

Item: 18

Policy and Resources Committee: 23 November 2021.

Kirkwall Pier – Water Break Tank System.

Stage 2 Capital Project Appraisal.

Report by Interim Executive Director of Finance, Regulatory, Marine and Transportation Services.

1. Purpose of Report

To consider the Stage 2 Capital Project Appraisal in respect of the installation of a break tank on Kirkwall Pier to separate the pier's water system from the Scottish Water main system.

2. Recommendations

The Committee is invited to note:

2.1.

That the current water supply system on Kirkwall Pier does not conform to the Water Supply (Water Fittings) (Scotland) Byelaws 2014.

2.2.

That should the water supply system not be upgraded to include an appropriate air gap, the water supply to Kirkwall Pier could potentially be suspended, with the Council potentially open to prosecution under the Water Supply (Water Fittings) (Scotland) Byelaws 2014.

It is recommended:

2.3.

That the Stage 2 Capital Project Appraisal, in respect of the installation of a break tank on Kirkwall Pier, attached as Appendix 1 to this report, be approved

2.4.

That the installation of a break tank on Kirkwall Pier be added to the non-General Fund capital programme for 2022/23, at a gross project cost of £200,000, including a 23% optimism bias, to be funded from the Miscellaneous Piers and Harbours Reserve Fund.

3. Byelaws and Water Categories

3.1.

Under the Water Supply (Water Fittings) (Scotland) Byelaws 2014, any Harbour or Pier is considered a category 5 site. Category 5 fluids pose the highest risk of contamination, potentially presenting a serious hazard to health. Currently, Kirkwall Pier has a double check valve in the line at the point the line joins the pier, however this does not comply with the current byelaws. This would make the installation of such a system a regulatory requirement.

3.2.

High risks of exposure to fluid category 5 may include, but are not limited to:

- Filling on board water systems.
- Water used in connection with sewage disposal.
- Industrial processes.
- Pressurised systems.
- Sea water fire-fighting systems.
- Pipework and connection points likely to become submerged.

3.3.

Under the Water Supply (Water Fittings) (Scotland) Byelaws 2014, water fittings which are exposed to fluid risk category 5 contaminants should incorporate a backflow prevention device.

4. Potential systems

4.1.

There are several forms of backflow prevention which can be utilised to protect from the category 5 contaminants listed in section 3.2 above.

4.2.

The installation of a break tank and pumped system would allow vessels using the pier and businesses on Kirkwall Pier to receive a supply of water in the manner that they currently do.

4.3.

An alternative to a break tank would be the use of “DC interrupters”, which is a device screwed onto a tap which allows backflow prevention via a permanent atmospheric vent. These systems are designed primarily for an open system and not for use with hoses.

5 Failure to comply

5.1.

Failure to comply with the byelaws will leave the Council open to prosecution under the Water Supply (Water Fittings) (Scotland) Byelaws 2014.

5.2.

Failure to comply could also lead to Scottish Water cutting off its supply to Orkney Harbours' facilities until such time as backflow protection to their system has been installed.

6. Corporate Governance

This report relates to the Council complying with its financial process and procedures and therefore does not directly support and contribute to improved outcomes for communities as outlined in the Council Plan and the Local Outcomes Improvement Plan.

7. Financial Implications

7.1.

Estimates for a suitable system suggest a cost of £30,000 to design the system and £132,000 to build, as follows:

- Civil Works – £60,000.
- Supply of materials – £42,000.
- Installation – £21,000.
- Commissioning – £9,000.

7.2.

A Stage 2 Capital Project Appraisal in respect of the installation of a break tank on Kirkwall Pier is attached as Appendix 1 to this report. The proposed budget of £200,00 for the project includes 23% optimism bias on the estimated costs detailed above.

7.3.

Water sales are an important source of revenue for the Miscellaneous Piers and Harbours Account, however the ability to supply fresh water as part of the Harbour offering is of greater importance than revenue generation. Pre-COVID the sales of water at Kirkwall Pier were over £7,000 per annum. The sales dropped to under £5,000 in 2020/21 and have picked up again in 2021/22 with sales of £4,034 to the end of October.

7.4.

The assessment of revenue expenditure indicates that there will be a small net annual cost for the provision of water on the pier based on the capital funding being provided from the Miscellaneous Piers Fund and annual maintenance charges being in line with the water supply tanks at Hatston Pier. The maintenance costs are worst case and at the upper end of expectations while the water sales figures are pessimistic and the assessment therefore presents what should be the worst-case position.

7.5.

