



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



**North Tyneside Council  
Final Report**

**December 2012**

# 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.

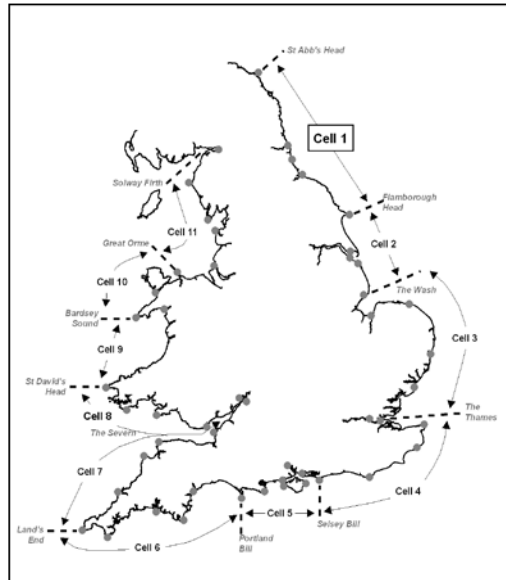


Figure 0-1: Sediment Cells in England and Wales

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 2012 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**.

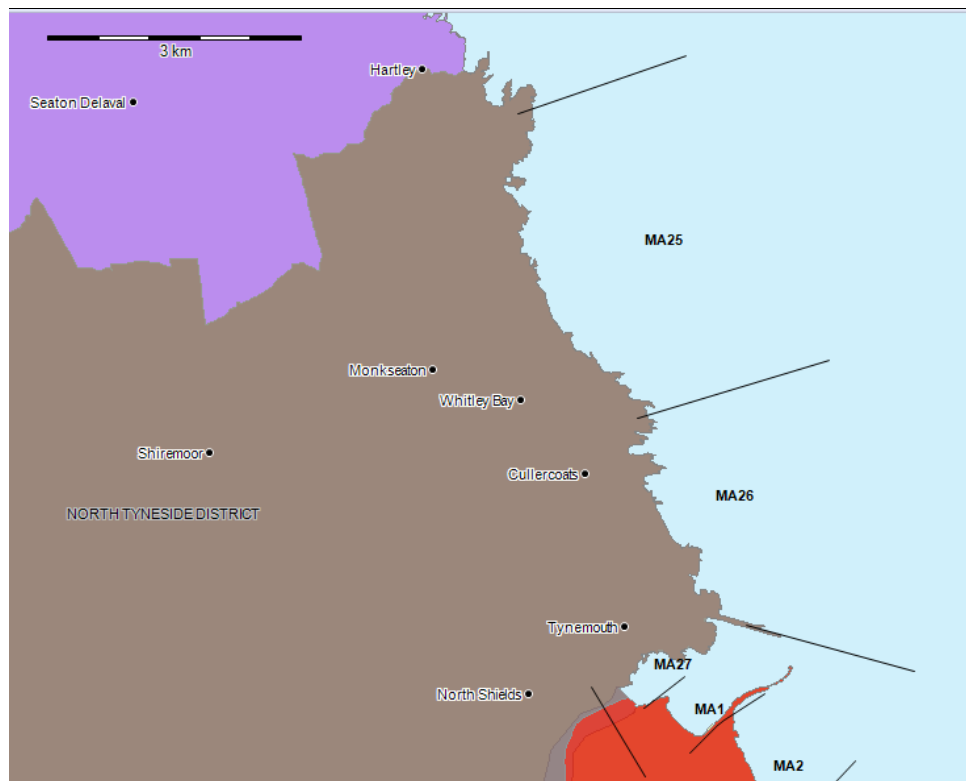


Figure 1-1: North Tyneside Council study area.

## 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 from October to December 2012. The weather experienced during this time was generally sunny, clear and calm.

The frontage has been split into a number of 'asset lengths' 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 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, 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 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 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.

- **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 Seawall 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 seawall 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 seawalls 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 seawall. There are also some areas where bricks have been lost from the upper sloping section of the curved masonry block wall.

The seawalls 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 the foundation of the hand railing.

The seawall along the Southern Lower Promenade is generally in fair condition although there is wide gap between the coping block and the promenade surfacing with some section of bitumen surfacing damaged by wave overtopping. The hand railing is very corroded along the whole length with one section of rail missing.

Brown's Bay has two separate sections of seawall 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 historic rocks 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 remodel 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 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 fair to good condition, although localised repairs are required to the structures. The undefended dunes along Longsands continue to show signs of erosion and movement and further risk assessment is recommended for discrete sections. The southern access ramp and adjacent sea walls remain in fair to good condition, although localised repairs are required to the structures.

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 recent repairs to the concrete apron and repairs were underway in the bay at the time of the survey. However, sections of the revetment and toe beam remain in need of repair. There also remains evidence of cracking to the bound footpaths on the upper slope, which may indicate movement of the upper slope.

The cliffs at Tynemouth headland have a highly fractured rock structure and there are several areas with rockfalls 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 is actively failing and in urgent need of repair.

The sections of sea wall and revetment through Knotts Flats to the fish quay are generally in good condition, with evidence of recent works and repair works underway at the time of the surveys.

### 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 Council's frontage is part-way along Hartley Cove. The local slump in the soft material immediately adjacent to the foreshore access steps in 2009 does not appear to have worsened. Ongoing cliffing and rock falls are apparent along most of this frontage. The access steps are in fair condition with no significant signs of damage. Repairs to grouting between blocks on the upper masonry wall and the hand railing are in good condition.



*Rock falls and cliffing along high cliff and Hartley Cove.*

*Access steps, retaining wall and hand railing in fair condition.*

The undefended cliffs between Hartley Cove and Curry's Point have been subject to historic rock falls and slippages in the overlying softer material although no recent events were evident. This cliff top recession continues to narrow the footpath in places with sections being relocated inland. At Curry's Point erosion of the soft earth slopes continues, initiating outflanking at the north end of the rock revetment and cutting back close to the access road to St Mary's Island.



*Continued rock falls and slips in cliffs north of Curry's Point.*

*Onset of outflanking north end of revetment at Curry's Point.*

### 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 poor condition. There are numerous cracks, voiding, displaced edge-coping and abrasion. The undermining noted in 2010 was still evident in places along the causeway and at the landward ramp although this doesn't seem to have worsened.



*Cracks in the causeway to St Marys Island.*



*Some undermining of causeway but not currently cause for concern.*

The buildings on St Mary's Island are generally well protected by a variety of defences, although the low masonry wall on the western side fronting the access ramp is still suffers from voiding caused by loss of masonry. The masonry wall on the north facing corner of the island is in good condition with the undermining identified during the 2010 inspection having been filled. There are several abraded concrete outfall structures across the foreshore.



