

1. General information

Location Plan:		Sudbrook Wall	
		Assessment Date: 18/05/2021	
		CARRS Exam ID:	13251503
		Exam Type:	Detailed
		Complete Survey:	Yes
		Network Rail ELR:	BSW
		Structure Reference:	13 50
		Mileage:	13m 1100yds 50chs
		OS Ref:	350700 , 187300
		Operational Area:	South Wales
		Governing SMP2:	Severn Estuary
		SMP2 Policy Unit:	CALD1
		SMP2 Policy:	2025 = hold the line; 2055 = hold the line; 2105 = hold the line.

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1.1. Type of structure and general description (to include key components and materials)

Sudbrook wall is situated on the western bank of the River Severn. It protects the Sudbrook pumping station, which dewateres the Severn Tunnel. The defence is split into two sections, Sudbrook Wall A and B, due to changes in defence elements and location.

- Sudbrook Wall A – lower masonry wall section, upper concrete wall section and a setback masonry capping wall.
- Sudbrook Wall B – outfall spanning approx. 0.45m with masonry wingwalls, concrete capping beam and a safety handrailing.
- The asset is fronted by a coarse cobble beach.

The asset ties into a soft eroding cliff in the south. To the north, the asset ties into rock armour protection and a vegetated embankment.

1.2. Summary of condition and critical defects

Since the survey was undertaken in 2020, no significant changes were noted in 2021. The asset is considered to be in very poor continuing condition as several defects threaten the integrity of the structure. Critical defects include:

- The collapse of the lower masonry wall. This should be addressed at the nearest possible stage to prevent global failure of the defence.
- A number of other collapses of the lower wall section.
- Hollow voided structure; and
- Spalling and fracturing in the concrete wall section.

A detailed structural survey should be undertaken at the nearest possible opportunity to identify whether remedial works would be feasible and the best methods for reinstating the defence. The extent and nature of the defects identified suggest asset replacement may be a better solution, as repair is only likely to extend the asset life for a few years.

In the current scenario of no repairs to the asset, it will continue to deteriorate in the near future. The condition of the asset is still a level 5.

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1.3. Access considerations

Network Rail access requirement:	No COSS
Third party/adjacent landowner permissions:	None necessary
Nearest public highway:	M4
Local guidance:	The defence is accessed at the most westerly extent where a public footpath leads down to the beach. This is a steep footpath and should be proceeded with caution. It is recommended the asset is inspected at low tide as the tidal range is very large. The tide can come in quite quickly.
Tide state during survey:	
Equipment required for access and examinations:	No COSS needed

2. Structure information

CERD Hierarchy	Asset Type	Major Elements	Minor Elements	Attributes
Section A	Defence	Wall	Wall section	Masonry
	Defence	Wall	Wall section	Concrete
	Defence	Wall	Parapet/Capping	Masonry
Section B	Structure	Outfall over 0.45m	Downstream Headwall	N/A

General Description of Structure:	Sudbrook wall is situated on the western bank of the River Severn and consists of Section A, a lower masonry wall, upper concrete wall and a setback masonry capping wall and Section B, a masonry outfall headwall and wingwall.		
Approx. defence length (m):	270		
Approx. co-ordinates from:	350837 , 187443	to:	350718 , 187318
As built drawing available:	No		
Linked to other Asset Types:	Soft eroding cliffs in the south and rock armour fronting a vegetated embankment in the north.		
NR Infrastructure protected:	The Sudbrook pumping station (dewatering the Bristol channel tunnel) situated roughly 50m behind the defence.		
Assets type and ownership that the defence ties into at either end:	The asset ties into a soft eroding cliff in the south of unknown ownership. To the north, the asset ties into rock armour protection fronting a vegetated embankment.		

2.1. Topographic level information

	Defence (Section A)	Structure (Section B)
Track level (mAOD)	Underground (tunnel)	Underground (tunnel)
Crest level of primary defence (mAOD)	9.3	N/A
Toe level of primary defence (mAOD)	6.1	N/A
Approx. defence height above beach (m)	3.2	N/A
Upper beach level (mAOD)	N/A	N/A
Lower beach level (mAOD)	N/A	N/A
Approx. total beach height (m)	N/A	N/A
Beach crest width (m)	N/A	N/A
Approx. beach gradient (1in ...)	N/A	N/A
Upper beach composition	N/A	N/A
Lower beach composition	N/A	N/A

2.2. Extreme sea level information

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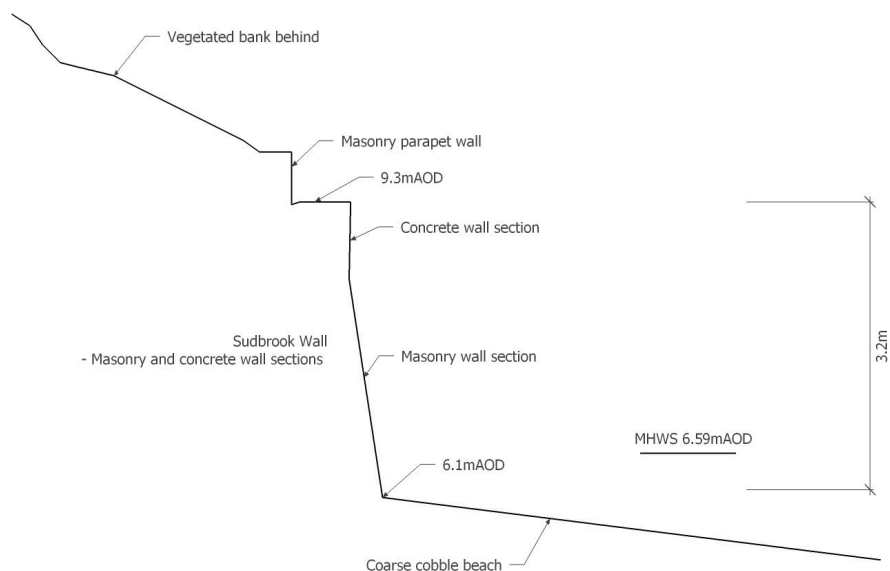


Return Period	Extreme sea level (mAOD)	Extreme sea level + climate change (mAOD)
1	8.07 (2013)	8.90 (2115)
5	8.33 (2013)	9.16 (2115)
10	8.45 (2013)	9.28 (2115)
20	8.57 (2013)	9.40 (2115)
50	8.74 (2013)	9.57 (2115)
100	8.87 (2013)	9.70 (2115)
200	9.00 (2013)	9.83 (2115)

3. Asset site sketch



Sketch



Sketch





4. Visual Condition Survey

Visual Condition Survey (Defence - Section A) Major Element - Wall

Minor Elements	Photo No.	Attributes and General Notes	Condition Grade	Weighting (1-9)	Overall (CG x W)
Wall section	12, 13	Masonry (Masonry (failing lower section, undermining, hollow structure with large voids)).	5	9	45
Wall section	11, 14	Concrete (Concrete (spalling, fractures)).	4	7	28
Parapet/Capping	10, 15	Masonry (Masonry (evidence of saltwater intrusion)).	3	4	12
Sum (W)				20	
Sum (CG x W)					85
Overall Asset Grade	Sum of (Weight x Condition Grades) divided by sum of weightings. Unless weighting of 9 for any element, then condition grade is used.		5*		

*Condition grade has been overridden due to a weighting of 9 for a minor element.

Visual Condition Survey (Structure - Section B) Major Element - Outfall over 0.45m

Minor Elements	Photo No.	Attributes and General Notes	Condition Grade	Weighting (1-9)	Overall (CG x W)
Downstream Headwall	16		4	9	36
Sum (W)				9	
Sum (CG x W)					36
Overall Asset Grade	Sum of (Weight x Condition Grades) divided by sum of weightings. Unless weighting of 9 for any element, then condition grade is used.		4*		

*Condition grade has been overridden due to a weighting of 9 for a minor element.

4.1. Asset condition grade summary

	Defence (Section A)	Structure (Section B)
Target condition grade	2	2
Overall surveyed condition grade	5	4
Total time taken to reach CG1	-	N/A
Total time taken to reach CG2	-	N/A
Total time taken to reach CG3	-	N/A

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Total time taken to reach CG4	-	N/A
Total time taken to reach CG5	-	10

4.2. Additional information

General description and effect of any coastal erosion noted:	Exposure of the wall toe suggests beach and foreshore lowering. Similar level of wall toe noted to the 2019 inspection.
General description and effect of any wave overtopping noted:	None noted during inspection.
General description and effect of any longshore / cross-shore sediment transport noted:	None noted during inspection.