On the basis that the Miscellaneous Piers and Harbours Account carried an accumulated surplus balance position of £6,867,712 as at 31 March 2021, of which £4,347,513 has been committed to the development of Stage 2 Capital Project Appraisals for the Scapa Deep Water Quay and development of Hatston Pier, leaving a balance of £2,520,199, there is scope to utilise prior year balances of £200,000 to fund the installation of a break tank on Kirkwall Pier to separate the pier's water system from the Scottish Water main system.

8. Legal Aspects

8.1.

Section 95 of the Local Government (Scotland) Act 1973 requires the Council to decide for the proper administration of its financial affairs. As part of that, the Council is expected to have regard to economy, efficiency and effectiveness in its use of resources.

8.2.

In terms of Section 35 of the Local Government in Scotland Act 2003 the Council must determine and keep under review the maximum amount which it can afford to capital expenditure. In so doing, the Council must comply with regulations made by Scottish Ministers.

8.3.

Approving the Stage 2 Capital Project Appraisal, attached to this report, will assist the Council in discharging its duties under the Water Supply (Water Fittings) (Scotland) Byelaws 2014.

9. Contact Officers

Gareth Waterson, Interim Executive Director of Finance, Regulatory, Marine and Transportation Services, Email: gareth.waterson@orkney.gov.uk

James Buck, Head of Marine Services, Transportation and Harbour Master, Email: james.buck@orkney.gov.uk

Richard Wild, Deputy Harbour Master: Operations, Email: richard.wild@orkney.gov.uk

10. Appendix

Appendix 1: Stage 2 Capital Project Appraisal – Kirkwall Pier Water Break Tank System.

Capital Project Appraisal – Stage 2

Capital Programme: Non-General Fund.

Client Service: Marine Services.

Project Name: Kirkwall Pier – Water Break Tank System.

1. Background

1.1. Currently at Kirkwall Pier, water is supplied to various hose points and buildings directly from a 150mm feed line coming directly off the Scottish Water system.

1.2. Under the Water Supply (Water Fittings) (Scotland) Byelaws 2014, any Harbour or Pier is considered category 5 site. Category 5 fluids pose the highest risk of contamination, potentially presenting a serious hazard to health. This would make the installation of such a system a regulatory requirement.

1.3. High risks of exposure to fluid category 5 may include, but are not limited to:

- Filling on board water systems.
- Water used in connection with sewage disposal.
- Industrial processes.
- Pressurised systems.
- Sea water fire-fighting systems.
- Pipework and connection points likely to become submerged.

1.4. Under these byelaws water fittings which are exposed to fluid risk category 5 contaminates should incorporate a backflow prevention device which provides protection against fluid category 5.

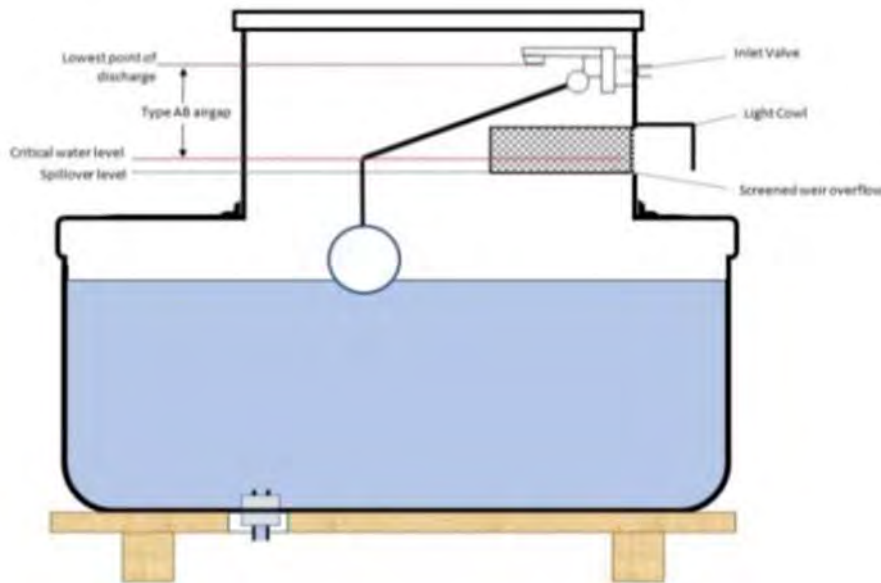
2. Options available

2.1. Orkney Harbours are proposing to install a whole site backflow protection system in the form of a “break tank” on Kirkwall Pier to separate the water delivered on the pier from the Scottish Water system.

2.2. The service plans to run a tender exercise to design and build a small break tank (circa 5m³) and pump system which will deliver water to Kirkwall Pier at a pressure just lower than that supplied by Scottish Water. This would be similar to the system at Hatston Pier but without the large storage facility.

2.3. This would allow the Council to comply with the byelaws by having an air gap at the break tank and only allowing the pier system to be contaminated in the event of backflow from a category 5 fluid source.

