



Cell 1 Regional Coastal Monitoring Programme: Walk-over Visual Inspections of Assets



Northumberland County Council Final Report

November 2012

Northumberland County Council

Walkover Visual Inspection of Assets

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Preamble

The Cell 1 Regional Coastal Monitoring Programme covers approximately 300km of the north east coastline, from the Scottish Border (just south of St. Abb's Head) to Flamborough Head in East Yorkshire. This coastline is often referred to as 'Coastal Sediment Cell 1' in England and Wales (*Figure 0-1*). Within this frontage the coastal landforms vary considerably, comprising low-lying tidal flats with fringing salt marshes, hard rock cliffs that are mantled with glacial sediment to varying thicknesses, softer rock cliffs and extensive landslide complexes.

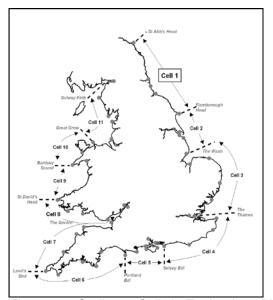


Figure 0-1: Sediment Cells in England and Wales

The work commenced with a three-year monitoring programme in September 2008 that was managed by Scarborough Borough Council on behalf of the North East Coastal Group. This initial phase has been followed by a five-year programme of work, which started in October 2011. The work is funded by the Environment Agency, working in partnership with the following organisations:



The original three year programme of work was undertaken as a partnership between Royal Haskoning, Halcrow and Academy Geomatics. For the current five year programme of work the data collection associated with beach profiles, topographic surveys and cliff top surveys is being undertaken by Academy Geomatics. The analysis and reporting for the programme is being undertaken by Halcrow.



The main elements of the Cell 1 Regional Coastal Monitoring Programme involve:

- · beach profile surveys
- topographic surveys
- cliff top recession surveys
- real-time wave data collection
- bathymetric and sea bed characterisation surveys
- · aerial photography
- walk-over surveys

The present report is Coastal Walk-over visual Inspections of assets 2012 and provides a summary of the main findings from the walk-over inspections of Northumberland County Council's frontage that are undertaken once every 2 years.

In addition, separate reports are produced for other elements of the programme as and when specific components are undertaken, such as beach profile, topographic and cliff top surveys, wave data collection, bathymetric and sea bed sediment data collection, and aerial photography.

1 Introduction

1.1 Study Area

Northumberland County Council's coastal frontage is approximately 100km in length extending from Scottish Border in the north to Hartley in the South as shown in **Figure 1-1**. In accordance with previous coastal inspection surveys, this frontage is sub-divided into approximately 146 built asset lengths and 203 natural asset lengths (349 total assets). Detailed maps showing the location of each of these assets are presented in **Appendix A**.

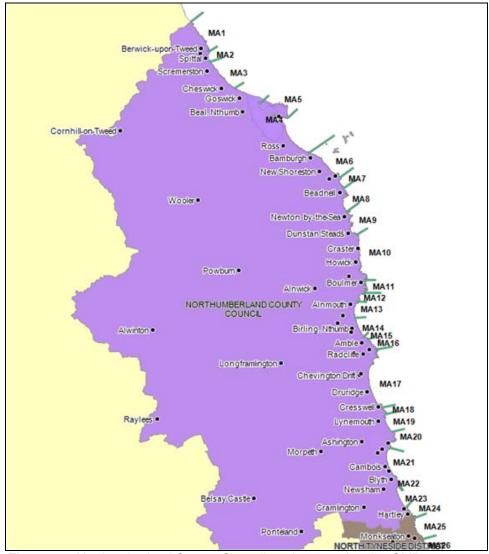


Figure 1-1: Northumberland County Council study area, showing SMP2 Management Units.

1.2 Methodology

This section presents the approach taken by the slope and asset inspectors respectively for the Northumberland County Council coastal frontage.

The visual assessment of both natural and built assets was carried out by a team of Chartered engineers during September and October 2012. The weather experienced during this time was generally overcast with scattered showers but followed a period of heavy rain and severe flooding across the north east.

The frontage has been split into a number of 'asset lengths' or "assets" as defined in the National Flood and Coastal Defence Database (NFCDD) which is maintained by the Environment Agency (EA). All maritime Local Authorities that act as Coastal Protection Authorities have a duty to report findings from walkover inspections into the NFCDD. However, at the time of writing the NFCDD is in the process of being replaced, the form of the new database has yet to be agreed.

The walk over inspections covered both built defence assets and natural defence assets such as cliffs, slopes and dunes. All assets were visually inspected, photographed, graded based on their condition and an estimate was made of their residual life.

For built assets the grading classification was undertaken in accordance with the Condition Assessment Manual (EA, 2011), with estimates made of the urgency of any necessary repairs. An extract of the grading classification for built assets is presented in *Table 1-1*. For ease of reference the photos presented in this report have also been bordered with the colours from the key indicated below.

Grade	Rating	Description
1	Very Good	Cosmetic defects that will have no effect on performance.
2	Good	Minor defects that will not reduce the overall performance of the asset
3	Fair	Defects that could reduce performance of the asset.
4	Poor	Defects that would significantly reduce performance of the asset. Further investigation needed.
5	Very Poor	Severe defects resulting in complete performance failure

Table 1-1: Condition assessment grading for man-made assets.

In addition to the above grading classification, for natural assets such as cliffs and slopes the same five point activity scale used in previous cliff activity assessments undertaken by Halcrow for Scarborough Borough Council in Cell 1 was used (Halcrow 2002, Halcrow 2005, Halcrow 2009). An extract of this grading classification is presented in *Table 1-2*. For ease of reference the photos presented in this report have also been bordered with the colours from the key indicated below.

Rank	Activity Class	Description
1	Dormant	Protected cliffline or landslide complex with no visible evidence of landslide activity.
2	Inactive	Relict cliffs or landslides with vegetated slopes and localised erosion of the toe or failure of the headscarp.
3	Locally	Retreating cliffline with localised small landslides or areas of erosion.
4	Partly	Retreating cliffline with very common smaller-scale landslides or areas of intense erosion.
5	Totally	Retreating cliff line almost entirely affected by large- scale landsliding or intense erosion.

Table 1-2: Condition assessment grading used for natural assets (cliffs/ slopes).

This report provides an overview of the findings from the walkover inspections, summarising each locality in general but also specifically identifying individual

assets in 'poor' or 'very poor' condition. It is anticipated that this summary will help identify areas for maintenance or capital investment. Full details of the inspection of each asset is provided in **Appendix B**.

In addition to this report, full details of the inspection and a selection of appropriate photographs have been entered into the SANDS database and provided along with this report. This Sands database also holds data from inspection in 2002, 2004, 2006 and 2008 (previously held by Northumberland in a series of 5 MS Access Databases) along with data from the NFCDD database for inspections in 2008 and 2010.

2 Overview

The following significant findings were noted during the 2012 walk over inspection. Most notably, this section attempts to highlight those assets that are in a 'poor' or 'very poor' condition or where significant changes from the previous survey were noted.

Scottish Border to Berwick-on-Tweed Pier (MU 1)

At Marshall Meadows Bay localised slumps in the overlying soft material have cut the cliff top back to the footbath with fractures in the hard rock cliffs threatening the caravan park.

The Magdalene Fields frontage continues to be susceptible to local and occasion slumping cutting back to the footpath.

The Green Haven breakwater remains in a poor condition and is likely to experience further failure of its crest and seaward end due to cracking and voiding.

The Berwick-on-Tweed Pier was being refurbished at the time of the survey and the large void in the inside face filled.

Berwick-on Tweed Pier to Spittal (MU 2)

The west end of seawall along Pier Road remains in poor condition with outflanking and collapse of the upper revetment. Ongoing displacement of cobbles at the slipway continues.

At the Berwick quay walls there are a number of gaps between blocks with some broken blocks in the masonry walls at the small dock area with hand railing also in poor condition.

The gabions along the south bank of the Tweed have burst in a number of places along the toe displacing stone onto the foreshore. Some repairs at the south end were apparent.

At Spittal Pier the masonry quay walls are heavily abraded with some localised cracking of the blocks and exposure of steel reinforcement along the cope.

At Spittal Quay the open piled timber jetty remains in a dilapidated state and is closed to access. Low beach levels have further exposed the masonry toe which is breaking up.

Spittal to Cheswick Sands (MU 3)

At the south end of Spittal Beach the significant landslip does not seems to have worsened although the masonry wall along the cliff top is precariously close to the edge.

North of Cocklawburn Beach significant erosion has occurred in the soft earth cliffs resulting in the continued loss of the disused roadway.

Cheswick Sands to Bamburgh Moor (MU 4)

The dunes along the Cheswick and Goswick Sands show signs of continued recovery with continued new embryonic dune development.

At Warren Mill the wall at the head of the bay is in very poor condition with significant collapse of the centre section. However, the main road and adjacent properties are not at risk.

The disused masonry pier near Heather Cottages remains in a very poor condition with partial collapse of the northern wall presenting a public safety hazard.

Holy Island (MU 5)

There were signs of recovery to the small shingle beaches on the south of the island where undermining of defences had been reported in 2010. However, scour and undermining was observed at the harbour pier and it is recommended that urgent repairs are undertaken before the structure deteriorates.

The beach and dunes to the north side of the causeway showed signs of continued accretion.

On the east coast of the island there had been recent erosion of the soft cliffs and cobble berms in a number of locations, but there is no immediate cause for concern.

Bamburgh Moore to Seahouses (MU 6)

At North Sunderland Harbour there is significant horizontal cracking along the concrete crest wall adjacent to the RNLI buildings.

The inner face of the Main Pier is highly abraded and with various small holes and voids along the length. A significant scour hole has developed beneath the quay at the seaward end.

Seahouses to Beadnell (MU 7)

At Seahouses golf course erosion along the thin earth ridge does not seem to have worsened although this ridge is only ~2m in places and appears very fragile.

Beadnell to Links House Farm (MU 8)

At the high masonry wall at Nacker Hole there is significant abrasion and gaps between blocks with undermining evident along the toe. Overtopping damage has been repaired with replacement crest blocks and resurfacing of the roadway.

The gabions at Lady's hole are corroded with many baskets along the toe having burst.

At Beadnell Harbour there is localised undermining of the apron at the head of the breakwater. Voids are also evident beneath the landward face of the breakwater arm and south quaywall.

The revetment protecting the access steps to the north side of Beadnell Harbour has been undermined and has partially collapsed.

Newton Link House to Dunstanburgh Castle (MU 9)

At Newton-by-the-Sea there is some noticeable spalling along the top of the wall at the access ramp.

Dunstaburgh Castle to Boulmer (MU 10)

At Craster Harbour there is significant abrasion to the seaward face of the harbour arms and spalling along the crest. There are also noticeable full height cracks through both structures although no movement is apparent.

South of Howick there is partial erosion along the toe of the low vegetated slopes with slips and cliffing apparent.

Boulmer to Seaton Point (MU 11)

At the north end of Boulmer, localised erosion of the soft earth cliff slopes continues. The boundary wall and out-house to one property is now very close to the cliff edge.

At the centre of Boulmer Village further erosion is apparent despite continued tipping of building rubble.

Seaton Point to Foxton Hall (MU 12)

South of Seaton Point the cliff line continues to show signs of slippage and cliff along the majority of its length. The cliff top path along this frontage remains closed.

Foxton Hall to Birling Carrs (MU 13)

Beach levels fronting the car park adjacent to the Alnmouth Links Golf course have improved since the previous survey with relic anti-tank blocks now largely covered.

Along the low earth bank to the south of the River Aln road bridge there is significant erosion, undermining and collapse of the banks.

The masonry wall immediately south of the River Aln road is showing signs of settlement and cracking along the central section with gaps in the blockwork and a recent void opening in the footpath.

The masonry wall at Church Hill remains in poor condition with loss of mortar joint and cracked blocks. Displaced blocks in one area has led to significant loss of retained material.

The high dunes to the south of the River Aln estuary are suffering slumping and cliffing along much of their length, appearing to have worsened since the previous survey.

• Northfield to Amble (MU 14)

The Warkworth dunes are suffering from erosion with slips evident along most of their length.

Warkworth Harbour and Amble (MU 15)

The North Pier at Warkworth Harbour has significant damage at the seaward end. There is a significant full height vertical crack and rotation of the seaward tip. However, photographs since 2002 in the database indicates no significant recent change.

The timber North Jetty remains in a dilapidated condition and is ineffective as a training wall.

The Broom Hill Quay remains in a dilapidated condition following undermining and collapsed of the deck in 2009. Repairs to this structure are expected to commence in early 2013.

At Bay View Road the seawall has significant horizontal cracks along the crest. There is significant abrasion and void in the access ramp which is in a decapitated state.

The South Pier is highly abraded along the base. Some minor rotation and loss of joint sealant along the trestle walkway was evident.

The seaward face of the South Pier has some significant horizontal cracking. The concrete stub groyne is high abraded along with the access steps which are becoming a public safety hazard.

Amble to Beacon Hill (MU 16)

The seawall south of Pan Point has numerous areas of spalling and staining along the crest and the set back wall. The bitumen surfacing along the crest is in a poor condition.

The vegetated dunes along Amble Links and south of Wellhaugh Point are showing signs of recent erosion and cliffing along much of their length.

Beacon Hill to High Hauxley (MU 17)

South of Low Hauxley the low concrete wall (constructed of relic anti-tank blocks) has a number of large gaps between the block with some blocks displaced. There is erosion of the vegetated slope behind the crest with continued tipping of building rubble.

South of Bondi Carrs at the Hauxley Nature Reserve the lower peat layer continues to erode with cliffing of the vegetated dunes above.

The outfall at the north end of Druridge Bay is in poor condition with abrasion of blocks, broken concrete sections and a missing flap valve.

The vegetated dunes along Togston Links at the north end of Druridge Bay continue to experience significant erosion and cliffing along much of their length.

The large outfall structure adjacent to the Hadston Scaurs Boat Club remains largely in good condition but is experiencing undermining and cracking of the concrete apron adjacent to the boat ramp.

South of the rock revetment at Hadston Scaurs Boat Club slipway there is significant erosion of the soft earth slopes. These slopes have cut back to within a few meters of the road putting the road at risk.

Cresswell to Snab Point (MU 18)

There is minor cracking along the low concrete wall at Cresswell with sections of reinforcement exposed, assumed to be in preparation for patch repairs. There is noticeable erosion along the vegetated earth cliffs behind the crest. Tipping of building rubble continues.

Extensive lengths of rock falls and fracturing of cliffs is apparent behind Stank Letch Rocks leading to slumping in the overlying softer material.

The gabions along the toe of the high earth cliffs adjacent to Golden Sands Holiday Park have burst with erosion and cliffing of a significant length of cliff. Regrading of the upper slope has recently been undertaken. The top of the slope is now within a few meters of the road.

Along the high rock cliff immediately north of Snab Point two large rock falls were apparent with further erosion resulting in closure of the stepped access.

Snab Point to Beacon Point (MU 19)

At the north end of Lynemouth Bay local rock falls and slumps in the soft upper cliff continue with active erosion of the spoil beach and spoil cliffs near Lynn Hill.

South of the River Lyne the short length of undefended colliery spoil cliff continues to actively erode causing cliffing and waste of various descriptions to be released onto the foreshore.

At the south end of the power station revetment there is erosion of the earth sloped behind the crest and minor outflanking continues. This erosion continues along the north end of the bay causing cliffing in the colliery spoil.

Beacon Point to Spittal Point (MU 20)

There is ongoing erosion and slumps in the soft earth cliffs at New Biggin Moor with the cliff top cutting back to the golf course access track in places.

At Newbiggin Point the various seawall structures are generally in a poor condition with erosion of the soft upper cliffs and unravelling of soil netting along the slopes behind.

At Spital Point there are occasional rock falls and slips in the overlying softer material.

• Spital Point to Blyth Harbour (MU 21)

The short section of sort earth cliffs fronting the Links Quarry are eroding and cliffing along most of their length. Large quantities of rubble and quarry debris have been tipped down the cliffs releasing waste onto the foreshore.

At Hawks Cliff occasional rock falls have triggered slumps in the overburdening till. The cliffs are highly fractured, leaving rock overhands and partial collapse along one section. The footpath along this section of cliffs has recently been closed.

The cliffs fronting Sandy Bay Caravan Park are actively eroding along their entire length causing slumps and continued collapse of the concrete boundary wall.

At Cambois there are slips and toe erosion along a large section of the soft earth cliffs. The cliffs to the south of the rock revetment continue to erode causing onset of outflanking.

At North Blyth erosion of the soft earth cliffs north of the rock revetment is causing outflanking. There is some displacement of rocks from the toe of the structure and signs of localised settlement of the profile.

At the Alcan facility there is considerable damage to the timber breastwork structure with broken vertical boards, rotten horizontal wailings and significant erosion to the upper earth slopes.

The high concrete seawall to the south of the Alcan Facility is showing signs of noticeable erosion along the toe apron and significant horizontal cracking and a failed section of crest wall. There are also numerous defects in the deck.

Along the Blyth East Pier there is noticeable rust staining, spalling and cracking to the majority of the trestle legs. The timber deck is worn with the onset of rot around fixings and a number of boards and a section of handrailing missing resulting in a safety hazard for maintenance personnel. The southern 2/3^{rds} of the structure was not inspected.

Blyth Harbour River Mouth (MU 22)

No NFCDD coastal defence assets are located within Blyth Harbour estuary frontage.

• Blyth Harbour to Seaton Sluice (MU 23)

At Blyth South Beach there is erosion along the narrow band of dunes with damage to the gabion baskets along the toe.

The groynes fronting the seawall in the north of the bay are largely ineffective with missing timber planks, arson damage and many sizable gaps. The groyne at the south end adjacent to Seaton Sluice Harbour is also in a similar condition.

At Seaton Sluice Harbour there are full width cracks along the top and bottom of the boat ramp, gaps between some blocks and to the along the back of the crest along the north wall. There is also a void in the steps adjacent to the road bridge. The masonry wall along south bank has significant abrasion along the crest and a number of displaced blocks along the base of the wall.

The masonry walls along the man-made channel separating Rocky Island are in poor condition with frequent gaps and missing blocks. The walls at the east end have already started to collapse with recent cracking and movement evident.

• Seaton Sluice to Hartley (MU 24)

At the north and south ends of Collywell Bay there is movement in the upper soft cliffs with material spilling over the crest of the seawall and onto the foreshore.

There is significant abrasion and cracking along the toe and high seawall at the centre of the bay. Abrasion of the access steps and movement in the upper soft cliffs along the access path is a public safety hazard.

The gabions along the access ramp have burst and there is some erosion and outflanking at the both ends of the ramp.

The high rock cliffs south of Crag Point are fractured with several rock falls. There is a wide crack opening along the top of the cliff with the cliff edge very close to the footpath.

3 Condition Assessment

This section provides an account of observations made on the condition of cliffs and coastal assets within Northumberland County Council's coastline, running from north to south.

3.1 Scottish Border to Berwick-on-Tweed Pier (MU 1)

This management unit is approximately 7km in length and extends from the Scottish Border in the north to the north side of the Tweed Estuary at Berwick-on-Tweed. This frontage includes approximately 19 assets, comprising mostly natural assets being steep/ high exposed rock cliffs with occasional man-made defences.

Inspection of the frontage between the Scottish Border and Marshall Meadows point was limited since the face of the cliff could not easily be viewed. Sections of an abandoned masonry wall (now replaced with a new post/wire fence) are evident very close to the cliff edge suggesting some historic recession has taken place. However, no recent change was apparent suggesting the cliffs along this length are relatively stable.

The cliffs at Marshall Meadows Bay continue to shows signs of being more active. Some localised slumping in the softer material which overlays the hard rock base continues to cut the cliff top back at the northern end close to the footpath. Visible signs of fracture continue to be apparent adjacent to the caravan park and further rock falls are anticipated.



Localised slumps in upper cliffs at north end of Marshall Meadows Bay.



Fractures in cliffs at south end of Marshall Meadows Bay.

The cliffs along St John's Haven appear highly stable as they are fronted by a wide rock platform. This rock platform narrows to the south and the occurrence of caves and arches increases.

The cliffs at Magdalene Fields continue to be susceptible to local and occasional slumping in the upper soft material which was observed at a number of locations during the inspection. Slumps have cut the cliff top back to the footpath in places at the Golf Course. In the harder rock base there are numerous caves, fissures and rock overhangs although no significant rock falls were observed.





Slumps in cliffs at Magdalene Fields.

Caves and fissures in cliffs.

Between Burgess' Cove and Sharpers' Head the hard rock base is highly fissured and further areas of partial slumping have occurred in the overlying softer cliff material cutting the cliff top back to the fence line in some locations. There is a concrete pavilion and access steps located at the centre of the bay which are in generally in fair/poor condition with signs of abrasion around the waterline. South of Shapers' Head the cliffs continue to be characterised by large vertical fissures, caves as the base and locals slumps in the overlaying softer material.



Partial slips in upper soft cliffs north of Sharpers' Head.



Vertical fissues and caves in cliffs north of Shapers' Head.

The Green's Haven Breakwater remains in poor condition with concrete blocks heavily abraded along most of its length. Significant damage to the crest at the central section is apparent with further cracking and voids likely to lead to ongoing damage. The previous inspection reported that the breakwater was somewhat undermined but due to high water levels this was not observed. Although the structure is in poor condition it is still performing the function of retaining the sand within the bay.



Abrasion and cracking to Green's Haven Damage to Crest of Green's Haven Breakwater.



Breakwater.

The steel/timber and concrete access steps at the root of the breakwater are generally in good condition although there are two distinct caves in the cliffs at their base, collapse of which may affect their stability in the longer term. The hard rock cliffs to the south of the breakwater show occasional slumps in the upper soft material and evidence of one large historic rock fall. Various lengths of concrete apron and walls extending around the centre of the bay are in poor condition and provide limited protection to the soft cliffs behind. Concrete access steps at the centre of the bay and concrete steps/ ramp at the south of the bay are in fair condition. Occasional erosion and slumps of these soft cliffs are apparent, the most noticeable slip being at the south end where the cliff edge has cut back to the footpath.



Slumps in soft cliffs at Green's Haven.



Slumps in soft cliffs at Green's Haven cutting back to footpath.

Along the cliffs between Green's Haven and Meadow Haven there is evidence of recent localised rock falls and slumping in the upper soft cliff material. At Meadow Haven the there is a wide foreshore backed by dunes. The previous inspection reported the dune edge starting to exhibit signs of erosion but this was not observed during the inspection suggesting that the dunes may be stabilising.



Slump in soft upper cliffs a Meadow Haven.



Healthy stable dunes at Meadow Haven.

3.2 Berwick-on-Tweed Pier to Spittal (MU 2)

This management unit is approximately 5.5km in length and extends from the breakwater on the north side of the Tweed estuary to the southern extent of Spittal. This frontage includes approximately 20 coastal defence assets, comprising mostly of man-made defences including sea walls, breakwaters and revetments along the foreshore of Berwick-on-Tweed and Spittal town.

At the time of the inspection refurbishment of Berwick Pier work was being undertaken by Bam Nuttall. This work includes repair of a significant hole midway along the leeward face of the structure. Access to the structure was not possible during the inspection and so a large part of the structure was not inspected, a full

inspection should be undertaken once full access is available. The elements of the structure that were visible were generally in fair/ good condition although some abrasion and minor gaps between blocks evident.



Access to Berwick Pier restricted due to ongoing refurbishment works.



Abrasion and minor gaps between blocks on Berwick Pier.

The seawall along Pier Road at Berwick-on-Tweed is in fair condition with some evidence of abrasion and subsequent loss of the concrete casing exposing the masonry blockwork. There is generally minor cracking/ spalling to the cope. More significant undermining, outflanking and collapse of the structure was observed at the west end, however this does not appear to have worsened since the previous survey and little change since 2004. The old cobble slipway midway along the wall continues to deteriorate with some blocks being displaced across the foreshore.



Abrasion of concrete casing exposing masonry blocks on Pier Road seawall.



Undermining, outflanking and collapse of Pier Road seawall not worsened.



General cracking and spalling to the cope.



Continued deterioration of the old slipway.

The high masonry seawall around Fisher's Fort remains in relatively good condition with some abrasion to the footing and minor mortar repairs and replaced blocks apparent.







Abrasion to footing of wall of Fishers' Fort.

The short section of revetment fronting the properties at the south end of the Berwick Quaywalls appears to have recently been extended by around 20m to the old timber slipway. The revetment is in good condition with armour well packed with accretion of beach material burying toe.



Recently extended revetment at south end of Berwick Quaywalls.



Accretion of sand burying toe of revetment.

The Berwick Quaywalls are generally in good condition. The majority of the length of the quay is of sheet pile construction which appears relatively new. Steel piles, tie-back anchors, concrete capping, ladders and timber fenders all appear in good condition. However, the masonry wall in the small dock is in worse condition with some blocks broken and abraded and a number of open gaps evident. The hand railing is also in very poor condition.



Berwick sheet piled quaywall in good condition.



Gaps in old masonry wall around small dock area.

The stone filled gabion baskets south of Tweed Docks on the south bank of the river are in poor condition. The crest of the structure has settled in places and a large number of baskets along the toe have burst with loss of stone across the foreshore.

This damage was initially identified in 2008. Some recent repairs to the lower gabion to replace the mesh was apparent at the south end of the structure.



Loss of stone from lower gabions baskets at Dock Road.



Repairs to lower gabion baskets at south end of structure.

The low masonry wall to the south of Spittal Pier is in fair condition with loss of concrete facing to part of the wall and gaps between the block. The masonry quaywall at Spittal Pier is in poor condition with localised but significant abrasion and cracking to some masonry blocks and exposure of reinforcement in the coping. No settlement was apparent in the surfacing behind the wall suggesting that as yet loss of fill material through the gaps is not significant. However, this should be monitored.



Gaps in the low masonry wall south along Dock Road.



Abrasion and cracking of masonry blocks on west face of Spittal Pier.



Exposed reinforcement in cope.



Abrasion and cracking of masonry blocks on east face of Spittal Pier.

The closed timber quaywall at Spittal Quay (at the RNLI Station) appears to be in reasonably good condition however the open piled timber jetty remains dilapidated and closed to access. The significant build-up of beach material on the east side of the structure identified in 2010 has lowered by around 1m revealing the top of the masonry toe. This toe structure remains in poor condition with missing and

displaced blocks. Although dilapidated this pier structure was previously identified as an erosion control feature for the whole area.



Low beach levels fronting Spittal Quay exposing masonry toe.



Displacement of stones and unravelling of masonry toe at Spittal Quay.

The dunes to the west of Sandstell Point appear relatively healthy with some new vegetation growth in front of an apparent historic erosion line. There is some cliffing occurring on beach. The previous inspection in 2010 reported active erosion of the dunes which suggest that these dunes may be fairly responsive to local changes at the estuary mouth.



New vegetation growth at the dunes south of Sandstell Point.



East end of dunes south of Sandstell Point.

The revetment at Sandstell Point appears in good condition and relatively stable with a fairly consistent profile and no signs of undermining or movement of the toe. Some minor localised deformation of crest gabions and corresponding erosion of the embankment was evident although high beach levels at the south end have resulted in windblown sand on the embankment. Beach levels appeared to be relatively high compared to the previous inspection, partly burying the revetment toe and many of the dilapidated groynes. The previous inspection reported significant erosion of dunes/ beach at the headland which has clearly reversed.

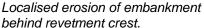


Low beach levels at Sandstell Point in



High beach levels at Sandstell Point with







High beach levels burying revetment and windblown sand on embankment.

The Spittal seawall including hand railing and promenade surfacing is in good condition with only some minor cracks and loss of joint sealant apparent. Localised repairs at joints appear good. Beach levels at the time of the survey were relatively high. At the south end of the seawall the rock revetment is fair condition, some flattening of the slope and displacement of toe rocks was evident at the north end and some minor localised slips and cliffing in the grass embankment behind.



High beach levels at Spittal seawall.



Some flattening of rock revetment at south end of Spittal seawall.

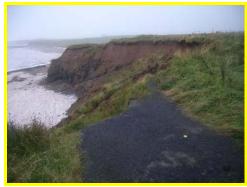
3.3 Spittal to Cheswick Sands (MU 3)

This management unit is approximately 6.5km in length and extends from the south extend of Spittal seawall in the north to Cheswick Sands in the south. This frontage includes approximately 8 coastal defence assets, comprising mostly high natural coastal slopes.

At the south end of Spittal Beach a significant landslip was reported by the previous inspection, exposing underlying rock. This landslip doesn't appear to have worsened since 2010 however it was noted that the masonry wall is very close to the cliff edge. To the south the high cliffs between Spittal Beach and the dunes at Cocklawburn Beach are in fair condition, continuing to erode with evidence of significant but localised collapse of rock headlands. North of Cocklawburn Beach there is significant erosion of the soft earth cliffs with continued loss of the disused paved roadway.



Landslip in the cliffs at the south end of Spittal seawall.



Significant but localised erosion of earth cliffs north of Cocklawburn Beach and loss of disused roadway.

The coastline between Cocklawburn Beach to Cheswick Sands comprises length of dunes interspersed with area of rock outcrops and clay cliffs. This frontage has a history of periods of erosion and accretion with different lengths of the coast respond differently to wave conditions. The following photos show a comparison of the current condition with that observed during the inspection in 2010.

At the northern end of the dunes at Salt Pan there is evidence of recovery of the dunes from the previous inspection in 2010 with some re-growth of vegetation on the dune face.



Dunes at Salt Pan in 2010.



Dunes at Salt Pan in 2012.

The condition of the dunes at Middle Skerr and Far Skerr do not appear to have worsened since the previous inspection in 2010. Erosion to the dune face appears to have slowed or stopped.



Dunes at Middle Skerr in 2010



Dunes at Middle Skerr in 2012





Dunes at Far Skerr in 2010

Dunes at Far Skerr in 2012

3.4 Cheswick Sands to Bamburgh Moor (MU 4)

This management unit is approximately 29.5km in length and extends from Cheswick Sands in the north to Bamburgh Moor on the northern outskirts of Bamburgh town in the south encompassing the Lindisfarne National Nature Reserve. This frontage includes approximately 35 coastal defence assets, comprising mostly natural low coastal slopes and sand dunes with some occasional man-made erosion protection and outfall structures.

At Cheswick Sands and Goswick there appears to be a continued increase in sediment over the low lying beach. The rapid developed of embryo dunes vegetation continues giving further evidence of the area tending to be a sediment sink, as noted in the previous inspection.





Dunes at Cheswick Sands in 2010.

Dunes at Cheswick Sands in 2012.

To the south of Beal Point at the entrance to the South Low channel a large sluice was constructed through the flood bank as part of the 4Shores Project in March 2010. This allows salt water incursion over pastureland to create a 5ha salt marsh and 20ha of brackish wetland. Along the low coastal slope on the north side of Beal Point the earth embankment is generally in good condition with some signs of localised erosion at the toe.



New sluice structure constructed in 2010.



Localised erosion at the toe of the vegetated slope at Beal Point.

From the landfall of the Holy Island causeway near Beal south to Fenham Burn the shoreline is characterised by a good fronting width of salt marsh of mud and sand flats. Little change is noticeable since the previous inspection in 2010 with the marsh becoming narrower and patchier towards Fenham Mill, widening wider again towards Fenham-le-Moor. The shoreline itself comprises vegetated coastal slopes which are not experiencing erosion. The low timber retaining wall noted at Fenham Mill in the previous inspection was not observed.



Salt marsh narrower and patchier near Fenham Mill.



Wider salt marsh near Fenham-le-Moor.

East of the bird hide at Elwick there is a flood embankment fronted by salt marsh. The embankment is protected by an asphalt and stone revetment which is generally in good condition and appears to continue to be effective in preventing sea flooding to a local low-lying bank of farmland across Ross. As reported by the previous inspection, there are a few areas that would benefit from routine maintenance to infill gaps in the stones. Further along the frontage is a bracken-covered coastal slope leading to the Ross Links dunes. This remains mostly stable



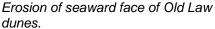
Flood embankment east of bird hide at Elwick.



Some gaps in asphalt and stone revetment to flood embankment.

The dunes at Old Law are in fair condition but showing signs of partial erosion along much of their length to Guile Point. The landward side of these dunes are well vegetated, fronted by a cobble berm and appear in good condition and stable. Two navigation beacons are present at Guile Point, one directly on the foreshore and the other on the dunes.







Landward side of Old Law dunes appear

The dunes along Ross Back Sands continue to appear very stable with continued signs of accretion and embryo dune growth as report in the previous inspection in 2010. Some very localised toe erosion was previous reported but this was not observed during the inspection. The dunes at Ross Links extend towards Links End at Budle Bay where they are fronted by salt marsh and mud flat.



Wide stable dunes at Ross Back Sands.



Stable dunes and Links End at the south end of Ross Back Sands.

Various walls and grouted stone revetments, rip-rap and concrete walls extending around Links End towards the sluice at the Ross Low channel. These assets are generally in fair condition with no significant signs of deterioration since inspections undertaken in 2008.



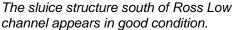
fair condition.



Grouted stone revetment at Links End in Concrete wall at Links End in fair condition.

The sluice at Ross Low channel appears to be in good a good state of repair with sheet piles, capping beams, hand-railings and ladders generally in good condition. The sheet piles reported to have been repainted since 2008.







Sheet piles at the sluice have recently been painted

Along the Chesterhill Slakes in Budle Bay the salt marsh is generally healthy with little change since the previous inspection. Some salt pans were evident although no marsh edge erosion as reported in the previous inspection was observed. The previous inspection noted Chord Grass (*Spartina*) growth on the foreshore.



Generally healthy salt marsh at Chesterhill Slakes.



Some salt pans evident in salt marsh.

At Warren Mill, the wall at the head of the bay is in very poor condition with significant collapse of the central section (approx 30m) of blockwork. This wall fronts private ground with restricted access so closer inspection was not possible. The revetment fronting the B1342 appears in good condition although somewhat overgrown and in need of some gaps filling. This structure is fronted by a wide salt marsh with some evidence of edge erosion.



Significant collapse of central section of blockwork wall at Warren Mill.



Overgrowth on stone revetment along B1342 overgrown.

