



THE LAND BELOW THE WAVES

The Growth Plan for Tiree's Marine Sector





Anyone approaching Tiree by sea realises why she is known as the 'Land below the Waves'. She is as much part of the sea as she is surrounded by it. This Marine Growth Plan connects the sea, the land and the people.

TABLE OF CONTENTS

| | | | | | |
|-------|--|----|------------|------------------------------------|----|
| 1 | Executive Summary | 1 | 5 | Implementation and Next Steps | 13 |
| 1.1 | The Land Below the Waves | 1 | 5.1 | Implementing the Next Steps | 13 |
| 1.2 | Introduction | 1 | 5.2 | Roles and Responsibilities | 13 |
| 1.3 | Tiree Growth Plan | 2 | 5.3 | Operating Model | 13 |
| 1.4 | The Growth Imperative | 2 | 5.4 | Financial Appraisal | 14 |
| 1.5 | The Growth Opportunity | 3 | 5.5 | Risk Register | 14 |
| 1.6 | The Investment Requirement | 3 | 5.6 | Funding Plan | 14 |
| 2 | Introduction | 5 | | | |
| 2.1 | The Need for This Plan | 5 | Appendix 1 | Description of Existing Facilities | 15 |
| 2.2 | Report Structure | 5 | Appendix 2 | Proposed Repair and Improvements | 19 |
| 3 | Marine Sector Overview | 6 | Appendix 3 | Economic Impacts | 27 |
| 3.1 | Tiree and the Sea | 6 | Appendix 4 | Risk Register | 36 |
| 3.2 | Overview of the Marine Sector | 6 | Appendix 5 | Financial Assessment | 38 |
| 3.2.1 | Leisure Yachting | 6 | Appendix 6 | Milton Development Plans | 40 |
| 3.2.2 | Local Seafood | 7 | | | |
| 3.2.3 | The Fishing Harbours | 7 | | | |
| 3.2.4 | The Value of the Seafood Sector on Tiree | 8 | | | |
| 3.2.5 | Tiree Community Harbours Steering Group | 8 | | | |
| 4 | Strategy and Proposals | 9 | | | |
| 4.1 | Vision for Tiree's Marine Sector | 9 | | | |
| 4.2 | Marine Growth Plan Proposals | 9 | | | |
| 4.3 | Facilities for Sail Visitors | 9 | | | |
| 4.4 | Connectivity between local food production and local Retail and Catering sectors | 10 | | | |
| 4.5 | Seafood Infrastructure and Operations | 11 | | | |
| 4.6 | Costs and Impact Assessment | 12 | | | |

Link to Land Below the Waves video | <https://vimeo.com/229311489>

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1 Executive Summary

1.1 The Land Below the Waves

Anyone approaching Tiree by sea realises why she is known as the 'Land below the Waves'. She is as much part of the sea as she is surrounded by it. This Marine Growth Plan connects the sea, the land and the people.

1.2 Introduction

Tiree has a successful record of community-led initiatives to address needs and deliver the infrastructure necessary for economic growth. These include:

- An Talla, the community-owned hall and base for many activities including the Tiree Music Festival, and the annual 10k and ultra-marathon races;
- the island's Maritime Trust keeps the heritage of traditional dipping lug sailing alive. With its award winning centre 'The Noust' it has provided training opportunities in traditional boat building skills;
- a grassroots windsurfing movement has grown into a mainstay of the local tourism sector, anchored annually by a locally managed international windsurf competition;
- The Rural Centre which provides an auction mart for the crofting sector and a popular café;
- community ownership of two buildings - the base for a local shop Buth à Bhaile, and the Island Centre which provides office space for public services and businesses;
- community-owned Tiree Broadband which has addressed serious shortcomings in the island's IT infrastructure and is a standard model for such organisations;
- project officer posts which develop specific areas of development including a Youth Worker, a Music and Culture Coordinator and Environmental Ranger.

Much of this has been possible due to income generated by Tiree Community Development Trust's subsidiary, Tiree Renewable Energy Ltd, which owns and operates the community wind turbine. This was one of the first such in Scotland and provided the model for many others across the country.



1.3 Tiree Growth Plan

The Tiree Growth Plan covering 2017 to 2020 identified a desire to build on existing successes in the marine sector by:

- improving facilities for visiting leisure craft;
- strengthening links between local producers and local markets;
- developing the local fishing industry as a source of economic value and to provide employment opportunities.

This Marine Growth Plan forms part of the wider Tiree Growth Plan, and describes how this will be achieved.

1.4 The Growth Imperative

In common with most west coast islands, Tiree's population has been in decline for decades. It fell from 770 to 653 between the 2001 and 2011 censuses. The school roll of 83 plus pre-school of 24 is close to the all-time low. The secondary stage is the smallest six-year secondary school in Scotland (Scottish Government School Estate Core Facts 2016), and the least accessible.

Although in recent years population decline has occurred across each of the broad age categories, some individual age groups bucked this trend with 18-24 year olds living on Tiree being 15% higher in 2011 than in 2001. It is understood that the Fishing industry heavily contributed to this specific upward trend with a sharp rise in the number of people (nearly all young people) employed in the sector. If this group can be encouraged to stay on Tiree (followed by subsequent cohorts in future years) there could be more adults within the typical family-age bracket, with potential positive implications for the number of children over future years.

From a low point two decades ago, fishing has grown in importance to the island's economy. The two active harbours are at capacity and structural issues place them at risk. Poor landing facilities erode the value of the catch.



1.5 The Growth Opportunity

The community is determined to reverse population decline by creating sustainable employment opportunities around which families can grow.

It should be noted that:

- Fishing is a primary island industry that is generating wealth, whilst the largest employment sector (Health and Social Work) is a consumer of public monies;
- 6 out of the 8 current boat owners/skippers are under the age of 35;
- in the past 5 years alone, Fishing has allowed 3 of these boat owners to build new homes on the island, supporting the local building industry.

Fishing sustains 18 full time jobs. There is demand for improved berthing and landing facilities for fishing boats to serve commercial export markets and local outlets and clear opportunities to increase the fleet and create jobs. Options have been considered and a Preferred Option identified.

There is scope to increase the amount of leisure marine activity including the number of visiting yachts and the local spend.

There is scope to expand the availability of locally caught seafood to local retailers, caterers and the growing number of tourists.

1.6 The Investment Requirement

Much work is already taking place to realise this growth:

- the community has invested in new moorings at Gott Bay for visiting yachts in time for the 2017 summer season. These are proving popular;
- local fishermen have established a seafood outlet close to Scarinish harbour;
- Buth à Bhaile, the local shop, is selling local produce including butcher meat and seafood;



- plans to develop the harbours at Milton and Scarinish have been professionally drawn up and costed. The cost of the preferred option is estimated at £1.62 million. Planning consent for Milton has just been granted (August 2017);
- discussions with the landowner have confirmed they are willing to transfer ownership of both harbours to the community;

This plan, costed with appropriate technical assessments, is ready to be implemented.