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5. Identification of defects and recommendations

Defect Ref No.	Defect Location (NGR)	Major Element	Minor Element	Photo Ref	Severity	Probability	Risk Score	Below MHWS	Defect Group	Defect Description	Recommendations	Defect Priority
D1	350700, 187300 BSW 13.1022	Wall	Wall section	17, 56, 64, 108	2	5	10	N/A	Concrete damage	Spalling concrete. There has been minor changes between the 2020 and 2021 inspections with evidence that this is occurring throughout most of the structure.	Break out spalled areas and replace concrete.	19
D2	350700, 187300 BSW 13.1022	Wall	Wall section	18, 44, 65, 106	2	4	8	N/A	Concrete damage	Cracks in concrete. No change between 2020 and 2021 inspections.	Fill void and fractures.	20
D3	350833, 187423 BSW 13.0951	Wall	Wall section	19, 20, 33, 34, 35, 67, 101	4	3	12	N/A	N/A	2021 toe repairs and beach level higher. Undermining of wall toe. No change between 2019 and 2020 inspections	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	7

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Defect Ref No.	Defect Location (NGR)	Major Element	Minor Element	Photo Ref	Severity	Probability	Risk Score	Below MHWS	Defect Group	Defect Description	Recommendations	Defect Priority
	350833, 187423 BSW 13.0951	Wall	Wall section	21, 36, 66, 102	2	4	8	N/A	Scour/undermining	Undermining of wall toe. Between the 2020 and 2021 inspections, the concrete defect has roughly been repaired and cobbles placed under the toe.	Monitor the effectiveness of the repair.	28
D4	350832, 187418 BSW 13.095	Wall	Wall section	53, 118	4	3	12	N/A	Scour/undermining	Undermining of wall toe. No change between 2020 and 2021 inspections.	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	7
D5	350828, 187415 BSW 13.0953	Wall	Wall section	22, 37, 68, 103	4	2	8	N/A	Concrete damage	Vertical fracture in wall indicates possible subsidence. No change between 2020 and 2021 inspections.	Fill voids in wall and monitor for signs of subsidence.	17

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Defect Ref No.	Defect Location (NGR)	Major Element	Minor Element	Photo Ref	Severity	Probability	Risk Score	Below MHWS	Defect Group	Defect Description	Recommendations	Defect Priority
D6	350700, 187300 BSW 13.1022	Wall	Wall section	23, 40, 70, 104	2	4	8	N/A	Repointing	Open joints in the masonry wall section. No change between 2020 and 2021 inspections.	Repoint open joints.	18
D7	350819, 187396 BSW 13.0952	Wall	Wall section	24, 41, 69, 105	2	4	8	N/A	Missing blockwork	Large top area open. Collapse of lower section of wall. Between the 2020 and 2021 inspections, larger voids have been repaired, but small voids are still present.	Small voids to be filled and monitor the effectiveness of the concrete repair.	14
D8	350808, 187386 BSW 13.0958	Wall	Wall section	25, 42, 71, 107	3	3	9	N/A	Repointing	Loss of sealant between wall panels. No change between 2020 and 2021 inspections.	Re-seal joint between wall panels.	23

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Defect Ref No.	Defect Location (NGR)	Major Element	Minor Element	Photo Ref	Severity	Probability	Risk Score	Below MHWS	Defect Group	Defect Description	Recommendations	Defect Priority
D9	350790, 187369 BSW 13.0967	Wall	Wall section	26, 51, 74	4	4	16	N/A	Scour/undermining	The undermined section leading to the collapse of the lower section of the wall. No change between 2020 and 2021 inspections.	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	1
D10	350763, 187342 BSW 13.0981	Wall	Wall section	27, 52, 75, 110	4	4	16	N/A	Missing blockwork	Localised collapse of the lower wall. During the 2021 inspection the defect was found to be in worse condition.	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	1
D11	350760, 187339 BSW 13.0982	Wall	Wall section	28, 54, 76, 111	4	3	12	N/A	Repointing	Loss of fill through open joints leading to hollow structure behind. No change between 2020 and 2021 inspections.	Injection grout void in structure and repoint open joints.	15

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Defect Ref No.	Defect Location (NGR)	Major Element	Minor Element	Photo Ref	Severity	Probability	Risk Score	Below MHWS	Defect Group	Defect Description	Recommendations	Defect Priority
D12	350753, 187333 BSW 13.0986	Wall	Wall section	29, 57, 77, 112	3	4	12	N/A	Missing blockwork	Collapse of the lower section of the wall. Less evident during the 2021 inspection as cobbles have been placed/moved under the toe.	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	1
D13	350719, 187312 BSW 13.1009	Wall	Wall section	30, 62, 81, 124	2	2	4	N/A	Missing blockwork	Expelled rocks from block retaining structure protecting the tie in. No change between 2020 and 2021 inspections.	Place rock armour toe protection around the base of tie in.	26
D14	350701, 187307 BSW 13.1024	Wall	Wall section	31, 63, 82, 125	3	3	9	N/A	Loss/damage of rock-armour	Outflanking erosion initiating failure of the tie in. Slightly increased in severity as further erosion was noted in 2021.	Place rock armour toe protection around the base of tie in.	27

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Defect Ref No.	Defect Location (NGR)	Major Element	Minor Element	Photo Ref	Severity	Probability	Risk Score	Below MHWS	Defect Group	Defect Description	Recommendations	Defect Priority
D15	350698, 187299 BSW 13.1023	Wall	Wall section	32, 61, 83, 126	2	3	6	N/A	Missing blockwork	Failed gabions no longer providing any defence function. No change between 2020 and 2021 inspections.	Remove failed gabion baskets.	24
D16	N/A	Wall	Wall section	38, 84, 109	4	3	12	N/A	Scour/undermining	Undermining of wall toe. No change between 2020 and 2021 inspections.	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	7
D17	N/A	Wall	Wall section	39, 85	2	4	8	N/A	Repointing	Loss of fill through open joints. No change between 2020 and 2021 inspections.	Injection grout void in structure and repoint open joints.	16

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Defect Ref No.	Defect Location (NGR)	Major Element	Minor Element	Photo Ref	Severity	Probability	Risk Score	Below MHWS	Defect Group	Defect Description	Recommendations	Defect Priority
D18	N/A	Wall	Wall section	43, 72, 113	1	1	1	N/A	Concrete damage	Damage to drainage pipes, although likely a construction defect. No change between 2020 and 2021 inspections.	No repairs required at this stage.	28
D19	N/A	Wall	Wall section	45, 86, 114	4	3	12	N/A	Scour/undermining	Undermining and scour of wall toe. No change between 2020 and 2021 inspections.	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	11
D20	N/A	Wall	Wall section	46, 87, 116	4	2	8	N/A	Repointing	Vertical crack and loss of fill. Loss of fill through open joints. No change between 2020 and 2021 inspections.	Injection grout void in structure and repoint open joints.	14

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Defect Ref No.	Defect Location (NGR)	Major Element	Minor Element	Photo Ref	Severity	Probability	Risk Score	Below MHWS	Defect Group	Defect Description	Recommendations	Defect Priority
D21	N/A	Wall	Wall section	47, 88, 117	2	3	6	N/A	Concrete damage	Spalling concrete and localised section loss with possible reinforcement steel exposed. No change between 2020 and 2021 inspections.	Remove loose concrete, break out affected areas of concrete and repair.	22
D22	N/A	Wall	Wall section	48, 89	4	2	8	N/A	Scour/undermining	Undermining of wall toe. No change between 2020 and 2021 inspections.	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	10
D23	N/A	Wall	Wall section	49, 90	3	2	6	N/A	Missing blockwork	Missing block work in the lower wall. No change between 2020 and 2021 inspections.	Replace missing blockwork.	12

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Defect Ref No.	Defect Location (NGR)	Major Element	Minor Element	Photo Ref	Severity	Probability	Risk Score	Below MHWS	Defect Group	Defect Description	Recommendations	Defect Priority
D24	N/A	Wall	Wall section	50, 91	4	3	12	N/A	Scour/undermining	Extensive undermining of wall toe along the length of the defence. No change between 2020 and 2021 inspections.	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	5
D25	N/A	Wall	Wall section	55, 92	4	3	12	N/A	Scour/undermining	Undermining of wall toe. No change between 2020 and 2021 inspections.	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	6
D26	N/A	Wall	Wall section	58, 93, 122	5	2	10	N/A	H&S	Collapsed safety fence. No change between 2020 and 2021 inspections, but the collapsed panel fence has likely been removed from the site.	Reinstate safety fence where required and remove detached fence panels from the site.	13

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Defect Ref No.	Defect Location (NGR)	Major Element	Minor Element	Photo Ref	Severity	Probability	Risk Score	Below MHWS	Defect Group	Defect Description	Recommendations	Defect Priority
D27	N/A	Wall	Wall section	59, 94, 120	2	2	4	N/A	Concrete damage	Vertical fracture in-wall indicates possible subsidence. No change between 2020 and 2021 inspections.	Fill void and fractures, and monitor structure for further movement.	21
D28	N/A	Wall	Wall section	60, 95, 123	2	2	4	N/A	Concrete damage	Damage to drainage pipe concrete encasement (delamination and horizontal fracturing). No change between 2020 and 2021 inspections.	Repoint and patch repair damaged areas.	25
D29	N/A	Wall	Parapet/Capping	73	2	2	4	N/A	Repointing	Vertical missing mortar. No change between 2020 and 2021 inspections.	Replace missing mortar to prevent internal failure.	20

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Defect Ref No.	Defect Location (NGR)	Major Element	Minor Element	Photo Ref	Severity	Probability	Risk Score	Below MHWS	Defect Group	Defect Description	Recommendations	Defect Priority
D30	N/A	Wall	Parapet/Capping	80, 115	2	2	4	N/A	Vegetation clearance	Vegetation growth on pitching below top masonry wall and cracking on the wall. No change between 2020 and 2021 inspections.	Remove vegetation and fill in cracks on the wall.	26
D31	N/A	Wall	Wall section	78, 119	2	4	8	N/A	Vegetation clearance	Minor vegetation growth on vertical concrete wall. No change between 2020 and 2021 inspections.	Remove vegetation growing through the wall	26
D32	N/A	Wall	Wall section	79, 121	2	3	6	N/A	Missing blockwork	Void in tie in between masonry wall extents. No change between 2020 and 2021 inspections.	Break-out and reconstruct wall tie-in to prevent any void and possible seepage points between the structures.	20

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Defect Ref No.	Defect Location (NGR)	Major Element	Minor Element	Photo Ref	Severity	Probability	Risk Score	Below MHWS	Defect Group	Defect Description	Recommendations	Defect Priority
D33	N/A	Wall	Wall section	96	2	2	4	N/A	Concrete damage	Cracking in the concrete that is surrounding an outfall pipe. No change between 2020 and 2021 inspections.	Repair surrounding cracks to the pipe to prevent further deterioration.	19
D34	N/A	Outfall over 0.45m	Downstream Headwall	97	2	2	4	N/A	Repointing	Loss of mortar. No change between 2020 and 2021 inspections.	Repair / repoint joints	10
D35	N/A	Outfall over 0.45m	Downstream Headwall	98	2	3	6	N/A	Concrete damage	Horizontal fracture of masonry wall (high wall). No change between 2020 and 2021 inspections.	Monitor cracking and repair when necessary	8