The dunes along the south side of Budle Bay are relatively healthy however some localised erosion of the dune face and pedestrian erosion of vegetation was evident near Heather Cottages. The disused pier near Heather Cottages continues to control beach sediment as noted in the previous inspection. However, this structure is in poor condition with loss of fill and partial collapse of the northern wall and blocks scattered across the upper foreshore. This structure presents a public safety hazard and should be monitored for further deterioration.



Minor localised erosion at toe of dunes on south side of Budle Bay.



Some localised erosion of dune face near Heather Cottages.

3.5 Holy Island (MU 5)

This management unit is approximately 15.5km in length and extends around the entire shoreline of Holy Island. This frontage includes approximately 25 coastal defence assets, comprising mostly low natural cliffs and sand dunes. The inspection proceeded anti-clockwise around the island, commencing from Chare Ends adjacent to the informal car park, where the road turns and rises up onto the main island

The damage to the causeway road at Chare Ends that was reported in the previous survey appears to have been repaired, although there is a small area of further damage on the outside edge of the bend, below right. The dunes extending south from the causeway road towards The Basin remain stable.



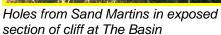
Vegetated dunes looking south from Chare Ends



Localised erosion damage to road at Chare Ends

At The Basin, the low cliffs are locally active with several lengths bare of vegetation and occasional slumps as noted in the 2010 survey.







Rubble tipped down cliff at The Basin

At the small bay in front of the church, the sand and cobble berm previously recorded remains and appears to have recovered or accreted a little, below left and right.



Sand / gravel berm in front of chruch at 121AA901A4901C04



Berm on upper beach has recovered in front of benches since 2008

The shingle beach at the boat houses west of the pedestrian ramp to the Heugh headland has accreted since the 2010 inspection, below left and right. The previously noted outflanking at the west end of the wall had been covered with shingle at the time of the inspection.



Shingle beach in front of boat houses



Shingle at west end of wall has recovered since 2010.

The previously noted undermining of the wall protecting the access ramp was not visible due to higher beach levels, See photos below left from 2010 and right from 2012. Also, the missing coping stones on the upper section of the access ramp wall noted in the 2010 report had been replaced.





Undermining of wall in 2010

Higher beach levels obscure wall toe in 2012

The softer cliff material above the wall remains partially active with localised slumps.





Cliff slumps in 2010

Cliff slumps at beach access ramp in 2012

The highly fissured hard rock outcrop of Steel End that provides natural sheltering to the harbour and bay to the north had not changed since the previous survey

As noted in the 2008 inspection there is missing mortar and voids in the masonry section at the landward end of the harbour pier and gaps between the deck slab and coping and also below the coping along the pier, see below right. Of more concern is the undermining and voids under the toe of the outer (north) face of the middle section of the pier, see below left, repairs are recommended before the damage progresses to destabilise the pier.





Undermining and voids at toe of pier

Missing pointing below coping

Within the harbour bay (The Ouse) the sand and gravel beach appears stable and similar to the 2010 survey. The levels at the outfall near the centre of the bay have not changed. The erosion at the north end of the bay, adjacent to the path out to Lindisfarne Castle remains active, as in 2010, below left.



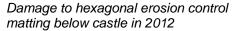


Erosion adjacent to path in 2012

Photograph of same area taken from 2010 report.

At Lindisfarne Castle, the damage noted in 2010 to the hexagonal netting placed to stabilise the soft material covering the harder rock base below the castle was showing signs of further damage. This should be repaired and refilled to help delay further slumps. The previous inspection also recommended extending the erosion control matting further east, where there are slumping unvegetated areas. This has not been done, but the cliffs do not appear to have particularly worsened since 2008.







Photograph of same area taken from 2010 report.



Slumps in cliff below castle east of erosion matting.



Eroding upper cliff material west of lime kilns.

The shingle ness at Castle Point remains in a healthy condition, but there is erosion and cliffing of the grassed over coarse cobbles towards the north where it nears the path, threatening to undermine the field boundary wall, see photos below.





Erosion of grassed shingle near north of Erosion adjacent to boundary wall ness

The cliffs between Castle point and Emanuel Head continue to show ongoing intermittent erosion and slumps. The cliff toe is mostly protected by a cobble berm, with some sections fronted by low rock platform. In some sections, such as the lower area around and Sheldrake Pool, erosion is taking place in the relic shingle ridge, forming low cliffs that yield mainly cobble sized material, see below left.





Eroding shingle in cliff

Erosion at grassed area of cobbles and shingle

The 2004 and 2012 photographs below looking from Red Brae north to Emmanuel Head shows that through the ongoing cliff slumps the overall change is slow but there has been some cut-back and loss of a small section of the field boundary fence.





July 2004 view to Emmanuel Head

October 2012 view to Emmanuel Head

In Sandham bay, west of Emmanuel Head the dunes to the west and east are stable where they are protected by the cobble spit and rocky reefs of Castle Head Rocks. However, there was active erosion to the seaward face of higher dunes in the centre of the bay, below right.







Eroding dunes in centre of Sandham Bay

There was further evidence of local rockfalls and destabilisation of the softer material in the cliffs above at Nessend, but this is localised and does not represent significant concern. The caves and overhangs at Nessend are also experiencing ongoing rock falls which would be a danger to members of the public. West of Nessend there was evidence of recent sand accretion on the dune ridge across the bay to Snipe Point.



High dunes east of Snipe Point



Locally active cliff falls at Nessend

The dunes at The Links, in the shelter of Back Skerrs rocks appear very stable, with minimal change since the walk over inspections began, see photos from 2004 and 2012 below.



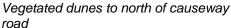
Cobble beach at west end of Back Skerrs rocks in 2004



Same location in 2012

The dunes between back Skerrs and the causeway road to the mainland are well vegetated with only localised evidence of erosion from recent storms. There was evidence of run-up and spray damage to vegetation above tide line, with recent sand accumulation after the storms in late September 2012. The very wide and flat sandy beach appears stable or accreting.







Accumulation of sand over vegetation at dune toe near Jack Mathison's Bank

Between where the causeway meets the island and Chare End, where the road bends away towards the main tourist car park, the road carriageway, which floods at high tide is protected by a width of salt marsh and wide sand flats to the south and the dunes and wide beach to the north. Example photos of the road from the inspection are shown below.



Causeway road looking west



Causeway road looking east towards Holy Island

3.6 Bamburgh Moore to Seahouses (MU 6)

This management unit is approximately 8km in length and extends from Bamburgh Moor on the northern outskirts of Bamburgh town to the southern extent of Seahouses in the south. This frontage includes approximately 25 coastal defence assets, comprising mostly low coastal slopes and sand dunes in the north and the man-made defences and harbour at Seahouses.

North of Bamburgh the beach levels appear relatively low with only a veneer of sand over the rock foreshore. However this appears in slightly better condition than during the 2010 inspection. The dunes south of Bamburgh Castle towards North Sunderland are generally wide and healthy with relatively high beach levels although there was evidence of some localised areas of toe erosion and one more significant area of cliffing in the earth slope.



Low beach levels over rock foreshore north of Bamburgh.



Localised erosion of earth slopes in dunes south of Bamburgh.

The seawall along St Aidan's road appears in good condition although some loss of mortar beneath the coping is apparent. Erosion of the earth cliffs continues causing some outflanking at the west end. Repairs to overtopping damage of the coping at the east end appear sound although some localised erosion in the upper earth above, probably due to overtopping, is apparent.



Onset of outflanking at the west end of seawall at St. Aidan's Road.



Erosion of upper earth cliff at east end of seawall due to overtopping.

At Seahouses the seawalls, pier, quays and breakwater structures at North Sunderland Harbour are generally in fair/ good condition. Through discussions with the local Harbour Master (Stannard/ Brabban, 16-Jan-13) it is understood that the following recent maintenance and repairs works have been undertaken:

- Encasement of Inner Pier (south) and Inner Harbour (north), 2004
- Repairs to Breakwater crest wall and encasement of landward end, 2008
- New low seawall along Harbour Road, 2008
- Placement of rock armour attenuation at Main Pier and Outer Harbour, 2010
- Infill of voids in deck of Main Pier and asphalt resurfacing, 2011
- Filling of large scour hole in seaward face of Main Pier, 2012
- [Major refurbishment of the Main Pier planned for 2014/15]

There is a significant horizontal crack in the crest of the seawall opposite the RNLI building. The seaward face of the Main Pier is heavily abraded with scour holes apparent. These holes were identified during the last inspection in 2010, repairs to the largest of these holes were recently undertaken by the Harbour Master. The localised rock armour attenuation at the landward end is in good condition but the profile appears to have flattened with some stones displaced across the rock foreshore.



Significant horizontal crack in crest of seawall opposite RNLI building.



Abrasion and scour holes along seaward face of Main Pier and flattening of rock armour profile.

The inner face of the Main Pier is also highly abraded with various small holes and voids apparent. Although not observed during the inspection it was reported by the Harbour Master that a significant scour hole (approx. 2m deep) has developed beneath the seaward side of the stub end at the end of the Main Pier which is cause for some concern. Whereas it is understood that there are plans to encase the whole of the Main Pier in 2014/15 this large scour hole is in urgent need of repair.



Large scour hole reported beneath Main Significant abrasion, holes and small Pier stub.



voids in inner face of Pier.

The quaywall along the Inner Pier and inner harbour were upgraded in 2004 with a concrete encasement and appear in good condition. However, cracks below the cope and gaps between some blocks were observed along the old north face. It is also reported that part of the construction works have caused an underwater obstruction preventing berthing to a short section of this quay. The rock armour attenuation placed in the Outer Harbour in 2010 appears in good condition. Resurfacing on the Main Pier undertaken in 2011 to improve safety for pedestrians appears in good condition. A flexible asphalt (rather than concrete) is understood to have been selected in order that further loss of fill material could be observed through settlement of the surfacing. However no settlement of cracking was apparent at the time of the survey.



Some gaps beneath crest of Central Pier



No settlement or cracking evident in new surfacing to Main Pier.

The various masonry and concrete seawalls to the east of the harbour generally appear to be in good condition with no cause for concern. Work to the Breakwater in 2008 to repair the crest wall and encasement the landward end remains in good condition.



Concrete Seawall south of North Sunderland Harbour in good condition.



Repairs to crest of North Sunderland Harbour breakwater in good condition.

3.7 Seahouses to Beadnell (MU 7)

This management unit is approximately 2km in length and extends from the southern extent of Seahouses in the north to the northern extent of Beadnell town in the south. This frontage includes approximately 2 coastal defence assets, comprising low coastal slopes and sand dunes.

To the south of Seahouses around North Sunderland Point (Snook) there is evidence of some localised rock falls in the high cliffs and continued partial erosion/cliffing along much of the soft coastal slopes in the area of the golf course continues. Erosion of the thin ridge along the south facing frontage of the golf course (less than 2m wide in places) or at its landward end does not appear to have worsened further since the previous survey. Some minor localised erosion of the dunes was apparent along Annstead Links dunes.



Localised rock falls near the sewage works at North Sunderland Point.



Erosion of the thin earth ridge at North Sunderland Point.

3.8 Beadnell to Links House Farm (MU 8)

This management unit is approximately 6.5km in length and extends from the Beadnell town in the north to Links House Farm in the south. This frontage includes approximately 32 coastal defence assets, comprising man-made defences and harbour at Beadnell and a wide natural dune system to the south.

The additional private defences consisting of dumped rock/ rubble fronting the properties at Beadnell Haven remain largely intact with no new erosion evident. However, these do not provide a robust defence and should be improved. The masonry and concrete seawalls to the north of Dell Point (Red Brae) are generally in fair condition with some small cracks, loss of mortar and minor outflanking.



Additional private defences to the north of Beadnell remain intact.



Masonry and concrete seawalls north of Dell Point in fair condition.

The soft earth cliffs around Dell Point (Red Brae) are experiencing erosion along most of the frontage and are in a poor condition. Significant dumping of building waste, possibly including, asbestos, was apparent. The concrete seawall fronting the property at the north end of the main bay is in good condition with no obvious signs of deterioration with shingle/rubble beach levels relatively high. However, the low earth bank fronting the driveway is in poor condition with ongoing erosion despite continued and presumably unlicensed adhoc tipping of building waste.



Erosion of soft cliffs south of Dell Point, tipped building waste possibly with asbestos.



Continued erosion of vegetated banks despite continued tipping of rubble.

The high masonry seawall at Nacker Hole is in generally in poor condition with significant abrasion and gaps between blocks evident. The significant overtopping damage noted in the previous survey appears to have been repaired with some new crest stones and roadway resurfacing apparent. Some loose coping stones were evident at the south end. Concerns over the general undermining and potential loss of concrete raised during the previous inspection remain.



Repairs to crest wall and resurfacing of roadway at Nackers Hole Beadnell.



Serious deterioration of the seaward side of the masonry seawall.



General undermining and potential loss of concrete toe works.



Loose coping stones at south end of seawall at Beadnell.

Further south at Lady's Hole, the gabion revetment is in poor condition and is in need of repair with burst baskets along the toe. Since this frontage and that at Nackers Hole Beach are linked in terms of access to the village and harbour the previous inspection recommended a review of the defence strategy in this area. Given the poor condition of these structures this view is still supported.



Burst baskets along the toe of the gabion revetment at Ladies Hole.



Burst baskets at the toe and loss of stone across the foreshore.

The defences at Beadnell Harbour are generally in good condition with the masonry walls and concrete coping showing some signs of minor abrasion. Recent repairs of mortar joints to the outer and inner walls appear good. However, at the breakwater head localised undermining of the concrete toe apron was observed. Along the landward face of the breakwater arm, and to a lesser extent beneath the south quaywall, some localised undercutting was also observed (voids approx. 0.1m high up to 1.5m deep) beneath the structure. It is believed that dredging of the channel has (recently?) been undertaken by local fishermen to improve access to the harbour. This is likely to have contributed to the onset of undermining of these structures.



Undercutting of the toe apron at the head of Beadnell Harbour breakwater.



Undercutting of the main wall of Beadnell Breakwater.

There is partial collapse of the concrete revetment protecting the beach access steps at the north end of Beadnell Bay.



Undercutting of the south quaywall of Beadnell Harbour



Partial collapse of concrete revetment at north end of Beadnell Bay.

At the north end of Beadnell Bay localised dumping of rock provides some protection to the dunes fronting the harbour access road. As reported during the

previous inspection, localised erosion of the dunes at the access to the Beadnell Bay car park/ recreational area continues to be apparent, although some new vegetation growth was noticed. Otherwise, there has been little significant erosion elsewhere around the bay.



Localised dumping of rock at north end of Beadnell Bay to protect harbour road.



Localised erosion of dunes at the access to the car park.

3.9 Newton Link House to Dunstanburgh Castle (MU 9)

This management unit is approximately 6km in length and extends from Newton Links House in the north to Dunstanburgh Castle in the south. This frontage includes 6 coastal defence assets, comprising mostly natural dunes.

The vegetated dunes and natural coastal slopes fronted by sandy beach and rock/shingle foreshore from the south of Beadnell Bay to Dunstanburgh Castle are in good condition. At Low Newton-by-the-sea the concrete slipway is in fair condition although there are some noticeable areas of spalling on the wall at the top of the ramp.



Vegetated dunes and sandy foreshore south of Beadnell.



Low natural coastal slopes and shingle beach at Dunstanburgh Castle.

3.10 Dunstanburgh Castle to Boulmer (MU 10)

This management unit is approximately 9.5km in length and extends from Dunstanburgh Castle in the north to Boulmer in the south. This frontage includes approximately 23 coastal defence assets, comprising a mix of man-made defences and harbour at Craster and natural defences.

The gentle coastal slopes from Dustanburgh Castle to Craster Harbour are well protected by a shingle/ boulder foreshore and are generally in good condition.

At Craster Harbour there is no significant change evident since the last survey with the structures all in a fair condition. The landward face and seaward face of both the north and south harbour arms show noticeable signs of abrasion and localised spalling along the crest wall. A full height crack approximately 10m from the end of the north arm is evident on both faces. However, this crack is not evident on the deck, possibly due to historic repairs, and therefore may not be related to movement. However, this should be closely monitored.



Abrasion to the seaward face of the north harbour arm at Craster.



Full height crack at the seaward end of the north harbour arm.

Another noticeable full height crack is apparent on the seaward face on the south harbour arm with some gaps opening at the toe. The surfacing to this structure is significantly cracked with spalling along the bottom of the crest wall.



Full height crack and voids at the toe on Cracks to the surfacing on the south the south harbour arm.



harbour arm.

The coastline between Craster and Howick consists largely of hard rock slabs with vegetated upper slopes which are generally stable and in fair/ good condition. South of Howick the low vegetated slopes at the back of the sand/ shingle foreshore are in a fair/poor condition with partial erosion and cliffing along much of the frontage.



Toe erosion and cliffing of coastal slopes south of Howick



Toe erosion and cliffing of coastal slopes south of Howick.

3.11 Boulmer to Seaton Point (MU 11)

This management unit is approximately 2.5km in length and extends from Boulmer in the north to Seaton Point in the south. This frontage includes approximately 7 coastal defence assets, comprising mostly natural vegetated coastal slopes.

At Boumer erosion of the steep undefended earth slopes at the north end of the village continues with one property within a few meters of the edge. The village frontage consists of ad-hoc defences of concrete (relic anti-tank) blocks, tipped stone and building rubble. Erosion identified in the previous inspection does not appear to have worsened although the tipping of building rubble seems to have continued.



One property close to edge of steep undefended earth cliffs at Boulmer.



Adhoc tipping of construction rubble at Boulmer.

The dunes and low vegetated coastal slopes from Boulmer to Seaton Point are generally in fair condition with some localised erosion and cliffing.

3.12 Seaton Point to Foxton Hall (MU 12)

This management unit is approximately 2km in length and extends from Seaton Point in the north to Marden Rocks near Foxton Hall in the south. This frontage includes approximately 7 coastal defence assets, comprising a mix of man-made defences and natural coastal slopes.

South of Seaton Point the cliff line continues to show signs of slippage and cliffing although there does not appear to have been any recent toe erosion compared to the previous inception. The foot path along the cliff edge remains closed. The beach is relatively narrow with the strand line close to the toe of the slope. The previous inspection noted that the level of the beach in this area can fluctuate. The concrete steps and rock armour at the centre of the bay appear to be fair condition.



Access steps and rock armouring in fair condition.



Signs of significant historic slippage along the cliffs south of Seaton Point.

At Foxton Hall the soft earth slopes are fronted by a narrow shingle ridge. These slopes are in fair/ good condition with some minor local erosion evident at the toe. The short rock groyne remains in a dilapidated condition.

3.13 Foxton Hall to Birling Carrs (MU 13)

This management unit is approximately 9.5km in length and extends from Marden Rock near Foxton Hall to Birling Carrs rocks in the south. This frontage includes approximately 18 coastal defence assets, comprising a number of man-made defences at Alnmouth and other natural coastal slopes and dunes.

To the north of the River Aln estuary, beach levels appear to be slightly lower to the north with groynes more exposed than during the previous survey. However, beach levels in front of the car park appear to have increased with the relic anti-tank blocks now almost completely buried. The low earth slopes along this frontage are in good condition with no signs of recent erosion.



Beach levels fronting car park north of River Aln estuary in 2010.



Higher beach levels fronting car park north of River Aln estuary in 2012.

The dunes north of the estuary appear stable with no signs of erosion and some evidence of embryo dune growth starting.



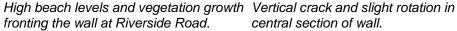
No recent erosion of dunes north of River Aln estuary.



Some embryo dune growth north of River Aln estuary.

Beach levels in front of the masonry wall along Riverside Road are relatively healthy with new vegetation growth evident at the bottom of the timber steps. The central section of wall appears to have rotated slightly, evidenced by two vertical cracks. However, no recent change is apparent so this movement may be historic but should be monitored.







central section of wall.

The low masonry wall fronting the River Aln Boat Club and Peases Park was constructed in 1993 and remains in good condition. The masonry wall along the footpath from Peases Park is in fair condition however there continues to be concern over the cracking and gaps to the outside corner of the wall with some missing blocks noted. Some localised minor mortar repairs were evident and this damage does not seem to have worsened since the previous inspection. The low earth banks along the spit of land south of the river Aln road bridge is in poor condition with significant erosion, undercutting and some collapse on the upstream face.



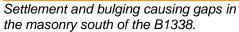
Cracking and missing pointing at the corner of the wall along the footpath.



Significant erosion and undercutting of the river bank south of the river bridge.

The low masonry wall supporting the footpath south of the B1338 river bridge is generally in a fair condition with some cracks, missing mortar and loose cope stones evident. However, of more concern is the apparent settlement/ bulging of the wall along the central section and further opening of the joints. Whereas this movement does not seem to be recent, between the two visits made to this structure during this 2012 inspection a small but fairly deep void (approx 0.2m) opened up in the footpath suggesting that fill material may be being lost through the open joints.







Void in footpath, possible caused by loss of fill through gaps in masonry wall.

The affect of flooding is seen to the area where the defence have been removed to the north side of the inner estuary as part of the Northumberland 4Shores project. This should continue to be monitored.

The low masonry wall around the bottom on Church Hill remains in poor condition with some missing coping blocks, loss of mortar joins and two significant full height cracks in the joints and blocks at the centre of the wall. There are some displaced blocks along the wall, most notably at the location of the crack where significant loss of retained material and a large (~2m long) hole opening up behind the crest is evident. Some outflanking of the wall is occurring at the south end whilst the wall is largely buried by high beach levels at the north end.



Full height vertical cracks in joints and blocks in masonry wall at Church Hill.



Cracks and displaced blocks causing significant loss of retained material.

The high dunes along the south bank of the River Aln and further south towards Birling Carrs are in fair/poor condition, suffering from some slumping and cliffing along much of the length despite the presence of relic anti-tank blocks. This appears to have worsened since the previous inspection.



Erosion and cliffing of dunes south of Rive Aln.



Cutting back of dunes south of River Aln despite the presence of (relic) anti-tank blocks.

3.14 Northfield to Amble (MU 14)

This management unit is approximately 3km in length and extends from the Caravan site at Northfield in the North Pier at Amble. This frontage includes only 1 coastal defence asset, comprising a natural defence of partially vegetated dunes.

The dunes immediately in the lee of the rocky outcrop of Birling Carrs are stable although the hard rock base has suffered from local undermining and rockfall. However, the Warkworth Dunes to the south are in worse condition with partial erosion and slips evident along much of the frontage.



Undercutting and rock falls at Birling Carrs.



Partial erosion and slips along Warkworth Dunes.

3.15 Warkworth Harbour and Amble (MU 15)

This management unit is approximately 3km in length and extends from the North Pier at Amble to Pan Point at the South Pier. This frontage includes 14 coastal defence assets, comprising mostly of the man-made structures at Warworth Harbour.

The large armourstone along the exposed north face of the North Pier appears generally in good condition with no obvious signs of undermining/ settlement of the toe or flattening of the profile. The masonry blockwork at the seaward end is also in good condition with no obvious gaps or cracks. The revetment on the south face of the Pier is in slightly worse condition with some movement of the small stones and some small gaps opening in the pitched stonework. The concrete crest along this section also appears in fair condition with no significant cracking or erosion.

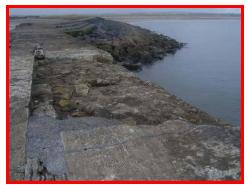


Some movement of smaller armour stones and gaps in pitched stonework on south face of North Pier.



Rock armour and masonry on north face of North Pier in good condition.

The seaward end of the North Pier remains in very poor condition with extensive abrasion of the concrete and a missing section of concrete deck. The large crack (~0.5m wide) and rotation of the tip of the pier identified during the previous inspections is still cause of concern. However, no further movement appears to have occurred. Through discussions with the Harbour Master it is understood that this is in fact an historic crack that dates back many decades.



Extensive abrasion of concrete at seaward end of North Pier.



Large crack and rotation of tip of North Pier.

The concrete quaywall at the western end of Warkworth Harbour is generally in good condition with only small localised cracks in the deck. The slight bulge in the quaywall and small hole in the deck identified during the previous inspections was not observed. However, recommendations for the area to be inspected from the river using a vessel-based survey at an appropriate stage of the tide is still advised. The masonry walls in the small harbour basin are generally in fair condition with some gaps between blocks, missing mortar, abrasion to the concrete cope and some voids in the upper wall.



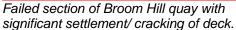
Slight budge in quaywall adjacent to lifeboat station not observed.



Some gaps between masonry blocks and abrasion of cope.

At the east end of the Warkworth Harbour, part of the Broom Hill quay that failed in 2008 was still in a very poor condition with significant settlement and cracking in the deck. Through discussions with the Harbour Master (Stannard/ Baxter 23-Jan-13) it is understood that repair of this quaywall is being undertaken in Jan-13 by South Bay Civils. The Warkworth Harbour structures are owned and maintained by Warkworth Harbour Commission.







Failed section of Broom Hill quay with significant settlement/ cracking of deck.

At the east end of the failed section of quay the timber linkspan bridge erected c2008/9 is still in very good condition. Some rock armour and construction waste has been tipped along the low vegetated bank to prevent erosion but this has only been partially successful and erosion continues to the south. The low masonry wall along the back of the enclosed bay is generally in good condition although one or two missing stones were noted. This wall is protected by a well vegetated area of dunes/ links.



Continued erosion of low earth bank despite dumping of construction waste.



Some localised cracking and missing stones in masonry wall.

The condition of the concrete seawall along Bay View road worsens towards the seaward end where a number vertical and horizontal crack along the crest apparent. The ramp is also in very poor condition with significant abrasion, spalling and voids.



Horizontal cracks along the cope of the seawall at Bay View Road.



Abrasion, spalling and voids in seawall access ramp.

The South Jetty is in good condition with no gaps in the timber decks and all hand railing intact. The top section of all timber piles has previous been replaced and are in good condition. The lower section of piles remains in a reasonable condition. The half tide barrier remains effective with noticeable accretion within the basin. At the time of the inspection new lighting posts were being installed.



Timber piles and superstructure of South Jetty in good condition.



Light posts being installed along the South Jetty.

The South Pier Head is closed to public access so it was not possible to inspect the seaward end of the structure. The section that was inspected appears highly abraded, most notable along the base, at the access steps to the lighthouse and at the junction with the South Pier. Minor rotation and loss of sealant in one concrete deck section was noted, apparent by an enlarged gap between two of the sections. This was also noted during the previous inspection but does not appear to have worsened.



Significant abrasion to the base of the South Pier Head.

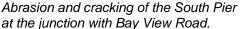


Minor rotation in one deck section in the South Pier Head.

The condition of the inner face of the South Pier does not appear to have changed significantly sine the last inspection and remains in fair condition along most of its

length. Abrasion and cracking at the junction with the Bay View Road and the South Jetty identified during the previous inspection remains unaddressed.







Abrasion and cracking of the South Pier at the junction with Bay View Road.

The seaward face of the south Pier does not appear to have change significantly since the last inspection. The structure is generally in fair condition with frequent horizontal cracking at the south end. The access steps at the south end of the Pier are highly abraded and, as these provided the only access to the beach, is starting to present a public safety hazard. Although the concrete stub groyne is also highly abraded it still serves it current function to retain the rock armour on the north side.



Horizontal cracks along South Pier highly abraded.



Highly abraded access steps presenting a public safety hazard.

There is no noticeable change in the condition of the concrete wall protecting Cliff House and Pan Point. This structure continues to deteriorate with numerous cracks throughout. Some cracks expose corroded and broken reinforcement bars, and toe undermining is still observed at the westerly end.

3.16 Amble to Beacon Hill (MU 16)

This management unit is approximately 2.5km in length and extends from Pan Point at Amble to Beacon Hill at High Hauxley in the south. This frontage includes 11 coastal defence assets, comprising a number of seawalls and low vegetated natural cliffs.

The seawall fronting the children's play area south of Pan Point is generally in fair condition with no signs of undermining or movement. Some localised cracks, rust staining and spalling along the wave return wall and setback wall were noted as well as areas of broken up bitumen surfacing.



Localised cracks, rust staining and spalling along the wave wall.



Spalling and rust staining to the setback wall.

The earth slopes and dunes along the Amble Links are showing signs of recent erosion with cliffing along much of the frontage. Dumped rock armour is controlling erosion at the centre of the embayment and adjacent to the seawall at the south end. No signs of fly tipping as identified in 2010 were apparent. The concrete seawall at Island View headland (constructed in 2003) at the south end of the dunes remains in good condition with no further evidence of movement at the construction joints.



Erosion and cliffing in face of dunes Seawall a along much of the Amble Links frontage. condition.



Seawall at Wellhaugh Point in good condition.

The low vegetated dunes north of Wellhaugh Point were reported to be subject to erosion in 2009/10. Some erosion and cliffing is still apparent but does not seem to be recent and has not worsened since the previous inspection. The outfall structure remains in a dilapidated condition. Recommendations for either removal or repair remain.



Erosion and cliffing of dunes north of Wellhaugh Point has not worsened.



Dilapidated outfall requiring removal or repair.

A short low masonry wall backed by a rock revetment at Wellhaugh Point remains in good condition with no signs of deterioration apparent. The notable erosion,

slumping and recession of the dunes south of Wellhaugh Point continues. Towards Beacon Hill the dunes become more stable with protection provide by a cobble toe berm. The highly rusted outfall structure remains in need of repair or removal. The gabions by the access steps are generally in good condition but are becoming slightly deformed with a notable dune blown out to the south.



good condition.



Low masonry wall at Wellhaugh Point in Erosion of dunes to Beacon Hill noted in 2010 not apparent.



Highly rusted outfall in need or repair or removal.



Deformed gabions at access steps and dune blowout north of Beacon Hill.

3.17 Beacon Hill to High Hauxley (MU 17)

This management unit is approximately 11km in length and extends from Beacon Hill at High Hauxley in the north to Cresswell in the south. This frontage includes 23 coastal defence assets, comprising mostly of vegetated dunes and cliffs with occasional man-made defences.

South of Beacon Hill there is a section of informally placed rock armour. This armour appears largely in fair condition, continuing to stabilise the backing vegetated cliff. The one small area of minor movement observed during the previous inspection was not apparent. The rock revetment fronting the property north of the access ramp at Low Hauxley also remains in fair condition although high beach levels meant that the structure was largely buried.



Stable vegetated cliff fronted by rock armour south of Beacon Hill.



High beach levels fronting rock revetment at Low Huxley.

The revetment south of the access ramp at Low Hauxley is in good condition although erosion to the vegetated bank behind the crest and tipped building rubble was evident. The fly tipping noted in the previous inspection was not observed. The 'wall' constructed of concrete blocks (relic anti-tank defences) just to the north of Hauxley Nature Reserve has a number of large gaps between the blocks with some blocks displaced.



Erosion behind crest of revetment south of Low Hauxley.



Some displacement and gaps in concrete block 'wall'.

During the previous inspection the outfall along the shore at the north boundary of Hauxley Nature Reserve was reported to be in poor condition with undermining especially around the south side and head. However, at the time of this inspecting this structure was completely buried by seaweed and as such its condition was not observed.

South of the outfall at Bondi Carrs the small-scale the dunes appear to be less active than observed during the previous inspection with no recent erosion and some new vegetation growth on the seaward face. Along the dunes at the southern end of Hauxley Nature Reserve erosion of the lower peat layer and cliffing in the upper slopes continues, although no clumps were apparent on the foreshore as during the previous inspection.



Some new vegetation growth on seaward face of dunes at Bondi Carrs.



Erosion of lower peat later and cliffing in the upper slopes south of Boni Carrs.

In one location the significant exposure of a (fallen) fossilised tree suggests that the peat layer may have eroded by up to 1-2m since the previous survey in 2010.



Exposed fossilised tree stump in 2010 south of Boni Carrs.



Erosion of peat layer by ~1-2m further exposing fossilised tree stump in 2012.

The outfall at the northern end of Druridge Bay is in poor condition with abrasion of blocks and broken concrete at the seaward end. The flap valve cover is still missing posing a safety risk to the public. Concrete blocks (relic anti-tank blocks) placed to shelter the structure are showing signs of movement. The dunes along Togston Links continue to erode since the previous inspection in 2010, with partial cliffing and slumping evident along most of the frontage. South of the car park at the piped outlet across the beach, erosion continues to cause cut back of the dunes. The attempts to prevent this outflanking using rock armour and rubble do not appear to have been successful. These dunes become more stable towards Hadston Carrs, where a coble toe berm is present at the toe and the rock outcrop affords some protection to the shoreline.



Missing flap valve cover to outfall south of Hauxley Nature Reserve.



Cliffing and slumps in the dunes south of Hauxton Nature Reserve.

The large outfall structure adjacent to the Hadston Scaurs Boat Club remains largely in good condition with minor cracking to the wing walls. The concrete apron between the outfalls south wall and the boat ramp is undermined with settlement and cracking evident, although no noticeable change is apparent since the last inspection.



Minor cracking to outfall adjacent to Hadston Scaurs Boat Club.



Undermining, settlement and cracking of to concrete apron adjacent to ramp.

The rock revetment which protects the Hadston Scaurs Boat Club slipway is in fair condition with no movement at the toe or erosion behind the crest. However, the structure is being actively outflanked at the northern end resulting in unravelling of the structure with some rocks displaced across the foreshore. The low vegetated earth cliffs to the north are in poor condition with recent slumps and cliffing evident causing cut back to within a metre of the road.



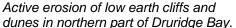
Outflanking of the revetment south of the Hadston Scaurs slipway.



Cut back of the low earth cliffs close to the road at Hadston Scaurs slipway.

The low soft cliffs and dunes in the central section of Druridge Bay are in poor condition with evidence of slumps and cliffing. Whereas this erosion has continued it appears that the dunes may have become less active since the previous inspection in 2010. The dunes continue to become more stable to the south near the visitors centre where they are fronted by a substantial cobble berm at their toe.







Cliffs at south end of Druridge Bay protected by cobble berm.

In the centre of Druridge Bay the storm-related damaged observed in 2010, especially at gaps between the frontage protected by the (relic) anti-tank blocks, appears to be recovering. Beach levels appear to be relatively high which is likely to have helped the dunes recover. Other areas remain stable.



Dunes at Druridge showing signs of recovery.