2.4. The diagram below is an example of a simple break tank offering backflow prevention via an air gap.



2.5. Backflow prevention could also be provided at the point of supply (such as a DC interceptor device attached to a tap, which will discharge water through ventholes in the event of backflow/blockage) however these devices restrict the length of hose that can be used to less than 1m (due to the back pressure activating the backflow prevention) which makes these devices unsuitable for harbour users to fill water tanks or wash decks. This system would also not address the needs of larger scale users, such as the outer north isles ferries fleet, which require a connection to a large diameter hydrant to take water.

2.6. There is a plan for the smaller piers to use a much smaller break tank system at each outlet to provide a hose for small vessels. However, it will be more cost effective for Kirkwall Pier to be covered by a whole site backflow protection system and a smaller break tank system would not meet the needs of larger scale water users.

2.7. Stromness Harbour will be considered at a later date.

3. Land Purchase Requirements

3.1. There is no requirement for land purchase for this capital project.

4. Project Appraisal

	Criteria	Response
1.	Protects Existing Statutory Provision	This project allows for the continued provision of water while complying with the Water Supply (Water Fittings) (Scotland) Byelaws 2014.
2.	Meets Corporate Priority / Community Planning Goal	The project does not meet any current corporate priorities and/or community planning goals.
3.	Protects Existing Assets	The system would allow the continued supply of water to Kirkwall Pier allowing local and visiting vessels to the pier to draw the water they need for their crew and/or operation.
4.	Minimises Capital Cost	Minimum cost would be achieved by tendering a design and build contract.
5.	Maximises Investment from External Sources	There is no envisaged investment from external sources.
6.	Beneficial Impact on Revenue Expenditure	<p>There will be an ongoing cost to the service of maintaining this system. A similar system at Hatston Pier costs £8,000 per annum to service, however it is envisioned that the two sites would be serviced by the same contractor reducing costs overall.</p> <p>There will also be additional revenue costs associated with the system and electricity to run the pumps that this project envisions being installed.</p>
7.	Linked to Other Council Provision	
(a)	Enhances Statutory Provision	This project will allow the continued supply of water to Kirkwall Pier which is essential to the running of the Outer North Isles ferry fleet. Supply of water to Council offices on the pier is a requirement as both an employer.
(b)	Protects or Enhances Discretionary Provision	This project will protect supply of water on Kirkwall Pier and to the vessels that rely on this for their operations. While this is not a statutory provision, it is expected by all harbour users.
8.	Re-use of Derelict Land or Building	This project does not re-use derelict land.

	Criteria	Response
9.	Promote or Enhance Orkney's Environment	This project will have no impact on Orkney's Environment.
10.	Promote or Enhance Orkney's Heritage	This project will have no impact on Orkney's Heritage.
11.	Economic Prosperity or Sustainable Communities	This project will allow the businesses which operate vessels and/or rely on such vessels operating from Kirkwall pier to continue operating.
12.	Enhances Council operations or Improves Health and Safety	This project will reduce eliminate the chance of a category 5 water source being allowed to enter the Scottish Water system from a Council site.

5. Financial Implications

5.1. The financial assessment of capital and revenue expenditure are attached as Annexes 1 and 2 respectively.

5.2. The project has an estimated capital cost of £162,000, to which optimism bias of 23% has been added to give an estimate of £200,000 to complete the project.

6. Risk Assessment

6.1. There are two main risks associated with not progressing this project. The water supplier may cut of the supply to the pier to protect their system for contamination from a category 5 contamination source. The Council could be prosecuted under the Water Supply (Water Fittings) (Scotland) Byelaws 2014.

7. Conclusion

7.1. In to maintain the current, expected, level of service to the harbour users in Kirkwall and to protect the Council from potential legal action under the Water Supply (Water Fittings) (Scotland) Byelaws 2014 some form of backflow prevention system must be fitted on Kirkwall Pier.

8. Recommendation

8.1. It is recommended that £200,000 be allocated to the installation of such a system. It is envisioned that the system would be designed, and installation started in the 2022/2023 financial year, with the project being completed in the 2023/2024 financial year.

9. Accountable Officers

9.1. James Buck, Head of Marine Services, Transportation and Harbour Master,
Email: james.buck@orkney.gov.uk

9.2. Richard Wild, Deputy Harbour Master: Operations, Email:
richard.wild@orkney.gov.uk

10. Annexes

Annex 1 – Financial Assessment of Capital Expenditure.

Annex 2 – Financial Assessment of Revenue Expenditure.