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Defect Ref No.	Defect Location (NGR)	Major Element	Minor Element	Photo Ref	Severity	Probability	Risk Score	Below MHWS	Defect Group	Defect Description	Recommendations	Defect Priority
D36	N/A	Outfall over 0.45m	Downstream Headwall	99	3	3	9	N/A	H&S	Consider installation of handrail for the safety of operatives. No change between 2020 and 2021 inspections.	Install hand as this is a health and safety risk.	20
D37	N/A	Outfall over 0.45m	Downstream Headwall	100	2	2	4	N/A	Missing blockwork	Missing masonry brick.	Replace missing masonry and repoint.	8

6. Health and safety check

Health and Safety Check (Defence - Section A)

		Photos and Notes
Handrails		
Are handrails necessary?	No	
Are handrails present?	No	
Are handrails secured?	-	
Handrail construction material	-	
Are handrails corroded?	-	
Is handrail paint in good condition?	-	
Ladders / Steps		
Are ladders / steps necessary for access?	No	
Are ladder / steps present?	No	
Steps construction material	-	
Are steps in good condition?	-	
Are steps free of algae growth?	-	
Are ladders secured?	-	
Are ladders corroded?	-	
Is ladder paint in good condition?	-	
Ramps and walkways		
Are ramps and walkways necessary for access?	No	
Are ramps and walkways present?	No	
Ramp construction material	-	
Are ramps in good condition?	-	
Are ramps free of algae growth?	-	
Safety Harness Attachments		
Are attachments necessary for inspection?	No	
Are attachments present?	No	
Are attachments in good condition?	-	
Summary of health and safety items Collapsed section of safety fence to the western extent of the wall - further information is included within defect D26.		

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Health and Safety Check (Structure - Section B)		
		Photos and Notes
Handrails		
Are handrails necessary?	No	
Are handrails present?	No	
Are handrails secured?	-	
Handrail construction material	-	
Are handrails corroded?	-	
Is handrail paint in good condition?	-	
Ladders / Steps		
Are ladders / steps necessary for access?	No	
Are ladder / steps present?	No	
Steps construction material	-	
Are steps in good condition?	-	
Are steps free of algae growth?	-	
Are ladders secured?	-	
Are ladders corroded?	-	
Is ladder paint in good condition?	-	
Ramps and walkways		
Are ramps and walkways necessary for access?	No	
Are ramps and walkways present?	No	
Ramp construction material	-	
Are ramps in good condition?	-	
Are ramps free of algae growth?	-	
Safety Harness Attachments		
Are attachments necessary for inspection?	No	
Are attachments present?	No	
Are attachments in good condition?	-	
Summary of health and safety items		

7. Asset Assessment

7.1. Recommended works

Band A: Emergency works (Defect posing an immediate safety hazard. Immediate action required.)

Defect Ref No.	Works Category	Recommendations	Recommended Closure Date	Latest Status
D3	Concrete Repairs	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.		Active Defect (Approved)
D3	Concrete Repairs	Monitor the effectiveness of the repair.	27/12/2021 00:00:00	Active Defect (Approved)
D4	Brickwork/Stone Repairs	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	27/12/2021 00:00:00	Active Defect (Approved)
D9	Brickwork/Stone Repairs	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	27/12/2021 00:00:00	Active Defect (Approved)
D10	Brickwork/Stone Repairs	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	27/12/2021 00:00:00	Active Defect (Approved)
D12	Brickwork/Stone Repairs	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	27/12/2021 00:00:00	Active Defect (Approved)
D16	Brickwork/Stone Repairs	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	27/12/2021 00:00:00	Active Defect
D19	Brickwork/Stone Repairs	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	27/12/2021 00:00:00	Active Defect
D22	Concrete Repairs	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	27/12/2021 00:00:00	Active Defect
D24	Brickwork/Stone Repairs	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	27/12/2021 00:00:00	Active Defect
D25	Brickwork/Stone Repairs	Detailed structural survey to be undertaken to help inform suitability of remedial works. Wall toe needs underpinning and protecting.	27/12/2021 00:00:00	Active Defect

Band B: Short-term remedial works (Defect posing a potential safety hazard. Work recommended within 12 month period.)

Defect Ref No.	Works Category	Recommendations	Recommended Closure Date	Latest Status
D7	Brickwork/Stone Repairs	Small voids to be filled and monitor the effectiveness of the concrete repair.	18/05/2022 00:00:00	Active Defect (Approved)
D11	Hand Pointing	Injection grout void in structure and repoint open joints.	18/05/2022 00:00:00	Active Defect (Approved)
D17	Hand Pointing	Injection grout void in structure and repoint open joints.	18/05/2022 00:00:00	Active Defect

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D20	Hand Pointing	Injection grout void in structure and repoint open joints.	18/05/2022 00:00:00	Active Defect
D23	Brickwork/Stone Repairs	Replace missing blockwork.	18/05/2022 00:00:00	Active Defect
D26	Fencing Repair/Renewal	Reinstate safety fence where required and remove detached fence panels from the site.	18/05/2022 00:00:00	Active Defect
D37	Brickwork/Stone Repairs	Replace missing masonry and repoint.	18/05/2022 00:00:00	Active Defect

Band C: Medium-term remedial works (Defect posing a potential safety hazard. Work recommended within 12 to 30 month period.)

Defect Ref No.	Works Category	Recommendations	Recommended Closure Date	Latest Status
D1	Concrete Repairs	Break out spalled areas and replace concrete.	18/11/2022 00:00:00	Active Defect (Approved)
D2	Concrete Repairs	Fill void and fractures.	18/11/2022 00:00:00	Active Defect (Approved)
D5	Concrete Repairs	Fill voids in wall and monitor for signs of subsidence.	18/11/2022 00:00:00	Active Defect (Approved)
D6	Hand Pointing	Repoint open joints.	18/11/2022 00:00:00	Active Defect (Approved)
D15	Other	Remove failed gabion baskets.	18/11/2022 00:00:00	Active Defect (Approved)
D21	Concrete Repairs	Remove loose concrete, break out affected areas of concrete and repair.	18/11/2022 00:00:00	Active Defect
D27	Concrete Repairs	Fill void and fractures, and monitor structure for further movement.	18/11/2022 00:00:00	Active Defect
D28	Concrete Repairs	Repoint and patch repair damaged areas.	18/11/2022 00:00:00	Active Defect
D29	Brickwork/Stone Repairs	Replace missing mortar to prevent internal failure.	18/11/2022 00:00:00	Active Defect
D34	Brickwork/Stone Repairs	Repair / repoint joints	18/11/2022 00:00:00	Active Defect
D35	Brickwork/Stone Repairs	Monitor cracking and repair when necessary	18/11/2022 00:00:00	Active Defect

Band D: Long-term maintenance works (Defect resulting in long-term deterioration of structure or affecting performance. Work recommended within 30 to 48 month period.)

Defect Ref No.	Works Category	Recommendations	Recommended Closure Date	Latest Status
D8	Expansion Joints	Re-seal joint between wall panels.	18/05/2024 00:00:00	Active Defect (Approved)

COASTAL ASSET CONDITION SURVEY REPORT



D13	Other	Place rock armour toe protection around the base of tie in.	18/05/2024 00:00:00	Active Defect (Approved)
D14	Drainage	Place rock armour toe protection around the base of tie in.	18/05/2024 00:00:00	Active Defect (Approved)
D18	Other	No repairs required at this stage.	18/05/2024 00:00:00	Active Defect
D30	Vegetation	Remove vegetation and fill in cracks on the wall.	18/05/2024 00:00:00	Active Defect
D31	Vegetation	Remove vegetation growing through the wall	18/05/2024 00:00:00	Active Defect
D32	Brickwork/Stone Repairs	Break-out and reconstruct wall tie-in to prevent any void and possible seepage points between the structures.	18/05/2024 00:00:00	Active Defect
D33	Concrete Repairs	Repair surrounding cracks to the pipe to prevent further deterioration.	18/05/2024 00:00:00	Active Defect
D36	Other	Install hand as this is a health and safety risk.	18/05/2024 00:00:00	Active Defect