Dunes at Druridge showing signs of recovery.

North of Cresswell the foreshore builds seaward in the form of a tombolo in the lee of The Scars outcrop. The rock revetment to the north of the access steps, reported to be of loose construction, is largely buried by high beach levels. The revetment to the south of the steps is in fair condition with uneven placement and some erosion evident behind the crest. The concrete steps and handrail are in good condition with the toe buried by high beach levels.



Toe of access steps north of Cresswell buried by high beach levels.



Some erosion behind crest of revetment north of Cresswell.

3.18 Cresswell to Snab Point (MU 18)

This management unit is approximately 1km in length and extends from Cresswell in the north to Snab Point in the south. This frontage includes 5 coastal defence assets, comprising mostly low rock cliffs and vegetated embalmment's.

This revetment blends into a low concrete wall built at the back of the rocky foreshore with rock armour placed behind the wall to protect the vegetated earth cliffs. Beach levels appear to have lowered significantly along the northern section of the wall since the previous inspection in 2010 with much of the rock foreshore and north end of the wall now exposed. The wall is generally well founded on the rock ledge and in fair condition minor cracking and staining. Previous patch repairs are in good condition although some locations along the crest reinforcement appears to have been exposed in preparation of further repairs. The earth slope behind the crest revetment is showing signs of overtopping damage with significant dumping of construction rubble noticeable.



Exposed reinforcement along crest of wall at Cresswell.



Erosion of earth slopes behind crest and tipping of building rubble.

To the south of Cresswell the low concrete wall and concrete block revetment is largely in good condition with one missing block apparent and minor signs of abrasion.



Missing block along concrete revetment at south end of Cresswell.



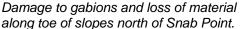
Minor abrasion to low concrete wall at south end of Cresswell.

The cliffs backing Stank Letch Rocks continue to experienced extensive lengths of rockfall with some remaining rock being heavily fractured. The overlying soft material has experienced slumping. Although this is not threatening assets section of the boundary fence along the crest is suspended in mid-air. Between Stank Letch Rocks and Brig Head, high levels of cobbles continued. The large sand berm on the upper foreshore, about 10m from the cliff toe, and the cobble berm directly at the toe, meant that the backing cliffs continued to be mostly stable.

Further south fronting the Golden Sands Holiday park north of Snab Point, the cliffs become more active once again, where the cobble berm becomes sparser and the

gabions are in poor condition. There is continued loss of material at the toe of the slopes and erosion occurring. The large slump observed during the previous inspection appears largely unchanged with the cliff top cutting back to within a few meters of the road. The cliff top in this area has recently been regrading in an attempt to limit further slips but the effectiveness of this is likely to be short lived.







Slips in the cliff to within a few metres of the road and recently regrading of slope.

To the north of Snab Point headland the two large rock falls noted by the previous inspection are still evident, along with more recent minor erosion of the soft material at the crest. The erosion noted along the mound of land running along the south edge of the small 'inlet' leading to the tidal pond/ disused quarry does not appear to have worsened. Erosion to the steps leading down to this 'inlet' leading to closure of the footpath was not observed.



Rock falls south of Snab point identified in 2010.



Erosion along the mound of land at the small 'inlet' has not worsened.

The private defences north of Snab Point comprising timber breastwork retaining walls were built around 2008 and remain in good condition. Further improvements are reported to have been undertaken in 2010 with two new rows of timber breastwork in the area where slumping was continuing in the upper cliff. There remains some upper cliff slippage immediately adjacent to this structure which over time could cause problems of undermining or outflanking.



Timber retaining wall improved in 2010 to prevent slips in upper slopes.

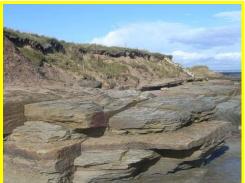


Some erosion along northern edge of retaining wall could lead to outflanking.

Generally, further south around Snab Point erosion of the toe and occasional local slumps/ cliffing of the upper softer material continues with local rock falls in the underlying rock ledge. Along this frontage an obsolete masonry revetment built on the rock ledge to protect the softer upper cliff material continues to actively breaking up. To the south, the set of timber access steps noted as being outflanked by erosion damaged in the previous inspection appear to have been rebuilt on the slope approximately 0.5m landward.



Point.



Erosion of toe of soft cliffs south of Snab Cliffing in upper cliffs and occasional local rock falls in rock ledge.



Obsolete masonry revetment south of Snab Point continues to break up.



Timber steps moved landward to address erosion in upper slope.

3.19 Snab Point to Beacon Point (MU 19)

This management unit is approximately 2.5km in length and extends from Snab Point in the north to Beacon Point in the south. This frontage includes 8 coastal defence assets, comprising a mix of vegetated soft cliffs and man-made defences around the Lynemouth Bay Power Station.

The northern section of Lynemouth Bay comprises a low rock cliff overlain with softer material. There is still evidence of local rock falls in the basal layer and slumping in the softer material, despite the presence of much vegetation on the cliff face. Further south, the protection afforded by the wide spoil beach means that the low cliffs are much more stable, adopting a shallow profile with considerable vegetation cover.





Rock falls and erosion of the soft upper Wide spoil beach p cliffs at the north end of Lynemouth Bay. the coastal slopes.

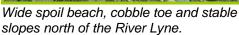
Wide spoil beach providing protection to the coastal slopes

The shoreline fronting Lynn Hill at the centre of Lynemouth Bay is less well protected by the spoil beach. Where the beach narrows the slopes continue to be actively eroding, resulting in cliffing on the seaward face. Where there is no spoil beach present, the backing spoil cliffs are eroding, releasing debris to the foreshore.

Further south, towards the outflow channel of the River Lyne, the wide spoil beach is still present with a cobble toe, protecting the backing slopes. The channel of the River Lyne is quite wide, deep and fast-flowing, with a stone weir built across the foreshore.

South of the River Lyne, the short length of undefended colliery spoil 'cliff', formed by historic waste tipping over the coastal slope is very actively eroding. Waste of various descriptions continues to be released onto the foreshore. The land behind this actively eroding frontage is effectively a colliery spoil yard with no built assets at risk. However consideration should be given to the environmental impact of the continued release of waste from this eroding frontage.







Very active erosion of tipped colliery spoil releasing waste onto the foreshore.

The large rock armour revetment constructed in front of the Power Station in 1995 and then extended around the coal stocking yard in 2005 remains in good condition with rock appearing well packed with no displaced stones or movement at the toe.



Rock armour revetment fronting coal stocking yard.



Rock armour revetment fronting power station.

However at the southern end erosion of the crest continues where the revetment 'tapers out' and the cliff line is undefended. This is not presently outflanking the defence but the situation should be monitored. Between the Power Station and Beacon Point the shoreline again comprises colliery spoil with erosion of the spoil cliff in the north continuing. The central and southern sections of this bay become more stable with wide backing dunes and a fronting cobble berm.



Erosion behind the revetment crest to the south of the Power Station.



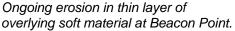
Active erosion of colliery spoil cliff at the north end of the bay.

3.20 Beacon Point to Spittal Point (MU 20)

This management unit is approximately 4km in length and extends from Beacon Point in the north to Spital Point at the south of Newbiggin Bay. This frontage includes 15 coastal defence assets, comprising a mix of low cliffs and the seawalls of Newbiggin-by-the-Sea.

The cliffs leading around the headland to Beacon Point comprise of a hard rock base and a thin overlying layer of softer material. Here the small-scale rock falls and occasional local slumps in the soft material identified in 2010 continue. Further around Beacon Point the slumps in the upper cliff have cut the cliff top back to the footpath in a number of areas although there is sufficient space to realign the path landwards should this be necessary. The cliffs here are fronted by an extensive rock ledge and therefore the recession rates are low and the events are very localised.







Upper cliffs fronted by extensive rock ledge slowing rates of erosion.

Along the main section of cliffs within the shallow bay fronting the golf course at Newbiggin Moor the cliffs are unprotected by rock platform and have no rock base. As a consequence are more actively slumping along their length. Cracking in the cliff top and steep profiles indicate that slumping will remain ongoing and parts of the golf course will need to be reconfigured over time. In one location, the cliffs dip to a lower level and here rubble has been tipped to prevent erosion and sea flooding. However, towards the centre of the bay accretion of beach material at the toe slowing erosion and providing protection to the soft cliffs.



Erosion and slumping of soft upper cliffs at north end of Newbiggin Moor.



Accretion of beach material providing protection to soft cliffs in centre of bay.

The cliffs fronting Newbiggin Caravan Park comprise three distinct sections. The northern section is unprotected by coastal defences or rock platforms and in poor condition with active erosion continuing through a series of regular local slumps. This has prompted the Caravan Park to erect warning signs along the cliff top footpath and realign short lengths of its boundary fencing, as noted by the previous inspection in 2010. The central section is protected by concrete anti-tank blocks and is in fair condition as these have assisted to an extent in generally stabilising the cliffs. However, some slumps have continued locally in places the cliffs are considerably less active than the undefended section to the north. The southern section is protected by a rock ledge but, despite this, occasional local slumps remain evident. In both sections, efforts to arrest the slumping have been made by local tipping of rubble down the cliff face.



Cliffs fronting central section of caravan park stabilised by anti-tank blocks.



Occasional slumps in soft upper cliffs at fronting south section of caravan park.

Along the southern section of the Newbiggin Caravan Park, two pill boxes are located on the rock ledge, with erosion of the surrounding soft cliff material now leaving them perched precariously.

Extending between Newbiggin Point and Church Point is a continuation of the rock ledge, with overlaying softer material, interspersed with a series of ad-hoc defences to 'patch' local areas. At Beacon End a short length of concrete seawall is present which appears to have a fair condition seaward face, despite a vertical crack. This does not appear to have worsened since the previous inspection in 2010. The structure continues to suffer badly from toe abrasion, undermining and most notably outflanking, particularly at the return-section 'tie-ins' at either end of the structure. These tie-ins are being undermined and outflanked. The soft cliff material behind each return section is actively being eroded and slumping, thereby further contributing to the problem.





Outflanking and erosion behind the crest Toe abrasion and undermining of short of short seawall north of Newbiggin seawall north of Newbiggin Point.

The second length of seawall is slightly further south around Newbiggin Point and remains in very poor condition. The tie-in sections remain actively breaking up, with concrete debris remaining on the rock ledge. Although the damage at the northern tie-in looks recent, this situation was first noted in 2008. Further deterioration undoubtedly is occurring, however, at the southern tie-in where outflanking due to erosion of the soft cliff continues.



Damage to crest slab of low wall at Newbiggin Point.



Undermining, outflanking and collapse of south end of low wall.

Between Newbiggin Point and the church the cliffs are composed of a continuation of the low irregular rock ledge with overlaying soft material which remains actively slumping locally. The soil netting used in attempt to stabilise the land continues to unravel. Where the rock ledge has become locally eroded, localised concrete and masonry walls have been built to infill crevices in a number of areas. All of these structures are experiencing undermining and toe abrasion, although this is particularly problematic in the five most northerly wall sections.



Slumps in cliffs and unravelling of soil netting west of Newbiggin Point.



Abrasion and undermining of toe of localised masonry/ concrete walls.

The vertical concrete seawall at Church Point is in an overall fair condition although there is a reasonable amount of abrasion at the toe and crest and there are signs of local undermining between the toe and rock slab. There is erosion of the slope behind the crest and the hand railing is badly rusted with one section missing and in need of replacement.



Erosion of the vegetated slope behind Abrasion of the the crest of the seawall at Church Point. undermining.

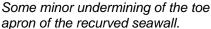


Abrasion of the toe and localised undermining.

The recurved section of seawall to the west is well founded on the rock foreshore and generally in good condition. The undermining of the concrete apron nearer its

western end remains although the missing sealant identified by the previous survey has been replaced.







New sealant to joints in recurved seawall.

The start of Newbiggin Bay is marked by a rock breakwater, built along the edge of Hully Rocks and extending from just off shore of Church Point. This structure is in good condition though there are some small rocks displaced across the foreshore on the seaward side. The profile and crest level along the structure appears largely uniform. The new offshore breakwater in the centre of the bay was constructed in 2007 and comprises inter-locking concrete units. Although this structure could only be inspected from the beach it appears in very good condition.



Displaced rocks along seaward side of north breakwater in Newbiggin Bay.



Offshore breakwater in the centre of the bay appears in very good condition.

In Newbiggin Bay the Maritime Centre has been recently been constructed at the north end of the bay. The sea walls along this frontage are still protected by healthy beach levels following replenishment operations in 2007 although some erosion from run-off was apparent at the access point from the carpark. At the centre of the bay the salient (build up of sand in the lee of the breakwater) continues to form.



The new Maritime Centre built behind the seawall at the north end of the bay.



Erosion in the upper beach at the car park access due to run-off.

The high recurved seawall and promenade at the centre of the bay are in good condition with beach levels just covering the wide toe apron. The lower stepped seawall and piled toe was not visible as it is fully covered with the beach recharge, which is adequately protecting the previously vulnerable defence toe piling. At the south end of the bay the vertical section of seawall is protected by a short length of rock revetment. This revetment is part of the defences that were in poor condition prior to the 2007 scheme, but is now largely buried by high beach levels and, where visible, appears in good condition.



Beach material just covering toe apron of seawall along Newbiggin Bay.



Rock armour largely buried by high beach levels at the south end of the bay.

At the south end of Newbiggin Bay the soft slopes are largely stable and protected by a wide beach. However, at Spital Point the there is evidence of occasional rockfalls and slips in the overlaying softer material which is overhanging along most of the length.



Slopes at south end of Newbiggin Bay protected by wide sandy beach.



Occasional rock falls and slips in the soft upper slopes at Spital Point.

3.21 Spital Point to Blyth Harbour (MU 21)

This management unit is approximately 6.5km in length and extends from Spital Point at the south of Newbiggin Bay to the East Pier of Blyth Harbour in the South. This frontage includes 19 coastal defence assets, comprising a mix of low vegetated cliffs and man-made revetments and seawalls at Cambios and North Blyth.

On the south side of Spital Point, the storm outfall and slipway remains very well protected by rock armour and the concrete headwalls appear in good condition. To the immediate north, there is an older concrete outfall structure, which is being slightly outflanked where it sits in the soft cliff material overlaying the hard rock base at Spital Point.



Slipway south of Spital Point well protected by rock armour.



Slight undermining and outflanking of old concrete outfall at Spital Point.

South of the outfall, there is a short section of cliffs fronting Links Quarry are in poor with significant erosion and cliffing along most of the length. Large quantities of rubble and quarry waste have been tipped down its seaward face. However, slumping in the soft material continues, releasing waste and debris onto the foreshore.



Tipped building/ quarry waste scattered across foreshore.



Erosion of soft cliffs continues despite tipping of building/quarry waste.

Hawks Cliff is known to typically experience gradual, local erosion caused by slumping in the upper soft material and occasional rock falls in the base. However, the previous inspection reported that over the severe winter of 2009/10 the whole section had been active. Although not believed to be recent, a number of local rock falls, fractures, overhangs, slump in some of the overburdening till and a noticeable section of partially collapse cliff was evident. The footpath along this section of cliffs has been closed in the interest of public safety due to severe erosion.



Rock falls, fractures and overhangs in Hawk Cliffs.



Partially collapsed cliff and closed footpath at Hawk Cliffs.

The cliffs directly fronting Sandy Bay Caravan park are in very poor condition with active erosion along the entire length causing slumps and continued collapse of the concrete wall. Sand has accumulated in the lee of the three near-shore rock berms providing some limited protection to the cliffs behind but erosion continues despite tipping of building rubble in an attempt to arrest this.



Active erosion and slumping of cliffs along the Sandy Bay Caravan park.



Some accumulation of sand in lee of breakwaters, but erosion of cliffs continues.

On the south side of the River Wansbeck estuary there are various lengths of masonry walls and slipways associated with the Wansbeck Boat Club. As reported during the previous inspection in the indented 'bay' these have often been patched-up but around the protruding earthen and rubble 'promontory' the masonry wall has failed and the backing land and rubble is being washed-out. Eastwards of this feature, the walls are somewhat patched-up. Further repairs are required to the failing promontory to avoid further rubble and soil being washed into the estuary. The undefended section of cliff within the estuary mouth is still very stable with no visible signs of erosion or slippage and with the face being densely vegetated.

Progressing from the sheltered estuarine frontage with its stable cliffs to the more active open coastline of Cambois Bay there is a transitional section of cliff fronting Cambois House. These cliffs are in poor condition with slips along much of this frontage and more significant erosion and cliffing of the upper slope further south. These appear to have continued to worsen since the previous inspection in 2010, causing some cliff top recession immediately south of the southern boundary of the garden of Cambois House. The pill box noted in the previous inspection as starting to break up on the foreshore was not apparent. North of the access ramp the tipped rock armourstone and large rubble is still partially stabilising the outflanking problem of the ramp.



House.



Slumps along the cliffs fronting Cambois More significant toe erosion and cliffing along the cliffs to the south.

The rock revetment to the south was constructed by private industry to protect the former foundry and remains largely in good condition although displacement of some toe stones was noted. The well vegetated slope behind is stable with no signs of erosion. At the south end of the structure outflanking continues due to erosion of the earth cliffs and future surveys should continue to monitor this.



Some displaced rocks along toe of revetment fronting site of old foundry.



Erosion of earth cliffs and outflanking of revetment at south end.

To the south of the outfall at The Rockers the frontage is characterised by wide well vegetated dunes. Along their northern section the toe shows signs of previous erosion and cliffing along a considerable length, although no recent activity was apparent. Further south the dunes appear more stable with the occasional slumps as noted by the previous inspection not observed. Towards the south of the dunes a cobble toe berm previously noted continues to afford protection to the backing dunes.



in the dunes at The Rockers.



Evidence of previous erosion and cliffing Dunes further south appearing more stable.

The North Blyth frontage is protected entirely by man-made defences. At the northern end, these comprise a substantial rock revetment with rock-filled gabions along the crest. Despite some displaced stones along the toe and areas of slight settlement of the profile this structure remains in fair condition. At the north end of this revetment there has been cut-back erosion in the soft cliffs with efforts made to reduce this by tipping smaller rock armour. However, this has simply deflected the problem area further north.



Some displacement of rocks at the toe of the revetment at North Blyth.



Erosion and outflanking at the north end and placement of smaller armour rocks.

To the south the revetment changes to a composite structure with large rock armourstone at the base separated from the smaller upper armourstone by steel breastwork. This breastwork is largely in a poor condition with extensive corrosion and numerous failed members. Some erosion and slumps area apparent in the cliffs behind the revetment crest with building rubble tipped down the cliff in an attempt to protect these sections.



Corrosion and failed sections of steel breastwork at toe of revetment.



Erosion and slumps in upper earth slops and some tipped building rubble.

Fronting the Alcan facility is another composite structure comprising timber breastwork with an upper sloped backing tipped rubble. This sits on a concrete apron with rock armour at the toe. The structure is in a poor condition with considerable damaged to timber breastwork including broken vertical timber boards and rotten horizontal wailings. There is significant erosion to the upper slopes exposing the timber tie-backs, with further building rubble tipped in an attempt to control this. Whereas no movement or undermining was observed there is a risk that without further maintenance the breastwork may fail resulting in partial collapse of the access roadway above. An obsolete outfall structure was noted on the foreshore.



Broken and missing timber boards and rotten wailing beam to breastwork



Erosion of slopes behind timber breastwork and exposure of tie-backs.

To the south of the timber breastwork a large concrete seawall extends to Blyth East Pier. This structure is generally in fair condition with no visible evidence of undermining or movement. Along the seaward face there is noticeable abrasion at the toe apron, vertical cracks, gaps in vertical joints between some adjacent section units and occasional horizontal cracks. However, of more concern is the significant but localised damage to the crest wall with failure of one section of wall due to horizontal cracking and movement. Continuous horizontal cracking and a large area of spalling is also evident in the adjacent four sections. There are also numerous defects in the deck with the previous inspection noting evidence of overtopping during high water. The damage to this section of wall was noted in the 2010 report and it remains in urgent need of repair.



Abrasion of toe, vertical cracks and gaps Significant horizontal cracking, spalling in joints at the East Pier seawall.



of crest wall and defects in the deck.

Access to the northern section of Blyth East Pier was possible at the time of the inspection since maintenance work to one of the wind turbines was being undertaken by Sinclair Knight Merz. However, access to the southern 2/3^{rds} of the structure adjacent to the derelict stub pier was limited by a locked gate and removed section of decking. The section of the structure inspected was generally in fair condition with no noticeable signs of undermining at the toe or movement in the sub structure or superstructure. However, significant corrosion is occurring to the majority of the trestle legs with concrete spalling and staining was apparent. The timber decking is worn with the onset of rot around fixings of some boards and a number of boards missing. The timber edge beam is missing in one location causing collapse of one section of hand railing.



Corrosion and spalling to most of the trestle legs along Blyth East Pier.



Missing sections of timber decking and rot at some fixings.



Timber edge beam missing causing collapse of a section of hand railing.



Gate and missing section of timber walkway preventing access to seaward 2/3^{rds} of structure.

3.22 Blyth Harbour River Mouth (MU 22)

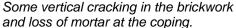
No NFCDD coastal defence assets are located within Blyth Harbour estuary frontage.

3.23 Blyth Harbour to Seaton Sluice (MU 23)

This management unit is approximately 5.5km in length and extends from the West Pier of Blyth Harbour in the north to Seaton Sluice in the south. This frontage includes 21 coastal defence assets, comprising a mix of vegetated dunes and manmade defences and harbour at Seaton Sluice.

The northern section of Blyth South Beach comprises a wide sandy beach backed by dunes. At the rear of the dunes is a masonry boundary wall to the Royal Northumberland Yacht Club and Port of Blyth. The beach levels in the spending beach between the West Pier and the South Pier remain healthy with the strand line 10-20m from the toe of the dunes. The dunes are well vegetated and stable with some embryo dune formation evident along the toe. The masonry boundary wall is generally in fair condition with some vertical cracking in the brickwork and occasional loss of mortar at joints in the concrete coping. A slightly seaward rotation in the wall was noted at the south end. Although no recent signs of movement were apparent, this should be monitored for further change.







Evidence of some seaward rotation of the wall at the south end.

Further south the boundary wall changes to a concrete post and plank construction. The dunes remain wide and well vegetated for the majority of their length, narrowing at the far south end. This wall is generally in fair condition although a noticeable seaward rotation along a 20-30m section at the north end was noted. Along the rest of the wall there are occasional cracked and missing concrete planks with some planks having been replaced. Further south towards the outfalls that cross the foreshore, the dune width narrows considerably and the seaward face of the dunes is cliffing through erosion. As noted in the 2010 report, this section of dunes needs careful consideration by the Port of Blyth as there is a risk of breaching through to haulage road to the port.



Some rotation of concrete post and plank wall at back of dunes.



Some broken and missing planks along wall at back of dunes.

Along the southern-most section of the port boundary wall, the dunes are protected along the seaward face and toe by cobble-filled gabions. These continue to deteriorate and as observed in 2010 at both ends of this length, the gabions have broken and spilled cobbles onto the foreshore. Replacement of broken gabions is still required to be undertaken, potentially in conjunction with consideration of management options for the undefended dunes further north, as described above.



Deterioration of gabions at toe of dunes at north end of Blyth South Beach.



Deterioration of gabions along the toe of the dunes.

South of the gabions at Blyth South Beach is a short section of sea wall that protects backing properties. Beach levels at this frontage are known to vary and were reported to be relatively high in 2008 and low during the previous inspection in 2010. Levels appear to have continued to lower further exposing the exposing the toe of the wall. The wall is generally in fair condition although the onset of undermining of the toe apron is a cause for concern. Some gaps at construction joints were noted and will require re-sealing. At the southern end concrete slurry and tipped concrete rubble noted in 2010 and thought to provide protection from undermining is still evident.



Low beach levels causing undermining at toe of seawall north of access ramp.



Concrete slurry and rubble along south end of seawall.

South of the boat ramp, the short section of sea wall is mostly buried by vegetated sand dunes. These dunes continue to appear stable, as recorded in 2010, whereas in 2008 they were reported to be eroding. The wall itself remains generally in good condition in the visible areas, although minor cracks should be filled through routine maintenance. A new outfall through the wall was constructed in 2009/10 which has caused some scour to the edge of the dunes.



Minor cracks to in the seawall to the south of the access ramp.



Localised erosion to the dune edge from the outfall constructed in 2009/10.

South of the dune section the seawall is in a slightly worse condition with numerous cracks and notable abrasion and staining at its northern end which could usefully be addressed through maintenance. Some cracks have previously been filled, but these remain in need of further attention. At the northern end, the access steps remain horizontally cracked although higher beach levels mean the toe is no longer undermined. The thin veneer of cobbles along the northern section noted in the previous inspection in 2010 were not observed.



High beach levels burying the bottom of the steps south of the dunes.



Cracks and staining in the seawall adjacent to the Dave Stephens Centre.

The main promenade and backing amenity area towards the north of Blyth South Beach underwent notable regeneration in 2009/10 with new promenade decking and the construction of the Dave Stephens Centre, a micro wind turbine, a large children's play area and several beach huts. The sea wall fronting the promenade continued to be largely buried by high beach levels at the time of the inspections. The visible parts were largely in good condition with some minor cracks and gaps at construction joints as well as a few areas of abrasion leading to exposed and corroded reinforcement bars.



Areas of abrasion and exposed rebar to the seawall at Links Road.



High beach levels, minor cracks and gaps at construction joints.

At the southern end of the sea wall, the sheet piles protecting the return section of seawall remain in a fair condition with no signs of movement. The majority of the structure is buried by high beach levels so could not be inspected. Corrosion of piles and tie-back plates is resulting in a noticeable loss of thinness. The concrete capping beam is in good condition.



High beach levels in front of sheet pile return wall.



Corrosion of steel piles resulting in noticeable loss of thickness.

The three timber groynes remain in poor condition, with missing timber planks, arson damage and many sizeable gaps. Beach levels are relatively low in the lower and middle beach with some accumulation in the upper beach along the toe of the dunes. However, since there is little noticeable different in the beach level either side of these structures they appear to be relatively ineffective.



Gaps between groyne planks and low Arson damage beach levels in the lower/ middle beach. of the seawall.



Arson damage to the first groyne south of the seawall

At Meggie's Burn outlet there was a noticeable flow of water due to the recent heavy rains/ floods. The alignment of the channel away from the north edge of the dunes noted in 2008 towards the south edge of the dunes noted in 2010 continued. However, due to the recent high flows significant erosion and cliffing of these high dunes was apparent. Further south beach levels at the toe of the dunes and in the areas in central South Beach continued to be relatively high with some new vegetation growth along the toe. As noted by the previous inspection, this may be due to natural recovery following storm damage over the winter of 2009/2010 or may have been assisted by replenishment with sand recycled from the spending beach in the same year. It was previous noted that sand-filled geotextile bags have been used to stabilise the dune toe at the two most vulnerable sections of the central frontage however these were not observable due to high foreshore levels. Christmas trees placed in barren areas to encourage sand trapping and dune build up continue to be reasonably effective, although little new dune vegetation growth was evident. The southern section of South Beach remains highly stable and there has been notable pioneer vegetation growth on the lower dunes.



outlet.



Erosion of dunes south of Meggie's Burn New vegetation growth at toe of dunes at central South Beach.

The low masonry wall immediately north of Seaton Sluice harbour is almost completely buried by high beach levels with vegetation established over the centre section of the wall. The exposed sections of the wall still appeared in good condition as noted by the previous inspection in 2010.



High beach levels and vegetation burying masonry wall north of harbour.



High beach levels and vegetation burying masonry wall north of harbour.

The timber groyne at the mouth of Seaton Burn is in poor condition showing signs of timber damage and missing planks. The arson damage at the upper section reported in the previous inspection in 2010 remains. The land area behind the groyne requires some attention where the denudation of fill material is undermining the concrete deck of the short harbour arm.



Missing planks and damage to timber groyne at mouth of Seaton Burn.



Undermining of concrete deck at harbour arm.

The outer western bank of the Seaton Sluice harbour has a short masonry harbour arm which is in fair condition although the concrete deck is in danger of being undermined from behind the timber groyne at the southern end of South Beach. The adjacent length of masonry wall continues to have sand accumulation on the crest, making access difficult and potentially dangerous. The condition of the wall is largely

unchanged since the previous inspection although the gaps between blocks identified at the north end of the wall appear to have been filled.



Masonry wall on the west bank of Seaton Burn in good condition.



Repairs undertaken to gaps between blocks in masonry wall.

The boat ramp at the inner north bank of the harbour is in poor condition with missing blocks and rotation of the side wall apparent. There are also large gaps at the top of bottom of the ramp suggesting that some settlement may be occurring which should be monitored.



Some missing blocks and rotation of outer wall of slipway.



Full width cracks at top and bottom of slipway ramp.

The masonry quaywall along the inner north bank of the harbour is generally in fair condition although some slight bulging of the wall is apparent. There are some small gaps between blocks and localised holes in the fill behind the crest at the west end suggesting that some retain material might be being lost through the wall. The void in the steps identified during the previous inspection has not been repaired.



along the inner north bank.



Some small gaps between blocks in wall Void in steps in wall along the inner north bank adjacent to road bridge.

Along the south bank of Seaton Sluice harbour the west end of the masonry quay wall is generally in fair condition with no significant gaps between block or movement apparent. At the east end of the concrete top section of the wall is highly abraded through regular use by fishing vessel and there are a number of large gaps and some missing blocks along the bottom of the wall.



Crest of quaywall along south bank highly abraded at the east end.



Large gaps and some missing block in lower section of masonry quaywall.

The masonry quaywall along the east bank of Seaton Sluice Harbour is generally in fair condition, although some local areas of abrasion, some settlement, missing mortar and gaps between adjacent blocks noted in the previous inspection continue to be apparent. These should be repaired through routine maintenance.



Missing mortar and gaps between blocks along eastern harbour quaywall.



Settlement, abrasion and missing mortar in masonry quaywall.

The deep man-made cutting separating Rocky Island from the main land provides a secondary channel to Seaton Sluice Harbour. This channel has high vertical rock faces topped with masonry walls retaining the overlying soft material. These walls are generally in a fair/ poor condition although frequent gap and missing blocks are apparent, most notably in the area of the foot bridge. At the east end of the channel the wall is partially collapsed with further full heights cracks in the wall suggesting that further collapse is likely.



Gaps and missing blocks in the masonry Partially collapsed sections and further wall along the man-made channel.



ongoing cracks at east end of wall.

At the western end of Rocky Island is a large concrete pier build in 1895. A shallow grouted stone revetment extends along the inside face. This revetment and pier remains generally in a good condition with no signs of movement and only minor cracking and loss of joint sealant. Undermining of the toe at the seaward end identified in 2010 has not worsened. The hand railing and ladder are in good condition.



Grouted stone revetment in lee of pier in Undermining of toe at seaward end of good condition.



pier has not worsened since 2010.

Extending eastwards from the pier, along the northern side of Rocky Island, is a length of masonry sea wall fronted by a rocky platform. There are some areas of block abrasion, missing mortar and some larger gaps between blocks. There is one area near previous repairs where there are two cracks at the crest which should be filled. Where this wall joins the pier, there is some missing coping which has been repaired with mortar. The main issue with this section is landward of the wall, where the poured concrete slurry at the rear of the ramped pavement is breaking up and soil erosion of the land is continuing. This was noted in the 2010 inspection and remains a concern as the area is quite widely used for public access to the pier



Cracks in upper section of masonry seawall on Rocky Island.



Gaps and some larger holes between blocks in masonry seawall.

The remainder of the northern face of Rocky Island is undefended hard rock cliff mantled with softer material. There has been no noticeable change since the previous survey with fractures to the hard rock structure, occasional rock overhangs, local rock falls and two places where caves have formed at the base of the cliffs. One cave is close to an area where a previous slump in the softer material has caused concern about the sustainability of the footpath and watch house, but this area does not seem to be further active than at the time of that slump.



Occasional overhangs and local rock falls on the north edge of Rocky Island.



Slumps in the upper soft material cutting back to the footpath.

3.24 Seaton Sluice to Hartley (MU 24)

This management unit extends from Seaton Sluice Harbour in the north to the border of North Tyneside south of Hartley. The Northumberland portion of this unit is approximately 1.5km in length and includes 10 coastal defence assets, comprising a mix of medium/ high cliffs and man-made seawalls.

Extending south from the channel separating Rocky Island from the mainland, the undefended cliffs continue to appear less fractured than those along Rocky Island and, other than occasional local rock falls, appear relatively stable.

Collywell Bay comprises several sections of different sea wall. In the north, the near vertical concrete wall is generally in good condition with some minor cracks and staining more significant spalling along the upper protruding section. There have been slips in the soft cliffs above the wall resulting in seepage and material falling onto the foreshore. The concrete toe is heavily abraded and the timber wailing missing and the flaps to most weep holes appear to be missing.



Spalling of concrete along upper section of seawall at north end of Collywell Bay.



Slips in soft cliffs above seawall and material falling onto foreshore.

To the south the adjacent section of wall is of similar construction but includes a sloping brickwork revetment supporting the upper part of the cliff. The concrete section of the wall is in generally good condition despite loss of mortar beneath the coping along most of the wall and noticeable abrasion along the base above the stepped toe. At the centre of the upper masonry wall there is a full height gap between the bricks running the full height of the wall.



Loss of mortar beneath the coping along Full height gaps in the brickwork in the most of the wall.



upper wall.

The wall further south continues to have abrasion and exposed rotting timber at the toe of the stepped apron but remains in good overall structural condition. The toe should continue to be monitored for any signs of undermining that could lead to failure. As with the seawall to the north, all weep holes are missing their flaps along with staining and calcium deposits blocking the most southerly weep hole.



Abrasion, rotting timber wailing and undercutting at toe of seawall.



Missing flap valves and calcium deposits blocking southerly weep hole.

To the immediate south of this wall, there a short brickwork wall and concrete end section supporting the access ramp. The brick section of wall is generally in a fair condition although there are several missing bricks along the base. The concrete section has a large horizontal crack along the base and appears to have rotated seaward slightly. The toe of the ramp is abraded.



Missing bricks along toe of wall supporting access ramp.