*Missing masonry blocks and voids in low masonry wall at access ramp.*



*Void beneath masonry wall on north side of island has been filled.*

The high masonry walls around the east side of the island are well founded on the rock foreshore and remain in fair/ good condition. Some minor loss of mortar at mid height was observed, possibly coinciding with wave action at high tide.





*Masonry wall on east side of island well founded on rock foreshore.*



*Minor loss of mortar to high masonry wall on east side of island.*

The Trinity Road seawall is generally well founded on the rock foreshore and in good condition with no signs of movement. Beach levels are generally very low with only a thin veneer of sand on the rock foreshore at the north end. Sealant has been replaced at a number of expansion joints. Minor spalling is evident at a number of joints although this does not appear to have worsened since the previous inspection in 2010. The access ladders, promenade surfacing and shallow grassed earth embankment behind the wall are also in good condition. At the south end of the wall erosion of the high earth cliff and outflanking continues with displacement of the rock armour across the foreshore. Although this outflanking does not seem to have worsened since the previous inspection in 2010, stability of the seawall at this location could become an issue and immediate action is still recommended.



*Low beach levels and exposed toe along the Trinity Road seawall.*



*Spalling at some concrete joints and new sealant.*



*Promenade and shallow grass embankment in good condition.*



*Continued outflanking at south end of wall and displacement of armour.*

As reported during the previous inspection, 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 the Briardene Car Park and the municipal golf course. Some sections of the undefended cliff are prone to imminent slumping since the soft material is extensively cracked.



*Active slumping of soft cliffs at the north end of Whitley Sands.*



*Cliffing evident along the top of the soft earth cliffs and boulder toe.*

At the boatyard at the north end of Whitley Sands previous concrete repairs remain in fair condition. The masonry wall at the north end is also in a fair condition although there is some missing mortar and gaps between blocks.



*Repairs at south end of boatyard on Whitley Sands in fair condition.*



*Some gaps and missing mortar in masonry blocks at north end of boatyard.*

The rock revetment immediately to the south of Briardene Burn remains in fair condition despite evidence of a slight flattening of the profile and minor displacement of rocks at the toe. No noticeable changes were observed since the previous inspection in 2010.



*Revetment immediately south of Briardene Burn in fair condition.*



*Slight flattening of profile and displaced rocks at toe of revetment.*

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



in fill cracks, reseal gaps and repair abrasion damage. Some repairs to defects identified in 2008 and 2010 such as cracks/ abrasion along the coping at the north end and missing blocks along the cope and access steps have now been repaired and are in good condition.



*Repairs to some cracks along in Whitley Links Sea Wall good condition.*



*Repairs to some cracks along in Whitley Links Sea Wall good condition.*

Along other areas of the sea wall areas 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 the previous inspection has not worsened although this should continued to be closely monitored. Beach levels along the whole wall generally appear to be slightly higher (by 1 block) than during the previous survey.



*Full height gaps and abrasion in the wall at construction joints.*



*Gaps and missing mortar along the coping.*



*Gaps beneath the cope along the ramp at the Rendezvous Cafe.*



*Diagonal crack through blocks south of Rendezvous Cafe.*

The rendered sections of sea wall along the Panama Gardens frontage is in fair condition with repairs identified during the previous inspection in 2010 still good. In some locations the concrete render is cracked with spalled sections at the south end revealing the reinforcement mesh beneath. The spalling damage along the base of

the beach access steps as identified during the previous survey was not observed due to higher beach levels.



*Previous repairs to crack in rendered section of seawall remain good.*



*Cracking in render along cope of seawall.*



*Spalling of concrete render and exposed rebar at south end of seawall.*



*Damage along base of concrete steps no observed due to high beach levels.*

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 during the previous survey were not observed due to high beach levels.



*Concrete wall fronting Boardwalk Cafe in good condition.*



*High beach levels covering exposed timber piles and undermining of wall.*

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.





*Vegetation growth and some gaps between blocks along revetment.*



*Cracks and spalling in concrete at the steps.*

The Central Lower Promenade is protected by various sections of sea wall. Beach levels at the toe of the wall continued to remain relatively high at the time of the inspection, mainly with sands and some 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 and at the access steps. 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 high access ramp is also cracked in places.



*Abrasion along the concrete cope of the Central Lower Promenade seawall.*



*Abrasion and spalling of concrete encasing along the toe.*



*Cracks and abrasion at the access steps of the seawall.*



*Cracks and gaps beneath the access ramps.*

The final section of straight concrete seawall at the south end of Whitley Sands is generally in fair condition with no signs of movement or undermining. The large horizontal cracks below the crest identified during the previous survey have been filled. However, 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 is in very poor condition and continues to deteriorate with the lowest post and hand railing now missing.



*Recent repairs to horizontal cracks along upper section of sea wall at south end of Whitley Sands.*



*Continued loss of concrete encasement and corrosion of reinforcement mesh.*



*Continued loss of concrete encasement and corrosion of reinforcement mesh.*



*Missing lower post and hand railing at access steps.*

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 hand railing along the top of the wall appears in good condition.



*Masonry blockwork and upper masonry brickwork in fair condition.*



*Heavy staining down face of wall.*

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.





*Abrasion at the toe of the straight section of seawall*



*Horizontal gap in blockwork along the crest of the upper section of wall.*

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 end of the upper wall although this does not appear to have significantly worsened since the previous inspection in 2010.



*Section of missing brickwork at centre of upper sloping masonry wall.*



*Section of missing brickwork at south end of upper sloping masonry wall.*

The short section of concrete seawall 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. 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 the lower section. These steps cause a public safety hazard and should be closed. At the south end there is also voiding and undermining of the toe apron slab which should be monitored.



*Missing section concrete along the crest has undermined one hand railing post.*



*Missing sealant from construction joints.*



*Highly abraded access steps and missing hand railing.*



*Voiding and undermining of toe apron at south end.*

The high masonry blockwork wall with masonry arched upper section supporting the Promenade Road is in fair condition although there is noticeable abrasion along the toe at the north end. Since the previous inspection in 2010 the archways have been enclosed with concrete blocks and at the time of the survey the void behind was being filled with concrete (by Lumsden & Carroll Civil Engineering). The access steps remain in a delapidated condition and are closed. The undermining of the rock 'bull nose' identified during the previous inspection continues although this does not appear to have an effect on the stability of the wall. Some loss of mortar between the upper blocks was noted. The hand railing along the top of the wall is in good condition.



