TOBERMORY HARBOUR

A STATUTORY HARBOUR AUTHORITY

AROS WATERFRONT OPTION 3

PIER, QUAY AND SLIPWAY, REPAIRS AND IMPROVEMENTS

Tobermory Harbour Association (THA) proposes to repair and improve the Pier, Quay and Slipway at Aros Waterfront within Tobermory Harbour. This will be Phase 1. In Phase 2, a Pontoon landing facility will be added to the Pier.

THE FINISHED PROJECT

LOCATION

Aros Waterfront, Aros, Tobermory Bay, Isle of Mull. PA75 6QB

CONTACTS

Brian Swinbanks, 01688 302113, email - kft@btconnect.com

Anne Fraser, 01688 302876, email - anne.fraser@tobermoryharbour.co.uk

HISTORY

Aros Park is one of Tobermory's best assets. The original Aros House, (Drumfin House) now demolished, was supplied by boats using the Aros Waterfront Pier, Quay and Slipway, built c.1842. After Aros House was demolished these historic assets were neglected. Stones from the Quay and Pier fell into the sea. The Pier was last renovated in the 1990's. Unfortunately the front of the pier has again fallen into the sea, along with stones from the Quay, see photos pages 4,5,6.

The Aros Waterfont is not 'Listed'. It is historic, beautiful and loved by many and deserves to be restored and saved for the use of the community.

Tobermory Harbour Association (THA), on behalf of the Community, have recently purchased these assets at Aros Waterfont from Forestry Land Scotland (FLS).

THE SOLUTION

Jacobs Engineers were commissioned by the Tobermory Harbour Association to propose solutions to restore the Pier and Waterfront infrastructure. The Engineers proposed, Option 1 and Option 2 for rebuilding the Pier back to the original length with or without steps on the south side of the Pier.

Unfortunately, restoring the pier to the original length is unaffordable. Plus the foundations are in deep water, below MLWS, and difficult to access.

The THA Directors have agreed to shorten the Pier back to stable and accessible foundations at low tide. This is now Aros Pier, Quay and Slipway - OPTION 3.

OPTION 3 - SCHEDULE OF WORK

PHASE 1

- **Quay** - fully repair Quay Seawall and improve the Quay Deck surface
- **Steps** - remove old Steps from the Quay and alongside the Pier south wall
- **Pier** - add new foundations, shorten Pier, fully repair Walls, add new Deck
- **Slipway** - add new lower gradient Slipway for small craft over existing slip
- **Raised Walkway** - add a new raised walkway along east side of the Quay
- **Safety** - add new posts and rails, lifebuoys and signage

PHASE 2

- **Pontoon** - add a 10m Pontoon with a rise and fall Bridge to the Pier

METHOD STATEMENT

The work will be in two Phases.

PHASE 1 - repairs and add additions to the Pier, Quay and Slipway, above MLWS. Note, some site land is above MHWS.

PHASE 2 - add a Pontoon and Bridge with associated moorings onto the seabed and off the west end face of the repaired Pier.

PHASE 1

See Drawing - MSAW1 LOCATION PLAN AND SITE LAYOUT
See Drawing - MSAW2 EXISTING STRUCTURES
See Drawing - MSAW3 PROPOSED NEW STRUCTURES AND REPAIRS

SITE PREPARATION
Notices to Mariners, mobilisation of plant and equipment, fence off and secure site.

REPAIR THE QUAY
Lift fallen cope and seawall stones, repair the quay sea wall, replace cope stones, and improve the surface of the quay.

REPAIR PIER
Create access ramp to remove all fallen stones and loose material, reduce the length of the pier back to firm foundations, add a new foundation Slab, rebuild the pier front face, remove ramp, repair defects in the north face, replace missing stones and replace the concrete deck.

NEW LOW GRADIENT SLIP WAY
Add a low gradient concrete slipway over the existing ‘steep’ stone slipway.

NEW WALKWAY
On the east upper side of the quay add a raised pedestrian walkway level with the pier deck. Use recycled and use surplus stones from the pier to form a supporting wall to match the historic stonework.

SAFETY RAILS
Add safety rails, lifebuoys and signage.

SITE DEMOBILISATION
Inspect and check all work and clear site and allow public and small boat access only when complete.

PHASE 2

See Drawing - MSAW4 PROPOSED NEW PONTOON AND BRIDGE

SITE PREPARATION
Notices to Mariners, fence off Pier access and secure site.

BRIDGE SUPPORT
Add prefabricated and marine galvanised bridge support frame to Pier.

LANDING PONTOON
Add recycled 10m x 5m landing pontoon and associated anchors and mooring chains.

RISE AND FALL BRIDGE
Add 16m recycled bridge from Ledaig Pontoons, Tobermory.

SITE DEMOBILISATION
Inspect and check all work and clear site and allow public and small boat access only when complete.