Large horizontal crack along base of concrete section of wall.

The high vertical concrete sea wall at the centre of Collywell Bay is generally in fair condition, but requires maintenance work to fill three notable vertical cracks. The apron at the toe is highly abraded and in places cracked horizontally. The access steps from the foreshore and at the south end of the structure are also highly abraded. Above the structure fencing along the access path appear to have moved suggesting that there may be slippage in the steep vegetated slopes.



Notable vertical crack in high seawall at centre of the bay.



Significant abrasion at the toe and horizontal cracks.



Significant abrasion of access steps from foreshore.



Movement in fencing along the access path above the high seawall.

The concrete seawall at the southern end of Collywell Bay is generally in good condition with high beach levels at the south end. Towards the north end where beach levels drop the stepped toe becomes more abraded. The minor abrasion and some minor gaps at construction joints identified during the previous inspection were still apparent but had not worsened. Above the wall the vegetated earth slopes are active along most of the length of the wall with slips observed and one area where a significant amount of material has been deposited on the foreshore. The escape ladder at the centre of the wall is corroded and the lower section missing.



Slips in upper earth slopes and material on the foreshore at the south end of the bay.



Escape ladder corroded and lower section missing.

At the south end of Collywell Bay gabions protect the toe of the coastal slope above the beach access ramp. These gabions remain generally in a fair condition although in places some gabions have split and others are showing signs of bulging and rotation. The access ramp itself has some undermining where it joins the rocky shore platform although this has not worsened since the previous survey in 2010. There is also undermining and outflanking where the ramp joins the undefended cliffs at its other end.





Gabion baskets at the bottom of the access ramp have split.

Undermining of concrete access ramp.

The coastal slope adjacent to the ramp has experienced occasional small-scale slumps identified by the previous inspection. However, this does not appear to have worsened and does not present any concerns at present.

The harder rock cliffs extending from Crag Point to the southern boundary of Northumberland County Council part-way along Hartley Cove have some fracturing to the rock structure. As a result of this fracturing, several rock falls have occurred leaving numerous overhangs. In places caves have formed at the base of the cliffs. A wide crack was also noticed a few meters from the cliff edge close to the fence line although this does not appear to be recent. The footpath runs very close to the cliff edge in this area and so may need realignment if slips/ rock falls continue.



Several rock falls evident in high rock cliffs at Craig Point.



Several rock falls evident in high rock cliffs at Craig Point.

4 Comparison with Previous Assessments

The previous formal assessment across the whole study frontage was undertaken in summer 2010. Since that time the following changes are noted. Many other defects reported in 2010 remain unaddressed, but have not notably deteriorated further since the previous inspections.

4.1 Man-made assets

Improvement works

Capital and maintenance work have been undertake to the following man-made assets:

- Repair to voids in Berwick-on-Tweed Pier,
- · Extension of revetment at Berwick quaywalls,
- Patch repairs to gabions south of Tweed Docks,
- Rock armour and infilling of voids at North Sunderland Harbour,
- Overtopping repairs and resurfacing to seawall at Beadnell,
- Dredging of navigation channel at Beadnell Harbour,
- Repairs to failed section of Broom Hill quay at Warkworth Harbour (ongoing),
- · Grading of earth cliff north of Snab Point,
- Replacement of timber access steps south of Snab Point.
- Patch repairs to Cresswell Seawall,
- Beach management and recycling in Newbiggin Bay
- Mortar repairs at Seaton Sluice Harbour,

Ongoing Deterioration

There is general ongoing deterioration of many of the man-made assets along the coastline including widespread undermining and outflanking of coastal structures. The following deterioration is noteworthy:

- Damaged to the crest of Green Haven's Breakwater;
- Outflanking collapse of south end of Pier Road seawall at Berwick-on-Tweed;
- Burst gabions protecting embankment south of Tweed Docks;
- Cracks/ gaps between blocks at the small dock at Berwick-on-Tweed Quay:
- Loss of toe rocks at Spittal Quay, partial collapse of blockwork wall at Warren Mill;
- Undermining of the harbour pier wall on Holy Island;
- Cracks in the crest wall and voids in the Main Pier at North Sunderland Harbour;
- Undermining of the toe of Nackers Hole seawall at Beadnell;
- Voids under the breakwater and quaywall at Beadnell Harbour;
- Full height cracks and voids at the toe of the harbour arms at Craster:
- Settlement of the seawall at Alnmouth river bridge and voids in the footpath;
- Voids behind Church Hill seawall at Alnmouth;
- Rotation of the tip of the North Pier at Amble;
- Undermining of toe of Church Point seawall at Newbiggin;
- Failed section of crest wall at seawall at the Alcan Facility at North Blyth;
- Spalling of trestle legs and missing decking/ handrail along Blyth East Pier;
- Low beach levels exposing toe of seawall at Blyth South Beach;
- Gaps and missing boards in timber groynes at Blyth South Beach;
- Cracks in slipway and missing quaywall blocks at Seaton Sluice Harbour;
- Crack and abrasion to the high concrete seawall at centre of Collywall Bay.

4.2 Natural Assets

There is also general ongoing deterioration of the majority of the natural assets along the coastline including rockfalls, slumping and fracture of undefended cliffs. However, this erosion appears to have slowed and a general recovery and ongoing natural stabilisation of some sand dunes was apparent. The following areas of deterioration and recovery are noteworthy:

- Continued slumps in the soft vegetated cliffs at Greens Haven;
- A general recovery in beach levels at Sandstell Point and Spittal;
- Ongoing slumps in soft cliffs at the south end of Spittal seawall and Cocklawburn Beach;
- General stabilisation of dunes at Salt Pan and the Skerrs.
- Recovery and new dune growth at Cheswick Sands.
- Recovery of the small shingle beach on the south west of Holy Island, but recent erosion in several locations in the cobble berms and soft cliffs on the east coast of the island:
- Localised rock falls and erosion of soft cliffs at North Sunderland Point.
- Slips and cliffing of vegetated slopes between craster and Howick;
- Continued slumping and closure of the cliff top path south of Seaton Point;
- A recovery of beach levels fronting the carpark north of the River Aln estuary and some embryo dune growth;
- Erosion and undercutting of the river bank south of Alnmouth river bridge;
- Continued erosion of high dunes at Birling Carrs south of Alnmouth;
- Erosion and cliffing of low vegetated dunes at Amble Links;
- Noticeable erosion and recession of peat layer at Bondi Carrs;
- Slumping and cutback of dunes and soft earth slopes at north end of Druridge Bay threatening road.
- Lowering of beach levels fronting the seawall at Cresswell;
- Slumping of soft earth cliffs and rockfall north at Snab Point.
- Ongoing erosion of colliery spoil beaches and cliff lines at Lynemouth;
- Deterioration of soil netting along upper slopes at Newbiggin Point;
- High beach levels at Sandstell Point at Spittal, north of River Aln estuary,
- Erosion of soft earth cliffs at Links Quarry despite tipping of construction waste;
- Partial collapose of cliff and footpath closed at Footpath closed at Hawks Cliff near North Seaton;
- Slips in soft upper slopes above seawalls at north and south ends of Collywell Bay.

5 Problems Encountered & Uncertainty in Analysis

As with the previous inspection in 2010 no significant problems were encountered during the 2012 inspections. However, the following should be noted:

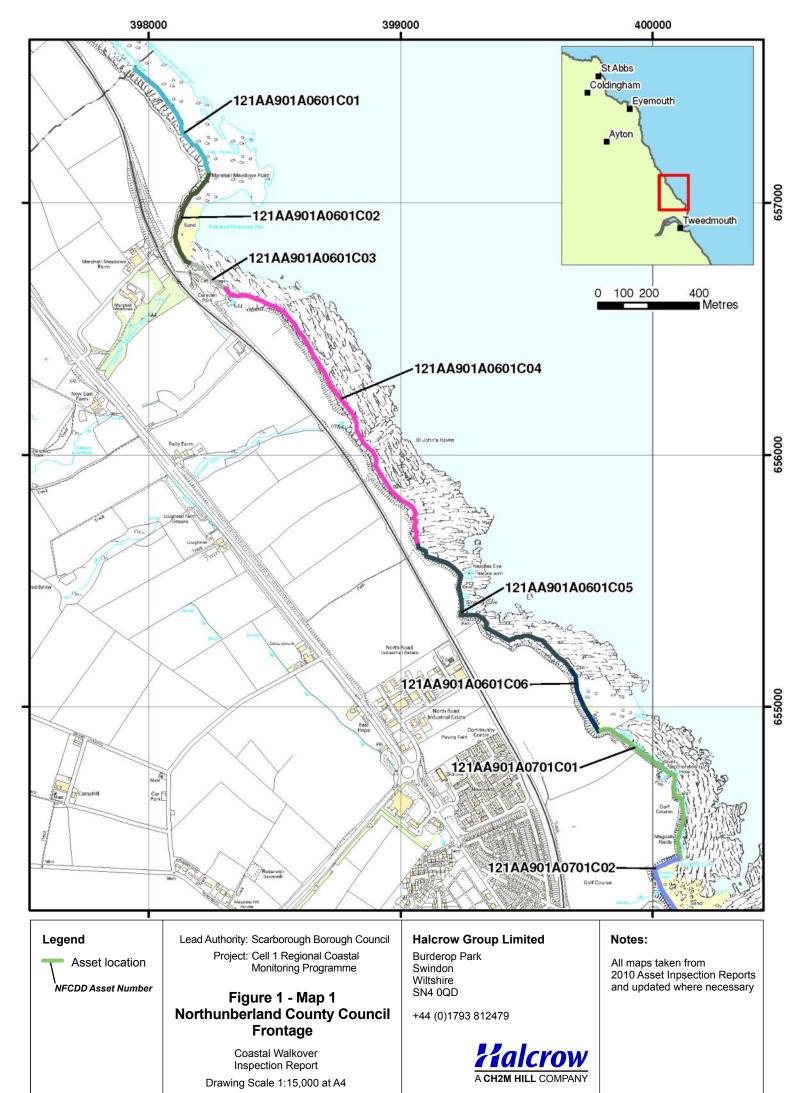
- Local tide tables were used to provide key information to plan inspection of tidal structures at low water, and where possible during spring tides, to ensure that as much of the structure as possible was visible for the inspection. Where structures fully dry out at low tide a full visual inspection was undertaken. However, where structures extend into deeper water and do not dry out at low tide no inspection was possible below the waterline. This was particularly notable at Berwick Pier and quaywalls, North Sunderland Harbour, Craster Harbour arms, Warkworth Harbour Pier and Quaywalls, Newbiggin breakwaters and Blyth East Pier. For these structures a vessel based or dive survey would be required, which was not within the scope of this inspection.
- The majority of assets could be access without problem and access to private property was not an issue. Access to Blyth East Pier is usually restricted by a locked gate and inspection was not possible during the previous inspection in 2010. However, at the time this inspection maintenance work was being undertaken on the wind turbines and access was possible along the northern 1/3 of the structure. From this point a further locked gate and removed section of trestle prevented further access. Inspection of this end of the structure would need to be undertaken by vessel.
- High beach levels in a number of locations resulted in some structures being partially buried and as such the buried portion of these structures could not be inspected. This was particular notable at Spittal seawall, South Pier and Bay View Road seawall at Amble, Newbiggin seawall and Blyth South Beach seawall.
- The surveys were undertaken at the end of a period of significant widespread storms and flooding across the northeast in September 2012. Whereas this didn't not significantly hinder inspection of the assets, other than affecting the quality of photographs, it should be noted that high river flows and storm water discharge may have resulted in an unrepresentative effect on the coastline.

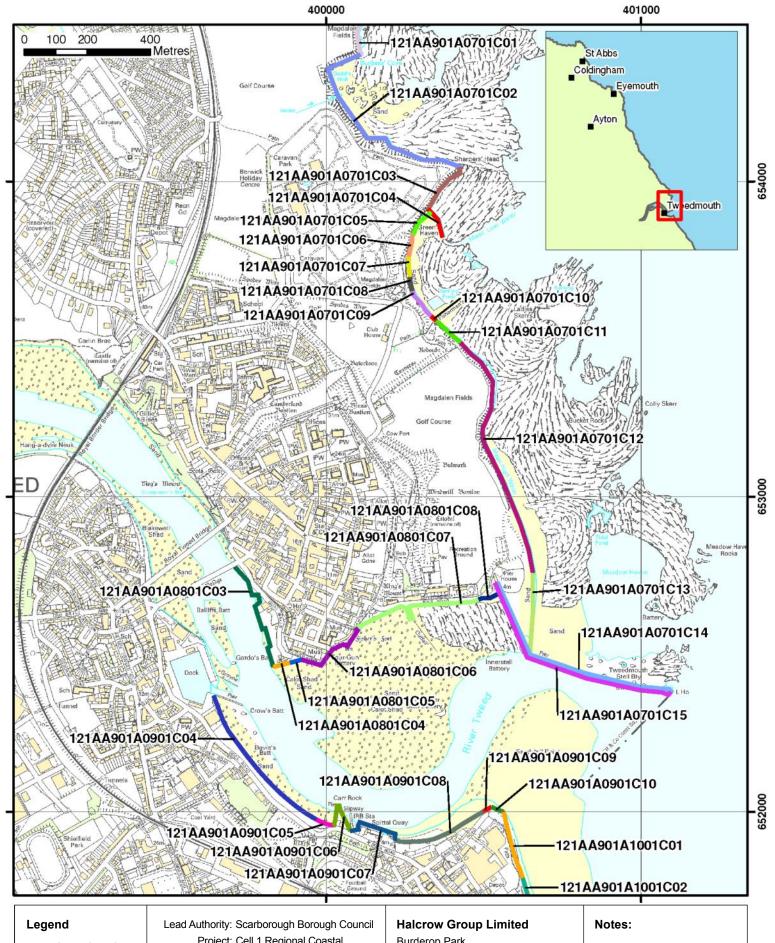
6 Conclusions & Recommended Actions

Further to the visual inspection of all NFCDD assets, specific conclusions and recommendations for individual assets are given in **Appendix B**.

In lieu of a decision for a suitable replacement a replacement for the NFCDD database, all condition assessment data and selected photographs have been uploaded to a SANDS (Shoreline And Nearshore Database System). This includes all data and photographs from the previous inspections since 2002 that were previously held on four separate MS Access Databases that had become obsolete. In order to facilitate easy comparison of new inspections to previous data for each asset a new asset data display form "Northumberland Sea Defence" has been created in SANDS.

Appendix A – Asset Maps





Asset location

NFCDD Asset Number

Project: Cell 1 Regional Coastal Monitoring Programme

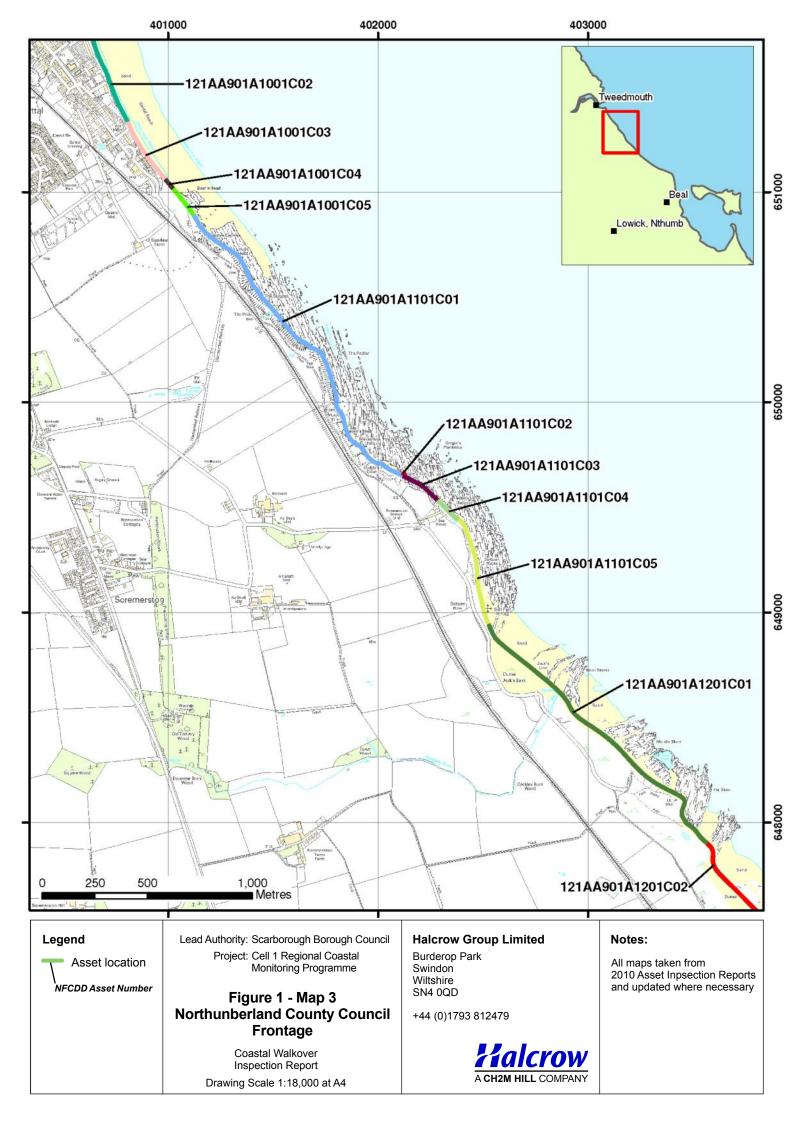
Figure 1 - Map 2 Northunberland County Council Frontage

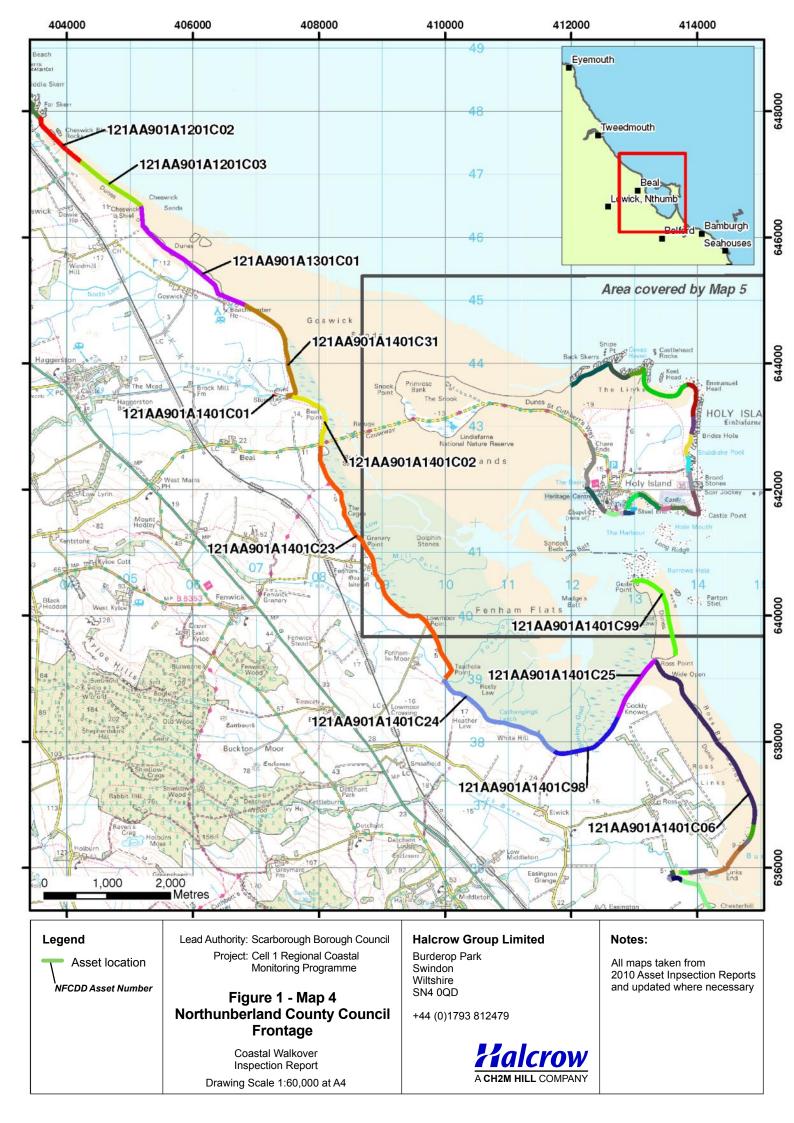
Coastal Walkover Inspection Report Drawing Scale 1:12,000 at A4 Burderop Park Swindon Wiltshire SN4 0QD

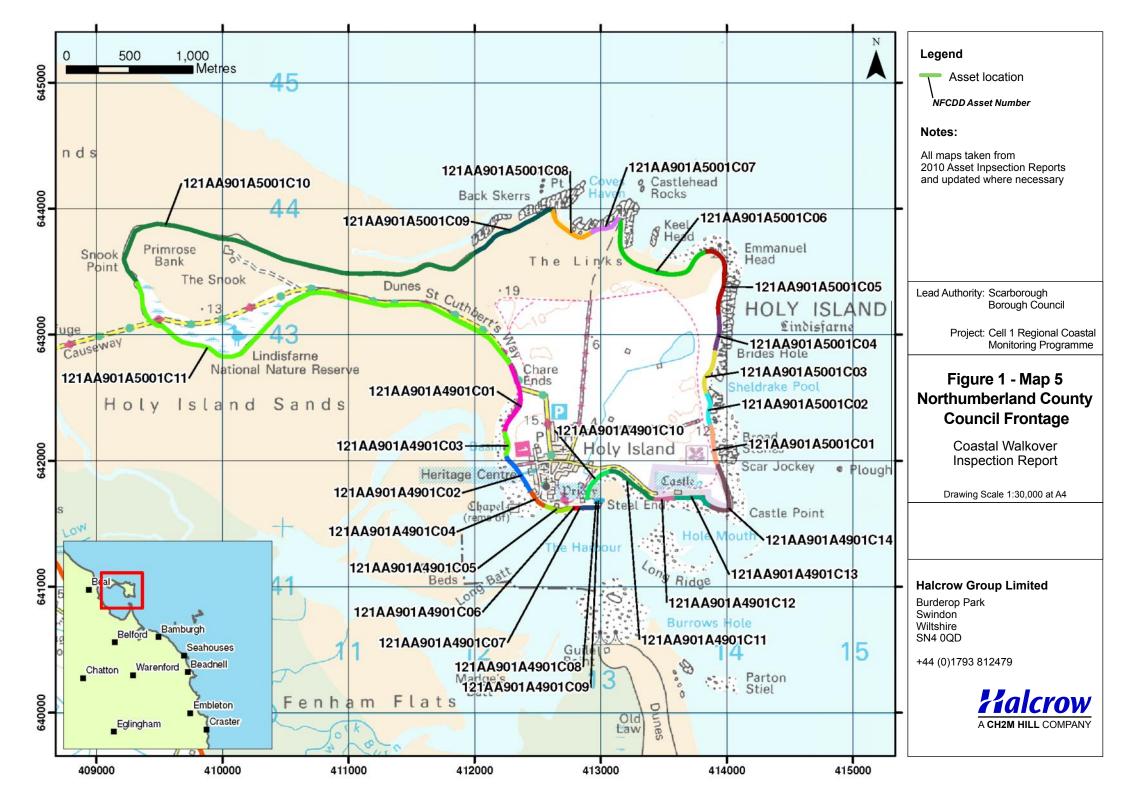
+44 (0)1793 812479

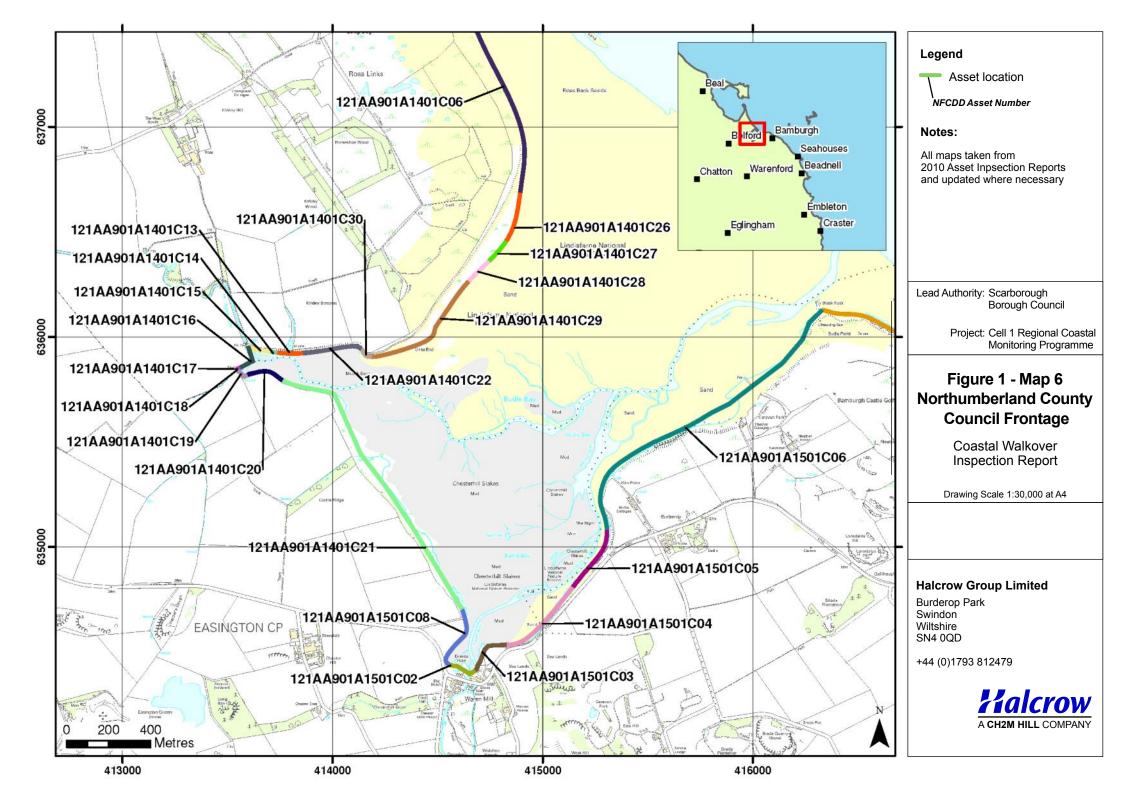


All maps taken from 2010 Asset Inpsection Reports and updated where necessary

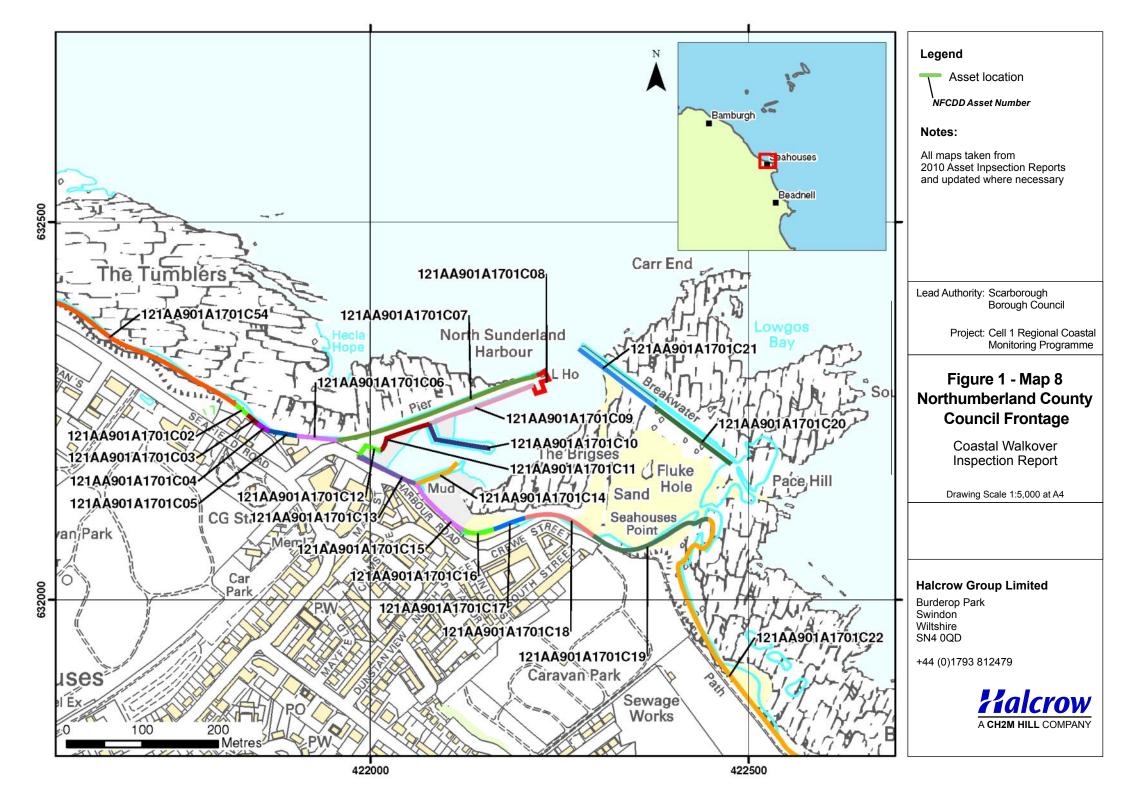


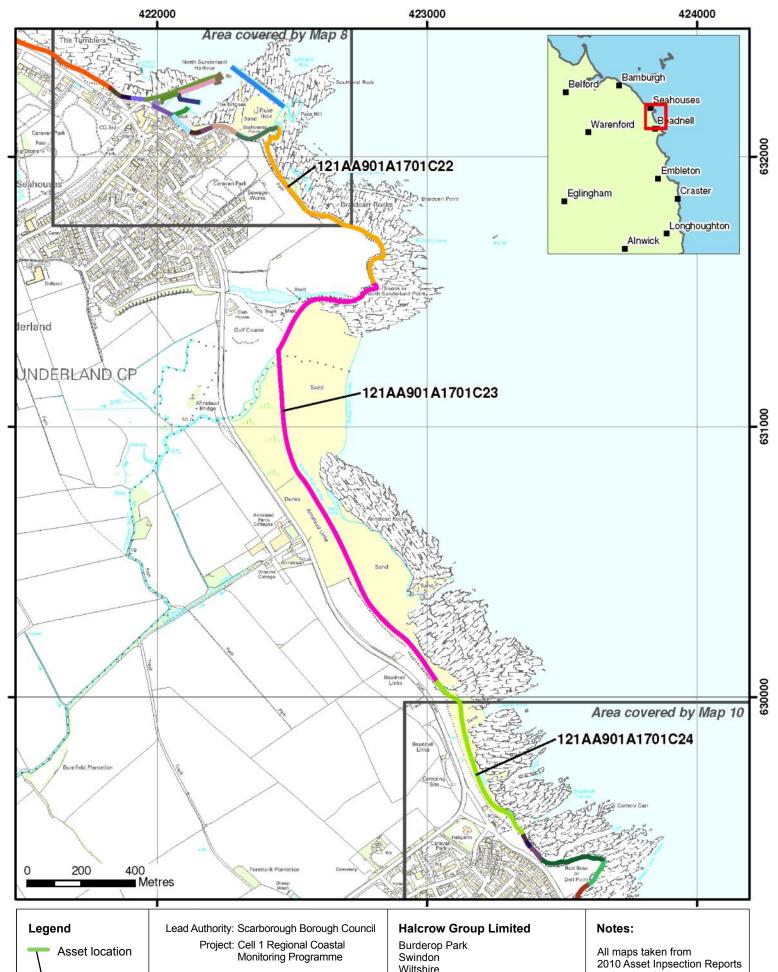












NFCDD Asset Number

Figure 1 - Map 9 **Northunberland County Council Frontage**

Coastal Walkover Inspection Report Drawing Scale 1:14,000 at A4 Wiltshire SN4 0QD

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and updated where necessary

Asset location NFCDD Asset Number Monitoring Programme

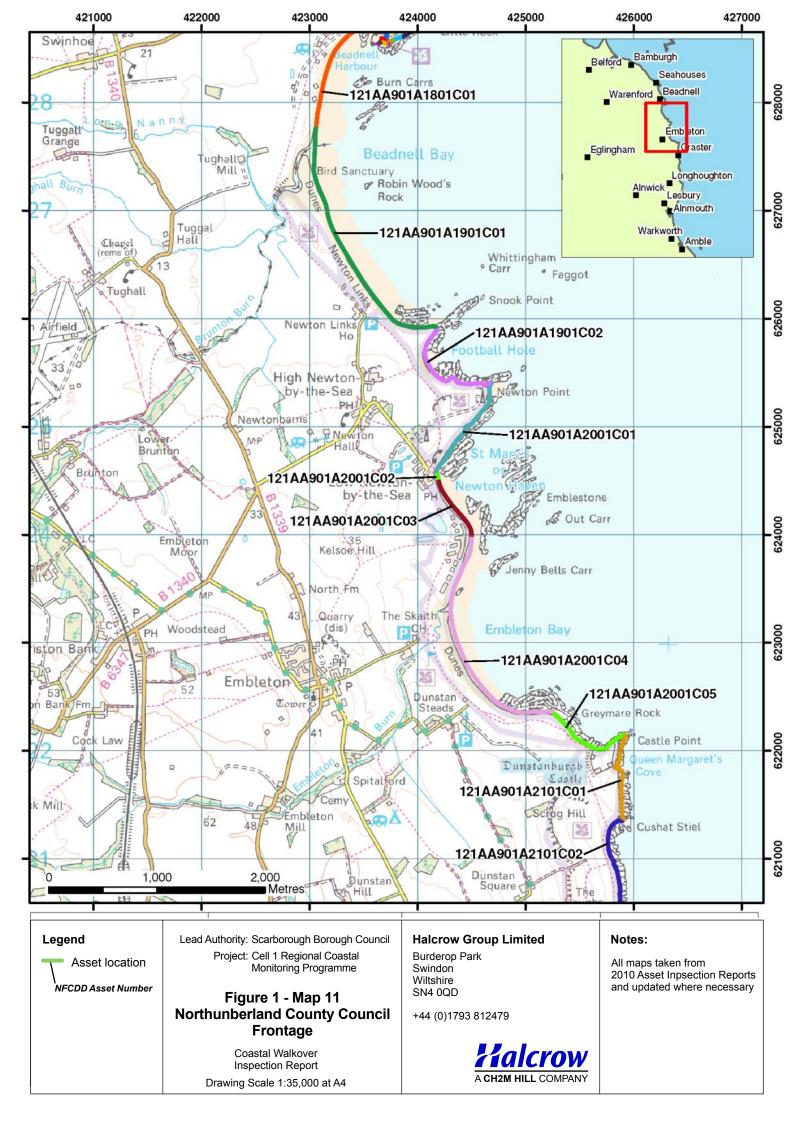
Figure 1 - Map 10 **Northunberland County Council Frontage**

