



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

Northumberland County Council

Walkover Visual Inspection of Assets

Contents Amendment Record

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Contents

Contents	3
Disclaimer	5
Preamble	6
1 Introduction	8
1.1 Study Area	8
1.2 Methodology	8
2 Overview	11
3 Condition Assessment	17
3.1 Scottish Border to Berwick-on-Tweed Pier (MU 1)	17
3.2 Berwick-on-Tweed Pier to Spittal (MU 2)	20
3.3 Spittal to Cheswick Sands (MU 3)	26
3.4 Cheswick Sands to Bamburgh Moor (MU 4)	28
3.5 Holy Island (MU 5)	32
3.6 Bamburgh Moore to Seahouses (MU 6)	39
3.7 Seahouses to Beadnell (MU 7)	44
3.8 Beadnell to Links House Farm (MU 8)	45
3.9 Newton Link House to Dunstanburgh Castle (MU 9)	48
3.10 Dunstanburgh Castle to Boulmer (MU 10)	49
3.11 Boulmer to Seaton Point (MU 11)	51
3.12 Seaton Point to Foxton Hall (MU 12)	52
3.13 Foxton Hall to Birling Carrs (MU 13)	53
3.14 Northfield to Amble (MU 14)	57
3.15 Warkworth Harbour and Amble (MU 15)	58
3.16 Amble to Beacon Hill (MU 16)	62
3.17 Beacon Hill to High Hauxley (MU 17)	64
3.18 Cresswell to Snab Point (MU 18)	68
3.19 Snab Point to Beacon Point (MU 19)	71
3.20 Beacon Point to Spittal Point (MU 20)	73
3.21 Spital Point to Blyth Harbour (MU 21)	79
3.22 Blyth Harbour River Mouth (MU 22)	85
3.23 Blyth Harbour to Seaton Sluice (MU 23)	85
3.24 Seaton Sluice to Hartley (MU 24)	95
4 Comparison with Previous Assessments	100
4.1 Man-made assets	100
4.2 Natural Assets	101
5 Problems Encountered & Uncertainty in Analysis	102
6 Conclusions & Recommended Actions	102

Appendix A – Asset Maps	103
Appendix B – Asset Condition & Recommendations	B1

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Preamble

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

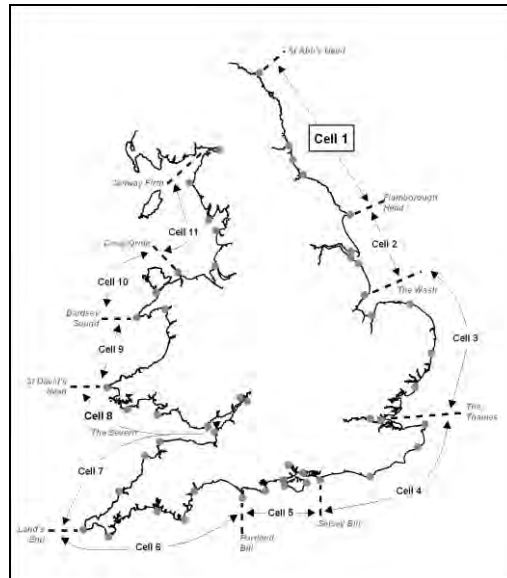


Figure 0-1: Sediment Cells in England and Wales

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



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



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

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

This report describes the coastal walk-over inspection survey of assets undertaken in 2014 and provides a summary of the main findings. In addition, separate reports are produced for other elements of the programme as and when specific components are undertaken, such as beach profile, topographic and cliff top surveys, wave data collection, bathymetric and sea bed sediment data collection, and aerial photography.

