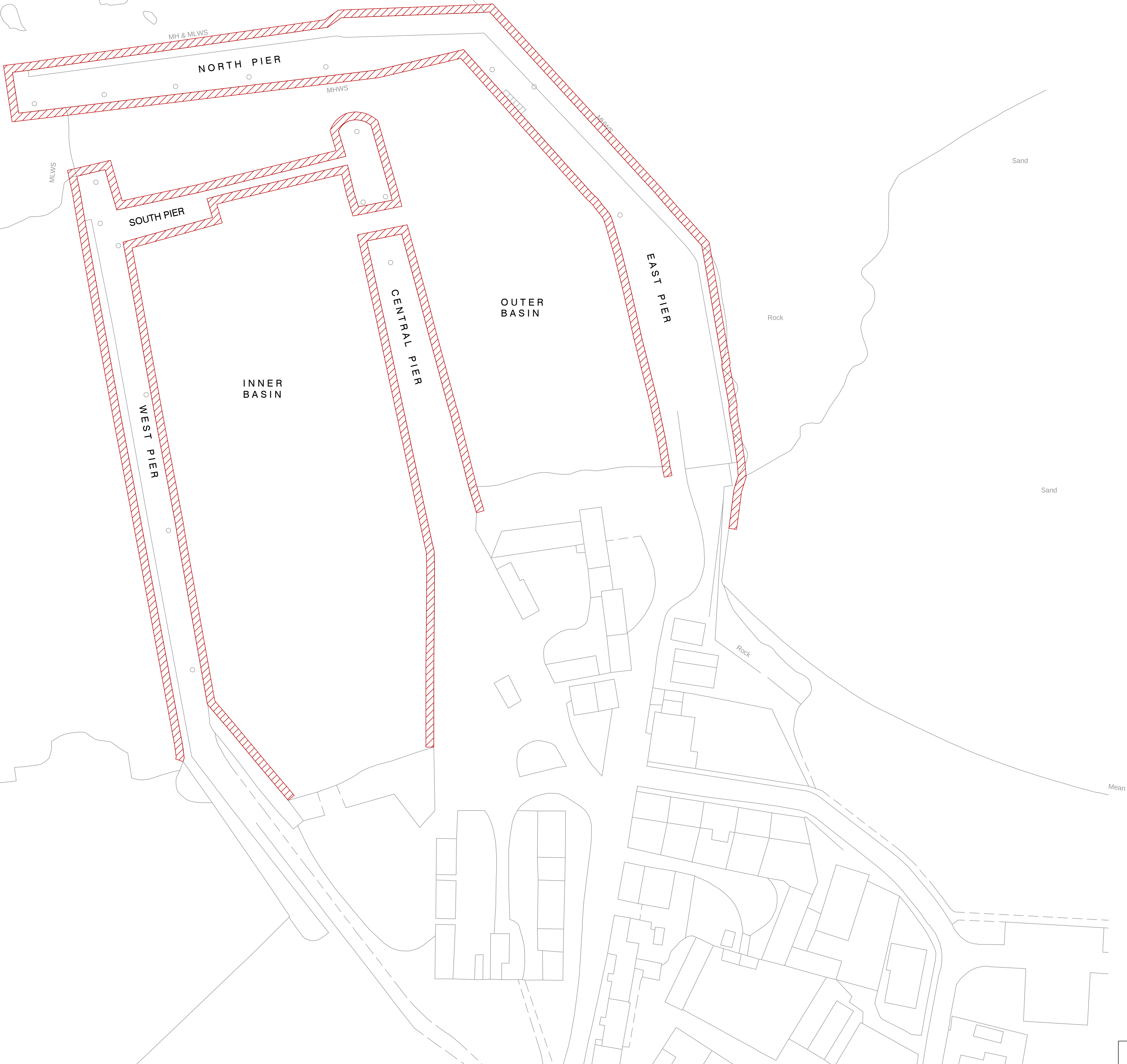
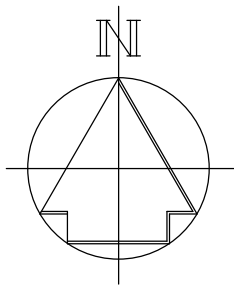


LEGEND:-

 - INDICATES SURVEY AREA

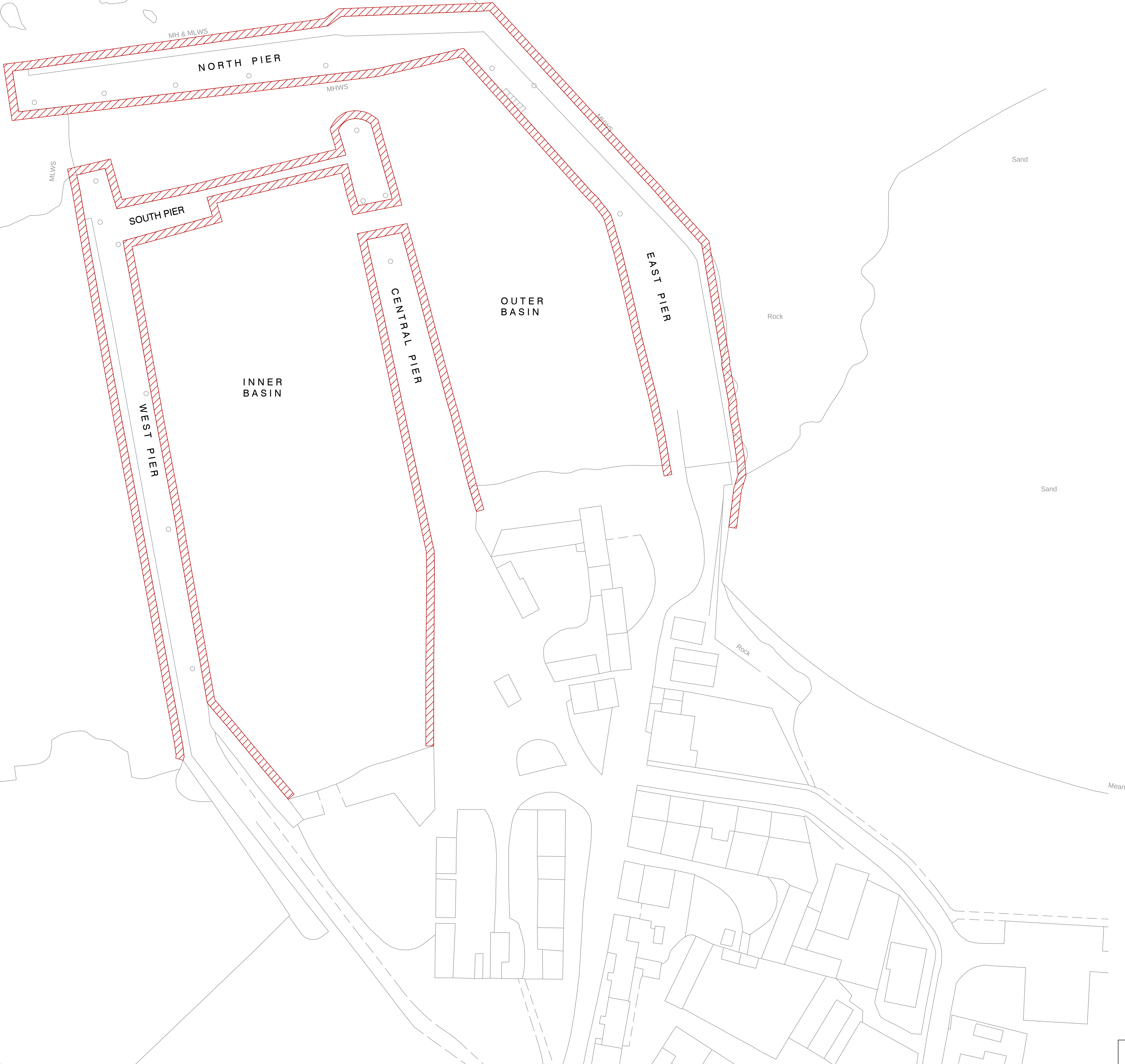


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Offices in : Aberdeen, Dundee, Glasgow, Lerwick, Lisboa (Portugal), Stromness and Thurso				
PROJECT : MORAY COUNCIL HARBOUR INSPECTIONS				
TITLE : HOPEMAN HARBOUR - 2020 SURVEY AREA				
DRAWN :	DATE : 25/11/20	VERIFIED : DK	APPROVED : TY	
SCALE : (A1) 1:500		DRAWING STATUS : REPORT		
DRAWING No : 191060-20			REV : -	

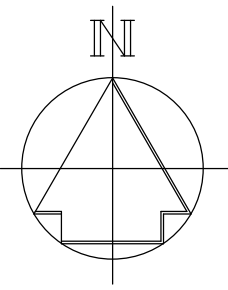


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TITLE : HOPEMAN HARBOUR - 2020 SURVEY AREA				
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Reference	Description	Easting	Northing
1	Abrasion to horizontal joint at mid height of wall on outer face - approximately 2m long x 1m high x 0.3m deep - further areas of shallower abrasion adjacent	314401	870030
2	Undermining to wall above bagwork berm 1m high x 1m long x 0.6m deep	314412	870031
3	Undermining at base of concrete wall 0.2m high x 1m long x 0.7m deep	314421	870033
4	Cavity at base of wall 0.5m high x 1m long x 0.6m deep	314429	870034
5	Cavity at base of wall 0.6m high x 0.6m long x 0.6m deep	314440	870036
6	Undermining to base of wall 0.4m high x 1m deep x 1m wide - localised area of wall abrasion above	314450	870037
7	Abrasion of wall joint 2m high x 1m wide forming cavity - reinforcement exposed	314461	870039
8	Spalling concrete along inside of parapet	314430	870031
9	Abrasion and cavities in deck and at end of pier	314404	870023
10	Cavities in cope in several locations	314429	870021
11	Sunken block above concrete repair with open joint to perimeter	314517	870043
12	Missing block 0.6m deep adjacent berm	314532	870027
13	Open coursing in face of wall at high level over 10m length. Open jointing on top of wall with cavities forming.	314548	870009
14	Missing blocks approx. 1m deep with 0.25m x 0.25m opening	314561	869994
15	2 small cavities approx. 300mm deep x 500mm wide	314542	869998
16	Undermining 3m long x 0.3m deep	314531	870010
17	Small cavity at base of steps and spalling below steps	314520	870023
18	Historic cavity at bed level - filled with sand	314482	870019
19	Cavity and abrasion of wall under cope approx. 4m long with cavities forming adjacent ladder	314436	870023
20	Cavity in wall - 1m long x 1m high x 0.1m deep with steel bar exposed	314422	870022
21	8m long x 1m high x 0.2m deep area of abrasion	314412	870021
22	Minor cavity between concrete and rock 1m long x 0.5m deep x 0.3m high	314421	869994
23	Area of minor abrasion at base of ladder 3m long with two small cavities forming	314435	869996
24	Cavity above concrete repair 2.5m long x 0.5m high x 0.2m deep	314458	870002
25	Small cavity 1.2m above bed level 0.3m x 0.3m	314479	870008
26	Historic cracks in deck - covered by creels	314482	870000
27	At pier corners there are gaps in the masonry coursing and dislodged blocks	314484	869986
28	Cracking to deck and cope at end of pier	314487	869981
29	Historic undermining not visible during inspection	314486	869987
30	Area of abrasion to upper part of wall - 1.5m long x 1m with surrounding abrasion to joints	314475	870004
31	Historic cavity at bed level - obstructed by vessel	314459	870000
32	Area of abrasion midheight of wall - 2m long x 0.3m high	314445	869997
33	Abrasion on corner with cavities forming 2m high x 3m long. Abrasion is occurring above under the cope with cavities forming over 5m length	314445	869993
34	Blocks sunk and wall bulging at base - historic and not visible	314428	869957
35	Undermining 1.5m long x 0.7m high x 0.3m high - historic and not visible	314478	869953
36	Small cavities in rock at bed level - 0.6m deep x 0.7m long x 0.2m high and 0.3m x 0.3m x 0.7m Deep	314443	869873
37	General abrasion - cope is undermined with exposed cable	314454	869855
38	At end of concrete wall the end section has been displaced - evidence of historic repairs. Block is abraded on outer face over 5m long x 2m high area. Cavity forming under abrasion 1m x 1m 0.5m Deep. Adjacent rock armour is displaced exposing pitched stone slope	314438	869857
39	Area of abrasion 8m long x 0.2m high x 0.25m deep to horizontal joint and 1.5m long x 0.5m wide x 0.25m deep to vertical joint	314435	869868
40	Intermittent loss of concrete berm exposing rock at base of wall - up to 5m long	314424	869930
41	Undermining 2m long x 0.5m deep x 0.3m high	314416	869974
42	Concrete deck breaking up 2m long x 1.2m wide	314437	869993
43	Gabion basket is burst at side of slipway	314477	869847
44	Spalling of concrete at edge of concrete steps	314489	870006

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PROJECT :
MORAY COUNCIL
HARBOUR INSPECTIONS

TITLE :
HOPEMAN HARBOUR - 2020
SURVEY RESULTS

DRAWN : SCALE : (A1)	DATE : Nov 2020	VERIFIED : DK	APPROVED : TY
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DRAWING STATUS :
REPORT

DRAWING No : 191060-21	REV : -
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The Moray Council

2020 Hopeman Harbour Inspection

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1 Document Information

Project Number	191060
Project Name	2020 Harbour Inspections
Document Title	191050-REP02 Hopeman Harbour
Document Date	November 2020
Client	The Moray Council
Client Representative	Leigh Moreton
Project Manager	Doug Kane
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Document Controls and Verification

Date	Version	Notes	Prepared by:	Verified by:	Verified signature:
7/12/20	1.0	First Issue	DK	TY	

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3 Introduction

The Moray Council engaged Arch Henderson to undertake an inspection of Hopeman Harbour which was to include principle structural assets above and below the water line. Assets were to include sea walls, piers, jetties, quays, slipways and steps. At Hopeman these assets are constructed from masonry in the original parts of the harbour or from insitu concrete in areas where the harbour has historically been extended. No historic drawings of the structures are available and the assessment of defects is based on comparison with adjacent areas and archive photographs. Arch Henderson has no knowledge and has made no assessment into the load bearing capacities of the structures which would require further analysis.

The harbour largely dries out at low tide exposing rock head around the perimeter allowing the majority of the harbour to be inspected during a low tide. Dive inspections were undertaken to the ends of Central piers and the outside face of the North Pier.

The underwater dive survey was carried out on the 17th November 2020.

Photographs of the defects are provided in Appendix B. The extent of the survey is shown on drawing reference 191060-020 and the location of the defects with a table of descriptions is provided on drawing reference 191060-021.

It is not required to prioritise the repairs but recommendations have been provided.

3.1 Survey Results

3.1.1 North Pier

The North Pier is constructed from masonry at the root and has been extended with insitu concrete. Several areas of undermining and cavities were found during the survey but these were not significantly worse than previous surveys.

At defect 01-20 there is an area of abrasion to the outer concrete wall, just below deck level, which extends over the length of the outside face of the wall. The intermittent remains of a previous patch repair are evident which should be monitored for deterioration. Locally at the seaward end, a cavity is forming which is recommended to be repaired. The depth of the cavity should allow for a competent concrete repair using shuttering and reinforcement with minimal breakout of the surrounding concrete.