Proposed plans for Milton Harbour

2 Introduction

2.1 The need for this plan

Alongside crofting, the sea is at the centre of Tiree's economy. A strong watersports sector has grown around surfing, windsurfing and kitesurfing, boosting tourism. The community intends building on this further to strengthen leisure marine activities, fishing, and links with local tourism service providers.

This plan describes community initiatives that are already underway, and makes the case for further investment to strengthen the sector for the benefit of visitors and residents alike.

2.2 Report structure

This report is structured as follows:

- Chapter 1: Executive Summary;
- Chapter 2: Introduction. This chapter introduces the Marine Growth Plan;
- Chapter 3: Marine Sector overview. This chapter provides an overview of the sector today in terms of its operations and current issues and constraints;
- Chapter 4: Marine Growth Plan strategy and proposals. This chapter sets out the vision and objectives for the sector, along with a set of proposals that will enable it to grow and develop;
- Chapter 5: Implementation and next steps. This chapter considers roles and responsibilities with regard to implementation, potential funding sources and next steps.

Supporting appendices:

- Appendix 1 Description of existing facilities
- Appendix 2 Proposed Repair and Improvements
- Appendix 3 Economic Impacts
- Appendix 4 Risk Register
- Appendix 5 Financial Assessment
- Appendix 6 Plans for Milton



3 Marine Sector Overview

3.1 Tiree and the Sea

An Atlantic island, Tiree is defined by the sea. It is exposed to the oceanic swell from the west, and up through the Passage of Tiree to the south. It has produced many skilled mariners and is proud of its heritage of traditional lug sailed boats.

Watersports have become a mainstay of the island's tourist industry, and its marine natural heritage interests visitors throughout the year.

The following sections provide an overview of the yachting, seafood and fishing activities.

3.2 Overview of the Marine Sector

3.2.1 Leisure Yachting

The report Marine Leisure Infrastructure on the islands of Argyll (Argyll and the Islands Enterprise, August 2007) suggested that the average spend per visiting leisure boat was in the region of £125 per night and that development on Tiree had a potential annual value of around £390,000 to the island economy.

Despite its location in prime west coast cruising waters, until now Tiree has seen virtually none of this because until 2017 there were no suitable moorings for cruising yachtsmen.

Tiree Community Business, with support from the Windfall Fund managed by Tiree Community Development Trust and Argyll & The Islands LEADER, have invested in the installation of ten heavy moorings aimed at the leisure yachting market.



3.2.2 Local Seafood

A local fisherman, sailing out of Scarinish harbour has established Tiree Lobster and Crab, a seafood outlet in Scarinish. This has filled a long standing gap in the island's tourism offering, making locally caught seafood and other local produce available on a retail basis for the first time in several years.

Buth à Bhaile, the local shop, is also selling island produce including butcher meat and seafood.

3.2.3 The Fishing Harbours

Although historically there were many small stone quays around the island, three principal harbours operate today, all on the island's southeast facing seaboard:

Milton – Built around 1847 to encourage fishing at the height of the potato famine. Currently owned by Argyll Estates, leased to Milton Harbour Association and has six boats working from it. It is in need of repair and extension to enable the current fleet to grow.

Scarinish – Built around 1800 to encourage diversification from agriculture. It is in poor condition but has an attractive location and good potential for leisure and hobby use. Two fishing boats berth there currently.

Gott Bay – First completed in 1913 and further developed in early 1960s and 1990s, Gott Bay Pier is owned by CMAL¹ and is the main pier for the Cal Mac² passenger and car ferry. TCDT and the Tiree Community Council will continue to lobby for improvements at the pier.

There is also a harbour at Hynish which was built to service the Skerryvore Lighthouse around 1837. As the harbour's usefulness is limited, it is not considered further in this report. Separate discussions are underway with Hebridean Trust regarding transfer to the community of the built assets at Hynish, including the harbour.



Upper - Milton Harbour | Lower - Scarinish Harbour

3.2.4 The Value of the Seafood Sector on Tiree

Average annual landings³ for Tiree 2014, 2015 and 2016 were 138 tonnes with a value of around £468,000. Brown and Velvet Crabs account for the largest amounts by weight, while Lobsters are the most valuable overall.

The vast majority of this is landed at Milton and is exported.

Milton Harbour accommodates six inshore boats, employing fourteen people and sustaining approximately 32 dependants.

Scarinish Harbour is used by two inshore boats, employing four people and supporting six dependants. It is a culturally significant asset and a very attractive location. The site and tidal nature of the harbour could not accommodate the fishing fleet from Milton Harbour.

3.2.5 Tiree Community Harbours Steering Group

The current Tiree Community Harbours Steering Group (TCHSG) is made up of volunteers from the community with a variety of relevant interests.

The group has been instrumental in developing this Marine Growth Plan.



¹ Caledonian Maritime Assets Ltd, owned by the Scottish Government.

² Caledonian Macbrayne, the trading name of David Macbrayne Ltd.

³ These figures are for catch landed on Tiree. Landings on Mull by Tiree based vessels are not included in these figures but account for roughly an additional 10%.

4 Strategy and Proposals

4.1 Vision for Tiree's Marine Sector

Our vision is to give the sea a central role in an island where the population and economy are growing. It will provide sustainable employment opportunities for young people.

This is underpinned by the following objectives:

- to make the island a more attractive place for sail visitors;
- to encourage and develop links between local food production and local retail and catering sectors;
- to safeguard the long-term viability of our harbours and grow our fishing industry.

4.2 Marine Growth Plan Proposals

The proposals in this Marine Growth Plan have been informed by desk research, discussions with the Council and many local stakeholders, and our 2016 'Charrette' Community Planning project.

The proposals are aligned with the above and are as follows:

- facilities for sail visitors;
- connectivity between local food production and local retail and catering sectors;
- seafood infrastructure and operations.

4.3 Facilities for Sail Visitors

In the past, Tiree has not been considered a prime destination for sailing tourists because of its lack of a sheltered anchorage. As a consequence, on-shore facilities are lacking.



The Marine Growth Plan will:

- install and maintain secure moorings in Gott Bay. These were installed in time for the 2017 cruising season. Occupancy rates are being monitored;
- provide a footpath between the landing point and facilities at Scarinish. This is at the planning stage;
- provide showers and related services. Detailed plans will be developed once levels of demand for the moorings have been established.

In the longer term the possibility of enhancing facilities in Scarinish harbour for sail visitors and leisure users will be considered.

