



2.5 FOUNDATIONS for RECOVERY

DUNURE HARBOUR CONSERVATION STRATEGY



UK Government



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INTRODUCTION



DUNURE HARBOUR SOUTH AYRSHIRE KA7 4LR

Dunure Harbour lies on the South Ayrshire coast of the River Clyde, 5 miles South of Ayr, in the historic fishing village of Dunure. As a set piece design, built in 1811, the B listed square plan harbour with lighthouse has been inserted into an inlet on the rocky shoreline.

CONSERVATION STRATEGY

This document has been prepared by ARPL Architects during summer 2022. The investigations and development of an up to date assessment and proposal for the harbour area has been commissioned by North Carrick Community Benefits Company as part of their funded Carrick Futures project to revitalise community response following the COVID pandemic. Each part of their project is being developed in partnership with existing local community groups who have been working on development ideas and sketch proposals. This study will support, structure and prioritise the approach to repairs and enhancements to be used as part of applications made to grant funding bodies.

Over the last 20 years there have been several feasibility studies for Dunure Harbour, led by the harbour committee members and with involvement from ARPL Architects. Dunure have now consolidated several community committees into one organisation as Dynamic Dunure.

In addition to the research and assessment made by conservation accredited architect, Rebecca Cadie of ARPL, contributions to the information prepared for the Conservation Strategy have been made with archive drawings and photographs from Canmore, local community and heritage research material published by Roy Storrie, condition inspection by ARPL Architects and structural engineers David Narro Partnership, and site assessments by Rathmell archaeologists and ecologist Max Carstairs, and quantity surveyor's costing appraisal by Armour Construction Consultants.

The principles of the fabric repairs has been discussed with Historic Environment Scotland and further discussion will take place with South Ayrshire Council.

In developing and executing a building maintenance and management plan, reference should be made to the Conservation Strategy to inform methods and appropriate techniques for repair, cleaning and general maintenance.

CONSERVATION PHILOSOPHY

The aim of the current proposals is to implement viable conservation repair and environmental improvement of the harbour to a high standard for a sustainable, long-term use and appropriate guardianship regime for a regionally important historic site and to promote the coastal activities and heritage of Dunure village and Carrick district.

The conservation repair works will be implemented according to internationally recognised conservation policies and practices identified for Scotland through the Stirling Charter and the Burra Charter, as formulated by the International Council on Monuments and Sites and the British Standard *Guide to the Principles of Conservation of Historic Buildings* BS 7913 which are widely accepted and adopted as the standard for heritage conservation practice.

The Charters define the basic principles and procedures to be observed in the conservation of important places, including wider issues such as cultural significance, consultation documentation and use of materials.

The Stirling Charter and good conservation practice generally requires that a Conservation Strategy (or Plan) should be developed following the completion of research. This document is to identify the overall policies and strategies, which will guide the conservation of the building, and will form the basis for all subsequent conservation decisions.

The Conservation Strategy is to address the following points:-

- *Define a management structure through which the conservation policy is capable of being implemented and which will provide for the long-term care and use of the harbour site.*
- *State how the continued use as a coastal leisure and commercial facility can be best achieved both in the long and short term.*
- *Identify the most appropriate way of caring for the fabric and setting of the harbour arising out of the Statement of Significance and other constraints.*
- *Support fishing and leisure boat activity and water sports as a viable use that is compatible with the retention of the village heritage significance on the River Clyde.*
- *Include appropriate ways of making the heritage and cultural significance of the harbour to be understood and promoted in the Ayrshire coastal context.*
- *Include provisions for the control and marking of physical changes in the harbour setting.*
- *Identify the reversible nature of any interventions.*

EXECUTIVE SUMMARY

SIGNIFICANCE OF DUNURE HARBOUR

There is no doubt that the harbour is of regional significance and its location in the picturesque village of Dunure contributes to the heritage and historic context of the Ayrshire Coast. Its physical presence is at the focus of the North end of the defined village area with the historic Castle and Dovecot buildings to the South. The condition of the harbour structure in its current state is generally sound although the heavily eroded stone lighthouse is a cause for considerable concern.

CONSERVATION, MAINTENANCE AND DEVELOPMENT STRATEGY

Within a strategy for maintaining and improving the facilities at the harbour there are priorities to consider :

- Conservation of the principal architectural composition of the harbour structure, breakwaters, lighthouse and tidal basin with safe moorings for boats
-
- Repair of the harbour walls where rock has eroded or fallen away and repair of the access steps to the water.
- Repair / reinstatement / consolidation of the West breakwater and west quay.
- Restoration of the sandstone lighthouse as a sound structure
- Contemporary design of new elements are planned such as a new boat store and a solid construction walkway with wave barrier on the west wall.
- Improvements to the harbour master office and facilities
- Increase areas for storage of boats out of the water for the winter season, including consolidation of the North Dyke, with safe vehicle and trailer access
- Re-surfacing of the harbour access areas with creation of safe visitor areas for picnic tables and attractive landscape furniture
- Refresh the signage and heritage interpretation information boards



THE SITE

SITE AND BUILDING DETAILS

Dunure Harbour
Dunure KA7 4LN

OS Map grid ref NS 25479 16030 and Coordinates 225479, 616030

Owned by Dunure Harbour Committee Association Ltd

Designed by Charles Abercrombie, Engineer

For Thomas Kennedy of Dunure, landowner and Barony of Dunure

Historic Scotland category B listing in 1971 LB no.19683

LOCATION

Located in the village of Dunure, South Ayrshire on the River Clyde coast between Ayr and Turnberry



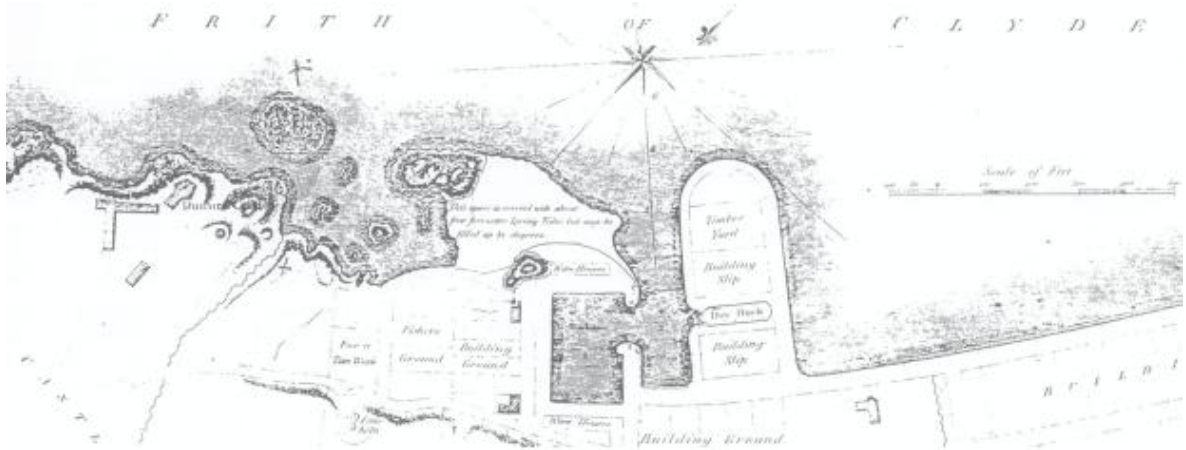
Google satellite image of the harbour

HISTORY AND DESCRIPTION OF THE HARBOUR

At the close of the 18th century, though their interest in the castle had long since ceased, the Kennedy family still owned the lands and Barony of Dunure. Thomas Kennedy was keen to develop the area on a commercial basis by establishing a harbour to export the coal from the Dailly coalfield, to import lime and timber and to set up small industries such as limekilns, a boatyard, a tannery, a saltworks and a glassworks.

A letter written by Thomas Kennedy's great-great-grandson in 1973 explains that the plan was over-ambitious and that Kennedy fell into financial difficulties.

However the harbour was constructed 1811-1813, designed by Charles Abercrombie, with fine jetties and a small lighthouse tower constructed.. A northern protective extension, designed by H V Eaglesham was constructed when the entrance to the harbour was widened in 1897, now called the North Dyke (on which the timber yard, building slips and even a dry dock had been envisaged) was built. Houses were built alongside the harbour and limekilns built to the south west. Limestone and chalk were imported from Ireland and lime produced in the kilns to be used for liming the fields and as a source of lime mortar for building. The new farm houses and steadings would have required large amounts of mortar.



Abercrombie's plan for the harbour in 1811

Local tradition records puffers exporting coal. The tidal nature and clay bottom of the new harbour would have been ideal for puffers to beach, and off and on-load at low tide, and gave them access to part of the coast which because of its rocky nature they had not used previously. The point in the harbour wall where coal was delivered from the road can still be seen, though it was walled up long ago. There is a Coal-Pit Road on the hill behind Fisherton Primary School which also supports the tradition.

However the coal trade never developed. Presumably the difficulty of transporting from the Dailly coalfield, together with competition from the Ayr coalfield whose production could easily be shipped from the more accessible Ayr Harbour, prevented further development.

What Kennedy had not included in his proposals and vision was the existing local industry, namely fishing, which did indeed become the prime function of the harbour. Fishing was a significant use until the general use of larger boats, which were not able to enter and leave the harbour easily, dwindled to a handful of small boats fishing for lobster, crab and prawns by the end of the 20th century.



Dunure harbour and castle, painting by James D Harding, early 19th century

The harbour was cut out of the bedrock which underlay the raised beach. This comprised basalt and conglomerate sandstone which had been heated and hardened by the lavas and turned a greenish colour. The basalt base of the harbour can still be seen at low tide below the basalt (whin) blocks used to construct the jetties. These are capped by sandstone and in places by concrete. The lighthouse is built of local sandstone.