1 Introduction

1.1 Study Area

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

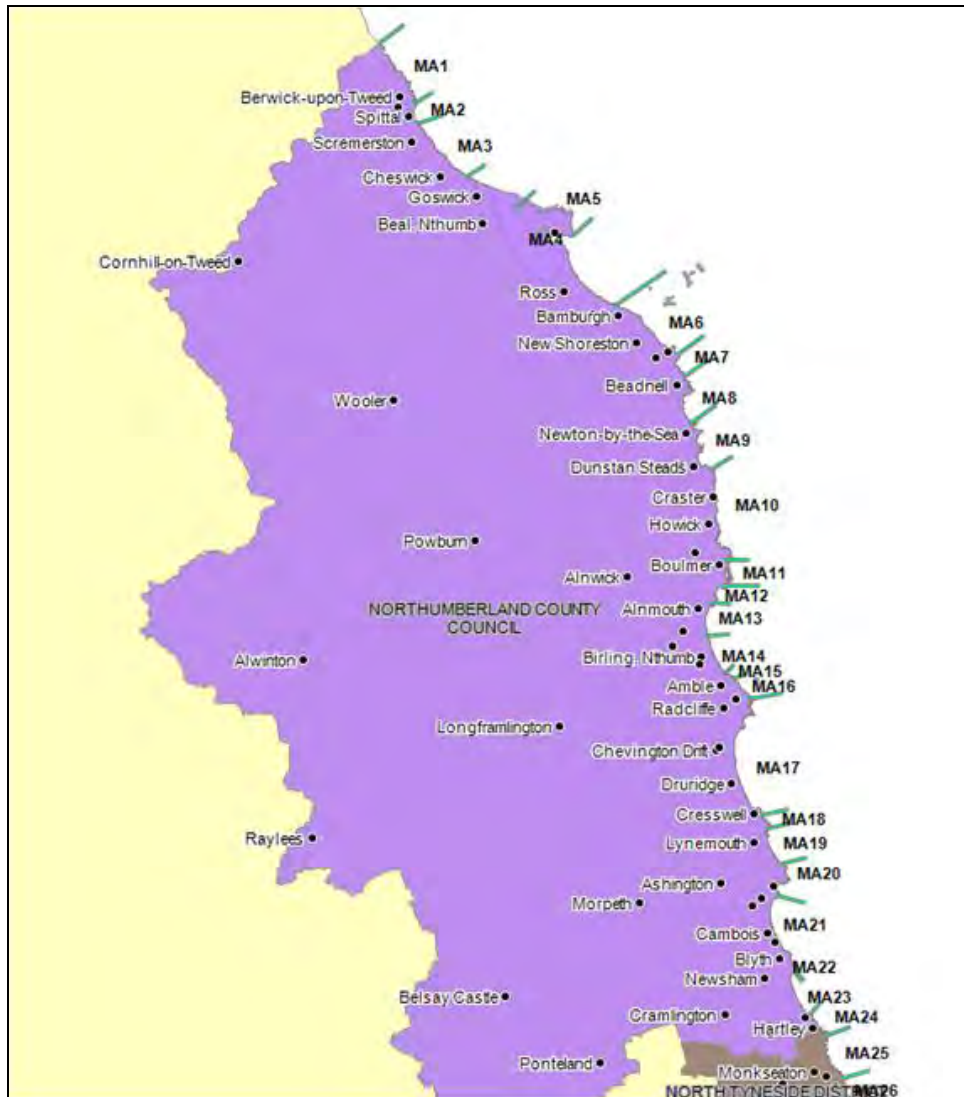


Figure 1-1: Northumberland County Council study area, showing SMP2 Management Units.

1.2 Methodology

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

The visual assessment of both natural and built assets was carried out by a team of Chartered engineers between 4th and 15th 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’ or “assets” 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 2002.

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

For built assets the grading classification was undertaken in accordance with the Condition Assessment Manual (EA, 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 from the key indicated below.

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

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

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

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

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

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

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

In addition to this report, full details of the inspection and a selection of appropriate photographs have been entered into the SANDS database and provided along with this report. This Sands database also holds data from inspection in 2002, 2004, 2006 and 2008 (previously held by Northumberland in a series of 5 MS Access Databases) along with data from the NFCDD database for inspections in 2008, 2010 and 2012.

2 Overview

The following significant findings were noted during the 2014 walk over inspection. Most notably, this section highlight those assets that are in a 'poor' or 'very poor' condition or where significant changes from the previous inspections were noted.

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

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

The cliffs along the Magdalene Fields frontage continues to be susceptible to localised and occasion slumping, cutting back to the footpath.

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

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

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

There are a number of gaps between masonry blocks at Berwick quay with some blocks broken and a crack in the masonry walls at the small dock area. The hand railing is also in poor condition.

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

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

At Spittal Quay the open piled timber jetty remains in a dilapidated state. The security gate was unsecured allowing public access. Beach levels have recovered burying the masonry toe.

- **Spittal to Cheswick Sands (MU 3)**

At the south end of Spittal Beach the significant landslip continues with the masonry wall along the cliff top remaining precariously close to the edge.