4.4 Connectivity between local food production and local retail and catering sectors

Tiree's economy is built on the strength of its food producing industries. It is the most densely crofted area in Scotland. However it is not always easy for visitors to buy local produce in shops, cafés and restaurants.

Islanders are addressing this:

- the community-owned shop, Buth à Bhaile now stocks local butcher meat, seafood and other produce;
- a local fisherman is operating 'Meals from Creels', a very popular seafood stall in Scarinish;
- a market garden 'Fresh off the Croft', has opened with support from the Windfall Fund;
- locally baked bread is available on the island for the first time in many years.

The Marine Growth Plan will continue to encourage this by:

- securing the long term viability of Scarinish harbour for small scale fishing operations aimed at local consumption;
- continuing to support Buth á Bhaile, Meals from Creels and other enterprises as outlets for local produce including seafood;
- using the Windfall Fund to support related skills development and business start-up initiatives.



4.5 Seafood Infrastructure and Operations

This forms the largest and most costly part of the Marine Growth Plan. Appendix 1 explains that both Milton and Scarinish harbours are in poor condition, placing the viability of our seafood industry at risk.

Milton will continue to be the centre for commercial seafood operations. Most of the landings are exported to markets in mainland Europe and increasingly to Asia. The infrastructure is designed to facilitate safe berthing and handling the catch to maximise its economic value.

Preparatory work for the implementation of this aspect of the Marine Growth Plan has already been completed as follows:

- professional surveys of both harbours have been completed as explained in Appendix 1;
- costed plans for improving facilities have been prepared as explained in Appendix 2. These will provide more, safer berths and sheltered space for handling and packing the catch. The economic benefits are clear;
- the economic impact of options at Milton have been compared and a preferred option identified, as explained in Appendix 3;
- the current owner of both Milton and Scarinish harbours has indicated their willingness to transfer both to the community;
- planning consent for Milton has been granted (August 2017). The proposed work at Scarinish does not require a planning application;
- funding sources are being explored.

The next steps are to:

- confirm funding;
- complete the planning process and obtain approvals from Marine Scotland;
- competitively tender the construction work at both harbours;
- complete the construction works;
- use the Windfall Fund to support related skills development and business start-up initiatives.



4.6 Costs and Impact Assessment

Many aspects of this plan are already underway, led by the community and supported in a variety of ways by the Windfall Fund.

Economic benefits are already being seen:

- early observations suggest that an average of between three and four yachts are using the new moorings each night. This is before the moorings are listed in the usual nautical publications;
- 'Meals from Creels' is providing one job and is advertising for another;
- local produce sold through Buth à Bhaile is proving popular.

The next major element to address is the harbour infrastructure. Key points are:

- the total estimated cost of the preferred option is £1.62 million;
- the direct economic impact of the preferred option is estimated as £395,000 in year one and £320,000 per annum thereafter;
- the viability of locally landed seafood depends on the improvements identified.

Milton will continue to be the centre for commercial seafood operations. Most of the landings are exported to markets in mainland Europe and increasingly to Asia. The proposed infrastructure is designed to facilitate safe berthing and handling the catch to maximise its economic value.



5 Implementation and next steps

5.1 Implementing the next steps

This chapter describes some of the key actions required to manage and deliver the Marine Growth Plan:

- roles and responsibilities;
- operating model;
- potential funding sources;
- next steps.

5.2 Roles and Responsibilities

TCDT is the natural organisation to deliver this project on behalf of the community of Tiree. TCDT has the experience and the resources to manage a project of this scale.

5.3 Operating model

We envisage the model operating as follows:

- Tiree Community Business installed the Gott Bay moorings with financial support from the Windfall Fund. It is envisaged that they will continue to collect mooring fees, at least for the time being;
- TCDT will explore the possibility of employing a part time Harbour Master who may also oversee the Gott Bay moorings;
- TCDT will purchase Milton and Scarinish Harbours from Argyll Estates and both harbours will become community assets;
- harbour users will pay an annual berthing fee based on vessel size and potentially gross landings;
- leisure users at Scarinish will pay a berthing fee;
- TCDT will oversee all ongoing maintenance of both harbours and will arrange insurance.



5.4 Financial appraisal

Tables showing pre-development expenditure to date, estimated further pre-development expenditure and post development cashflows are shown in Appendix 5.

Following acquisition from Argyll Estates, TCDT will:

- quantify the level of investment it can make to this project;
- agree terms with the fishermen regarding landing fees and mooring fees;
- quantify ongoing maintenance requirements and how these will be funded;
- identify and secure funding streams for the planned improvements as set in Appendix 2.

5.5 Risk Register

The Risk Register in Appendix 4 highlights that the success of this project hinges on availability of funding. TCDT may be able to commit some capital to the project. However, the project needs to secure significant additional funding to make this project and the industries sustainable.

5.6 Funding Plan

The following funding streams have been identified:

| Funder | Amount | What they can fund |
|-----------------------|-----------|---|
| Windfall Fund | c. £100k | Will start the funding process - 'first brick' funder |
| EMFF | Up to 50% | Capital funding |
| HIE | Unknown | Possible capital funding - usually as a 'last brick' funder |
| Loan (SIS or unknown) | Unknown | Loan to make up shortfall |

Appendix 1 | Description of existing facilities

Description of Milton Harbour:

Milton Harbour is owned by Argyll Estates. A new 40 year lease with the Milton Harbour Association is in place (expires 19/09/2055).

Milton Harbour consists of:

1 | Old lower level quay - The older low-level quay is formed in concrete and appears to have been constructed directly onto the face of the exposed rock on the sides of the man-made channel. This section of quay is just over 13m long and is approximately 4m wide on the top with a small set of concrete stairs leading down to a lower level on the berthing face. The berthing face of this quay protrudes approximately 2m out from the adjacent higher-level quay. The concrete over the whole low-level quay is displaying signs of deterioration with large open joints and cracks on the surface as well as severe weathering. It is not possible to calculate accurately the quay's load carrying capacity but it will be significantly reduced in its current deteriorated condition.

2 | High-level quay - The high-level quay was constructed in 1985. It is constructed in concrete and also appears to be cast directly onto the face of a rock cliff. This quay is nearly 36.5m long with a 4.5m wide concrete slab on top. The two quays (high and low level) are separated by a gap of 1.2m where the rock face is exposed.

3 | High-Level concrete platform - There is a high-level concrete platform between the back of the low-level quay and the concrete access ramp linking the access road and quay area and lay-down space. A flight of steps links this platform to the low-level quay below. There is also a steel parapet on the northern edge and a plastic bunded fuel tank.