The cavities on the outside face below water have relatively small openings but are recommended to be infilled.

On the inside face, at the defects marked 10-20, cavities are forming on top of the concrete cope which are recommend to be infilled. At defect 19-20, adjoining the largest cavity in the top of the cope, there are cavities forming under the cope and further deterioration is expected to lead to the loss of this 4m section of cope.

A large area of abrasion is evident at defects 20-20 and 21-20 which is not considered to be critical at this stage but should be considered for repair to prevent further deterioration.

At the root of the North Pier, where masonry construction still exists, a large number of concrete repairs are evident to the outer face however no new voids were identified. There is a masonry knuckle in the parapet where it meets the concrete section and this has been locally strengthened with steel bars to the top surface and down the face. The vertical bars on the outer face are heavily corroded with complete loss of section in the lower areas. The corroded bars are not considered to be effective however newer galvanised bars have been installed to the top surface. It is evident this section has historically displaced and should be monitored for further movement. It is recommended to analyse the dislodged section to identify if the loss of the corroded bars is critical and if additional reinforcement is required.



Reinforcement Bars on Masonry Parapet

3.1.2 East Pier

The East Pier, which connects to the North Pier, is constructed from masonry blocks. On the outside face they are dry jointed though some pointing has been carried out. The outer end has been partially protected with a concrete berm.

On the outside face there are several historic holes in the wall, all of which appeared stable, but they should be monitored to ensure there is no loss of material occurring (defects 11-20, 12-20 and 14-20). At the top of the parapet, at defect 13-20, there is an open joint in the face of masonry which coincides with a number of small cavities and open joints on the top surface of the parapet. These could combine leading to the loss of a large section of masonry and are recommended to be repaired.

3.1.3 South Pier

The South Pier is constructed from insitu concrete. It is in generally sound condition however there are several large areas of abrasion on the basin side at defects 30-20, 32-20 and 33-20. Cavities are forming within the abrasion at defect 33-20 which is recommended to be repaired. A number of minor cavities and abrasion are evident to the outer channel side which should be monitored.

Scour holes exist at bed level to the inside corners of the hammerhead pier, at the entrance to the inner basin, and voids have previously been found around the base stones. Due to the level of sand these were not evident on this inspection but should be monitored. Historic repairs have stabilised the end of this pier with steel tie rods and there is historic cracking to the deck panels.

At defect 44-20 there is minor loss of concrete to the edges of the concrete steps which should be monitored.

3.1.4 Central Pier

The Central Pier is constructed from masonry blocks which appeared generally in sound condition.

The outside corner has been refaced. There are cavities in the wall at the end of the pier and areas of undermining at defect 27-20. Recommendations have previously been given to continue the refacing around the end face and inner corner. High levels of sand covered the majority of the undermining during this inspection but there are open joints / dislodged masonry on the inside corner which should be monitored. Scour holes have formed at the pier corners preventing them from drying out at low tides.

3.1.5 West Pier

The West Pier is constructed from insitu concrete and has a raised parapet along the outer side to allow it to act as a breakwater. Several minor cavities and areas of undermining were identified to the outside and inside faces although the general condition of the Pier is good.

At defect 38-20 historic damage has occurred at the root of the pier to the end panel of the parapet which has been previously repaired. Misalignment of the repair concrete indicates there has been further movement and the repair concrete to the outer face has largely been lost. Rock armour in this location also appears to have been displaced and is likely undersized for an extreme tidal and wave event. The displaced rock armour has exposed a pitched masonry slope which may be vulnerable to future defects as previous concrete repairs are evident. Adjacent to this area, at defect 39-20, there is large area of abrasion to the outer face of the parapet wall.

On the opposite side at defect 37-20 there is general abrasion to the wall which may be related to waves breaking over the parapet. The coping to the top wall is also breaking up exposing a cable which has been embedded in the concrete.

Burst gabion baskets were identified at defect 43-20 which may become a structural issue if material loss occurs. The broken wire is considered a hazard and should be addressed as a Health and Safety issue.



Displaced rock armour and wall section at root of West Pier

3.2 Conclusion

The harbour appeared in good condition however there are a number of long standing defects which will continue to deteriorate and should be monitored or repaired.

The following defects are recommended to be repaired:

- Defect 01-20 North Pier abrasion cavity
- Defect 02 to 07-20 Small cavities in outside face of North Pier
- Defect 10-20 and 19-20 cavities forming in North Pier inner cope
- Defect 20 & 21-20 Area of abrasion to North Pier
- Defect 13-20 High level cavities in East Pier masonry parapet
- Defect 30, 31 & 33-20 Abrasion cavities in South Pier
- Defect 37-20 Exposed cabling and damaged cope
- Defect 38-20 Wall abrasion, movement and displaced armour
- Defect 39-20 Wall abrasion
- Defect 43-20 Damaged gabion

Minor repairs are recommended at defect 37-20 to protect the cable and to repair the damaged gabion at defect 43-20.

Analysis of the masonry reinforcement on the North Pier parapet knuckle is recommended to ensure it is stable and identify if additional reinforcement is required to replace the corroded sections. Analysis of the existing rock armour and the displaced wall section at defect 38-20 is also recommended to be carried out to confirm the current level of stability and provide repair options. The analysis will require a wave study to be carried out.

All other defects should be monitored for further deterioration.

4 Appendix A – Drawing List

Reference	Title
191060-20	Location of Defects
191060-21	Extent of survey

5 Appendix B – Photographs



Defect 1



Defect 2



Defect 3



Defect 4



Defect 5



Defect 6



Defect 7



Defect 8



Defect 9



Defect 10



Defect 11



Defect 12



Defect 13



Defect 13



Defect 13



Defect 13



Defect 13



Defect 14



Defect 15



Defect 15



Defect 16



Defect 17



Defect 17



Defect 19



Defect 20 and 21



Defect 20 and 21



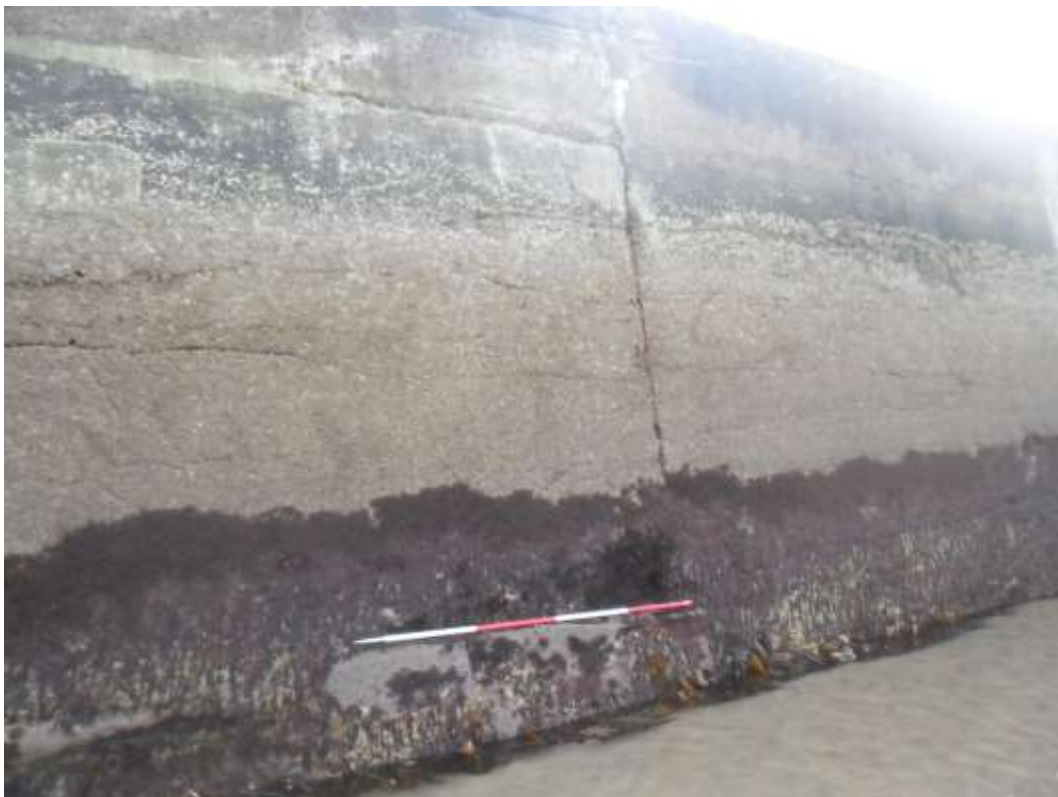
Defect 21



Defect 22



Defect 23



Defect 24



Defect 25



Defect 27



Defect 27



Defect 28



Defect 30



Defect 32



Defect 33



Defect 32 and 33



Defect 36



Defect 37



Defect 38



Defect 39



Defect 40



Defect 41



Defect 42



Defect 43



Defect 44



Reference	Description	Easting	Northing
1	SOME JOINTS OPEN. MORTAR MISSING.	314568	869936
2	TOP OF PARAPET WALL JOINTS OPEN. SOME BLOCKS MISSING.		OVER OUTSIDE FACE
3	OLD REPAIR. METAL STRAPS AND BOLTS CORRODED. JOINTS OPEN.	314483	870040
4	TOP EDGE BROKEN. CRACK ACROSS TOP OF PARAPET WALL.	314474	870040
5	OLD REPAIR STARTING TO SPALL.	314470	870035
6	OLD REPAIRS SPALLING EXPOSING JOINTS ACROSS TOP OF PARAPET WALL.	314434	870034
7	INSIDE FACE BADLY ABRADED. CONCRETE FROM PREVIOUS REPAIRS SPALLED. VERTICAL CRACK FULL HEIGHT OF PARAPET WALL.	314419	870029
8	SECTION OF DECK SLAB ABRADED AND JOINTS OPEN.	314398	870024
9	SECTIONS OF COPE DAMAGED AND BROKEN. APPROX. 1.0x1.0x0.m DEEP.	314426	870025
10	EDGE OF COPE CRACKED AND BROKEN OVER 9.0m LENGTH. CAVITIES IN SEVERAL LOCATIONS.	314459	870028
11	INSIDE FACE OF PARAPET WALL BADLY ABRADED AND CRACKED.	314448	870032
12	OLD REPAIRS SPALLING.	314467	870030
13	HOLE ON SURFACE BEHIND COPE - 1.2x0.6x0.m DEEP.	314473	870030
14	JOINTS OPEN WITH LOSS OF MORTAR TO BOTH PARAPET WALL AND INSIDE FACE OF OUTER BASIN WALL.		VARIES - EAST PIER
15	CONCRETE REPAIR TO CORNER JOINTS ON INSIDE FACE OPEN.	314493	869988
16	WALL ABRADED OVER CENTRE SECTION. CONCRETE CRACKED.	314469	870003
17	CRACK ACROSS COPE AT ROUNDEAD.	314484	869997
18	CRACKS ACROSS TOP OF WALL, COINCIDING WITH JOINTS ON FACE. CONCRETE REPAIRS SPALLING.	314451	870000
19	CRACKED.	314445	869986
20	POSSIBLE CAVITY UNDER SURFACING. SMALL HOLE EVIDENT ON SURFACE APPROXIMATELY 0.5m DEEP.	314417	869993
21	CORNER OF PARAPET WALL APPEARS TO HAVE MOVED. JOINTS OPEN.	314437	869857
22	SCOURING AROUND CORNER OF WALL.	314493	869988
23	SCOURING AROUND CORNER OF WALL.	314482	869995
24	SOME BLOCKS MOVED PROTRUDING BEYOND FACE OF WALL ON OUTSIDE FACE OF WALL.	314535	870023
25	UNDERMINING OF BLOCKWORK WHICH APPEARS TO BE ABOVE BEDROCK. UNABLE TO INSPECT DUE TO RESTRICTED ACCESS DUE TO SOFT BED. LENGTH OF UNDERMINING APPROXIMATELY 20m.	314495	869939
26	BLOCK MISSING AT BED LEVEL WITH COURSE ABOVE DROPPING. STEEL LADDER DOES NOT REACH BED LEVEL.	314489	869965
27	CRACK IN COPE. JOINTS APPEAR TO HAVE BEEN REPAIRED ON FACE.	314492	869986
28	CRACK ACROSS COPE AT CORNER. CONCRETE BUTTRESS HAS BEEN CONSTRUCTED ON FACE.	314492	869986
29	ROCK ARMOUR HAS BEEN DISPLACED.	314441	869848
30	JOINT OPEN AT TOP OF WALL AND COPE ALONG LENGTH OF WALL. ON OUTSIDE FACE OF HARBOUR.	314459	869826
31	JOINT OPEN AT TOP OF WALL AND COPE ALONG LENGTH OF WALL. ON INSIDE FACE OF HARBOUR. CABLES EXPOSED.	314456	869847
32	SLIPWAY CRACKED. UNDERMINING OF CONCRETE AROUND END.	314536	869930
33	LADDERS DO NOT EXTEND DOWN TO BED LEVEL.		VARIES
34	BLOCKS MISSING. BLOCKS MOVING ON OUTSIDE FACE OF WALL.	314529	870030
35	REFERENCE DEFECT 20 FROM PREVIOUS REPORT. CAVITY WITH BAR EXPOSED.	314421	870022
36	REFERENCE DEFECT 21 FROM PREVIOUS REPORT. FACE OF WALL BADLY ABRADED.	314410	870020
37	REFERENCE DEFECT 36 FROM PREVIOUS REPORT. CAVITY AND CRACK EXTENDING UP JOINT.	314442	869878
38	JOINT OPEN WITH MORTAR LOSS BELOW COPE.	314444	869999
39	REFERENCE DEFECT 19 FROM PREVIOUS REPORT. CAVITY AND ABRASION OF WALL UNDER COPE APPROXIMATELY 4.0m LONG WITH CAVITIES FORMING. ADJACENT TO LADDER.	314441	870024
40	OLD CONCRETE REPAIRS TO SURFACE STARTING TO BREAK UP AROUND EDGES.	314481	870033
41	FACE OF WALL ABRADED AND CRACKS FORMING.	314463	870034
42	OLD REPAIRS SPALLING AND CAVITIES FORMING TO OUTSIDE FACE OF STEPS.	314521	870021
43	ASPHALT OVERLAY BREAKING UP EXPOSING DAMAGED JOINTS.	314415	870000

- NOTES:**
- FOR SURVEY EXTENTS REFER TO DRAWING 221016-30.
 - THIS DRAWING TO BE READ IN CONJUNCTION WITH REPORT REFERENCE 221016-REP03.

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PROJECT :
**MORAY COUNCIL
HARBOUR INSPECTIONS**

TITLE :
**HOPEMAN HARBOUR - 2023
SURVEY RESULTS**

DRAWN : JA	DATE : 26.04.23	CHECKED : DK	DATE : 04.07.23
SCALE : (A1) 1:500		DRAWING STATUS : REPORT	
DRAWING No : 221016-31		REV : -	

The Moray Council

2023 Hopeman Harbour Inspection



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1.0 Document Information

Project Number	221016
Project Name	2023 Harbour Inspections
Document Title	221016-REP03 Hopeman Harbour
Document Date	April 2023
Client	The Moray Council
Client Representative	Leigh Moreton
Project Manager	Doug Kane
Project Partner	Thomas Young

Document Controls and Verification

Date	Version	Notes	Prepared by:	Verified by:	Verified signature:
3/7/23	1.0	First Issue	CS	DK	

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3.0 Introduction

The Moray Council engaged Arch Henderson to undertake an inspection of Hopeman Harbour which was to include principle structural assets above the water line. Assets were to include sea walls, piers, jetties, quays, slipways and steps. At Hopeman these assets are constructed from masonry in the original parts of the harbour or from insitu concrete in areas where the harbour has historically been extended. No historic drawings of the structures are available and the assessment of defects is based on comparison with adjacent areas and archive photographs. Arch Henderson has no knowledge and has made no assessment into the load bearing capacities of the structures which would require further analysis.