VIEW NORTH - FALLEN QUAY STONES & YELLOW LINE SHOW EXTENT OF PIER PHASE 3

VIEW SOUTH TO PIER NORTH FACE - YELLOW LINE SHOW EXTENT OF PIER PHASE 3

BULGE ON NORTH PIER FACE TO REPAIR

PIER SOUTH - OLD STEPS TO REMOVE

VIEW NORTH OVER THE STONE SLIPWAY - NEW LOW GRADIENT SLIPWAY TO ADD

VIEW EAST TO THE QUAY - QUAY WALL TO REPAIR

VIEW NORTH OVER THE QUAY SURFACE - QUAY SURFACE TO REPAIR & IMPROVE

SCHEDULE OF WORK. PHASE 1
DETAILS OF REPAIRS AND IMPROVEMENTS

1. QUAY WALL AND SURFACE REPAIRS

QUAY PROBLEMS

1.1 A number of the supporting, cope and surface stones have fallen down.

1.2 A number of supporting stones are unstable or missing at the north end.

1.3 The Quay surface is uneven and unsafe with exposed and raised bedrock.

REPAIRS TO THE QUAY SEA WALL

1.4 The Quay seawall and cope stones to be lifted, replaced and bedded in with marine mortar.

1.5 Emergency ladder to be added.

REPAIRS TO THE QUAY SURFACE

1.6 All raised bedrock on the Quay to be reduced to match the quay levels and inclines.

1.7 All large voids to be filled with smooth stones and held in place with pitch to match the historic construction and surface.

1.8 The Quay surface to be made ‘relatively smooth’ up to the Raised Walkway. The surface maybe improved with ‘scabbling’.

2. NEW LOW GRADIENT SLIPWAY

SLIPWAY PROBLEM

2.1 The small slipway, south west of the Quay is too steep. The gradient is 1 in 3.3

2.2 Sections of the cope stones have fallen into the stream / burn.

REPAIRS TO THE SLIPWAY AND MODIFICATIONS

2.3 A heavy duty polyethylene sheet is to be placed over the historic slip stones.

2.4 A new low gradient concrete Slipway, at a minimum slope of 1:5 to be built.

2.5 The surface is to be brushed across the face to provide a none slip surface.

3. REPAIRS TO THE PIER

PIER PROBLEMS

3.1 Up to 6m of the front and northwest face has totally fallen down into the sea.

3.2 There is a four stone bulge on the north face.

3.3 The steps from the Quay on the south side have fallen and are unstable.

3.4 The Pier surface and deck is dangerous and irregular.

3.5 There are missing cope stones.

PREPARATION

3.6 The old steps down from the Quay along the south Pier wall are to be removed and recycled.

3.7 Construct a temporary access ramp to provide clear excavator access from the Quay to the end of the pier. *Note - Loose rock material at the stream outfall, broken rock from THA land and demolished building material, will be available for this purpose.*

PIER REPAIRS AND MODIFICATIONS

3.8 Remove all surplus Pier material that has fallen into the sea. Remove back to a point where the pier is stable and the foundations are exposed at very low tide. *Note - all good stones, good coping stones, good granite blocks to be recycled to construct a new pier face and the face of the raised walkway.*

3.9 Construct a new concrete foundation plinth. *Note - the concrete foundations may need to be extended along the south and north Pier walls to stabilise the vertical Pier Walls.*

3.10 Rebuild the front face of the pier on the new foundations. *Note - the angle of the new west Pier front face could be up to 10 degrees maximum from the vertical.*

3.11 Bulge on the north face. These stones to be reinstated and secured with marine mortar.

3.12 Repair and replace any missing stones in the Pier north and south walls using recovered stone.

3.13 All walls to be re-pointed using marine grade mortar.

3.14 The old deck is to be broken out and replaced with a new concrete deck.

3.15 The new deck is to slope down from the centre line to run off water. The surface is also to be brushed across the face to provide a none slip surface.

3.16 Emergency ladder to be added on the north face.

FINISHING

3.17 The access ramp and all loose and surplus material, removed and cleared off site.

4. PEDESTRIAN WALKWAY TO PIER

PROBLEM

4.1 Pedestrian access over the quay and up to the Pier is very uneven and unsafe.

SOLUTION

4.2 Construct a new Raised Walkway from the Pier south face to a point above the highest tide at the start of the Quay. The walkway is to be constructed along the upper East side of the Quay. The surface is to be brushed across the face to provide a non-slip surface and sloped west to run off water.

4.3 The Walkway is to be faced on the west side in recovered or local stone. The walkway will be approximately 1.5m wide and suitable for the installation of expansion bolts to fix safety railings.

5. SAFETY RAILS, LIFEBUOYS AND SIGNAGE

PROBLEMS

5.1 There are no safety rails and or safety equipment at the Pier or Quay.

SOLUTION

5.2 Safety rails to be added along the west face of the Raised Walkway.

5.3 Safety rails to be added along the north and south sides of the Pier deck.

5.4 Safety rails with removable chains to allow for future access to a pontoon bridge to be added to the west end of the Pier deck.

5.5 A Life Buoy and associated safety equipment to be added on the pier.

5.6 A safety and information sign to be added at the start of the Raised Walkway.

FINISHING WORK

The beach between the Pier and the slipway to be cleaned back to gravel and small stones only.