4 | Storage Areas - There is a flat area of land to the back of the concrete quay slab with a compacted hard-core surface. The ground slopes up to an access road behind. The slope appears to be mainly rock. The area to the top of the quays is generally used for storage with ropes, creels, buoys and other fishing related materials stored within easy access. Each of the 5 vessels has their own plastic banded fuel tank sited at a raised level to the back of the rocky slope. In addition, there are two large container units, one of which is refrigerated for storing bait.

The shortcomings at Milton:

No repairs or improvements have been made to the Milton Harbour structure since 1985. In 2003 Argyll and the Islands Enterprise provided £45,000 to improve the navigational aids.

The shortcomings of the existing facilities at Milton are:

- the pier is increasingly frequently overtopped and inaccessible during higher tides and foul weather. This causes damage to vessels and the quay, and causes major disruption to commercial activities. Milton Harbour, in its current state, is unable to accommodate any more boats. Berths are cramped and inflexible. The proposed improvements will accommodate two new inshore vessels, allow current boat owners to upgrade to larger boats, and enable all to operate in a safer and more efficient manner;
- the old lower quay is at risk. It is in very poor condition and could be lost at any time in heavy weather;
- landing the catch, packing and loading are currently done in the open. Exposure to wind, rain or sun each stress the live catch causing some mortality and weakening it for the journey to the final consumer.



Description of Scarinish Harbour:

Scarinish Harbour is owned by Argyll Estates. The fishermen at Scarinish have a private agreement with Argyll Estates for use of the harbour. Any small repairs or maintenance in recent times have been carried out by volunteers and harbour users.

The harbour comprises of three structures:

1 | Drystone pier - The drystone pier is an L-shaped construction with principal pier dimensions 39.5m along south face, 26.5m along north face and width of 6.85m. The bed level on the south face dries out on extreme low tides. The entrance channel runs from the south and a south-southeast direction. The pier is located on the east side of the channel and projects into the channel in a west-northwest direction.

There is a laydown area at the foot of the pier which is used for storage of creels and other associated equipment.

The end of the pier is in a poor condition and has currently been fenced off to pier users. There is evidence of movement of the blocks with widening of the joints, displaced blocks and notable bulging around the corners.

The pier has had a bituminous surfacing of which little currently remains. The exposed blocks are uneven and present a tripping hazard.

The pier wall is founded on rock at the shore end and extends into the sandy bed. It is not clear whether the full extent of the pier walls have been dug to rock or are founded on sand. Further investigation would need to be undertaken to clarify this.

There are two ladders on the south face of the pier and no ladders on the north face. The ladders are in very poor condition and are unsafe for use.

On the north face of the pier there is a small lifting davit.



2 | Dry stone low-level slipway platform (mid-tide platform) - A low level stone platform slipway is located on the west side of the channel. The platform was used as the landing stage for the old Tiree Ferry. The platform wall facing the channel is founded on rock and is in satisfactory condition showing no signs movement or distress. The wall on the north face is in poorer condition with wide open joints and missing blocks. There are several stone blocks which have dislodged and been plucked from the deck of the platform exposing the rock fill core material. There is evidence of previous metal strapping on the deck similar to the pier which has been lost to corrosion.

3 | Low level Concrete platform (low-tide platform) - Noted to have been located on the east side of the channel closer to the channel inlet. There is little left of the platform structure. The platform was used on low tides to come alongside and wait for the tide to rise to enter the harbour.



The shortcomings at Scarinish:

The shortcomings of the existing facilities are:

- the end of the drystone pier is in very poor condition. There is evidence of movement and bulging of the blocks, indicating structural distress. This area is currently fenced off from users;
- the surface of the drystone pier is dangerous due to uneven blocks and the crumbling remains of previous resurfacing works. This poses a serious trip hazard;
- there are no functioning ladders on the drystone pier. Users currently scramble up tyres tied to the side of the pier to enter and exit their boats;
- there are blocks missing from the north wall of the mid-tide platform and also several blocks missing from the deck, causing a trip hazard and leaving the structure vulnerable;
- little remains of the low-tide platform, however it is not proposed to repair it at this stage.

Conclusion – the need for Improvements

Fishing is an integral part of the Tiree and West Coast economy, culture and heritage.

Milton and Scarinish Harbours in their current state are no longer fit for purpose.

Unless significant improvements are made, fishing on Tiree will be in jeopardy.



Appendix 2 | Proposed Repair and Improvements

The planned improvements will address the shortcomings described above.

Milton Harbour

The repairs and improvements of Milton Harbour will include the following:

- raise the height of both existing quays to prevent water level rising above the quay level;
- extend the quay to the south and provide additional berthing space;
- construct a stub pier at the end of the extension to improve the wave climate along the berthing face of the quay;
- construct a new building on the quay to shelter the local fishermen from the elements whilst sorting and packaging the catch ready for shipping. The new building requires to be large enough to accommodate the existing export lorry.

Design Proposals - Milton

There are two options for the improvements at Milton, as explained in the following sections.

Option 1 - Milton Full Scheme

The main components are (with reference to drawings 3 and 4 of the Planning Consent)⁴:

- demolish the existing concrete on the low-level quay. Break back the supporting rock behind and reconstruct the quay to new levels on an alignment to match the adjacent quay;
- raise the height of the existing high-level quay to prevent overtopping during high tides;



⁴ Argyll and Bute Planning Consent Reference 17/01120/PP.

- extend the high-level quay to the south by breaking back the rock face and constructing in concrete with the quay face and top level matching the adjacent high-level quay;
- construct a stub pier to the south end of the harbour in concrete;
- construct a new building on the quay to provide sheltered space for storing and repairing gear and for sorting and packaging catches ready for shipping.

Option 2 – Milton Alternative Reduced Scheme

The main components are (with reference to drawings 5 and 6 of the Planning Consent)⁵:

- demolish the existing concrete on the low-level quay. Reconstruct the quay to new levels on the existing alignment which extends beyond the face of the adjacent high-level quay by two metres;
- raise the height of the existing high-level quay to prevent overtopping during high tides;
- extend the high-level quay to the south by constructing in concrete to the face of the rock. The face of the quay extension will be aligned on an angle to the adjacent high-level quay;
- construct a new building on the quay to provide sheltered space for storing and repairing gear and for sorting and packaging catches ready for shipping.



⁵ Argyll and Bute Planning Consent Reference 17/01120/PP.

Milton – Elemental Costs

The following cost estimates were produced after a site visit in August 2015 by Wallace Stone.

