



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



**North Tyneside Council  
Final Report**

**August 2014**

# North Tyneside Council

## Walkover Inspection Survey

### Contents Amendment Record

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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.

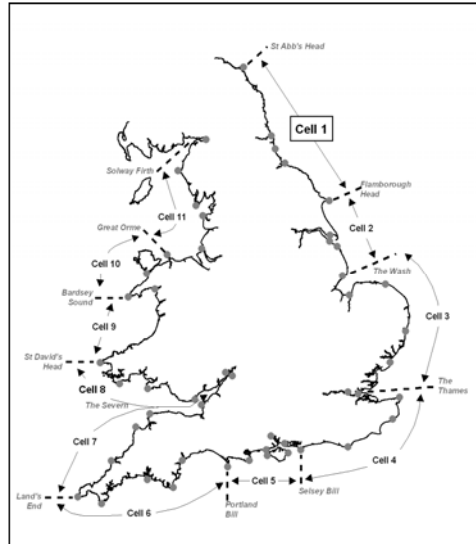


Figure 0-1: Sediment Cells in England and Wales

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 topo 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 2014 and provides a summary of the main findings from the walk-over inspections of North Tyneside 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

North Tyneside Council's coastal frontage is approximately 11km in length extending from Hartley to the north bank of the River Tyne in the south, shown in **Figure 1-1**. This frontage includes approximately 52 man-made assets and 15 natural assets (67 total assets). Detailed maps showing the location of each of these NFCDD assets are presented in **Appendix A**.

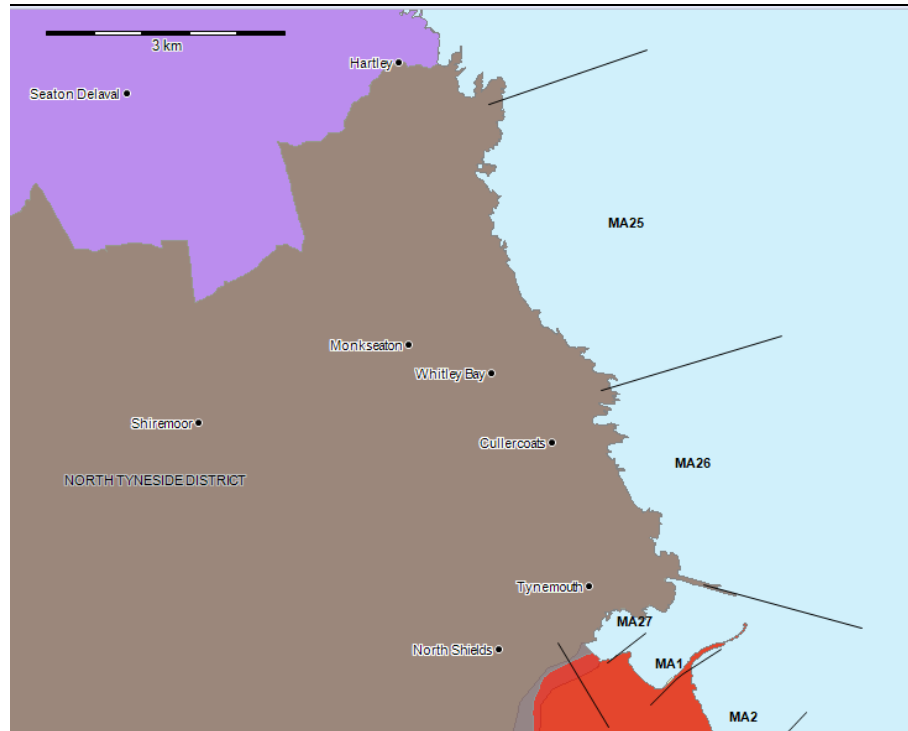


Figure 1-1: North Tyneside Council study area.

## 1.2 Methodology

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

The visual assessment of both natural and built assets was carried out by a team of Chartered engineers in August 2014. The weather experienced during this time was generally hot and sunny with occasional heavy showers. This inspection followed the severe storms, rainfall and flooding experienced during winter 2013/14.

The frontage has been split into a number of 'asset lengths' as defined in the National Flood and Coastal Defence Database (NFCDD) that was established by the Environment Agency (EA). These asset lengths have been used for reporting on the walkover inspections since 2004.

The walk over inspections cover both built defences 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 made of their residual life.

For built assets the grading classification was undertaken in accordance with the Condition Assessment Manual (EA, 2012), 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 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 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 (Shoreline And Nearshore Database System) database and provided along with this report with SANDS viewer software. Additionally, all data from the obsolete Northumberland Coastal Group MS Access database previously used for North Tyneside coastal defence inspections from 2002 to 2010 has been imported to the SANDS database and a new asset data display form "Northumberland Sea Defence" has been created in SANDS to allow easy viewing of the data.



## 2 Overview

The following significant findings were noted during the 2014 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.

- **Hartley to Curry's Point (MU 24)**

At Hartley Cove rock falls and local slumps in the soft upper material continue along the undefended cliffs.

North of Curry's Point erosion of the soft earth cliffs and onset of outflanking of the rock revetment continues.

- **Curry's Point to Browns Point (MU 25)**

At St. Mary's Island there is some cracking and localised undermining of the causeway. The various walls around the island are generally in good condition with some minor loss of mortar requiring attention.

At the north end of Whitley Sands the Trinity Road sea wall is in good condition but ongoing erosion of the undefended soft earth cliffs to the south is leading to outflanking which is in urgent need of attention.

The main sea wall and promenade along Whitley Sands is in fair condition with some repairs to cracks having been undertaken, although further areas of gaps and cracks still require attention.

The high concrete sea walls at the south end of Whitley Sands are generally in fair condition, although there is notable cracking, abrasion and loss of concrete render along the Central Lower Promenade sea wall. There are also some areas where bricks have been lost from the upper sloping section of the curved masonry block wall.

The sea walls along Promenade Road in Whitley Bay have significant abrasion of the beach access steps. The lower northern wall also has some undermining of the toe apron and damage along the coping which in one location has affected fixings for the hand railing.

The sea wall along the Southern Lower Promenade, identified as having a wide gap between the coping and the promenade in the previous report, was badly damaged during the December 2013 storms. This storm removed the coping stones, hand railing and recently constructed concrete slabs. The area has been fenced off for public safety. There are plans to carry out remedial works during 2014/15

Brown's Bay has two separate sections of sea wall which are generally in good or fair condition. There are a number of minor defects that require remedial works to repair cracks, joint gaps and abrasion.

The cliffs at Brown's Point continue to show signs of fracture with evidence of several historical rock falls and some small cave formations.

- **Browns Point to Tynemouth North Pier (MU 26)**

The sections of sea wall extending northwards of the North Pier of Cullercoats Bay are in need of remedial works to repair localised defects.

The northern breakwater in Cullercoats Bay has been repaired and the southern breakwater has been extensively reconstructed. Repairs have also been completed to discrete sections of wall within the bay in front of the lifeguard station and marine laboratory. Within the bay the masonry walls and natural cliffs remain in fair condition.

The cliffs around Tynemouth North Point have arches and caves at their base in the lower rock sections, the upper softer sections of cliff show evidence of recent slippage and movement.

The sea wall and revetment adjacent to the northern access ramp to Tynemouth Longsands remain in good condition, although localised repairs are required to the structures. The undefended dunes along Longsands continue to show signs of erosion and movement, however a beach management plan is being implemented including fencing, planting, pedestrian control and the construction of a new boardwalk. The southern access ramp and adjacent sea walls remain in a fair to good condition. Localised repairs have been carried out to the ramp including resurfacing, repairs to stonework and new fencing since the December 2013 storms.

The cliffs around Sharpness Point remain highly fractured and there is evidence of recent movement and slippage in upper soft cliffs.

Entering King Edwards Bay there have been repairs to the concrete apron. However, sections of the revetment and toe beam remain in need of repair. There was evidence of cracking to the footpaths on the upper slope in the previous report, which may have indicated movement of the upper slope. However this footpath has now been taken up and replaced with grass, making it more difficult to monitor.

The cliffs at Tynemouth headland have a highly fractured rock structure and there are several areas with rock falls onto the foreshore. There were signs of recent slippage on the vegetated cliff slopes to the bay.

- **Tynemouth North Pier to Mussel Scarp (MU 27)**

The north pier and revetment sections in Prior's Haven remain in good condition.

At Sandy Goit the masonry wall and sloping revetment has seen repairs to the revetment but further works are required to the masonry wall.

The sections of sea wall and revetment through Knotts Flats to the Fish Quay are generally in good condition with evidence of recent repair works. There are signs of spalling and abrasion to the concrete toe as well as gaps in the joints which require remedial works and monitoring.

### 3 Condition Assessment

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

#### 3.1 *Hartley to Curry's Point (MU 24)*

This management unit extends from the south border of Northumberland at Hartley to Curry's Point in the south. The North Tyneside portion of this unit is approximately 1km in length and includes 4 coastal defence assets, comprising mostly high cliffs and with occasional man-made access points.

The northern boundary of North Tyneside's Coastline is part way along Hartley Cove. The local slump in soft material immediately adjacent to foreshore access steps previously reported in 2009 and 2012 does not appear to have worsened. The access steps are in fair condition with no significant signs of damage. Repairs to grouting between blocks and upper masonry remain good and the hand railings are in good condition.



Old Hartley Steps retaining wall and hand rail in fair condition (/4401c23).



Evidence of minor rock falls and slips between Hartley Cove and Curry's Point (/4401c23).