Appendix 1 – Photographs

Asset Structure Photos

Photo number: 1

No photo available

Photo number: 2

No photo available

Photo number: 3



Photo number: 4

Date Taken:
11/11/2019 13:28



Section Photos

Section A
Photo number: 5



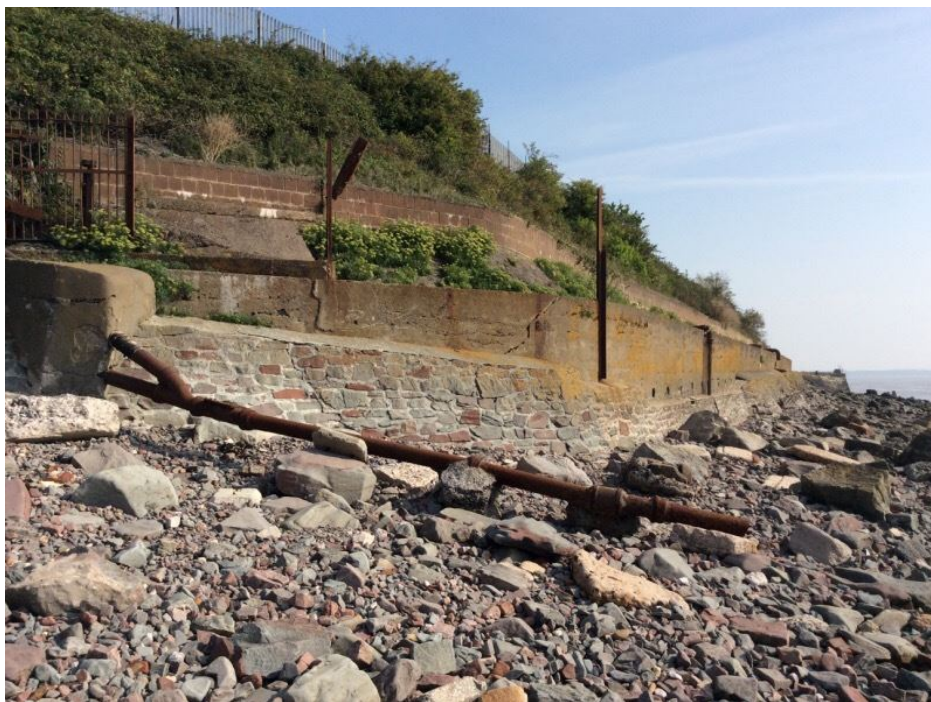
Section A
Photo number: 6

Date Taken:
11/11/2019 15:06



Section A
Photo number: 7

Date Taken:
11/08/2020 09:41



Section A
Photo number: 9

Date Taken:
18/05/2021 08:49



Section B
Photo number: 8

Date Taken:
18/05/2021 08:37



Element Survey Photos

**Section A
Parapet/Capping
Photo number: 10**

Date Taken:
11/11/2019 14:48



**Section A
Parapet/Capping
Photo number: 15**

Date Taken:
11/08/2020 09:42



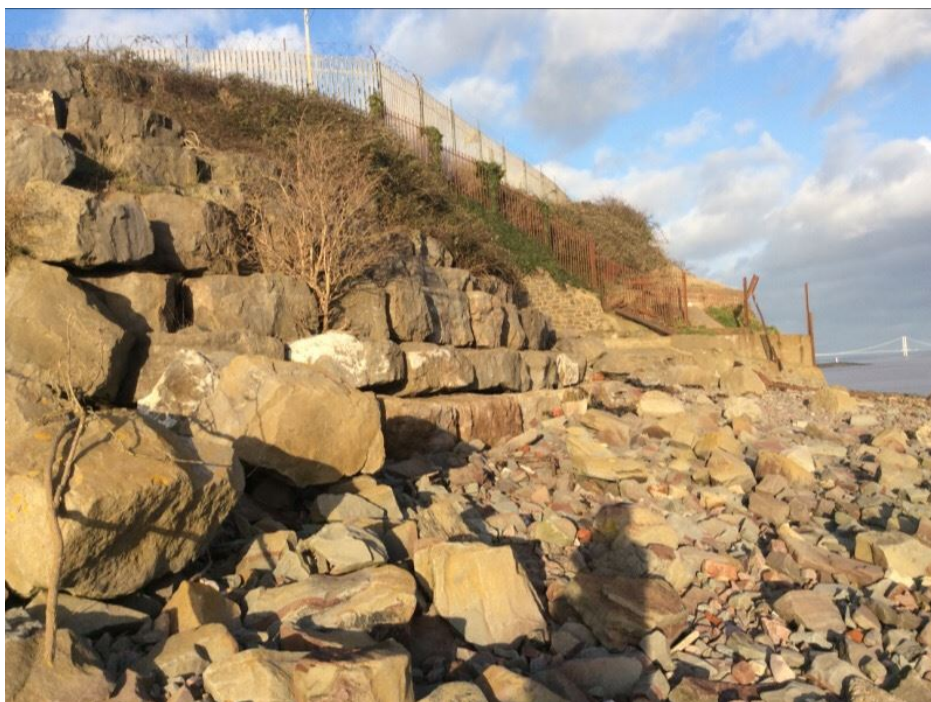
Section A
Wall section
Photo number: 11

Date Taken:
11/11/2019 14:49



Section A
Wall section
Photo number: 12

Date Taken:
11/11/2019 15:05



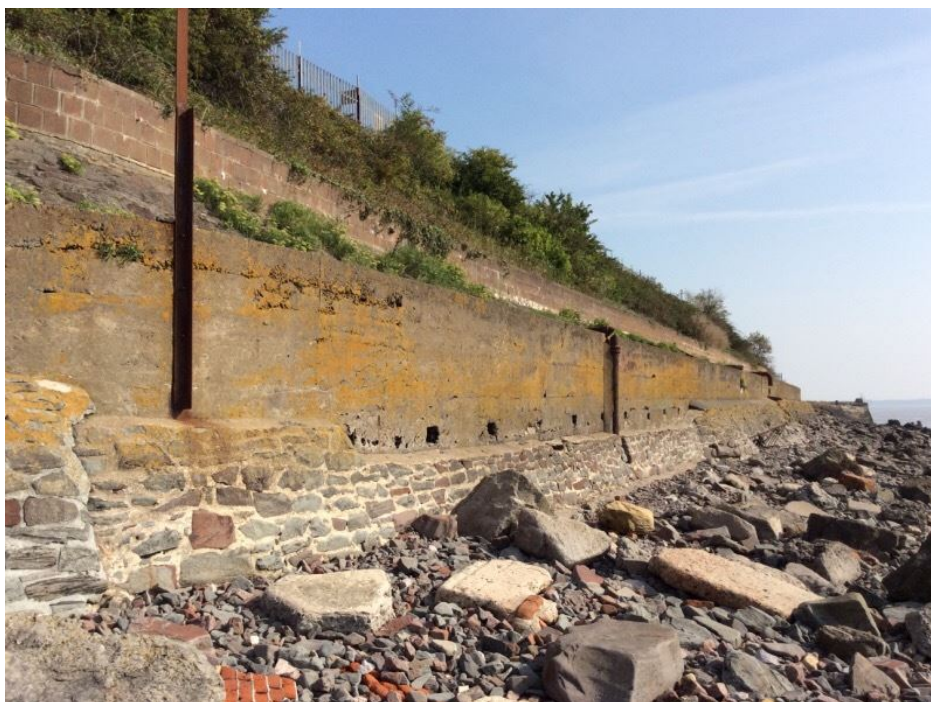
Section A
Wall section
Photo number: 13

Date Taken:
11/08/2020 09:41



Section A
Wall section
Photo number: 14

Date Taken:
11/08/2020 09:42



Section B
Downstream
Headwall
Photo number: 16

Date Taken:
18/05/2021 08:41



Defect Photos

Section A
Wall section
Defect Ref: D1
Description: Spalling concrete. There has been minor changes between the 2020 and 2021 inspections with evidence that this is occurring throughout most of the structure.
Photo number: 17



Section A
Wall section
Defect Ref: D1
Description: Spalling concrete. There has been minor changes between the 2020 and 2021 inspections with evidence that this is occurring throughout most of the structure.
Photo number: 56

Date Taken:
11/11/2019 14:43



Section A

Wall section

Defect Ref: D1

Description: Spalling concrete. There has been minor changes between the 2020 and 2021 inspections with evidence that this is occurring throughout most of the structure.

Photo number: 64

Date Taken:

11/08/2020 08:37



Section A

Wall section

Defect Ref: D1

Description: Spalling concrete. There has been minor changes between the 2020 and 2021 inspections with evidence that this is occurring throughout most of the structure.

Photo number: 108

Date Taken:

18/05/2021 09:04



Section A
Wall section
Defect Ref: D2
Description: Cracks
in concrete. No
change between
2020 and 2021
inspections.
Photo number: 18



Section A
Wall section
Defect Ref: D2
Description: Cracks
in concrete. No
change between
2020 and 2021
inspections.
Photo number: 44

Date Taken:
11/11/2019 14:16



Section A
Wall section
Defect Ref: D2
Description: Cracks in concrete. No change between 2020 and 2021 inspections.
Photo number: 65

Date Taken:
11/08/2020 08:38



Section A
Wall section
Defect Ref: D2
Description: Cracks in concrete. No change between 2020 and 2021 inspections.
Photo number: 106

Date Taken:
18/05/2021 09:02



Section A
Wall section
Defect Ref: D3
Description: 2021
toe repairs and beach
level higher.
Undermining of wall
toe. No change
between 2019 and
2020 inspections
Photo number: 19



Section A
Wall section
Defect Ref: D3
Description: 2021
toe repairs and beach
level higher.
Undermining of wall
toe. No change
between 2019 and
2020 inspections
Photo number: 20



Section A
Wall section
Defect Ref: D3
Description:
Undermining of wall toe. Between the 2020 and 2021 inspections, the concrete defect has roughly been repaired and cobbles placed under the toe.

Photo number: 21



Section A
Wall section
Defect Ref: D3
Description: 2021 toe repairs and beach level higher. Undermining of wall toe. No change between 2019 and 2020 inspections
Photo number: 33

Date Taken:
11/11/2019 13:44



Section A
Wall section
Defect Ref: D3
Description: 2021
toe repairs and beach
level higher.
Undermining of wall
toe. No change
between 2019 and
2020 inspections
Photo number: 34

Date Taken:
11/11/2019 13:44



Section A
Wall section
Defect Ref: D3
Description: 2021
toe repairs and beach
level higher.
Undermining of wall
toe. No change
between 2019 and
2020 inspections
Photo number: 35

Date Taken:
11/11/2019 13:44



Section A

Wall section

Defect Ref: D3

Description:

Undermining of wall toe. Between the 2020 and 2021 inspections, the concrete defect has roughly been repaired and cobbles placed under the toe.

Photo number: 36

Date Taken:

11/11/2019 13:44



Section A

Wall section

Defect Ref: D3

Description:

Undermining of wall toe. Between the 2020 and 2021 inspections, the concrete defect has roughly been repaired and cobbles placed under the toe.