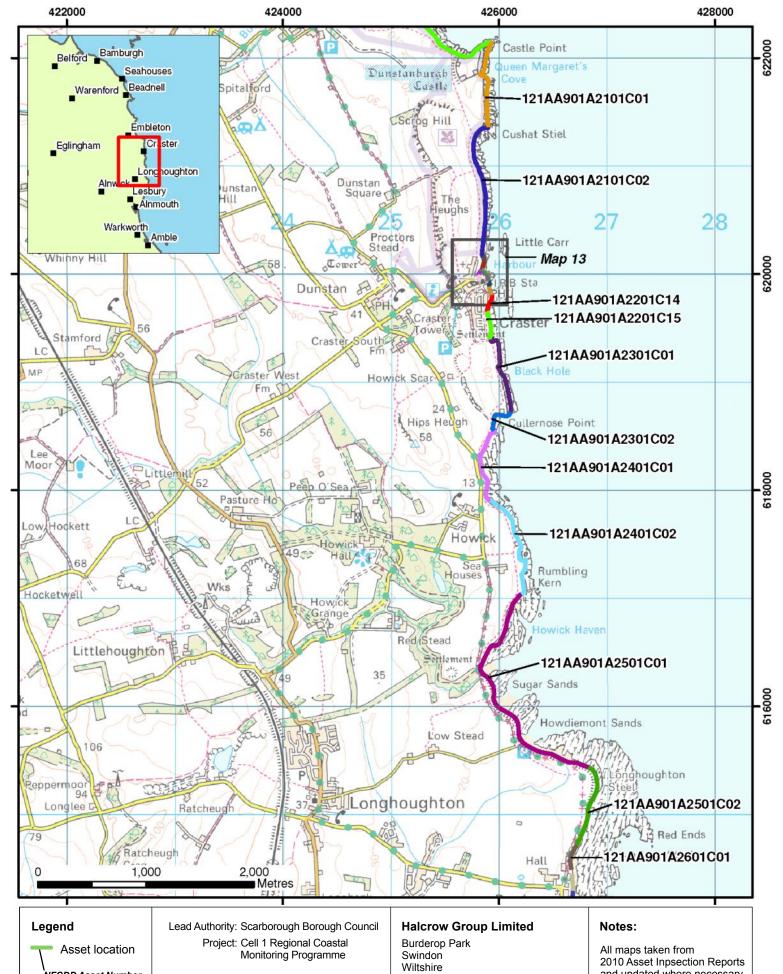
Coastal Walkover Inspection Report Drawing Scale 1:7,500 at A4 Burderop Park Swindon Wiltshire SN4 0QD

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All maps taken from 2010 Asset Inpsection Reports and updated where necessary





NFCDD Asset Number

Figure 1 - Map 12 **Northunberland County Council Frontage**

Coastal Walkover Inspection Report Drawing Scale 1:35,000 at A4 SN4 0QD

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and updated where necessary

Legend

Asset location

NFCDD Asset Number

Lead Authority: Scarborough Borough Council

Project: Cell 1 Regional Coastal Monitoring Programme

Figure 1 - Map 13 Northunberland County Council Frontage

Coastal Walkover Inspection Report Drawing Scale 1:35,000 at A4

Halcrow Group Limited

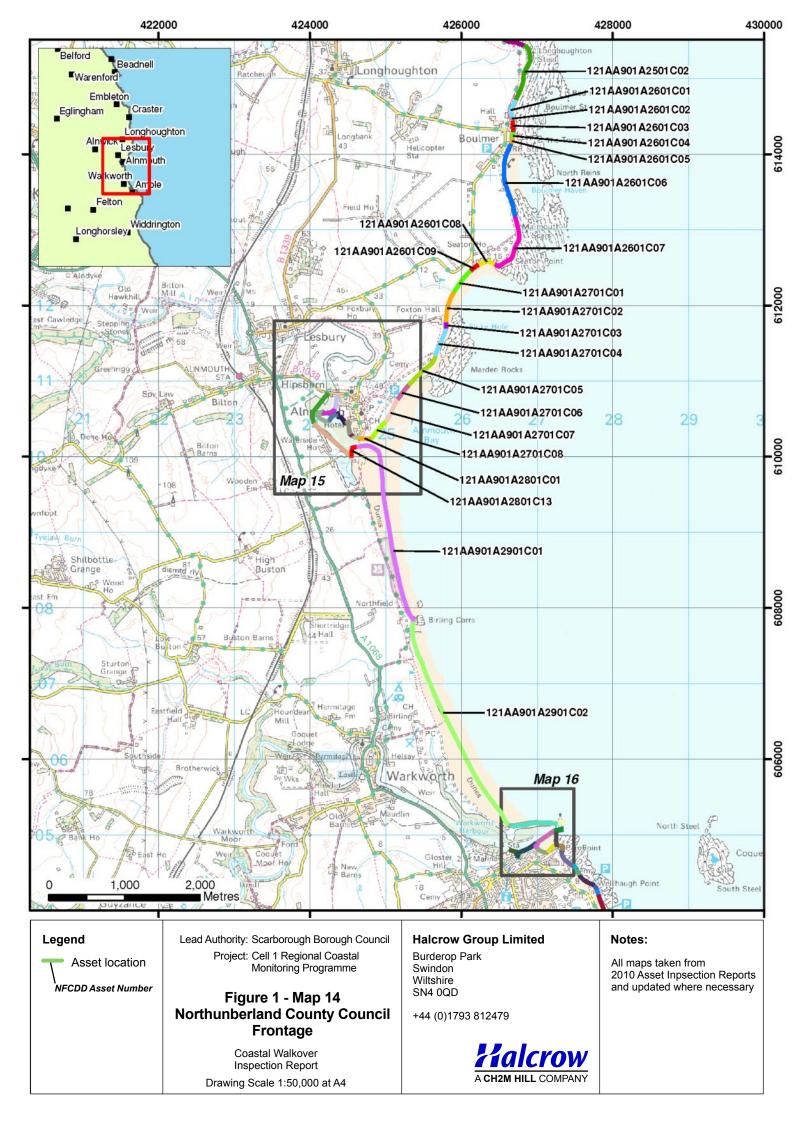
Burderop Park Swindon Wiltshire SN4 0QD

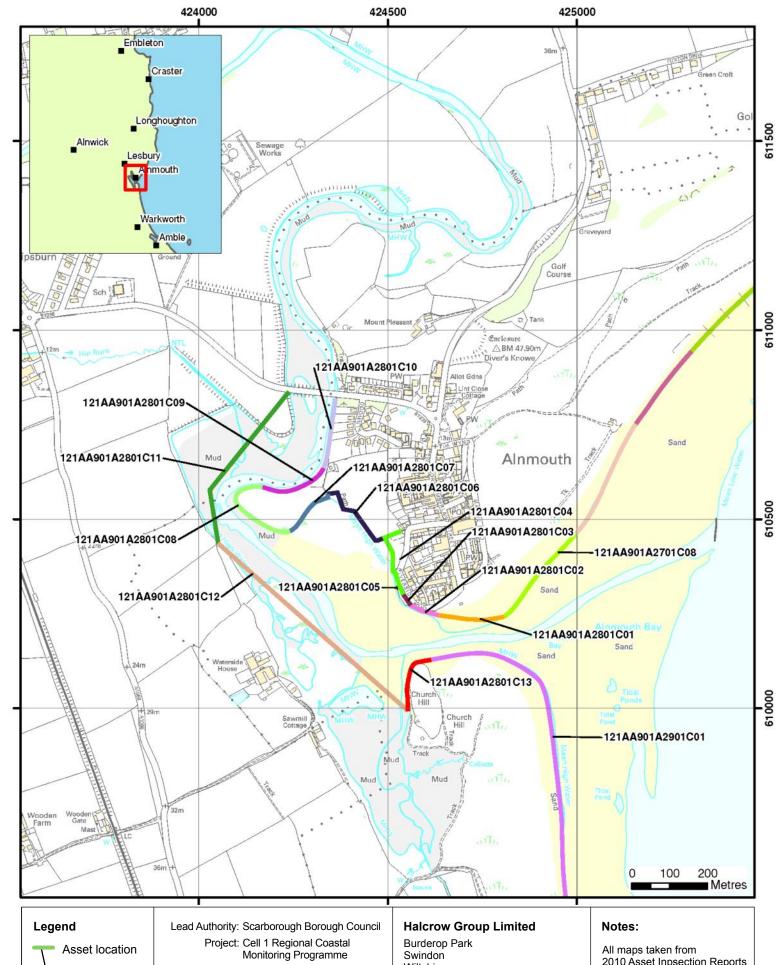
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Notes:

All maps taken from 2010 Asset Inpsection Reports and updated where necessary





NFCDD Asset Number

Figure 1 - Map 15 **Northunberland County Council Frontage**

Coastal Walkover Inspection Report Drawing Scale 1:50,000 at A4 Wiltshire SN4 0QD

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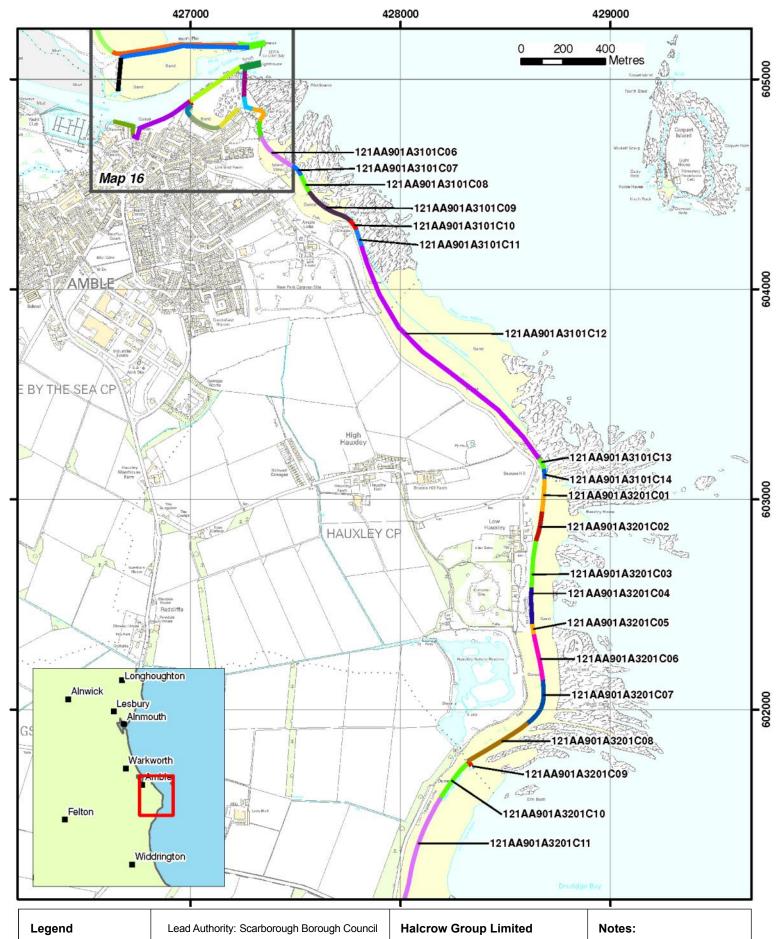


2010 Asset Inpsection Reports and updated where necessary

A CH2M HILL COMPANY

Coastal Walkover Inspection Report

Drawing Scale 1:5,000 at A4



Asset location NFCDD Asset Number Project: Cell 1 Regional Coastal Monitoring Programme

Figure 1 - Map 17 **Northunberland County Council Frontage**

Coastal Walkover Inspection Report Drawing Scale 1:18,000 at A4 Burderop Park Swindon Wiltshire SN4 0QD

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All maps taken from 2010 Asset Inpsection Reports and updated where necessary

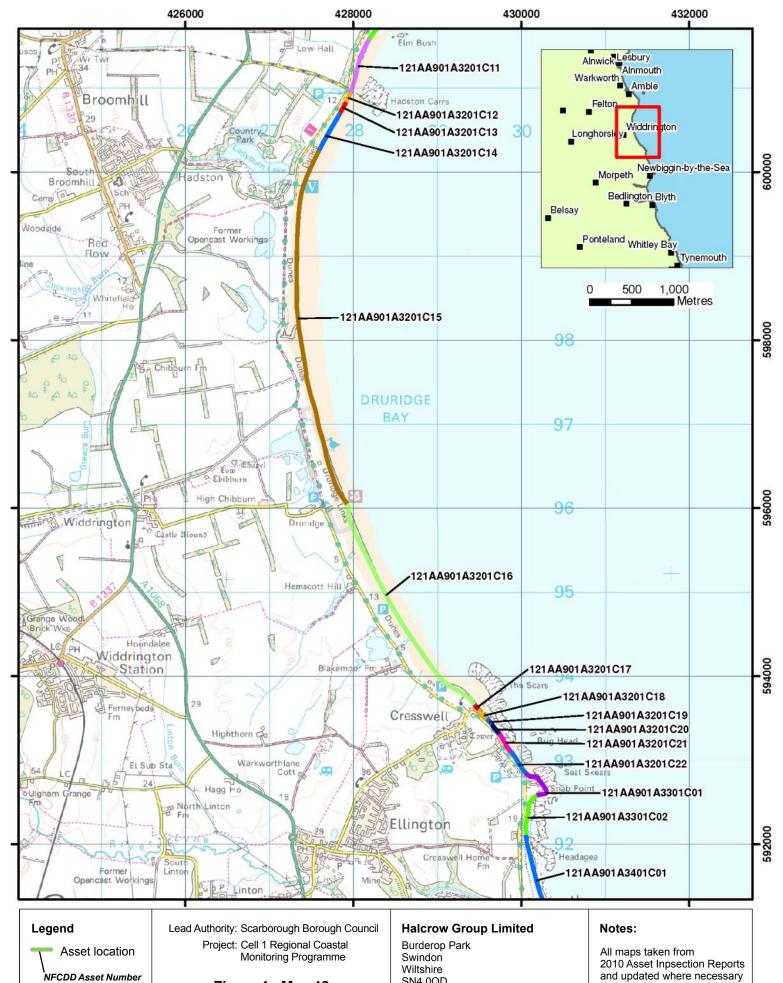
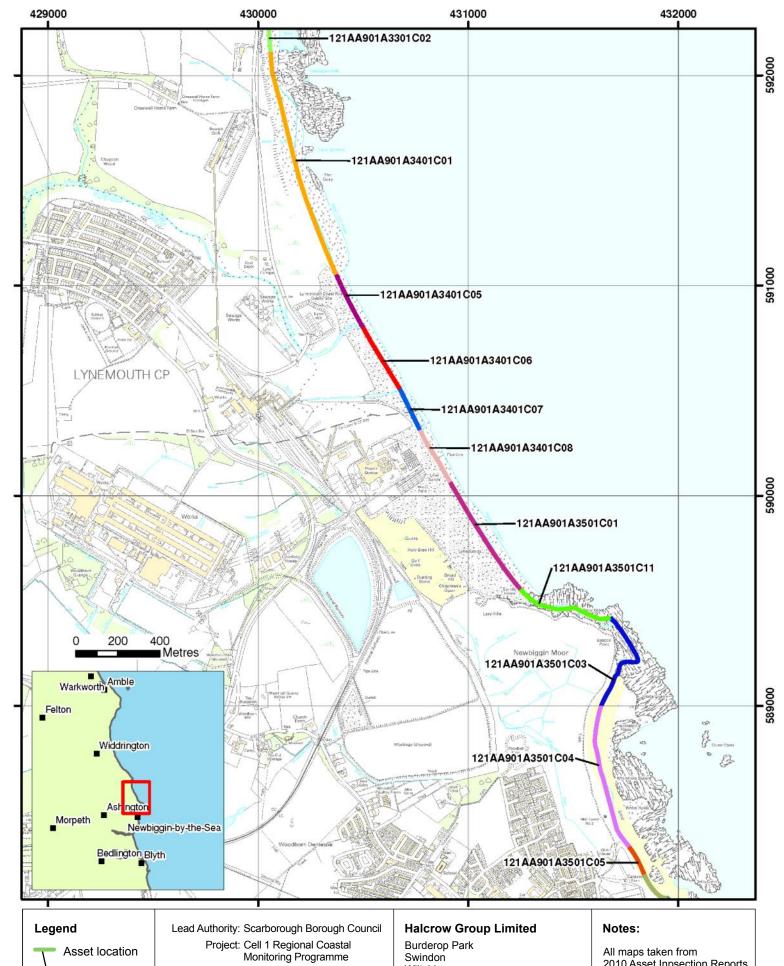


Figure 1 - Map 18 **Northunberland County Council Frontage**

Coastal Walkover Inspection Report Drawing Scale 1:45,000 at A4 SN4 0QD

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Asset location NFCDD Asset Number

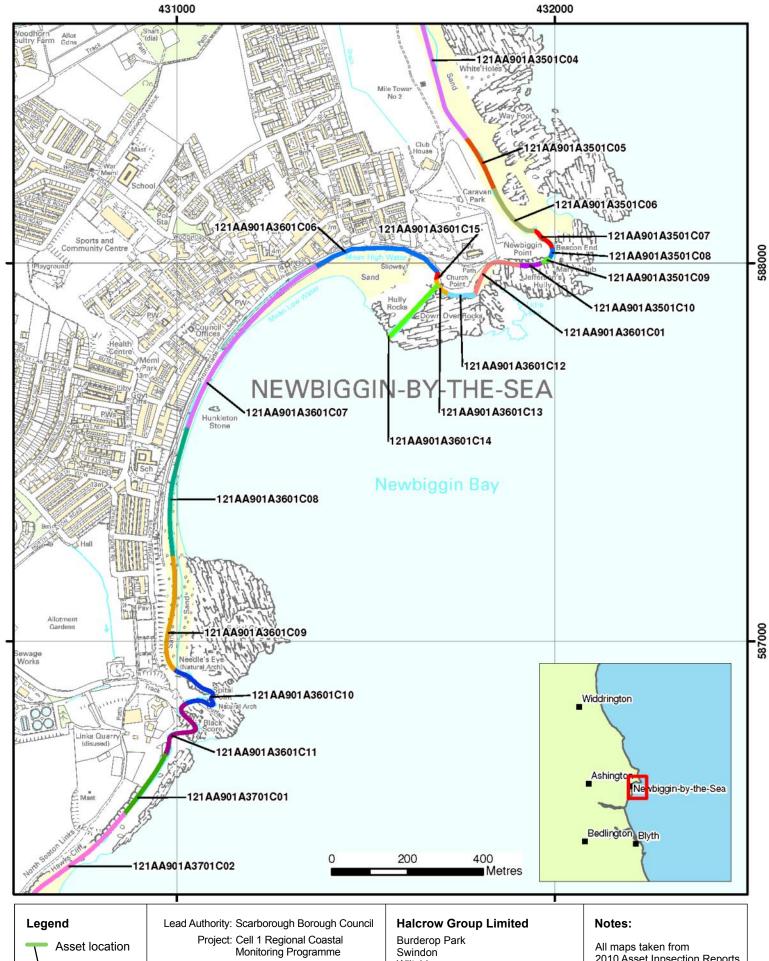
Figure 1 - Map 19 **Northunberland County Council Frontage**

Coastal Walkover Inspection Report Drawing Scale 1:18,000 at A4 Swindon Wiltshire SN4 0QD

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All maps taken from 2010 Asset Inpsection Reports and updated where necessary



NFCDD Asset Number

Figure 1 - Map 20 **Northunberland County Council Frontage**

Coastal Walkover Inspection Report Drawing Scale 1:18,000 at A4 Wiltshire SN4 0QD

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2010 Asset Inpsection Reports and updated where necessary



NFCDD Asset Number

Figure 1 - Map 21 **Northunberland County Council Frontage**

Coastal Walkover Inspection Report Drawing Scale 1:45,000 at A4 SN4 0QD

+44 (0)1793 812479



and updated where necessary

Asset location NFCDD Asset Number Lead Authority: Scarborough Borough Council

Project: Cell 1 Regional Coastal Monitoring Programme

Figure 1 - Map 22 **Northunberland County Council Frontage**

Coastal Walkover Inspection Report Drawing Scale 1:8,000 at A4

Halcrow Group Limited

Burderop Park Swindon Wiltshire SN4 0QD

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All maps taken from 2010 Asset Inpsection Reports and updated where necessary

Appendix B – Asset Condition & Recommendations

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 0601C01	Cliff	Slumped cliff to scree slope.	25/09/2012	Halcrow MS	No change evident from last survey. Relatively stable. Short sections of masonry wall along cliff edge close to collapsing over edge. Post and wire fencing along footpath in very good condition.	2	None.	no repairs	>20
121AA901A 0601C02	Cliff	Steep cliff within bay.	25/09/2012	Halcrow MS	No change evident since last survey, Local slumps in softer upper cliff have cut cliff top back close to footpath in small number of areas. Post and wire fencing along foot path in good condition.	3	None.	no repairs	>20
121AA901A 0601C03	Cliff	Slumped cliff with rocky foreshore.	25/09/2012	Halcrow MS	No change evident since last survey. Visible signs of rock fracturing in hard cliff in front of brick building. Future rockfalls anticipated. A number of static caravans very close to cliff edge.	3	Monitor cliff falls and alert caravan park as required.	no repairs	>20
121AA901A 0601C04	Cliff	Steep exposed cliff to rocky foreshore.	25/09/2012	Halcrow MS	No change evident since last survey. Stable cliffs protected by wide shore platform.	2	None.	no repairs	>20
121AA901A 0601C05	Cliff	Steep hard cliff with rocky foreshore.	25/09/2012	Halcrow MS	No change evident since last survey.	3	None.	no repairs	>20
121AA901A 0601C06	Cliff	Slumped cliff with narrow beach and rocky foreshore.	25/09/2012	Halcrow MS	No significant change since last survey.	3		no repairs	>20
121AA901A 0701C01	Cliff	Steep hard cliff with rocky foreshore. Outfall structure present at the southern end of the defence unit.	25/09/2012	Halcrow MS	No change evident since last survey. A local rockfall and areas of slumping in upper soft material were observed in 2010. Hard rock has caves, fissures and overhangs present. A outfall present at south end. Erosion has caused lost of footpath in places.	2	Some realignment of footpath in land may be required.	no repairs	>20
121AA901A 0701C02	Cliff	Steep cliff above hard base with narrow beach above a rocky foreshore. Small concrete structure at the base of the cliff at the southern end of the defence unit.	25/09/2012	Halcrow MS	No significant change since last survey. A small recent rockfall at north end was noted in 2010. Dodd's Well discharges down cliff face towards northern end of frontage. Concrete structure in fair condition. Static caravans within 20m of cliff edge.	2	Monitor erosion and inform holiday park as required.	no repairs	>20
121AA901A 0701C03	Cliff	Steep hard cliff fronting Caravan Park with a rocky foreshore.	25/09/2012	Halcrow MS	No significant change apparent since last survey. Very local rockfall at Sharper's Head. Vertical fissures and caves in hard rock. Occasional local slumps in overlaying softer material. Static caravans within 20m of cliff edge.	3	Monitor cliff erosion and notify holiday park as required.	no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 0701C04	Breakwater	Concrete breakwater with stepped to inner face, founded to rock.	25/09/2012	Halcrow MS	No significant change evident since last survey. Damage to crest (holes and cracks are present) and abrasion to all sections, especially seaward end. High beach levels,. Not undermining or settlement apparent. Below water elements not inspected.	4	Repairs required at various locations along crest.	urgent	1 - 5
121AA901A 0701C05	Steps	Steep hard cliff with concrete steps giving access to beach.	25/09/2012	Halcrow MS	Upper concrete steps, lower timber steps and hand railing in good/fair condition. Masonry retaining walls in good condition, some repairs evident. Deep caved (1m x 2m x 5m deep) formed at base of cliff.	2	Erosion protection to prevent enlargening of cave and potential collapse.	routine	11 - 20
121AA901A 0701C06	Cliff	Shale and mudstone cliff with sandy beach foreshore. Upper slope is vegetated.	25/09/2012	Halcrow MS	No significant change apparent since last survey. Occasional slumps in soft cliff overlaying the harder rock base along the majority of length. Static caravans within 10m of cliff edge.	3	Monitor erosion and advise holiday park as required.	no repairs	>20
121AA901A 0701C07	Apron		25/09/2012	Halcrow MS	Masonry and concrete retaining walls in fair condition. Beach levels relatively high, concrete apron mostly buried. Strandline at toe of steps.	3	Monitor beach levels.	routine	11 - 20
121AA901A 0701C08	Cliff	Steep cliff with concrete stepped access to beach.	25/09/2012	Halcrow MS	Upper cliffs in good condition, no signs of slips or erosion. Concrete access steps abraded, hand railing in fair condition.	3	None.	no repairs	>20
121AA901A 0701C09	Sea Wall	Concrete wall fronting steep cliff.	25/09/2012	Halcrow MS	Concrete wall in fair condition, abrasion on toe apron. Beach levels relatively high, apron partially buried.	3	Monitor beach levels.	no repairs	>20
121AA901A 0701C10	Wall/Apron/B ank		25/09/2012	Halcrow MS	Erosion and slumping of soft upper vegetated cliff. Cutting back to access road at crest.	3	Monitor erosion and stability of access road.		>20
121AA901A 0701C11	Steps	Steep cliff with step access to beach.	25/09/2012	Halcrow MS	No significant change since last survey. Partial slips in soft slopes, some cliffing along crest. Cutback to within a meter of footpath/ handrail. Concrete steps and access ramp in fair condition, some minor cracking. Adhoc rock armour, narrow beach.	3	Monitor further slips.	no repairs	11 - 20
121AA901A 0701C12	Cliff	Steep hard cliff with narrow sandy beach and rocky foreshore.	25/09/2012	Halcrow MS	No significant change since last survey. Several local slumps identified in 2010. Cliff top cut-back to fence posts in one area. Post and rail fencing missing in many locations.	3	Rapairs to safety fencing along foot path	no repairs	>20
121AA901A	Dunes	Well vegetated dune with sandy	25/09/2012	Halcrow MS	Wide, healthy and well vegetated dunes.	2	None.	no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
0701C13		beach in front. Concrete and masonry wall behind.			Wide sandy foreshore. Some erosion of dune toe at north end where dunes constrained by cliffs.				
121AA901A 0701C14	Breakwater	Concrete and masonry breakwater with stepped crest - North face.	25/09/2012	Halcrow MS	No significant change since last survey. Seaward face of breakwater generally in good condition. Refurbishment works being undertake by Bam Nuttall at time of inspection. No access to breakwater.	2	Undertake repeat inspection following completion of refurbishment works.	routine	>20
121AA901A 0701C15	Breakwater	Concrete and masonry breakwater with stepped crest - South face.	25/09/2012	Halcrow MS	Refurbishment works being undertaken at time of inspection to repair holes mid way along the inside face. No access to breakwater. Previous survey identified repointing of joints required.	3	Re-inspect breakwater once refurbishment works completed.	routine	>20
121AA901A 0801C03	Other	Steel sheet piles with concrete cope including short sections of masonry sea wall and a small dock area.	25/09/2012	Halcrow MS	Recently refurbished quaywalls. Some corrosion to piles and ties but generally in fair/ good condition. Concrete capping, ladders and timber fenders in good condition. Cracks to masonry wall in dock area, corrosions to hand railings.	2	Repairs to cracks in masonry walls, replace corroded hand rails.	routine	>20
121AA901A 0801C04	Revetment	Short section of rock revetment.	25/09/2012	Halcrow MS	Rock revetment in good condition, armour stones stable with no signs of erosion or movement at the toe. Structure appears to have been recently extended 20m east to timber slipway.	2	None.	no repairs	>20
121AA901A 0801C05	Sea Wall	Masonry wall with concrete cope fronted by sandy beach.	25/09/2012	Halcrow MS	No apparent change since last survey. Some signs of abrasion to masonry wall but wall and concrete capping slab generally in good condition, Wall currently protected by steep, narrow sand/ single beach with adhoc rock/ concrete armour on foreshore.	3	None.	no repairs	>20
121AA901A 0801C06	Sea Wall	High masonry wall around the Fisher's Fort.	25/09/2012	Halcrow MS	No change evident since last survey. Abrasion of masonry toe but no undermining apparent. Some stonework has been replaced and repairs to mortar jointing undertaken. Local evidence of historic cracking.	2	None.	no repairs	>20
121AA901A 0801C07	Sea Wall	Concrete wall.	25/09/2012	Halcrow MS	Concrete faced masonry wall in fair/ good condition, Some cracks/ spalling along cope. Localised undermining and loss of concrete facing at west tie-in. Slipway continues to deteriorate, loss of masonry blocks at east end, blocks scattered on	3	Localised repairs to concrete cope and masonry slipway.	routine	11 - 20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
					foreshore.				
121AA901A 0801C08	Bund	Grass embankment fronted by rocky foreshore with shingle beach.	25/09/2012	Halcrow MS	Narrow steep shingle beach, vegetated at crest. Stable with no significant signs of change apparent since last survey.	2	None.	no repairs	>20
121AA901A 0901C04	Bank and Revetment		25/09/2012	Halcrow MS	Ongoing localised deterioration of many gabions along toe. Localised corrosion of lower baskets and loss of stone causing settlement/ slumping of crest. Some vegetation growth at northern end.	4	Repair/ replace damaged gabions. Remove vegetation. Go going monitoring.	urgent	1 - 5
121AA901A 0901C05	Sea Wall	Concrete and masonry quay wall.	25/09/2012	Halcrow MS	No apparent change since last survey. Concrete facing to part of masonry wall in fair condition. Localised loss of mortar resulting in large gaps between masonry blocks near flap value.	3	Replace mortar between masonry blocks. Consider extending concrete facing east.	routine	6 - 10
121AA901A 0901C06	Pier	Masonry Pier protecting the small dock where the RNLI Lifeboats launch ramp is located and tipped rock revetment protecting the root of the pier.	25/09/2012	Halcrow MS	Many worn and broken masonry blocks, open joints between blocks and beneath concrete capping. Localised cracks to concrete capping, some exposing reinforcement. Decking and ladders in fair condition. Movement evident in rock armouring along slipway.	3	Concrete repairs to broken blocks. Replace mortar to joints.	routine	11 - 20
121AA901A 0901C07	Other	Vertical timber retaining wall.	25/09/2012	Halcrow MS	Timber retaining wall in fair/good condition along visible sections but ongoing deterioration to timber jetty (loss of deck boards) which is closed to access. Localised loss of masonry toe at east end with some undermining and onset of outflanking.	3	Localised repairs to masonry toe.	routine	6 - 10
121AA901A 0901C08	Dunes	Well vegetated dune with narrow beach to front.	25/09/2012	Halcrow MS	Wide, well vegetated and stable dunes. Some cliffing of beach and some erosion along toe evident as well as localised erosion from pedestrian access (motor bike tracks also evident).	2	Monitor and consider erecting dune fencing if erosion continues.	routine	11 - 20
121AA901A 0901C09	Sea Wall	Concrete wall and rock apron.	25/09/2012	Halcrow MS	The concrete wall in fair/ good condition, gaps in construction joints at east end. Beach relatively high at time of survey but subject to variability. Some isolated rock armour protection evident. Previous repairs to the concrete wall remain intact.	2	Monitor beach and consider additional rock armouring if levels drops.	routine	11 - 20
121AA901A 0901C10	Revetment	Concrete revetment with rock armour.	25/09/2012	Halcrow MS	Rock armour fronting carpark in good condition, no sign of erosion or movement at the toe. Beach levels relatively high at time of survey.	2	Monitor beach levels.	no repairs	6 - 10