Option 1 – Full Works Scheme as shown on Drawings 3 and 4

| Item | Estimated Cost |
|--|-------------------|
| Topographic and Bathymetric Survey | £10,000 |
| Wave Study | £5,000 |
| Geotechnical Investigation | £10,000 |
| Consents and Planning Fees | £6,000 |
| Dredging | £20,000 |
| Demolition Works (including cutting back rock) | £75,000 |
| Concrete Works (including dowels) | £410,000 |
| Earthworks | £45,000 |
| New 33m long, 8m wide building | £100,000 |
| Ladders, Mooring Rings, Davits, Fuel Tank Improvements, Lighting | £47,500 |
| Preliminaries Approx. 30% | £218,550 |
| Design/Engineering Fees, Tender Preparation and Review, Planning and Consents Liaison, CDMPD | £60,000 |
| Contract Management during Construction | £25,000 |
| Site Supervision of Works | £27,000 |
| 10% Contingency | £105,905 |
| VAT at 20% (TCDT not VAT registered) | £232,991 |
| TOTAL | £1,397,946 |

Option 2 – Alternative Scheme with reduced scope as shown on Drawings 5 and 6

| Item | Estimated Cost |
|--|-----------------------|
| Topographic and Bathymetric Survey | £10,000 |
| Wave Study | £5,000 |
| Geotechnical Investigation | £10,000 |
| Consents and Planning Fees | £6,000 |
| Demolition Works (including cutting back rock) | £35,000 |
| Concrete Works (including dowels) | £300,000 |
| Earthworks | £45,000 |
| New 33m long, 8m wide building | £100,000 |
| Ladders, Mooring Rings, Davits, Fuel Tank Improvements, Lighting | £41,000 |
| Preliminaries Approx. 30% | £165,600 |
| Design/Engineering Fees, Tender Preparation and Review, Planning and Consents Liaison, CDMPD | £60,000 |
| Contract Management during Construction | £15,000 |
| Site Supervision of Works | £20,000 |
| 10% Contingency | £81,260 |
| VAT at 20% (TCDT not VAT registered) | £178,772 |
| TOTAL | £1,072,632 |

Scarinish Harbour

The proposed repairs and improvements to Scarinish Harbour include the following:

- stabilise the drystone pier by resetting moved blocks and pressure grouting the end;
- cast a concrete structural slab on drystone pier to provide a safe new surface and provide additional structural stability;
- install new ladders for safe use by boats;
- replace missing blocks on mid-tide pier with concrete, using an exposed aggregate finish to minimise visual impact. The concrete mix will include an underwater anti-washout additive.

Design Proposals - Scarinish

The repair options presented have been developed taking into account the desire to undertake as much of the works as possible by local volunteers. Rebuilding of the end of the pier however would be undertaken by an experienced contractor with appropriate construction plant due to the weight of the blocks and the associated plant and complex construction methodology involved (with reference to drawings 7 and 8 of the Planning Consent)⁶:

Pier Repairs Option 1 – Do Nothing

The end of the pier is in a distressed condition and is fenced off. The pier is continuing to operate in a limited way with this restriction in place. It is subject to ongoing and progressive wave damage and will eventually collapse ending the life of the harbour.

Pier Repairs Option 2 – Local resetting of blocks, Pressure Grout and Concrete Slab

This option will stabilise the end of the pier with minimal works undertaken to the walls. The end of the pier will be pressure grouted through the face of the wall starting at the base and working up in layers. Blocks will be reset locally using temporary timber hard wood wedges. Joints will be temporarily sealed on the face prior to grouting. Weep holes will be introduced in the end wall to allow drainage of the backfill. The remainder of the pier will drain as normal through the open joints.



⁶Argyll and Bute Planning Consent Reference 17/01120/PP.

At deck level it is proposed that a structural concrete slab will be cast to provide a new surface and also provide additional restraint to the pier deck which was previously provided by the old metal straps.

The grouting operation and resetting of blocks will be undertaken by a specialised contractor. Outline costs are shown on the next page

The pressure grouting will stabilise the end of the pier. Following this, the concrete deck slab and finishing of pointing in the grouted area can be undertaken by local volunteers.

It is proposed to replace the ladders on the pier which are currently unsafe for use. Timber rubbing fenders shall be positioned either side of the ladders to provide protection against damage by vessels.

Low Stone Platform - It is proposed that the deck area with missing blocks and the north face of the stone platform are repaired using in-situ concrete with an underwater anti-washout additive. To minimise the visual impact of the concrete repair, an exposed aggregate finish could be applied along with the use of Glensanda Granite aggregate which will match the existing blocks. The remaining deck joints shall be repointed with either a rapid-set mortar or underwater repair mortar. The joints shall be raked prior to repointing to remove what is left of the existing pointing.



Scarinish – Elemental Costs

The following cost estimates were sought after a site visit in March 2017 by Wallace Stone.

Pier Repairs – Local resetting of blocks, Pressure Grout and Concrete Slab

| Item | Estimated Cost |
|---|-----------------|
| Resetting blocks and Pressure Grouting | £40,000 |
| Concrete Slab | £30,000 |
| Install 5 new ladders and timber fenders | £17,500 |
| Regrade Hard Standing | £5,000 |
| Design/ Engineering Fees, Construction Drawings, Marine Scotland Consents Liaison Application | £8,500 |
| CDM Regulations Principal Designer | £1,500 |
| Marine Scotland Construction License Application Fee | £2,500 |
| Contract Management | £5,000 |
| Site Supervision of Works | £5,000 |
| Preliminaries Approx. 30% | £27,750 |
| 15% Contingency | £21,400 |
| VAT at 20% (TCDDT not VAT registered) | £32,800 |
| TOTAL | £196,950 |

Stone Platform Repairs – Concrete Repairs

| Item | Estimated Cost |
|--|----------------|
| Concrete Repairs to deck | £5,000 |
| Jointing repairs with waterproof mortar | £7,500 |
| Design assistance, contract management, site supervision etc. included above | £0 |
| Preliminaries Approx. 30% | £3,750 |
| 15% Contingency | £2,400 |
| VAT at 20% (TCDT not VAT registered) | £3,730 |
| TOTAL | £22,380 |

| SUMMARY OF TOTALS - SCARINISH | Estimated Cost |
|---|-----------------|
| Pier repairs (including contingency and VAT) | £196,950 |
| Mid-tide platform (including contingency and VAT) | £22,380 |
| GRAND TOTAL | £219,330 |

Appendix 3 | Economic Impacts

Economic Baseline

Tiree has a resident population of 653 (2011 Census), a decline of 15% from the 2001 Census figure of 770.

The island's population has the following age distribution:

Those under 16 years of age - 15%

Those between 16 – 64 years of age - 60%

Those over 65 years of age - 25%

These proportions vary slightly from those found in Scottish averages – lower for those under 16 years of age (17% for Scotland) and those between 16-64 (66% for Scotland) but considerably higher for those over 65 years of age (17% for Scotland).