Photo number: 66

Date Taken:

11/08/2020 08:39



Section A
Wall section
Defect Ref: D3
Description: 2021
toe repairs and beach
level higher.
Undermining of wall
toe. No change
between 2019 and
2020 inspections
Photo number: 67

Date Taken:
11/08/2020 08:39



Section A
Wall section
Defect Ref: D3
Description: 2021
toe repairs and beach
level higher.
Undermining of wall
toe. No change
between 2019 and
2020 inspections
Photo number: 101

Date Taken:
18/05/2021 08:54



Section A

Wall section

Defect Ref: D3

Description:

Undermining of wall toe. Between the 2020 and 2021 inspections, the concrete defect has roughly been repaired and cobbles placed under the toe.

Photo number: 102

Date Taken:

18/05/2021 08:54



Section A

Wall section

Defect Ref: D4

Description:

Undermining of wall toe. No change between 2020 and 2021 inspections.

Photo number: 53

Date Taken:

11/11/2019 14:39



Section A
Wall section
Defect Ref: D4
Description:
Undermining of wall
toe. No change
between 2020 and
2021 inspections.
Photo number: 118

Date Taken:
18/05/2021 09:27



Section A
Wall section
Defect Ref: D5
Description: Vertical
fracture in wall
indicates possible
subsidence. No
change between
2020 and 2021
inspections.
Photo number: 22



Section A
Wall section
Defect Ref: D5
Description: Vertical fracture in wall indicates possible subsidence. No change between 2020 and 2021 inspections.
Photo number: 37

Date Taken:
11/11/2019 13:47



Section A
Wall section
Defect Ref: D5
Description: Vertical fracture in wall indicates possible subsidence. No change between 2020 and 2021 inspections.
Photo number: 68

Date Taken:
11/08/2020 08:41



Section A
Wall section
Defect Ref: D5
Description: Vertical fracture in wall indicates possible subsidence. No change between 2020 and 2021 inspections.
Photo number: 103

Date Taken:
18/05/2021 08:56



Section A
Wall section
Defect Ref: D6
Description: Open joints in the masonry wall section. No change between 2020 and 2021 inspections.
Photo number: 23



Section A
Wall section
Defect Ref: D6
Description: Open joints in the masonry wall section. No change between 2020 and 2021 inspections.
Photo number: 40

Date Taken:
11/11/2019 14:07



Section A
Wall section
Defect Ref: D6
Description: Open joints in the masonry wall section. No change between 2020 and 2021 inspections.
Photo number: 70

Date Taken:
11/08/2020 08:45



Section A
Wall section
Defect Ref: D6
Description: Open joints in the masonry wall section. No change between 2020 and 2021 inspections.
Photo number: 104

Date Taken:
18/05/2021 08:58



Section A
Wall section
Defect Ref: D7
Description: Large top area open. Collapse of lower section of wall. Between the 2020 and 2021 inspections, larger voids have been repaired, but small voids are still present.
Photo number: 24



Section A

Wall section

Defect Ref: D7

Description: Large top area open. Collapse of lower section of wall. Between the 2020 and 2021 inspections, larger voids have been repaired, but small voids are still present.

Photo number: 41

Date Taken:

11/11/2019 14:09



Section A

Wall section

Defect Ref: D7

Description: Large top area open. Collapse of lower section of wall. Between the 2020 and 2021 inspections, larger voids have been repaired, but small voids are still present.

Photo number: 69

Date Taken:

11/08/2020 08:44



Section A

Wall section

Defect Ref: D7

Description: Large top area open. Collapse of lower section of wall. Between the 2020 and 2021 inspections, larger voids have been repaired, but small voids are still present.

Photo number: 105

Date Taken:

18/05/2021 08:59



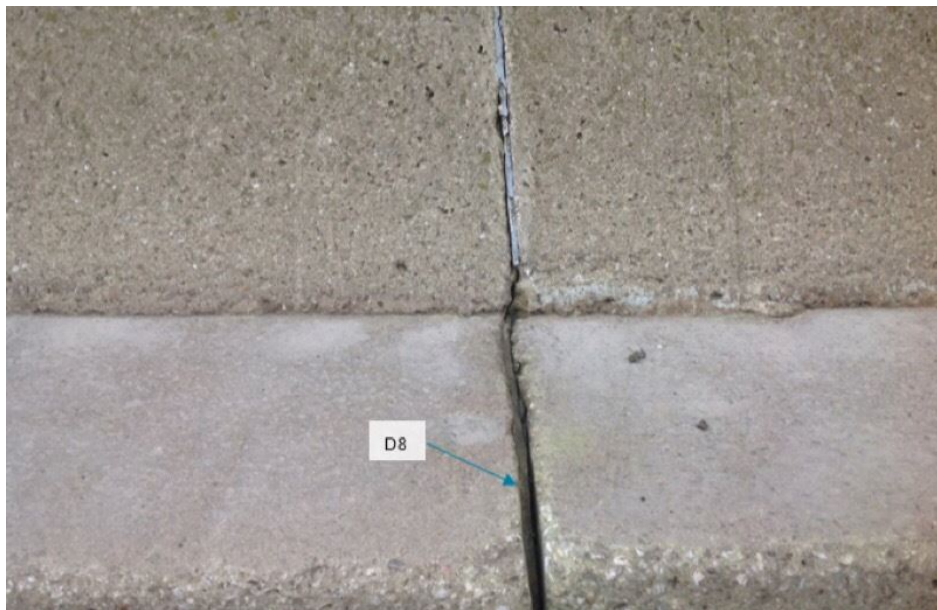
Section A

Wall section

Defect Ref: D8

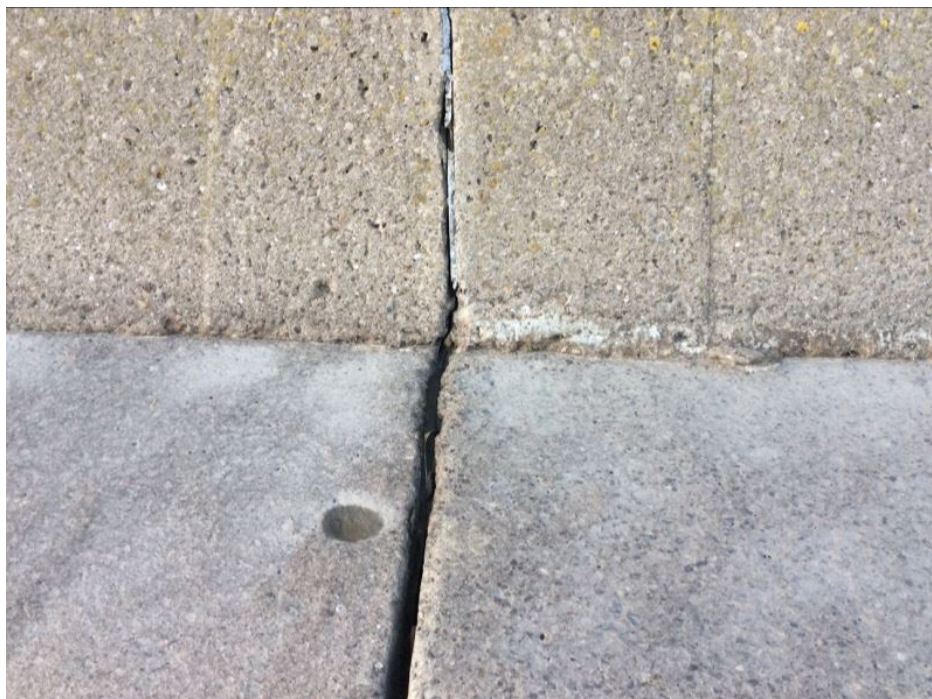
Description: Loss of sealant between wall panels. No change between 2020 and 2021 inspections.

Photo number: 25



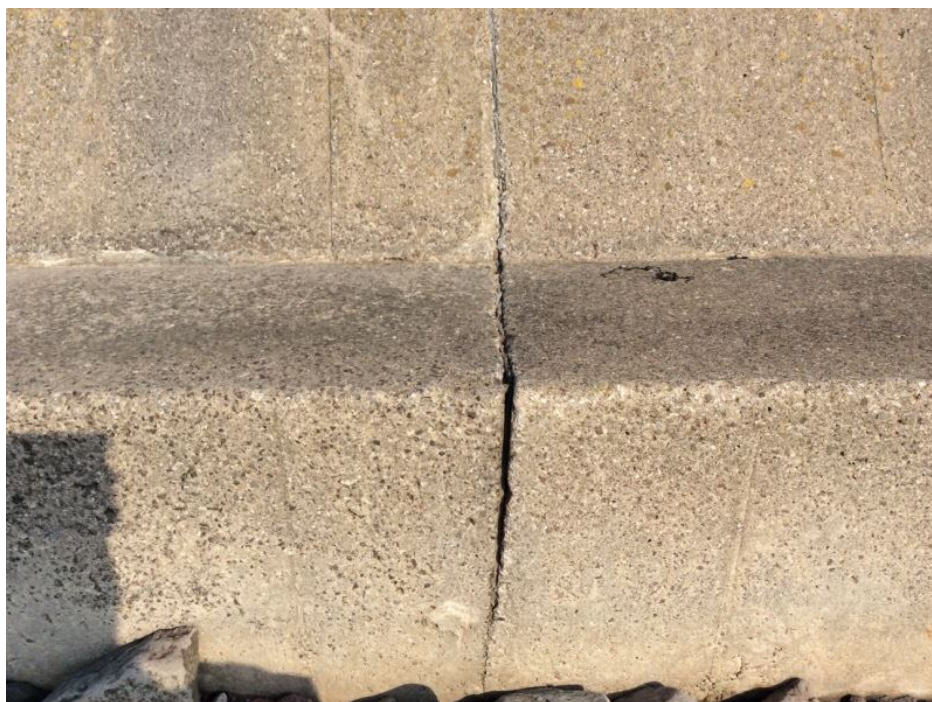
Section A
Wall section
Defect Ref: D8
Description: Loss of sealant between wall panels. No change between 2020 and 2021 inspections.
Photo number: 42

Date Taken:
11/11/2019 14:13



Section A
Wall section
Defect Ref: D8
Description: Loss of sealant between wall panels. No change between 2020 and 2021 inspections.
Photo number: 71

Date Taken:
11/08/2020 08:47



Section A
Wall section
Defect Ref: D8
Description: Loss of sealant between wall panels. No change between 2020 and 2021 inspections.
Photo number: 107

Date Taken:
18/05/2021 09:03



Section A
Wall section
Defect Ref: D9
Description: The undermined section leading to the collapse of the lower section of the wall. No change between 2020 and 2021 inspections.
Photo number: 26



Section A
Wall section
Defect Ref: D9
Description: The undermined section leading to the collapse of the lower section of the wall. No change between 2020 and 2021 inspections.
Photo number: 51

Date Taken:
11/11/2019 14:33



Section A
Wall section
Defect Ref: D9
Description: The undermined section leading to the collapse of the lower section of the wall. No change between 2020 and 2021 inspections.
Photo number: 74

Date Taken:
11/08/2020 09:00



Section A

Wall section

Defect Ref: D10

Description:

Localised collapse of the lower wall. During the 2021 inspection the defect was found to be in worse condition.