*Dilapidated access steps are close and now redundant due to blocking up of arches.*



*Gaps between blocks in the upper wall.*

To the south, the lower masonry blockwork wall fronts the Southern Lower Promenade. This wall is generally in fair condition although there is missing mortar and gaps beneath long sections of the coping. There is also a wide gap between the coping block and the surfacing along much of the wall, in particular at the south end. Large sections of surfacing have been repaired with concrete which appear in good condition although other sections of asphalt surfacing and kerbing along the centre section remain damaged. The hand railing along the whole wall is very corroded with one rail section missing along the centre section. The beach access steps are heavily abraded but now redundant since they have been closed off. The inspection was undertaken at low water however the toe along the southern section remained below water and was therefore not observed.





*Missing mortar and gaps beneath coping at Southern Lower Promenade.*



*Wide gap between coping and surfacing at south end.*



*Damage to asphalt surfacing and missing kerbing at south end.*



*Missing section of hand railing at central section of wall.*

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 the extensive rock platform of Table Rocks.



*No change to rock cliffs at north headland of Browns Bay.*



*Wide rock platform of Table Rocks providing protection to the cliffs.*

Brown's Bay has two separate sections of seawall. 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. The southern wall is generally in fair condition with localised undermining still evident to toe.



*Northern wall at Browns Bay generally in good condition.*



*Southern wall and access ramp is locally in poor condition.*

The Cliffs at Brown's Point initially are comprised of hard rock with small capping of softer till. As reported during the previous inspection 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 capping softer material. No significant change since the previous survey was observed with three historic rock falls having led to slippages in the overlying till, including one area where the cliff top has cut back to within a few metres of the boundary fence.



*Rock falls and slippages in the overlying till at Brown's Point.*



*Cliff top recession to within a few meters of the boundary fence.*

### **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 Kind 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 (below left), 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, but the poured concrete apron is being undermined in places (below right). There has been some deterioration in condition since the 2010 inspections since the toe apron is now in places breaking up, with concrete debris remaining on the foreshore and remedial works are required.





*Concrete recurve wall and steps, steps have signs of abrasion.*



*Concrete blockwork wall with local undermining to the toe.*

As previously reported in 2010 the final section, extending to the North Pier, is also experiencing undermining of the concrete apron, requiring remedial works (below left and right).



*Undermined concrete apron requiring repair.*



*Apron to blockwork wall with signs of movement.*

The North Pier has been repaired as part of recent works to the piers in Cullercoats Bay. Since the previous surveys in 2010 there is evidence of concrete and masonry repairs and the rock armour to the seaward face has been significantly improved (below right). The pier can significantly be over-washed during high spring tides that combine with storms. The masonry leeward face is in fair condition (below left).



*Leeward face of north pier, masonry in fair condition.*



*Seaward face of north pier with improved rock armour.*

At the north end of Cullercoats Bay the low concrete wall fronting the lifeguard station has now been repaired, as recommended by the previous inspection in 2010. The new concrete wall is in very good condition. 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 ramp is in fair condition with repairs to some previously identified

cracks however, other cracks still remain. Beach levels fronting the wall were relatively high at the time of the survey.



*New low concrete wall along toe of wide stepped concrete apron.*



*No apparent cracks or gaps in masonry wall at back of stepped apron.*

The concrete wall fronting the Dove Maritime Laboratory is in fair condition with no signs of movement or undermining. The minor vertical cracks identified during the previous inspection have now been filled and are in good condition.



*The concrete wall fronting the Dove Maritime Laboratory is in fair condition.*



*Recently repaired cracks in concrete wall in good condition.*

The brickwork retaining wall to the south of the Dove Maritime Laboratory is in fair condition although there is missing mortar between some blocks at each end of the wall.



*Masonry retaining wall at north side of Cullercoats Bay in fair condition.*



*Missing mortar and gaps between bricks in upper wall.*

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

Both the lower and higher sections of masonry seawalls at the south side of Cullercoats Bay continue to be stable with beach levels relatively high at the toe. At



the north end of the higher section the wall appears to have rotated slightly with a cracking opening below the cope which should be monitored for further movement. The hand railing and concrete promenade surfacing appear to be well maintained and in a good condition.



*High beach levels along the seawall on the south side of Cullercoats Bay.*



*Movement and cracking between blocks at the north end of the high wall Section.*

Since a number of defects were reported in 2010 the South Pier at Cullercoats Bay has recently been extensively reconstructed and is in very good or good condition throughout.



*Leeward face of Cullercoats south pier with recent concrete repairs.*



*Recently repaired pier deck*

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 movement (below left). At the southern end of the cliff there is evidence of recent slippage and movement (below right).



*Headland cliffs at Tynemouth North Point with slumping to upper cliffs.*



*Recent slumping to southern section cliff face.*

The masonry wall at the north of Tynemouth Longsands is in good condition. As previously reported there have been repairs to cracks in the masonry wall, although the concrete toe apron is broken away at certain locations (below right). Of more concern is the slumping of the soft cliffs to the north of the masonry wall (below left).

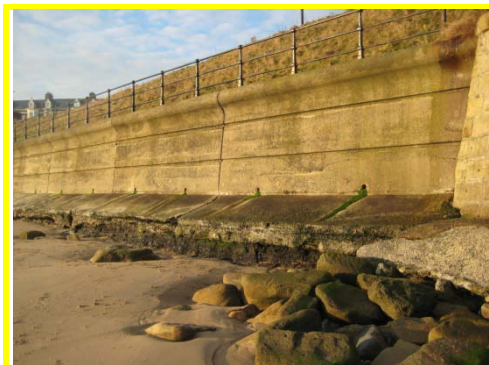


*Slumping of cliffs adjacent to the masonry wall at Tynemouth Longsands.*



*Concrete toe apron in need of repair.*

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 (below left). Along the neighbouring sloping blockwork revetment, there is some damage to the crest of the splash wall, although the structure overall remains in fair condition (below right).



*Erosion undermining the concrete toe apron.*



*Localised damage to crest of masonry revetment with gaps in joints leading to cracking.*

There is extensive spalling to the crest of the concrete access ramp to the beach that needs repair (below left). To the rear of the access ramp the concrete block work wall to the vegetated slope is in good condition (below right).



*Spalling to concrete access ramp.*



*Concrete block work wall in good condition.*



The undefended dunes along Longsands have experienced notable erosion during recent years and although no significant change is evident since the previous inspection in 2010 they continue to show signs of erosion and movement. Although generally well vegetated and in good condition (below left) there are certain locations (below right) where recent movement is evident. Due to the close proximity to the footpath (within 1m of the edge) and main coastal road to the top of the slope, regular monitoring should be undertaken along with a formal risk assessment to inform the future management strategy for this discrete section.



*Well vegetated dune system.*



*Localised slumping in need of further risk assessment.*

As reported in the previous surveys the access ramp at the foot of the Spa Car Park has coping stones still missing and some blocks from the ramp deck are washed out (below left). The concrete access steps south of the newer concrete platform remains cracked, with some concrete breaking away (below right).