Although in recent years population decline has occurred across each of the broad age categories, some individual age groups bucked this trend with 18-24 year olds living on Tiree being 15% higher in 2011 than in 2001. It is understood that the Fishing industry heavily contributed to this specific upward trend with a sharp rise in the number of people (nearly all young people) employed in the sector. If this group can be encouraged to stay on Tiree (followed by subsequent cohorts in future years) there could be more adults within the typical family-age bracket, with potential positive implications for the number of children over future years.

In 2011, 11% of the working population were employed in 'Agriculture and Fishing' making it the third highest employment sector on Tiree, compared to the highest, Health and Social Work, at 13%. (Source: Tiree Socio Economic Baseline - 20th June 2016). It should also be noted that:

- fishing is a primary island industry that is generating wealth whilst the largest employment sector is a consumer of public monies;
- 6 out of the 8 current boat owners/skippers are under the age of 35;
- in the past 5 years alone, Fishing has allowed 3 of these boat owners to build new homes on the island, supporting the local building industry.

In 2016, approximately 150 tonnes of shellfish were landed with a gross value of approximately £566,000 (Source: Marine Scotland).



ECONOMIC IMPACT ASSESSMENT

Introduction

Fishing is an important part of the heritage of Tiree and is an integral economic driver for the island's future at a time when the population has been in decline and the school roll falling. There has been no investment in the harbours for over 30 years and without this vital new investment, Tiree will lose its fishing industry and the young families it supports.

Fishing sustains fourteen jobs on boats sailing out of Milton and a further four jobs at Scarinish, an increase in the past 20 years from only five jobs. It is a significant employer of young people and has been a fine example of successful economic development on Tiree.

Key benefits of the development proposals are both social and economic and are summarised as follows:

- improvements will safeguard existing berths and associated jobs as well as creating two extra berthing spaces at Milton. In particular, it will secure six immediately "at risk" jobs (two at Milton, four at Scarinish); the two additional berths will create an opportunity for four additional jobs;
- opportunity at Milton for existing fishermen to expand their businesses by using larger vessels (to increase the catch and vary the target species according to weather and season) and to reduce wastage of the catch once landed;
- improvement of both harbours will significantly increase the value of the harbours as community assets;
- health and safety standards of both harbours will be significantly improved and the overall risk to the vessels moored at the harbours will be reduced;
- onshore working conditions for the fishermen will be improved. For instance offloading will be done under cover at Milton;
- quality of the yield will be improved as the landing at Milton will be done under cover thus protecting the catch from the elements.



Economic Impact Categories

For the purpose of this Economic Impact assessment, three options are used:

- **Do Nothing** – no works would be undertaken at either harbour. The facilities would continue to deteriorate at their natural rate;
- **Do Minimum** – the reduced scope option for Milton and full works at Scarinish as set out above;
- **Protect and Enhance** – full works as set out above at both harbours.

The economic impacts are grouped under five headings:

- Development/construction costs
- Direct benefits/costs
- Indirect benefits/costs
- Induced benefits
- Additionality/displacement/leakage

The development/construction costs and direct impacts of the construction are set out in the table below.

| Development / Construction Cost | Do Nothing | Milton Option 1 | Milton Option 2 | Scarinish |
|--|------------|---|-----------------|-----------|
| Construction Cost | £0 | £1.4m | £1.1m | £0.220m |
| Estimated time to carry out works (would need to do over spring/summer) | 0 | 6 months | 6 months | 3 months |
| Is there a loss of income/cost of alternative berths while the work is going on? | | If work can be done during the summer the boats would be anchored in the bay. This is far from ideal but would enable fishing operations to continue. | | No |

Since the works contract would be awarded after a competitive tendering process, it is not possible to put a precise value on the direct impact on the local economy of the construction contract at this stage. It is hoped that as much value as possible will be retained on the island, but this cannot be known until completion of a fair and open tendering process.

However, even if the successful bidder is not based on the island, there will be benefits in the form of accommodation/subsistence costs and use of local hauliers and subcontractors. The estimated value of accommodation/subsistence is £50,000 based on information from other developments. The value for local hauliers and subcontractors would be known once tenders are received.

Direct Benefits/Costs

Milton

The direct benefits arise from the increase capacity, both in number and size of vessels of the fleet and from the enhanced value of the catch and landings.

Benefits arising from an increase in the fleet from eight to ten vessels are estimated on the basis of a pro-rata increase in landings. Average annual landings⁷ for 2014, 2015 and 2016 were 138 tonnes with a value of £467,729pa. A pro rata increase would take this to 167 tonnes or £584,661pa.

Assuming the three smaller vessels (under 8m) are replaced by 10m vessels, it is estimated that the value of the landings of these three could increase by around £50,000 per vessel, or £150,000pa. This would only be delivered by Option 1.

A further benefit would accrue from the shed which features in both Options 1 and 2. It is estimated that this would halve the mortality of the landed catch, which is around 2.5% of Velvet Crab and 0.5% of Lobster and Brown Crab.

The value of these benefits, as they relate to Options 1 and 2 are shown in the Table on page 32. Compared to a baseline value of £467,729pa, Option 2 would potentially yield an additional £116,932pa in landings, whereas Option 1 would potentially yield an increase of £312,213pa.



⁷ These figures are for catch landed on Tiree. Landings on Mull by Tiree based vessels are not included but account for roughly an additional 10%.

Two additional benefits of the larger vessels have been identified but not quantified:

- the longer range and greater endurance of the larger vessels allow more flexibility in the choice of sheltered fishing grounds and therefore has the potential to allow fishing to take place on days when the local weather conditions prohibit safe fishing;
- their larger decks increase the variety of gear that can be deployed, allowing a wider range of species to be caught, and species targeted according to the market prices.

Scarinish

The direct benefits arise from consolidating the existing employment of 4 fishermen from 2 boats.

The improvements will create a safe working environment for the fishermen, allow safe and secure mooring of vessels and direct vehicular access to land catch. None of these benefits are currently available.

These improvements will also provide an opportunity for marine tourists to land safely on Tiree at a central location with access to local amenities and businesses.

Indirect benefits/costs

Fishing

The indirect benefits relate to the upstream and downstream supply chain, and to opportunities created by the larger number of fishermen.

The catch is normally loaded onto a refrigerated vivier lorry owned and operated by a mainland haulier, but using a local driver while the vehicle is on the island. Although the larger catch might take longer to load, it is not thought that this 'downstream' supply chain impact is material.