Photo number: 27



Section A

Wall section

Defect Ref: D10

Description:

Localised collapse of the lower wall. During the 2021 inspection the defect was found to be in worse condition.

Photo number: 52

Date Taken:

11/11/2019 14:35



Section A

Wall section

Defect Ref: D10

Description:

Localised collapse of the lower wall. During the 2021 inspection the defect was found to be in worse condition.

Photo number: 75

Date Taken:

11/08/2020 09:02



Section A

Wall section

Defect Ref: D10

Description:

Localised collapse of the lower wall. During the 2021 inspection the defect was found to be in worse condition.

Photo number: 110

Date Taken:

18/05/2021 09:13



Section A
Wall section
Defect Ref: D11
Description: Loss of fill through open joints leading to hollow structure behind. No change between 2020 and 2021 inspections.
Photo number: 28



Section A
Wall section
Defect Ref: D11
Description: Loss of fill through open joints leading to hollow structure behind. No change between 2020 and 2021 inspections.
Photo number: 54

Date Taken:
11/11/2019 14:40



Section A
Wall section
Defect Ref: D11
Description: Loss of fill through open joints leading to hollow structure behind. No change between 2020 and 2021 inspections.
Photo number: 76

Date Taken:
11/08/2020 09:04



Section A
Wall section
Defect Ref: D11
Description: Loss of fill through open joints leading to hollow structure behind. No change between 2020 and 2021 inspections.
Photo number: 111

Date Taken:
18/05/2021 09:14



Section A
Wall section
Defect Ref: D12
Description:
Collapse of the lower
section of the wall.
Less evident during
the 2021 inspection
as cobbles have been
placed/moved under
the toe.
Photo number: 29



Section A
Wall section
Defect Ref: D12
Description:
Collapse of the lower
section of the wall.
Less evident during
the 2021 inspection
as cobbles have been
placed/moved under
the toe.
Photo number: 57

Date Taken:
11/11/2019 14:44



Section A

Wall section

Defect Ref: D12

Description:

Collapse of the lower section of the wall. Less evident during the 2021 inspection as cobbles have been placed/moved under the toe.

Photo number: 77

Date Taken:

11/08/2020 09:06



Section A

Wall section

Defect Ref: D12

Description:

Collapse of the lower section of the wall. Less evident during the 2021 inspection as cobbles have been placed/moved under the toe.

Photo number: 112

Date Taken:

18/05/2021 09:15



Section A
Wall section
Defect Ref: D13
Description:
Expelled rocks from
block retaining
structure protecting
the tie in. No change
between 2020 and
2021 inspections.
Photo number: 30



Section A
Wall section
Defect Ref: D13
Description:
Expelled rocks from
block retaining
structure protecting
the tie in. No change
between 2020 and
2021 inspections.
Photo number: 62

Date Taken:
11/11/2019 15:03



Section A

Wall section

Defect Ref: D13

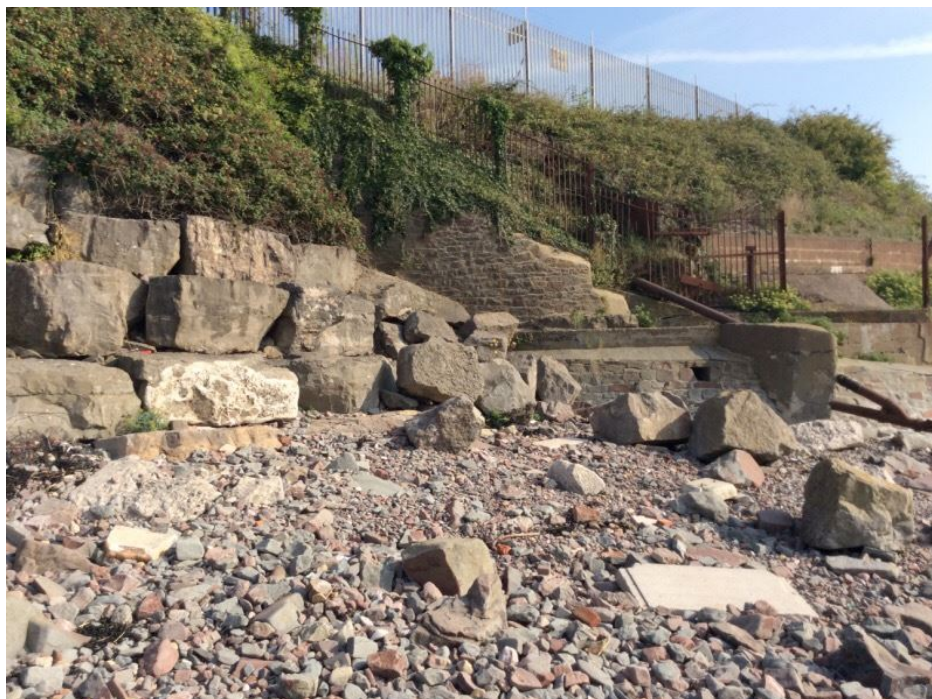
Description:

Expelled rocks from block retaining structure protecting the tie in. No change between 2020 and 2021 inspections.

Photo number: 81

Date Taken:

11/08/2020 09:15



Section A

Wall section

Defect Ref: D13

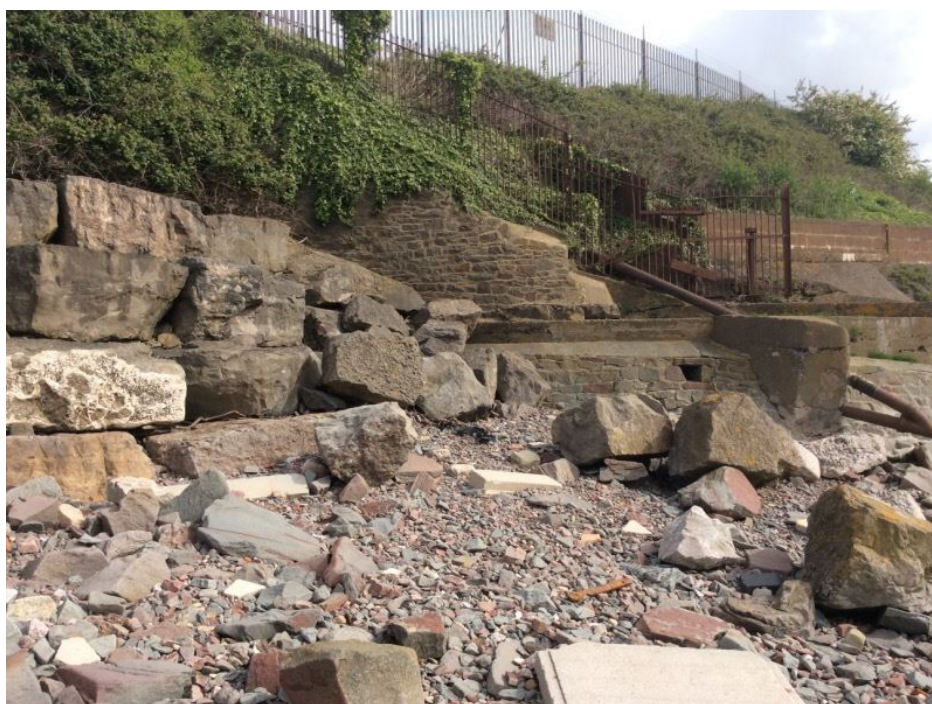
Description:

Expelled rocks from block retaining structure protecting the tie in. No change between 2020 and 2021 inspections.

Photo number: 124

Date Taken:

18/05/2021 09:44



Section A
Wall section
Defect Ref: D14
Description:
Outflanking erosion
initiating failure of the
tie in. Slightly
increased in severity
as further erosion
was noted in 2021.
Photo number: 31



Section A
Wall section
Defect Ref: D14
Description:
Outflanking erosion
initiating failure of the
tie in. Slightly
increased in severity
as further erosion
was noted in 2021.
Photo number: 63

Date Taken:
11/11/2019 15:04



Section A

Wall section

Defect Ref: D14

Description:

Outflanking erosion initiating failure of the tie in. Slightly increased in severity as further erosion was noted in 2021.

Photo number: 82

Date Taken:

11/08/2020 09:17



Section A

Wall section

Defect Ref: D14

Description:

Outflanking erosion initiating failure of the tie in. Slightly increased in severity as further erosion was noted in 2021.