*Missing coping and blocks to access ramp.*



*Cracking to concrete access steps*

The wall extending to the Tynemouth Pool is generally in fair condition, although there are many gaps between the blocks and localised cracks which should be repaired (below left). On this section the access steps to the beach are missing sections of handrailing (below right).



*Missing mortar between joints.*



*Handrailing missing to access steps.*

Around Tynemouth Pool, the wall on the northern-facing side has cracks and some previous patched repairs are now coming away (below left). The eastern and southern facing walls are in fair condition with abrasion and cracks at the join between the masonry wall and the concrete wave return wall (below right).



*Damaged repair with concrete infill coming away.*



*Abrasion and spalling to wave return wall.*

As previously reported in 2010 the short section of wall at the southern landward tie-in has its concrete apron cantilevered off the foreshore (below), although the wall behind appears sound.



*Wall at southern landward tie-in of Tyne Pool with apron undermined.*



*Wall at southern landward tie-in of Tyne Pool with apron undermined.*

The cliffs around Sharpness Point remain highly fractured and have experienced several rockfalls and there is evidence of recent movement and slippage in upper soft cliffs too (below left). The access steps are heavily abraded (below right)





*Evidence of rockfall to foreshore at Sharpness Point.*



*Heavily abraded access steps.*

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 of Sharpness Point. This apron has been repaired since the 2010 surveys (below left). The main body of the wall and the revetment are generally in a good condition (below right).



*Recently repaired concrete apron at Lower Promenade seawall.*



*General view of northern end of wall.*

Along the sea wall to King Edwards Bay there are still considerable areas of abrasion at the toe in places exposing the reinforcement bars (below left) and on the sloping revetment face (below right).



*Abrasion at toe with exposed reinforcement*



*Sloping revetment with occasional cracks and mortar gaps*

As previously reported, although the backing slope appears stable there is evidence in the pathways of cracking of the asphalt which may be indicative of some slope movement (below). There is evidence of recent superficial patch repairs which have proved unsuccessful.



*Cracking in upper slope.*



*Movement at repaired cracks.*

The curved sea wall in King Edwards Bay is in a fair condition (below left), with only minor abrasion and minor gaps between joints and on the coping stones on the steps to the beach. At the time of the survey repair work was underway, it is assumed that these ongoing repairs will rectify those defects to the access slope and steps that had been reported in 2010 (below right).



*Curved sea wall in Kind Edwards Bay in fair condition.*



*Repair works underway to access*

The cliffs at Tynemouth headland have a highly fractured rock structure and there are several areas with rockfalls on the foreshore (below left). In places this has left overhangs in the cliff face, with boundary walls of the Tynemouth Priory close to the cliff edge. There were signs of recent slippage on the vegetated cliff slopes to the bay (below right).



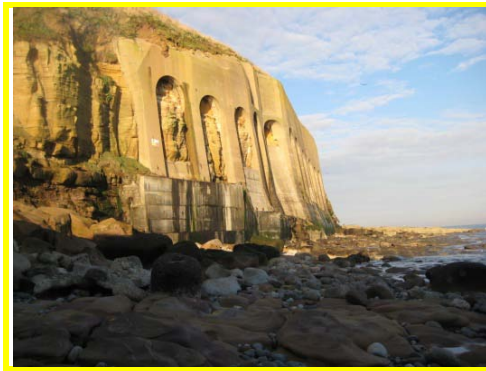
*Fractured rock structure at Tynemouth Headland with rockfall on foreshore*



*Signs of movement and slippage in vegetated cliff.*

The high arched retaining walls which extend along a short length close to the northern side of the landward end of the North Pier remain in fair condition with some signs of slippage of upper vegetated cliff (below left). The short section of cliff north of the pier remains in fair condition (below right).





*High arched retaining wall north of the North Pier in fair condition.*

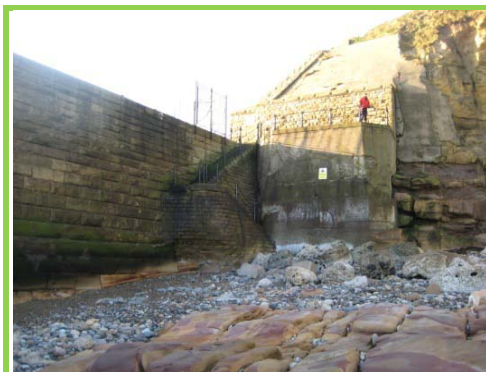


*Some signs of slippage in the upper vegetated cliffs.*

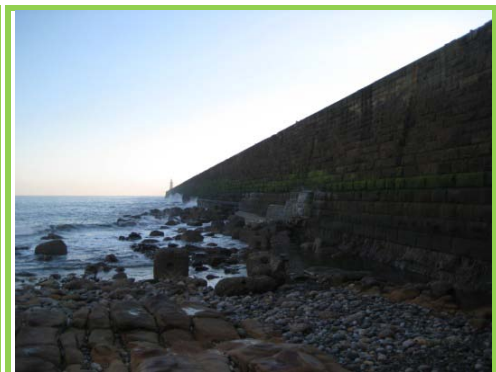
### **3.4 Tynemouth North Pier to Mussel Scarp (MU 27)**

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 a mostly man-made defences including the 1.7km long Tynemouth North Pier and various other seawalls and revetments.

The North Pier (below) 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 (below left). It is assumed that the Port of Tyne undertakes its own vessel-based inspections of the structure and plans maintenance work accordingly.



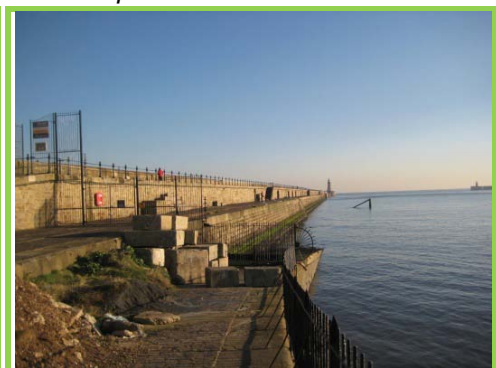
*Northern pier wall with minor cracking*



*Northern pier seaward side*



*Northern pier patch repairs*



*Northern pier leeward side*

The revetment at Prior's Haven (below left) remains in good condition. The sandy bay backed with a coastal slope (below right) also remains in good condition, although there were some signs of slippage to the upper slopes.



*Masonry revetment at Prior's Haven in good condition*



*Coastal slope in good condition*

The rock headland Freestone Point is highly fractured but in fair condition (below left) as is the arched retaining wall (below right).