It is estimated that each vessel requires two articulated lorry loads each year to supply fuel, bait, gear, protective clothing and spare parts. All of this is delivered by local hauliers and where possible sourced from a local supplier. The estimated value of this on the 'upstream' supply chain is £20,160pa currently for the current fleet. On a pro rata basis this would grow to £25,200pa, an increase of £5,040pa.



| | Baseline | | Option 2 Impact (Alternative Scheme, reduced Scope) | Option 1 Impact (Full Works) | | |
|---------------------------|-----------------------------|---|---|---|---|---|
| Species | Average Landings 2014-16 | Impact of Two Additional Vessels | Value of Landings With Two Additional Vessels | Estimate of Mortality Reduction (% mortality avoided) | Value of Landings after Avoided Mortality | Impact of Three longer Vessels |
| CRABS - Brown (Edible) | £80,670 | £20,168 | £100,837 | 0.50% | £108,098 | £150,000 |
| CRABS - Green | £59 | £15 | £74 | 0.00% | £79 | |
| CRABS - Velvet (Swim) | £125,290 | £31,322 | £156,612 | 2.50% | £171,229 | |
| CRAWFISH | £5,714 | £1,429 | £7,143 | 0.00% | £7,619 | |
| LOBSTERS | £238,411 | £59,603 | £298,014 | 0.50% | £319,471 | |
| NEPHROPS (Norway Lobster) | £16,616 | £4,154 | £20,770 | 0.00% | £22,155 | |
| THORNBAC RAY | £22 | £5 | £27 | 0.00% | £29 | |
| WHITING | £4 | £1 | £5 | 0.00% | £6 | |
| SCALLOPS | £943 | £236 | £1,179 | 0.00% | £1,257 | |
| TOTAL | £467,729 | £116,933 | £584,661 | | £629,943 | £779,943 |

The larger number of fishermen opens the possibility of running courses and certifications on the island rather than on the mainland. It is estimated that around 1% of fishing days are lost due to crew or skippers attending courses. On the assumption that this translates directly into a commensurate increase in the value of landings over and above the total benefits described above, this would add a further £7,799pa to the value of the landings under Option 1, or £5,847pa for Option 2.

The shelter provided by the shed at Milton could allow shore based work experience for school pupils/leavers which is not practical at the existing facilities.

Tourism

The indirect benefits relate to the increased number of visitors landing in Scarinish with direct access to local hotels, shops/retail outlets and transport links.

Safer vessel access will create opportunities for local sea tour businesses as well as facilities for visiting tour boats.

An AIE commissioned report into marine tourism in Argyll Islands [Marine Leisure Infrastructure on the islands of Argyll, August 2007] suggested that the average spend per visiting boat was in the region of £125 per night and that development on Tiree had a potential annual value of around £390,000 to the island economy.

Induced benefits/costs

Induced benefits are typically thought of as being those which arise as a consequence, but not directly related to, the proposed development. One example would be an increase in the availability of locally caught seafood on the island, and potential stimulation of the local food and drink sectors.

Tiree attracted approximately 26,900 visitors in 2016⁸. Until very recently little locally caught produce has been available to the local island market. A local fisherman has opened a fresh seafood outlet at Scarinish for the 2017 season. This area has been recognised by TCDT as having significant growth potential, delivering economic benefits and opening new markets and opportunities.

Displacement/Leakage

The concept of 'Displacement' asks whether the benefits are genuinely additional to the baseline, or simply moved (displaced) from elsewhere in the economy. An example would be where the additional capacity at Milton replaced capacity of a vessel currently sailing out of another berth on the island.

On discussing the matter with the crews, it is clear that only Scarinish and Milton Harbours are used, and that the vessels sailing out of Scarinish are likely to continue to do so for a range of practical operational reasons.



⁸ Source: Discover Tiree

The concept of 'Leakage' asks whether there is confidence that the benefits will be enjoyed within the local economy, and not 'leak' away elsewhere. An example would be if the additional berths were used by vessels based (and landing their catch) at other harbours. The following points were made in relation to this:

Throughout the islands it is normal for vessels to use berths away from their home harbour, for shelter, trade, servicing, in emergencies, or just for social reasons. Aside from the general safety benefits, such visits often result in local spend on food, drink and supplies as well as landing and taking on fuel. They can also provide employment opportunities, providing information about vessels elsewhere that are shorthanded or looking for crewmen.

Thus, it is felt that there is little danger of displacement within the island, that leakage is not a concern, and that there are identifiable benefits of visiting vessels.

Summary of Economic Impacts

In summary, the values of the quantifiable economic impacts are shown in the table below.

| | Do Nothing | Protect and Enhance (Option 1) | Do Minimum (Option 2) |
|--|------------|--|--|
| Construction Benefits | 0 | £50,000 + benefit to hauliers | £50,000 + benefit to hauliers |
| Direct Benefits | 0 | £312,213 pa | £116,932 pa |
| Indirect Benefits | 0 | Haulage and supplies: £5,040 pa Training: £7,799 pa | Haulage and supplies: £5,040 pa Training: £5,847 pa |
| Induced Benefits | 0 | Not quantified | Not quantified |
| Displacement / Leakage | 0 | Not quantified | Not quantified |
| TOTAL - First Year | | £375,052 | £177,819 |
| TOTAL ANNUAL - Subsequent Years | | £325,052 | £127,819 |

Note that it has been assumed that no benefits are received until the works are completed, and the full benefits (including the benefits associated directly with construction activities) are received in the first year of operations.

Return on Investment and Preferred Option

The investment of £1.62 million (Milton Option 1 plus Scarinish) safeguards eighteen jobs, creates the potential for an additional four jobs, and generates an additional £375k for the local economy in the first year and £325k per annum in subsequent years. On this basis the benefits would exceed the project cost by the end of Year 5.

The investment of £1.29 million (Milton Option 2 plus Scarinish) safeguards eighteen jobs, creates the potential for an additional four jobs, and generates an additional £178k for the local economy in the first year and £128k per annum in subsequent years. On this basis the benefits would exceed the project costs by the end of Year 9.

Thus, the economic analysis concludes that both Options are attractive from an economic perspective, and that Option 1 is preferable to Option 2 in that its benefits outweigh the investment costs sooner.