The undefended cliffs between Hartley Cove and Curry's Point have been subject to historic rock falls and slippages in the overlying softer material. There is evidence of recent rock falls and slippage between the steps and causeway to St. Mary's Island.

This cliff top recession continues to narrow the footpath in sections necessitating the need to move the footpath inland. At Curry's Point erosion of the soft earth slopes continues initiating outflanking of the north end of the rock revetment, which is in good condition, and cutting back to the access road to St. Mary's Island.



Evidence of minor rock falls and slips between Hartley Cove and Curry's Point (/4401c24).



Evidence of slip adjacent to rock armour defences north of St. Mary's Lighthouse (/4401c24)

#### 3.2 *Curry's Point to Brown's Point (MU 25)*

This management unit is approximately 4.5km in length and extends from Curry's Point in the north to Brown's Point in the south encompassing St Mary's Island, Whitley Sands and Brown's Bay. This frontage includes approximately 21 assets,

comprising mostly medium to high concrete and masonry seawalls with occasional lengths of high vegetated slopes and rock headlands.

The causeway to St. Mary's Island has a number of patch repairs and is generally in a fair condition. There are numerous cracks and voiding, displaced edge coping and abrasion. The undermining noted in 2012 was still evident in places along the causeway and the landward ramp, although this does not seem to have worsened. Sand levels were good and a new concrete turning head has been constructed at the end of the causeway.



Cracks in causeway to St. Mary's Island (/4401c25).



Cracks and patch repairs in causeway to St. Mary's Island and new concrete turning head (4401c25)

The buildings on St. Mary's Island are generally well protected by a variety of defences, although the low masonry wall on western side fronting access ramp still suffers from voiding caused by loss of masonry. Remedial works are in progress. The masonry wall on north facing corner of the island is in good condition. There are several abraded concrete outfall structures across the foreshore.

The high masonry walls around east side of the island are well founded on the rock foreshore and remain in good overall condition. There is some minor loss of mortar at mid-high point. Both flights of steps experience abrasion and concrete damage. There is evidence of under mining. Ongoing remedial works to low stone walls are being carried out.



Walls on west of St Marys Island well founded and in good condition (/4501c03).



Minor erosion of concrete and undermining of steps on island (/4501c03).

The Trinity Road seawall is generally well founded on the rock foreshore and in good condition with no signs of movement. Beach levels are good. Sealant has been replaced at a number of expansion joints, however further work is required. Minor spalling is evident at a number of locations, although this does not appear to have worsened since previous inspection in 2012. The access ladders, promenade surfacing and shallow grass earth embankment behind the wall are in good condition. At the south end of the wall erosion of the high earth cliff, adjacent to the mini golf course, continues. Outflanking continues with displacement of the rock armour across the foreshore. Although this outflanking does not seem to have worsened since previous inspection in 2012, stability of the seawall at this location could become an issue and immediate action is still recommended.



Trinity Road seawall in good condition, sand level good (/4501c04).



Trinity Road sea wall spalling of some joints (/4501c04).

As reported during previous inspections, the undefended sea cliffs at the northern end of Whitley Sands are actively slumping, despite the presence of a relatively high boulder beach and sandy foreshore along their toe. As this erosion continues the cliffs release material, including boulders, to the foreshore. This process also cuts the cliff top back through successive slumping failures, closer to the footpath, in time, this process will start to affect the seaward edge of Briardene Car Park and the municipal mini golf course. Some sections of the undefended cliff are prone to imminent slumping since the soft material is extensively cracked. Work began in October 2014 to build a concrete blockwork wall along this frontage.



Outflanking at south end of wall similar to 2012 (/4501c05).



Slumping of cliffs at end of Whitley Sands adjacent to golf course (/4501c05).

At the boatyard at the north end of Whitley Sands, the sand levels were good. Concrete repairs remain in good condition. The ramp on the seaward side shows signs of abrasion and loss of concrete. The concrete repairs to the south end of the boatyard are in a fair condition as with previous inspections there is evidence of outflanking at the southern end of the boatyard.



Concrete ramp boathouse in reasonable condition minor spalling (/4501c05).



Repairs to south end of boatyard in good condition, high sand levels (/4501c05).

The rock revetment immediately to the south of Briardene Burn remains in good condition despite evidence of slight flattening of the profile and minor displacement of the toe. No changes were observed since the previous inspection in 2012.



Revetment Briardene in good condition (/4501c06).



Revetment Briardene in good condition, sand levels good (/4501c06).

The Whitley Links sea wall extends in front of the Northern Promenade and whilst still being in an overall fair condition would benefit from some further maintenance to fill cracks, reseal gaps and repair abrasion damage. Some repairs to defects identified in previous inspections, such as cracks/abrasion along coping at the north end and missing blocks along the cope and access steps have been repaired and are in good condition. Along other areas of the sea wall evidence of cracking, spalling and abrasion still remain. In particular vertical gaps and abrasion at construction joints and missing mortar beneath the cope. Just south of the Rendezvous Cafe the diagonal crack through the blocks identified in previous inspections has not worsened, although this should continue to be monitored. Beach levels were similar to previous survey.



Further repairs to joints required in Whitley Links sea wall (/4501c07).



Steps in good condition, repairs carried out to joints (/4501c07).



Some construction joints filled, others require attention, coping stones have missing mortar (/4501c07).



Diagonal cracking through blocks south side of Rendezvous café (/4501c07).

The rendered sections of the sea wall along the Panama Gardens frontage are in fair condition. In some locations the concrete rendering is cracked with spalled sections at the south end revealing reinforced mesh beneath. The spalling damage along base of beach access steps, as identified during previous surveys, was not observed due to high levels of shingle.

The yellow painted concrete wall fronting the Boardwalk Cafe at the south end of Whitley Sands is in good condition. The exposed timber piles and undermining identified in previous inspections were not observed due to high beach levels.



Wall south of Boardwalk Cafe, spalling and exposed reinforcement mesh (/4501c09).



Concrete wall fronting Boardwalk Cafe in good condition (/4501c09).

Along the Spanish City frontage is a steep vegetated slope protected by a blockwork revetment and low concrete wall. The repaired area of blockwork 2009/10 remains in good condition although growth of vegetation and gaps were observed at other locations. Some cracks and spalling of concrete was also evident at the steps.

The Central lower promenade is protected by various sections of sea wall. The beach levels at the toe end of the wall continued to remain relatively high at the time of inspection, mainly sand, shingle and cobbles. Although the brickwork appears relatively new and in good condition the visible sections of concrete have extensive abrasion damage, especially along the toe and the coping. The two short lower access ramps remain extensively abraded and cracked on both sides and at risk of becoming voided and collapsing. The concrete surfacing to the main full height access ramp is also cracking in places.



Cracks and gaps beneath lower ramps (/4601c02).



Abrasion and cracking to access steps (/4601c02).

The final section of straight concrete sea wall at the south end of Whitley Sands is generally in fair condition with no signs of movement or undermining. There is continued loss of the concrete render along much of the face of the wall exposing the reinforcement mesh which has corroded and been lost in many places. The hand railing at the access steps are in very poor condition and continue to deteriorate.



Severe spalling and cracking along straight section of wall (/4601c03).



Severe spalling and cracking of rendering (/4601c03).

The high curved masonry blockwork sea wall adjacent to South Parade Road is in fair/good condition, although there is evidence of heavy staining to the face. No gaps or cracks were observed in the upper masonry brickwork section. The railing along the top of the wall appears in good condition.



Heavy staining in places, evidence of erosion at the base and horizontal gap in upper brickwork (/4601c04).



Hand railings appear in good condition (/4601c04).

The straight section of high masonry seawall to the south is also in fair condition with no signs of movement or undermining. However, there is noticeable abrasion at the toe and a noticeable horizontal gap in the upper brickwork below the crest. The hand railing along the top of the wall appears in good condition.

To the south, the curved masonry blockwork wall and upper sloping brickwork is generally in fair condition with no gaps observed in the lower concrete blocks. There are two sections of missing brickwork at the south of the upper wall, although these do not appear to have significantly worsened since inspection in 2012.



Wall in fair condition, minor repairs to joints required (/4601c06).



Sections of brickwork missing at south end of upper sloping masonry wall (/4601c06).

The short section of concrete sea wall with intermediate terrace is in overall fair condition. However, there are three sections where concrete is missing from the crest at construction joints as identified in 2010 and 2012. The most southerly of these has exposed the base of the hand railing which could affect its stability causing a public safety hazard. Sealant is also missing from most construction joints. The lower access steps to the beach remains highly abraded with no hand railing along lower section. These steps are in a dangerous condition and have been closed at the south end. There is also voiding and undermining of the toe apron slab which should be monitored.



Steps in very poor condition, horizontal and vertical cracks (/4601c07)



Missing section of concrete, undermining railing post, vertical and horizontal cracking (/4601c07).



The high masonry blockwork wall with masonry arched upper section supporting Promenade Road is in fair condition although there is noticeable abrasion along the toe at the north end. The archways are enclosed with concrete blocks. The access steps remain in a dilapidated condition and are closed. The undermining of the rock 'bull nose' identified during the previous inspections continues although this does not appear to affect the stability of the wall. Some loss of mortar between the upper blocks was noted at the inspection in 2012 and it is still in the same condition. The hand railing along the top of the wall is in good condition.



Missing mortar and gaps beneath long sections of copings (/4601c08).



Localised repairs (/4601c08).