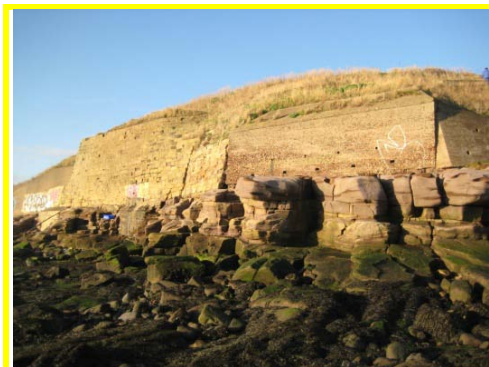


*Rock headland at Freestone Point*



*Arched retaining wall at Freestone Point*

The adjacent masonry wall (below left) has blocks missing and there are signs of cracking and missing mortar in joints (below right).



*Masonry wall in fair condition*



*Gaps and cracks in mortar joints*

The masonry wall with a sloping concrete revetment at Sandy Goit remains in poor condition. Both the wall and revetment are failing, with extensive cracking in concrete revetment resulting in voids (below left). The low earth slope is also eroding in places (below right).





*Failing revetment at Sandy Goit*



*Erosion to upper slope*

To the eastern end of riverside walls the section immediately west of Sandy Goit is a masonry retaining wall with concrete render that is badly cracked and spalling (below left). This 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 (below right).



*Spalling concrete render to masonry wall at Sandy Goit.*



*Cracking in pitched stone revetment*

The concrete recurved wall with promenade and 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 (below left) . This wall is generally in a good condition although the revetment is assessed as fair, there are gaps between revetment panels and occasional cracking throughout (below right).



*Abrasion to concrete toe of seawall at Knotts Flats.*



*Cracking in panels and gaps at joints evident throughout*

The western section of sea wall, without revetment, is in generally good condition with patching repairs underway at the time of the survey to deal with abrasion (below left and right). Disused access steps were heavily abraded (below left), at

certain locations the concrete toe was exposed (below right) and there was minor cracking to the upper decking (below left).



*Heavily abraded access steps with patch repairs evident in foreground*



*Very recent patch repairs evident throughout this section*



*Concrete decking with occasional minor cosmetic cracks*



*Exposed concrete toe*

The rock revetment to the Fish Quay was in good condition with evidence of remedial works since the 2010 survey including patching works and replacement rock armour (below left) . The short section of pitched stone revetment extending to the jetty downstream of the Fish Quay was also in generally sound condition (below right).



*Remedial works at eastern end of revetment at Fish Quay in good condition.*



*Pitched stone revetment to jetty*

## 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 undertaken to the following man-made assets:

- Repairs to cracks in the Whitley Sands Seawalls;
- Infilling of arches in the seawall along Promenade Road;
- Minor repairs to Cullercoats North Pier;
- Replacement of low concrete wall at Cullercoats Bay lifeguard station;
- Repairs to cracks in Dove Marine Laboratory wall in Cullercoats Bay;
- Repairs to Cullercoats Bay North Pier;
- Major reconstruction of Cullercoats Bay South Pier;
- Repaired concrete apron at the tie-in to the cliffs at Sharpness Point;
- In King Edwards Bay minor repairs were underway at the time of the survey to the access steps;
- Patching repairs to the sea walls at Knotts Flats;
- Repairs to the rock revetment at the Fish Quay.

#### 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 Seawall;
- Cracks in Whitley Sands Seawall
- Ongoing cracking in Central Lower Promenade Seawall and access ramps;
- Continued loss of concrete render from Seawall at south end of Whitley Sands;
- Heavily abraded access steps, cracks in crest and undermining of toe apron of the low concrete seawall at Whitley Promenade;
- Cracks behind the coping and damaged sections of bitumen surfacing along the Southern Lower Promenade Seawall;
- Cracks, abrasion and damage to the toe was 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 the southern end of the Longsands;
- Continued abrasion and spalling to the Tynemouth Pool walls, with a section of apron undermined;
- Continued abrasion and cracking to the sea walls and revetment at King Edwards Bay;
- Continued signs of cracking to upper bound footpaths which may be indicative of movement of the upper slope;
- Deterioration of the failing revetment and masonry wall 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 cliffing in the soft upper cliffs between Hartley Cover and Curry's Point;
- Erosion and cutback in the soft earth cliffs at Curry's Point;
- Erosion and cut back of soft earth cliffs south of Trinity Road Seawall;
- Continued fracture and rock falls in cliffs at Brown's Point;
- The undefended dunes along Longsands continue to show signs of erosion and movement;
- 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 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 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 off all NFCDD assets, specific conclusions and recommendations for individual assets are given in **Appendix B**.

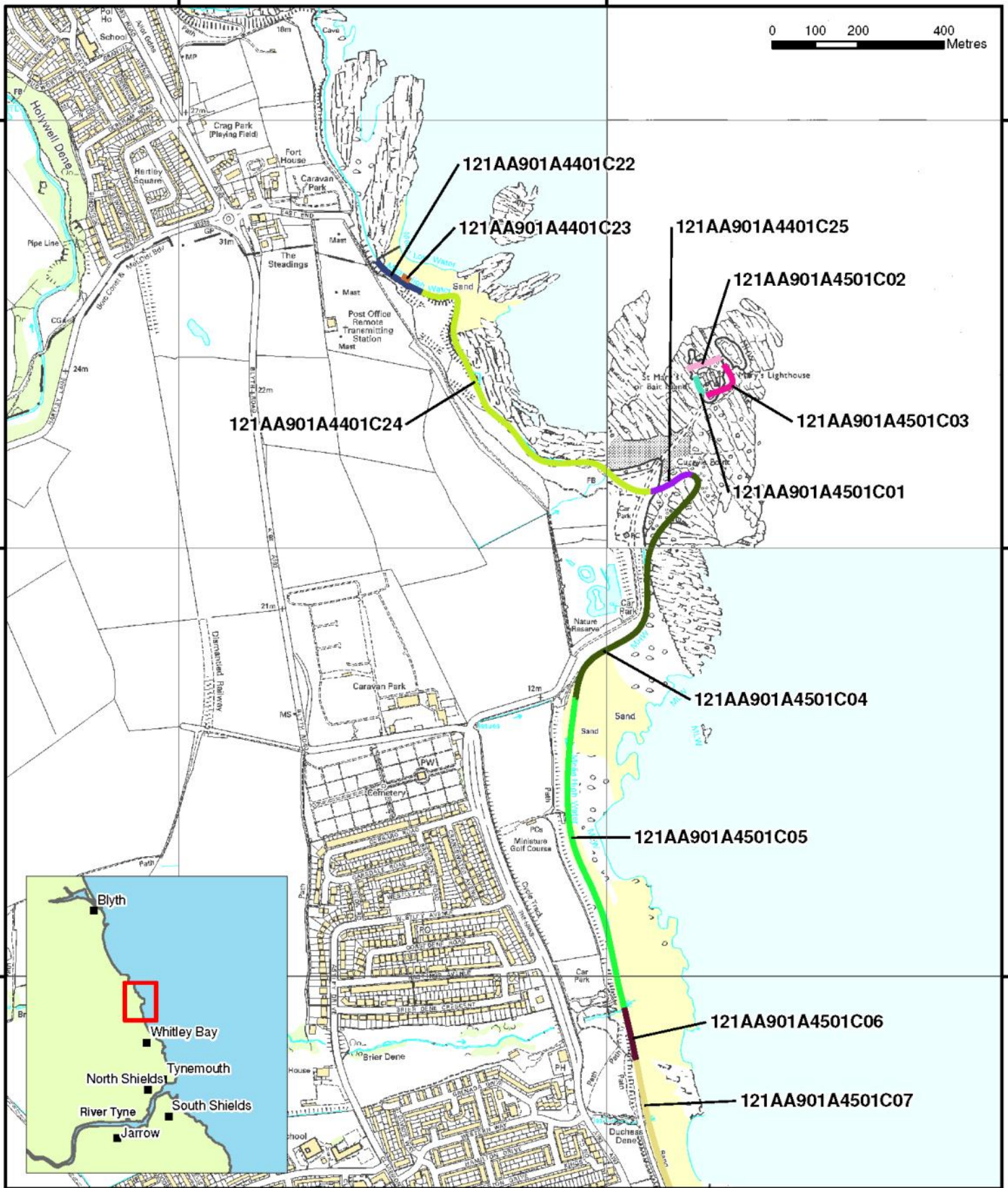
In lieu of a decision for a suitable replacement for the NFCDD database, all condition assessment data and selected photographs have been uploaded to a SANDS (Shoreline And Nearshore Database System). This includes all data and photographs from the previous inspections since 2002 that were previously held on 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**