The harbour largely dries out at low tide exposing rock head around the perimeter allowing the majority of the harbour to be inspected during a low tide.

Photographs of the defects are provided in Appendix B. The extent of the survey is shown on drawing reference 221016 - 30 and the location of the defects with a table of descriptions is provided on drawing reference 221016 – 31.

It is not required to prioritise the repairs but recommendations have been provided.

4.0 Observations

4.1 Hopeman Harbour

4.1.1 Visit Details

The visual inspection of the various structures was carried out on 19 April 2023. The inspection was carried out at low water on a spring tide by an engineer accompanied by a technician from Arch Henderson LLP. The inner and outer basins being mainly dry.

As noted on Arch Henderson Drawing 221016- 30 access to certain areas of the harbour was restricted due to water level and the bed material being too soft to walk on.

4.1.2 Review of Information

The information listed in Table 1 was obtained from Arch Henderson archives for review prior to carrying out the inspection.

Table 1 - Information available for Hopeman Harbour

Reference No.	Title	By	Date
191050-REP02	Hopeman Harbour	Arch Henderson	07/12/20

4.1.3 North Pier

The North Pier is constructed from masonry at the root and has been extended with insitu concrete. A parapet wall runs along the north side of quay.

References relate to Arch Henderson drawing 221016 – 31.

Table 1 – North Pier Observations

Ref.	Element	Observation	Photo Reference	Comments
03	Parapet Wall	Old repair. Metal straps and bolts corroded. Joints open.	Photo 4 3905 3906 3907	Appears in similar condition to previous inspection.
04	Parapet Wall	Top edge broken. Crack across top of parapet wall.	3908 3909	Likely to deteriorate further if no repairs carried out.
05	Parapet Wall	Old repair starting to spall.	3909	Likely to deteriorate further if no repairs carried out.

Ref.	Element	Observation	Photo Reference	Comments
06	Parapet Wall	Old repairs spalling exposing joints across top of parapet wall. Along length of wall.	Photo 5 3913 3915 3917 3918	Likely to deteriorate further if no repairs carried out.
07	Inside Face Parapet Wall	Inside face badly abraded. Concrete from previous repairs has spalled. Vertical crack full height of parapet wall.	Photo 6 3924	Likely to deteriorate further if no repairs carried out.
08	Deck	Section of deck slab abraded and joints open.	Photo 7 3925	Sections of damaged area may cause trip hazard.
09	Cope	Sections of cope damaged and broken. Approx 1.0 x 1.0 x 0.15 deep.	Photo 9 3929 3930	Sections of damaged cope may cause trip hazard.
10	Cope	Edge of cope cracked and broken over 9.0 m length. Cavities in several locations.	3931 3932 3982 3947	Sections of damaged cope may cause trip hazard.
11	Inside Face parapet Wall	Inside face of parapet wall badly abraded and cracked.	Photo 10 3933 3934	Condition of wall appears to have deteriorated since previous inspection.
12	Cope	Old repairs spalling.	3938 3937	
13	Deck	Hole on surface behind cope. Approx 1.2 x 0.6 x.15 deep.	3939	This creates a trip hazard.
14	Parapet & Quay Wall	Joints open with loss of mortar to both parapet wall and inside face of outer basin wall.	3948 3949 3957 3958 3960 3965 3967	Condition of wall appears to have deteriorated since previous inspection.

Ref.	Element	Observation	Photo Reference	Comments
35	Quay Wall	Ref 20 from previous report. Cavity with bar exposed.	4097 3894	Appears similar to previous inspection.
36	Quay Wall	Ref 21 from previous report. Face of wall badly abraded.	4097 4051 3894 3982	Condition of wall appears to have deteriorated since previous inspection.
39	Quay Wall	Ref 19 from previous report. cavity and of wall under cope approx. 4.0 m long with cavities forming. Adjacent to ladder.	3890	Appears similar to previous inspection.
40	Deck	Old repairs spalling and cavities forming	3951	Old concrete repairs to surface are starting to break up around the edges.
41	Inside Face Parapet Wall	Face of wall abraded and cracks forming.	3935 3944	Condition of wall appears to have deteriorated since previous inspection

4.1.4 East Pier

The East Pier, which connects to the North Pier, is constructed from masonry blocks. On the outside face they are dry jointed though some pointing has been carried out. The outer end has been partially protected with a concrete berm. There is a masonry parapet wall which runs along the outside face of the quay.

References relate to Arch Henderson drawing 221016 – 31.

Table 2 – East Pier Observations

Ref.	Element	Observation	Photo Reference	Comments
01	Masonry Wall.	Some joints open, mortar missing.	Photo 1 3876	Wall in reasonable condition.
02	Parapet Wall	Top of parapet wall joints open. Some blocks missing.	Photo 2 & 3 3882 3884 3888	Extent of open joints and missing blocks has deteriorated since previous inspection. If not addressed could lead to further damage particularly with over topping waves.

Ref.	Element	Observation	Photo Reference	Comments
			3897 3898 3901	
14	Parapet and Quay Wall	Joints open with loss of mortar to both parapet wall and inside face of outer basin wall.	3948 3949 3957 3958 3960 3965 3967	Appears similar to previous inspection.
24	Outside Face of Wall	Some blocks moving and protruding beyond face of wall on outside face of wall.	4114 4115 4116 4118 4120	Movement of blocks appears to have worsened since previous inspection.
34	Outside face of wall.	Blocks missing. Blocks moving on outside face of wall.	4113 4120	Movement of blocks appears to have worsened since previous inspection.
42	Steps	Old repairs spalling and cavities forming to outside face of steps.	3973	Was not noted in previous inspection

4.1.5 South Pier

The South Pier is constructed from insitu concrete.

References relate to Arch Henderson Drawing 221016- 31

Table 3 – South Pier Observations

Ref.	Element	Observation	Photo Reference	Comments
16	Inside Face Quay Wall.	Wall abraded over central section. Concrete cracked.	4062 4102	Condition of wall has worsened considerably since last inspection.

Ref.	Element	Observation	Photo Reference	Comments
17	Roundhead.	Crack across cope at roundhead.	4066	Not noted in previous inspection.
18	Quay Wall	Cracks across top of wall coinciding with joints on face. Concrete repairs spalling.	4068 4069	Further slight deterioration noted.
19	Corner of Quay Wall	Corner badly abraded. Crack running vertically to cope. Cope cracked.	4103 4106 4107 4141	Significant deterioration of corner since previous inspection.
23	Corner of Wall	Scouring around corner of wall.	4003	Scouring noted but not significant.
38	Outside face quay wall.	Joint open with mortar loss below cope.	3991	Noted at previous inspection.

4.1.6 Central Pier

The Central Pier is constructed from masonry blocks which appeared generally in sound condition.

References relate to Arch Henderson Drawing 221016 - 31

Table 4 – Central Pier Observations

Ref.	Element	Observation	Photo Reference	Comments
15	End of pier	Concrete repair to corner joints on inside face open.	4003 4004	Concrete block installed since previous inspection.
22	End of Pier	Scouring around corner of wall.	4016	Not significant.
25	Inner Basin Quay Wall	Undermining of blockwork which appears to be above bedrock. Unable to inspect due to restricted access due to soft bed.	4025 4026 4027 4136	Unable to determine full extent. Further investigation should be considered.

Ref.	Element	Observation	Photo Reference	Comments
26	Inner Basin Quay Wall	Block missing at bed level with course above dropping. Steel ladder does not reach bed level.	4138	Unable to determine full extent further investigation should be considered.
27	End of Pier	Crack in cope. Joints appear to have been repaired on face.	4159 4100	
28	End of Pier	Crack across cope at corner. Concrete buttress has been constructed on face.	4160	

4.1.7 West Pier

The West Pier is constructed from insitu concrete and has a raised parapet along the outer side to allow it to act as a breakwater.

References relate to Arch Henderson drawing 221016 - 31

Table 5 – West Pier Observations

Ref.	Element	Observation	Photo Reference	Comments
20	Deck north end.	Possible cavity under surfacing. Small hole evident on surface approximately 500 mm deep.	4077	Unable to ascertain full extent of possible cavity. Further investigation should be considered.
21	Parapet Wall	Corner of parapet wall appears to have moved joints open.	4078 4081 4082	Noted at previous inspection.
29	Outside face south end.	Rock armour has been displaced.	4080	Noted at previous inspection.
30	Outside on north, south end.	Joint open at top of wall and cope along length of wall on outside face of harbour	4079	Noted but out with survey area.
31	Inside south end.	Joint open at top of wall and cope along length of wall. On	4029	Noted at previous inspection.

Ref.	Element	Observation	Photo Reference	Comments
		inside face of harbour. Cable exposed	4030 4031 4032	
37	Inside wall.	Ref 36 from previous report. Cavity and crack extending up joint	4034	Further deterioration since previous inspection.
43	Deck north end.	Asphalt overlay breaking up exposing damaged joints.	4054 4047	May cause trip hazard.

5.0 Conclusion and Recommendations

5.1.1 General

The majority of the harbour appeared in fair condition however there are a number of long standing defects which have now deteriorated to a stage where we would recommend that further investigation and repairs are carried out at the earliest opportunity. These are as noted in recommendation tables 6 - 10.

References relate to Arch Henderson drawing 221016 – 31.

5.1.2 North Pier

Table 6 – North Pier Recommendations (refer to table 1)

Ref.	Observation/ Comment	Recommendation
03	Old repair. Metal straps and bolts corroded. Joints open.	Monitor straps and mortar joints.
04	Top edge broken. Crack across top of parapet wall.	Monitor with view to repair
05	Old repair starting to spall.	Monitor with view to repair
06	Old repairs spalling exposing joints across top of parapet wall. Along length of wall.	Monitor with view to repair
07	Inside face badly abraded. Concrete from previous repairs has spalled. Vertical crack full height of parapet wall.	Consideration should be given to repairing as soon as possible.
08	Section of deck slab abraded and joints open.	Repair
09	Sections of cope damaged and broken. Approx 1.0 x 1.0 x 0.15 deep.	Repair
10	Edge of cope cracked and broken over 9.0 m length. Cavities in several locations.	Repair.

Ref.	Observation/ Comment	Recommendation
11	Inside face of parapet wall badly abraded and cracked.	Repair.
12	Old repairs spalling.	Monitor with view to repair.
13	Hole on surface behind cope. Approx 1.2 x 0.6 x.15 deep.	Repair.
14	Joints open with loss of mortar to both parapet wall and inside face of outer basin wall.	Monitor with view to repair.

5.1.3 East Pier

Table 7 – East Pier Recommendations (refer to table 2)

Ref.	Observation/ Comment	Recommendation
01	Some joints open, mortar missing.	Monitor.
02	Top of parapet wall joints open. Some blocks missing.	Repair as soon as possible.
14	Joints open with loss of mortar to both parapet wall and inside face of outer basin wall.	Monitor with view to repair.
24	Some blocks moving and protruding beyond face of wall on outside face of wall.	Further inspection and investigation be carried out. Look to repair as soon as possible.
34	Blocks missing. Blocks moving on outside face of wall.	Further inspection and investigation be carried out. Look to repair as soon as possible.
42	Old repairs spalling and cavities forming to outside face of steps.	Monitor with view to repair.

5.1.4 South Pier

Table 8 – South Pier Recommendations (refer to table 3)

Ref.	Observation/ Comment	Recommendation
16	Wall abraded over central section. Concrete cracked.	Repair.
17	Crack across cope at roundhead.	Monitor with view to repair.
18	Cracks across top of wall coinciding with joints on face. Concrete repairs spalling.	Monitor with view to repair.
19	Corner badly abraded. Crack running vertically to cope. Cope cracked.	Repair.
23	Scouring around corner of wall.	Monitor
38	Joint open with mortar loss below cope.	Monitor with view to repair.

5.1.5 Central Pier

Table 9 – Central Pier Recommendations (refer to table 4)

Ref.	Observation/ Comment	Recommendation
15	Concrete repair to corner joints on inside face open.	Monitor with view to repair.
22	Scouring around corner of wall.	Monitor.
25	Undermining of blockwork which appears to be above bedrock. Unable to inspect due to restricted access due to soft bed.	Carry out further inspection when safe access can be arranged.

Ref.	Observation/ Comment	Recommendation
26	Block missing at bed level with course above dropping. Steel ladder does not reach bed level.	Repair.
27	Crack in cope. Joints appear to have been repaired on face.	Monitor with view to repair.
28	Crack across cope at corner. Concrete buttress has been constructed on face.	Monitor with view to repair

5.1.6 West Pier

Table 10 – West Pier Recommendations (refer to table 5)

Ref.	Observation/ Comment	Recommendation
20	Possible cavity under surfacing. Small hole evident on surface approximately 500 mm deep.	Carry out further investigation to ascertain extent of void.
21	Corner of parapet wall appears to have moved joints open.	Monitor with view to repair.
29	Rock armour has been displaced.	Monitor with view to repair.
30	Joint open at top of wall and cope along length of wall on outside face of harbour	Monitor with view to repair.
31	Joint open at top of wall and cope along length of wall. On inside face of harbour. Cable exposed	Monitor with view to repair.
37	Ref 36 from previous report. Cavity and	Monitor with view to repair.

Ref.	Observation/ Comment	Recommendation
	crack extending up joint	
43	Asphalt overlay breaking up exposing damaged joints.	Monitor with view to repair.

5.0 Appendix A – Drawing List

Reference	Title
221016 - 31	Location of Defects
221016 - 30	Extent of survey

6.0 Appendix B – Photographs



Photo 1: Entrance to East Pier

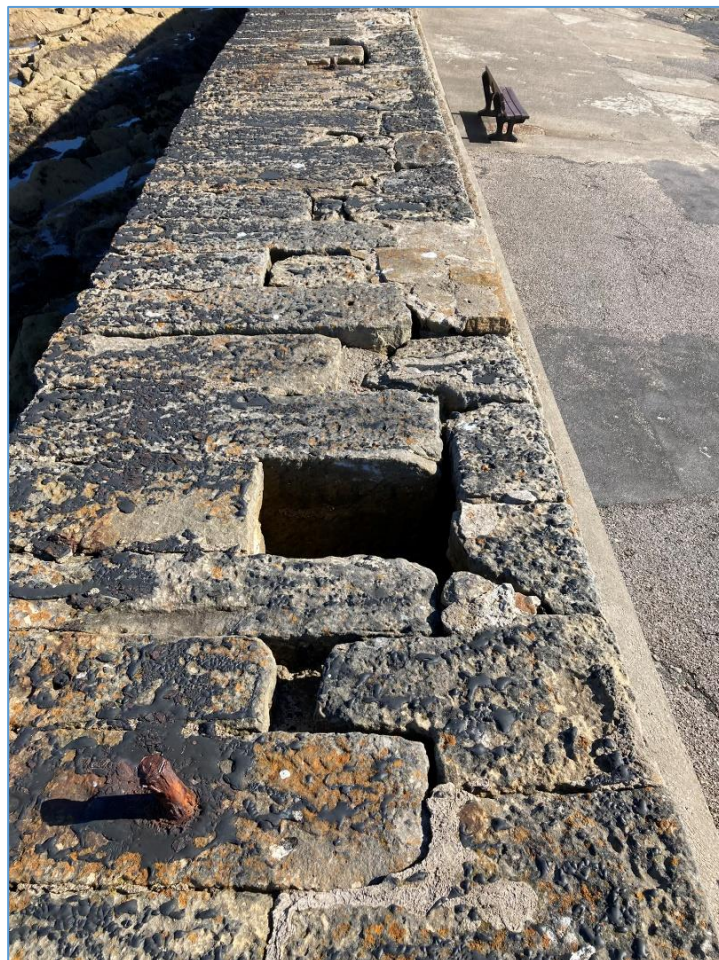


Photo 2: East Pier Parapet Wall.