To the south, the lower masonry blockwork fronts the Southern Lower Promenade. This section of wall was damaged during the severe weather in December 2013. The coping blocks were removed by the storms resulting in damage to the adjacent surfacing and concrete bays constructed after 2010 inspection. Other sections of asphalt surfacing and kerbing along the centre section remain damaged. The hand railing in the area damaged was lost and the remaining hand railing along the whole wall is badly corroded. The beach access steps are heavily abraded but are now redundant since they have been closed off. The area of damaged wall was fenced off for safety and the inspection was undertaken at low water. However the toe along the southern section remained below water and was therefore not observed. Plans are in place to carry out repair works to the damaged area during 2014/15.



Severe damage to promenade and loss of coping stones, surfacing and railings at south end (/4601c08).



Severe damage to promenade and loss of coping stones, surfacing and railings at south end (/4601c08).

The north end of Brown's Bay is marked by rock cliffs. The condition of these cliffs does not appear to have changed since the inspection in 2008 due to the protection afforded by extensive rock platform of Table Rocks.

Brown's Bay has two separate sections of sea wall. In the northern part of the bay the wall is generally in good condition, although the cracks, joint gaps and abrasion around joint gaps increase in frequency to the south. The ramp to the beach area is locally in poor condition and repairs are required.



Cracks, joint gaps and abrasion around joint gaps increasing at south end (/4601c10).



Access ramp cracking and hand railings damage (/4601c10).

The southern wall is generally in fair condition with localised undermining still evident to the toe. The hand railing along the top of the wall is in good condition. There is evidence of cracking and abrasion of the concrete steps leading from the promenade to road level. The rear wall between the Promenade and road is generally in a fair/good condition it has been well maintained with rock bolts and wire meshing. There is cracking to the access ramp and damage to hand railing.



Railings poor and abrasion to lower section of concrete wall (/4701c01).



Rear wall well maintained, rock bolts and meshing (/4701c01).

The cliffs at Brown's Point initially are comprised of hard rock with a small capping of soft till. As reported during previous inspections the hard rock continues to show signs of fracture with evidence of several local rock falls on the foreshore and some cave formations at the base of the cliffs. South of Brown's Point the hard rock dips leaving a greater thickness of softer capping material. No significant change since previous survey was observed with three historical rock falls having led to slippages in the overlying till.

### 3.3 ***Browns Point to Tynemouth North Pier (MU 26)***

This management unit is approximately 3.8km in length and extends from Brown's Point to Tynemouth North Pier encompassing Cullercoats Bay, Long Sands and King Edward's Bay. This frontage includes approximately 31 assets, comprising a mix of high concrete/ masonry seawalls and piers/ breakwaters with sections of high rock cliffs and partially vegetated sand dunes.

There are three sections of sea wall extending southwards to meet the north pier of Cullercoats Bay. The first section is a concrete recurve wall in good condition, although the abrasion previously reported is still evident at the toe of the access steps. The mid-section is a concrete blockwork wall which again is in overall good condition. The poured concrete apron identified in previous inspections as being undermined and breaking up could not be inspected due to beach levels. As previously reported in 2010, the final section extending to the North Pier is also experiencing undermining of the concrete apron, requiring remedial works.



Concrete wall in good condition, abrasion to lower section of wall (/4701c01).



Wall in good condition, minor joint repairs required (/4701c05).



Damage to base of steps and handrailing (/4701c06).



Minor joint repairs required. Some undermining of the concrete apron, (/4701c06).

The north pier has been repaired as part of recent works to the piers in Cullercoats Bay. The north pier and rock armour are in good condition. The pier can significantly be over-washed during high spring tides that combine with storms. The masonry leeward face is in fair condition.



Cullercoats North Pier in good condition following repair works (/4701c07).



Stone protection in good condition North Pier (/4701c07).

At the north end of Cullercoats Bay the low concrete wall fronting the lifeguard station and concrete works north of the station are in a very good condition with the provision of new steps and hand railing. The masonry wall at the back of the wide stepped concrete apron is in fair condition with no obvious cracks or gaps. The beach access road is in good condition. Beach levels were relatively high, similar to previous inspection in 2012.



Concrete protection to Lifeboat Station in good condition (/4701c08).



Concrete protection to steps in good condition. Sand level good (/4701c08).

The concrete wall fronting the Dove Marine Laboratory is in fair condition with no signs of movement or undermining. Minor vertical cracks previously identified and repaired are in good condition. The brickwork retaining wall to the south of Dove Maritime Laboratory is in fair condition, although there is missing mortar between some blocks at each end of the wall.



Concrete protection to Dove Marine Laboratory in good condition. Joint repairs carried out (/4701c09).



Missing mortar and gaps in upper wall (/4701c10).

The cliffs at the centre of the bay remain stable despite extensive caves formed at the base. No significant changes are apparent since previous inspection.



Cliffs centre of Cullercoats Bay in good condition, no evidence of rock falls (/4701c11).



Cliffs centre of Cullercoats Bay in good condition, no evidence of rock falls (/4701c11).

Both the low and high sections of masonry seawalls at the south side of Cullercoats Bay continue to be stable with beach levels relatively high. At the north end of the higher section, the wall appears to have rotated slightly with a crack opening below the cope which should be monitored, as identified in previous survey. The hand railing and concrete promenade surfacing appeared to be well maintained and in good condition.



Walls in the southern section of the bay in good condition and level of sand good (/4701c12).



Concrete repairs required at base of the steps in bay (/4701c13).

The South Pier at Cullercoats Bay has recently been extensively reconstructed and is in very good condition.



South Pier in very good condition following reconstruction. Beach levels good (/4701c15).



South Pier in very good condition following reconstruction, seaward side (/4701c15).

The cliffs around Tynemouth North Point have arches and caves at their base in the lower rock sections. The upper softer section of cliff shows evidence of recent slippage. Slumping of the southern section of cliff face remains unchanged with vegetation being established on the slope adjacent to the end of the wall.



Minor slumping of cliffs at Tynemouth North Point but no major change (/4701c16).



Evidence of slumping (/4701c16).

The masonry wall at the north of Tynemouth Longsands is in good condition. As identified in previous inspections there have been cracks in the masonry wall, although the concrete toe apron is broken away at certain locations. Of more concern is the slumping of the soft cliffs to the north of the masonry. However it shows no major change since last inspection.



Erosion undermining the concrete toe apron, no change since 2012 (/4701c17).



Evidence of vegetation on area identified as slumping in 2012, slightly improved (/4701c17).

The sea wall protecting the promenade and vegetated coastal slope remains in fair condition despite some abrasion of the concrete apron toe along the northern half of the wall. At times of low beach levels this is exposing underlying Coal Measures, as noted in the previous inspection. At the connection of the two walls there is erosion undermining the concrete toe apron.



Concrete wall in good condition (/4701c17).

The steps at the north end of the revetment show signs of abrasion. Along the sloping blockwork revetment there is damage to the copings which require repair. To the rear of the access ramp the concrete block wall to the vegetation slope is in good condition.



Localised damage to steps and crest of masonry revetment with gaps in joints leading to cracking (/4701c019).



Damage to coping stones (/4701c018).

The undefended dunes along the Long Sands have experienced notable erosion during recent years. Although generally well vegetated and in good condition the winter storms appear to have moved the base of the dunes back by around 3 metres in places. A programme of fencing and planting continues to be carried out to restore the dunes. It is clear that a management strategy is in place with the construction of a new boardwalk and improved signage to manage the dunes and pedestrian movements.



Erosion of Longsands dunes, remedial fencing and replanting underway (/4701c21).



New boardwalk to improve management of pedestrian movement on the dunes (/4701c21).

Crusoes Cafe is protected by timber and concrete which is in a fair condition. The ramp at the foot of the Spa Car Park has recently been repaired, including new blocks, surfacing and fencing. As identified in the previous inspection the concrete access steps south of the newer concrete platform remains cracked with some concrete breaking away.



Timber and concrete protection to Crusoes Café (/4701c22).



Cracking to access steps similar to 2012 (/4701c22).

The wall extending to Tynemouth Pool is generally in fair condition, although there are many gaps between the blocks and coping stones and localised cracks in need of repair. The hand railings at the access steps, which were noted as missing at the last inspection, have been replaced.



Missing mortar to joints and coping stones (/4701c23).



Cracking to concrete on access steps, handrails repaired (/4701c23).

Around Tynemouth Pool the wall on the north facing side has cracks and some previous patching repairs are now coming away. The eastern and southern facing walls are in a fair condition with abrasion and cracks at the join between the masonry wall and the concrete wave return wall. As reported in previous inspections the short section of wall at the southern landward tie in has its concrete apron cantilevered off the foreshore, although the wall behind appears sound. There has been recent publicity about the possibility of re-opening the pool, if this progressed there would need to be a full study of the structure.



Tynemouth Pool abrasion and spalling on wave return wall (/4701c24).



Interior of top wall spalling and staining (/4701c24).



Damage to interior steps in pool (/4701c24).



Wall at southern landward tie in of pool with apron undermined (/4701c25).

The cliffs around Sharpness Point remain highly fractured and have experienced several rock falls. There is also evidence of recent movement and slippage in upper soft cliffs. The access steps are heavily abraded.



Evidence of slippage and rock fall around Sharpness Point (/4701c26).



Considerable abrasion and damage to steps (/4701c26).