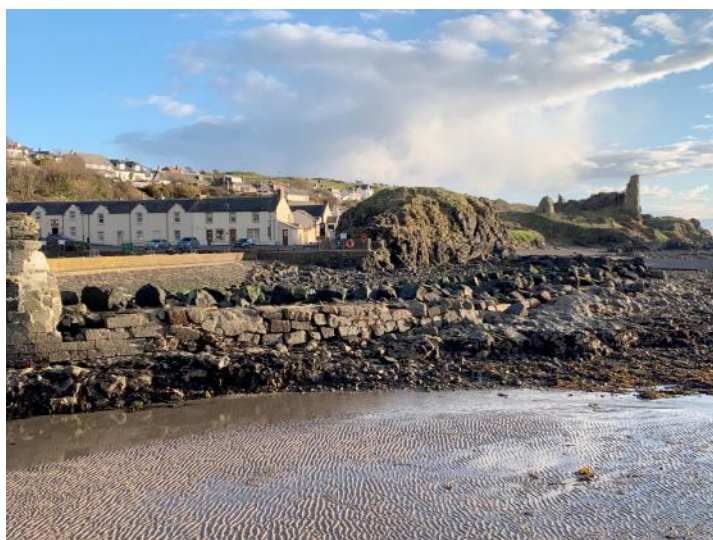
The harbour was deepened in 1927 to accommodate the busy fleet of fishing vessels, and boats were launched from the South side

The harbour is tidal, with a range of about 2.5m, though higher at spring tides. The North Dyke (breakwater) can be covered at surge tides even when it is not stormy. While low tide allows boat hulls to be inspected, it is not wholly advantageous, as exit and access times are determined by the tides.

Offshore winds in the days of sail could make it difficult to return to the harbour during

daylight, even with oars (some of the early boats had only three pairs of oarsmen). So the lighthouse was constructed to give a navigation route through the narrow channel.

Entrance to the harbour is not on a NW/SE parallel to the North Dyke, but by a more westerly approach, to avoid submerged rocks. Fishermen and pleasure boat users employ the navigation method long used by the traditional fishing families. The lighthouse has an “occulting” extended wall on the north side and this conceals the door to anyone attempting to enter from a north-westerly lie. But as one sails south, the doorway is exposed to view. This then marks the correct line to enter the harbour. Only recently have leading markers been erected to facilitate this access. Given that most boats were small and had to come into a shallow harbour, this would generally have been in daylight hours and any light from the lighthouse is believed to have been hand held lanterns in twilight conditions, as there is no evidence of a brazier, fire scorching or smoke deposits on the inner surface of the stone structure.



Navigation using the occluding wall was important for avoiding the rocks and beach



At low tide the harbour can be completely empty of water



Entrance to the harbour through the narrow channel at the North end of the West wall with lighthouse



Condition of the Lighthouse structure and occulting wall has deteriorated badly with major erosion and temporary supports are also corroding



Normal High tide water level rises to the lower coursing of the sandstone on harbour walls



Low tide leaves the harbour basin empty with the entrance channel shallow enough to walk across, exposing the full harbour construction of walls built off rock

ASSESSMENT AND ANALYSIS OF CONSERVATION NEEDS

The harbour has been in need of repairs and upgrade of facilities and environment for the last few decades, and is in need of a comprehensive repair programme.

Feasibility Studies have been produced on a number of occasions and some outline grant applications have been made, but not progressed. Studies were produced in 1991, 2005 - 06 and 2013, and a budget costing in 2015 supported by structural engineer's survey.

However the harbour committee members have continued with on-going repairs and works to ensure the harbour can continue to be safe for operation and are currently constructing a new boat store, improved trailer access and winter boat storage areas, and will upgrade the harbour master's office and facilities. Despite the evidence of long term decay due to weather and sea, the major repair of the harbour walls, West quay and lighthouse have been too substantial for progressing by the local harbour committee members and they are now in urgent need to prevent collapse and loss of key elements of the historic structures.

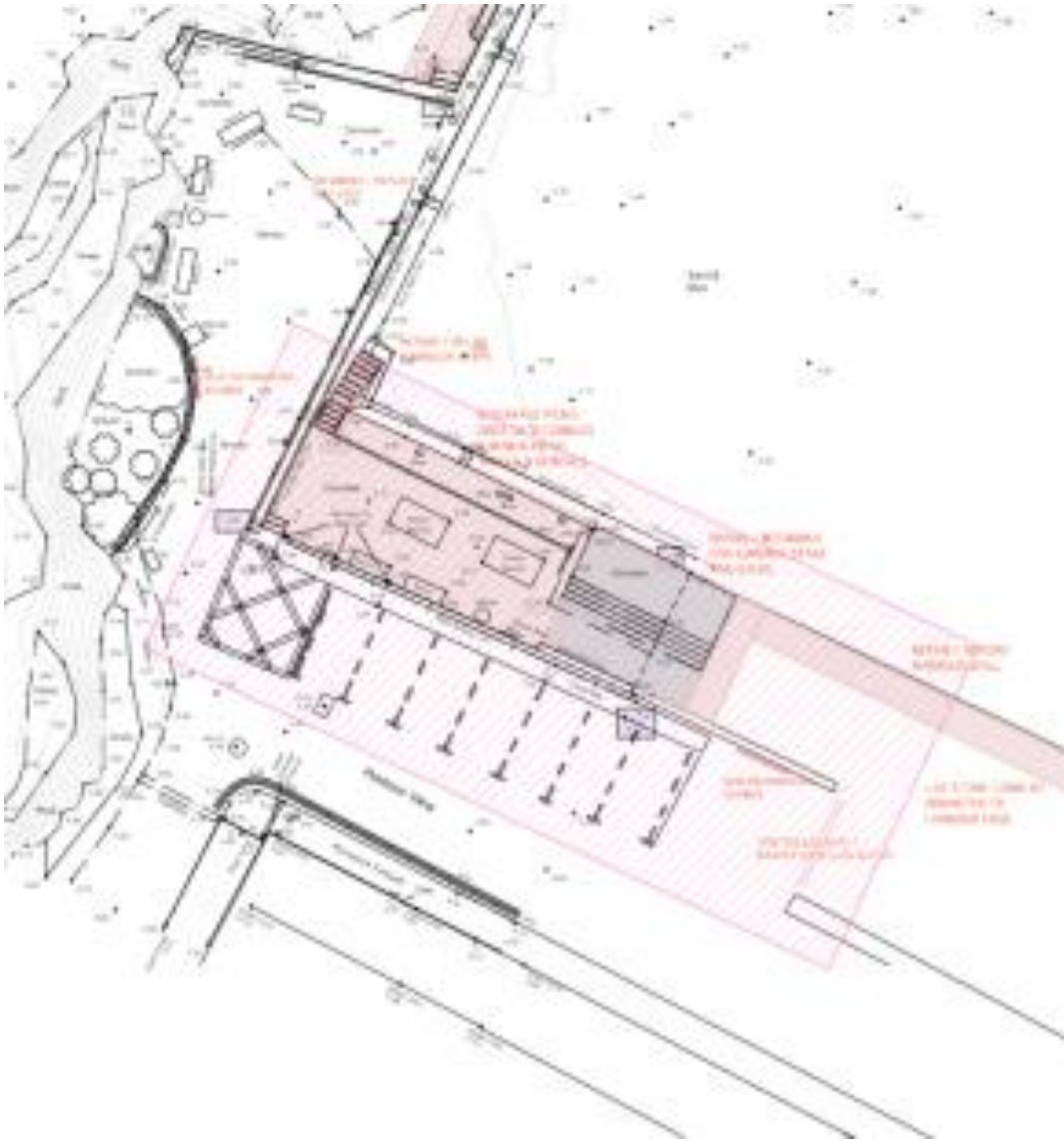
- 1 A management and ownership structure through which the conservation policy is capable of being implemented and which will provide for the long-term care of the harbour has been established. The formal transfer of Deeds for the harbour to the Harbour Committee has helped secure this. Control and marking of physical intervention will be best achieved by a continuing management strategy.

- 2 The sustainability of the harbour on the River Clyde can be best achieved with maintenance and use of the structures for fishing, pleasure boats, and water sports activity.
- 3 The expected quality of the harbour facilities, and community engagement will be important not only to ensure and sustain the water based activity but also public awareness and appreciation of the location as a tourist attraction
- 4 The revitalised use can make the cultural significance of the place understood, and preservation of the unique qualities of the “set piece” coastal architectural qualities and heritage of the Ayrshire fishing village.



The Festival of the Sea, held every August, attracts a large crowd to the harbour.

PROPOSED IMPROVEMENTS TO THE HARBOUR SITE



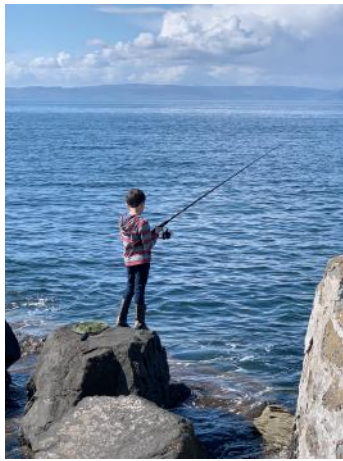
The Harbour Master, Cameron Kerr, was consulted and he explained the current issues of concern and interest for the harbour committee. A scheme of improvements to the visitor area of the harbour is planned to improve safety and to maintain the quality of the heritage of the site in an attractive way for visitors and tourists. Refer to the main proposal drawings for context and a report on the consultation in Appendix B.

The sea breaching the West breakwater, Quay and West wall have been of concern for a long period of time due to general coastal bad weather conditions becoming more frequent and severe with climate change. The breakwater as the outer defence, has lost rocks and the sloping quay designed to subdue incoming waves is deteriorating and in stormy conditions the waves break over the low and narrow West wall, which are a danger for people on the west wall access and can cause damage to the moored boats. A major proposal to improve the protection and safety of the harbour would be to construct a solid defence wall and walkway on the West side of the harbour and will benefit access to the restored lighthouse.

The benefit of the enhancements is for water based use and activities as much as it is for land based visitors. The local community also enjoy the harbour area and setting all year round for casual walks, fishing and swimming.



Rough conditions in the harbour during a storm



Leisure use of the West breakwater and quay or a good summer's day



Pleasure boats and tourists contribute to the harbour activities



Improved access for boat trailers will help sustain the water based activities and use of the harbour. During 2022 the harbour committee have been working on the East and North side of the site to improve the facilities.



A new boat store is to be constructed and upgrade to facilities in the Harbour Master's building.

CONDITION OF BUILT FABRIC

STRUCTURAL SURVEY SUMMARY

Ben Adam of David Narro Associates attended site on two occasions to inspect and assess structures. The visit on the 18 February 2022 was not complete due to inclement weather and high tide limiting the access to the harbour walls. The joint visit with the Conservation Architect and Archaeologist on 28 April 2022 was in good weather and at low tide, offering a full view of the harbour structures.