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 1001C01	Wall and rock armour		25/09/2012	Halcrow MS	No significant change since previous survey. Rock revetment in good condition, protected by high beach levels, especially at south end. Localised corrosion and loss of stone from crest gabions, localised erosion behind crest. Groynes in poor condition.	3	Monitor beach levels and ground behind damaged gabions.	routine	11 - 20
121AA901A 1001C02	Sea wall	Concrete wave wall with handrails. Stepped access to the promenade.	26/09/2012	Halcrow MS	Concrete seawall, handrailings, flap valves, joint sealant and blockwork promenade in good condition. Beach levels relatively high at time of survey.	2	None.	no repairs	>20
121AA901A 1001C03	Sea Wall	Concrete wave wall with handrails. Stepped access to the promenade.	26/09/2012	Halcrow MS	Concrete seawall, handrailing and block work promenade in good condition. Repairs to some construction joints good. Localised area of joint sealant missing. Beach levels relatively high.	2	Replace joint sealant.	routine	>20
121AA901A 1001C04	Revetment	Rock revetment to end of seawall (Defence Code 10b/09/3).	26/09/2012	Halcrow MS	No significant change since last survey. Rock armour in good condition, some localised flattening/ displacement of toe rocks fronting seawall. High beach levels. Evidence of localised and minor slips in grass bank onto structure.	3	None.	no repairs	>20
121AA901A 1001C05	Cliff	Vegetated cliffs fronted by rock foreshore/platform.	26/09/2012	Halcrow MS	Evidence of significant slip continue with large rocks on beach, loss of vegetation and exposure of soil. Short section of masonry retaining wall on cliff edge showing signs of some movement and loss of some blocks.	4	None.	no repairs	>20
121AA901A 1101C01	Cliff		26/09/2012	Halcrow MS	Some recent localised but large scale rock falls evident.	3	Monitor erosion	no repairs	>20
121AA901A 1101C02	Other		26/09/2012	Halcrow MS	Deterioration to relic masonry structure and undermining and collapse of rock foundation.	4	Monitor and consider repair or removal if considered unsafe.	no repairs	11 - 20
121AA901A 1101C03	Cliff		26/09/2012	Halcrow MS	Some localised rock falls apparent, large rocks on foreshore. Undercutting and slips of vegetation.	3	None.	no repairs	>20
121AA901A 1101C04	Other		26/09/2012	Halcrow MS	No significant change evident since last survey.	3	None.	no repairs	>20
121AA901A 1101C05	Cliff		26/09/2012	Halcrow MS	Localised ongoing erosion of soft vegetated cliffs. Further undermining of relic paved track observed.	3	None.	no repairs	>20
121AA901A	Dunes		26/09/2012	Halcrow MS	Some localised erosion along the toe of	2	Monitor erosion of	no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
1201C01					the dunes at the north end. Some localised undercutting/ collapse of rock foreshore and erosion of soft cliffs at the south end. Relic masonry structure at south end in poor condition and liable to collapse.		dunes/ soft cliffs and safety of relic fort structure.		
121AA901A 1201C02	Dunes		26/09/2012	Halcrow MS	No significant change apparent since last survey. Local erosion to toe of dunes continues	2	None.	no repairs	>20
121AA901A 1201C03	Cliff/Dune		26/09/2012	Halcrow MS	Well vegetated wide dune system. No significant change since last survey. Some minor localised erosion at dune toe. Narrow foreshore.	2	None.	no repairs	>20
121AA901A 1301C01	Dunes		26/09/2012	Halcrow MS	No significant change since last survey. Some embryo dune growth apparent.	2	None.	no repairs	>20
121AA901A 1401C02			26/09/2012	Halcrow MS	No significant change since last survey. Minor and localised erosion to toe of dunes. Two WWII pill boxes in fair condition.	2	None.	no repairs	>20
121AA901A 1401C06	Dunes		26/09/2012	Halcrow MS	Very healthy, stable vegetated dunes fronted by a wide sandy foreshore. Localised erosion at toe in a few isolated locations. Wide Open used by nesting birds in June / July.	2	None.	no repairs	>20
121AA901A 1401C07	Floodbank		26/09/2012	Halcrow MS	No significant change since last inspection. Difficult access due to vegetation growth, embankment heavily overgrown. Stone face not observed	3	Clearance of vegetation.	routine	11 - 20
121AA901A 1401C08	Dunes		26/09/2012	Halcrow MS	No significant change since last survey. Dunes well vegetated and stable, no signs of erosion. Wide healthy saltmarsh fronting dunes.	1	None.	no repairs	>20
121AA901A 1401C10	Ross South Dunes/Sea Defence		27/09/2012	Halcrow MS	Well vegetated earth bank in good condition. North end sheltered by vegetated spit. No signs of erosion of toe. Fronted by wide healthy salt marsh, narrowing in south.	2	None.	no repairs	>20
121AA901A 1401C11	Ross South Dunes/Sea Defence		27/09/2012	Halcrow MS	No significant change since last survey. Well vegetated earth slope fronted by wide healthy saltmarsh, narrowing in south.	3	None.	no repairs	>20
121AA901A 1401C13	Seawall		27/09/2012	Halcrow MS	Concrete retaining wall in fair condition with some horizontal cracking evident. Healthy, stable foreshore with no signs of	3	None	no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
					erosion at the toe. Outfall structure in fair condition.				
121AA901A 1401C14	Revetment		27/09/2012	Halcrow MS	Stone revetment with previous grout repairs in fair condition. Stable foreshore, no signs of settlement.	3	Monitor.	routine	>20
121AA901A 1401C15	Sea Wall		27/09/2012	Halcrow MS	Concrete retaining wall in fair condition, some cracking visible. Timber toe erosion protection in poor condition.	3	Monitor.	no repairs	11 - 20
121AA901A 1401C16	Revetment		27/09/2012	Halcrow MS	Placed stone revetment in fair/ good condition. Some minor displacement of stones and vegetation along crest but no settlement observed.	3	None.	routine	>20
121AA901A 1401C17	Sheet Piling		27/09/2012	Halcrow MS	Sheet piles to east side of sluice in good condition. Previous survey reported piles having been repainted in 2008.	2	None.	no repairs	11 - 20
121AA901A 1401C18	Sluice Gate		27/09/2012	Halcrow MS	Sluice gates in good condition. Previous survey reported that the gates were cleaned and repainted in 2008. Gates, ladders and hand railing in good condition.	3	None.	routine	11 - 20
121AA901A 1401C19	Sheet Piling		27/09/2012	Halcrow MS	Sheet piles to west side of sluice in good condition. Previous survey reported piles having been repainted in 2008.	2	None.	routine	11 - 20
121AA901A 1401C20	Revetment		27/09/2012	Halcrow MS	No noticeable change in rock revetment evident since last survey. Previous survey noted that local movement in revetment reported in 2008 has not worsened.	3	None.	no repairs	>20
121AA901A 1401C21	Slope		27/09/2012	Halcrow MS	No noticeable change to vegetated embankments since previous survey. Generally stable marsh, but some saltpans and some marsh edge erosion. Loosely tipped rock at corner where frontage turns inland to Ross.	2	None.	no repairs	>20
121AA901A 1401C22	Revetment		27/09/2012	Halcrow MS	Previous grouting evident to dumped stone revetment. No erosion at toe or settlement apparent.	3	Monitor beach levels and erosion.	routine	11 - 20
121AA901A 1401C23	Slope/Bank		26/09/2012	Halcrow MS	No significant change to saltings or backing coastal slope evident since last survey. Timber retaining wall by Fenham Mill	2	None.	no repairs	>20
121AA901A 1401C24	Slope/Bank		26/09/2012	Halcrow MS	No significant change to saltings or backing coastal slope since last survey.	2	None.	no repairs	>20
121AA901A	Slope/Bank		26/09/2012	Halcrow MS	No significant change since last survey.	2		no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
1401C25					Saltings remain in reasonable condition, no signs of erosion of coastal slope other than one large blow-out. Slope is bracken-covered.				
121AA901A 1401C26	Slope		27/09/2012	Halcrow MS	No significant change to spit since last survey. Vegetated dunes fronted by a wide sandy foreshore.	2	None.	no repairs	>20
121AA901A 1401C27	Revetment		27/09/2012	Halcrow MS	Concrete revetment generally in fair/ good condition, some minor cracking throughout. Lowering of foreshore and erosion at the south end has caused undermining and broken/ displaced section of revetment.	3	Extend structure south or place rock armouring.	routine	1 - 5
121AA901A 1401C28	Slope		27/09/2012	Halcrow MS	No significant change since last survey. Embankment well vegetated. Looses rock armouring scattered at toe.	3	None.	no repairs	6 - 10
121AA901A 1401C29	Revetment		27/09/2012	Halcrow MS	Concrete revetment generally in good condition. Some minor horizontal cracking and localised broken sections along toe due to lowering of foreshore and undermining.	3	Repair cracks, monitor foreshore levels.	no repairs	11 - 20
121AA901A 1401C30	Slope		27/09/2012	Halcrow MS	No significant change in vegetated embankment since last survey.	2		no repairs	>20
121AA901A 1401C31			26/09/2012	Halcrow MS	Stable and well vegetated dunes and wide salt marsh foreshore. No significant recent change apparent.	2	None.	no repairs	>20
121AA901A 1401C98	Embankment - Cockly Knowes	Embankment with stone and asphalt reveted toe fronting lowerlying area of Ross.	26/09/2012	Halcrow MS	No significant change since last survey. Earth flood embankment in good condition. Revetment in good condition but could benefit from maintenance to bind stones together.	2	Infill gaps between stones in revetment.	routine	>20
121AA901A 1401C99	Dunes - Guile Point	Natural 'spit' of dunes, separated from Ross Point by wide opening.	26/09/2012	Halcrow MS	No significant change since last survey. Inland-facing side of spit is very stable. Seaward-facing side experienced some erosion along toe of dunes and slumping along its length from the navigation beacon to Wide Open.	3	Monitor erosion of seaward face.	routine	>20
121AA901A 1501C02	Wall		27/09/2012	Halcrow MS	Significant collapse along central section of blockwork wall. Some further deterioration since last survey evident. Difficult access due to private land.	5	Re-instate blockwall	routine	1 - 5
121AA901A 1501C03	Slope		27/09/2012	Halcrow MS	No noticeable change since last survey. Minor erosion to edge of wide salt marsh. Some dumped rubble adjacent to	3	None.	no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
					properties and rock armouring within river mouth.				
121AA901A 1501C04	Revetment		27/09/2012	Halcrow MS	No noticeable change since last survey. Very health saltmarsh provides good protection to blockwork revetment. Revetment well vegetated but generally in good condition. Some gaps evident between blocks.	2		routine	11 - 20
121AA901A 1501C05	Slope		27/09/2012	Halcrow MS	No noticeable change since last survey. Relatively wide healthy salt marsh with some erosion along edge. No erosion evident to coastal slopes. Some mature trees close to foreshore edge.	3	None.	no repairs	>20
121AA901A 1501C06	Slope		27/09/2012	Halcrow MS	Wide healthy dune will good vegetation cover, partial erosion along toe, loss of vegetation to dune face. Erosion of vegetation due to uncontrolled pedestrian activity. Relic jetty in poor condition with loss of fill.	3	Fence dunes to restrict access. Monitor safety of jetty.	routine	>20
121AA901A 1501C07	Cliff		27/09/2012	Halcrow MS	No significant change since last survey. Rocky foreshore providing protection to sandy foreshore. Dunes healthy and well vegetated but high strandline resulting in some localised erosion at toe.	2	None.	no repairs	>20
121AA901A 1501C08			27/09/2012	Halcrow MS	No significant change in salt marsh since previous survey.	3	None.	no repairs	>20
121AA901A 1601C02	Dunes		27/09/2012	Halcrow MS	No significant change since last survey. Wide sandy foreshore fronting wide stable dune system with extensive coverage of vegetation. Some localised loss of vegetation from seaward face.	2	None.	no repairs	>20
121AA901A 1601C03	Dunes		27/09/2012	Halcrow MS	Sandy foreshore backed by steep coastal slopes/ dunes which are showing some localised and ongoing erosion of the toe and front face.	2	None.	no repairs	>20
121AA901A 1601C04	Dunes		27/09/2012	Halcrow MS	No significant change since last survey. Wide well vegetated dues with no evidence of erosion.	2	None.	no repairs	>20
121AA901A 1601C05	Dunes		27/09/2012	Halcrow MS	No significant change since last survey. Wide sandy foreshore at south end fronting wide stable dune system with extensive coverage of vegetation. No significant signs of erosion.	2	None.	no repairs	>20
121AA901A	Wall		27/09/2012	Halcrow MS	Concrete toe is well founded on rock	2	Monitor	no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
1701C02					foreshore. Concrete blockwork wall in good condition. Some minor displacement in upper blocks adjoining masonry wall and slight evidence of lean could indicate some rotational movement about toe.		displacement in upper wall for signs of rotation.		
121AA901A 1701C03	Wall		27/09/2012	Halcrow MS	Concrete toe well founded on rock foreshore. Masonry blocks in fair/good condition but many gaps between blocks evident. However, previous survey reported no obvious deterioration since 2008.	3	Repoint gaps in masonry blocks	routine	>20
121AA901A 1701C04	Wall		27/09/2012	Halcrow MS	Concrete toe is well founded on rock foreshore. Concrete blockwork wall in good condition.	2	None.	routine	>20
121AA901A 1701C05	Wall		27/09/2012	Halcrow MS	Concrete seawall in fair/good condition with no significant changes apparent since last survey. Difficult access to foreshore and to crest due to private RNLI property limits extent of inspection.	3	Access to foreshore required for more detailed inspection.	no repairs	>20
121AA901A 1701C06	Wall		27/09/2012	Halcrow MS	Significant horizontal crack/ spalling along crest along line of previous repair, although may not have deteriorated since 2008 survey. Toe of wall appears to be well founded on rock foreshore. Remainder of wall in fair/ good condition.	3	Monitor crack near the top of the wall	routine	11 - 20
121AA901A 1701C07	Wall/Revetme nt		27/08/2012	Halcrow MS	Concrete encased wall at root in good condition. Rock armour at root in appears stable. Crest wall in fair condition, repairs sound. Seaward face no accessible therefore large scour holes at base found during last survey not identified. Surfacing good.	3	Inspection of scour holes along seaward face by boat.	routine	>20
121AA901A 1701C08	Wall		30/09/2012	Halcrow MS	Wall appears in fair/good condition, minor cracks and staining. However, no access to seaward end so large scour holes noted during last survey could not be observed. Handrailing and ladders in fair condition.	5	Repairs to scour hole.	no repairs	6 - 10
121AA901A 1701C09	Wall		30/09/2012	Halcrow MS	Walls generally in poor condition. Abrasion along base, some areas of erosion with holes developing. Some large areas of concrete surface repair broken off. Core test from previous survey indicates low strength. Handrailing	4	Encasement of wall in concrete.	urgent	6 - 10