The sea wall that protects the Lower Promenade in King Edward's Bay has at its northern end a concrete apron tie in to the cliffs at Sharpness Point. This apron has been repaired. The main body of the wall and the revetment are generally in good condition. Along the sea wall to King Edward's Bay there are still considerable areas of abrasion at the toe and on the sloping revetment face, in places exposing the reinforcement bars. As previously reported, although the backing slope appears stable there was evidence in the pathways of cracking of the Bitmac surfacing which could have been indicative of some slope movement. However the Local Authority have recently removed the bitmac footpath and replaced with soil and seed, making it difficult to monitor further movement.



Major spalling and cracking, abrasion and exposure of reinforcement at toe. New section of coping stone (/4701c27).



Section of upper slope top soiled and seeded since 2012 when cracking was visible in bitmac footpath (/4701c27).

The curved sea wall in King Edward's Bay is in fair condition with only minor abrasion and gaps between joints and on the coping stones on steps to the beach. Repair works have been carried out to access slope and steps. This includes a new concrete ramp onto the beach with gabion baskets protection. There is undermining of the concrete steps to the Lifeguard Building.



Concrete wall in King Edward's Bay in good condition, also railings (/4701c28).



Undermining of steps to Lifeguard Centre King Edward's Bay (/4701c28).

The cliffs at Tynemouth Headland have a highly fractured rock structure and there are several areas with rock falls on the foreshore in places. This has left overhangs in the



cliff face with boundary walls of Tynemouth Priory close to the cliff edge. There are recent signs of further slippage on the vegetated cliff slopes to the bay.



Evidence of slippage down from Tynemouth Castle (/4701c30).



Evidence of slippage down from Tynemouth Castle (/4701c30).

The high arched retaining walls extending along a short length close to the northern side of the landward end of the North Pier remain in a fair condition. Some signs of slippage of upper vegetated cliff was evident. The short section of cliff north of the pier remains in fair condition.



Rock cliffs and concrete arches, north of Pier (/4701c31).



Rock cliffs and concrete arches, north of Pier (/4701c31).

### 3.4 Tynemouth North Pier to Mussel Scarp (MU 27)

This management unit is approximately 1.7km in length and extends from Tynemouth North Pier in the north to Mussel Scarp in the south, encompassing Priors Haven and The Knotts Flats. This frontage includes approximately 11 assets, comprising mostly man-made defences including the 1.7km long Tynemouth North Pier and various other seawalls and revetments.

The North Pier appears well maintained, despite the apparent cosmetic defects on its deck. As previously reported there are clearly areas on the outer face where maintenance has been undertaken. No access was possible along the structure. It is assumed that the Port of Tyne undertakes its own vessel-based inspections of the structure and plans maintenance work accordingly.



Tynemouth Pier, north side (/4801c01).



Tynemouth Pier, south side (/4801c01).

The masonry revetment at Priors Haven remains in good condition. The sandy bay backed with a coastal slope also remains in good condition although there were some signs of slippage to the upper slopes.



Revetment in Priors Haven in good condition, vegetation at top of wall (/4801c02).



Masonry revetment in good condition, vegetation at the top of wall (/4801c02).

The rock headland at Freestone Point is highly fractured but in good condition with no signs of recent rock falls.



Fractured rock at Freestone Point (/4801c11).



Fractured rock at Freestone Point (/4801c11).

The adjacent masonry and concrete arched seawall has bricks missing and there are signs of cracking and missing mortar in joints.



Arched retaining wall at Freestone Point (/4801c04).



Joint of concrete wall and stone wall, fair condition (/4801c04).

The masonry wall with a sloping concrete revetment at Sandy Goit has been subject to repair works since the last inspection but there still voids in the joints in places which require attention.



Concrete repairs to revetment (/4801c05).



Concrete repairs, gaps in joints of stone wall (/4801c05).

To the eastern end of riverside walls the section immediately west of Sandy Goit is a masonry retaining wall. The previously reported bad cracks and spalling have recently been repaired. This wall abuts a concrete recurved wall with promenade and slope to properties behind on the Tyne. At the eastern end of this the revetment to the wall is of pitched stone construction. This is in fair condition with cracks evident in places.



Repairs to concrete cracks (/4801c06).



Masonry wall with concrete render adjacent to pitched stone revetment (/4801c06).

The concrete recurved wall with promenade at slope to the Knotts Flats behind runs for approximately 500m with a concrete panel sloping revetment with a concrete toe wall with evidence of abrasion. The wall is generally in good condition although the revetment is assessed as fair. There are gaps between revetment panels and occasional cracking throughout. There are wide gaps in the joints which require attention.



Abrasion to concrete toe of concrete recurved wall (/4801c07).



Cracks in revetment and gaps between panels (/4801c07).

The western section of the sea wall without revetment is generally in good condition with recent patching repairs having been carried out. The disused access steps are heavily abraded, at certain locations the concrete toe was exposed and there was minor cracking to the upper decking.



Previous patch repairs to vertical seawall in good condition (/4801c08).



Abrasion to steps (/4801c08).

The rock revetment to the Fish Quay was in good condition.



Stone protection in good condition (/4801c09).



Stone protection in good condition (/4801c09).

The short section of pitched stone revetment extending to the jetty downstream of the Fish Quay was also in generally good condition. Rock protection to the end of the pitched stone revetment is in good condition. The jetty showed signs of erosion and is in a poor condition. The concrete road and lower level protection shows signs of deterioration and cracking.



Pitched stone to jetty in good condition (/4801c10).



Stone protection at end of jetty in good condition (/4801c10).

## 4 Comparison with Previous Assessments

The previous formal assessment across the whole study frontage was undertaken in summer 2012. Since that time the following changes are noted. Many other defects reported in 2012 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 undertaken to the following man-made assets:

- Hartley Cliffs – Repairs to cliff top fencing and access steps.
- St. Mary's Island Causeway – Various concrete repairs.
- Brierdene Surface Water Outfall – Repairs to boardwalk.
- Northern Promenade – Replaced displaced concrete blocks, repairs to stairs, repairs to Tarmac and flagging, repairs/renewal of flexible joints with polysulphide sealant, concrete repairs to sea wall.
- Watts Slope – Extended access ramp and formed downstand end beam. Re-surfaced lower ramp.
- Central Promenade – Repairs to wall face and re-set displaced wave deflector blocks.
- Southern Promenade - Repairs to decking area.
- Brown's Bay – Repairs to decking area and minor concrete repairs.
- Bear's Back – Repairs to sea wall and replaced displaced blocks.
- Longsands South Wall – Repairs to dunes fencing, marram grass planting and provision of new boardwalk.
- King Edwards Bay – Reconstruction of collapsed wave deflector, concrete repairs to apron, concrete repairs to beach access ramp, replaced defective pre-cast concrete fence posts.
- Collingwood Sea Wall – Concrete repairs and drainage improvements (Knotts Flats)

#### Planned works for 2014/15

- Hartley Cliffs – Remedial Works.
- Whitley Bay Promenades – Remedial Works.
- King Edward's Bay – Remedial Works.
- Southern Promenade (down from High Point) – Works programmed 2014/15

#### Ongoing Deterioration

There is general ongoing deterioration of many of the man-made assets along the coastline including widespread abrasion and cracking to many of the seawalls. The following deterioration is noteworthy:

- Continued outflanking at south end of Trinity Road sea wall.
- Cracks in Whitley Sands sea wall.
- Ongoing cracking in Central Lower Promenade sea wall and access ramps.
- Continued loss of concrete render from sea wall at south end of Whitley Sands.
- Heavily abraded access steps, cracks in crest and undermining of the apron of low concrete sea wall at Whitley Promenade.
- Cracks, abrasion and damage to the toe are evident to the sea walls from Brown's Point to Cullercoats Bay.
- Abrasion to the toe, cracking and spalling of crest to the walls and revetments at the northern end of the Longsands.
- Missing blocks, cracking and spalling of crest to the walls and associated structures at southern end of the Longsands.
- Continued abrasion and spalling to Tynemouth Pool walls with a section of apron undermined.

- Continued abrasion and cracking to the sea walls and revetment at King Edward's Bay.
- Deterioration masonry at Sandy's Goit.

## **4.2 *Natural Assets***

Although most of the frontage is protected by man-made coastal defences there is also general ongoing deterioration of the natural assets along the coastline. The following areas of deterioration and recovery are noteworthy:

- Ongoing rock falls and slipping in the soft upper cliffs between Hartley Cove and Curry's Point.
- Erosion and cut back in the soft earth cliffs at Curry's Point.
- Erosion and cut back of soft earth cliffs south of Trinity Road sea wall.
- Continued fracture and rock falls and Brown's Point.
- The undefended dunes along the Longsands continue to show signs of erosion and movement (ongoing management taking place).
- From the headlands at Cullercoats Bay through to the Tyne there were signs of slippage to the upper sections of soft cliffs with evidence of recent slumping.

## 5 Problems Encountered & Uncertainty in Analysis

As with the previous inspection in 2012 no significant problems were encountered during the 2014 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 Tynemouth North Pier.
- The majority of assets could be access without problem and access to private property was not an issue.
- 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 the Whitley Links Sea Walls.,

## 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**.

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 an 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.