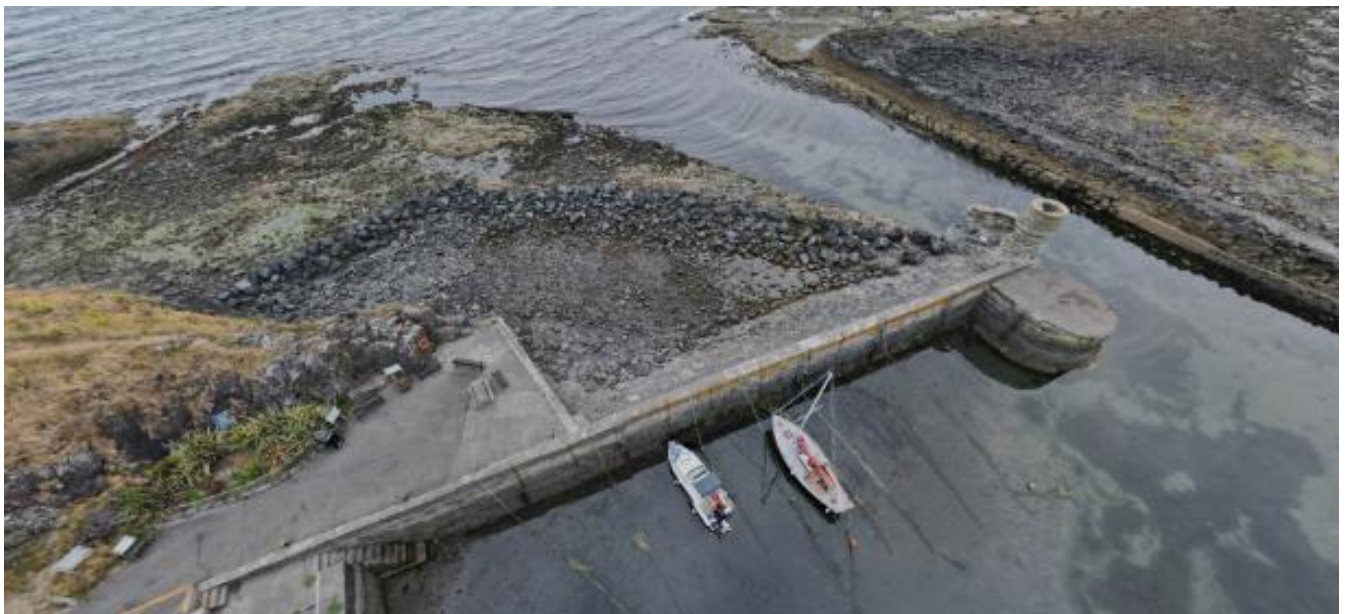
The report on the condition, with detailed photographs, is included in Appendix C, however in summary:

Harbour walls: The wall facing the harbour is generally in reasonable condition given the past maintenance regime but is in need of remedial works to sections of the wall. Erosion and displacement of some stones will need to be remedied with deep packing, pinning and repointing of the masonry with lime mortar or grout.

West Breakwater and Quay: The west revetment is covered with concrete which was cracking to the northern end. This will need to be repaired using standard concrete repair grouts.

Lighthouse: The Lighthouse is in very poor condition with almost all stones severely eroded to the point of unpredictable structural capability. The stonework will require major repairs and given the nature of the decay, full stone replacement with a more durable unit will probably be required throughout the structure.

Harbour South wall and fish landing: This wall has been built up from an original level and the apron is in very poor condition. Voiding is present below the slab to the west end and will need to be replaced. The upper walling is in poor condition and will need to be fully repointed and joints packed.



Aerial view of West breakwater, quay, harbour wall and Lighthouse

SUMMARY OF THE ARCHAEOLOGY OF THE SITE

In 2002/3 this site was examined as part of the Coastal Zone Assessment Survey of the Firth of Clyde. The report was fairly brief and notes *The sites condition was noted as 'Good' and the erosion class of the coast at this point is noted as 'Stable'* as contained in WOSAS report 1 in Appendix D.

Rathmell Archaeology have prepared a well detailed and researched report for this study, Ref Appendix D, and the key points relating to the significance of the site and any works that are to be carried out can be summarized.

An inspection survey of the proposed development area was undertaken on 17th March 2022 in order to assist in the characterisation of surviving upstanding archaeological or historic remains and define their key characteristics (including significance).

No evidence of earlier harbour structures is anticipated to exist on the site, with the 1811 harbour construction and later works having removed substantial areas of bedrock and remodelled the foreshore extensively. Various historic maps were studied and comments given regarding the development of the village.

The research explains that the full plan developed by Abercrombie was not completed as the use of the harbour did not reach the anticipated demand and Thomas Kennedy suffered financial difficulty with the development. After initial construction there were additional works developed, such as the breakwaters, but substantially the harbour remained unchanged. The use of the harbour is examined and rather than business trade, the dominant activity was fishing.

The harbour light, with its ingenious method of enabling mariners to navigate a safe route into the harbour from both north and south through the combination of a brazier and an occulting wall, was reported by the Ordnance Survey of 1855-57 as not in active use; nor does their informant ever record it as having been in use since the alleged date of construction.

Consolidation and repair works are not anticipated to result in substantive loss or damage of archaeologically significant structures that embody complex archaeological information. The archaeological impact of this work is considered to be insignificant.

The restoration of lighthouse including the occulting wall is anticipated to encompass the full dismantling and rebuilding of this structure with substantial stone replacement. Inspection of this structure has shown that it is unlikely to embody complex archaeological information being an unused masonry structure (in effect akin to a folly). Since the structure is to be rebuilt in an identical manner and has already been subject to recording, the archaeological impact of this work is considered to be insignificant.

The range of concrete repair or replacement works associated with the South harbour walls have the potential to impact earlier, concealed masonry structures. This is an untested potential but the most likely to expose such earlier structures are likely to be the

SUMMARY OF ECOLOGICAL ASSESSMENT OF SITE

Max & Sian Carstairs Ecological Consultants were commissioned by ARPL architects to undertake an intertidal marine survey in relation to proposed seawall repairs at Dunure Harbour, Ayrshire. This is a detailed survey, however there is no endangered or rare species that would seem to be significantly affected by the proposed works. Ref Appendix E for the full report.

Small stands of Lyme grass sand dune were present at the top of the beach above a foreshore comprised of sloping shingle banks with strandline detritus. Artificially constructed breakwaters and harbour walls contained a modified upper shore zonation with a prominent lichen zone.

The lower mid shore was mainly exposed bedrock with a few overlying mobile sediments. The lowest part of the shore was comprised of bedrock, often overlain with mixed sediments of which boulders were predominant. A small number of rock-pools with sediment floors were also present with a very limited flora and fauna including the non-native seaweed *Sargassum muticum*

The proposed seawall repairs will likely not affect tidal currents and will take place in an area with limited diversity of flora and fauna and with no habitats of conservation concern. Adverse impacts on surrounding habitats are not anticipated provided construction plant/materials and foot traffic do not occur over the habitats of conservation importance listed above. In addition, industry standard pollution prevention measures should be in place during construction.

There may be some direct loss of kelp forest, coralline rock pools and eelgrass bed from breakwater and slipway construction as these biotopes occur in or very close to the footprint of the proposed new structures. However, the amount of habitat loss represents a small fraction of the total amount of these habitats occurring in the survey area and in the case of the latter, the area of loss at the time of writing would be less than 1m²



RECOMMENDED REPAIRS TO INCLUDE WITHIN GENERAL IMPROVEMENT WORKS

The Conservation Architect and Structural Engineer reviewed the conditions of the harbour and breakwater structures and have developed a schedule of recommended repairs that extends the current plan for improved facilities and environment for boat users and tourists.

Many of the areas of decay of masonry have been reviewed and recorded for repair through the studies carried out in 2005 and 2013, and there has been further erosion and storm damage since then, but not significantly deteriorated, other than with the lighthouse masonry and West breakwater.

Summary of the repairs recommended :

Restoration of the Lighthouse: recommend dismantle and rebuild with new stone to lower 2/3rds of structure (below the roll course) and rebuild upper section with re-use of existing stone and localised replacement indents cut from salvaged stone.

As a minimum, if the stonework is not to be restored for some time, the replacement of the corroding steel props with stainless steel props, should be carried out with some urgency.

Consolidation of the occulting wall: recommend take down upper and west outer edge stonework and rebuild with new bedding and pointing to consolidate the structure.

West sloping Quay: grouting of holes and crevices on the sloping concrete and stone surface, with a strong cement mortar to prevent wave action erosion. This should be carried out, regardless of the suggested concrete walkway and barrier structure being built. The steps from the fenced general viewing area to be repaired to give safe access along the west harbour wall.

West Breakwater: consolidation by repositioning of the large boulder rocks which have been washed out on storms and are strewn on the beach and seabed area adjacent to the structure.

Inner walls of the harbour: there are areas of the upper courses of sandstone on the West and North walls that have considerable face erosion, however blocks are substantially sound. Re-dressing the face of individual blocks and repointing of the surrounding courses and joints with a good marine lime mortar mix as recommended by the SLCT, who also advised the mortars recommended can be worked in sections between tidal periods without the need of barriers or specialist protection.

The west wall upper course has a crack in the concrete top section that requires a resin repair.

In several areas of the lower courses of basalt granite blocks, there has been some localised fall of stones causing holes in the wall. These should be packed out with replaced blocks and pinnings and repointed areas.

The North pier walls have considerable areas where pointing has been lost or eroded and comprehensive repointing is recommended to the harbour face wall and North side of pier facing the beach with slipway.

Harbour steps: the main corner steps down into the water on the South West corner are uneven and a mix of stone and concrete with some slippage. It is recommended that these be rebuilt with even rise and level treads, with stone above the normal tide line and can be concrete below. A similar repair is recommended for the steps on the South harbour wall. Steps from the road area to the harbour-side in the South West corner are uneven and crudely constructed, and recommended to rebuild these in stone. Likewise the steps from the viewing area down on to the West quay.