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

- **Cheswick Sands to Bamburgh Moor (MU 4)**

The dunes along Cocklawburn Beach are showing signs of renewed erosion along most of the frontage.

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

At Warren Mill the wall at the head of the embayment is in very poor condition and partially collapsed along most of the length. However, the main road and adjacent properties are not at immediate risk.

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

- **Holy Island (MU 5)**

The cliffs and shingle beaches along the south east side of the island continue to show signs of erosion and resultant undermining of the defences behind.

Undermining and scour holes along the harbour pier continued to be of concern and it is recommended that urgent repairs are undertaken before the structure deteriorates further.

On the east coast of the island there is continued erosion of the soft cliffs and cobble berms in a number of locations.

The grouted stone revetment at Ross Links is undermined and has collapsed resulting in a breach of adjacent earth embankment.

- **Bamburgh Moore to Seahouses (MU 6)**

Significant erosion and cliffing of the dunes along the length of dunes between Bamburgh Castle and Seahouses.

At North Sunderland Harbour significant horizontal cracking remains along the concrete crest wall adjacent to the RNL buildings. A significant scour hole at the seaward end of the main pier has worsened and the inner face is highly abraded with various small holes and voids along its length.

- **Seahouses to Beadnell (MU 7)**

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

- **Beadnell to Links House Farm (MU 8)**

There is significant abrasion and gaps between blocks in the high masonry wall at Nacker Hole with undermining evident along the toe.

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

There is localised undermining of the apron at the head of the breakwater at Beadnell Harbour. Deep voids are also evident beneath the landward face of the breakwater arm and along the north quay.

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

- **Newton Link House to Dunstanburgh Castle (MU 9)**

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

- **Dunstaburgh Castle to Boulmer (MU 10)**

There is significant abrasion to the seaward face of the harbour arms at Craster Harbour. On the north pier there is localised undermining at the seaward end and a noticeable full height crack, although no movement is apparent.

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

- **Boulmer to Seaton Point (MU 11)**

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

At the centre of Boulmer Village a new rock revetment has been constructed although ongoing erosion is apparent further south despite continued tipping of building rubble.

- **Seaton Point to Foxton Hall (MU 12)**

South of Seaton Point the cliff line continues to show signs of erosion and slippage along the majority of its length with some outflanking at the access steps. The cliff top path along this frontage remains closed.

- **Foxton Hall to Birling Carrs (MU 13)**

Beach levels fronting the car park adjacent to the Alnmouth Links Golf course have remained stable since the previous inspection with concrete blocks largely buried.

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

The masonry wall immediately south of the River Aln road continues to show signs of settlement and cracking along the central section with gaps in the blockwork.

The masonry wall at Church Hill has now failed along the central section with many other gaps and displaced blocks apparent.

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

- **Northfield to Amble (MU 14)**

The Warkworth dunes continue to suffer from erosion with slips at the north and central sections.

- **Warkworth Harbour and Amble (MU 15)**

Significant damage of the seaward end of the North Pier at Warkworth Harbour remains with a full height vertical crack and rotation of the seaward tip. However, photographs since 2002 indicates no significant recent change.

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

Repair works have now been completed at Broom Hill Quay following undermining and collapse of the deck in 2009. The quay has been reopened to vessels.

The low concrete seawall at Bay View Road has significant horizontal cracks along the crest, damage hand railing and abrasion and void in the access ramp which is in a decapitated state.

The South Pier is highly abraded along the base. Some minor rotation and loss of joint sealant along the trestle walkway was evident but this has not worsened.

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

- **Amble to Beacon Hill (MU 16)**

The surfacing behind the seawall south of Pan Point has been replaced with a concrete decking but the numerous areas of spalling and rust staining along the crest and set back wall remain.

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

- **Beacon Hill to High Hauxley (MU 17)**

South of Low Hauxley erosion of the earth embankment behind the crest of the low concrete block revetment continues. Ongoing tipping of building rubble remains largely ineffective.

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

The breakwater protecting the outfall at the north end of Druridge Bay remains in poor condition with abrasion of blocks and broken concrete sections. The outfall is fair condition but has a missing flap valve.

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

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

- **Cresswell to Snab Point (MU 18)**

The low concrete wall at Cresswell is in fair condition, however previous crack repairs have not been completed leaving reinforcement steel exposed. Noticeable erosion along the vegetated earth cliffs behind the crest continues.

