accumulation of debris present
8503	Steel sheet pile wall with concrete capping	2 (3) / 3	3 (4)	2 / 3	Steel sheet pile in fair condition, no evidence of deterioration
14780	Steel sheet pile wall with concrete parapet	4	4 (4)	3	Steel sheet pile in fair condition, repaired in 2017

¹ Source: Silvertown Tunnel River Wall Structural Condition Survey report, Atkins, 2015

² Source: Environment Agency Spatial Flood Defences GIS data, accessed on the 31st January 2020
General condition grade, with worst condition grade given in brackets

³ Source: BuroHappold January 2020 river side visual inspection

5 Summary and Conclusion

5.1 Dohm Wharf

The welds of all of the repairs to the steel sheet pile carried out in 2017 remain sound and the plates are securely fixed.

During the March 2018 inspection, two locations were identified where a perforation had not had a patch repair installed, which was not observed at the time of remedial works. Subsequent additional repairs were considered not to be required. The extent of these two perforations does not appear to have deteriorated significantly since the previous inspection, however it is recommended that this continues to be closely monitored during subsequent inspections.

During a meeting on the 22nd May 2019, the EA agreed that since the previous inspections of Dohm Wharf indicate that the river wall appears to be stable, the frequency of the inspections could be reduced from three to six month intervals. The next full inspection is therefore due to be carried out in June 2020.

5.2 Full Thameside West River Frontage

Generally there has been no significant deterioration in the condition of the river wall and flood defence for the Thameside West site, since the last full inspection carried out in 2015, with the exception of Asset ID 14896 and 14894.

Additional voids in the concrete apron of Asset ID 14896 were observed, however the deterioration has not resulted in a change to the overall condition, rated as *very poor*.

Full thickness corrosion and impact damage was observed in the steel sheet pile of Asset ID 14894, that was not reported in the 2015 Atkins inspection report. The overall condition of this asset is therefore considered to have deteriorated since 2015.

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