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


576000

575000

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**Legend**

-  Asset location
-  NFCCD 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

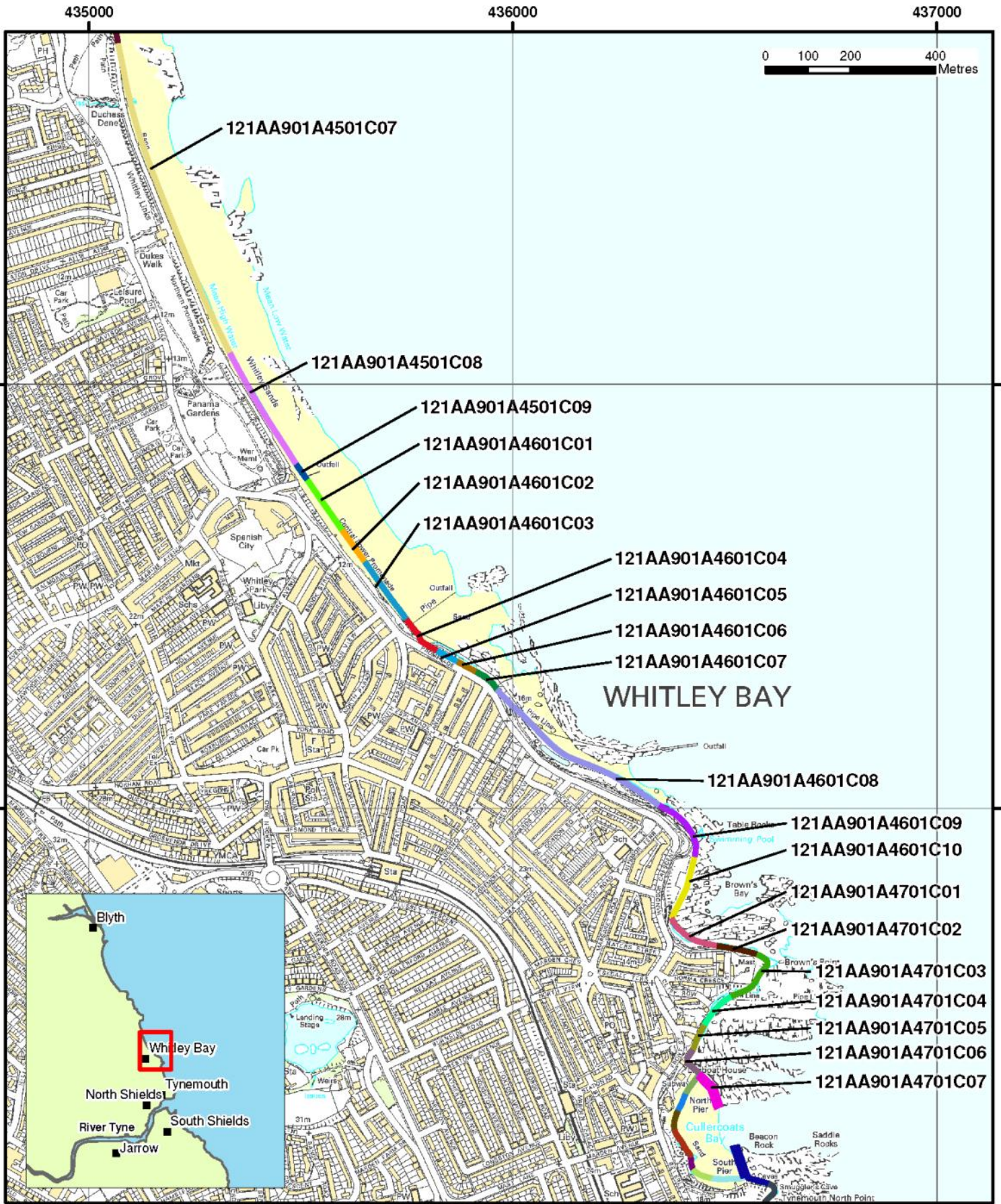
+44 (0)1793 812479



**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

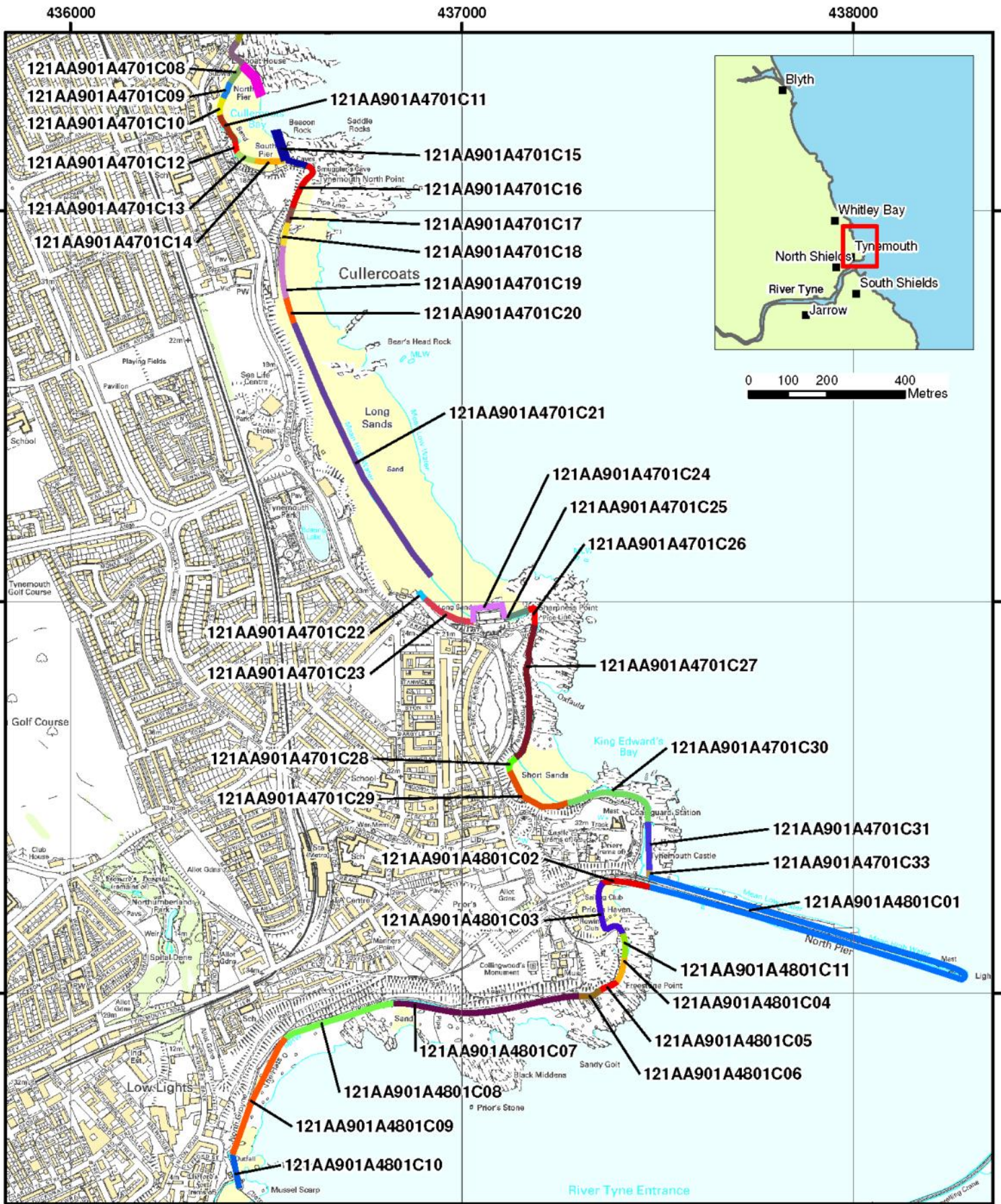
+44 (0)1793 812479





**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

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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	03/10/2012	Halcrow MS	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	03/10/2012	Halcrow MS	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	04/10/2012	Halcrow MS	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	>20		routine
121AA901A 4401C25	Embankment	Concrete ramp to St Marys Island Causeway with earth embankment adjacent.	105.4	04/10/2012	Halcrow MS	Revetment in good condition, no signs of settlement or 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.	2	>20	Monitor erosion at north end.	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	04/10/2012	Halcrow MS	Wall in poor condition. Significant vegetation growth through wall. Loss of grout, wall vulnerable to degradation. Sections of wall displaced or completely detached from main wall and relocated. One section of undermining.	4	1 - 5	Repair/replace displaced wall	urgent
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	04/10/2012	Halcrow MS	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	04/10/2012	Halcrow MS	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.	3	>20	Repoint gaps, fill cracks, repaint.	routine
121AA901A 4501C04	Sea Wall	Concrete Seawall fronted by a rocky/sandy beach	645.6	04/10/2012	Halcrow MS	Seawall in good condition. No signs of settlement or undermining. Minor cracks, loss of sealant, localised spalling at joints. Beach levels relatively low, some abrasion evident. Erosion and outflanking at south end. Surfacing, hand railing,	3	>20	Consider erosion protection at south end.	routine

Name	Type	Description	Length	Inspection Date	Inspector	Comment	Overall Condition	Residual Life	Recommendations	Urgency
						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	04/10/2012	Halcrow MS	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.	4	11 - 20	Consider formal erosion protection at north end.	routine
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	04/10/2012	Halcrow MS	Revetment in good condition. Some displacement of stones at toe. No signs of damage along crest. Erosion of river bank close to revetment toe.	3	>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	04/10/2012	Halcrow MS	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	Fill cracks/ gaps. Repair abrasion. Repair damaged at access steps/ ramps.	routine