Photo number: 125

Date Taken:

18/05/2021 10:23



Section A
Wall section
Defect Ref: D15
Description: Failed gabions no longer providing any defence function. No change between 2020 and 2021 inspections.
Photo number: 32



Section A
Wall section
Defect Ref: D15
Description: Failed gabions no longer providing any defence function. No change between 2020 and 2021 inspections.
Photo number: 61

Date Taken:
11/11/2019 15:01



Section A
Wall section
Defect Ref: D15
Description: Failed gabions no longer providing any defence function. No change between 2020 and 2021 inspections.
Photo number: 83

Date Taken:
11/08/2020 09:18



Section A
Wall section
Defect Ref: D15
Description: Failed gabions no longer providing any defence function. No change between 2020 and 2021 inspections.
Photo number: 126

Date Taken:
18/05/2021 10:26



Section A
Wall section
Defect Ref: D16
Description:
Undermining of wall
toe. No change
between 2020 and
2021 inspections.
Photo number: 38

Date Taken:
11/11/2019 13:51



Section A
Wall section
Defect Ref: D16
Description:
Undermining of wall
toe. No change
between 2020 and
2021 inspections.
Photo number: 84

Date Taken:
11/08/2020 09:21



Section A
Wall section
Defect Ref: D16
Description:
Undermining of wall
toe. No change
between 2020 and
2021 inspections.
Photo number: 109

Date Taken:
18/05/2021 09:11



Section A
Wall section
Defect Ref: D17
Description: Loss of
fill through open
joints. No change
between 2020 and
2021 inspections.
Photo number: 39

Date Taken:
11/11/2019 13:56



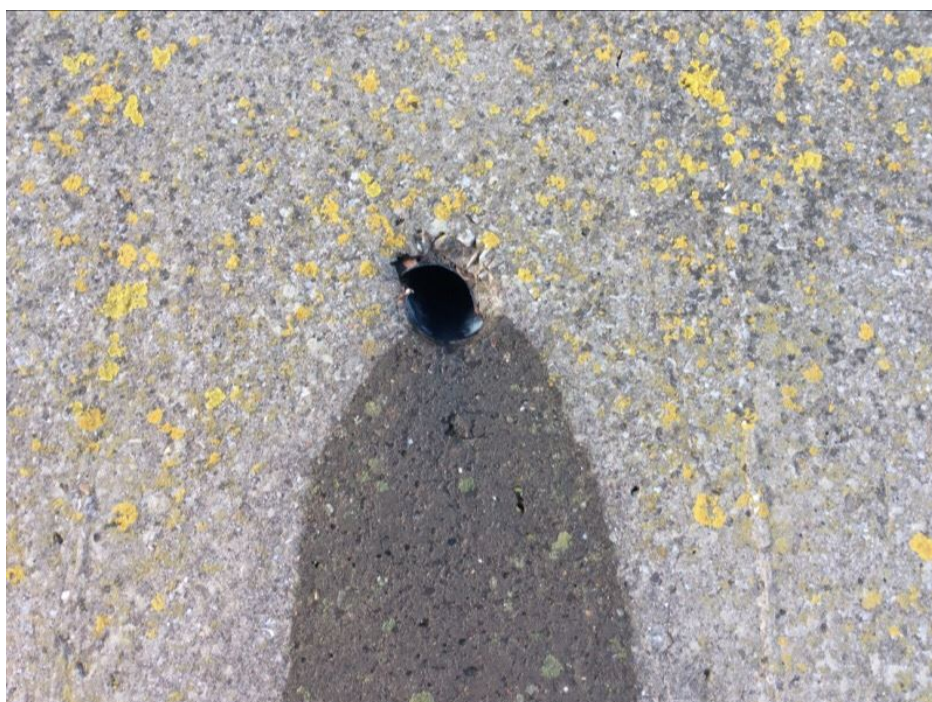
Section A
Wall section
Defect Ref: D17
Description: Loss of
fill through open
joints. No change
between 2020 and
2021 inspections.
Photo number: 85

Date Taken:
11/08/2020 09:23



Section A
Wall section
Defect Ref: D18
Description:
Damage to drainage
pipes, although likely
a construction defect.
No change between
2020 and 2021
inspections.
Photo number: 43

Date Taken:
11/11/2019 14:15



Section A

Wall section

Defect Ref: D18

Description:

Damage to drainage pipes, although likely a construction defect. No change between 2020 and 2021 inspections.

Photo number: 72

Date Taken:

11/08/2020 08:48



Section A

Wall section

Defect Ref: D18

Description:

Damage to drainage pipes, although likely a construction defect. No change between 2020 and 2021 inspections.

Photo number: 113

Date Taken:

18/05/2021 09:18



Section A
Wall section
Defect Ref: D19
Description:
Undermining and
scour of wall toe. No
change between
2020 and 2021
inspections.
Photo number: 45

Date Taken:
11/11/2019 14:20



Section A
Wall section
Defect Ref: D19
Description:
Undermining and
scour of wall toe. No
change between
2020 and 2021
inspections.
Photo number: 86

Date Taken:
11/08/2020 09:24



Section A
Wall section
Defect Ref: D19
Description:
Undermining and
scour of wall toe. No
change between
2020 and 2021
inspections.
Photo number: 114

Date Taken:
18/05/2021 09:20



Section A
Wall section
Defect Ref: D20
Description: Vertical
crack and loss of fill.
Loss of fill through
open joints. No
change between
2020 and 2021
inspections.
Photo number: 46

Date Taken:
11/11/2019 14:22



Section A
Wall section
Defect Ref: D20
Description: Vertical crack and loss of fill. Loss of fill through open joints. No change between 2020 and 2021 inspections.
Photo number: 87

Date Taken:
11/08/2020 09:24



Section A
Wall section
Defect Ref: D20
Description: Vertical crack and loss of fill. Loss of fill through open joints. No change between 2020 and 2021 inspections.
Photo number: 116

Date Taken:
18/05/2021 09:24



Section A
Wall section
Defect Ref: D21
Description: Spalling concrete and localised section loss with possible reinforcement steel exposed. No change between 2020 and 2021 inspections.
Photo number: 47

Date Taken:
11/11/2019 14:25



Section A
Wall section
Defect Ref: D21
Description: Spalling concrete and localised section loss with possible reinforcement steel exposed. No change between 2020 and 2021 inspections.
Photo number: 88

Date Taken:
11/08/2020 09:25



Section A
Wall section
Defect Ref: D21
Description: Spalling concrete and localised section loss with possible reinforcement steel exposed. No change between 2020 and 2021 inspections.
Photo number: 117

Date Taken:
18/05/2021 09:25



Section A
Wall section
Defect Ref: D22
Description: Undermining of wall toe. No change between 2020 and 2021 inspections.
Photo number: 48

Date Taken:
11/11/2019 14:26



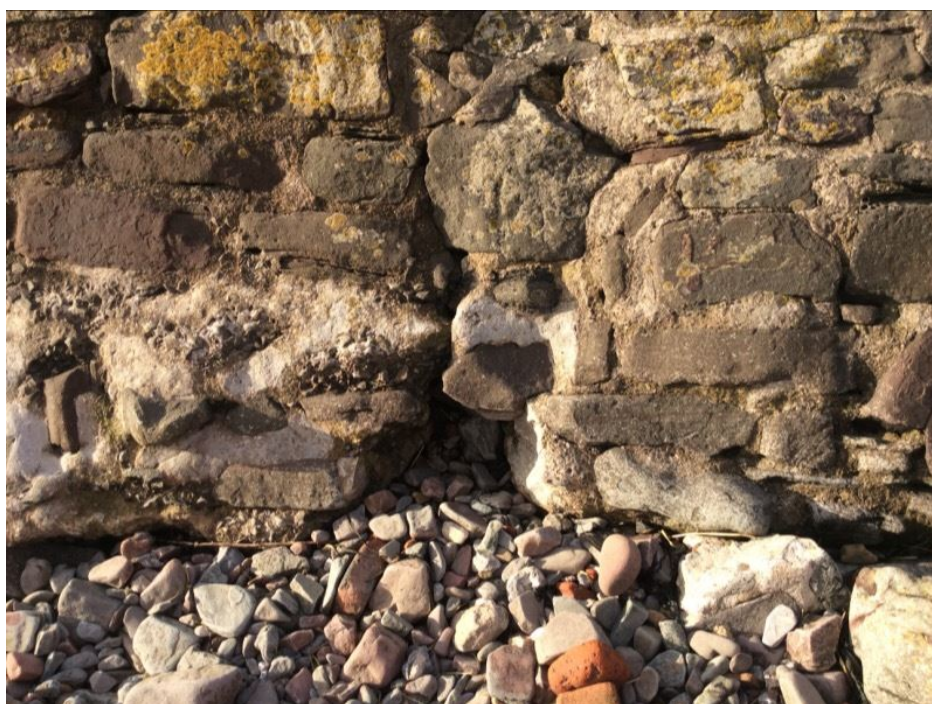
Section A
Wall section
Defect Ref: D22
Description:
Undermining of wall
toe. No change
between 2020 and
2021 inspections.
Photo number: 89

Date Taken:
11/08/2020 09:26



Section A
Wall section
Defect Ref: D23
Description: Missing
block work in the
lower wall. No change
between 2020 and
2021 inspections.
Photo number: 49

Date Taken:
11/11/2019 14:28



Section A
Wall section
Defect Ref: D23
Description: Missing block work in the lower wall. No change between 2020 and 2021 inspections.
Photo number: 90

Date Taken:
11/08/2020 09:28



Section A
Wall section
Defect Ref: D24
Description: Extensive undermining of wall toe along the length of the defence. No change between 2020 and 2021 inspections.
Photo number: 50

Date Taken:
11/11/2019 14:30



Section A
Wall section
Defect Ref: D24
Description:
Extensive
undermining of wall
toe along the length
of the defence. No
change between
2020 and 2021
inspections.
Photo number: 91