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
					in poor condition.				
121AA901A 1701C10	Breakwater		30/09/2012	Halcrow MS	Masonry wall generally in good condition, some abrasion and minor loss of mortar between blocks evident. More significant localised loss of mortar beneath timber cope. New rock armour (2011?) in good condition. Timber coping in good condition.	2	Repair concrete along coping	routine	>20
121AA901A 1701C11	Wall		30/09/2012	Halcrow MS	Concrete wall in good condition. Some minor vertical cracking. Joint sealant, timber cope and ladders in good condition.	2	None.	no repairs	>20
121AA901A 1701C12	Wall		30/09/2012	Halcrow MS	No significant change evident since last survey. Masonry walls in fair/good condition, minor loss of some mortar. Wall well founded on rock foreshore. Slipway and handrailing in good condition.	3	Repair to mortar joints	routine	>20
121AA901A 1701C13	Wall		30/09/2012	Halcrow MS	Masonry wall in fair/good condition. Some weathering of blocks and loss of mortar to masonry sections. Concrete encasing in good condition. Timber coping, ladders and surfacing in fair/good condition.	3	Repairs to mortar joints.	routine	>20
121AA901A 1701C14	Wall		30/09/2012	Halcrow MS	Concrete encased section of wall in good condition. Masonry section of wall in fair/good condition, some weathering of blocks and loss of mortar to masonry sections. Timber coping, ladders and surfacing in fair/good condition.	3	Repair mortar joints	no repairs	>20
121AA901A 1701C15	Wall		27/09/2012	Halcrow MS	Masonry blocks in fair/good condition. Repairs to joints undertaken c2009, joints now in good condition. Foreshore levels high at north end, no signs of undermining at south end.	2	None	no repairs	>20
121AA901A 1701C16	Wall		27/09/2012	Halcrow MS	New concrete sea wall constructed c2009 in good condition. Grass slope behind wall in good condition . Healthy beach levels along toe with some vegetation growth at east end. Some minor undermining of concrete apron fronting steps.	1	None.	no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 1701C17	Wall		27/09/2012	Halcrow MS	Vertical concrete seawall in good condition with no obvious cracking or signs of deterioration. Sealant to expansion joints replaced recently and in good condition. Grass slopes above wall in good condition.	3	None.	no repairs	>20
121AA901A 1701C18	Wall		27/09/2012	Halcrow MS	Recurve concrete seawall in good condition with no significant signs of deterioration.	2	None.	no repairs	>20
121AA901A 1701C19	Revetment		27/09/2012	Halcrow MS	Partial ongoing erosion of soft vegetated slopes fronting caravan park. Localised dumping of rubble to control erosion.	4	Consider formalised erosion defence to protect caravan park.	urgent	11 - 20
121AA901A 1701C20			30/09/2012	Halcrow MS	Concrete breakwater generally in good condition. Toe well founded on rock foreshore, no signs of cracks, abrasion or spalling.	2	None.	no repairs	>20
121AA901A 1701C21	Breakwater		30/09/2012	Halcrow MS	Concrete breakwater generally in fair/good condition. Some localised abrasion and spalling along lower structure. Upper concrete crown wall in good condition. Wall well founded on rock foreshore, no signs of movement or scour.	2	Localised repairs to concrete.	routine	>20
121AA901A 1701C22	Cliff		27/09/2012	Halcrow MS	Partial ongoing erosion of soft vegetated slopes fronting caravan park with localised dumping of rubble to control erosion. Some undermining of rock cliffs and recent localised rock falls at the south end of the frontage.	3	Consider formalised erosion defence to protect caravan park.	routine	11 - 20
121AA901A 1701C23	Dunes		28/09/2012	Halcrow MS	Localised erosion of steep coastal slopes backing rocky foreshore at north end. Dunes adjacent to golf lakes very narrow and liable to breach. Wide, stable and well vegetated dunes at south end, some minor localised signs of erosion and cliffing of toe.	3	None.	no repairs	6 - 10
121AA901A 1701C24	Dunes		28/09/2012	Halcrow MS	No significant change since last survey. Dunes generally stable and well vegetated, some signs of localised erosion.	3	Dune management required, particularly in front of the properties.	routine	11 - 20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 1701C25	Wall		28/09/2012	Halcrow MS	Masonry blockwork wall generally in fair/good condition, well founded on rock foreshore. Some blocks abraded and some missing along crest. Recent grout repairs in good condition. Some outflanking at both ends of the wall.	3	Erosion protection to prevent outflanking, especially at north end.	routine	>20
121AA901A 1701C26			28/09/2012	Halcrow MS	No significant change to low rock cliffs since last survey. Shingle foreshore levels relatively high.	3	None.	no repairs	>20
121AA901A 1701C27	Wall		28/09/2012	Halcrow MS	Concrete sea wall in fair/ good condition. Some minor vertical and horizontal cracking. Some erosion of embankment at south end causing initial outflanking. Shingle beach levels relatively health.	3	None.	no repairs	>20
121AA901A 1701C28	Cliff		28/09/2012	Halcrow MS	Soft cliffs backing rock foreshore showing signs of erosion along most of the frontage.	4	None.	no repairs	6 - 10
121AA901A 1701C29	Bank		28/09/2012	Halcrow MS	Soft cliffs backing rock foreshore showing signs of erosion along most of the frontage.	4	Monitor erosion.	no repairs	11 - 20
121AA901A 1701C30	Cliff		28/09/2012	Halcrow MS	No significant change since last survey. Soft cliffs backing rock foreshore showing signs of erosion along part of the frontage. Ongoing tipping of garden and building waste, could contain asbestos material. No immediate risk to properties.	4	Clearing of tipped garden/ building waste	routine	>20
121AA901A 1701C31	Wall		28/09/2012	Halcrow MS	No significant change since last survey. Concrete wall in good condition. Minor cracks and staining evident, some minor spalling at joints. No signs of movement or undermining. Shingle and rubble beach levels relatively high.	2	None.	no repairs	>20
121AA901A 1701C32	Slope		28/09/2012	Halcrow MS	No significant change since last survey. Vegetated earth embankment in poor condition. Ongoing erosion, undermining and slips along much of its length, controlled by informal tipping of building rubble. Relatively high shingle beach. Risk to property.	4	Consider formal defences to replace tipped material	urgent	1 - 5
121AA901A 1701C33	Wall		28/09/2012	Halcrow MS	Masonry wall in good condition, no movement or settlement apparent. Well vegetated embankment at toe.	2	None.	no repairs	>20
121AA901A 1701C34	Wall		28/09/2012	Halcrow MS	No significant change since last survey. No apparent movement or obvious	2	None.	no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
					deterioration to blockwork or joints. Some minor spalling and capping joints. Shingle beach levels at toe relatively high. Post and rail fence in good condition.				
121AA901A 1701C35	Wall		28/09/2012	Halcrow MS	No evidence of 'significant overtopping damage' as noted in pervious survey. Most masonry blocks well worn with mortar missing, some mortar repairs along crest evident. Concrete apron/toe in fair condition, some minor cracks. Roadway in good condition.	4	Repairs to mortar joints Investigate strategy for frontage.	urgent	6 - 10
121AA901A 1701C36	Wall		28/09/2012	Halcrow MS	Masonry blocks in lower wall very worn, lost of mortar with large gaps evident. Concrete toe very worn, low foreshore at centre with erosion at toe and initial undermining. Previous survey noted significant overtopping. Outfall missing flap valve.	4	Re-point wall and localised underpinning.	urgent	6 - 10
121AA901A 1701C37	Wall		28/09/2012	Halcrow MS	No significant change since last survey. Masonry blocks and joints in fair/ good condition. Some limited mortar loss. A number of loose/ missing crest stones at south end. Shingle beach levels relatively high, some vegetation on foreshore.	3	Replace, remortar crest blocks.	routine	11 - 20
121AA901A 1701C38	Cliff		28/09/2012	Halcrow MS	No significant change evident since last survey. Some limited erosion of soft upper cliffs.	2	None.	no repairs	>20
121AA901A 1701C39	Gabions		28/09/2012	Halcrow MS	Gabions in poor condition with most lower baskets burst. Upper gabions in fair condition. No erosion of embankment evident. Shingle beach relatively narrow.	4	Repair gabions. Review management in Strategy.	urgent	1 - 5
121AA901A 1701C40	Gabions		28/09/2012	Halcrow MS	Gabions well buried buy high shingle beach levels. Small distortion to baskets and minor corrosion in some locations. No erosion to gardens behind.	2	Monitor condition of gabions.	no repairs	11 - 20
121AA901A 1701C41	Gabions		28/09/2012	Halcrow MS	No obvious change since last survey. Gabions almost entirely buried by shingle beach but appear in fair/ good condition. Stone well packed, minor signs of distortion and some limited corrosion. Previous survey reported toe of gabions exposed.	2	Monitor condition of gabions	no repairs	11 - 20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 1701C42	Revetment		28/09/2012	Halcrow MS	Concrete block revetment in good condition. No obvious deterioration to blocks, some vegetation grown in joints and along toe. Minor loss of mortar at north end. Small crack at back of steps. Shingle beach relatively wide.	2	None.	no repairs	>20
121AA901A 1701C43	Cliff		28/09/2012	Halcrow MS	No significant change since last survey. Some evidence of localised collapse of hard cliffs.	2	None.	no repairs	>20
121AA901A 1701C44	Slope		28/09/2012	Halcrow MS	Well vegetated and stable dunes partially protected by rock foreshore. Some partial toe erosion evident along west end. Localised adhoc placement of boulders to prevent erosion only partially effective. Properties located 10-15m behind foreshore at risk.	3	Consider formal erosion defence along western section.	no repairs	11 - 20
121AA901A 1701C45	Revetment		28/09/2012	Halcrow MS	Grouted stone revetment in fair/ good condition. Some gaps between stones and vegetation growth. Some cracks along apron and minor undermining of toe and loss of short section of blocks at west end. Shingle beach levels relatively high along toe.	3	Repairs to under cutting at toe, replace missing grout.	routine	11 - 20
121AA901A 1701C46	Wall		28/09/2012	Halcrow MS	Rock armour generally in good condition. Some deformation and corrosion to buried gabions. Some larger gaps between rocks and localised displacement of a few rocks along toe. Masonry lime kiln structure behind crest in good condition.	2	Monitor movement of toe armour.	no repairs	>20
121AA901A 1701C47	Wall		30/09/2012	Halcrow MS	Masonry wall, concrete crest wall and concrete apron appear in fair/ good condition. Some minor loss of grout, one small void above toe at seaward end. Concrete repairs along crest appear good. New concrete pavement in good condition.	2	Replace missing grout. Fill void.	no repairs	>20
121AA901A 1701C48	Wall		30/09/2012	Halcrow MS	Lower masonry wall in good condition, no movement evident. New concrete crest wall (c2001) in good condition, joint sealant good, minor vertical cracks at joints. Rock armour stable, no signs of movement, boulder foreshore covering toe.	2	None.	no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 1701C49	Wall		30/09/2012	Halcrow MS	Stepped masonry outer wall in good condition. Some historic slumping of blocks, no gaps between blocks evident. Mortar repairs and new concrete decking in good condition. Partial undercutting of toe of inner face, likely due to low foreshore levels.	3	Repair undercutting on inner face.	routine	>20
121AA901A 1701C50	Wall		30/09/2012	Halcrow MS	Concrete breakwater in good condition, no signs of movement. Some localised undermining of toe apron at seaward end. Ladders in fair/ good condition.	3	Monitor undercutting to apron.	routine	>20
121AA901A 1701C51	Wall		30/09/2012	Halcrow MS	Recently rebuilt masonry quaywall (c2001) in good condition. No obvious deterioration to stone or concrete elements. Some localised undercutting at toe, believe to be due to recent maintenance dredging activities. Deck in good condition.	2	Monitor undercutting at toe	no repairs	>20
121AA901A 1701C52	Pier		30/09/2012	Halcrow MS	Masonry wall in good condition, no movement, cracks or gaps evident. Mortar repairs good. Partial spalling to much of the concrete coping. Undercutting and partial collapse of grouted stone revetment protecting beach access steps.	3	Repair concrete coping and undercutting of revetment.	routine	>20
121AA901A 1701C53	Cliff		28/09/2012	Halcrow MS	Dunes generally stable and well vegetated with no erosion of toe evident. Sand beach relatively wide and healthy. Localised cliffing at west end and erosion near harbour steps at east end where adhoc placement of armour only slightly effective.	2	Monitor erosion at east end	no repairs	>20
121AA901A 1701C54			27/09/2012	Halcrow MS	Concrete block wall generally in good condition, no gaps evident. Some minor vertical cracks and missing grout under some coping blocks. A few coping blocks lost at east end and repaired. Low beach levels at east end and some outflanking at west end.	2	Repair loose coping. Erosion protection to west end.	routine	>20
121AA901A 1801C01	Dunes		28/09/2012	Halcrow MS	No significant change evident since last survey. Stable well vegetated dunes with relatively wide healthy beach.	2	None.	no repairs	>20
121AA901A 1901C01	Dunes	Vegetated dunes in front of Newton Links. Wide sandy foreshore	28/09/2012	Halcrow MS	No significant change since last survey. Wide stable and well vegetated dunes	2		no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
		forming south end of Beadnell Bay, with rock outcrops to south			shown no sign of erosion. Wide sandy beach. No assets at risk.				
121AA901A 1901C02	Dunes	Vegetated dunes with rocky foreshore, forming small bay	28/09/2012	Halcrow MS	No significant change since last survey. Dunes remain stable and well vegetated with minor erosion at access points. Rocky foreshore at headlands remains stable.	2	None.	no repairs	>20
121AA901A 2001C01	Coastal Slope	Natural vegetated coastal slope with sandy beach and a rocky foreshore	28/09/2012	Halcrow MS	No sign of significant change since last survey. Coastal slopes well vegetated, no signs of erosion at toe. Narrow sandy beach and rock foreshore. Previous survey reported good growth of dune adjacent to Low Newton defence.	2	None.	no repairs	>20
121AA901A 2001C02	Sea Wall	Low concrete wall in front of wide sandy beach. Backed by amenity area of Low Newton by the Sea	28/09/2012	Halcrow MS	No significant change since last survey. Concrete wall in fair condition, some cracks and localised spalling at joints. Ramp and headwall in fair condition. Toe of wall well buried, beach levels relatively high with some vegetation.	3	None.	routine	>20
121AA901A 2001C03	Dunes	Vegetated dunes at back of wide sandy beach at south end of St Mary's Haven	28/09/2012	Halcrow MS	No significant change since last survey. High well vegetated dunes, some localised erosion of dune face but no significant change at toe.	3	None.	no repairs	>20
121AA901A 2001C04	Dunes	Vegetated dunes with wide sandy beach forming Embleton Bay	28/09/2012	Halcrow MS	Well vegetated and stable dunes, some minor localised erosion at toe.	2	None.	no repairs	>20
121AA901A 2001C05	Coastal Slope	Natural vegetated coastal slope with sandy / rocky foreshore	28/09/2012	Halcrow MS	Coastal slopes stable and well vegetated with no significant signs of erosion. Generally well protected by boulders on foreshore. Some localised undercutting at south end near.	2	None.	no repairs	>20
121AA901A 2101C01	Coastal Slope	Gentle coastal slope & foreshore	28/09/2012	Halcrow MS	No significant change since last survey, generally well protection by boulder foreshore. Coastal slopes stable and well vegetated with no significant signs of erosion.	2	None.	no repairs	>20
121AA901A 2101C02	Coastal Slope	Rocky coastal slope & foreshore	29/09/2012	Halcrow MS	No significant change evident since last survey. Well vegetated stable coastal slopes protected by rocky foreshore.	2	None.	no repairs	>20
121AA901A 2201C01	Embankment	Earth embankment fronted by rocky foreshore	29/09/2012	Halcrow MS	No significant change evident since last survey. Well vegetated stable coastal slopes protected by rocky foreshore. Outfall and manhole in fair/ good condition and well founded on rock. Some concrete repairs around manhole.	2	None.	no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 2201C02	Sea Wall	Low, near vertical masonry wall at back of rock platform foreshore.	29/09/2012	Halcrow MS	Concrete and masonry wall generally in good condition. Well founded on rock foreshore and no movement apparent, some loose capping stones, missing mortar and gaps between blocks. Repairs to mortar in good condition.	2	None.	no repairs	11 - 20
121AA901A 2201C03	Sea Wall	Outer wall of northern harbour arm. Near vertical concrete encased masonry wall, extending above the deck of the arm.	29/09/2012	Halcrow MS	Abrasion along toe of wall, some localised spalling along crown wall. Full height vertical crack at seaward end also apparent on inside face. Concrete deck in fair condition with some cracks and loss of surface material, numerous repairs.	3	Monitor full height crack at seaward end. repair deck surface.	routine	11 - 20
121AA901A 2201C04	Sea Wall	Inner wall of northern harbour arm. Vertical masonry face with concrete capping beam & deck.	29/09/2012	Halcrow MS	Concrete quaywall is in fair condition, some abrasion and exposure of aggregate along lower wall. Full height crack at seaward end through to seaward face. Ladders in poor condition. Concrete cope in fair condition, some loss of surfacing to deck.	3	Monitor full height crack at seaward end. Repairs to surfacing.	routine	>20
121AA901A 2201C05	Sea Wall	Near vertical wall, seems to be masonry encased in concrete, founded on raised rock. Silty/sandy foreshore & roadway immediately behind	29/09/2012	Halcrow MS	Rock foundations appears sound. No obvious deterioration to upper concrete wall.	3	None.	routine	11 - 20
121AA901A 2201C06	Other	Concrete slipway over natural coastal slope in corner of harbour, with cobble foreshore.	29/09/2012	Halcrow MS	Slipway and edge wall in good condition, no movement evident. Some minor abrasion and undercutting at toe of slipway. Shingle beach levels level with toe.	2	Monitor undercutting at toe of slipway.	no repairs	>20
121AA901A 2201C07	Coastal Slope	Natural cobbled slope & foreshore.	29/09/2012	Halcrow MS	No significant change since last survey. Shingle beach relatively healthy, some vegetation growth along crest.	2	None.	no repairs	>20
121AA901A 2201C08	Sea Wall	Vertical masonry seawall, founded on rock,, with cobble foreshore & road & properties immediately behind.	29/09/2012	Halcrow MS	Masonry wall in fair/good condition. No movement or loss of masonry, some gaps due to grout loss. Repairs to grout in crest wall appear good.	3	None.	no repairs	11 - 20
121AA901A 2201C09	Cliff	Hard rock cliff, rising to the east, with little foreshore.	29/09/2012	Halcrow MS	Hard rock cliff appears very stable despite a few loose blocks on foreshore. No significant change since last survey.	1	None.	no repairs	>20
121AA901A 2201C10	Sea Wall	Inner face of southern harbour arm. Near vertical concrete face & deck.	29/09/2012	Halcrow MS	Concrete quaywall in fair condition. No movement evident. Some abrasion and spalling along lower wall and at construction joints. Some gaps in joints. Cracks in deck and localised spalling.	3	Localised concrete repairs to areas of spalling.	routine	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
					Timber cope in poor condition.				
121AA901A 2201C11	Sea Wall	Outer face of southern harbour arm. Near vertical concrete encased masonry, with rock foreshore	29/09/2012	Halcrow MS	Wall well founded on rock ledge. No signs of movement or undercutting. A number of full height cracks, small cavity at bottom of southern crack. Spalling of facing concrete on inner/outer face of crest wall.	3	Monitor cracks, repair spalling concrete.	routine	>20
121AA901A 2201C12	Sea Wall	Concrete harbour wall with rocky foreshore	29/09/2012	Halcrow MS	No significant change evident since last survey. Concrete wall well founded on rock foreshore. No signs of movement or undermining. Some minor cracks and exposed aggregate. Various concrete repairs appear sound.	2	None.	no repairs	>20
121AA901A 2201C13	Revetment	Rock revetment toe to steep earth bank with properties close to the crest.	29/09/2012	Halcrow MS	Armour well founded on rock foreshore, no obvious signs of movement. Earth embankment well vegetated with no signs of erosion. Some vegetation on foreshore.	2	None.	no repairs	>20
121AA901A 2201C14	Revetment	Rock revetment providing toe protection to an earth embankment. Rock foreshore. Concrete outfall down the embankment and along the foreshore.	29/09/2012	Halcrow MS	Rock foreshore stable with no significant change since last survey. Earth embankment stable with no signs of erosion. Concrete outfall in fair/good condition.	2	None.	no repairs	>20
121AA901A 2201C15	Coastal Slope	Steep vegetated coastal slope with rock revetment at the toe, fronted by rocky foreshore. Evidence of rock gabions behind the rock revetment.	29/09/2012	Halcrow MS	No significant change since last survey. Rock foreshore stable. Earth embankment well vegetated, no signs of erosion.	2	None.	no repairs	>20
121AA901A 2301C01	Cliff	Low gentle cliff & rocky foreshore	29/09/2012	Halcrow MS	Stable rock foreshore and earth embankment, no signs of erosion.	2	None.	no repairs	>20
121AA901A 2301C02	Coastal Slope	Sandy slope & stony / rocky foreshore.	29/09/2012	Halcrow MS	Stable rocky foreshore and shingle beach. Localised undercutting of rock cliff at back of bay. No significant change evident since last survey.	2	Monitor undercutting of cliffs for potential rock falls.	no repairs	>20
121AA901A 2401C01	Cliff	Low rock cliff with wide rock foreshore. Forms a slight bay between Cullernose Point and Howick village	29/09/2012	Halcrow MS	No significant change since last survey. Some evidence of localised erosion of soft upper slopes. No properties at risk.	3	None.	no repairs	>20
121AA901A 2401C02	Cliff	Low rock cliff with wide rock foreshore. Forms a slight headland south of Howick village	29/09/2012	Halcrow MS	Sloping rock foreshore and upper vegetated slopes appear stable, no significant signs of erosion. Masonry wall forming seawall boundary to property in	2	None.	no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
					good condition.				
121AA901A 2501C01	Cliff	Well vegetated dune system behind beaches. Headland cliffs control bays. Foreshore is mixture of rock platforms with sandy/stony beaches within smaller bays.	29/09/2012	Halcrow MS	No significant change since last survey. Localised erosion of toe and undercutting of soft vegetated slopes along most of frontage. No assets at risk.	3	Monitor erosion of slopes.	no repairs	>20
121AA901A 2501C02	Coastal Slope	Low rock cliffs / slope, with wide rock foreshore forming headland	29/09/2012	Halcrow MS	Partial erosion of soft vegetated slopes evident. No assets at risk	4	Monitor erosion.	no repairs	>20
121AA901A 2601C01	Coastal Slope	Natural vegetated coastal slope with a sandy / rocky foreshore.	29/09/2012	Halcrow MS	Relatively narrow sandy foreshore, partial erosion of toe of vegetated slope. One building and boundary wall within a few meters of slope edge at risk.	4	Monitor erosion. Consider formal erosion protection.	urgent	6 - 10
121AA901A 2601C02	Revetment - Boulmer	Concrete block revetment at toe of earth embankment, with wide rock/sandy foreshore.	29/09/2012	Halcrow MS	Concrete blocks (relic tank defences) in poor condition but structure appears stable. Some settlement may have occurred at centre. Some initial outflanking evident. Sandy beach narrow with strand line at toe of wall.	3	Monitor wall for movement, undermining or outflanking.	routine	11 - 20
121AA901A 2601C03	Embankment	Low sand/earth embankment with wide sandy beach.	29/09/2012	Halcrow MS	Evidence of partial erosion along much of the toe of vegetated slope. Adhoc tipping of material proving only partially effective at reducing. Properties within 10-20m of slope crest may become at risk.	4	Monitor ongoing erosion. Consider formal erosion protection.	urgent	6 - 10
121AA901A 2601C04	Revetment	Rock revetment providing toe protection to earth embankment.	29/09/2012	Halcrow MS	Rock armour along north section buried but sandy beach. Armour along south section loosely placed with large void, some rocks displaced across foreshore. Tipping of concrete and rubble to bolster defences is evident. Some minor erosion to vegetated slopes.	4	Monitor erosion. Consider reconstruction of revetment if required.	urgent	6 - 10
121AA901A 2601C05	Revetment	Large concrete blocks placed at toe of earth/sand embankment.	29/09/2012	Halcrow MS	Concrete blocks (relic tank defences) in poor condition with some movement evident in structure,. Toe of blocks buried by sand beach. One block displaced across foreshore. No significant erosion of vegetated slope evident.	4	Monitor stability of structure and erosion of slopes.	no repairs	6 - 10
121AA901A 2601C06	Coastal Slope	Vegetated natural coastal slope with a wide sandy beach & rock outcrops.	29/09/2012	Halcrow MS	No significant change since last survey. Evidence of slight localised erosion at toe of dunes. Cracking and settlement of end section of concrete outfall.	3	Monitor erosion to dunes.	no repairs	>20
121AA901A 2601C07	Cliff	Low gentle rock cliff/slope with wide rock foreshore, forming a headland.	29/09/2012	Halcrow MS	Some partial erosion along toe of vegetated coastal slope. Evidence of localised slippage at headland. Some	3	Monitor ongoing erosion, liaison with caravan park	no repairs	11 - 20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
					static caravans close to edge of slope may be coming at risk.		as necessary.		
121AA901A 2601C08	Embankment	Low vegetated embankment at northern end of embayment, with wide sandy beach & shingle at back.	29/09/2012	Halcrow MS	Well vegetated slopes with no evidence of erosion. Some historic signs of slippage. Narrow sandy foreshore, strand line at toe.	2	None.	no repairs	>20
121AA901A 2601C09	Other	Concrete access steps through embankment, with rock armour toes protection forming an apron. Wide sandy beach in front.	29/09/2012	Halcrow MS	No evidence of significant change since last survey. Rock armour appears stable, no movement at toe. Some onset of outflanking with erosion adjacent to crest. Concrete steps and handrail in good condition, slight undermining of bottom step.	3	Monitor erosion adjacent to steps, consider extending erosion protection.	no repairs	11 - 20
121AA901A 2701C01	Cliff	Relatively high clay cliffs with shingle at toe, & wide sandy beach. Cliff falling to the south. Whaw Burn discharges at south end	29/09/2012	Halcrow MS	No recent signs of change. Partial slippage off vegetated slopes along most of frontage causing cliff top path to be closed. Narrow shingle beach with strand line at toe of slope. Golf course at risk.	4	Monitor ongoing erosion.	no repairs	11 - 20
121AA901A 2701C02	Coastal Slope	Vegetated slope/bank, with shingle margin at base & wide sandy beach in front. South of Whaw Burn	30/09/2012	Halcrow MS	Relatively wide, steep shingle beach. No erosion of vegetated banks evident.	2	None.	no repairs	>20
121AA901A 2701C03	Coastal Slope	Natural coastal slope with extensive rock foreshore with deteriorating breakwater structure.	30/09/2012	Halcrow MS	Relatively narrow shingle upper beach, some local erosion of vegetated bank evident. Rock breakwater/ groyne in poor condition, significant displacement of rock at seaward end.	3	Monitor erosion and potential beach change as breakwater/ groyne deteriorates.	no repairs	11 - 20
121AA901A 2701C04	Embankment	Vegetated earth bank with shingle/cobbles at toe with extensive rock foreshore & sandy beach.	30/09/2012	Halcrow MS	Some localised erosion along toe of vegetated slopes at north end. Narrow shingle upper beach, strand line at toe of slope.	3		no repairs	>20
121AA901A 2701C05	Revetment	Large concrete blocks forming toe of vegetated dunes, with wide sandy beach in front. Small groyne field within beach.	30/09/2012	Halcrow MS	No significant change since last survey. Beach crest relatively wide, levels remain relatively high partially burying groynes and concrete blocks (relic tank defences). Groynes in poor condition, gaps and some missing planks. Dunes well vegetated.	3	Repair gaps in groynes.	routine	6 - 10
121AA901A 2701C06	Embankment	Variety of protection types for toe of earth bank including concrete blocks, rock gabions and rubble.	30/09/2012	Halcrow MS	No significant change since last survey. Dunes well vegetated with no significant signs of erosion. Concrete blocks (relic tank defences) and rock mostly buried, Relatively narrow sand beach with strand line at toe of dunes.	3	Dune management.	routine	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 2701C07	Dunes	Vegetated dunes leading into the mouth of the Aln. Wide sandy beach divided by the outflowing river.	30/09/2012	Halcrow MS	Beach levels relatively high, concrete blocks (relic tank defences) mostly buried. No signs of erosion of low vegetated slope fronting car park frontage. Minor erosion at access points.	3	Dune management.	routine	6 - 10
121AA901A 2701C08	Dunes	Low sand dunes fronted by wide sandy beach	30/09/2012	Halcrow MS	Dunes well vegetated with some historic signs of erosion of front face. Some embryo dune grown on foreshore. Relatively wide sandy beach.	3	Dune management.	routine	11 - 20
121AA901A 2801C01	Dunes	Vegetated dunes with sandy beach	30/09/2012	Halcrow MS	Well vegetated wide dunes, some embryo dunes evident. No significant signs of erosion along toe, relatively wide sandy beach.	2	None.	no repairs	>20
121AA901A 2801C02	Sea Wall	Masonry wall with a concrete toe fronting vegetated dunes with road and residential properties behind	30/09/2012	Halcrow MS	Masonry wall generally in good condition, some minor abrasion of blocks and localised loss of mortar. Initial signs of seaward rotation and cracking of central section. Toe of wall well buried by sandy beach at north end, no signs of undermining.	3	Monitor movement of central section.	no repairs	>20
121AA901A 2801C03	Sea Wall	Low masonry wall fronting Vegetated bank with a road and residential properties behind. In front of the wall is a mixture of rubble and concrete debris.	30/09/2012	Halcrow MS	Masonry wall appears relatively new (1993?) and in good condition with all masonry and joint sound. No signs of movement, loss of backfill, abrasion or cracks. All capping slabs in good condition.	2	None.	no repairs	>20
121AA901A 2801C04	Sea Wall	Low masonry wall providing protection to a children's play area	30/09/2012	Halcrow MS	Masonry wall appears relatively new (1993?) and in good condition, all masonry blocks and joints sound. All capping slabs in good condition.	2	None.	no repairs	>20
121AA901A 2801C05	Access Ramp	Concrete access ramp fronting residential properties	30/09/2012	Halcrow MS	Concrete boat ramp in good condition, no signs of cracking or undercutting of toe. Vehicle security barrier to River Aln Boat Club in good condition.	2	None.	no repairs	>20
121AA901A 2801C06	Sea Wall	Masonry wall with higher land behind fronted by saltmarsh. Walkway on top of the wall.	30/09/2012	Halcrow MS	Masonry wall generally in fair condition. Some abrasion of blocks and localised loss of mortar. Large gaps between blocks and loss of masonry at a few locations including outer corner. Slight evidence of rotational movement at north end.	3	Repair mortar joints and missing masonry.	routine	>20
121AA901A 2801C07	Embankment	Low earth bank fronted by saltmarsh	30/09/2012	Halcrow MS	No significant change evident since last survey. Wide salt marsh protecting earth bank which is generally in fair condition,	2	Monitor erosion.	no repairs	11 - 20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
					some localised erosion evident along toe.				
121AA901A 2801C08	Embankment	Saltmarsh to slightly higher land forming control point in estuary	30/09/2012	Halcrow MS	No significant change since last survey. Some improvement to saltmarsh but continued slow erosion.	2	None.	no repairs	>20
121AA901A 2801C09	Embankment	Earth embankment	30/09/2012	Halcrow MS	Significant erosion and undercutting of low vegetated banks evident along most of the frontage.	4	Monitor erosion.	no repairs	6 - 10
121AA901A 2801C10	Sea Wall	Low masonry wall to edge of estuary. Walkway at the crest of the wall.	30/09/2012	Halcrow MS	Missing masonry blocks and capping at south end. Localised loss of mortar beneath capping blocks. Historic settlement of central section causing open joints, recent loss of material behind wall causing small pot hole to open in foot path.	4	Repair mortar joints, repair footpath, rebuild central section of wall.	routine	6 - 10
121AA901A 2801C11	Flood Plain	Vegetated flood plain	30/09/2012	Halcrow MS	No significant change evident since last survey.	3	None.	no repairs	>20
121AA901A 2801C12	Flood Plain	vegetated flood plain	30/09/2012	Halcrow MS	Wide healthy salt marsh. No significant change since last survey.	2	None.	no repairs	>20
121AA901A 2801C13	Sea Wall	Low masonry wall fronting a vegetated bank that is church hill	01/10/2012	Halcrow MS	Loss of masonry blocks at centre and washout of backfill. Partial localised settlement and centre and resultant full height cracks through mortar joints evident. Some outflanking at loose blocks south end. Beach levels high at north end.	4	Replace missing blocks, re-point joints, monitor settlement.	routine	6 - 10
121AA901A 2901C01	Dunes	Partly vegetated dunes with wide sandy beach in front, forming central section of Alnmouth Bay.	01/10/2012	Halcrow MS	Dunes generally stable and well vegetated. Localised active and widespread slumping down dune face at north end. Concrete blocks (65no. relica tank defences) not providing effective protection. Some development of central and south dune face.	3	Reposition concrete blocks to protect north end.	routine	>20
121AA901A 2901C02	Dunes	Partly vegetated dunes with wide sandy beach in front, forming south section of Alnmouth Bay & running down to Amble. Concrete cubes along northern section fronting Birling Links.	01/10/2012	Halcrow MS	Dunes in the most northerly section stable over short length. At concrete blocks (relic tank defence) dunes are actively eroding, in places exposed underlying clay. South of concrete blocks, dunes more stable, very healthy in most southerly section.	3	Dune management.	routine	>20
121AA901A 3001C01	Breakwater	Harbour arm with rock armour inner & outer faces & concrete walkway on crest.	01/10/2012	Halcrow MS	Rock armour appears stable, no displace rock or major voids evident. Concrete blocks and masonry slope appear stable and in good condition. Concrete crest in good/fair condition, no signs of	3	Monitor.	no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
					settlement, spalling or cracking.				
121AA901A 3001C02	Sea Wall	Concrete/masonry extension to pier, accommodating the navigation beacon	01/10/2012	Halcrow MS	Large voids in concrete face. Section of concrete deck missing. Full height crack and displacement of seaward 5m section identified in 2010 survey but no significant recent change evident.	5	Repair to end section needed, but no coast protection benefit.	urgent	6 - 10
121AA901A 3001C03	Breakwater	Harbour arm with rock armour inner & outer faces & concrete walkway on crest. Structure widens out at base	01/10/2012	Halcrow MS	Masonry revetment in fair/good condition, repairs to gaps between block good. Some movement of small toe armour at seaward end. Large armourstone at root appears stable, no displacement or voids. Concrete deck in good condition, no settlement evident.	3	Repair gaps in masonry, monitor toe armour and replace as necessary.	routine	>20
121AA901A 3001C04	North Wave Basin, Warkworth Harbour	Inside corner of North Pier. Sand beach with rock revetment.	01/10/2012	Halcrow MS	Rock revetment is generally stable and in good/ fair condition. Some movement of rocks at toe and flattening of slope at south end. Sandy beach levels relatively high burying toe. Dunes well vegetated and stable, no erosion of dunes at crest evident.	3	None.	no repairs	>20
121AA901A 3001C05	Sea Wall	Vertical wall with concrete capping beam & tarmac surfacing behind forming quayside. No foreshore.	01/10/2012	Halcrow MS	Concrete quay and timber cope generally in good condition, no signs of movement or settlement. Small localised cracks in deck. Masonry walls in small dock in reasonable condition, small loss of mortar, void evident in upper masonry wall.	3	Inspecting of lower wall by boat. Repair mortar.	routine	>20
121AA901A 3001C06	Sea Wall	Vertical wall with concrete capping beam & tarmac surfacing behind forming quayside. No foreshore.	01/10/2012	Halcrow MS	Masonry walls in small dock in fair condition. Some missing mortar missing and loss of coping. Concrete quaywall generally in good condition. Significant settlement of 100m east section in 2008 due to scour at toe, area still closed to public.	5	Inspect lower walls by boat, dive survey of toe. Rebuild north section of wall.	urgent	11 - 20
121AA901A 3001C07	Revetment	Rock armour revetment to low, gentle slope, with sandy beach. Afforded significant shelter from South Jetty.	01/10/2012	Halcrow MS	Revetment loosely packed, movement of stones evident. Some outflanking at landward end with some tipping of rubble, soil and pouring concrete. Timber link-span bridge (constructed after quay failure in Sept 2008) in good condition.	4	Extend revetment to prevent outflanking. Replace missing stones.	routine	1 - 5
121AA901A 3001C08	Coastal Slope	Natural gentle coastal slope, vegetated near crest, with a sheltered sandy beach.	01/10/2012	Halcrow MS	No significant change evident since last survey. Small localised areas of erosion continue in undefended sections with	4	Tidy-up unsightly attempt to arrest erosion.	routine	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
					slumping in the low cliff. Attempts to arrest this made by tipping rubble and soil and pouring concrete slurry over part of length.				
121AA901A 3001C09	Sea Wall	Low masonry wall at back of sheltered embayment, with partially vegetated sandy beach in front, & amenity area behind.	01/10/2012	Halcrow MS	Wide stable dune system continues to develop along beach crest. Masonry wall well protected and generally in fair condition, some localised areas of missing blocks which require repair.	2	Maintenance repairs to holes in wall.	routine	>20
121AA901A 3001C10	Sea Wall	Low concrete seawall along side of embayment. Sandy beach to the west, exposed rock to the east. Backed by road / promenade.	01/10/2012	Halcrow MS	Concrete wall in fair condition, no undermining or movement evident. Some localised vertical and horizontal cracking along entire length, spalling along sections of cope. Access ramp in very poor condition, significant spalling, abrasion and voids.	4	Repairs to wall, coping and ramp.	urgent	6 - 10
121AA901A 3001C11	Other	Timber jetty with walkway, forming a continuation of the quay alignment & linking up to the lighthouse. Sheltered 'lagoon' formed landward.	01/10/2012	Halcrow MS	Timber jetty generally in good condition. Timber piles, decking and handrailing in good condition. Half-tide barrier functioning well. Timber linkspan bridge (constructed after quay failure in Sept 2008) in good condition. New lighting being installed.	2	None.	no repairs	11 - 20
121AA901A 3101C01	Other	Concrete pier head, housing the lighthouse, & linking up to the South Jetty structure.	01/10/2012	Halcrow MS	No significant change since last survey. Erosion of concrete/masonry at root of pier/jetty. Walkway section fair condition. Access steps in bad condition at southern end. Cracks and deterioration in condition of concrete at landward end.	3	Fill cracks.	routine	>20
121AA901A 3101C02	Sea Wall	Landward section of South Pier, between mainland and intersection with South Jetty. Inner face comprises vertical concrete face with sloping concrete apron at toe, and a stony foreshore. The deck is concrete. The outer wall is vertical concrete with ro	01/10/2012	Halcrow MS	No significant change. Inner concrete apron in fair condition. Abrasion/ spalling to inner face at South Pier. Rock armour appears stable but functional. Concrete stubb groyne very abraded and undercut. Outer wall sound with local minor deterioration.	3	Repointing and fill cracks. Fill missing masonry	routine	>20
121AA901A 3101C03	Sea Wall	Vertical concrete seawall forming part of base of South Pier. Sandy/rocky beach in front, access & properties behind.	01/10/2012	Halcrow MS	Abrasion and localised spalling to wall, minor damage to its crest and deck. Access steps are highly abraded and uneven. Holes in the deck where handrailing installed.	3	Minor repairs to the wall face, crest and deck. Maintenance to access steps.	routine	>20
121AA901A 3101C04	Cliff	Rock cliffs & wide rock foreshore, forming headland. Concrete wall	01/10/2012	Halcrow MS	No significant change since last survey. Longitudinal cracking along crest of	3	Repair cracks in wall	routine	11 - 20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
		on the top of the rock cliff.			concrete wall fronting Cliff House, undermining of toe at west end. Access steps heavily abraded.				
121AA901A 3101C05	Sea Wall	Near vertical concrete seawall founded to rock. Steel handrailing provide protection for walkway.	01/10/2012	Halcrow MS	Wall generally in fair/ good condition, no signs of movement or undermining. Some localised abrasion and spalling along cope. Localised spalling, staining and loss of sealant along setback wall. Some minor unravelling of tarmac along promenade.	3	Concrete repairs to spalling, cracks. Repairs to surfacing.	routine	11 - 20
121AA901A 3101C06	Cliff	Low vegetated cliffs with sand beach and rock foreshore. Some localised sections of rock armour protection to toe of cliffs.	01/10/2012	Halcrow MS	Well vegetated, wide dune system with partial erosion along majority of toe. Partial slipping of dune face and loss of vegetation at south end. Loosely placed armourstone at south end providing limited protection. Generally narrow sandy beach.	4	Consider formal erosion protection along toe of dunes. Dune management.	routine	6 - 10
121AA901A 3101C07	Sea Wall	Concrete seawall around slight promontory, founded on rock outcrop.	01/10/2012	Halcrow MS	Concrete wall in very good condition. No signs of movement or undermining, well founded on rock slab. Minor onset of outflanking at north end. Localised loss of sealant with some gaps evident. Loosely placed armourstone at north end.	2	Replace lost sealant.	routine	>20
121AA901A 3101C08	Cliff	Low vegetated soft cliffs fronted by a beach and rocky foreshore	01/10/2012	Halcrow MS	Wide and well established dunes. Narrow sandy foreshore with strand line at toe causing partial erosion of soft upper cliffs, loss of vegetation along toe at central and south, some overhanging evident but no slumping. No properties at risk.	3	Monitor erosion at toe.	no repairs	11 - 20
121AA901A 3101C09	Dunes	Vegetated dunes & wide sandy beach. Old, repaired concrete outfall structure on beach.	01/10/2012	Halcrow MS	No significant change since last survey. The dunes are stable and well vegetated. Wide sandy foreshore. Outfall structure in poor condition with some undermining, requires either repair or removal.	3	Repair or removal of outfall structure.	urgent	>20
121AA901A 3101C10	Sea Wall	Low masonry and block seawall backed by a narrow rock revetment at the toe of soft cliffs	01/10/2012	Halcrow MS	Low masonry seawall in good condition. No signs of movement. Well founded on rock ledge at north end, toe buried by sandy beach at south end. Rock armour appears stable. Coastal slope well vegetated, no signs of erosion.	2	None.	no repairs	>20
121AA901A 3101C11	Cliff	Vegetated cliff with rocky foreshore	01/10/2012	Halcrow MS	No significant change. Cliffs are well vegetated, appear to be mostly stable, some very local slumps have occurred. There is caving at the toe in three small	2	None.	no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
					areas but this is not precipitating major failures. One larger cave/crevice is also present.				
121AA901A 3101C12	Dunes	Vegetated dunes/low cliffs fronted by beach. Oufall onto beach.	01/10/2012	Halcrow MS	Dunes well vegetated and stable. Outfall at south end in poor condition, hole in concrete pipe. Gabions at access steps in fair condition, some initial deformation evident. Some localised erosion of dune face at south end.	3	Repair/remove outfall	routine	>20
121AA901A 3101C13	Cliff	Vegetated cliff with rocky foreshore	01/10/2012	Halcrow MS	Stable rock foreshore protecting well vegetated cliffs. No evidence of recent erosion or slips.	2	None.	no repairs	>20
121AA901A 3101C14	Revetment	Concrete seawall and rock revetment at promontory with vegetated cliffs behind	01/10/2012	Halcrow MS	Rock armour appears stable though informally placed. Cliff well vegetated and appears relatively stable. Sparser rock at south end with less vegetation and more erosion. Some rubble/rock placed to counter outflanking of the revetment.	3	Monitor erosion	routine	>20
121AA901A 3201C01	Other	Coastal slope fronted by narrow sandy/shingle beach	01/10/2012	Halcrow MS	Slope is well vegetated, localised minor erosion evident. Wide sandy beach with strand line 10m from toe. Properties within 10m of slope.	3	Monitor erosion. Consider dune management.	routine	>20
121AA901A 3201C02	Revetment - Hauxley Links	Rock armour revetment in front of low soft cliff. Sandy beach.	01/10/2012	Halcrow MS	No significant change since last survey. Earth slope behind revetment well vegetated and appears stable. Rock loosely packed, some locally displaced stones. Healthy wide sandy beach largely burying rock, beach narrows at south end.	3	None.	no repairs	11 - 20
121AA901A 3201C03	Revetment	Wide rock armour revetment at toe of earth embankment.	01/10/2012	Halcrow MS	Rock revetment appears stable. Evidence of dumped rubble at south end. Slopes well vegetated, no signs of erosion.	2	None.	no repairs	>20
121AA901A 3201C04	Revetment/E mbankment - Hauxley Links	Revetment comprising large concrete cubes place in an ad-hoc straight alignment at toe of earth embankment. Sandy beach in front.	01/10/2012	Halcrow MS	Concrete blocks (relic tank defences) abraded, some settlement evident but none displaced. Significant erosion of backing slopes along most of the frontage. Large gaps in adhoc placed rock armour, dumped rubble evident. No properties at risk.	4	Consider formalised revetment to protect upper slope.	routine	6 - 10
121AA901A 3201C05	Revetment	Rock armour revetment/bullnose extending beyond the adjacent line of defence, with vegetated dunes behind & sandy beach in front.	01/10/2012	Halcrow MS	Some armour stones displaced but revetment generally in fair condition. Erosion of dunes behind revetment causing outflanking. Concrete pier/outlet structure in poor condition with	3	Remove/repair outfall	routine	11 - 20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
					undermining evident on the southern side and head.				
121AA901A 3201C06	Dunes	Partially vegetated dunes, with wide sandy beach	01/10/2012	Halcrow MS	High, wide and well vegetated dunes. Historic erosion along face evident along majority of frontage but may be stabilising. Beach levels relatively healthy, strand line some distance from toe.	3		no repairs	>20
121AA901A 3201C07	Cliff	Soft sand upper cliff and clay/peat lower cliff, with sandy beach & rocky outcrops. In front of vegetated dunes	01/10/2012	Halcrow MS	Seaward face of dunes showing signs of erosion along entire length. Loss of vegetation and cliffing of upper slope. Harder peat layer at toe exposed although eroding more slowly than dunes above. No properties at risk.	3	Monitor erosion.	no repairs	11 - 20
121AA901A 3201C08	Cliff	Soft sand upper cliff and clay/peat lower cliff, with sandy beach & rocky outcrops. In front of vegetated dunes	01/10/2012	Halcrow MS	Relatively rapid erosion of lower peat and upper dune at northern end. At southern end cliffs are eroding more rapidly through ongoing slumps before becoming more stable.	3	Monitor ongoing erosion.	no repairs	11 - 20
121AA901A 3201C09	Breakwater	Small breakwater type structure, comprising large concrete blocks, running perpendicular for the shoreline, extending just beyond high water.	01/10/2012	Halcrow MS	Main outfall structure in fair condition, no signs of movement, appears stable. Some displaced blocks (relic tank defences) north and seaward of the outfall. Blocks in fair/ poor condition with some cracks. Outfall flap missing. Shingle beach healthy.	4	Re-fix cover to seaward end of outfall for health and safety reasons.	routine	>20
121AA901A 3201C10	Dunes	Vegetated dunes with wide sandy beach	01/10/2012	Halcrow MS	Dunes well vegetated, localised ongoing erosion of the seaward face through slumping directly above peat layer. Narrow shingle beach, strand line close to toe.	3	Monitor erosion of dunes.	routine	>20
121AA901A 3201C11	Dunes	Vegetated dunes with wide sandy beach	01/10/2012	Halcrow MS	No significant change. Localised erosion at centre near outfall, extending back to access car park. Cutback in cliff crest immediately south of rock armour at car park. Dunes to south are actively eroding, then stabilising towards south.	3	Monitor erosion of dunes.	routine	11 - 20
121AA901A 3201C12	Outfall - Hadston Carrs	Reinforced concrete outfall/culvert with side walls & apron. Flows through earth bank onto mainly sandy beach. Concrete access ramp to south.	01/10/2012	Halcrow MS	Concrete outlet structure in good condition. Some minor cracks and staining. No signs of undermining or settlement of main structure. Slabs at base of slipway undermined and breaking up. Erosion of slopes above outfall evident.	2	Fill gaps and voids between slipway and outfall south wall.	routine	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 3201C13	Revetment - Druridge Bay		01/10/2012	Halcrow MS	Revetment generally in good condition, no signs of movement at toe, no significant erosion at crest. Outflanking of southern end of revetment continues causing some unravelling/ movement at south end.	3	Consider extending erosion protection to south.	routine	11 - 20
121AA901A 3201C14	Dunes	Low soft cliffs/dunes with wide sandy beach in front forming northern section of Druridge Bay. Rounded pebbles (approx 200mm diameter) form informal toe of the dune.	01/10/2012	Halcrow MS	Dunes actively eroding along whole frontage. Significant erosion and cliffing of slopes at north end, cutting back to within a few meters of road.	4	Extend existing revetment to protect road at north end.	urgent	6 - 10
121AA901A 3201C15	Dunes	High dunes/sand cliff with wide sandy beach seaward forming main length of Druridge Bay. Concrete blocks (approx 1m cubed) placed along the toe of the dune at between 2 and 3m centres buried to varying degrees by the beach.	01/10/2012	Halcrow MS	Healthy well vegetated dunes and healthy shingle beach at north, increasing in width and sandy towards south. Strand line some way from dune toe. Minor slumping behind concrete blocks and access steps.	2	Monitor erosion behing blocks	no repairs	>20
121AA901A 3201C16	Dunes	Vegetated dunes with wide sandy beach. Forms southern section of Druridge Bay.	01/10/2012	Halcrow MS	No significant change since last survey. Ongoing localised slumping in seaward face, coastline embayed around each of the outfalls, caused by erosion. Most erosion near outfall channels. Concrete blocks (tank defences) used locally to limit erosion.	3	None.	routine	>20
121AA901A 3201C17	Revetment	Shallow rock armour revetment protecting lower half of vegetated dunes.	02/10/2012	Halcrow MS	Rock armour in fair/good condition, well buried at north end. Dune narrow but well vegetated, minor signs of erosion of slope behind crest. Concrete steps in good condition, partly buried. Outfall in good condition. Property close to cliff edge.	4	Monitor erosion.	no repairs	11 - 20
121AA901A 3201C18	Sea Wall	Low concrete wall built at the back of a rocky foreshore. Rock armour revetment behind wall protects vegetated cliff.	02/10/2012	Halcrow MS	Wall well founded on rock ledges, no signs of movement. Some abrasion, localised spalling and rust-staining, repairs in good condition Rock armour in good condition, gaps at south end, some erosion of upper some, tipped rubble evident.	3	Repair spalled concrete. Place additional rock armour.	routine	>20
121AA901A 3201C19	Revetment	Concrete blockwork revetment with low concrete wall at toe and rock foreshore.	02/10/2012	Halcrow MS	Concrete wall in good condition. Wall well founded on rock ledges, no signs of movement. Revetment in good condition, localised minor settlement in one location	2	Replace missing block.	routine	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
					and loss of one interlocking block. No signs of erosion at crest.				
121AA901A 3201C20	Dunes	Natural soft cliff/ dune at the back of high rock foreshore.	02/10/2012	Halcrow MS	No significant change sine last survey. Extensive rockfalls and slumps in softer material. No assets at risk.	3	None.	no repairs	6 - 10
121AA901A 3201C21	Dunes	Vegetated cliff with wide sandy beach, forming a short shallow bay between outcrops of Stark Letch Rocks and Brig Head.	02/10/2012	Halcrow MS	Slopes well vegetated, localised erosion and cliffing at toe along most of frontage. Relatively wide healthy sand beach at time of survey, strandline some distance from toe. Outfall in poor condition.	3	Monitor erosion.	no repairs	>20
121AA901A 3201C22	Embankment	Vegetated embankment rising out of the dunes to the north, founded on rocky/ stony foreshore.	02/10/2012	Halcrow MS	Slopes well vegetated, partial erosion along toe of slope. Gabions at south end in poor condition and ineffective. Cliffing and large scale slips across full height of slope at south end to within 2-3m, of road, re-grading of upper slope undertaken.	4	Consider erosion protection/ slope stabilisation solution.	urgent	>20
121AA901A 3301C01	Cliff	Low earth/rock cliffs with rocky outcropping foreshore forming Snab Point.	01/10/2012	Halcrow MS	Large but localised rockfalls at north end. Timber retaining wall in good condition, new upper section in 2012. Short masonry revetment in south collapsed. New timber steps in good condition. Erosion of soft upper cliffs at south headland.	3	Maintain access steps and monitor cliffs. Remove obsolete blockwork structure.	routine	11 - 20
121AA901A 3301C02	Cliff	Low rock cliff with rocky and sandy foreshore forming a bay which is sheltered by Snab point.	02/10/2012	Halcrow MS	Continued active erosion in soft upper cliff at north end with undercutting and rock falls in lower hard rock cliff. Cliffs to south end appear well vegetated and stable, protected by wide sandy foreshore.	3	Monitor erosion.	no repairs	>20
121AA901A 3401C01	Cliff	Low vegetated soft cliff with rocky toe at back of beach comprising of colliery waste.	02/10/2012	Halcrow MS	No significant change since last survey. Vegetated cliffs appear stable, some slumping in soft cliff material is observed to the south near junction with the low cliff/dune frontage. High and wide beach formed by colliery waste protects backing cliffs.	2	None.	no repairs	>20
121AA901A 3401C03	Flood bank with rock armour revetment		02/10/2012	Halcrow MS	No significant change since last survey. Embankment in good condition, runs to high ground. Rock revetment large angular stone stable.	3	6 monthly inspection required.	routine	>20
121AA901A	Flood bank		02/10/2012	Halcrow MS	No significant change since last survey.	3	6 monthly	no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
3401C04							inspection required		
121AA901A 3401C05	Cliff	Low vegetated cliff at back of beach. Beach comprised of colliery waste.	02/10/2012	Halcrow MS	Cliffs along entire frontage densely vegetated and stable. Healthy wide beach (mostly colliery waste) with single/ rubble berm. Localised erosion of vegetated slopes at access points from motorbikes/ 4WDs.	2	Maintain burn outlet to sea. Monitor erosion.	routine	>20
121AA901A 3401C06	Embankment	Embankment of tipped colliery waste. Tipping has now ceased due to due to closure of mine. Due to extension of the Power Station revetment (def. 34/00/2) the area of colliery waste embankment is now reduced to area north of the Power Station drainage out	02/10/2012	Halcrow MS	Significant ongoing erosion/ cliffing of tipped colliery waste long entire frontage, vertical cliffing 3-4m high. Sand shingle foreshore. No immediate assets at risk.	4	Consider formal erosion protection.	no repairs	6 - 10
121AA901A 3401C07	Revetment	Rock revetment. Original revetment constructed in 1995 was extended in 2005 to encompass the coal stocking yard area adjacent to the Power Station.	02/10/2012	Halcrow MS	No significant change since last survey. Rock revetment extension in very good condition.	1	None.	no repairs	>20
121AA901A 3401C08	Embankment	Power Station fronted by informal pathway below a coastal slope. The seaward side of the pathway is protected by tipped rock armour. Between this rock armour and the rock revetment of Defence Code 34/00/2 there is a roadway for the trucks down to the b	02/10/2012	Halcrow MS	Revetment in good condition, no signs of settlement. Some displaced rocks at south end and localised erosion behind crest, initial onset of outflanking.	2	Monitor erosion at south end.	no repairs	11 - 20
121AA901A 3501C01	Coastal Slope	Vegetated slope fronted by shingle and colliery waste beach with some cliffing in the beach profile	02/10/2012	Halcrow MS	Majority of vegetated slope remains stable with most of frontage protected by wide beach (colliery waste). Cliffs to the north of the unit are eroding to the immediate south of the revetment, onset of outflanking.	4	Monitor potential outflanking at north end.	no repairs	11 - 20
121AA901A 3501C03	Cliff	Low soft cliff with stoney foreshore forming south side of Beacon Point Headland.	02/10/2012	Halcrow MS	Continued erosion of soft cliff material at back of wide rock slab. Cliff has retreat close to access track at a number of locations. South side of headland more vegetated slightly more stable.	3		no repairs	>20
121AA901A 3501C04	Cliff	Low soft cliff/dunes with mainly sandy foreshore, forming central section of shallow bay. Large rock randomly dumped at the toe of the	02/10/2012	Halcrow MS	Localised erosion of soft lower cliffs, some active slumping of cliffs close to access track. Localised tipping of rubble evident to control erosion. Worst erosion	4	Monitor erosion, Reconfigure golf course as necessary	routine	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
		dunes.			at central section is unprotected. Golf course at risk.				
121AA901A 3501C05	Cliff	Low soft cliff with sandy/ stony foreshore	02/10/2012	Halcrow MS	No significant change evident since last survey. Historic slumping of soft vegetate cliffs, some recent localised erosion evident. Boundary fence close to edge, realigned around failed sections. Static caravans within 5m of cliff edge.	3	Monitor erosion, liaison with caravan park.	no repairs	1 - 5
121AA901A 3501C06	Revetment	Ad-Hoc Revetment comprising large concrete cubes buried at base of a soft cliff, with some boulders behind. The foreshore is a combination of rock and sandy beach.	02/10/2012	Halcrow MS	Cliff is well vegetated with no signs of recent erosion. Concrete blocks (relic tank defences) supplemented with boulders and construction waste appear to have slowed erosion. Boundary fence very close to cliff edge. Caravans within 5m of edge at risk.	4	Monitor erosion, liaise with caravan park.	urgent	1 - 5
121AA901A 3501C07	Cliff	Soft low cliff perched on outcropping hard rock, with rock strewn sandy beach at toe. Concrete rubble has been dumped on the upper slopes of the soft cliff.	02/10/2012	Halcrow MS	Rock foreshore appears stable. Soft upper cliff well vegetated, some localised erosion/ slumping. Undermining of concrete pill boxes, risk of collapse. Some ad-hoc dumping of boulders along soft cliff largely ineffective. Caravans with 5m of cliff edge.	4	Monitor erosion, liaise with caravan park.	no repairs	>20
121AA901A 3501C08	Sea Wall	Near vertical concrete seawall, founded on rock foreshore.	02/10/2012	Halcrow MS	No significant change since last survey. Concrete wall fair condition, some cracking and winnowing evident. Continued erosion of upper soft cliff continues. Caravans within 10m of cliff top, at risk.	4	Erosion protection to upper slope.	routine	6 - 10
121AA901A 3501C09	Cliff	Low earth/clay cliff on top of rock platform.	02/10/2012	Halcrow MS	Wide rock platform appears stable. Ongoing erosion and slumping of soft upper cliff along majority of frontage. Caravans within 15m of cliff edge, at risk.	3	Monitor erosion, liaise with caravan site.	no repairs	11 - 20
121AA901A 3501C10	Sea Wall	Near vertical concrete seawall, founded on rock foreshore, with low and gentle sloping concrete revetment at crest, protecting earth behind defences	02/10/2012	Halcrow MS	Rock foreshore appears stable. Concrete wall in very poor condition, undermining and collapse of west section, abrasion on seaward face. Mass concrete crest slab undermined, missing sections. Erosion of soft upper cliff causing outflanking.	5	Repair wall, erosion protection to upper cliff.	urgent	1 - 5
121AA901A 3501C11	Cliff	Low soft cliff with vegetated top founded on rocky foreshore forming north side of Beacon Point headland	02/10/2012	Halcrow MS	No significant change since last survey. Ongoing minor erosion of soft upper cliff and small-scale and localised slips/ slumps along majority of frontage. Short section of soft cliff cut back in northern section to footpath. Rock foreshore table.	3	Monitor.	no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 3601C01	Cliff	Low irregular rock cliff and rocky foreshore, with soft eroding layer on top of cliff. Localised concrete/masonry repairs where the rock cliff has eroded.	02/10/2012	Halcrow MS	Continued erosion since last survey. Continued deterioration of all masonry walls through toe undermining and loss of concrete apron. Voiding occurring at crest and geotextile and gravel placed on the cliff top (soft material) is not proving effective.	3	Erosion protection to upper slope, repair masonry walls	urgent	11 - 20
121AA901A 3601C06	Sea Wall	Recurved concrete seawall and integral promenade with all but the top of the recurved buried by the wide sandy beach	02/10/2012	Halcrow MS	Seawall and promenade appears in good condition. Beach levels very healthy, to 1m below crest along entire length. Some localised erosion at access ramp exposing geofabric. New offshore acropode breakwater appears in good condition.	2	Monitor beach changes following scheme.	routine	>20
121AA901A 3601C07	Sea Wall	Recurved concrete sea wall with concrete steps at toe, at the back of a wide sandy beach. Promenade fronted by the recurved sea wall and backed by a masonry sloped revetment protecting the residential properties behind.	02/10/2012	Halcrow MS	Seawall and promenade appear in very good condition. No evidence of settlement. Sealant joints new, minor and spalling in seaward face at south end. Handrailing in good condition. High beach levels burying apron. No groynes/ piles visible.	2	Continue to monitor beach levels.	routine	>20
121AA901A 3601C08	Revetment	Shallow sloping rock armour revetment backed by capping beam and seafront promenade backed by masonry sloped revetment.	02/10/2012	Halcrow MS	Seawall, promenade and revetment generally appear to be in a good condition. High beach crest level with promenade, rock mostly buried with some vegetation growth. Handrailing in good condition. New offshore concrete breakwater in good condition.	2	Continue to monitor beach levels.	routine	>20
121AA901A 3601C09	Cliff	Low rock outcrop forming southern end of sandy beach and coastal slope, backed by gently rising vegetated slope	02/10/2012	Halcrow MS	Coastal slopes well vegetated, no signs of erosion. Very healthy wide sandy beach following recent recharge scheme (2010), strand line 50m+ from toe of slopes.	2	Monitor beach levels.	no repairs	>20
121AA901A 3601C10	Cliff	Outcrop forming low rock cliff and foreshore with vegetated slope behind	02/10/2012	Halcrow MS	Lower rock platform largely stab le. Some localised breakup of rocks. Partial erosion of soft upper cliffs along most of the frontage.	2	None.	no repairs	>20
121AA901A 3601C11	Revetment	Rock armour revetment at the back of small inlet/ strongly indented bay with concrete outfall at centre	02/10/2012	Halcrow MS	The concrete outfall, associated masonry and concrete structures and rock revetment all appear to be in good condition. Evidence of outflanking of tie-in of the older concrete outfall in softer cliff material.	2	None.	no repairs	>20
121AA901A 3601C12	Sea Wall	Vertical concrete seawall with re- curved crest and narrow promenade behind. Short lengths of	02/10/2012	Halcrow MS	Wall appears in fair/good condition, well founded on foreshore, no settlement, minor under undercutting evident. Some	3	Localised repairs to wall, replacement hand	routine	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
		concrete toe proection works at interface with rock offeshore. Low exposed earth cliff at rear of promenade.			vertical cracks, abrasion and spalling. No sand foreshore. Partial erosion of upper cliff. Hand rail rusty, rail missing.		rail.		
121AA901A 3601C13	Sea Wall	Recurved concrete seawall and integrated promenade backed by low earth cliff. Founded on rock foreshore	02/10/2012	Halcrow MS	Wall generally in good condition. No settlement or cracks. Localised minor undermining/ breakup of additional toe apron. Newly replaced sealant in good condition. Some minor rusting to handrailing. No erosion to upper grass crest	2	None.	no repairs	>20
121AA901A 3601C14	Breakwater	Linear rock armour breakwater	02/10/2012	Halcrow MS	Rock breakwater in good condition. minor settlement along crest evident. Armour stable, no significant movement apparent although some minor displacements of smaller filter/ core material evident along southeast side.	2	Monitor displaced filter/core	no repairs	>20
121AA901A 3601C15	Revetment	Recurved concrete seawall with a short rock revetment at the toe	02/10/2012	Halcrow MS	Relic asset. Rock armour removed, likely at the same time as construction of Maritime Centre (2011/12).	2	None.	routine	>20
121AA901A 3701C01	Cliff	Low soft cliffs with some debris at toe sitting on raised rock platforms/ beaches	02/10/2012	Halcrow MS	Partial erosion of upper cliffs along most of frontage. Significant tipping of construction waste to slow erosion with some limited effect. Property boundary fences at top of slope, properties at risk.	4	Consider formal erosion protection.	no repairs	11 - 20
121AA901A 3701C02	Cliff	Rock cliff with scree at toe forming small bay between two areas of outcropping rock	03/10/2012	Halcrow MS	Ongoing erosion and collapse of cliffs, localised slumps, occasional rockfalls in hard rock. Whole length is active and is now precarious. Temporary closure of cliff top footpath from Aug-12 to Feb-13. No properties immediately at risk.	5	Monitor ongoing erosion. Liaison woith adjacent caravan park.	no repairs	1 - 5
121AA901A 3701C03	Breakwater	Exposed earth cliff with rubble foreshore and regular discontinuous low rock armour breakwater.	02/10/2012	Halcrow MS	Significant and ongoing erosion/ cliffing of soft upper cliff along majority of frontage. Bolders/ rubble along toe. Collapse of boundary walls onto foreshore. Slipway/ rock armour protection in fair condition. Caravans within 5m of cliff edge, at risk.	5	Consider formal erosion protection, liaison with caravan park.	no repairs	6 - 10
121AA901A 3801C01	Embankment	Low earth embankment/ cliff forming north bank of estuary mouth with sandy foreshore	02/10/2012	Halcrow MS	No significant change since last survey. Dunes generally well vegetated and appear stable. Wide spit on the northern side of the estuary mouth, constraining the channel towards the south shore.	2	None.	no repairs	>20
121AA901A	Embankment	Low earth embankment/cliff	03/10/2012	Halcrow MS	Shallow slopes well vegetated and appear	2	None.	no repairs	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
3801C02		forming south bank of estuary mouth with sandy foreshore			stable. Healthy sandy foreshore, strand line 5-10m from toe.				
121AA901A 3901C01	Cliff	Partially vegetated clay cliff with wide sandy beach	03/10/2012	Halcrow MS	Slopes partly vegetated, erosion and cliffing along majority of frontage. Sandy beach, strand line at toe of slope. Rock armour/ boulders placed at south end to reduce erosion at access ramp, partially successful. No properties at immediate risk.	4	Monitoring cliff recession. Consider management options.	routine	6 - 10
121AA901A 3901C03	Cliff	Low, vegetated clay cliff with cobbles at toe and a wide sandy beach	03/10/2012	Halcrow MS	Coastal slope well vegetated, historic erosion along toe and localised slumping evident along majority of frontage, signs of recovery. Recent erosion at north end adjacent to revetment. Beach levels relatively healthy, strand line 5m from toe.	3	Monitor erosion at northern end for signs of outflanking of revetment.	no repairs	11 - 20
121AA901A 3901C04	Cliff	Low vegetated clay cliff with beach build up in lee of the Rockers outcrop	03/10/2012	Halcrow MS	Wide well vegetated and stable dunes, occasional low areas along crest. Wide healthy beach, strandline 10m from toe. Significant partial erosion, cliffing and cutback at south end adjacent to revetment.	3	Consider extending revetment northwards.	no repairs	>20
121AA901A 3901C05	Revetment	Rock armour revetment giving toe protection to vegetated coastal slope	03/10/2012	Halcrow MS	Rock armour appears stable, no signs of settlement or movement at toe. Upper slopes well vegetated, no erosion evident. Continued outflanking at north and south ends. Sheet piled toe of ramp exposed. Beach levels generally healthy.	2	Consider extending to north and south to prevent outflanking.	no repairs	>20
121AA901A 4001C01	Revetment	Rock armour revetment and rock gabions protecting low soft cliff, with wide sandy beach infront.	03/10/2012	Halcrow MS	Revetment in fair/ good condition, some localised displacement of armour along toe and area of settlement of slope. Gabions along crest in good condition, no splitting evident. Crest well vegetated, no erosion evident. Access ramp in good condition.	3	Monitor displacement of toe armour/ settlement and gabions.	routine	11 - 20
121AA901A 4001C02	Revetment	Rock revetment with large units on lower slope, and smaller units on upper slope separated by steel breast work. Scree on beach fronted by rock intertidal platform.	03/10/2012	Halcrow MS	Revetment profile uneven, some displacement of rocks along toe. Some settlement/ slumping evident. Steel breastwork in poor condition, corrosion and broken/missing members. Erosion and cliffing evident along vegetated crest.	3	Reprofiling/ replacing armour. Additional erosion protection along crest.	routine	>20