The concrete steps from the main harbour-side level to the fish landing level will require replacement at the time of re-surfacing the harbour-side and fish landing ground surfaces.

Harbour-side Re-surfacing:

The edge of the harbour-side concrete surface finish is elderly and cracking in many places and therefore a trip hazard as well as being un-attractive. The harbour committee are keen to replace this with a finish that is more attractive and as a natural stone cobble strip would be durable, more authentic to the heritage and as a rumble strip would be a safety warning for vehicles driving around to the boat store areas.

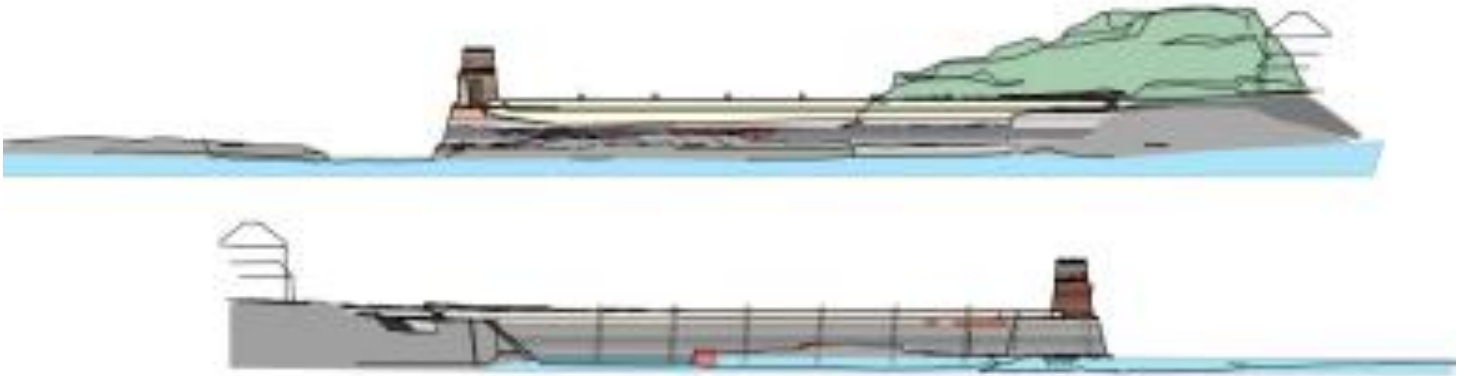
Removal of the existing concrete surface and good preparation of bedding for set cobbles will be necessary and an outer concrete kerb formed to protect the edge.

The removal of the concrete surface will assist with repair of the retaining structure for the fish landing sides and stepped access. The archaeologist considers this to be the place of most interest as there has evidently been change in the harbour construction of the South wall, and advises an archaeological watch brief should be included within the works to observe and record what is found.

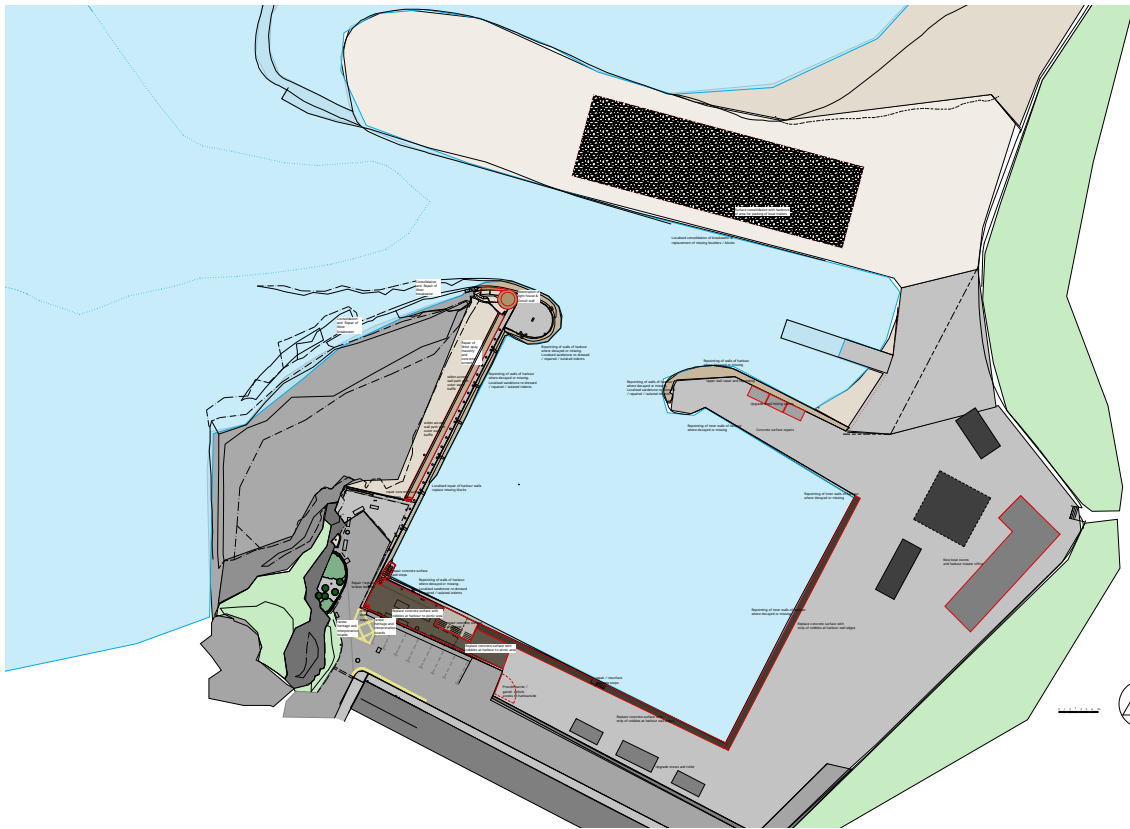
General street furniture replacement:

While repairs and re-surfacing are taking place, it is appropriate to renew street furniture with good quality cast iron / stainless steel fittings such as bollards and lamps as many of the existing items are badly corroded, damaged or missing.

Renewal of information signs and interpretation boards are related to tidal safety and local history information for boat users, walkers and tourists.



Sectional elevation drawings of the Lighthouse, West wall and Quay.
Reference to the technical survey and proposed repair drawings for detail.



GENERAL ROUTINE MAINTENANCE RECOMMENDATIONS

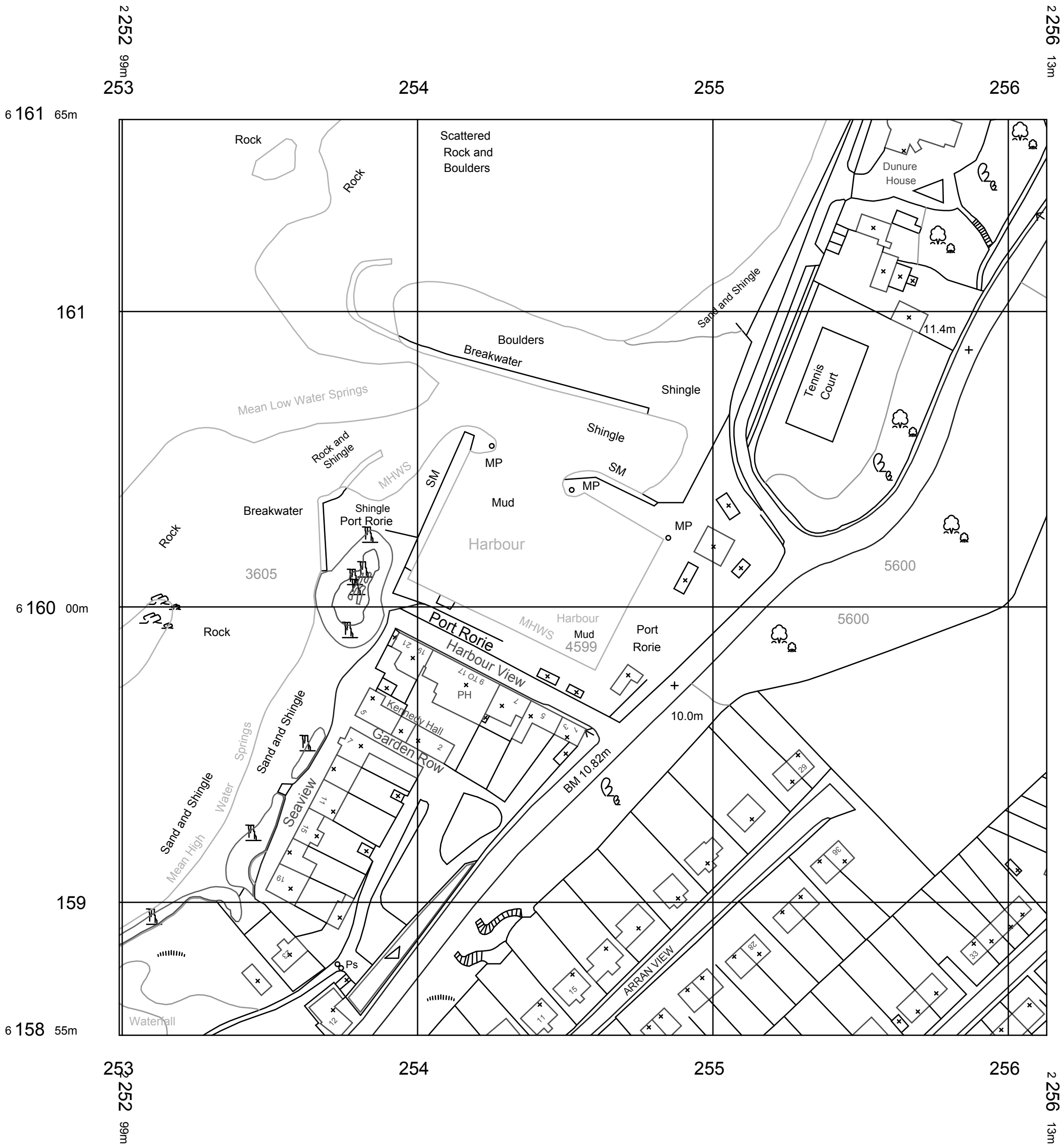
Careful and regular maintenance of the structure is an important aspect of ensuring that major repairs are reduced and that costs involved in upkeep are kept down. The following list gives an indication of the sort of jobs that should be done and when.