The regraded upper slopes at Golden Sands Holiday Park continue to slip with some undermining of the new vehicle barrier evident. The gabions along the toe of have burst with erosion and cliffing continuing. The top of the slope is within a few meters of the road.

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

- **Snab Point to Beacon Point (MU 19)**

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

There is some outflanking of the south end of the revetment fronting the power station with erosion and cliffing of the colliery spoil continuing across the back of the beach.

- **Beacon Point to Spittal Point (MU 20)**

There is ongoing erosion and slumps in the soft earth cliffs south of Newbiggin Moor, with the cliff top cutting back close to the caravan park.

South of Newbiggin Point the various short sections of seawalls remain generally in a poor condition with erosion of the soft upper cliffs and unravelling of soil netting.

Beach levels within Newbiggin Bay remain very high largely burying the seawall and revetment, spilling sand onto the promenade.

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

- **Spital Point to Blyth Harbour (MU 21)**

The cliffs south of Spital point continue to actively erode along the entire frontage. Rubble has been tipped in front of the Links Quarry section and at Hawks Cliff occasional rock falls have triggered slumps and partial collapse at one location. The footpath along this section of cliffs remains closed and requires realignment.

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

There is erosion, cliffing and recession of the cliff top north of the revetment at Cambois. The earth cliffs to the south of the rock revetment also continue to erode causing outflanking of the revetment.

At North Blyth, erosion of the soft earth cliffs north of the rock revetment continues to cause outflanking. There is some displacement of rocks along the toe of the structure and signs of localised settlement of the profile.

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

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

The Blyth East Pier was not accessible but the previous inspection noted rust staining, spalling and cracking to the majority of the trestle legs. In addition the timber deck was worn with the onset of rot around fixings and a number of boards and a section of handrailing missing.

- **Blyth Harbour River Mouth (MU 22)**

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

- **Blyth Harbour to Seaton Sluice (MU 23)**

Along Blyth South Beach erosion at the toe of the narrow band of dunes continues with unravelling of the gabion baskets exposing of the foundation of the crest wall.

High beach levels at the concrete seawall north of the promenade have re-buried the toe of the structure. The wall along the crest of this structure has been removed which could increase the risk of overtopping damage to the property behind.

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

At Seaton Sluice Harbour there are full width cracks along the top and bottom of the boat ramp, gaps between some masonry blocks and voids in the fill behind the north wall. The steps at the west end are breaking up. The masonry wall along south bank has significant abrasion along the crest and a number of displaced blocks and voids along the base of the wall. There is a reported scour hole at the base of the east wall, although this was not observed.

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

- **Seaton Sluice to Hartley (MU 24)**

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

The full height crack in the brickwork in the upper section of concrete seawall at the north end Collywell Bay remains but does not appear to have worsened.

There is significant abrasion and cracking along the toe and high seawall at the centre of the bay. Three full height crack in the concrete don't appear to have worsened. Abrasion of the access steps and movement in the upper soft cliffs along the access path remains a public safety hazard.

Ongoing degradation of the gabions along the north access ramp continues with baskets burst and spilling stone across the foreshore. There is also some erosion and outflanking at the both ends of the ramp.

The high rock cliffs south of Crag Point are fractured with several rock falls. There is a wide crack opening a few metres back from the cliff edge.

3 Condition Assessment

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

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

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

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

The cliffs at Marshall Meadows Bay continue to shows signs of being active. Although some localised slumping in the softer material overlaying the hard rock is cutting back the cliff at the northern end, no recent movement was observed. Visible signs of fracture continue to be apparent adjacent to the caravan park and further rock falls are anticipated.



Sections of abandoned masonry wall and new fencing at north end of Marshall Meadows Bay (/601c01).



Fractures in cliffs at south end of Marshall Meadows Bay (/601c03).

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

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



Cliffs at Singing Cove fronted by rock platform (/601c05).



Caves and fissures in cliffs and slumps in upper soft material (/601c05).

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



Partial slips in upper soft cliffs north of Sharpers' Head (/701c02).



Vertical fissures and caves in cliffs north of Sharpers' Head (/701c03).