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121AA901A 4001C03	Sea Wall	Composite seawall comprising timber breastwork and concrete and rock armour apron with narrow foreshore	03/10/2012	Halcrow MS	Timber breastwork in poor condition, significant abrasion, localised breakage and considerable wash-out and voiding of fill material. Concrete foundation/ apron appears stable, no movement or undermining evident. Toe armour appears stable.	4	Repair/ replace damaged breastwork.	urgent	6 - 10
121AA901A 4001C04	Sea Wall	Vertical concrete seawall and crestwall with concrete groynes on scree strewn rock foreshore forming part of the Blyth East Pier	03/10/2012	Halcrow MS	Seawall in poor/ fair condition. Appears well founded on rock foreshore, no movement or undermining evident. Significant cracks and spalling along crest well and decking, movement to one section of crest wall. Groynes completely dilapidated.	3	Repairs to cracks, detailed assessment of crest wall failure.	urgent	6 - 10
121AA901A 4001C05	Breakwater	Concrete breakwater with raised timber walkway on crest, founded on bedrock, forming the tip of Blyth East Pier	03/10/2012	Halcrow MS	Access to northern 1/3 only. Concrete superstructure appears in fair condition, well founded on rock foreshore, no settlement. Significant cracking/ spalling of concrete trestle legs. Some missing boards in timber deck and missing handrailing.	3	Repair cracks in trestle, replace missing decking and handrailings.	no repairs	>20
121AA901A 4201C03	Dunes	Sandy beach with vegetated sand dune behind and gabion revetment at base of dune.	03/10/2012	Halcrow MS	Dunes relatively narrow, cliffing and partial loss of vegetation, complete loss at north end. Gabions in poor/ fair condition, some toe baskets burst. Concrete wall generally in good condition, minor cracking in some planks. Strandline at toe of dunes.	4	Repair gabions, extend to north.	routine	6 - 10
121AA901A 4201C04	Sea Wall	Composite seawall comprising near vertical solid concrete wall with vertical concrete plank and post wall sitting on crest. Wide sandy beach at toe. Returns inland at south end to allow beach access for road.	03/10/2012	Halcrow MS	Wall in fair/ good condition, no evidence of movement or undermining, some minor cracking. Toe apron exposed, covered by rocks. Some ah-hoc tipping of precast concrete and poured concrete along south flank. No signs of erosion along crest.	3	Monitor beach levels at toe.	no repairs	>20
121AA901A 4201C05	Sea Wall	Concrete seawall with protruding crest lip and promenade behind. Wide sandy beach in front.	03/10/2012	Halcrow MS	Wall in good condition, no signs of movement, some vertical cracking/ spalling. Promenade and setback wall in good condition. Repairs to balustrade on access steps still good. South section of wall well buried by vegetated dunes.	2	Repair cracks.	routine	>20
121AA901A 4201C06	Sea Wall	Near vertical concrete seawall with lip at crest in advance of adjoining defences. Wide sandy beach in	03/10/2012	Halcrow MS	Wall in good condition, no signs of movement or undermining. Some vertical cracks and loss of mortar beneath cope.	2	Repair to cracks.	routine	>20

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		front.			Relatively healthy sandy beach. Promenade surfacing and setback wall in good condition.				
121AA901A 4201C07	Sea Wall	Near vertical concrete seawall with lip at crest, almost buried by wide sandy beach in front. An outfall consisting of steel sheet piles and concrete is partially buried.	03/10/2012	Halcrow MS	Wall in fair condition. Some minor cracks, areas of localised spalling/abrasion exposing rebar on wall and ramp. More gaps/cracks in capping blocks at south end. Surfacing in good condition. Beach levels relatively high. Groyne in fair condition.	2	Repair abrasion/ cracks.	routine	>20
121AA901A 4201C08	Sea Wall	Steel sheet piling with concrete capping beam forming the southern end of the South beach promenade.	03/10/2012	Halcrow MS	Sheet piles generally in fair/good condition. No deformation evident, surface corrosion and significant loss of thickness. Beach levels high, most of structure buried. Some loss of mortar between copes blocks. Promenade surfacing in good condition.	3	Monitor corrosion.	no repairs	11 - 20
121AA901A 4201C10	Sea Wall	Vertical brick wall with capping beam and concrete footing, at the back of a wide sandy beach with a partially vegetated low dune immediately in front of the sea wall.	03/10/2012	Halcrow MS	Brickwork wall generally in good condition, some vertical cracks, some seaward rotation evident to south end. Wall largely buried by narrow but healthy vegetated dunes. Beach levels healthy, strand line 20-30m from toe of dune.	3	Minor repairs to cracks, strongbacks and footings.	no repairs	6 - 10
121AA901A 4201C11	Sea Wall	Vertical seawall comprising precast concrete planks spanning between concrete posts with a wide sandy beach and partially vegetated dune/slope in front. Level of dune/slope varies, almost burying walls in places.	03/10/2012	Halcrow MS	Wall generally in good condition, some slight seaward rotation at north end. Occasional vertical cracking and spalling of planks, some planks missing. Healthy but narrow vegetated dune protecting wall at north end, narrowing towards south.	3	Dune management, replace missing planks, monitor movement.	no repairs	>20
121AA901A 4301C01	Dunes	Vegetated dunes with timber groyne fields in the wide sandy beach in front.	03/10/2012	Halcrow MS	Dunes well vegetated, partial erosion/ cliffing and loss of vegetated to front face. Groynes in fair/ poor condition, some gaps and missing boards, arson damage to one section. Upper beach level relatively high, no level difference across groynes.	4	Dune management, replace missing/damaged planks.	routine	11 - 20
121AA901A 4301C02	Dunes	High sand dunes with exposed seaward face but vegetated at crest, with narrow sandy beach in front.	03/10/2012	Halcrow MS	Wide well vegetated gently sloping dune system, appears stable. Significant but localised cliffing at north end adjacent to drainage channel. General erosion at access tracks. Beach levels relatively healthy, strand line some distance from toe of dunes.	2	Dune management.	routine	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 4401C01	Sea Wall	Low near vertical masonry wall providing toe protection to high vegetated slope. Sandy beach in front is partially vegetated.	03/10/2012	Halcrow MS	Masonry wall in good condition, no signs of movement or mortar loss to visible sections. Beach level very high, strand line 30m from toe of dune. Central section and all of lower wall buried. Dune actively advancing at central section.	2	None.	no repairs	>20
121AA901A 4401C02	Sea Wall	Composite defence structure reinforcing the western entrance to Seaton Burn. Comprises: timber groyne extending from near the root of the original masonry harbour arm and converging with it; short concrete wall connecting the end of the arm to the groyne	03/10/2012	Halcrow MS	Masonry section of groyne well buried, timber section in poor condition. Boards missing at central section, arson damage to post and bracing at landward end. Beach levels high, similar level on either side. Ad-hoc tipping of rocks at seaward end.	4	Repair timber groyne and fill gaps in backing infill under deck.	routine	6 - 10
121AA901A 4401C03	Sea Wall	Masonry harbour arm west of the western entrance to Eastern Sluice	03/10/2012	Halcrow MS	Masonry seawall in fair condition. No movement evident, some cracks and some loose blocks. Some undermining of deck, localised concrete repairs good.	3	Monitor undermining of deck, fill gaps between masonry blocks.	routine	>20
121AA901A 4401C04	Sea Wall	Vertical masonry wall forming west bank of Eastern Sluice west channel. No foreshore at high water, but mud/ shingle exposed at low tide.	04/10/2012	Halcrow MS	Masonry wall in fair condition, some gaps between in joints. No signs of movement or undermining. Mortar repairs at crest still good. Accumulation of sand along crest making the path difficult and dangerous to walk along.	3	Clear sand from crest. Re-pointing of joints.	routine	>20
121AA901A 4401C05	Sea Wall	Vertical masonry wall forming north bank of burn immediately upstream of split in channel. Foreshore only exposed at low water.	04/10/2012	Halcrow MS	Wall generally in fair condition, no signs of undermining. Some voids, loss of mortar and slight bulging in some areas. Small localised voids in fill behind cope. Large crack at top of ramp, settlement of bottom section, some movement in side wall.	3	Fill gaps/ repoint, rebuild ramp side wall, monitor settlement at toe.	routine	>20
121AA901A 4401C06	Sea Wall	Vertical masonry wall forming south bank of burn immediately upstream of split in channel. Crest level varies to tie in rising land behind.	04/10/2012	Halcrow MS	Wall is generally in a fair condition with no signs of movement. Localised cracking and significant spalling to concrete capping beam at east section. Displaced blocks and gaps along entire length, notably in the base. Ladders in fair condition.	4	Repair coping, reinstate missing blocks, repoint	urgent	11 - 20
121AA901A 4401C07	Sea Wall	Channel carved out of high rock outcrop providing second outlet for Seaton Burn out to sea. Both sides comprise vertical rock faces with steep earth slopes on top.	03/10/2012	Halcrow MS	Masonry wall generally in fair condition. Gaps and loose/ missing blocks throughout. South east section extremely dilapidated, exposing the earth cliff behind. Erosion is also occurring at the	3	Replace missing blocks, repoint, rebuild where necessary.	routine	6 - 10

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
					eastern end of the section. Cliff sections appears stable.				
121AA901A 4401C08	Sea Wall	Vertical masonry wall forming east bank of Seaton Sluice west channel.	04/10/2012	Halcrow MS	Wall generally in good condition. Some area of minor settlement evident. Some cracks, displaced blocks and loss of mortar along inner section. One significant hole in wall reported in 2010 survey not identified.	3	Repair minor gaps and voids. Repair hole.	routine	>20
121AA901A 4401C09	Revetment	Rock armour revetment with remains of masonry wall acting as toe protection and backed by concrete pier (Defence Code 44/12/1).	04/10/2012	Halcrow MS	Grouted stone revetment in good condition, no signs of settlement or undermining at toe. No significant gaps apparent. Some displace blocks at toe but no recent change.	2	None.	no repairs	>20
121AA901A 4401C10	Sea Wall	Concrete pier with concrete crest wall on seaward side founded on a rocky outcrop and with rock armour (Defence Code 44/11/1) at toe.	04/10/2012	Halcrow MS	Seawall in good condition, well founded on rock foreshore. No signs of movement or settlement. Minor abrasion to blocks/ apron and some initial undercutting of apron head. Missing joint sealant. Handrailing and ladder in good condition.	2	Replace sealant, monitor undercutting of apron.	no repairs	>20
121AA901A 4401C11	Sea Wall	Vertical masonry seawall founded on rocky foreshore with sloping toe protection comprising boulders.	03/10/2012	Halcrow MS	Wall in fair condition. Concrete toe well founded on rock foreshore, no signs of movement or undermining. Previously repaired masonry still good. Some loss of mortar between blocks. Handrail, surfacing steps in fair condition.	3	Repoint, replace eroded blocks, stabilise eroding land behind crest	routine	>20
121AA901A 4401C12	Cliff	Rock cliff with earth slope above.	03/11/2012	Halcrow MS	Erosion of cliff line continued, encroaching on current fence line. Slippage of grass/soil near footpath adjacent to Watch House east boundary wall prior to 2008 inspections, but no activity since. Two areas of cave formation at the base.	4	Stabilise soft upper cliffs adjacent to Watch House.	routine	11 - 20
121AA901A 4401C13	Cliff	Cliff.	03/10/2012	Halcrow MS	No significant change since last survey, occasional localised rock fall but mostly stable.	2	None.	no repairs	>20
121AA901A 4401C14	Sea Wall	Near vertical seawall with profiled crest and toe details, founded on rocky foreshore and with soft cliff above.	04/10/2012	Halcrow MS	Wall generally in good condition, well founded on rock foreshore, no signs of movement or undermining. Some minor cracks, spalling in the upper section of the wall. Ladder in good condition. Localised slips in upper slope.	2	Repair cracks/ spaling, monitor slips in upper slope.	routine	>20
121AA901A 4401C15	Sea Wall	Near vertical seawall with integral toe detail and steep brick work	04/10/2012	Halcrow MS	Wall generally in good/ fair condition, no signs of movement, some minor	3	Repoint masonry and monitor	routine	>20

Name	Туре	Description	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
		revetment protecting soft cliffs above. Founded on rocky foreshore.			undermining of toe apron. Significant abrasion of lower blocks, missing flap valves. Vertical crack in upper masonry wall. Loss of mortar beneath coping block.		further cracking, replace flap valves.		
121AA901A 4401C16	Sea Wall	Near vertical sea wall with profiled crest and steeped toe detail founded on rocky foreshore.	04/10/2012	Halcrow MS	Wall in fair/ good condition, no signs of movement, minor undermining of toe apron. Minor loss of mortar below coping. Flap valves missing, one drainage hole blocked. Some abrasion of concrete at the toe.	3	Unblock drainage holes, replace flap valves.	no repairs	>20
121AA901A 4401C17	Sea Wall	High near vertical concrete seawall with small vegetated slope above it and concrete apron along some of the toe. Foreshore mainly rocky with some sandy/shingle beach.	04/10/2012	Halcrow MS	Concrete wall in poor/ fair condition. Three full height vertical cracks evident at last survey. Significant abrasion and spalling of toe. Significant abrasion to access steps and missing handrailing. Movement of wooden fencing on upper slope.	4	Repair cracks, monitor for potential movement.	routine	11 - 20
121AA901A 4401C18	Sea Wall	Concrete seawall with stepped toe detail and wave deflecting curve offering toe protection to high soft cliff with sandy and rocky foreshore.	03/10/2012	Halcrow MS	Concrete wall in good condition, no signs of movement or undermining. Some abrasion and minor gaps between blocks. High beach levels at centre covering block. Active slips/cliffing along majority of soft upper cliff, localised debris at base of wall.	2	Monitor slips in upper cliff.	routine	>20
121AA901A 4401C19	Gabions	Low gabion basket wall at toe of vegetated earth slope with concrete access ramp and retaining wall. Wide rock platform foreshore fronts this section.	03/10/2012	Halcrow MS	Gabions and ramp generally in fair/ good condition. Gabions bulging in places, some lower gabions burst. Ramp well founded on rock, minor undermining of ramp but generally appears stable. Some abrasion to ramp. Upper vegetated slope stable.	3	Repair/ replace gabions. Monitor undermining of ramp.	routine	11 - 20
121AA901A 4401C20	Cliff	Medium height earth slope above rock platform/cliff.	03/10/2012	Halcrow MS	Lower rock foreshore appears stable. Some local small scale slumps in upper slope.	2	None.	no repairs	>20
121AA901A 4401C21	Cliff	Steep rock cliffs fronted by scree slope and rocky foreshore.	03/10/2012	Halcrow MS	Hard rock cliffs are fractured. Several rock falls, overhangs and caves present. Significant crack line along cliff edge close to boundary fence. Static caravans within 10m of cliff edge, Caravan park at risk	2	Monitor erosion, liaison with caravan park	no repairs	11 - 20
121AA901A 4901C01	Dunes		07/10/2012	Halcrow AP	Dunes are mostly stable; some local erosion at dune toe. Transitional/marsh species on foreshore. Dunes /coastal	2	routine	Inspections in 2014.	>20

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					slope at southern end. Road appears to have bee resurfaced / raised since last survey, but exposure remains.				
121AA901A 4901C02	Dunes		07/10/2012	Halcrow AP	Cobble beach in front of cliff. Minor and occasional slumping of cliff - partly active. Fence close to edge. Loss of vegetation evident. Once section where cobble tipped down cliff.	4	no repairs	Inspect in 2014.	>20
121AA901A 4901C03	Cliff		07/10/2012	Halcrow AP	Sandstone cliffs are bare on face still. Low wall at S junction between these cliffs and H1/14/02 has stonework falling out. Cliffs relatively stable (vegetated) in parts, locally actively eroded again at southern end.	3	no repairs	Inspect in 2014	>20
121AA901A 4901C04	Foreshore		07/10/2012	Halcrow AP	Quite high upper foreshore levels. Shingle/cobble previously noted mixed with sand.	3	routine	Reposition benches if local erosion continues. Inspect in 2014.	>20
121AA901A 4901C05	Cliff		07/10/2012	Halcrow AP	As prev survey, generally ok along hard rock cliff no further rockfalls, but the hard rock is highly fissured. The short section of soft cliff is subject to occasional slumping.	2	no repairs	inspect in 2014	>20
121AA901A 4901C06	Wall		07/10/2012	Halcrow AP	Shingle higher than in last inspection. Wall has been repaired. Some loss of pointing at eastern end of wall.	3	routine	Continue maintenanc e. Pointing to wall.	6 - 10
121AA901A 4901C07	Cliff		07/10/2012	Halcrow AP	Hard rock outcrop protecting harbour	2	no repairs	n/a	>20
121AA901A 4901C08	Wall		07/10/2012	Halcrow AP	Generally fair condition. Some gaps / missing mortar between coping and facing stones and between coping and deck.	3	urgent	Grout voids and repair toe.	11 - 20
121AA901A 4901C09	Breakwater		07/10/2012	Halcrow AP	Some missing pointing and voids between masonry at landward end. Also some gaps here and there between the masonry and concrete capping beams. Occasional masonry missing. Very minor abrasion in coping. Toe scour / abraison needs repair.	3	urgent	Infill voids at toe and repointing	11 - 20
121AA901A	Foreshore		07/10/2012	Halcrow AP	needs repair. Appears stable. Low dunes behind cobble	2	routine	Remove	>20

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4901C10					beach are healthy and well vegetated. Obsolete outfall breaking up.			obsolete outfall.	
121AA901A 4901C11	Bank		07/10/2012	Halcrow AP	As previous survey: Strand-line high on beach. Some slumping of small clifflet at top of rubble bank. Boulders emerging from clifflet through erosion. Shoreline becomes more stable further round towards Lindisfarne Castle.	3	no repairs		11 - 20
121AA901A 4901C12	Wall		07/10/2012	Halcrow AP	Generally OK. Masonry wall has gap under foundation at western end and missing stones from top. cobble berm against wall toe. wall is not above marine action - run up will impact.	3	routine	Infill gap under masonry wall, replace missing stones	>20
121AA901A 4901C13	Cliff		07/10/2012	Halcrow AP	Hard rock sections generally stable. Some erosion in soft cliffs. Some rock-filled netting installed to stabilise the upper cliff material but stone is starting to spill out of netting. Where no netting, and at eastern end soft cliff is bare and eroding.	3	routine	Maintain netting.	6 - 10
121AA901A 4901C14	Bund		07/10/2012	Halcrow AP	Good condition. Substantial volume of cobbles and pebbles stored within beach "ness / shingle spit". Storm ridges evident on northern side on seaward face.	2	no repairs		>20
121AA901A 5001C01	Cliff		07/10/2012	Halcrow AP	Low cliff shows signs of ongoing slow erosion. Higher cliff has slumping along its length but this presents no immediate issues. In north erosion is exposing large quantities of pebbles.	3	no repairs	Inspect in 2014	>20
121AA901A 5001C02	Bund		07/10/2012	Halcrow AP	Generally fair. Erosion into areas of grassed shingle. Storm ridges evident on seaward face of cobble/pebble bank.	3	no repairs	Inspect in 2014.	>20
121AA901A 5001C03	Cliff		07/10/2012	Halcrow AP	Evidence of localised storm erosion in soft vegetated cliff/berm.	3	no repairs	Inspect in 2014.	>20
121AA901A 5001C04			07/10/2012	Halcrow AP	Some evidence of localised recent erosion to area of cliff between shingle ridges. Storm ridges on seaward face of berm.	2	no repairs		>20
121AA901A 5001C05	Cliff		07/10/2012	Halcrow AP	Ongoing erosion of cliff. Fencing erected in worst-affected area to keep public / livestock(?) away from cliff edge. Rate of erosion is not high, - partly active - shingle berm at toe progressing south.	4	no repairs		>20

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121AA901A 5001C06	Dunes		07/10/2012	Halcrow AP	A healthy width beach and dune system is present. Some erosion in places on seaward face of higher dunes in central section. Dunes to north and south are stable (protected by cobble 'spit' and rocky reefs).	2	no repairs		>20
121AA901A 5001C07	Cliff		07/10/2012	Halcrow AP	Recent storms have resulted in some recent erosion of upper till / sand dunes. Abrasion and weathering of hard cliffs, resulting in formation of caves and overhangs. Platform is highly affected by chemical weathering (solution)	2	no repairs		>20
121AA901A 5001C08	Dunes		07/10/2012	Halcrow AP	Dune ridge is high but with narrow crest. Recent storms appear to have resulted in accretion at toe in places. Local dune face erosion.	3	no repairs	n/a	>20
121AA901A 5001C09	Dunes		07/10/2012	Halcrow AP	Well vegetated dunes to rear of rock platform with rock / cobble berm.	2	routine	n/a	>20
121AA901A 5001C10	Vegetated dunes fronted by sandy beach.	Dune - Holy Island	07/10/2012	Halcrow AP	Dunes well vegetated with only localised erosion from recent storms. Evidence of run-up and spray damage to vegetation above tide line, with recent sand accumulation. Very wide and flat sandy beach.	2	no repairs		>20
121AA901A 5001C11	Sand flats with saltmarsh adjacent to causeway road.	Dune - Holy Island	07/10/2012	Halcrow AP	Sand flats and saltmarsh protecting causeway road appear stable. Some damage to road surface near western end where marsh narrower.	2	no repairs	Inspetc in 2014. Continue to monitor.	>20