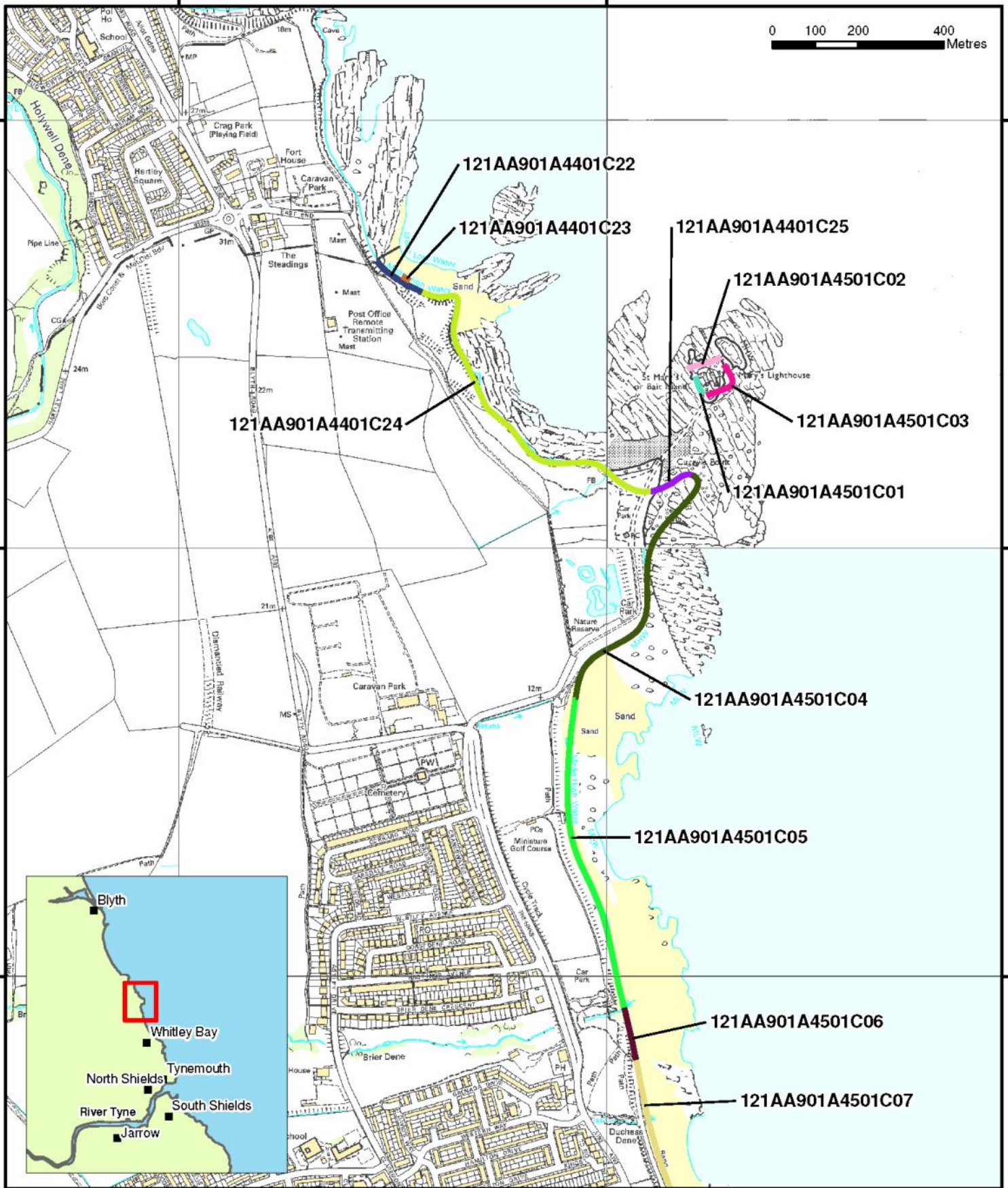


## **Appendix A – Asset Maps**

434000

435000

0 100 200 400 Metres



576000

575000

574000

**Legend**

- Asset location
- NFCDD Asset Number

Lead Authority: Scarborough Borough Council  
 Project: Cell 1 Regional Coastal Monitoring Programme

**Figure 1 - Map 1  
 North Tyneside Council  
 Frontage**

Coastal Walkover  
 Inspection Report  
 Drawing Scale 1:12,000 at A4

**Halcrow Group Limited**

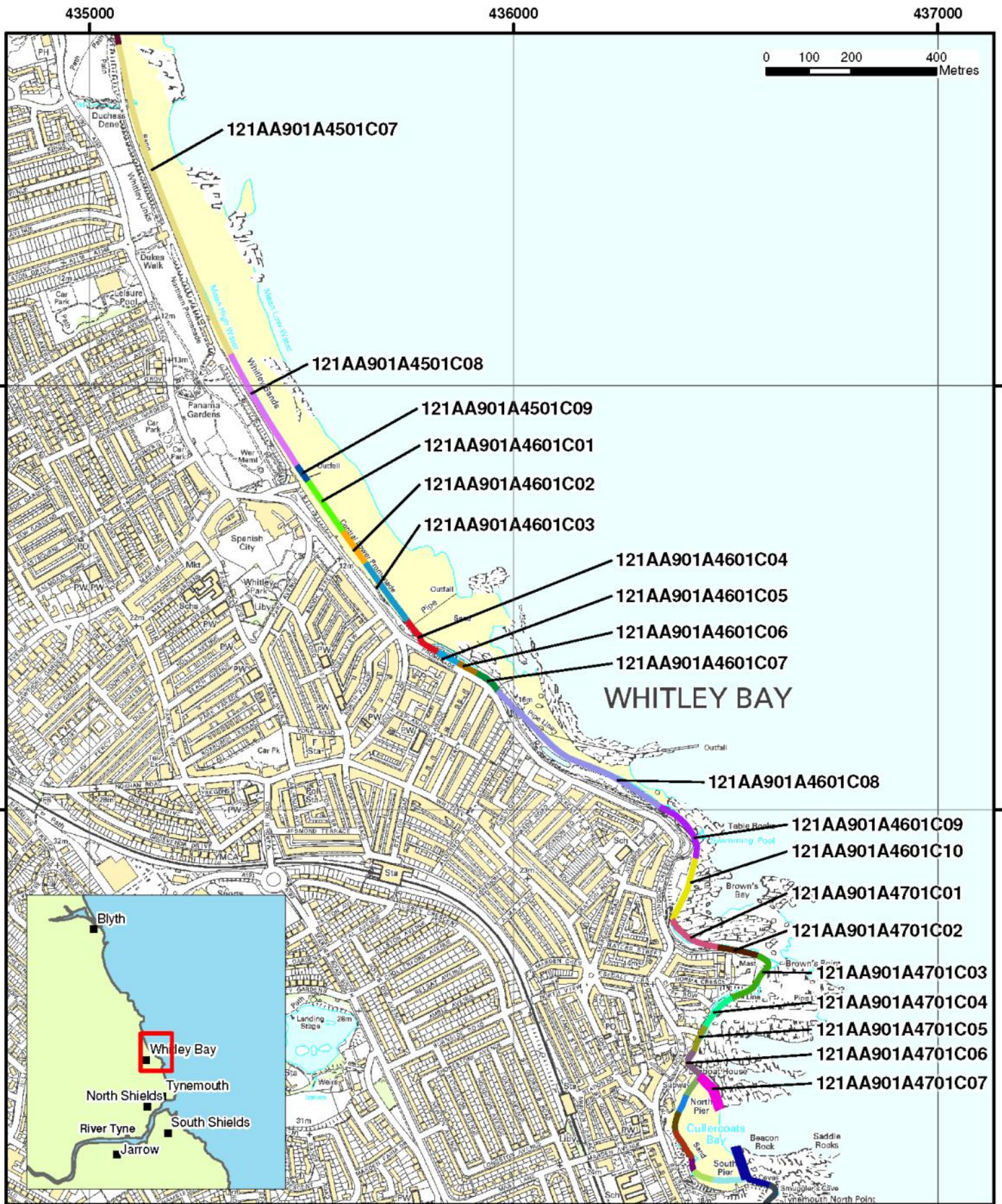
Burderop Park  
 Swindon  
 Wiltshire  
 SN4 0QD

+44 (0)1793 812479



**Notes:**

All maps taken from  
 2010 Asset Inspection Reports  
 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 2  
 North Tyneside Council  
 Frontage**