SCHEDULE OF WORK. PHASE 2

6. LANDING PONTOON AND ACCESS BRIDGE

Note - This work will be offered as a separate contract.

PROBLEMS

6.1 Many people drive to Aros Park. To reduce the local carbon footprint a Water Taxi to Aros Waterfront from the Tobermory Pontoons is planned.

6.2 Access from the water to the Pier and Quay is tide dependent.

6.3 The public require a safe space, away from the busy harbour, with facilities for wild swimming, canoeing, dinghy training, sail boarding and more.

SOLUTION

Add a landing platform with a rise and fall bridge to the repaired Pier.

MODIFY THE PIER

6.4 Remove safety chains on the Pier west end. Fix a prefabricated Bridge support platform to the west end face of the Pier.

LANDING PONTOON SPECIFICATION

6.5 Join and re-enforce two recycled 10m pontoon sections and repaint the frames. Add new deck supports, add new timber decks. Add running tracks and supports for a rolling bridge. Add additional buoyancy for bridge loading.

BRIDGE SPECIFICATION

6.6 Remove Bridge from Ledaig pontoons, Tobermory, check the structure and fixing swivel hinge, add a new articulated trolley to the pontoon end. Paint Bridge grey.

MOORING INSTALLATION

6.7 Position 4 block anchors and 4 attached mooring chains.

6.8 Position and secure the 10m x 5m Pontoon platform.

6.9 Lift the rise and fall Bridge into position from the Pier to the Pontoon.

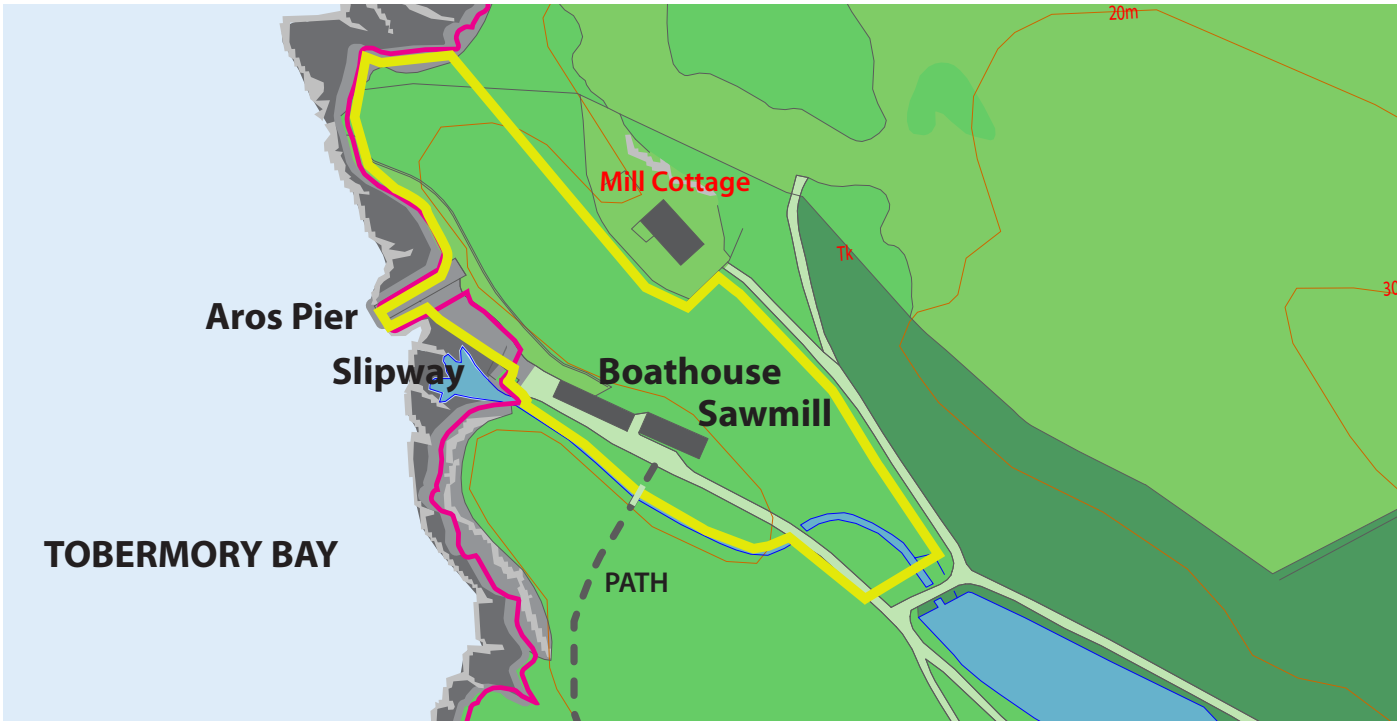
6.10 Inspect and sign off work, open up to the public.

HEALTH AND SAFETY

The whole site should be fenced off and the public excluded from the site during construction. Safe site management and signage is expected at all times.

The access road has a small bridge over the stream from Aros Loch on the THA Waterfront Land with limited loading. A temporary access may need to be created for the duration of the contract.

SITE LOCATION PLAN



VISUAL OF REPAIRED PIER AND QUAY AT LOW TIDE