Date Taken:
11/08/2020 09:32



Section A
Wall section
Defect Ref: D25
Description:
Undermining of wall
toe. No change
between 2020 and
2021 inspections.
Photo number: 55

Date Taken:
11/11/2019 14:42



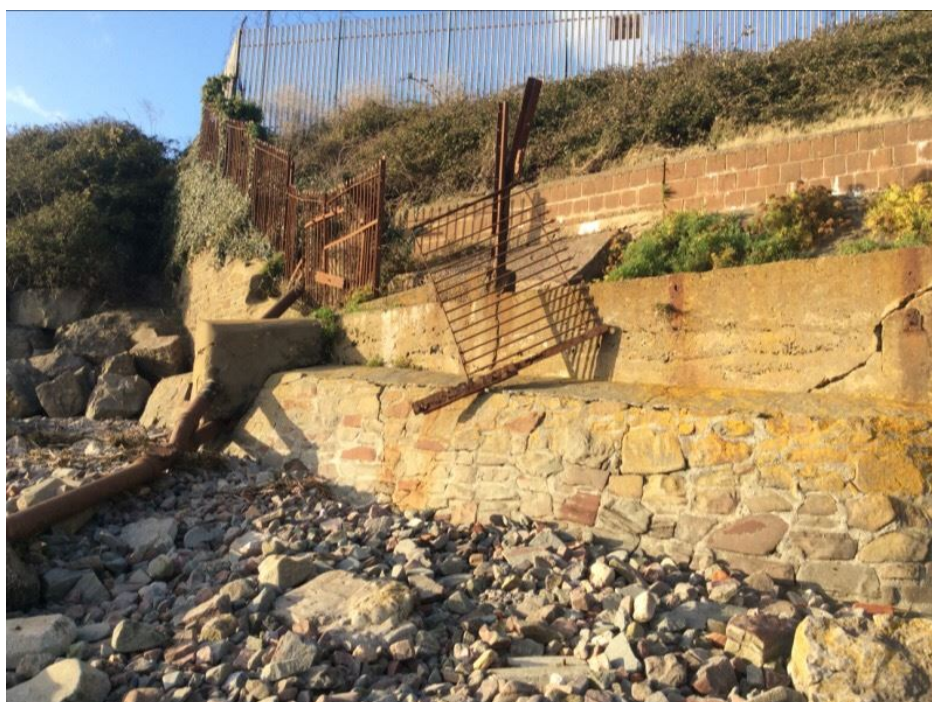
Section A
Wall section
Defect Ref: D25
Description:
Undermining of wall toe. No change between 2020 and 2021 inspections.
Photo number: 92

Date Taken:
11/08/2020 09:33



Section A
Wall section
Defect Ref: D26
Description:
Collapsed safety fence. No change between 2020 and 2021 inspections, but the collapsed panel fence has likely been removed from the site.
Photo number: 58

Date Taken:
11/11/2019 14:55



Section A

Wall section

Defect Ref: D26

Description:

Collapsed safety fence. No change between 2020 and 2021 inspections, but the collapsed panel fence has likely been removed from the site.

Photo number: 93

Date Taken:

11/08/2020 09:35



Section A

Wall section

Defect Ref: D26

Description:

Collapsed safety fence. No change between 2020 and 2021 inspections, but the collapsed panel fence has likely been removed from the site.

Photo number: 122

Date Taken:

18/05/2021 09:41



Section A
Wall section
Defect Ref: D27
Description: Vertical fracture in-wall indicates possible subsidence. No change between 2020 and 2021 inspections.
Photo number: 59

Date Taken:
11/11/2019 14:56



Section A
Wall section
Defect Ref: D27
Description: Vertical fracture in-wall indicates possible subsidence. No change between 2020 and 2021 inspections.
Photo number: 94

Date Taken:
11/08/2020 09:36



Section A
Wall section
Defect Ref: D27
Description: Vertical fracture in-wall indicates possible subsidence. No change between 2020 and 2021 inspections.
Photo number: 120

Date Taken:
18/05/2021 09:38



Section A
Wall section
Defect Ref: D28
Description: Damage to drainage pipe concrete encasement (delamination and horizontal fracturing). No change between 2020 and 2021 inspections.
Photo number: 60

Date Taken:
11/11/2019 14:59



Section A
Wall section
Defect Ref: D28
Description:
Damage to drainage
pipe concrete
encasement
(delamination and
horizontal fracturing).
No change between
2020 and 2021
inspections.
Photo number: 95

Date Taken:
11/08/2020 09:38



Section A
Wall section
Defect Ref: D28
Description:
Damage to drainage
pipe concrete
encasement
(delamination and
horizontal fracturing).
No change between
2020 and 2021
inspections.
Photo number: 123

Date Taken:
18/05/2021 09:42



Section A
Parapet/Capping
Defect Ref: D29
Description: Vertical missing mortar. No change between 2020 and 2021 inspections.
Photo number: 73

Date Taken:
11/08/2020 08:54



Section A
Parapet/Capping
Defect Ref: D30
Description: Vegetation growth on pitching below top masonry wall and cracking on the wall. No change between 2020 and 2021 inspections.
Photo number: 80

Date Taken:
11/08/2020 09:14



Section A
Parapet/Capping

Defect Ref: D30

Description:

Vegetation growth on pitching below top masonry wall and cracking on the wall. No change between 2020 and 2021 inspections.

Photo number: 115

Date Taken:

18/05/2021 09:22



Section A
Wall section

Defect Ref: D31

Description: Minor vegetation growth on vertical concrete wall. No change between 2020 and 2021 inspections.

Photo number: 78

Date Taken:

11/08/2020 09:08



Section A
Wall section
Defect Ref: D31
Description: Minor vegetation growth on vertical concrete wall. No change between 2020 and 2021 inspections.
Photo number: 119

Date Taken:
18/05/2021 09:36



Section A
Wall section
Defect Ref: D32
Description: Void in tie in between masonry wall extents. No change between 2020 and 2021 inspections.
Photo number: 79

Date Taken:
11/08/2020 09:12



Section A
Wall section
Defect Ref: D32
Description: Void in tie in between masonry wall extents. No change between 2020 and 2021 inspections.
Photo number: 121

Date Taken:
18/05/2021 09:39



Section A
Wall section
Defect Ref: D33
Description: Cracking in the concrete that is surrounding an outfall pipe. No change between 2020 and 2021 inspections.
Photo number: 96

Date Taken:
11/08/2020 09:40



Section B
Downstream
Headwall
Defect Ref: D34
Description: Loss of mortar. No change between 2020 and 2021 inspections.
Photo number: 97

Date Taken:
18/05/2021 08:42



Section B
Downstream
Headwall
Defect Ref: D35
Description: Horizontal fracture of masonry wall (high wall). No change between 2020 and 2021 inspections.
Photo number: 98

Date Taken:
18/05/2021 08:44



Section B
Downstream
Headwall

Defect Ref: D36

Description:

Consider installation of handrail for the safety of operatives. No change between 2020 and 2021 inspections.

Photo number: 99

Date Taken:

18/05/2021 08:46



Section B
Downstream
Headwall

Defect Ref: D37

Description: Missing masonry brick.

Photo number: 100

Date Taken:

18/05/2021 08:47



Appendix 2 – Asset descriptors

Asset Type	Major Element	Minor Elements	Attributes
Defence	Embankment	Apron	Stone, concrete, masonry
		Capping Wall	Stone, concrete, masonry
		Modular Blocks	Concrete
		Drainage	Pipe, masonry, Concrete Headline
		Gabions	Gabions
		Natural	Vegetated, un-vegetated
		Pitching	Stone, Concrete, Masonry
		Armour	Rock, concrete
		Toe	As above
Defence	Wall	Apron	Stone, concrete, masonry
		Parapet / Capping	Stone, concrete, masonry, timber
		Wall section	Stone, concrete, masonry, timber, sheet piles
		Armour	Rock, concrete
		Drainage	
		Toe	Concrete, natural, rock
Defence	Cliff / Slope	Drainage	
		Face protection	Netting, pinning, other
		Infill	Stone, concrete, masonry
		Natural	Vegetated, un-vegetated
		Toe	
Beach Structure	Groyne	Capping Beam	Concrete, timber (whaling)
		Piles	Steel, timber
		Groyne main section	Rock, stone, masonry, timber (planking), concrete
		Groyne landward connection	Rock, stone, masonry, timber (planking), concrete
		Groyne – seaward roundhead	Rock, stone, masonry, timber (planking), concrete
		Sheet piling	Steel
Beach Structure	Breakwater	Capping Beam	Concrete
		Breakwater Section	Stone, masonry, concrete
Land	Salt Marsh	Salt marsh edge	Vegetation (loss or growth), reduction in area
		Channel / creeks	Channels or creeks becoming wider, loss of vegetation on edge etc.
Land	Tidal Flats	Mudflats	Reduction in area
		Channel	Channels becoming wider, changing course etc.
Land	Sand Dune	Crest	sand
		Front face	sand
Land	Beach	Crest	Shingle, sand, cobbles, mixed
		Front face	Shingle, sand, cobbles, mixed
Structure	Outfall (>0.45m)	Outfall pipe	
		Upstream headwall	
		Downstream headwall	
		Apron	
		Frame	
		Screen	
		Penstock	
		Flap valve	

Appendix 3 – EA Condition Grades

10 Environment Agency Condition Assessment Manual

2.0 Visual inspection condition grades

The condition grading and descriptions given below are the standards adopted by the Environment Agency. The five condition grades, ranging from ‘very good’ to ‘very poor’, remain as before. However, the descriptions have been redefined, compared to the previous versions of the Condition Assessment Manual, to reflect condition according to flood defence performance.

2.1 General assessment

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