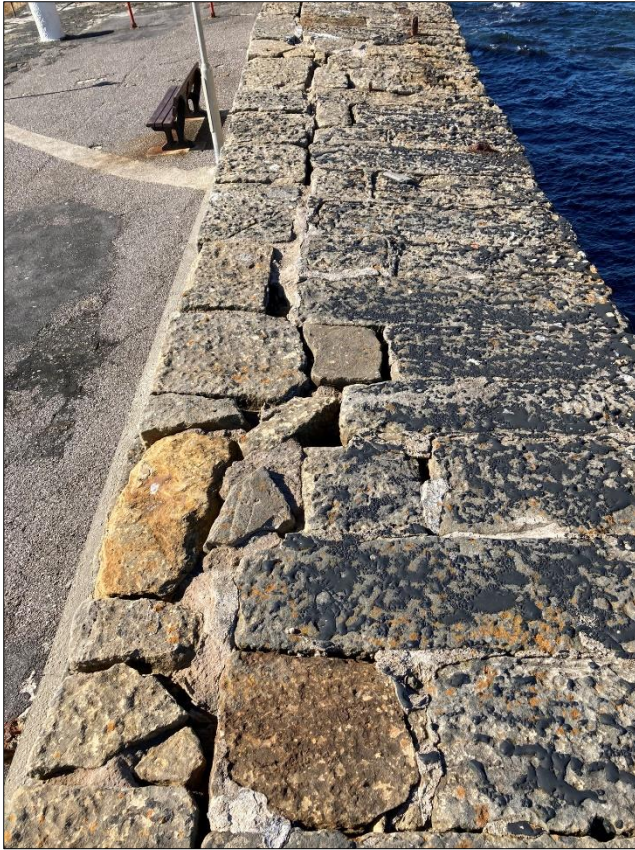


Photo 3: East Pier Parapet Wall.

Photo 4: North Pier Parapet
Wall.

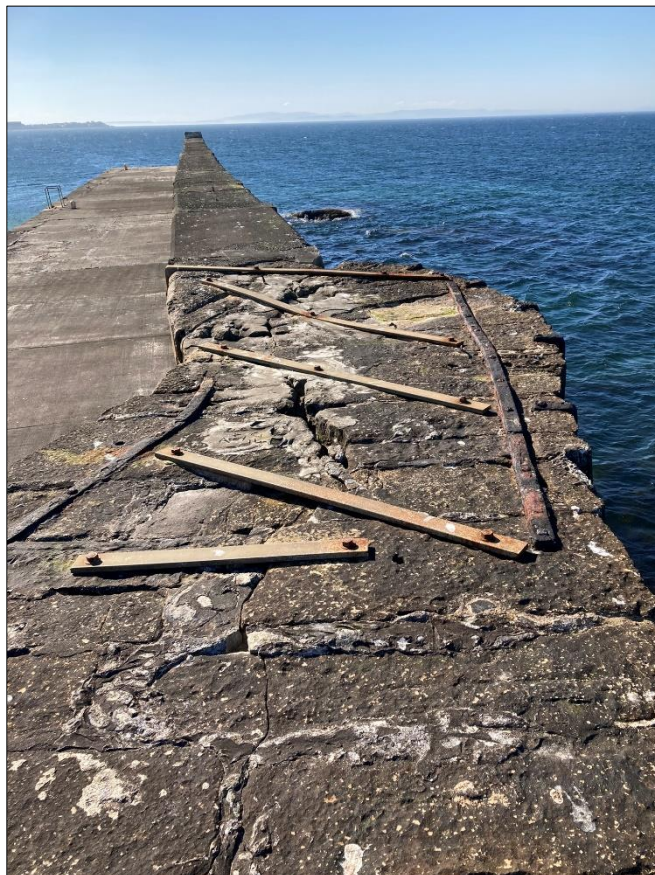


Photo 5: North Pier Parapet Wall.

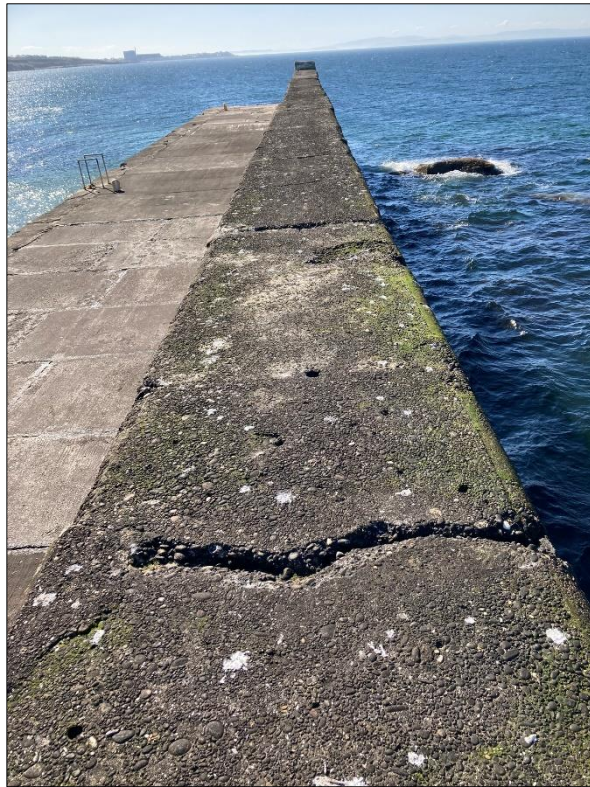


Photo 6: North Pier inside face parapet wall.



Photo 7: North pier deck.



Photo 8: North Pier cope.



Photo 9: North Pier Cope.



Photo 10: North Pier Parapet Wall.

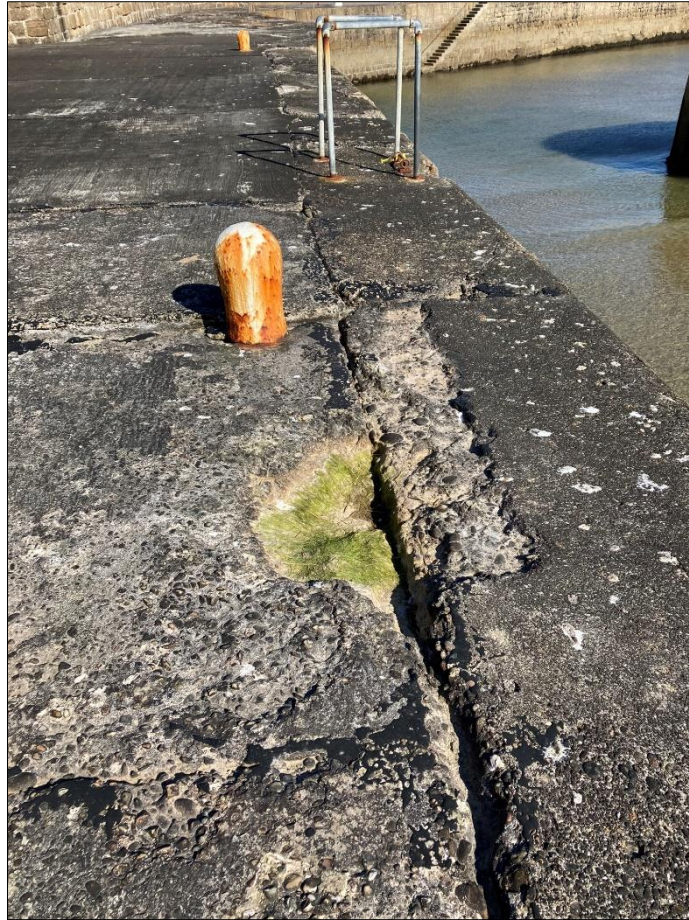


Photo 11: North Pier cope.



Photo 12: North Pier deck.



Photo 13: North Pier quay wall.



Photo 14: North Pier Quay wall.

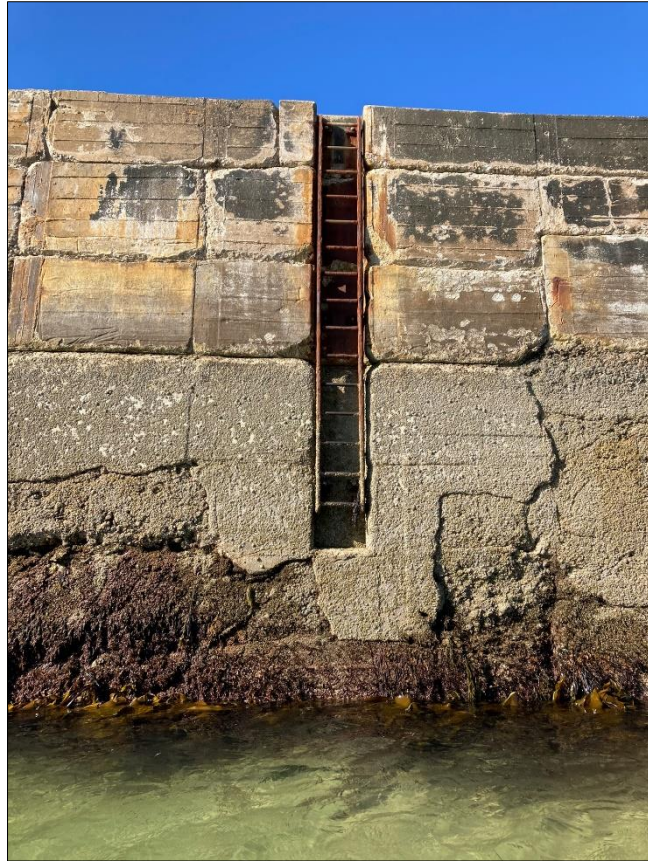


Photo 15: North Pier Quay Wall.



Photo 16: Central Pier Roundhead.



Photo 17: Central Pier deck.

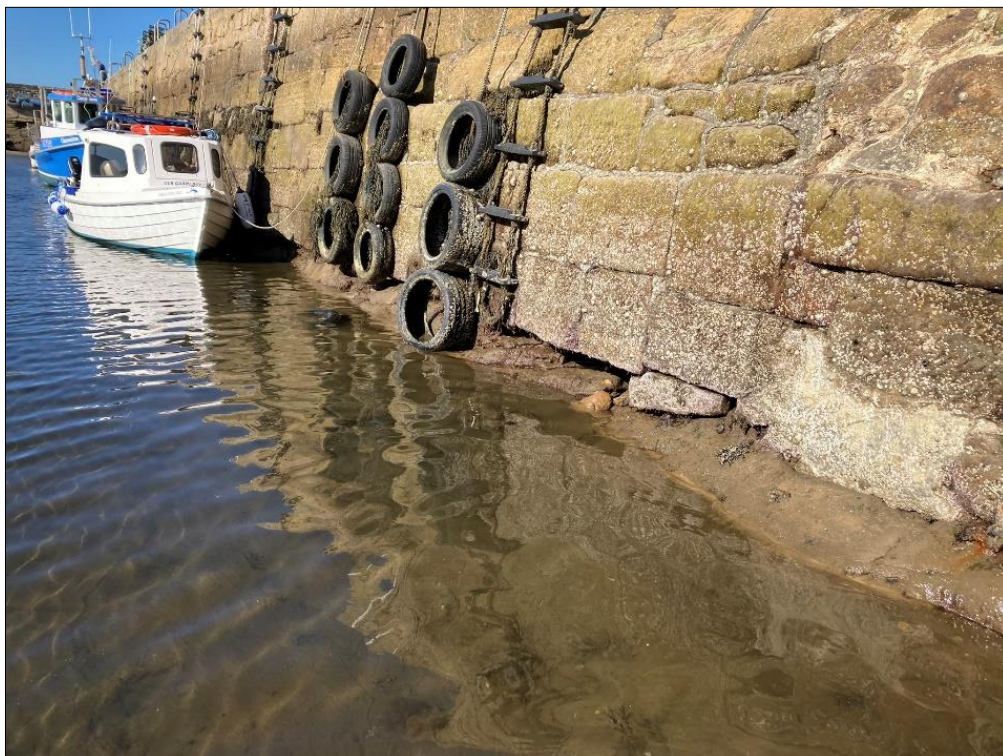


Photo 18: Central Pier quay wall Inner Basin face.

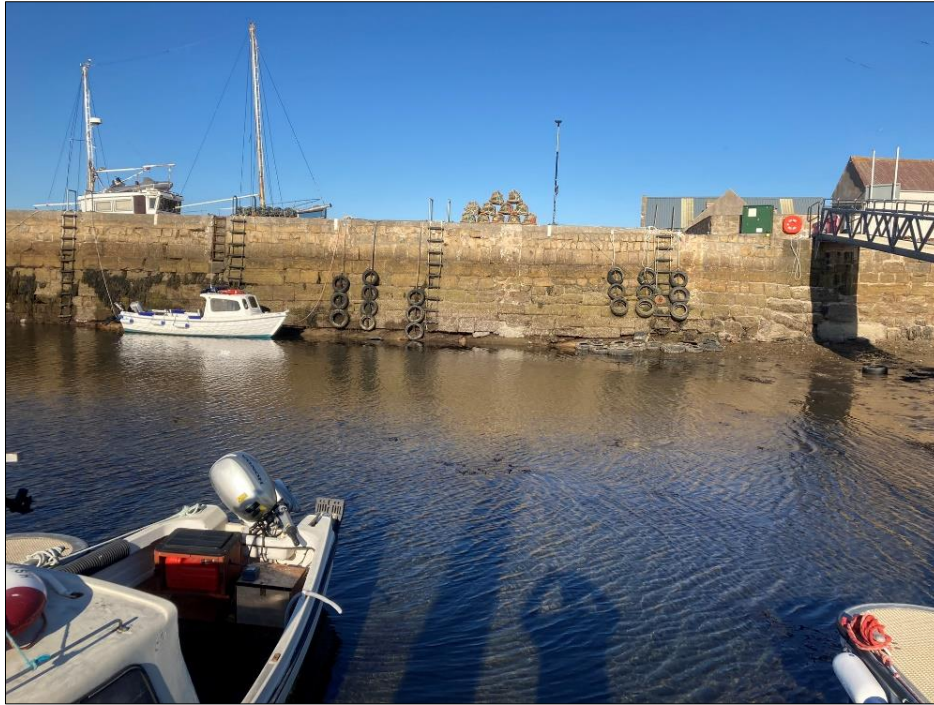


Photo19: Central Pier quay wall Inner basin face.