Coastal Walkover  
 Inspection Report  
 Drawing Scale 1:12,000 at A4

**Halcrow Group Limited**

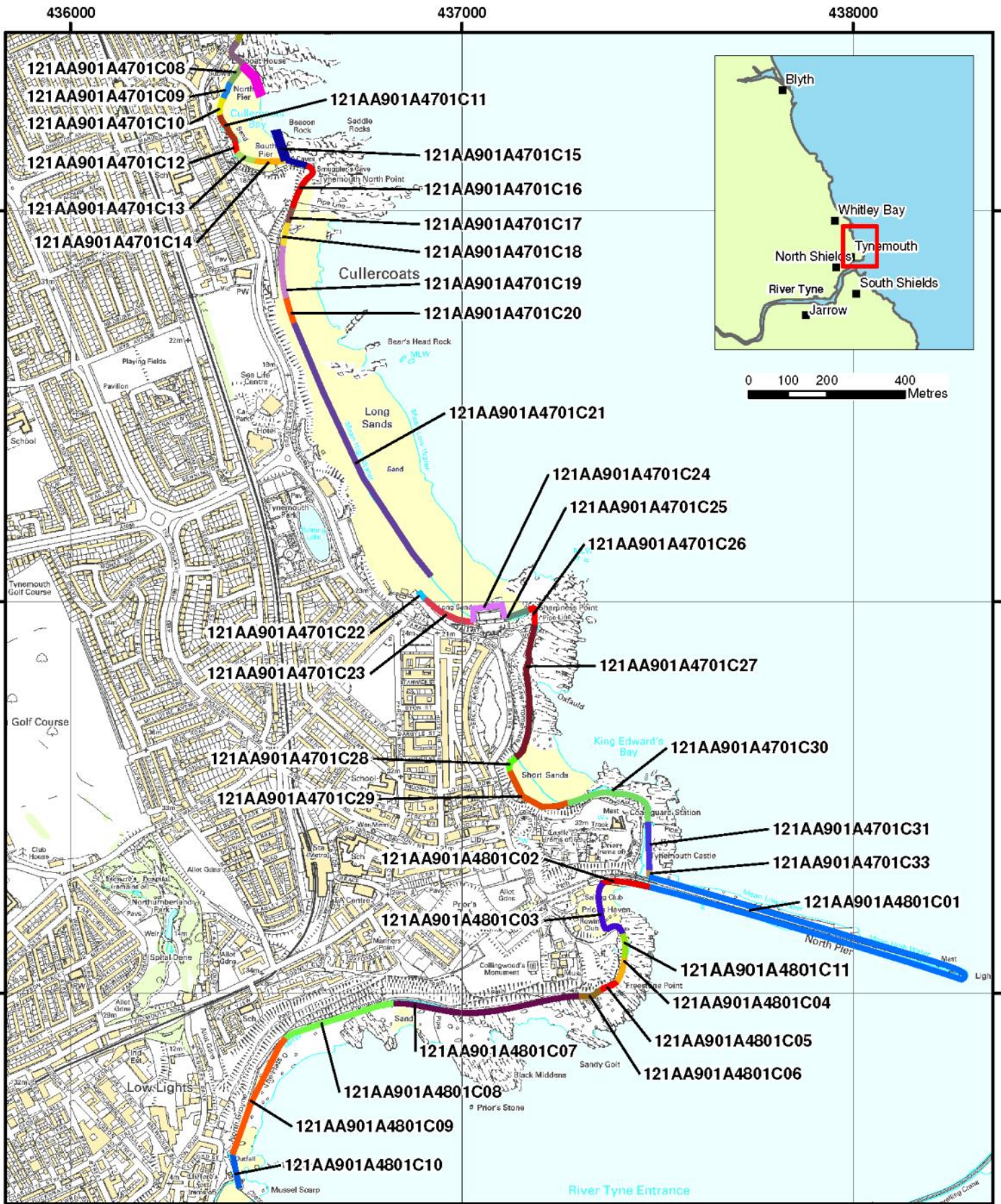
Burderop Park  
 Swindon  
 Wiltshire  
 SN4 0QD

+44 (0)1793 812479





**Notes:**

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



**Legend**

-  Asset location
-  NFCCD Asset Number

Lead Authority: Scarborough Borough Council  
Project: Cell 1 Regional Coastal Monitoring Programme

**Figure 1 - Map 3  
North Tyneside Council  
Frontage**

Coastal Walkover  
Inspection Report  
Drawing Scale 1:13,000 at A4

**Halcrow Group Limited**

Burderop Park  
Swindon  
Wiltshire  
SN4 0QD

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**Notes:**

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

## **Appendix B – Asset Condition & Recommendations**

Name	Type	Description	Length	Inspection Date	Inspector	Comment	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A 4401C22	Cliff	Steep rock cliff fronted by a scree slope and rocky foreshore.	129	4-Aug-14	Halcrow TG	No significant change since last survey. Evidence of localised rock falls and localised relict slippage in the upper soft cliff material. No properties at risk.	3	>20	Monitor erosion.	no repairs
121AA901A 4401C23	Sea Wall	Sea wall with access steps to the beach. The sea wall is founded on rock.	20	4-Aug-14	Halcrow TG	Steps generally in good condition. Minor abrasion and minor cracks to lower steps, abrasion and some loss of facing concrete to outer wall. Upper masonry retaining walls appears stable, repointing in good condition. Hand railing in good condition.	3	>20	None.	routine
121AA901A 4401C24	Cliff	Rock cliff forming headland fronted by a scree slope and sandy beach.	816	4-Aug-14	Halcrow TG	Evidence of rockfalls, relict slippage of soft material on upper slopes. Some slips close to cliff-path, path fenced-off, re-routed where necessary. Towards southern end of the bay, slip frequency increases.	3	11 - 20	Re-route footpath	routine
121AA901A 4401C25	Embankment	Concrete ramp to St Marys Island Causeway with earth embankment adjacent.	105.4	4-Aug-14	Halcrow TG	Revetment in good condition, no signs of settlement of displacement of stones. Erosion and cliffing of soft cliffs at north end, onset of outflanking. Concrete ramp in fair/good condition, minor undermining but no settlement, minor cracks and abrasion.	3	6 - 10	Fill undermining, repair cracks.	routine
121AA901A 4501C01	Sea Wall	Low masonry wall fronting residential properties. Some sections of the wall are ungrouted. The wall is founded to rock and is fronted by a rocky foreshore.	45.6	4-Aug-14	Halcrow TG	Repairs carried out to low wall.	2	6 - 10	none.	no repairs.
121AA901A 4501C02	Sea Wall	Straight masonry wall fronting lighthouse. Some isolated concrete and low sloped masonry stabilisation works in front of the straight masonry wall.	83.7	4-Aug-14	Halcrow TG	Masonry wall in good condition, no signs of movement. No cracking to blocks, no loss of mortar. Localised minor undermining of concrete toe, no deterioration since 2006 survey.	2	6 - 10	Infill undermined section.	routine
121AA901A 4501C03	Sea Wall	Large block Masonry wall fronted by a concrete apron and rocky foreshore	115.5	4-Aug-14	Halcrow TG	Masonry wall generally in good condition, well founded on rock foreshore. No signs of movement or undermining. Some loss of mortar and Localised minor cracking at crest on southeast side. No deterioration since the 2006 survey. Needs repainting.	2	>20	Repoint gaps, fill cracks, repaint.	routine
121AA901A 4501C04	Sea Wall	Concrete Seawall fronted by a rocky/sandy beach	645.6	4-Aug-14	Halcrow TG	Seawall in good condition. No signs of settlement or undermining. Minor cracks, loss of sealant, localised spalling at joints. Beach levels relatively good, some abrasion evident. Erosion and	2	>20	Replace joint sealant, erosion protection at south end.	routine

Name	Type	Description	Length	Inspection Date	Inspector	Comment	Overall Condition	Residual Life	Recommendations	Urgency
						outflanking at south end. Surfacing, hand railing, slopes good.				
121AA901A 4501C05	Cliff	Eroding vegetated clay cliff fronted by a wide sandy beach. Short section of rock revetment at the tie in with Defence Code 45/05/01	740.7	4-Aug-14	Halcrow TG	Soft cliffs actively slumping along entire frontage. Significant erosion at north end causing initial outflanking to seawall. Masonry wall fronting small boatyard repaired but vulnerable to undermining. Sand and boulder beach levels relatively low.	3	11 - 20	Consider formal erosion protection at north end.	urgent
121AA901A 4501C06	Revetment	Rock revetment on the southern bank of the Brierdene Burn with rock gabions and timber jetty on the northern bank.	123.7	4-Aug-14	Halcrow TG	Revetment in good condition. Some displacement of stones at toe. No signs of damage along crest. Erosion of river bank close to revetment toe.	2	>20	Monitor erosion of river bank.	routine
121AA901A 4501C07	Sea Wall	Concrete block seawall with stepped access to a wide sandy beach in front.	779.7	4-Aug-14	Halcrow TG	Wall in fair condition. Some localised abrasion, gaps between blocks and cracking. Gaps below crest blocks in many places. Large longitudinal crack in blocks south of cafe. Surfacing in good condition. Many repairs evident, some crest blocks replaced.	3	>20	Repair cracks, abrasion and spalling. Repoint beneath coping. Monitor diagonal crack.	routine
121AA901A 4501C08	Sea Wall	Concrete Seawall with grassy bank behind fronted by a sandy beach	305.4	4-Aug-14	Halcrow TG	Wall in fair condition. Previous repairs to cracks still good. Coping badly cracked at one location. Minor crack/ spalling in wall at southern end exposing mesh rebar. Beach access steps badly damaged. Some drainage holes blocked.	3	11 - 20	Fill cracks, joints and repair abrasion damage.	routine
121AA901A 4501C09	Sea Wall - Whitley Bay		43.4	4-Aug-14	Halcrow TG	Seawall in fair condition, no undermining evident. Minor abrasion, no significant cracks apparent. Beach levels relatively high, timber piled toe just buried. Hand railings in good condition.	3	6 - 10	Monitor beach levels and condition of timber piled toe when exposed.	routine
121AA901A 4601C01	Sea Wall	Concrete seawall with patchy revetment on top of the wall. The wall fronts a steep vegetated slope with stepped access to the road above. The wall is fronted by a wide sandy beach.	146.2	4-Aug-14	Halcrow TG	Revetment and concrete toe wall in fair/ good condition. No signs of settlement or undermining. Some cracks/ spalling of wall at north end and steps. Some gaps between masonry blocks, recently replaced blocks evident. No erosion to slope.	3	11 - 20	Monitor.	routine
121AA901A 4601C02	Sea Wall	Concrete / rendered blockwork near vertical seawall fronted by a wide sandy beach.	91.7	4-Aug-14	Halcrow TG	Wall in poor/ fair condition. No movement or undermining evident. Concrete toe heavily abraded and spalled, loss of facing concrete. Cracks access ramp, steps, capping beam. New brickwork columns and infill panels in good condition. Railings good.	3	11 - 20	Repair cracks and areas of spalling/ abrasion.	routine
121AA901A 4601C03	Sea Wall	Concrete seawall with gunite render facing fronted by a sandy beach	165.4	4-Aug-14	Halcrow TG	Wall in poor/fair condition. No signs of movement or undermining. Continued loss of facing render exposing mesh rebar. Filling to horizontal cracks at south end good. Handrailing generally fair,	3	>20	Repairs to render. Fill cracks.	routine