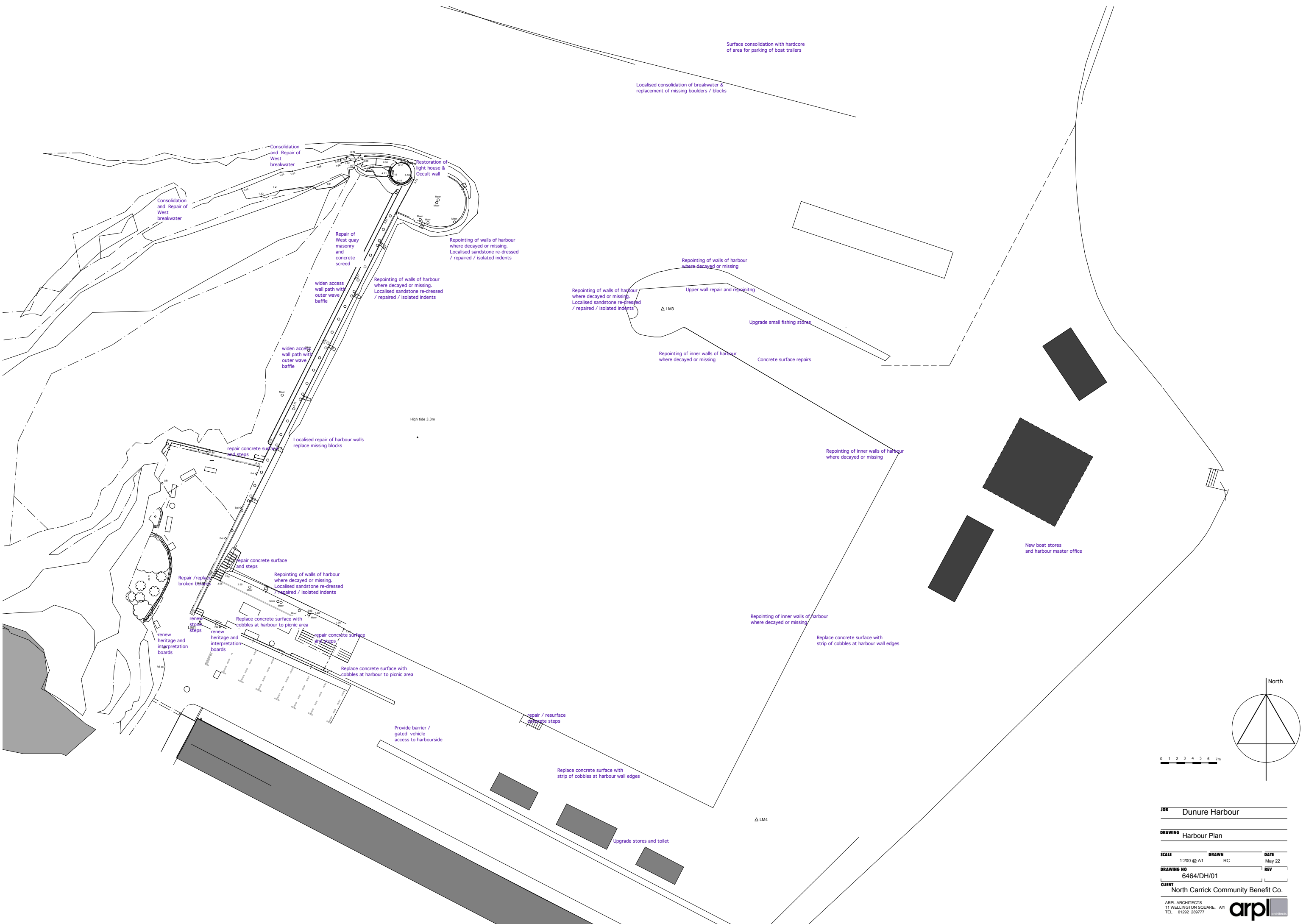
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|-------------------------|---|
| At appropriate Season : | <p>Check visually all harbour wall faces regularly at low tide to monitor for any stone loss or deterioration of mortar and masonry</p> <p>Check life-saving equipment / life belts /defibrilator etc are in accessible positions and ready for emergency use</p> |
| Spring / Early Summer : | <p>Make full inspection of lighthouse, harbour walls and breakwaters and prioritise repairs required</p> <p>Repair of winter storm damage to sheds and street furniture</p> <p>Spray around perimeter of buildings and boat store areas to discourage weed growth.</p> <p>Check condition of steps, mooring and ladder fixings</p> <p>Check picnic benches, litter bins, fencing etc are sound and safe for visitor use</p> <p>Check condition of signs and notice boards and that information relating to tides and emergency contacts etc is correct.</p> |

Ordnance Survey Superplan Data

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Surface consolidation with hardcore
of area for parking of boat trailers

Localised consolidation of breakwater &
replacement of missing boulders / blocks

Consolidation and Repair of
West breakwater

Restoration of
light house &
Occult wall

Consolidation and Repair of
West breakwater

Repair of
West quay
masonry
and
concrete
screed

Repointing of walls of harbour
where decayed or missing.
Localised sandstone re-dressed
/ repaired / isolated indents

widen access
wall path with
outer wave
baffle

Repointing of walls of harbour
where decayed or missing.
Localised sandstone re-dressed
/ repaired / isolated indents

widen access
wall path with
outer wave
baffle

Repointing of walls of harbour
where decayed or missing.
Localised sandstone re-dressed
/ repaired / isolated indents

High tide 3.3m

Localised repair of harbour walls
replace missing blocks

repair concrete surface
and steps

Repair / replace
broken beams

Repointing of walls of harbour
where decayed or missing.
Localised sandstone re-dressed
/ repaired / isolated indents

renew
steps

renew
heritage and
interpretation
boards

repair concrete surface
and steps

Replace concrete surface with
cobble at harbour to picnic area

Replace concrete surface with
cobble at harbour to picnic area

Provide barrier /
gated vehicle
access to harbourside

repair / resurface
concrete steps

Replace concrete surface with
strip of cobbles at harbour wall edges

Upgrade stores and toilet

Repointing of walls of harbour
where decayed or missing

Upper wall repair and repointing

Upgrade small fishing stones

Repointing of walls of harbour
where decayed or missing.
Localised sandstone re-dressed
/ repaired / isolated indents

Repointing of inner walls of harbour
where decayed or missing

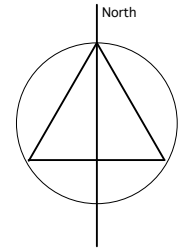
Concrete surface repairs

Repointing of inner walls of harbour
where decayed or missing

Repointing of inner walls of harbour
where decayed or missing

Replace concrete surface with
strip of cobbles at harbour wall edges

New boat stores
and harbour master office



JOB	Dunure Harbour		
DRAWING	Harbour Plan		
SCALE	DRAWN	DATE	
1:200 @ A1	RC	May 22	
DRAWING NO	REV		
6464/DH/01			
CLIENT	North Carrick Community Benefit Co.		

ARPL ARCHITECTS
11 WELLINGTON SQUARE, AYL
TEL: 01292 289777



DUNURE HARBOUR REPAIRS

PREPARATORY works and other repairs organised by harbour committee

No	Items	Description
1		Construction of new boat store
2		Extension of concrete access road towards North breakwater
3		Upgrade gate / barrier to harbourside
4		Refurbish harbour master's office
5		Refurbish fishermen's huts and stores

SCOPE OF CONTRACT WORKS - SPECIFICATION AND DRAWINGS REFERENCES

MAIN CONTRACT WORK

A PRELIMINARIES		
No	Items	Description
1		PRELIMINARIES: Contractor's prelim costs for site management, equipment, scaffold, insurances, H&S , HOP etc.
2		storage containers for keeping mortar materials dry
3		contractors welfare accommodation
4		scaffolding to lighthouse tower
5		stage scaffolding and safety equipment, temporary barriers etc for inner harbour wall repairs
6		herras fencing and other temporary barriers / protection for works
7		temporary electrical supply and external lighting of area of works
8		Risk allowance for weather, tides etc stop / start works
9		Contingency (Prov Sum) allow 15%

C DOWNTAKING / ALTERATION OF EXISTING		
No	Items	Description
1		General protection and methods for removal work, including temporary propping
2		Attendance of archaeologist on watching brief for removal of concrete surfaces and wall sections on harbour south side, potentially 5 days
3		Attendance of ecologist on watching brief for consolidation work of West breakwater, potentially 2 days
4		Break up and remove existng concrete surface finish on West wall Landing, allow 45sqm
5		Break out existng 4no. concrete steps giving access to the West quay
6		Break up and remove existing concrete surface finish on South side quayside,including fish landing lower area and steps, and harbour wall 1.5m edge strip, allow 250sqm. Work to be monitored by archaeologists and findings recorded.
7		Break up and remove existing concrete surface finish on East side quayside and harbour wall 1.5m edge strip, allow 80sqm.