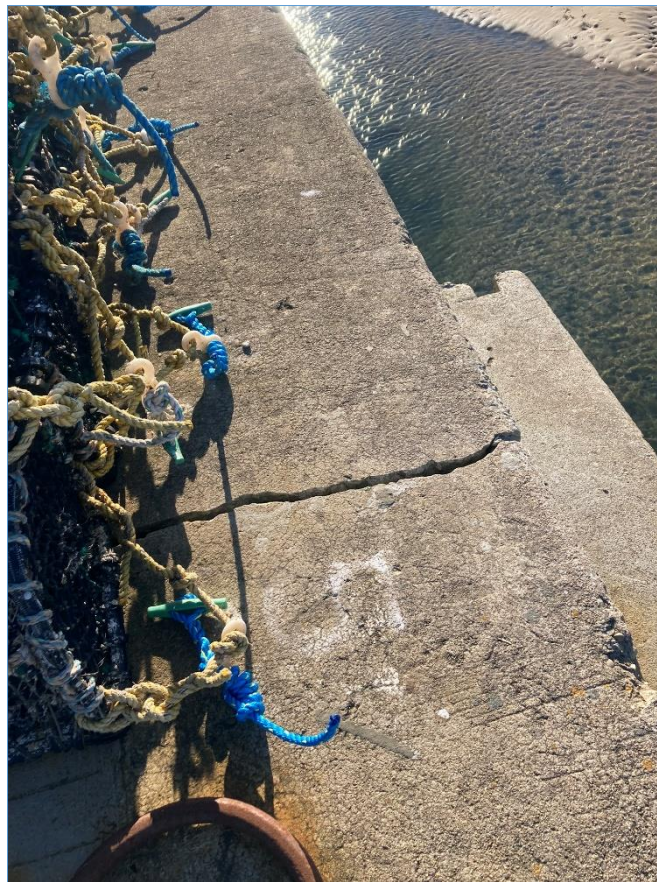


Photo 20: Central pier roundhead.



Photo 21 : Central Pier quay wall face outer basin.



Photo 22: Central Pier roundhead.

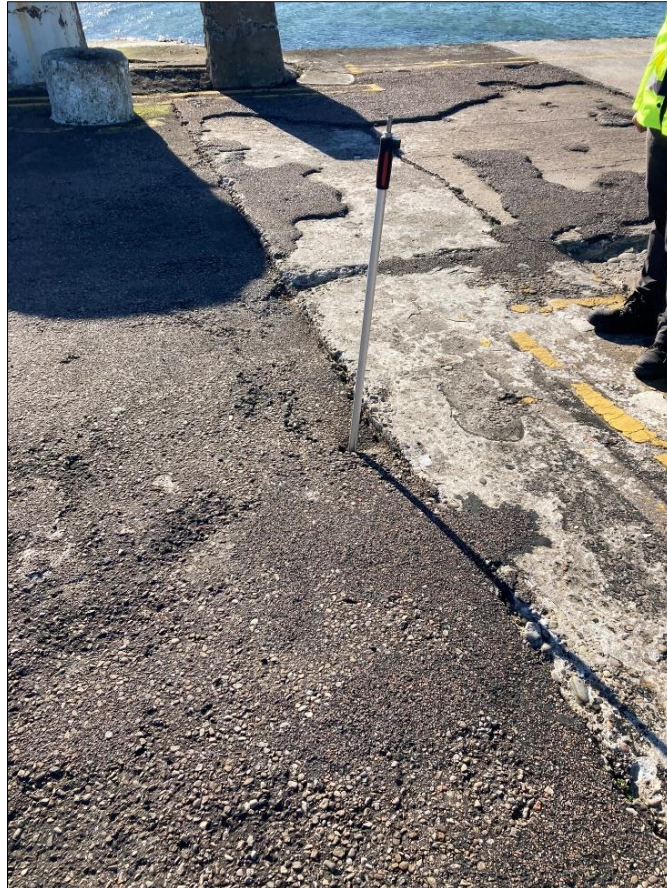


Photo 23: South Pier west end.



Photo 24: South Pier quay wall inner basin face.

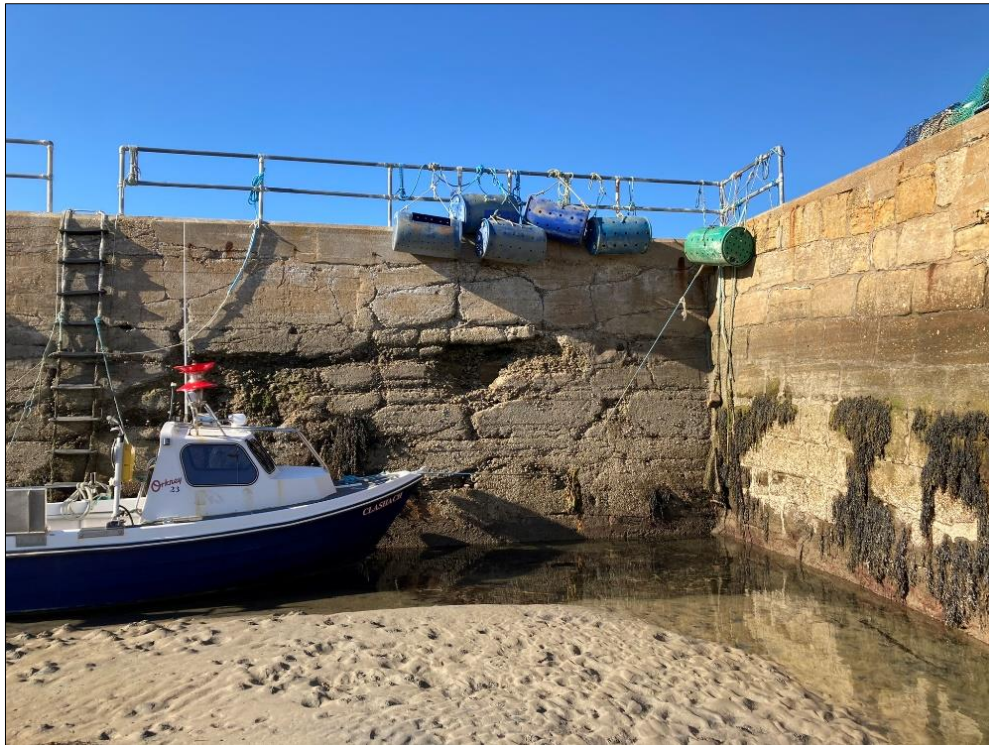


Photo 25: South Pier Quay Wall inner basin face.



Photo 26: South Pier west corner inner basin.



Photo 27: South Pier west corner inner basin.



Photo 28: Rock armour south end of West Pier.



Photo 29: Parapet wall south end of West Pier.



Photo 30: Parapet Wall south end of West Pier.



Photo 31: Outer Face of East Pier



Photo 32: Outer face of East Pier.



Photo 33 : Outer face of East Pier

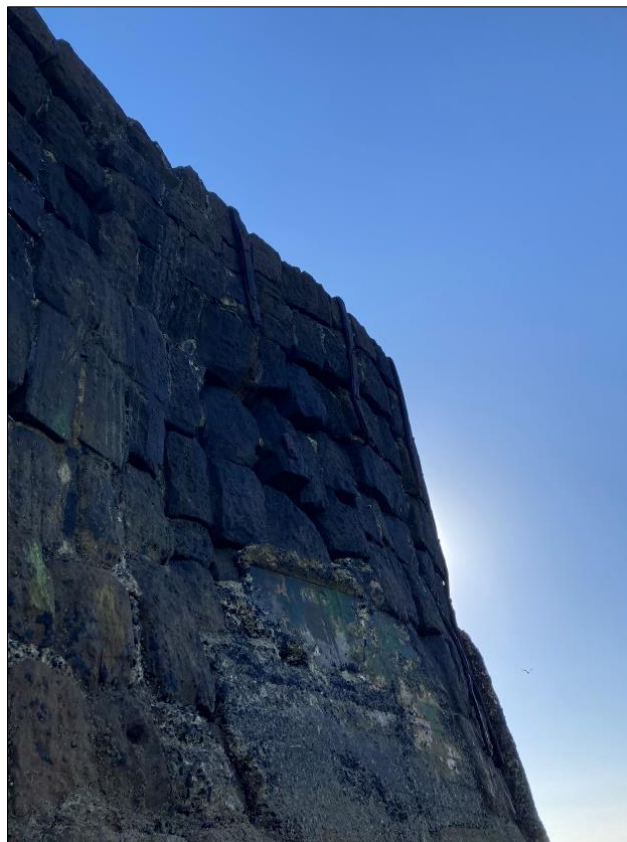


Photo 34: Outer Face of North Pier.



Moray Council

Harbour Capital Plan 2022 - 2026



REPORT

November 2021

CONSULTANCY

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DOCUMENT CONTROL SHEET

Project Name: Harbour Capital Works

Document Title: Plan for 2022 - 2026

Version	Detail	Prepared By & Date	Checked By & Date	Authorised For Issue By & Date
0	Issue for Information	 L Moreton 15/11/2021	 Will Burnish 16/11/2021	SA/NM

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1.0 Introduction

As a harbour authority Moray Council are responsible for the safe operation and maintenance of the harbours within the region. As part of the management of the harbour assets inspections are regularly completed on the structural elements of the harbours to assess their condition.

Any defects identified in the inspections are given a score based on the condition of the structure and the severity of failure. The scoring is determined as follows:

Condition:

- A – As New (*recent repair or newly constructed structure*)
- B – Good (*generally in good condition with some signs of wear and tear*)
- C – Fair (*Some noticeable signs of wear and tear*)
- D – Poor (*Noticeable signs of wear and tear, attention required*)
- E – Bad (*Immediate attention required to prevent failure*)

Severity:

- 1 – very unlikely to cause an impact to harbour operation or safety
- 2 – unlikely to cause an impact to harbour operation or safety
- 3 – likely to cause a minor impact to harbour operation or safety
- 4 – likely to cause a direct impact to harbour operation or injury to persons
- 5 – very likely to significantly impact on the operation of the harbour (e.g. closure) or serious injury or death to persons

These scores are combined to provide an overall score for the defect, this will allow it to be prioritised within the repairs.

Condition	Severity				
	1	2	3	4	5
A	A1	A2	A3	A4	A5
B	B1	B2	B3	B4	B5
C	C1	C2	C3	C4	C5
D	D1	D2	D3	D4	D5
E	E1	E2	E3	E4	E5

Priority
Very High
High
Medium
Low

Table 1 – Scoring matrix for defects identified during inspections.

Defects identified in red will be prioritised for repair first with defects in orange, or condition D and E planned after this. A full list of defects will be provided as an appendix to this report.

1.1 Harbour Defects

The following table identifies the scores for the current defects identified in each of the Moray Council Harbours.

Harbour	Total Number of Defects	Red Defects
Buckie	48	11
Burghead	25	7
Cullen	38	12
Findochty	40	8
Hopeman	44	6
Portknockie	32	10

Table 2 – Number of defects identified in each harbour and number of red defects which require immediate attention

1.2 Schedule of Repairs

The repairs to the harbours have been prioritised depending on the location of the repair and severity of failure of repair. Over the next 4 years repairs are planned as follows:

- 2022/2023 – Buckie and Portknockie (£243,500)
- 2023/2024 – Hopeman (£283,000)
- 2024/2025 – Burghead, Cullen and Findochty (£216,500)
- 2025/2026 – Portknockie (£559,500)

Details for the repairs to be completed are included in later sections of this report. The cost estimates above are indicative costs for each planned repair at the harbour, based on costs from historic similar repairs with 60% risk included.

After completion of the repairs it is anticipated that all repairs identified as 'red' in the harbour defects list will be repaired and a more regular maintenance schedule can be applied for future works.

Following every routine inspection of the harbour the defect will be reviewed against the Plan. The Plan will be reviewed and updated if required.

The Plan only covers structural works and has not identified any operational works which may be required such repairs to access roads, ladders.

2.0 2022/2023 Repairs

Buckie Harbour – Estimated costs £239,500

- West Pier (12, 13, 14, 15, 34)
- North Pier (16, 22, 23, 24)
- North West Pier (43, 44)



Figure 1 – Repairs planned to Buckie Harbour 2022/23

Portknockie – Estimated costs £4,000

- Macdonald's Pier – ladder replacement

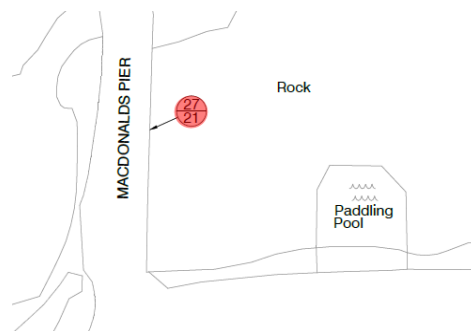


Figure 2 – Repairs planned to Portknockie Harbour 2022/23

It was previously identified that there may be an upcoming ladder replacement programme for the harbours, it may be worth considering running this in conjunction with the structural repairs.