Although Green's Haven Breakwater remains in poor condition no significant change was evident since the previous inspection. The structure continues to show signs of heavy abrasion along most of its length with loss of the upper section of crest at two location. Ongoing horizontal cracking and spalling along much of the rest of its length is likely to lead to further damage of the crest. The 2010 inspection reported that the breakwater was somewhat undermined, however inspection at low tide shows the structure to be well founded on the rock platform, which is being undercut. There is however some initial undercutting of this rock platform on the landward side of the breakwater however this is not currently affecting the structure. Although the structure is in poor condition it is still performing the function of retaining the sand within the bay.



Damage to crest and head of Green's Haven Breakwater (/701c04).



Cracking, spalling and undercutting of the rock foundation (/701c04).

The steel, timber and concrete access steps at the root of the breakwater are generally in good condition. Despite there being two deep caves in the cliffs at the base of the steps, these appear to be stable with no change observed since the last inspection.



Steps and hand railing at Green's Haven in good condition (/701c05).



Deep caves adjacent to base of access steps (/701c05).

The hard rock cliffs around Green's Haven show occasional slumps in the upper soft material and evidence of one large rock fall, although no particular change since the previous inspection was evident. The most noticeable slip being at the south end where the cliff edge has cut back to the footpath above. Various lengths of concrete apron and walls extending around the centre of the bay remain in poor condition and provide limited protection to the soft cliffs behind. Concrete access steps at the centre of the bay and concrete steps/ ramp at the south end of the bay remain in fair condition.



Slumps in upper soft cliffs at Green's Haven (/701c09).



Concrete apron in poor condition, slumps in upper soft cliffs cutting back to footpath above (/701c07).

The cliffs at Bucket Rocks show evidence of continued localised rock falls and slumping in the upper soft cliff material. At Meadow Haven just north of the Berwick Pier there is a wide foreshore backed by wide and well vegetated dunes. The 2010 inspection reported the dune edge starting to exhibit signs of erosion but this was not observed, suggesting that the dunes may be stabilising.



Slump in soft upper cliffs at Bucket Rocks (/701c12).



Wide stable dunes at Meadow Haven, north of Berwick Pier (/701c13).

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

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

The Berwick Pier underwent substantial refurbishment during 2012/13, including repair of a significant hole midway along the leeward face and replacement of the concrete deck. The new repairs appeared to be in very good condition with some minor cracking evident in the old section deck and minor spalling of some of the concrete render. Inspection of below water elements was not possible.



Refurbishment of the Berwick Pier completed in 2012 (/701c14).



Replacement of masonry blocks and new concrete deck slab (/701c15).



Minor cracking in old concrete deck slab (/701c14).



Spalling of concrete render on wave wall (/701c14).

The masonry seawall along Pier Road at Berwick-on-Tweed remains in fair condition with occasional minor cracking and spalling of the concrete coping. At the south end of the wall abrasion and loss of the concrete encasement is evident along with outflanking and collapse, although this does not appear to have worsened since the previous inspection and appears to have changed little since 2004. The old cobble slipway midway along the wall continues to deteriorate with blocks continuing to be displaced across the foreshore.



Damage to sections of coping along the Pier Road masonry seawall and displacement of cobble stones on the slipway (/801c07).



Outflanking and collapse at the south end of seawall (/801c07).

The historic masonry wall of Fisher's Fort remains in relatively good condition with some abrasion to the footing and minor mortar repairs and replaced blocks undertaken c2009.



High masonry seawall wall around Fisher's Fort (/801c06).



Historic abrasion to footing of seawall (/801c06).

The short sections of masonry seawall and rock revetment fronting the properties at Gardo's Battery remain in good condition with armour well packed and high beach levels burying both structures.



Masonry seawall buried by high beach levels (/801c05).



Rock revetment well packed and buried by high beach levels (/801c04).

The Berwick quay walls consist mostly of a sheet piled wall with a short masonry walls extending around the dock area. The steel piles, concrete capping beam, ladders and timber fenders are all in good condition. However, at the junction with a short masonry wall gaps between the blocks and a crack in the capping beam/surfacing could be an indicator of washout of fill and settlement. The masonry quay wall in the small dock is in fair condition with some blocks broken and abraded and a number of open gaps evident. One vertical crack in the wall on the north side could indicate potential movement.



Berwick sheet piled quay wall generally in good condition (/801c03).



Loss of mortar between blocks in short section of masonry wall (/801c03).