Name	Type	Description	Length	Inspection Date	Inspector	Comment	Overall Condition	Residual Life	Recommendations	Urgency
						missing on access steps. Some paving breaking up.				
121AA901A 4601C04	Sea Wall	Curved concrete block seawall with masonry crest. Sandy beach fronting the wall	108.2	4-Aug-14	Halcrow TG	Blockwork wall generally in good condition, no signs of movement or undermining. Heavy calcium staining. No gaps between blocks. Upper masonry wall appears sound. Beach levels relatively low, concrete toe beam exposed.	3	>20	None.	routine
121AA901A 4601C05	Sea Wall	Straight concrete blockwork wall fronted by a sandy beach.	54.1	4-Aug-14	Halcrow TG	Wall generally in fair/good condition. No signs of movement or undermining, heavy leaching/ staining. Some horizontal joint gaps evident in concrete blocks near crest. Handrailing in good condition. Beach levels relatively low exposing concrete toe.	3	>20	Fill gaps between blocks.	routine
121AA901A 4601C06	Sea Wall	Curved concrete block wall with a masonry upper wall/crest.	50.4	4-Aug-14	Halcrow TG	Wall generally in good condition. No gaps in lower concrete blocks, some missing masonry at south end. Some leaching/ staining in upper masonry wall. Beach levels relatively low, onset of undermining at toe. Hand railing in good condition.	3	>20	Repair areas of damaged masonry.	routine
121AA901A 4601C07	Sea Wall	Concrete wall with a concrete apron to rock. Retaining wall behind promenade to support the road	65.2	4-Aug-14	Halcrow TG	Wall generally in fair condition. No signs of movement or undermining of toe apron. Significant abrasion to access steps, missing hand railing. Gaps in joints and spalling along crest blocks. Terrace surface poor. Upper wall good condition.	3	11 - 20	Repair damaged concrete at crest, monitor undermining at toe.	routine
121AA901A 4601C08	Sea Wall	Vertical concrete block wall with stepped toe detail and full height arched openings in the wall. Promenade and road above along majority of its length.	475.5	4-Aug-14	Halcrow TG	Wall subject to damage caused during December 2013 storms. Coping stones removed from wall due to tidal action and damage to asphalt surfacing and recently constructed concrete slabs.	5	1 - 5	Repair coping, surfacing and hand railings, works programmed 2014/15	urgent
121AA901A 4601C09	Cliff - Brown's Bay	Rock cliff with vegetated slope at the crest. Low masonry running on top of the cliff.	159.7	5-Aug-14	Halcrow TG	No change evident since last survey. Cliffs appear to be stable, little evidence of erosion, well sheltered by the fronting rock platform of Table Rocks. Access steps and masonry wall in good condition.	2	>20	None.	no repairs



Name	Type	Description	Length	Inspection Date	Inspector	Comment	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A 4601C10	Sea Wall	Concrete blockwork wall with wide promenade backed by a coastal slope	156.2	5-Aug-14	Halcrow TG	Wall in generally good condition, with some vertical gaps, concrete abrasion and localised spalling. Also some gaps between the wall and coping wall. Access ramp in poor condition with localised repairs required.	2	>20	Fill gaps in joints. Patching to spalling concrete. Repairs to south stairs.	routine
121AA901A 4701C01	Sea Wall	Concrete recurved wall with high, near vertical masonry walls or rock-bolted natural cliffs behind with road and housing above. The wall is fronted by a concrete apron	132	5-Aug-14	Halcrow TG	No significant change since last survey. Generally the wall is in fair condition. Some abrasion evident at the base of the wall and the toe of the ramp down to the beach. Undermining at the toe in one location, but not worsened since 2010.	3	>20	Monitor undermining at toe, repair cracking/abrasion to steps.	routine
121AA901A 4701C02	Cliff	Rock cliff with BT radio centre and mast to cliff top	94.5	5-Aug-14	Halcrow TG	No access as private property. Lower rock highly fractured, several local rock falls leaving overhangs. Some concrete fill evident. Upper soft cliff eroding along most of frontage, back to boundary fence. Property at risk.	3	>20	Monitor rock falls/erosion.	routine
121AA901A 4701C03	Cliff	Rock cliff with BT radio centre and mast to cliff top	157.6	5-Aug-14	Halcrow TG	No access to private property. Previous evidence of three erosion events, involving rock falls and associated slippages in the overlaying soft material. Three other individual large rocks have fallen, with no associated slippages. Property at risk.	3	>20	Monitor rockfalls/erosion.	routine
121AA901A 4701C04	Sea Wall	Concrete block recurve wall to coastal slope and houses above	93.7	5-Aug-14	Halcrow TG	As previously - Good condition; abrasion still evident at toe of steps.	2	>20	Continue monitoring.	routine
121AA901A 4701C05	Sea Wall	Concrete blockwork seawall fronted by a concrete apron	63.9	5-Aug-14	Halcrow TG	Sea wall generally in good condition but apron being undermined and localised spalling. As previously reported there has been deterioration of apron which in places is now breaking up. Access steps are not usable, but closed off at top.	2	>20	Maintenance at toe apron.	routine
121AA901A 4701C06	Sea Wall	Stepped concrete block wall with masonry wall above and apron below	73.8	5-Aug-14	Halcrow TG	Wall is in fair condition. Some undermining of and damage to apron. Minor abrasion to blockwork in one area. Noted that concrete repair works have been undertaken to pier and adjacent walls / bridge to marine observatory.	3	11 - 20	Maintenance at toe apron.	routine
121AA901A 4701C07	Breakwater	Masonry breakwater with sloped outer face and vertical inner face that acts to protect the bay.	185	5-Aug-14	Halcrow TG	Area of rock armour protection to seaward side of pier has been improved. Within masonry pier there remains localised areas where joints need to be maintained between courses.	2	>20	Continue monitoring.	routine
121AA901A 4701C08	Sea Wall	Wide concrete steps with low masonry wall behind, retaining the access ramp between the beach and the road and houses above.	52	5-Aug-14	Halcrow TG	Masonry wall in fair condition, no signs of movement or cracks. Slight undermining at corner wall at north end, minor abrasion. Wide concrete steps in good condition, new concrete edge beam	2	<20	Monitor undermining.	routine

Name	Type	Description	Length	Inspection Date	Inspector	Comment	Overall Condition	Residual Life	Recommendations	Urgency
						in very good condition. Beach levels healthy, toe of ramp buried				
121AA901A 4701C09	Sea Wall	Concrete walls to RNLI and Dove Marine Lab significantly protected by breakwater	43.1	5-Aug-14	Halcrow TG	Concrete wall in fair/good condition. No signs of movement or undermining. Repairs to vertical cracks appear good. Beach levels relatively high burying toe.	2	>20	Monitor beach levels.	routine
121AA901A 4701C10	Cliff	Steep rock cliff with a masonry wall above fronted by a sandy beach	44.7	5-Aug-14	Halcrow TG	Masonry wall and the vegetated top to the cliffs appear to be stable. Some loss of mortar between brickwork at crest.	2	11 - 20	Replace mortar.	routine
121AA901A 4701C11	Cliff	Soft rock cliffs in centre of bay with numerous caves throughout.	76.6	5-Aug-14	Halcrow TG	No evidence of slippage or rock falls or erosion of upper vegetated slopes.	2	>20	None.	no repairs
121AA901A 4701C12	Sea Wall	Concrete wall to promenade and slope with main coast road and houses above	30	5-Aug-14	Halcrow TG	Wall in fair/ good condition, no signs of movement or undermining. No significant gaps between blocks. Hand railing and surfacing in good condition. Beach levels relatively healthy, higher at south end.	2	>20	None.	no repairs
121AA901A 4701C13	Sea Wall	Masonry stone wall with lower section to the north and transition to seaward end, protected by the breakwater.	51.9	5-Aug-14	Halcrow TG	Wall in fair/good condition. Some cracking and rotation at north end of crest, otherwise no signs of movement. Minor abrasion at toe. Hand railing and surfacing good. Beach levels relatively high, burying toe. Slight undermining of apron at south	2	>20	Repair cracks at crest, monitor for further movement.	routine
121AA901A 4701C14	Revetment	Concrete revetment to vegetated cliff. Fronted by a concrete apron with concrete stairs adjacent.	72.9	5-Aug-14	Halcrow TG	No change evident since previous inspection. Abrasion of seaward face of apron creating an overhang of the concrete revetment. Relatively high beach levels.	3	>20	Improve facing of the apron	routine
121AA901A 4701C15	Breakwater	Masonry pier which acts as a breakwater to protect the bay. The masonry pier has a sloped outer face and vertical inner face with a concrete crest slab and concrete facing to all surfaces.	210.7	5-Aug-14	Halcrow TG	Extensive repair works to pier since 2010 inspection.	1	>20	none.	no repairs
121AA901A 4701C16	Cliff	Rock cliffs with earth slope above - on headland south of southern pier.	130.4	5-Aug-14	Halcrow TG	Areas of local rockfall. Elsewhere occasional local slumping in upper soft cliff. Evidence of recent slumping of cliff face at southern end.	3	>20	Consider further risk assessment if slumping progresses near footpath.	routine
121AA901A 4701C17	Sea Wall	Short section of masonry wall protecting access road and continuity of defence with a masonry/concrete revetment above the wall	39.9	5-Aug-14	Halcrow TG	Generally good condition. Evidence of repairs to masonry wall. Concrete toe apron locally broken up.	2	11 - 20	Repair concrete toe apron.	routine