D CONSERVATION REPAIR MASONRY WORK		
1.1	HARBOUR WEST WALL & LANDING	Localised area of rake out for repointing as shown on drawings, allow 50 sqm
1.2		Repair 2no. Cracks in cast concrete top section with Foscrete resin system
1.3		localised individual indenting of sandstone in upper wall courses, allow 10 sqm
1.4		localised individual indenting of basalt in lower wall courses, and consolidation of small areas of collapse with salvaged stone for pinnings, allow 10 sqm
1.5		Repointing areas of pointing related to repairs and consolidation with lime mortar, allow 50sqm
1.6		Check all existing mooring ring fixings in cast concrete top section and rebed / refix, allow 20%
1.7		Check all existing ladder fixings in cast concrete top section and harbour wall and rebed / refix, allow 20%
1.8		Replace concrete finished surface on Landing, allow 45sqm of 150mm thick concrete cast slab with reinforcement mesh and textured finish
1.9		Repair the stone and concrete steps from the harbourside to the sand bed of the harbour, allow for breaking out and reforming 4no. Steps in cast concrete
2.1	HARBOUR WEST QUAY	Grout the holes and broken surface of the existing concrete screed finish over masonry sloping quay, allow 100sqm
3.1	LIGHTHOUSE	Rake out existing cement mortar
3.2		Dismantle stonework of lighthouse down to base level and set aside for assessment, each stone marked and numbered for sequence and measured for new templates. Assume stone from roll moulding and above will be retained for re-construction. Other stone to be set aside for cutting smaller indents and pinnings, possibly 30% use.
3.3		Provide new sandstone blocks cut to match original sizes for walling up to underside of roll moulding, including lintols to opening.
3.4		Assess extent of indent blocks required for roll moulding carved to match and wall head above, assume 15% of stonework will require indents, utilise salvaged stone where possible, allow 50%
3.5		Re-construct tower with new lime mortar bedding
3.6		Point inside of tower wall with lime mortar

3.7		Point exterior of tower with lime mortar
3.8		provide lead dpc below wallhead copestones
3.9		provide stainless steel grille to top opening
3.11		Floor: replace existitng stone paving inside tower with new slabs
4.1	OCCULOR WALL	Occulor wall; rake out existing cement mortar both sides
4.2		Occulor wall: consolidate stone wall and wallhead with indents where required utilising salvaged stone, allow for 15% indent
4.3		Occulor wall: point walling both side with lime mortar
5.1	WEST BREAKWATER	Re-position basalt blocks back into position to consolidate the breakwater edge, allow for 25% repair, half of which to be new blocks - dry fit and no mortar. Reclaim the blocks washed out in close proximity and dispersed by the sea
6.1	HARBOUR SOUTH WALL	Localised area of rake out for repointing as shown on drawings, allow 30 sqm
6.2		localised individual indenting of sandstone in upper wall courses, allow 10sqm
6.3		localised individual indenting of basalt in lower wall courses, and consolidation of small areas of collapse with salvaged stone for pinnings, allow 3 sqm
6.4		Repointing areas of pointing related to repairs and consolidation with lime mortar, allow 30sqm
6.5		Check all existing mooring ring fixings in cast concrete top section and rebed / refix, allow 20%
6.6		Check all existing ladder fixings in cast concrete top section and harbour wall and rebed / refix, allow 20%
6.7		Repair the concrete steps and landing from the harbourside to the rock base
7.1	HARBOUR EAST WALL	Localised area of rake out for repointing as shown on drawings, allow 20 sqm
7.2		Repointing areas of pointing related to repairs and consolidation with lime mortar, allow 20sqm

7.3		Check all existing mooring ring fixings in cast concrete top section and rebed / refix, allow 20%
7.4		Check all existing ladder fixings in cast concrete top section and harbour wall and rebed / refix, allow 20%
8.1	HARBOUR NORTH WALL / PROJECTING PIER	Localised area of rake out for repointing as shown on drawings, to both sides of wall and around pier end, allow 275 sqm
8.2		localised individual indenting of sandstone in upper wall courses on South side of harbour wall and North side of pier protection wall, allow 10sqm
8.3		localised individual indenting of basalt in lower wall courses, and consolidation of small areas of collapse with salvaged stone for pinnings, allow 5 sqm
8.4		Repointing areas of pointing related to repairs and consolidation with lime mortar, allow 275 sqm
8.5		Check all existing mooring ring fixings in cast concrete top section and rebed / refix, allow 20%
8.6		Check all existing ladder fixings in cast concrete top section and harbour wall and rebed / refix, allow 20%
9.1	NORTH BREAKWATER	Replace lost basalt blocks back into position on the south facing side and sea return at west end to consolidate the breakwater edge, allow for 25% repair, - dry fit and no mortar.

F NEW CONCRETE AND MASONRY CONSTRUCTION

No.	Item	Description
1	WEST QUAY WALKWAY	Construct reinforced mass concrete wave barrier and walkway along length of the west quay to give access to the lighthouse and with 2no. Steps to the Landing.

Q PAVING / GROUND SURFACES

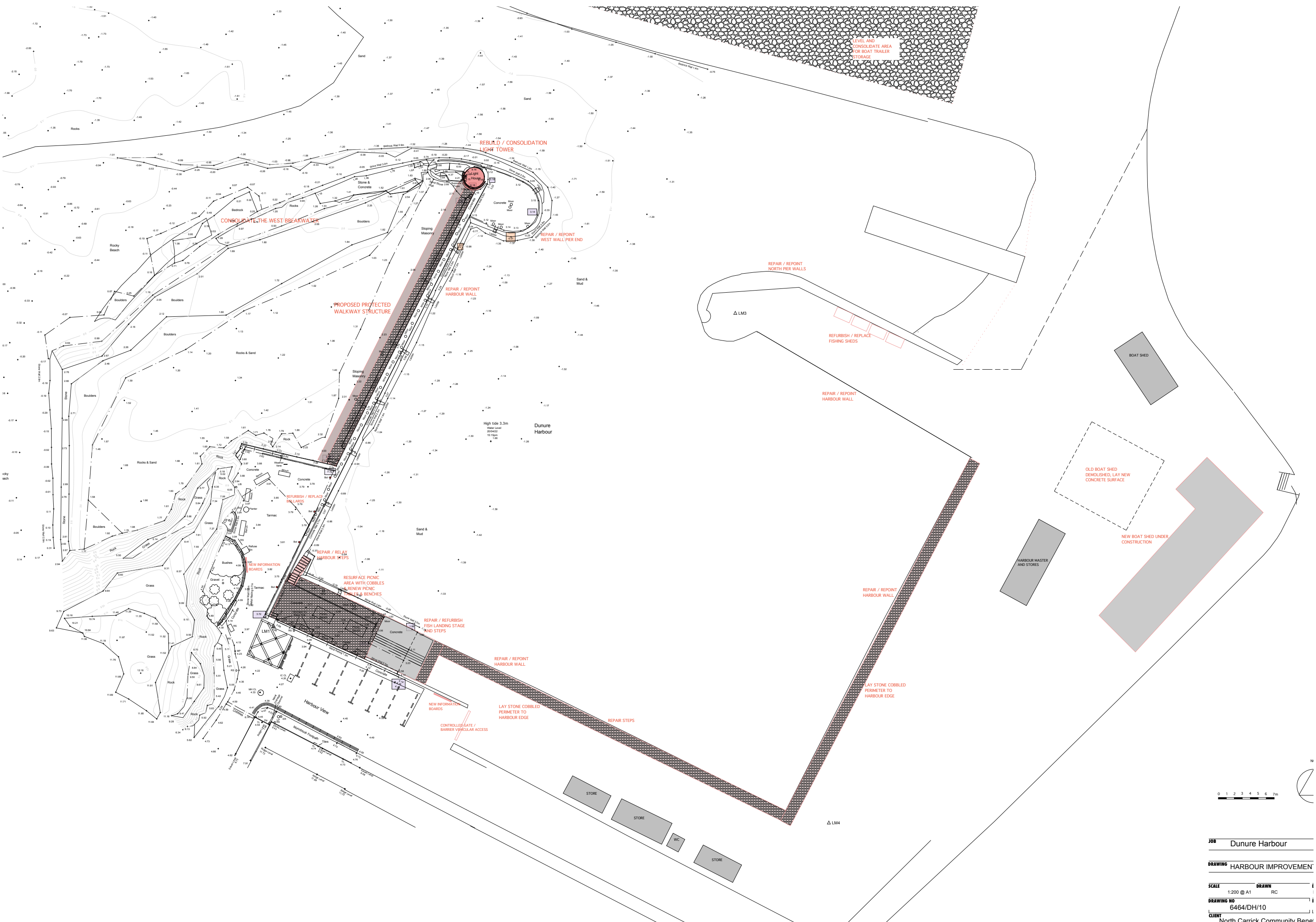
No.	Item	Description
1	SOUTH HARBOUR PICNIC AREA	Lay natural granite square cobbles to picnic area surface on blinded hardcore bed and cement grout joints. Allow 125sqm
2	SOUTH HARBOUR FISH LANDING	Replace concrete finished surface on Fish Landing area, allow 25sqm of 150mm thick concrete cast slab with reinforcement mesh and textured finish and cast 4no new steps

3	HARBOUR PERIMETER EDGE	Lay natural granite square cobbles to edge of harbour wall, 1.5m wide, on blinded hardcore bed and cement grout joints. Allow 160sqm to South side and East side of harbour
4	NORTH QUAY TRAILER YARD	Lay MOT type 2 hardcore and tarmac scalpings as a surface on top of breakwater for boat trailer parking area, allow 750 sqm

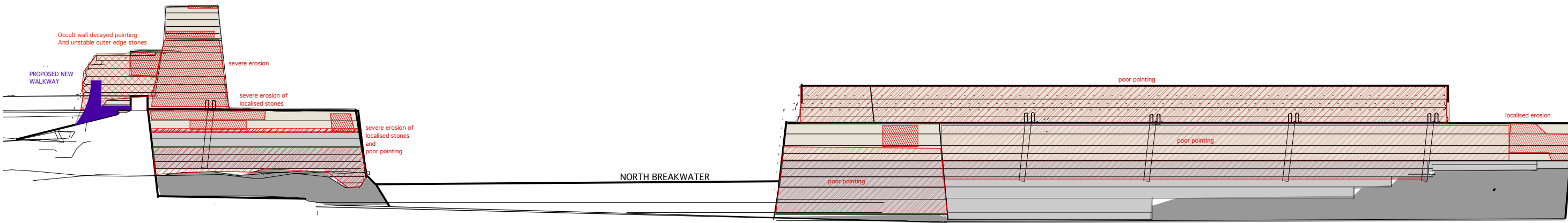
N STREET FURNITURE		
No	Items	Description
1	BOLLARDS	Repair 1no. Existing steel bollard and replace 3no. Bollards with new traditional pattern steel bollards to match
2	PICNIC BENCHES	provide 4no. Timber picnic benches to South and West harbour side
3	BARRIERS	Replace sections of protective galvanised steel barriers to edge of harbour on South west corner, allow for 20 linear metres
4	PLANTERS	provide 8no. Half barrel timber planters to south west corner of harbour
5	LIGHTS / STREET LIGHTS	Allow for 8no. Traditional pattern street lamps with LED fittings, including necessary wiring and connection with public street lighting
6	SIGNAGE	Renew safety signage, allow for 4no. Signs
7	HERITAGE INTERPRETATION BOARDS	Renew heritage information boards, allow for 6no.