3.0 2023/2024 Repairs

Hopeman Harbour – Estimated costs £283,000

- North Pier (10, 19)
- South Pier (33, 42)
- West Pier (38)
- Slipway (43)

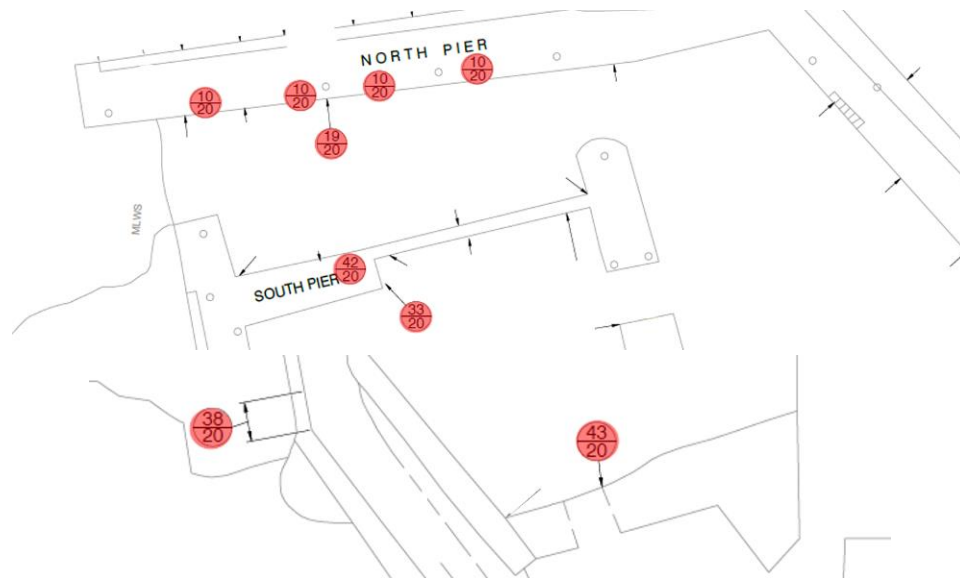


Figure 3 – Repairs planned to Hopeman Harbour 2023/24

4.0 2024/2025 Repairs

Burghead Harbour - Estimated costs £78,500

- North Quay (20, 21, 22, 23)
- South Pier (10, 15, 25)



Figure 4 – Repairs planned to Burghead Harbour 2024/25

Cullen Harbour - Estimated costs £65,000

- North Pier (9 - deck)
- Quay Wall (31, 32, 33, 35, 37, 38)

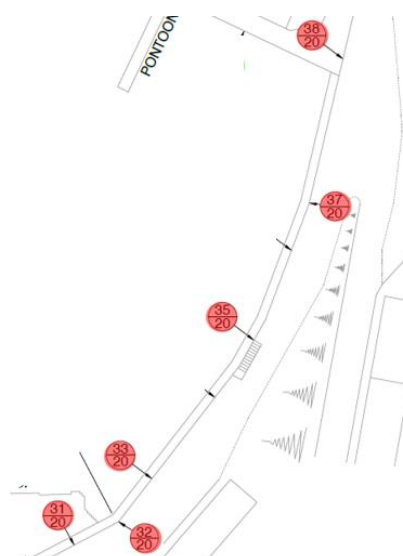


Figure 5 – Repairs planned to Cullen Harbour 2024/25

Findochty Harbour - Estimated costs £73,000

- Main Street (3)
- West Pier (13, 18, 24, 25, 27)
- Middle Pier (29)
- East Pier (32)

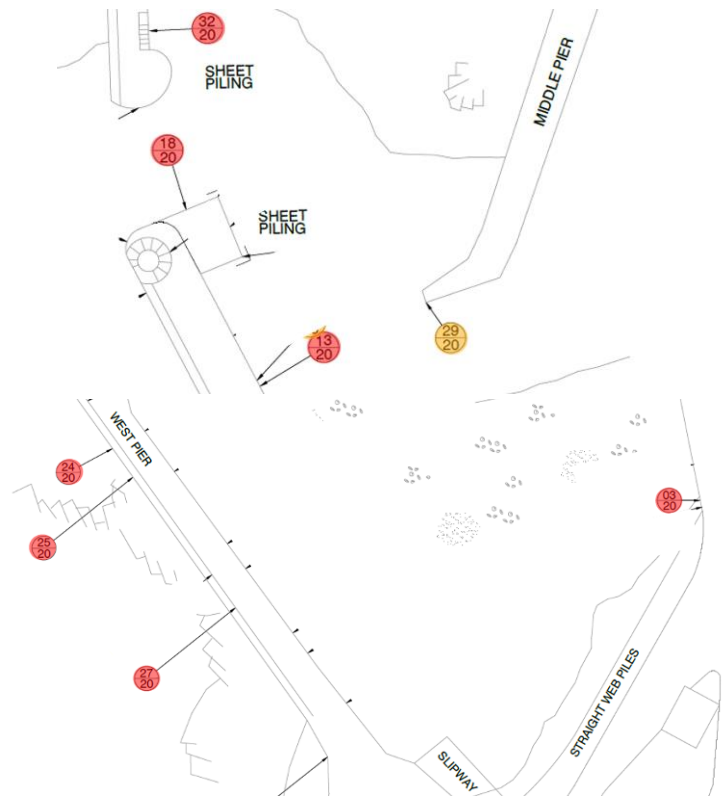


Figure 6 – Repairs planned to Findochty Harbour 2024/25

5.0 2025/2026 Repairs

Portknockie Harbour – Estimated costs £559,500

- Entrance Jetty (10)
- North Pier (12, 13, 14, 15, 19, 20)
- Middle Pier (25)
- Macdonald's Pier (29)

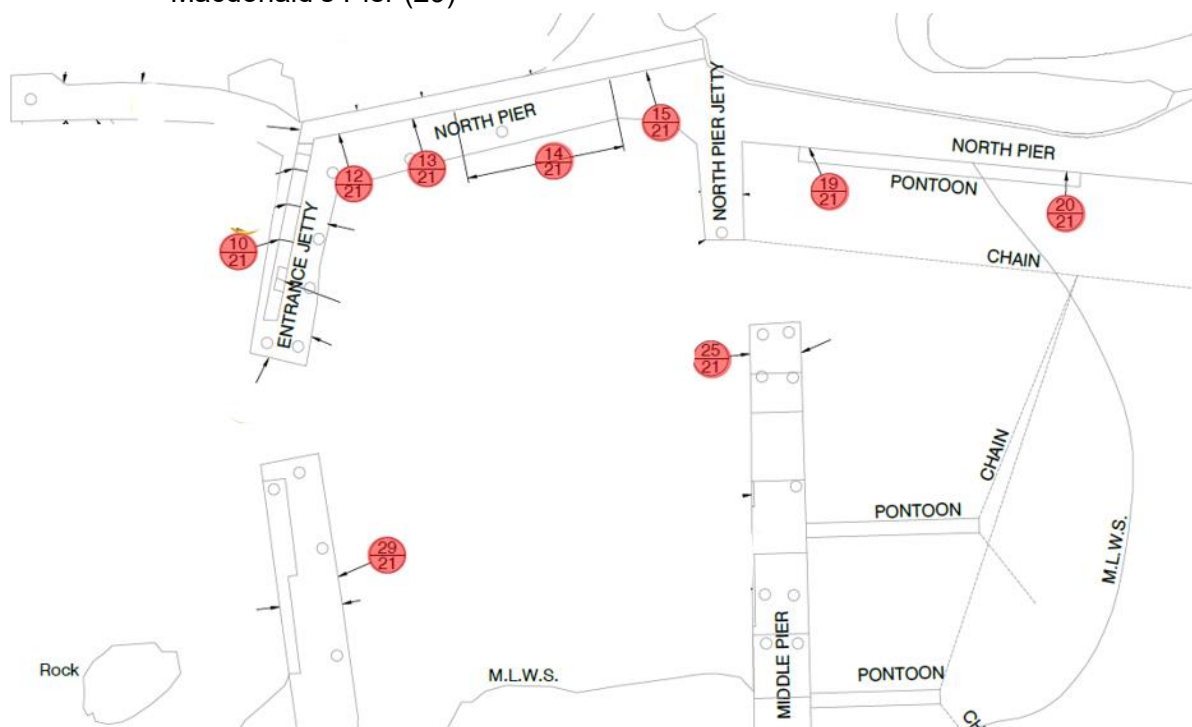


Figure 7 – Repairs planned to Portknockie Harbour 2025/26

6.0 Summary

This document identifies the scoring methodology and repair prioritisation for immediate repairs to the structural elements of the harbours in Moray over the next 4 years.

A full list of defects will be included as an appendix to this report.

Appendix 1 - Defects List

Harbour	Ref Number	Location of Defect	Easting	Northing	Description	Size	Condition	Severity of Failure	Score	Repair Detail	Repair Type	Estimated Cost	Proposed Repair Date	Recommendation	Delivery year
Buckie	1	North West Pier	343316	866223	Abrasion to blocks on outside face at root of pier		B - Good	3	B3					Monitor	
Buckie	2	North West Pier	343250	866229	Cracking under cope with small cavity forming		B - Good	3	B3					Monitor	
Buckie	3	North West Pier	343258	866202	Undermining to berm	0.8m High x 1m Wide x 1m Deep	D - Poor	3	D3					Repair	
Buckie	4	North West Pier	343280	866213	Undermining to berm	0.3m High x 2m Wide x 0.8 Deep	D - Poor	3	D3					Repair	
Buckie	5	North West Pier	343294	866219	Undermining to berm	0.7m High x 1m Wide x 0.7m Deep	D - Poor	3	D3					Repair	
Buckie	6	North West Pier	343245	866196	Loss of concrete to second outer berm	1m x 1m concrete Block dislodged	D - Poor	3	D3					Repair	
Buckie	7	North West Pier	343229	866188	Undermining to berm	1m High x 0.3m Wide x 1m Deep	D - Poor	3	D3					Repair	
Buckie	8	North West Pier	343199	866173	Undermining to outer second berm	0.4m High x 3m Wide x 1m Deep Hole forming in west end	D - Poor	2	D2					Monitor	
Buckie	9	North West Pier	343157	866153	Undermining to bagwork berm	?m High x 0.3m High x 1m Deep	D - Poor	3	D3					Repair	
Buckie	10	North West Pier	343134	866142	Undermining to outer berm	0.5m High x 5m Wide x 1m Deep	D - Poor	3	D3					Repair	
Buckie	11	North West Pier	343115	866133	Cavity at top of berm	2m x 2m x 0.3m Deep	D - Poor	3	D3					Repair	
Buckie	12	West Pier	342804	865998	Undermining at base of bagwork to berm	1m Wide x 0.3m High x 0.6 Deep	D - Poor	4	D4	Bagwork fill to the void		£ 3,500.00		Repair	22/23
Buckie	13	West Pier	342810	865995	Top of bagwork berm missing	3m Long x 0.8m High x 0.7m Deep	D - Poor	4	D4	Re-establish bagwork berm		£ 32,000.00		Repair	22/23
Buckie	14	West Pier	342814	865992	Undermining at inside corner	0.3m High x1m Wide x 0.6m Deep	D - Poor	4	D4	Bagwork fill to the void		£ 3,500.00		Repair	22/23
Buckie	15	West Pier	342795	865976	Area of abrasion on outside face		E - Bad	3	E3	5mx2mx0.2m refacing		£ 40,000.00		Repair	22/23
Buckie	16	North Pier	342755	866010	3No. Mental rods extending from sheet pilling above seabed	600m, 1m	D - Poor	4	D4	Divers to cut rebar and remove		£ 1,500.00		Repair	22/23
Buckie	17	North Pier	342828	866030	Undermining to bagwork, with cavity in berm above	0.15m High x 1m Deep x 1m Wide, 2m High x 1m Wide x 1m Deep	D - Poor	3	D3					Repair	
Buckie	18	North Pier	342803	866036	Cavity, off seabed with abrasion above.	1m, 5m High x 1m Wide 0.6m Deep maximum	D - Poor	3	D3					Repair	
Buckie	19	North West Pier	342927	866038	Lower row of precast blocks abraded over	20m Length	C - Fair	3	C3					Monitor	
Buckie	20	North Pier	342872	866026	Abrasion to existing concrete refacing is reducing the thcikness at the base and exposing reinforcement		C - Fair	2	C2					Monitor	
Buckie	21	North Pier	342843	865972	Small cavity approx. Below histoirc masonry repair	500mm x 300mm	C - Fair	2	C2					Monitor	
Buckie	22	North Pier	342853	866027	Cavity at ladder, loss of rungs to ladder	2m Long 1.5m High x 0.4 Deep	D - Poor	4	D4	2mx1.5mx0.5m and 2mx1mx0.2m refacing		£ 35,000.00		Repair	22/23
Buckie	23	North Pier	342783	866038	Historic underwater repair berm with sheet pile front and concrete infil. Sheet piles are holed in several locations and the concrete infil is breaking up. At landside corner the berm has completely broken leaving only the remnants of the sheet piles.		D - Poor	5	D5	Remove the remaining sheet piles and reface the end of the Pier		£ 90,000.00		Repair	22/23
Buckie	24	North Pier	342733	866043	Large section of a brasion to corner of pier which undermines cope and cavities are forming. Abrasion continues underwater.		D - Poor	4	D4	Reface the end of the Pier		£ 24,000.00		Repair	22/23
Buckie	25	North West Pier	342733	866037	Cavity in cope, displaced section of concrete adjacent		D - Poor	3	D3					Repair	
Buckie	26	North West Pier	342893	866008	Abrasion to joint along length of the North West Pier		C - Fair	2	C2					Monitor	
Buckie	27	North West Pier	342880	866002	Cavity at bed level	0.9m Wide 0.3m High adjacent precast units >1m Deep	D - Poor	3	D3					Repair	
Buckie	28	North West Pier	342889	866006	Minor undermining	1m Wide x 0.2m High x 0.3m Deep	D - Poor	2	D2					Monitor	
Buckie	29	North West Pier	342898	866010	Minor undermining	2m Wide x 0.2m High x 0.6m Deep	D - Poor	2	D2					Monitor	
Buckie	30	North West Pier	343315	866212	Undermining to precast blocks	15m Length, 0.6m High x 0.4m Deep, 1m Deep locally	D - Poor	3	D3					Repair	
Buckie	31	Pier 2	342981	866026	Section of concrete cope has sheared off at corner		A - As New	4	A4					Completed	
Buckie	32	Pier 3	343073	866048	Abrasion at joint	3m Wide 0.3m High x 0.2m Deep	C - Fair	3	C3					Monitor	
Buckie	33	Pier 3	343075	866072	Abrasion at pier corner	0.2m Deep x 2m High x 2m Wide	C - Fair	3	C3					Monitor	
Buckie	34	West Pier	342752	865890	Cavities forming at area of abrasion above switchbox		D - Poor	4	D4	3mx1mx0.3m refacing		£ 8,000.00		Repair	22/23
Buckie	35	West Pier	342806	865979	Cavity below hanging masonry	1.5m Wide x 1m High x 0.5m Deep	D - Poor	2	D2					Monitor	
Buckie	36	Pier 1	342866	865952	Area of abrasion to wall		C - Fair	3	C3					Monitor	
Buckie	37	Pier 1	342865	865939	Area of abrasion to wall		C - Fair	3	C3					Monitor	
Buckie	38	Pier 1	342869	865982	At bottom corner of the pier the concrete is breaking up	2m Long x 1m High x 0.4m Deep	D - Poor	3	D3					Repair	
Buckie	39	Fish Market	342886	865887	Undermining at wall rock interface	3m Long x 0.3m High x 0.4m Deep Filled with chain	D - Poor	2	D2					Monitor	
Buckie	40	Fish Market	342901	865895	Cavity at base of ladder	0.5m High x 0.5m Wide x 1m Deep	D - Poor	3	D3					Repair	
Buckie	41	North West Pier	343239	866186	Spalled concrete to innerface of parapet		C - Fair	2	C2					Monitor	
Buckie	42	North West Pier	343248	866182	Concrete pavement in poor state of repair		D - Poor	3	D3					Repair	
Buckie	43	North West Pier	343064	866091	Precast duct covers breaking up		E - Bad	4	E4	Replace broken concrete covers		£ 1,000.00		Repair	22/23
Buckie	44	North West Pier	342997	866059	Precast duct covers breaking up		E - Bad	4	E4	Replace broken concrete covers		£ 1,000.00		Repair	22/23