Name	Type	Description	Length	Inspection Date	Inspector	Comment	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A 4701C18	Sea Wall	Concrete seawall with promenade and vegetated slope above. Concrete apron to main wall.	60.1	5-Aug-14	Halcrow TG	As previously reported. The wall is in fair condition but there is abrasion of the concrete apron toe along the northern half of the wall. At times of low beach levels this is exposing underlying Coal Measures.	2	11 - 20	Consider toe works to prevent undermining.	routine
121AA901A 4701C19	Revetment	Concrete block revetment to promenade and grass slope to access road and properties behind. Masonry splash wall to the rear of the promenade.	135.5	5-Aug-14	Halcrow TG	No change since last survey. Revetment blockwork in fair condition. Some cracks at the joint between the sloped revetment and the vertical wall. There is considerable damage to the wall crest.	2	11 - 20	Repair coping, localised repointing.	routine
121AA901A 4701C20	Sea Wall	Concrete block wall to vegetated slope to road and properties	66.8	5-Aug-14	Halcrow TG	Good condition wall. No outflanking evident.	2	11 - 20	Continue monitoring.	routine
121AA901A 4701C21	Dunes	Partially vegetated sand dune with wide sandy beach in front, and backed by Grand Parade.	737	5-Aug-14	Halcrow TG	Generally relatively stable dunes which have a gentle slope and are well vegetated. Beach management and maintenance plan in place with new fencing, planting and management of pedestrian movements. Works include recently constructed timber boardwalk.	3	>20	Monitor new beach management	no repairs.
121AA901A 4701C22	Revetment	Masonry revetment and concrete stairs to access slipway. Retaining wall fronting coastal slope behind slipway. Road and houses above. New concrete wall/platform adjacent to stairs on beach.	25	5-Aug-14	Halcrow TG	Some coping stones missing from wall. Cracking in concrete steps.	2	>20	Repair/replace coping stones and repoint masonry wall	routine
121AA901A 4701C23	Sea Wall	Masonry wall with curved concrete wave deflector. Promenade above with masonry wall retaining coastal slope.	140.2	5-Aug-14	Halcrow TG	The wall is generally in a good condition. Some mortar missing/ cracking between joints. Cracking in wall at southern access steps.	2	>20	Repoint joints in masonry seawall	routine
121AA901A 4701C24	Sea Wall	Concrete wall to disused swimming pool and then coastal slope to road.	143.9	5-Aug-14	Halcrow TG	As previously reported - Some cracks and abrasion evident. Spalling of previous patching. Defects with interior coping wall (rust-staining, abrasion, spalling)	3	11 - 20	Patch up previous repairs and infill remaining cracks. Patch up areas with local	routine
121AA901A 4701C25	Sea Wall	Brick wall with a concrete crest with a masonry wall behind fronting a vegetated slope. Steel sheet piled structure in front of brick wall.	64.6	5-Aug-14	Halcrow TG	As previously reported - the lower portion of the wall is still in poor condition showing signs of abrasion. The apron is cantilevered off the foreshore.	4	6 - 10	Repair/ patch lower portion of brick wall.	routine
121AA901A 4701C26	Cliff	Rock cliff headland with earth slopes above.	57.9	5-Aug-14	Halcrow TG	Rock structure is highly fractured leading to rockfalls and slumps in upper softer material. Evidence of recent movement.	3	11 - 20	Consider further risk assessment if slumping	urgent

Name	Type	Description	Length	Inspection Date	Inspector	Comment	Overall Condition	Residual Life	Recommendations	Urgency
									progresses. Repair access steps.	
121AA901A 4701C27	Revetment	Concrete block revetment with a concrete re-curve coping protecting promenade and coastal slope behind.	349.3	5-Aug-14	Halcrow TG	Concrete repairs undertaken to northern end at Sharpness Point. Abrasion to concrete toe with exposed rebar. Cracking in revetment and coping. Upper slope sign of cracking/ movement, as previously reported.	3	11 - 20	Repair abrasion on toe and face. Monitor slope movement.	routine
121AA901A 4701C28	Sea Wall	Curved masonry seawall with promenade and coastal slope above.	42.4	5-Aug-14	Halcrow TG	The wall is in a fair condition, with only minor abrasion and minor gaps between joints. Abrasion/ cracking in coping stones on steps to the beach.	3	>20	Repoint joints, filling of cracks. Repair undermining.	routine
121AA901A 4701C29	Sea Wall	Concrete wall to narrow promenade below coastal slope to road and properties.	195.1	5-Aug-14	Halcrow TG	Wall and concrete ramp to beach repaired and protected with gabion baskets.	3	6 - 10	none	no repairs
121AA901A 4701C30	Cliff	Vegetated steep rock slope fronted by a sandy beach	256.3	5-Aug-14	Halcrow TG	Some falls of large-sized rock leaving overhangs in cliff face. Evidence of recent movement and slippage in cliffs.	3	>20	Consider further risk assessment if slumping progresses.	urgent
121AA901A 4701C31	Cliff	High arched retaining wall structure to upper cliff. Concrete toe protection structure added in 2003.	60.3	5-Aug-14	Halcrow TG	Fair condition. Some signs of movement of upper soft cliffs	3	11 - 20	Consider further risk assessment if slumping progresses.	urgent
121AA901A 4701C32	Cliff	Concrete cliff stability works fronted by a rocky beach	47.5	5-Aug-14	Halcrow TG	Fair condition.	3	11 - 20	Continue monitoring.	no repairs
121AA901A 4701C33	Sea Wall	Small section of wall to cliff at root of North pier. Wall fronted by a concrete apron and shingle beach.	32.8	5-Aug-14	Halcrow TG	As previously reported - minor cracking in wall.	2	11 - 20	Continue monitoring.	routine
121AA901A 4801C01	Breakwater	Masonry breakwater that provides protection to areas of North and South tyneside. Concrete apron fronting the breakwater	1689.9	5-Aug-14	Halcrow TG	Breakwater in good condition, evidence of minor abrasion at toe. Cosmetic appearance of decking poor (cracking/abrasion) but no obvious structural defects in visible sections above water-line. Evidence of repairs.	2	>20	Continue monitoring.	no repairs
121AA901A 4801C02	Revetment	Masonry revetment	120.5	5-Aug-14	Halcrow TG	As previously reported - vegetation and seaweed growth continues. The revetment appears to be in good condition.	2	>20	Continue monitoring.	no repairs
121AA901A 4801C03	Coastal slope	Vegetated slope fronted by a sandy beach.	177.2	5-Aug-14	Halcrow TG	Generally good condition, although some signs of slipping to upper slopes.	2	>20	Consider further risk assessment if slumping progresses.	urgent
121AA901A 4801C04	Sea Wall	Short section of masonry and concrete arched seawall with	66.4	5-Aug-14	Halcrow TG	The arched wall is generally in a fair condition. The wall is fronted by a protective foreshore.	3	>20	Replace missing bricks and repoint.	routine

Name	Type	Description	Length	Inspection Date	Inspector	Comment	Overall Condition	Residual Life	Recommendations	Urgency
		vegetated slope behind fronted by a rocky foreshore.								
121AA901A 4801C05	Sea Wall	Masonry wall fronting vegetated slope to coast guard station .	46.4	5-Aug-14	Halcrow TG	There are blocks missing at the toe, leading to undermining and voiding. Signs of cracking and missing mortar in joints.	3	11 - 20	Repoint masonry wall.	routine
121AA901A 4801C06	Sea Wall	Masonry seawall with concrete revetment supporting a low earth slope above.	60.1	5-Aug-14	Halcrow TG	The wall and revetment are failing, with extensive cracking in concrete revetment. Low earth slope is eroding in places.	3	6 - 10	Monitor cracks.	routine
121AA901A 4801C07	Revetment	Concrete recurved wall with promenade and slope to properties behind. Precast concrete panel revetment fronted by a concrete toe.	478.2	5-Aug-14	Halcrow TG	Structurally sound but some abrasion and cracking of concrete in revetment panels, and some gaps between panels in local sections. Localised cracked revetment panels. Abrasion to toe beam.	2	>20	Repair gaps and cracks in revetment.	routine
121AA901A 4801C08	Revetment	Concrete wall with paved promenade to coastal slope. Concrete revetment fronted by a concrete apron.	290.5	5-Aug-14	Halcrow TG	Abrasion damage to the sea wall and localised cracks to coping. Patching repairs being undertaken at time of survey. Repair work underway at time of survey.	2	11 - 20	Monitor toe undermining. Repair cracks in concrete decking.	routine
121AA901A 4801C09	Revetment	Pattern placed rock revetment fronting promenade	325.8	5-Aug-14	Halcrow TG	Evidence of concrete repairs at transitions since previous survey. Revetment generally in sound condition.	2	6 - 10	Continue monitoring.	routine
121AA901A 4801C10	Revetment	Grouted stone revetment with road and promenade behind	87.6	5-Aug-14	Halcrow TG	Revetment generally in sound condition.	2	6 - 10	Continue monitoring.	routine
121AA901A 4801C11	Sea Wall - Freestone Point	Hard rock cliff and fronting rock platform.	61.8	5-Aug-14	Halcrow TG	No significant change since last survey. Highly fractured cliff.	2	>20	Continue monitoring.	routine