ARPL ARCHITECTS

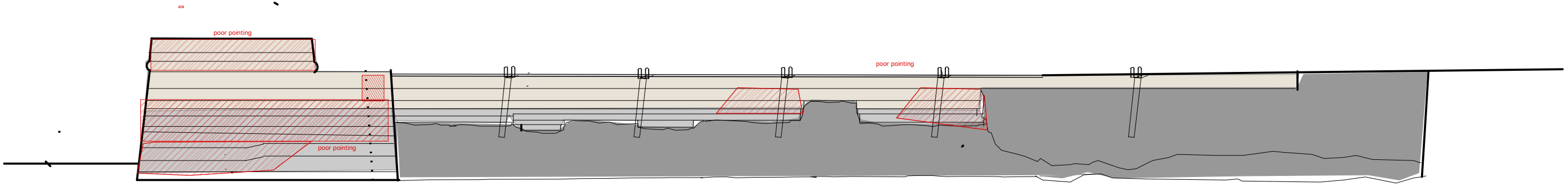
Jul-22



JOB Dunure Harbour
DRAWING HARBOUR IMPROVEMENTS
SCALE 1:200 @ A1 **DRAWN** RC
DRAWING NO 6464/DH/10
CLIENT North Carrick Community Bene

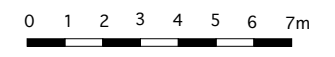


SOUTH FACING ELEVATION HARBOUR WEST WALL LANDING AND NORTH WALL

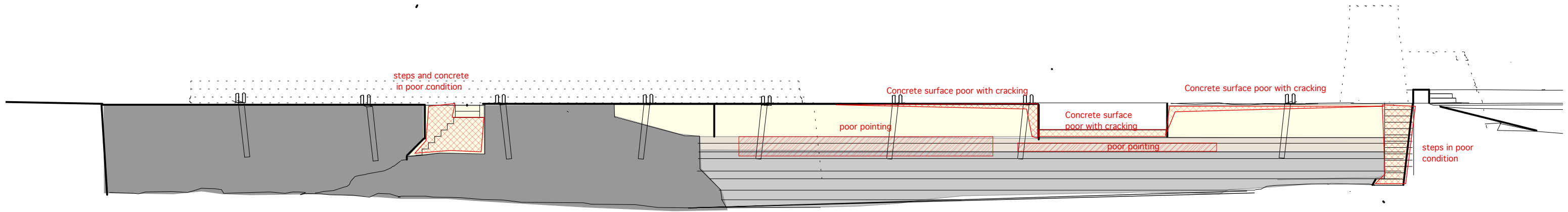


WEST FACING ELEVATION HARBOUR EAST WALL

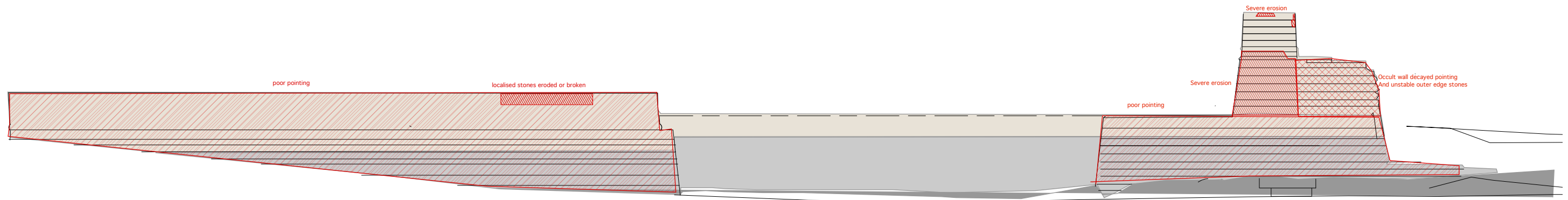
- CONCRETE
- SANDSTONE BLOCKS
- BASALT BLOCKS
- ROCK



JOB				Dunure Harbour
DRAWING				Harbour wall South and West elevations Proposed work
SCALE	DRAWN	DATE		
1:100 @ A1	RC	May 22		
DRAWING NO				6464/DH/04 PR
CLIENT				North Carrick Community Benefit Co.

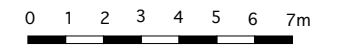


NORTH FACING ELEVATION HARBOUR SOUTH WALL

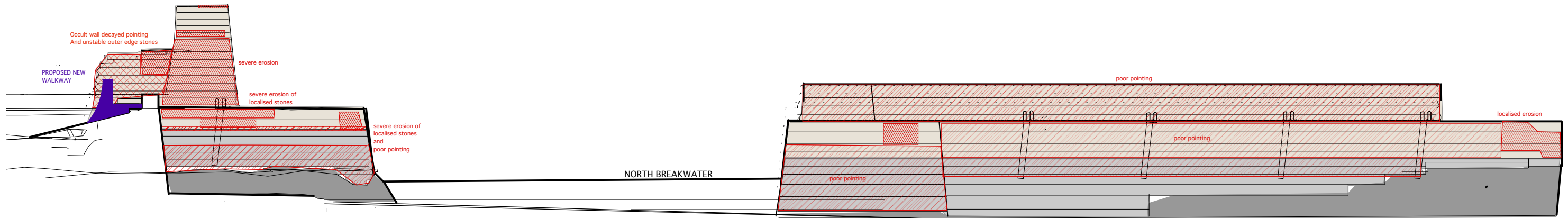


SECTION THROUGH SLIPWAY & NORTH FACING ELEVATION LIGHTHOUSE & WEST BREAKWATER

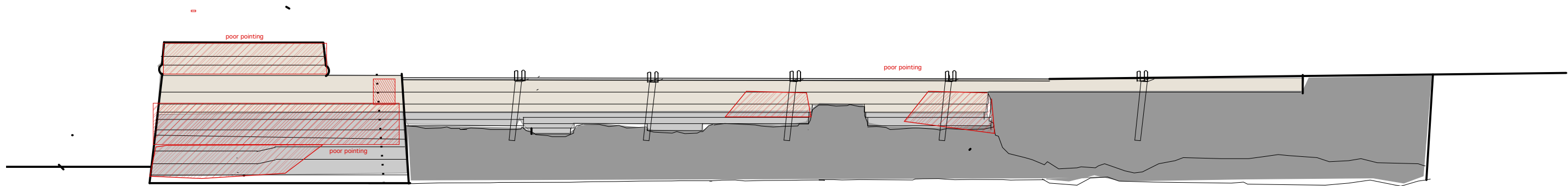
- CONCRETE
- SANDSTONE BLOCKS
- BASALT BLOCKS
- ROCK



JOB			
Dunure Harbour			
DRAWING			
Harbour wall North elevations			
Proposed work			
SCALE	DRAWN	DATE	REV
1:100 @ A1	RC	May 22	
DRAWING NO	REV		
6464/DH/03	PR		
CLIENT			
North Carrick Community Benefit Co.			



SOUTH FACING ELEVATION HARBOUR WEST WALL LANDING AND NORTH WALL

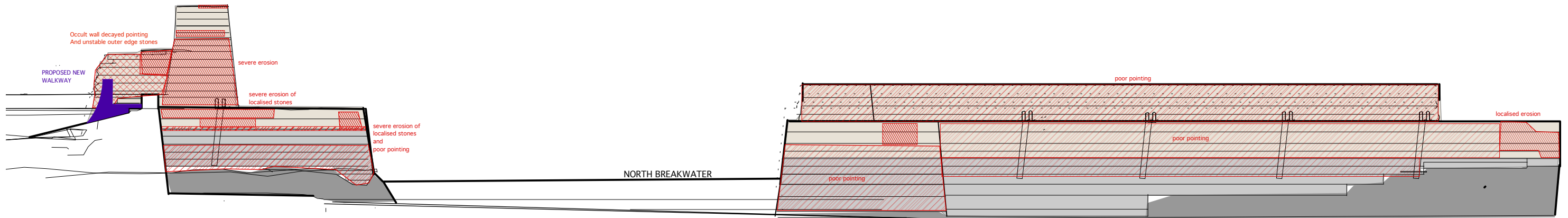


WEST FACING ELEVATION HARBOUR EAST WALL

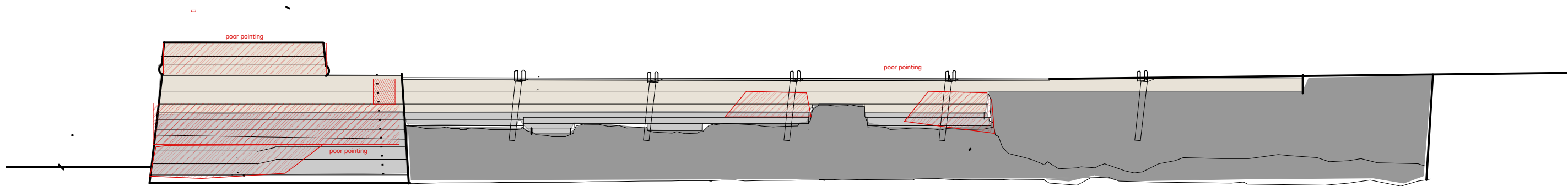
- CONCRETE
- SANDSTONE BLOCKS
- BASALT BLOCKS
- ROCK

0 1 2 3 4 5 6 7m

JOB Dunure Harbour			
DRAWING Harbour wall South and West elevations Proposed work			
SCALE 1:100 @ A1	DRAWN RC	DATE May 22	REV
DRAWING NO 6464/DH/04 PR	REV		
CLIENT North Carrick Community Benefit Co.			