Buckie	45	North West Pier	342881	866008	Concrete pavement breaking up		D-Poor	3	D3					Repair	
Buckie	46	North Pier	342852	866018	Area of abrasion with cavity forming		D - Poor	3	D3					Repair	
Buckie	47	North West Pier	342821	866028	Area of abrasion to wall		C-Fair	4	C4					Repair	
Buckie	48	North West Pier	342803	866033	Area of abrasion to wall		C-Fair	4	C4					Repair	
Burghead	1	North Pier	310668	868962	Historic full width crack on top of berm with small cavity forming		C - Fair	3	C3					Monitor	
Burghead	2	North Pier	310667	868958	Historic full width crack on top of berm		C - Fair	3	C3					Monitor	
Burghead	3	Jetty	310681	868935	Inner bearing pile exposed but sand seabed found to be high		C - Fair	3	C3					Monitor	
Burghead	4	North Pier	310760	869022	Hole in outpan LHS	1m high x 0.2m wide x 0.6m deep	D - Poor	2	D2					Monitor	
Burghead	5	North Pier	310764	869028	Series of holes in sheet piles at low water Hole in outpan ar RHS Hole in either side of outpan Hole in outpan LHS Hole in either side of outpan	0.2m high x 0.2m wide x 0.3m deep 0.6m high x 0.2m wide x 0.2m deep 0.4m high x 0.2m wide x 0.1m deep 0.6m high x 0.2m wide x 0.2m deep	D - Poor	2	D2					Monitor	
Burghead	6	North Pier	310786	869046	Hole in outpan LHS	0.15m high x 0.15m wide x 0.2m deep	D - Poor	2	D2					Monitor	
Burghead	7	North Pier	310787	869095	Top of concrete wall section is abraded with exposed reinforcement	2m long x 0.3m high	D - Poor	1	D1					Monitor	
Burghead	8	North Pier	310785	869089	Cavity in rock face where it meets wall and undermining of wall	0.7m high x 0.6m wide x 1m deep 0.6m long x 0.7m deep	D - Poor	2	D2					Monitor	
Burghead	9	Spending Beach	310792	869088	Exposed rock face with cavities forming at spending beach where the rock armour was removed (cavities forming under slab)		D - Poor	2	D2					Monitor	
Burghead	10	South Pier	310777	869015	Lower ladder rungs deformed with significant loss of section due to corrosion		D - Poor	4	D4	Ladder Replacement		£ 4,000.00		Repair	24/25
Burghead	11	South Pier	310789	869035	Vertical steel plate from timber fender assembly is protruding from wall		B - Good	3	B3					Monitor	
Burghead	12	South Pier	310804	869030	Series of holes in sheet piles with hard material behind, over 11m, largest hole measured	1m high x 0.2m wide x 0.2m deep	D - Poor	3	D3	Patch repair and infill if required		£ 4,500.00		Repair	
Burghead	13	South Pier	310814	869024	Three outpans with holes to outpans	1m high x 0.1m wide x 0.1m deep	D - Poor	3	D3	Patch repair and infill if required		£ 4,500.00		Repair	
Burghead	14	South Pier	310824	869019	Historic holes in sheet piling		D - Poor	2	D2					Monitor	
Burghead	15	South Pier	310857	869001	Cavity 1m from bed at an area of bagwork. 2no. Exposed steel dowels extend from old bagwork repair with collapsed concrete bagwork found on seabed.	1m high x 0.3m wide x 0.3m deep	D - Poor	4	D4	Infill		£ 2,000.00		Repair	24/25
Burghead	16	South Pier	310912	868975	Cavity in bagwork	1m high x 0.2m wide x 0.4m deep	D - Poor	2	D2					Monitor	
Burghead	17	South Pier	310882	868989	Extent of bagwork refacing to rockface with historic cavities behind		D - Poor	2	D2					Monitor	
Burghead	18	North Quay	310844	869056	1m off bed cavity in wall	0.3m high x 0.5m wide x 0.3m deep	C - Fair	2	C2					Monitor	
Burghead	19	North Quay	310839	869059	1m off bed cavity in wall, with similar sized 1m long cavity adjacent.	0.2m high x 0.6m wide x 0.5m deep	C - Fair	2	C2					Monitor	
Burghead	20	North Quay	310835	869061	2m off bed cavity in wall next to ladder	0.6m high x 1m wide x 0.4m deep	D - Poor	4	D4	Infill		£ 8,500.00		Repair	24/25
Burghead	21	North Quay	310829	869064	1.5m off bed cavity in wall	0.4m high x 0.5m wide x 0.4m deep	D - Poor	4	D4	Infill		£ 2,500.00		Repair	24/25
Burghead	22	North Quay	310824	869066	1m off bed cavity in wall	0.5m high x 1m wide x 0.6m deep	D - Poor	4	D4	Infill		£ 8,000.00		Repair	24/25
Burghead	23	North Quay	310820	869068	1m off bed cavity in wall	0.4m high x 1m wide x 0.3m deep	D - Poor	4	D4	Infill		£ 3,500.00		Repair	24/25
Burghead	24	Middle Pier	310885	869021	Historic cavity in bedrock at bed level	0.1m high x 2m wide x 0.5m deep	D - Poor	2	D2					Monitor	
Burghead	25	South Pier	310768	868997	Increased cracking noted to top of corner refacing		D - Poor	4	D4	Further investigation required as this could be a simple anchor repair or may need to be completely removed and replaced.		£ 50,000.00		Repair	24/25
Cullen	1	North Pier	351039	867423	Slight undermining of wall over 10m in length with bulge in wall 2m above	10m long	B - Good	2	B2					Monitor	
Cullen	2	North Pier	351026	867429	Cementous pointing to masonry is cracking with some joints open		B - Good	1	B1					Monitor	
Cullen	3	North Pier	351006	867439	Undermining, historic and not exposed due to sand level	2m long x 0.5m high x 0.5m deep	D - Poor	2	D2					Monitor	
Cullen	4	North Pier	350991	867447	Intermittent cavity and undermining over 5m, historic and only partially exposed	5m long x 0.75m high x 1.5m deep	D - Poor	2	D2					Monitor	
Cullen	5	North Pier	350981	867464	Localised spalling and abrasion to corner		C - Fair	2	C2					Monitor	
Cullen	6	North Pier	350988	867460	Approx 3m long open vertical joint and abraded horizontal joints		C - Fair	3	C3					Monitor	
Cullen	7	North Pier	351001	867454	Cavity forming at base of vertical construction joint		C - Fair	3	C3					Monitor	
Cullen	8	North Pier	351016	867447	Area of spalling at concrete repair of wall abrasion and minor area at cope		C - Fair	3	C3					Monitor	
Cullen	9	North Pier	351002	867442	Deck joints are breaking up and abraded		D - Poor	4	D4	Infil voids in deck		£ 50,000.00		Repair	24/25
Cullen	10	North Pier	351003	867452	Area of spalling inside parapet		D - Poor	4	D4					Completed	24/25
Cullen	11	North Pier	350988	867449	Area of spalling inside parapet		D - Poor	4	D4					Completed	24/25

Cullen	12	North Pier	350984	867462	Area of spalling inside parapet		D - Poor	4	D4					Completed	24/25
Cullen	13	West Pier	350991	867274	Small cavity in wall - may be end of drainage pipe		C - Fair	2	C2					Monitor	
Cullen	14	West Pier	350985	867282	Concrete slab at base of wall is undermined and broken locally		C - Fair	2	C2					Monitor	
Cullen	15	West Pier	350982	867295	Historic and redundant concrete structure with spalled joints and abrasion		D - Poor	1	D1					Monitor	
Cullen	16	West Pier	350997	867410	Area with abrasion ato concrete and cavities forming in masonry pointing		D - Poor	3	D3					Repair	
Cullen	17	West Pier	350990	867298	Cavities forming in base of berm due to rotten timbers - not exposed		D - Poor	2	D2					Monitor	
Cullen	18	West Pier	350987	867325	Small cavity forming at ladder position		C - Fair	4	C4					Repair	
Cullen	19	West Pier	350987	867349	Open joints in masonry with missing pointing		C - Fair	4	C4					Repair	
Cullen	20	West Pier	351008	867419	Vertical crack wall - has previously been pointed but has opened up - crack extends through top of cope		C - Fair	3	C3					Monitor	
Cullen	21	West Pier	351001	867410	Concrete pavement on roundhead is cracked with 40mm gap between pavement and cope. Signs of slab movement		D - Poor	3	D3					Repair	
Cullen	22	West Pier	350981	867316	Historic deck repairs are breaking up		C - Fair	4	C4					Repair	
Cullen	23	West Pier	350983	867297	Pointing missing to wall in various locations		C - Fair	2	C2					Monitor	
Cullen	24	Jetty	351018	867394	Scour holes at corner of pier - area of historic undermining		C - Fair	2	C2					Monitor	
Cullen	25	Jetty	351020	867393	Historic full height crack on face of wall		C - Fair	2	C2					Monitor	
Cullen	26	Jetty	351068	867371	Horizontal crack 1.3m above bed over 10m length with joint abrasion adjacent		C - Fair	2	C2					Monitor	
Cullen	27	Quay Wall	351015	867270	Crack at end of retaining wall at hand rail post		D - Poor	1	D1					Monitor	
Cullen	28	Quay Wall	351023	867275	Sign of movement to retaining wall		C - Fair	5	C5					Repair	
Cullen	29	Quay Wall	351029	867280	Timber facing piles and waling are rotten with dull depth voids evident under walkway	1.3m deep x 0.3m high	E - Bad	4	E4					Completed	22/23
Cullen	30	Quay Wall	351031	867279	Damage and signs of movement of retaining wall - walkway slab also misaligned		D - Poor	4	D4					Completed	24/25
Cullen	31	Quay Wall	351038	867283	Vertical crack full height of wall		D - Poor	4	D4					Repair	24/25
Cullen	32	Quay Wall	351046	867287	Crack and signs of movement to parapet wall		D - Poor	4	D4					Repair	24/25
Cullen	33	Quay Wall	351052	867294	Verticle crack		D - Poor	4	D4					Repair	24/25
Cullen	34	Quay Wall	351063	867308	Corners of joints spalling with reinforcement exposed		C - Fair	4	C4					Repair	
Cullen	35	Quay Wall	351069	867318	Signs of movement at corner of stairs with crack to inside face, historic tell tale		D - Poor	4	D4	Anchor tie and infill		£ 10,000.00		Repair	24/25
Cullen	36	Quay Wall	351076	867333	Potential sign of movement at head of wall with localised spalling of concrete exposing reinforcement		C - Fair	4	C4					Repair	
Cullen	37	Quay Wall	351079	867342	Previous wall repair with signs of further movement - possible impact damage		D - Poor	4	D4					Repair	24/25
Cullen	38	Quay Wall	351085	867366	Reinforcement exposed on face of wall adjacent sign		D - Poor	4	D4	Clean reinforcement from rust and reface		£ 5,000.00		Repair	24/25
Findochty	1	Main Street	346117	867884	Cavity forming on top of straight webbed piles at toe of masonry revetment		C - Fair	2	C2					Monitor	
Findochty	2	Main Street	346122	867880	Cavity at base of wall	1.5m wide x 0.8m high x 0.6m deep	D - Poor	2	D2					Monitor	
Findochty	3	Main Street	346123	867882	Verticle concrete planks which form the full height of the wall are cracking due to corrosion of the reinforcement.		C - Fair	2	C2					Monitor	
Findochty	3	Main Street	346123	867882	Corner of parapet is cracked and corroded rebar is exposed at head of wall		D - Poor	4	D4	Remove damaged sections and replace		£ 5,000.00		Repair	24/25
Findochty	4	Main Street	346130	867883	Sheet piles are corroded		D - Poor	2	D2					Monitor	
Findochty	5	West Pier	346082	867954	Cement repairs are starting to spall away from wall		C - Fair	2	C2					Monitor	
Findochty	6	West Pier	346092	867962	Bottom joint in wall is open	4m long x 0.2m high x 0.2m deep	C - Fair	2	C2					Monitor	
Findochty	7	West Pier	346096	867965	Length of abrasion at mid-height of wall		C - Fair	2	C2					Monitor	
Findochty	8	West Pier	346107	867974	Area of general abrasion	2m long x 2m high	C - Fair	2	C2					Monitor	
Findochty	9	West Pier	346114	967978	Section of concrete is cracked and ready to fall away. Lower section is already broken off and sitting on seabed		A - As New	3	A3					Completed	
Findochty	10	West Pier	346114	967978	Base of ladder is corroded with reduced section		E - Bad	4	E4	Harbour Team to replace ladder				Completed	22/23
Findochty	11	West Pier	346129	867989	Area of general abrasion adjacent to ladder - edge of ladder recess eroded	4m long x 1-2m high x 0.15m deep	D - Poor	3	D3	Reface		£ 20,000.00		Repair	
Findochty	12	West Pier	346137	867995	Area of concrete abrasion on face of wall		D - Poor	2	D2					Monitor	

Findochty	13	West Pier	346175	868016	Concrete breakign up with crakcs froming and abrasion on ladder recess edge		D - Poor	4	D4	Reface		£ 9,500.00		Repair	24/25
Findochty	14	West Pier	346176	868017	Voids forming under cope rail adjacent ladder		D - Poor	3	D3					Repair	
Findochty	15	West Pier	346183	868020	General area of abrasion		C - Fair	2	C2					Monitor	
Findochty	16	West Pier	346201	868021	Sheet pile refacing is generally corroded with signs of ALWC. Several holes have formed and steel is thinning.		B - Good	2	B2					Completed	
Findochty	17	West Pier	346196	868019	At bed level, at scour holes at inside corners, steel repair plates have installed to corners. The plates have deteriorated due to sand abrasion and corrosion with holes forming into the sheet pile structure allowing loss of material.		B - Good	2	B2					Completed	
Findochty	18	West Pier	346204	868028	Cope and deck slab are cracked		D - Poor	4	D4	Anchor tie and infill		£ 20,000.00		Repair	24/25
Findochty	19	West Pier	346199	868038	Area of abrasion to mid height of wall with cavity forming	1m wide x 1m high	C - Fair	2	C2					Monitor	
Findochty	20	West Pier	346197	868031	15mm gap between slab and roundhead wall		D - Poor	3	D3	Anchor tie		£ 10,000.00		Repair	
Findochty	21	West Pier	346190	868035	Early stage abrasion and cavity forming in outside face of wall		C - Fair	2	C2					Monitor	
Findochty	22	West Pier	346166	868022	Area of general abrasion to wall		C - Fair	2	C2					Monitor	
Findochty	23	West Pier	346143	868006	Localised area of spalling to parapet - corroded steel exposed		D - Poor	2	D2					Monitor	
Findochty	24	West Pier	346133	868001	Joint opening with cavity forming at steps on parapet wall		D - Poor	4	D4	Reface		£ 3,000.00		Repair	24/25
Findochty	25	West Pier	346128	867997	Joint opening with cavity forming at top of wall		D - Poor	4	D4	Reface		£ 3,000.00		Repair	24/25
Findochty	26	West Pier	346108	867981	Crack opening at top of wall with spalling of concrete		D - Poor	2	D2					Monitor	
Findochty	27	West Pier	346101	867976	Cavity forming at joint with concrete spalling away	2m long x 0.2m high x 0.2m deep	D - Poor	4	D4	Reface		£ 2,500.00		Repair	24/25
Findochty	28	West Pier	346071	867958	Spalling of joints at root of pier on outside face		D - Poor	2	D2					Monitor	
Findochty	29	Middle Pier	346189	867989	Corrosion to straight web sheet piles with signs of ALWC. Abrasion from chain and mooring ropes has resulted in complete loss of steel with exposure of concrete.		E - Bad	2	E2	Replace steel sheet piles or reface edge		£ 6,000.00		Repair	24/25
Findochty	30	Middle Pier	346251	867967	0.75m high section of parapet has been displaced upto 90mm		C - Fair	4	C4					Repair	
Findochty	31	East Pier	346261	868035	Area of general abrasion to wall		C - Fair	2	C2					Monitor	
Findochty	32	East Pier	346233	868034	Cracking and abrasion to steps - cavity is undercutting lower steps		D - Poor	4	D4	Anchor tie and infill		£ 30,000.00		Repair	24/25
Findochty	33	East Pier	346220	868036	Signs of ALWC to low level sheet piles		C - Fair	2	C2					Monitor	
Findochty	34	Sterlochy Pier	346202	868159	Small cavity 1m off bed		D - Poor	1	D1					Monitor	
Findochty	35	Sterlochy Pier	346199	868158	Small cavity	0.5m wide x 0.2m high x 1m deep	D - Poor	1	D1					Monitor	
Findochty	36	Sterlochy Pier	346199	868171	Concrete spalling at outside corner and face of pier		D - Poor	1	D1					Monitor	
Findochty	37	Sterlochy Pier	346215	868171	Loss of historic refacing has exposed concrete wall		D - Poor	1	D1					Monitor	
Findochty	38	Middle Pier	346262	867978	Minor undermining between rock and concrete wall - some fracturing evident		C - Fair	2	C2					Monitor	
Findochty	39	East Pier	346272	868042	Small cavities forming at root of pier		C - Fair	2	C2					Monitor	
Hopeman	1	North Pier	314401	870030	Abrasion to horizontal joint at mid height of wall on outer face - further areas of shallower abrasion adjacent	2m long x 1m high x 0.3m deep	D - Poor	3	D3	Reface		£ 8,000.00		Repair	
Hopeman	2	North Pier	314412	870031	Undermining to wall above bagwork berm	1m high x 1m long x 0.6m deep	D - Poor	3	D3	Infill		£ 10,000.00		Repair	
Hopeman	3	North Pier	314421	870033	Undermining at base of concrete wall	0.2m high x 1m long x 0.7m deep	D - Poor	3	D3	Infill		£ 4,000.00		Repair	
Hopeman	4	North Pier	314429	870034	Cavity at base of wall	0.5m high x 1m long x 0.6m deep	D - Poor	3	D3	Infill		£ 8,000.00		Repair	
Hopeman	5	North Pier	314440	870036	Cavity at base of wall	0.6m high x 0.6m long x 0.6m deep	D - Poor	3	D3	Infill		£ 6,500.00		Repair	
Hopeman	6	North Pier	314450	870037	Undermining to base of wall - localised area of wall abrasion above	0.4m high x 1m wide x 1m deep	D - Poor	3	D3	Infill		£ 7,500.00		Repair	
Hopeman	7	North Pier	314461	870039	Abrasion of wall joint - reinforcement exposed	2m high x 1m wide	D - Poor	3	D3	Reface		£ 8,000.00		Repair	
Hopeman	8	North Pier	314430	870031	Spalling concrete along inside of parapet		C - Fair	3	C3					Monitor	
Hopeman	9	North Pier	314404	870023	Abrasion and cavities in deck and at end of pier		D - Poor	3	D3					Repair	
Hopeman	10	North Pier	314429	870021	Cavities in cope in several locations		E - Bad	3	E3	4No, of cope repairs		£ 20,000.00		Repair	23/24
Hopeman	11	East Pier	314517	870043	Sunken block above concrete repair with open joint to perimeter		D - Poor	2	D2					Monitor	
Hopeman	12	East Pier	314532	870027	Missing block 0.6m deep adjacent berm		D - Poor	2	D2					Monitor	