121AA901A 4501C08	Sea Wall	Concrete Seawall with grassy bank behind fronted by a sandy beach	305.4	04/10/2012	Halcrow MS	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	04/10/2012	Halcrow MS	Seawall in good 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	04/10/2012	Halcrow MS	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	04/10/2012	Halcrow MS	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.	4	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	04/10/2012	Halcrow MS	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, missing on access steps. Some paving breaking	4	>20	Repairs to render. Fill cracks.	routine

Name	Type	Description	Length	Inspection Date	Inspector	Comment	Overall Condition	Residual Life	Recommendations	Urgency
						up.				
121AA901A 4601C04	Sea Wall	Curved concrete block seawall with masonry crest. Sandy beach fronting the wall	108.2	04/10/2012	Halcrow MS	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	04/10/2012	Halcrow MS	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	04/10/2012	Halcrow MS	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 masonry at south end.	routine
121AA901A 4601C07	Sea Wall	Concrete wall with a concrete apron to rock. Retaining wall behind promenade to support the road	65.2	04/10/2012	Halcrow MS	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	>20	Fill cracks and gaps.	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	04/10/2012	Halcrow MS	Walls in fair condition, generally worst at south. Relic steps in very poor condition. Gaps beneath cape block, some horizontal gaps between blocks, large gap between cope and surfacing. Surfacing in poor condition. Handrailing rusty, missing sections.	3	>20	Monitor gap behind cope, fill gaps/cracks, repair surfacing, repair handrail.	routine
121AA901A 4601C09	Cliff - Brown's Bay	Rock cliff with vegetated slope at the crest. Low masonry running on top of the cliff.	159.7	04/10/2012	Halcrow MS	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	18/12/2012	Halcrow CA	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	18/12/2012	Halcrow CA	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	Infill undermining at toe.	routine
121AA901A 4701C02	Cliff	Rock cliff with BT radio centre and mast to cliff top	94.5	04/10/2012	Halcrow MS	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	04/10/2012		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	18/12/2012	Halcrow CA	As previously - Good condition; abrasion still evident at toe of steps.	1	>20	Continue monitoring.	routine
121AA901A 4701C05	Sea Wall	Concrete blockwork seawall fronted by a concrete apron	63.9	18/12/2012	Halcrow CA	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	18/12/2012	Halcrow CA	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.	2	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	18/12/2012	Halcrow CA	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	04/10/2012	Halcrow MS	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 in very good condition. Beach levels healthy, toe	3	11 - 20	Monitor undermining.	routine