Appendix 4 | Risk Register

| Risk | Probability 1 = Low 10 = High | Impact 1 = Low 10 = High | Resultant Outcomes | Mitigation |
|---|-------------------------------------|--------------------------------|---|--|
| Indirect Benefits | 3 | 7 | <p>Income from moorings/berthing fees is eaten up by these costs</p> <p>Harbour goes into a state of disrepair</p> <p>Project becomes unsustainable</p> | <p>Ensure thorough, realistic financial plan is in place prior to purchase</p> <p>Ensure sound future financial planning</p> <p>Consider community fundraising events to supplement income</p> |
| Lack of available funds for development of harbours | 5 | 10 | <p>Project cannot proceed without funds raised for development costs</p> <p>TCDT is left with two crumbling harbours which become a liability</p> | <p>Build a strong business case, highlighting the socio-economic benefits that the project will bring, to ensure funding partners and supporting agencies are engaged</p> |
| Legislation (H&S) | 2 | 10 | <p>Change in legislation (eg health and safety) means that harbour cannot be used after works completed, or inshore fisheries become unviable</p> | <p>Maintain liaison with industry groups to ensure that any forthcoming changes are foreseen and allowed for</p> |

| | | | | |
|-------------------------|---|----|--|---|
| Legislation (Fisheries) | 2 | 10 | Change to status of local fisheries or regulation of methods and target species makes local fisheries unviable | Maintain liaison with industry groups and market monitors to ensure that any forthcoming changes are foreseen and allowed for |
| Market prices | 3 | 10 | Prices fall to the extent that fisheries are no longer viable | Aim to ensure a wide range of market sources are available. |
| Environment | 1 | 10 | Unforeseen weather events cause uninsured damage to harbours | Ensure a maintenance fund is kept and topped up regularly |
| Supply chain | 3 | 8 | Cost (eg fuel) increases mean that the increases in fleet size are not realised | Encourage cost sharing and other efficiencies amongst local boats/businesses |
| Labour market | 3 | 8 | Skippers are not able to recruit crews and therefore benefits do not materialise | Ensure young people feel valued and are encouraged to stay on Tiree to work |

Appendix 5 | Financial Assessment

Harbours Pre Development Costs

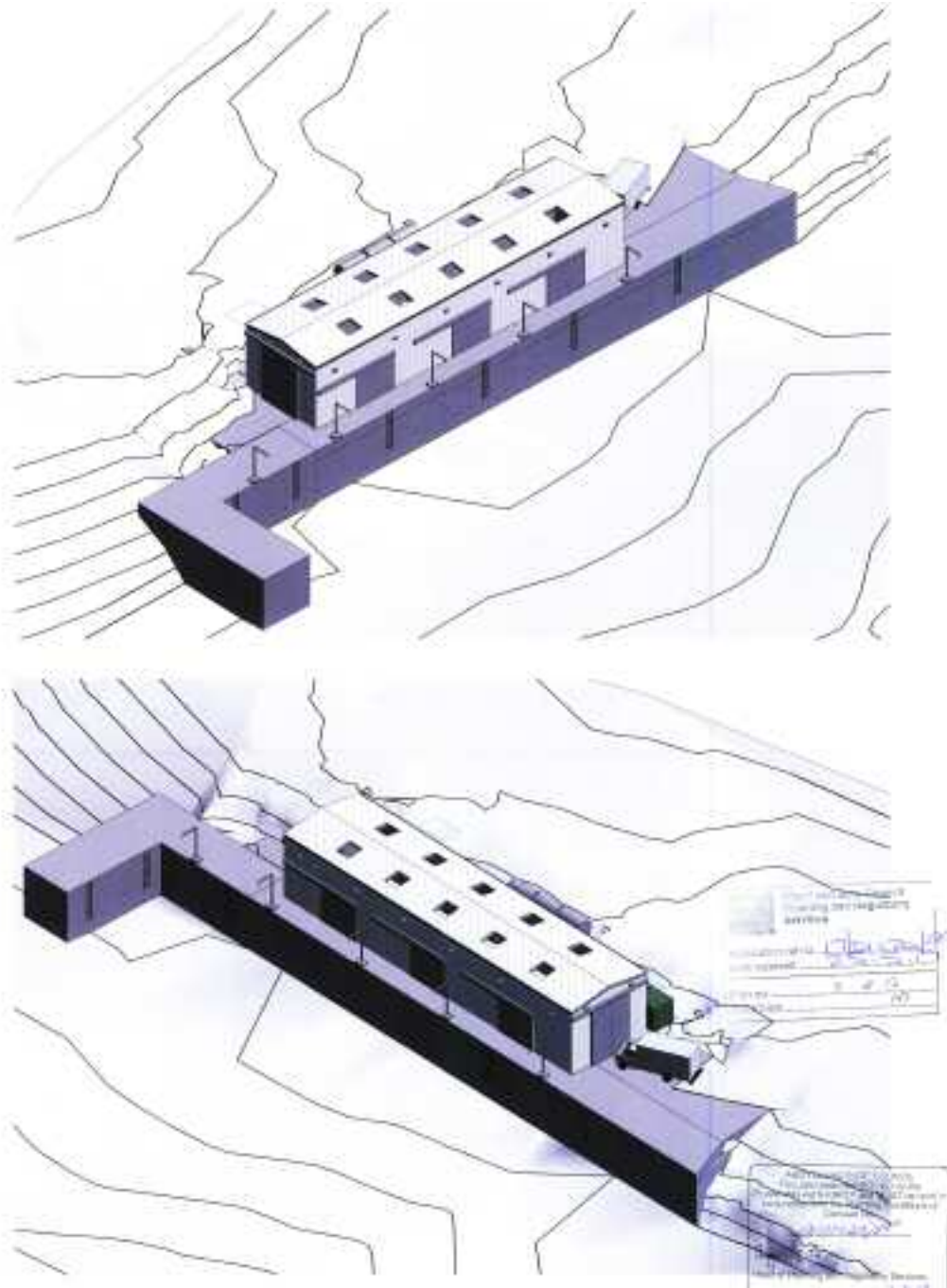
These costs have been covered exclusively by TCDT from community funds with the exception of the Project Officer which was 20% funded by HIE and £840 of the study visit which was also covered by HIE.

| Item | Details | Cost |
|--------------------------------------|---|----------------|
| 2015 - August 2017 | | |
| Wallace Stone Marine Engineers | Full structural surveys of Milton and Scarinish harbours including full cost analysis for repairs and improvements | £12,528 |
| Roots Architecture | Preparation and submission of planning application and topographical survey | £8,184 |
| Study Visit | Steering Group visit to South Uist and Barra | £1,532 |
| Staff Costs | Project officer to develop steering group, consult community, liaise with stakeholders, and develop project plans (<i>50% of time over 2 year period</i>) | £24,000 |
| Tiree based Artists and Designers | Photography, production of promotional video and graphic design of growth plan document | £1,308 |
| | | £47,552 |
| September 2017 > | | |
| Marine Scotland Construction Licence | Licence application fee | £2,225 |
| Professional Fees | Budget for Legal, Conveyancing & Accounting fees | £10,000 |
| Staff Costs | Budget for Staff costs | £5,000 |
| Contingency | Miscellaneous | £3,000 |
| TOTAL | | £20,225 |
| GRAND TOTAL | | £67,777 |

Post Development Cashflows

The project cashflow is a live document. For more information please contact TCDT staff.

Illustrations and photo montage of proposed development at Milton.





Photography | Becky Howard-Pope
Design | Blue Beyond Design