Hopeman	13	East Pier	314548	870009	Open coursing in face of wall at high level over 10m length. Open jointing on top of wall with cavities forming		D - Poor	3	D3					Repair	
Hopeman	14	East Pier	314561	869994	Missing blocks	1m deep with 0.25m x 0.25m opening	D - Poor	3	D3					Repair	
Hopeman	15	East Pier	314542	869998	2 small cavities	0.3m deep x 0.5m wide	D - Poor	2	D2					Monitor	
Hopeman	16	East Pier	314531	870010	Undermining	3m long x 0.3m deep	D - Poor	2	D2					Monitor	
Hopeman	17	East Pier	314520	870023	Small cavity at base of steps and spalling below steps		C - Fair	3	C3					Monitor	
Hopeman	18	North Pier	314482	870019	Historic cavity at bed level - filled with sand		D - Poor	2	D2					Monitor	
Hopeman	19	North Pier	314436	870023	Cavity and abrasion of wall under cope with cavities forming adjacent ladder	4m long	D - Poor	4	D4	3mx1mx0.3m refacing		£ 8,000.00		Repair	23/24
Hopeman	20	North Pier	314422	870022	Cavity in wall - with steel bar exposed	1m long x 1m high x 0.1m deep	C - Fair	3	C3					Monitor	
Hopeman	21	North Pier	314412	870021	Area of abrasion	8m long x 1m high x 0.2m deep	C - Fair	3	C3					Monitor	
Hopeman	22	South Pier	314421	869994	Minor cavity between concrete and rock	1m long x 0.5m deep x 0.3m high	C - Fair	2	C2					Monitor	
Hopeman	23	South Pier	314435	869996	Area of minor abrasion at base of ladder with 2 small cavities forming	3m long	C - Fair	4	C4	3mx0.5mx0.4m refacing		£ 8,000.00		Repair	
Hopeman	24	South Pier	314458	870002	Cavity above concrete repair	2.5m long x 0.5m high x 0.2m deep	D - Poor	2	D2					Monitor	
Hopeman	25	South Pier	314479	870008	Small cavity 1.2m above bed level	0.3m x 0.3m	C - Fair	2	C2					Monitor	
Hopeman	26	South Pier	314482	870000	Historic cracks in deck - covered by creels		C - Fair	2	C2					Monitor	
Hopeman	27	Central Pier	314484	869986	At pier corners there are gaps in the masonry coursing and dislodged blocks		D - Poor	3	D3	Reface		£ 50,000.00		Repair	
Hopeman	28	Central Pier	314487	869981	Cracking to deck and cope at end of pier		D - Poor	3	D3	Infill cracks		£ 10,000.00		Repair	
Hopeman	29	Central Pier	314486	869987	Historic undermining not visible during inspection		D - Poor	3	D3	see 27				Repair	
Hopeman	30	South Pier	314475	870004	Area of abrasion to upper part of wall - with surrounding abrasion to joints	1.5m long x 1m	D - Poor	3	D3	Reface		£ 8,000.00		Repair	
Hopeman	31	South Pier	314459	870000	Historic cavity at bed level - obstructed by vessel		D - Poor	3	D3	Reface		£ 15,000.00		Repair	
Hopeman	32	South Pier	314445	869997	Area of abrasion midheight of wall	2m long x 0.3m high	D - Poor	3	D3	Reface		£ 15,000.00		Repair	
Hopeman	33	South Pier	314445	869993	Abrasion on corner with cavities forming. Abrasion is occurring above and under the cope with cavities forming over 5m length.	2m high x 3m long	E - Bad	3	E3	Infill and reface		£ 50,000.00		Repair	23/24
Hopeman	34	West Pier	314428	869957	Blocks sunk and wall bulging at base - historic and not visible		C - Fair	3	C3					Monitor	
Hopeman	35	Central Pier	314478	869953	Undermining - historic not visible	1.5m long x 0.7m high x 0.3m deep	D - Poor	3	D3					Repair	
Hopeman	36	West Pier	314443	869873	Small cavities in rock at bed level	0.6m deep x 0.7m long x 0.2m high 0.3m high x 0.3m long x 0.7m deep	C - Fair	2	C2					Monitor	
Hopeman	37	West Pier	314454	869855	General abration - cope is undermined with exposed cable		D - Poor	2	D2					Monitor	
Hopeman	38	West Pier	314438	869857	At end of concrete wall the end section has been displaced - evidence of historic repairs. Block is abraded on outer face. Cavity is forming under abrasion. Adjacent rock armour displaced exposing pitched stone slope.	Abrasion - 5m long x 2m high Cavity - 1m x 1m x 0.5m deell	E - Bad	3	E3	Anchor Tie-in and infill voids		£ 50,000.00		Repair	23/24
Hopeman	39	West Pier	314435	869868	Area of abrasion to horizontal joint and verticle joint	Horizontal - 8m long x 0.2m high x 0.25m deep Verticle - 1.5m long x 0.5m wide x 0.25m deep	D - Poor	3	D3					Repair	
Hopeman	40	West Pier	314424	869930	Intermittent loss of concrete berm exposing rock at base of wall	upto 5m long	C - Fair	3	C3					Monitor	
Hopeman	41	West Pier	314416	869974	Undermining	2m long x 0.5m deep x 0.3m high	D - Poor	3	D3					Repair	
Hopeman	42	South Pier	314437	869993	Concrete deck breaking up	2m long x 1.2m wide	D - Poor	4	D4	Replace deck		£ 150,000.00		Repair	23/24
Hopeman	43	Slipway	314477	869847	Gabion basket is burst at side of slipway		D - Poor	4	D4	Replace gabion basket		£ 5,000.00		Repair	23/24
Hopeman	44	South Pier	314489	870006	Spalling of concrete at edge of concrete steps		C - Fair	4	C4	Reface		£ 10,000.00		Repair	
Portknockie	1	Breakwater	348608	868697	Small cavity is forming on the deck connected to area of abrasion on wall		D - Poor	1	D1					Monitor	
Portknockie	2	Breakwater	348618	868697	Historic deck repair is spalling	2m length	D - Poor	1	D1					Monitor	
Portknockie	3	Breakwater	348641	868696	Spalling of repair concrete around entrance tunnel	1m high x 0.46m wide x 0.1m deep	D - Poor	1	D1					Monitor	
Portknockie	4	Breakwater	348608	868697	Abrasion to concrete on inner face of breakwater wall over full length but typically restricted to the top 1.5m of the wall. Small cavities forming at 4A, 4B and 4C. Hazing pattern forming at 4A connected to deck cavity at defect 1.		D - Poor	1	D1					Monitor	
Portknockie	5	Breakwater	348608	868702	Minor abrasion of concrete on outer face of breakwater with small cavity forming at 5A		D - Poor	1	D1					Monitor	
Portknockie	6	North Pier	348649	868699	Abrasion to horizontal joints on outside face of the North Pier - worst area at outer end near 6A		D - Poor	3	D3	Reface		£ 225,000.00		Repair	

Portknockie	7	Entrance Jetty	348642	868690	Open wall joint	2m high x 0.6m wide	D - Poor	3	D3	Anchor Tie-in and reface		£ 15,000.00		Repair	
Portknockie	8	Entrance Jetty	348641	868685	Open wall joint with spalling at base	1.2m high x 0.26m wide	D - Poor	3	D3	Anchor Tie-in and reface		£ 10,000.00		Repair	
Portknockie	9	Entrance Jetty	348644	868683	Crack in deck slab extending from parapet to new cope	0.03m wide	D - Poor	3	D3	Anchor Tie-in and reface		£ 5,000.00		Repair	
Portknockie	10	Entrance Jetty	348640	868680	Open wall joint		E - Bad	3	E3	Anchor Tie-in and reface		£ 15,000.00		Repair	25/26
Portknockie	11	Entrance Jetty	348639	868675	Spalled horizontal construction joint mid height of wall		D - Poor	2	D2					Monitor	
Portknockie	12	North Pier	348646	868695	Inside face of parapet has significant spalling to concrete face	5m long	E - Bad	3	E3	Reface		£ 90,000.00		Repair	25/26
Portknockie	13	North Pier	348655	868694	Inside face of parapet has significant spalling to concrete face	5m long	E - Bad	3	E3	Reface		£ 90,000.00		Repair	25/26
Portknockie	14	North Pier	348673	868701	Abrasion to horizontal and vertical joints on inside face of parapet. Top of wall abraded over length of parapet		E - Bad	3	E3	Reface		£ 225,000.00		Repair	25/26
Portknockie	15	North Pier	648689	868704	Cracking to underside of walkway and steps leading to parapet		D - Poor	4	D4	Reface		£ 90,000.00		Repair	25/26
Portknockie	16	North Pier Jetty	648696	868687	3No. Open cracks in top 2m of wall section of jetty		D - Poor	3	D3	Anchor Tie-in and reface		£ 5,000.00		Repair	
Portknockie	17	North Pier Jetty	348702	868687	1No. Open crack in top 2m of wall section of jetty		D - Poor	3	D3	Anchor Tie-in and reface		£ 5,000.00		Repair	
Portknockie	18	North Pier Jetty	348697	868680	Abrasion to horizontal construction joint to full extent of jetty with significant undercutting to outer corner		D - Poor	3	D3	Reface, assume full length of jetty, 0.6m high and 0.4m deep		£ 85,000.00		Repair	
Portknockie	19	North Pier	348711	868693	At base of ladder area of concrete abrasion with undercutting. All at interface with exposed rock	Abrasion - 1.3m long x 0.3m deep x 0.8m high Undercutting - 1m long x 0.15m deep	D - Poor	4	D4	Reface		£ 13,500.00		Repair	25/26
Portknockie	20	North Pier	348747	868690	Base of pontoon guide is corroded with visible loss of section 0.3m high. Missing bolts noted to wall bracket above.		D - Poor	4	D4	Repair to supports as required, until replacement pontoon project		£ 20,000.00		Repair	25/26
Portknockie	21	Middle Pier	348703	868645	Open joint in slab at cope	2m long x 0.6m deep	D - Poor	3	D3	Infill		£ 35,000.00		Repair	
Portknockie	22	Middle Pier	348703	868632	Open joint in slab at cope	10m long x 0.5m deep	D - Poor	3	D3	Infill		£ 148,000.00		Repair	
Portknockie	23	Middle Pier	348704	868639	Concrete slabs with bitumen overlay are off level and appear to have settled		C - Fair	4	C4	Investigate and Infill		£ 25,000.00		Repair	
Portknockie	24	Middle Pier	348710	868665	Corrosion visible to high level tie rod plates and bolts		C - Fair	2	C2					Monitor	
Portknockie	25	Middle Pier	348703	868665	Crack on deck at ladder extends into ladder recess.		D - Poor	4	D4	Anchor Tie-in and reface		£ 13,500.00		Repair	25/26
Portknockie	26	Middle Pier	348703	868665	Abrasion to horizontal construction joint 2m below deck. Cavity forming at ladder	2m long x 0.9m high x 0.3m deep	D - Poor	3	D3	Reface		£ 15,000.00		Repair	
Portknockie	27	MacDonalds Pier	348648	868596	Small cavity forming at top of ladder recess		E - Bad	4	E4	Ladder Replacement		£ 4,000.00		Repair	22/23
Portknockie	28	MacDonalds Pier	348647	868630	Cavity in wall forming next to low water discharge	1.5m long x 0.3m deep x 0.3m high	C - Fair	2	C2					Monitor	
Portknockie	29	MacDonalds Pier	348646	868634	Lower ladder rungs are slightly corroded		D - Poor	4	D4	Ladder Replacement		£ 2,500.00		Repair	25/26
Portknockie	30	MacDonalds Pier	348638	868630	General abrasion to horizontal construction joints with small cavity forming at mid height of wall	0.4m x 0.4m x 0.3m deep	C - Fair	2	C2					Monitor	
Portknockie	31	Entrance Jetty	348638	868664	Abrasion and cracking to end of pier		D - Poor	3	D3	Infill		£ 5,000.00		Repair	
Portknockie	32	Entrance Jetty	348642	868667	Diagonal crack at which opens at low water level and which is known to extend to bed level.		D - Poor	3	D3	Infill		£ 10,000.00		Repair	