STAGE 2 - CAPITAL PROJECT APPRAISAL
FINANCIAL ASSESSMENT OF ASSOCIATED CAPITAL EXPENDITURE IMPLICATIONS

Capital Programme: **Non-General Fund**

Client Service: **Marine Services**

Project Name: **Kirkwall Pier Water Break Tank System**

		1	2	3	4	5		
CAPITAL COSTS	Total £ 000	2021/22 £ 000	2022/23 £ 000	2023/24 £ 000	2024/25 £ 000	2025/26 £ 000	Onwards £ 000	Notes
1. Initial Costs (at inflated prices)								
Land or Property Purchase	-	-	-	-	-	-	-	
Other Site Costs (including Fees)	-	-	-	-	-	-	-	
Construction or Improvements	123.00	-	102.00	21.0	-	-	-	
Information Technology Costs	-	-	-	-	-	-	-	
Plant, Vehicles & Equipment	-	-	-	-	-	-	-	
Professional Fees - Consultant	39.00	-	30.00	9.0	-	-	-	
- In-house	-	-	-	-	-	-	-	
Contingency for Optimism Bias	38.00	-	38.00	-	-	-	-	
Gross Capital Expenditure	200.00	-	170.00	30.0	-	-	-	2
2. Initial Funding (at inflated prices)								
Government Grants	-	-	-	-	-	-	-	
Other Grants	-	-	-	-	-	-	-	
Other Financial Assistance	-	-	-	-	-	-	-	
Total Grants Receivable, etc.	-	-	-	-	-	-	-	
Net Capital Cost of Project	200.00	-	170.00	30.0	-	-	-	
Net Council Capital Expenditure	200.00	-	170.00	30.0	-	-	-	
Net Present Value	180.11	-	154.20	25.9	-	-	-	
Cost of Capital		5%	5%	5%	5%	5%	5%	
Year		1	2	3	4	5		

Notes - Additional narrative on main assumptions and support working papers

1 Assuming Civil works and supply of materials in 21/22 with install and commissioning in 22/23

2 Prices based on pre-tender estimate and include 23% optimism bias

STAGE 2 - CAPITAL PROJECT APPRAISAL
FINANCIAL ASSESSMENT OF ASSOCIATED REVENUE BUDGET IMPLICATIONS

Capital Programme:	Non-General Fund
Client Service:	Marine Serives
Project Name:	Kirkwall Pier Water Break Tank System

		1	2	3	4	5		
REVENUE COSTS / (SAVINGS)	Total £ 000	2021/22 £ 000	2022/23 £ 000	2023/24 £ 000	2024/25 £ 000	2025/26 £ 000	Onwards £ 000	Notes
1. Full Year Operating Costs (at inflated prices)								
Staff Costs	-	-	-	-	-	-	-	
Other Staff Costs (incl. recruitment, etc.)	-	-	-	-	-	-	-	
Property Costs	-	-	-	-	-	-	-	
Supplies and Services	-	-	-	-	-	-	-	
Transport, Vessel and Plant Costs	42.47	-	8.00	8.24	8.49	8.74	9.00	3
Administration Costs	-	-	-	-	-	-	-	
Apportioned Costs	-	-	-	-	-	-	-	
Third Party Payments	-	-	-	-	-	-	-	
Finance and Loan Charges	200	-	170.00	30.00	-	-	-	4
Miscellaneous Expenditure	-	-	-	-	-	-	-	
Gross Revenue Expenditure / (Saving)	242.47	-	178.00	38.24	8.49	8.74	9.00	
2. Operating Income (at inflated prices)								
Government Grants	-	-	-	-	-	-	-	
Other Grants	-	-	-	-	-	-	-	
Rents and Lettings	-	-	-	-	-	-	-	
Sales	31.79	4.03	5.22	5.38	5.58	5.70	5.88	1,2
Fees and Charges	-	-	-	-	-	-	-	
Miscellaneous Income	-	-	-	-	-	-	-	
Gross Revenue Income	31.79	4.03	5.22	5.38	5.58	5.70	5.88	
Net Revenue Expenditure / (Saving) of Project	210.68	- 4.03	172.78	32.86	2.91	3.04	3.12	
Increase / (Reduction) in Revenue Costs	210.68	- 4.03	172.78	32.86	2.91	3.04	3.12	
Net Present Value	188.90	- 4.03	162.86	30.07	2.59	2.62	3.12	
Cost of Revenue			3%	3%	3%	3%	3%	
Year		1	2	3	4	5		

Notes - Additional narrative on main assumptions and support working papers

1 20/21 sales are year to date figures

2 Forward figures are based on lowest year sales (20/21) + 3% per year

3 Ongoing cost is for annual maintenance based on current cost for Hatston water tanks, it is expected that by sharing costs both sites will see a reduction in

4 Capital expenditure to be funded by a contribution from current revenue (CFCR) utilising prior year Miscellaneous Piers and Harbours fund balances.