SOUTH FACING ELEVATION HARBOUR WEST WALL LANDING AND NORTH WALL

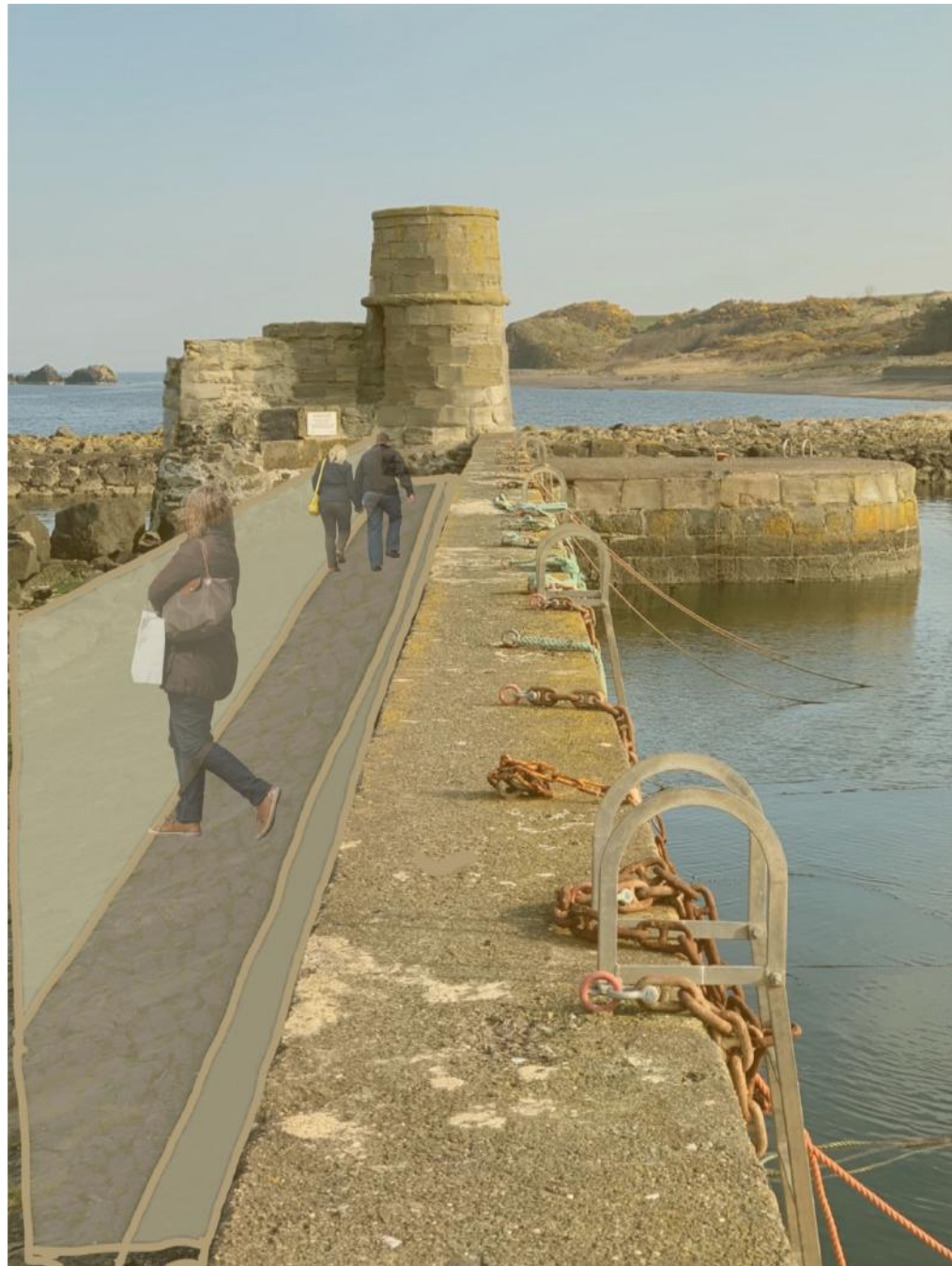


WEST FACING ELEVATION HARBOUR EAST WALL

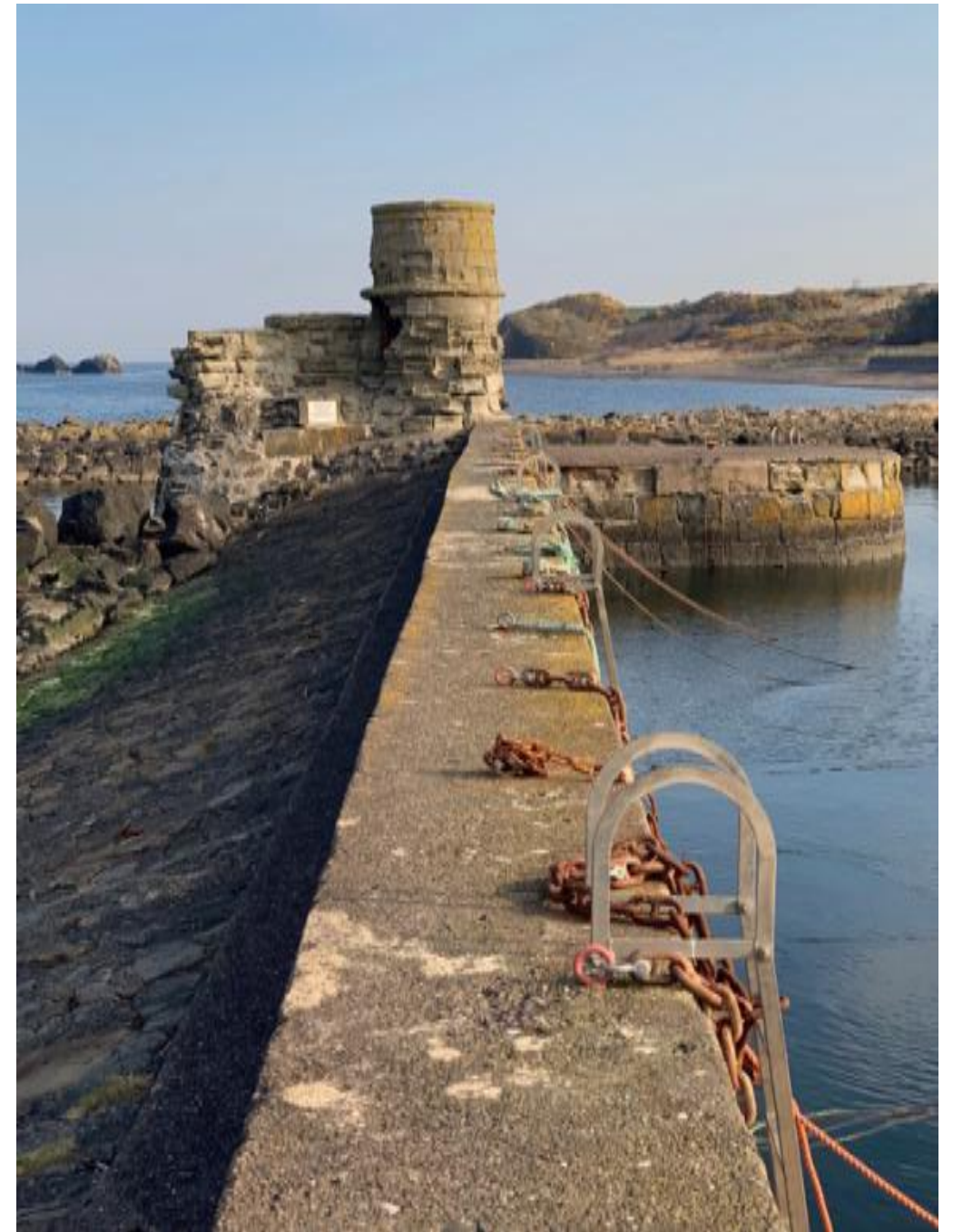
- CONCRETE
- SANDSTONE BLOCKS
- BASALT BLOCKS
- ROCK

0 1 2 3 4 5 6 7m

JOB Dunure Harbour			
DRAWING Harbour wall South and West elevations Proposed work			
SCALE 1:100 @ A1	DRAWN RC	DATE May 22	
DRAWING NO 6464/DH/04 PR	REV		
CLIENT North Carrick Community Benefit Co.			

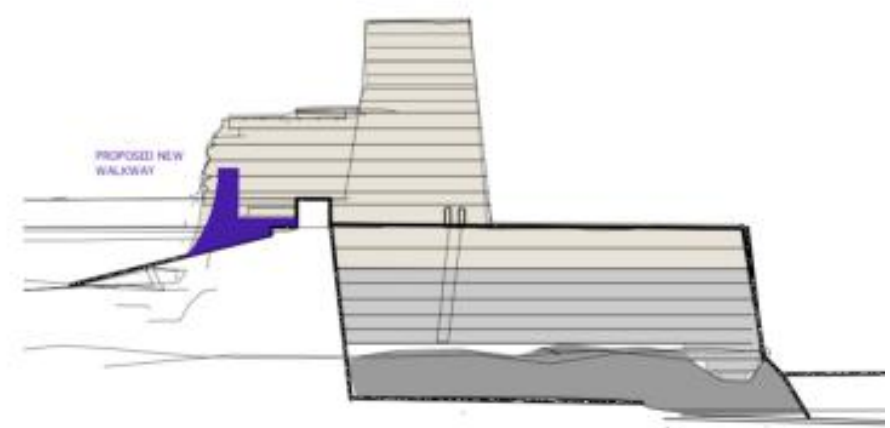


AFTER



BEFORE

The existing breakwater is overwhelmed by hightides. This proposal looks to increase the height of teh breakwater and to use this new structure to create a walkway allowing visitors to walk out and inspect the lighthouse structure more closely.



SECTION THROUGH PROPOSED BREAKWATER

JOB			DUNURE HARBOUR
DRAWING			BREAKWATER IMAGES
SCALE	DRAWN	DATE	
NTS	GF	JUL 22	
DRAWING NO			REV
6464 - DH - 11			
CLIENT			
NCCBC			

ARPL ARCHITECTS
 11 WELLINGTON SQUARE, AYR
 TEL 01292 289777



2.5.7 OUTLINE PROJECT COSTS**Dunure Harbour**

A	CONSTRUCTION		
.1	Construction costs	£801,155.70	
	Contingency @ 10%	£89,415.34	
	TOTAL CONSTRUCTION ALLOWANCE		£890,571.04
	cross refer to Appendix C - 1		
B	SUNDRY FEES AND COSTS		
	Consultants fees @12%		
.1	Architect CDM Principal designer Quantity Surveyor Structural Engineer	£106,868.52	
	Statutory Fees - South Ayrshire Council		
.2	Planning application fee	£0	
.3	Building Warrant fee	£0	
	Site Investigations		
.4	Stone matching	£500	
.	Archaeology	£4,000	
	TOTAL SUNDRY COSTS		£1,001,939.56
C	VAT		
	VAT @ 20%	£200,387.91	
	TOTAL VAT		£200,387.91
	PROJECT COSTS TOTAL		£1,202,327.48