Name	Type	Description	Length	Inspection Date	Inspector	Comment	Overall Condition	Residual Life	Recommendations	Urgency
						of ramp buried				
121AA901A 4701C09	Sea Wall	Concrete walls to RNLi and Dave Marine Lab significantly protected by breakwater	43.1	04/10/2012	Halcrow MS	Concrete wall in fair/good condition. No signs of movement or undermining. Repairs to vertical cracks appear good. Beach levels relatively high burying toe.	3	>20	Monitor beach levels.	routine
121AA901A 4701C10	Cliff	Steep rock cliff with a masonry wall above fronted by a sandy beach	44.7	04/10/2012	Halcrow MS	Masonry wall and the vegetated top to the cliffs appear to be stable. Some loss of mortar between brickwork at crest.	3	>20	Replace mortar.	routine
121AA901A 4701C11	Cliff	Soft rock cliffs in centre of bay with numerous caves throughout.	76.6	04/10/2012	Halcrow MS	No evidence of slippage or rock falls or erosion of upper vegetated slopes.	3	>20	None.	no repairs
121AA901A 4701C12	Sea Wall	Concrete wall to promenade and slope with main coast road and houses above	30	04/10/2012	Halcrow MS	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.	3	>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	04/10/2012	Halcrow MS	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	3	>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	26/07/2010	Halcrow MS	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	13/12/2012	Halcrow CA	Extensive repair works to pier since 2010 inspection.	1	6 - 10	Continue monitoring	routine
121AA901A 4701C16	Cliff	Rock cliffs with earth slope above - on headland south of southern pier.	130.4	13/12/2012	Halcrow CA	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	13/12/2012	Halcrow CA	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	13/12/2012	Halcrow CA	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	13/12/2012	Halcrow CA	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 wall crest and localised repointing.	routine
121AA901A 4701C20	Sea Wall	Concrete block wall to vegetated slope to road and properties	66.8	13/12/2012	Halcrow CA	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	13/12/2012	Halcrow CA	Generally well vegetated, gently sloping dunes, relative stable. Couple of areas experienced some trampling/blow outs; fenced off to aid recovery. Some areas of dune fencing are now obsolete.	3	>20	Risk assessment required for localised slumping near to footpath and highway.	urgent
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	13/12/2012	Halcrow CA	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	13/12/2012	Halcrow CA	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	13/12/2012	Halcrow CA	As previously reported - Some cracks and abrasion evident. Spalling of previous patching. Defects with interior coping wall (rust-staining, abrasion, spalling)	2	6 - 10	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	13/12/2012	Halcrow CA	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.	3	>20	Repair/ patch lower portion of brick wall.	routine
121AA901A 4701C26	Cliff	Rock cliff headland with earth slopes above.	57.9	13/12/2012	Halcrow CA	Rock structure is highly fractured leading to rockfalls and slumps in upper softer material. Evidence of recent movement.	3	>20	Consider further risk assessment if slumping progresses.	urgent



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121AA901A 4701C27	Revetment	Concrete block revetment with a concrete re-curve coping protecting promenade and coastal slope behind.	349.3	13/12/2012	Halcrow CA	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.	2	6 - 10	Repairs to damaged sections of wall, revetment and apron.	routine
121AA901A 4701C28	Sea Wall	Curved masonry seawall with promenade and coastal slope above.	42.4	13/12/2012	Halcrow CA	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.	2	>20	Re-pointing of joints, filling of cracks	routine
121AA901A 4701C29	Sea Wall	Concrete wall to narrow promenade below coastal slope to road and properties.	195.1	13/12/2012	Halcrow CA	There are a few missing bricks, but the wall is structurally sound. Localised repairs appeared to be underway at time of survey.	2	>20	Reinspect on completion of repair works.	routine
121AA901A 4701C30	Cliff	Vegetated steep rock slope fronted by a sandy beach	256.3	13/12/2012	Halcrow CA	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	13/12/2012	Halcrow CA	Fair condition. Some signs of movement of upper soft cliffs	2	>20	Consider further risk assessment if slumping progresses.	urgent
121AA901A 4701C32	Cliff	Concrete cliff stability works fronted by a rocky beach	47.5	13/12/2012	Halcrow CA	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	26/07/2010	Halcrow CA	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	13/12/2012	Halcrow CA	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	13/12/2012	Halcrow CA	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	13/12/2012	Halcrow CA	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 vegetated slope behind fronted by a rocky foreshore.	66.4	13/12/2012	Halcrow CA	The arched wall is generally in a fair condition. The wall is fronted by a protective foreshore.	3	>20	Continue monitoring.	routine
121AA901A	Sea Wall	Masonry wall fronting vegetated	46.4	13/12/2012	Halcrow	There are blocks missing at the toe, leading to	3	11 - 20	Protection to area	urgent

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4801C05		slope to coast guard station .			CA	undermining and voiding. Signs of cracking and missing mortar in joints.			of outflanking and infill missing blocks at toe.	
121AA901A 4801C06	Sea Wall	Masonry seawall with concrete revetment supporting a low earth slope above.	60.1	13/12/2012	Halcrow CA	The wall and revetment are failing, with extensive cracking in concrete revetment. Low earth slope is eroding in places.	4	1 - 5	Urgent repairs required to revetment and wall	urgent
121AA901A 4801C07	Revetment	Concrete recurved wall with promenade and slope to properties behind. Precast concrete panel revetment fronted by a concrete toe.	478.2	18/12/2012	Halcrow CA	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	Repairs to revetment and toe protection.	routine
121AA901A 4801C08	Revetment	Concrete wall with paved promenade to coastal slope. Concrete revetment fronted by a concrete apron.	290.5	18/12/2012	Halcrow CA	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	Reinspect following completion of repairs	routine
121AA901A 4801C09	Revetment	Pattern placed rock revetment fronting promenade	325.8	18/12/2012	Halcrow CA	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	18/12/2012	Halcrow CA	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	13/12/2012		No significant change since last survey. Highly fractured cliff.	2	>20	Continue monitoring.	routine