Crack in surfacing behind short section of masonry blockwork (/801c03).



Vertical crack and potential movement of blocks in the north wall of the dock (/801c03).

The stone filled gabion baskets along Dock Road are generally in fair/ poor condition but have not worsened since the previous inspection. The crest of the structure has settled in places and a large number of baskets along the toe have burst with loss of

stone across the foreshore. This damage was initially identified in 2008. Repairs to the lower gabions at the south end were undertaken c2012.



Gabion structure providing erosion protection along Dock Road (/901c04).



Loss of stone from the lower gabion baskets (/901c04).

The low masonry wall to the south of Spittal Pier is in fair condition with loss of concrete facing to part of the wall and gaps between the block. The masonry quay wall at Spittal Pier is in poor condition with localised but significant abrasion and cracking to some masonry blocks and exposure of reinforcement in the coping. No settlement was apparent in the surfacing behind the wall suggesting that no significant loss of fill is occurring. However, this should be monitored.



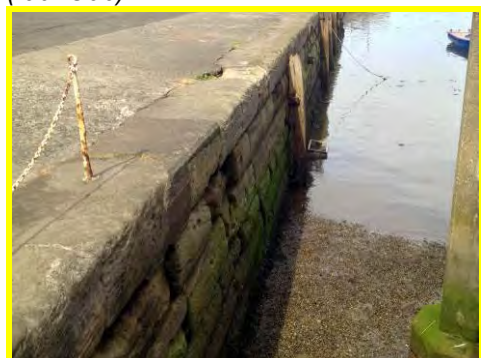
Gaps in the low masonry wall south along Dock Road (/901C05).



Abrasion and cracking of masonry blocks on west face of Spittal Pier (/901C06).



Exposed reinforcement in cope (/901C06).



Abrasion and cracking of masonry blocks on east face of Spittal Pier (/901C06).

The timber retaining wall at the RNLI Station appears to be in reasonably good condition although some loss of fill at the location of a repaired board is apparent.



Low beach levels fronting Spittal Quay exposing masonry toe (/901C07).



Displacement of stones and unravelling of masonry toe at Spittal Quay (/901C07).

The opened piled timber jetty at Spittal Quay remains in a dilapidated condition. This structure has been closed to public access however, at the time of the inspection the gate at the west end of the quay was unlocked and public (including children) were fishing from the structure. The loss of beach material to the east side of the structure identified in 2012 has recovered and now covers the masonry toe. This toe was previously reported to be in a poor condition with missing and displaced blocks. Although dilapidated this pier structure was previously identified as an important erosion control feature for the whole area.



Low beach levels fronting Spittal Quay exposing masonry toe (/901C07).



Displacement of stones and unravelling of masonry toe at Spittal Quay (/901C07).

The dunes to the west of Sandstell Point appear relatively healthy with continued vegetation growth in front of an apparent historic erosion line. Cliffling of beach material identified in 2012 was not apparent. The previous inspection in 2010 reported active erosion of the dunes however this seems to have stabilised in recent years, possibly due to the presents of a large sand bar across the estuary mouth.



Dunes to the south of Sandstell Point appear stable (/901C08).



New vegetation growth in front of a historic erosion line (/901C08).

The revetment at Sandstell Point remains in good condition and relatively stable with a fairly consistent profile and no signs of undermining or movement at the toe. Minor localised deformation of crest gabions and localised erosion of the embankment has not worsened with high beach levels at the south end continuing to bury the structure. Beach levels appeared to be relatively high compared to the previous inspection, partly burying the revetment toe and many of the dilapidated groynes. Significant erosion of dunes/ beach reported during the 2010 inspection is no longer evident.



High beach levels at Sandstell Point burying the toe of the revetment (/901C10).



Groyne at Sandstell Point almost completely buried (/901C10).



Localised erosion of embankment behind revetment crest (/1001c01).



High beach levels burying south end of revetment (/1001c01).

The Spittal seawall and hand railing remains in good condition with only minor cracks and loss of joint sealant apparent. Some blocks were missing on the promenade steps. Localised repairs at joints generally appear good but some crack repairs appear to be incomplete or have failed. Beach levels at the time of the inspection continued to be healthy, appearing higher than during the previous inspection.



Spittal seawall, hand railing and surfacing in good condition (/1001c02).



High beach levels up to underside of recurve in many places (/1001c02).



Missing blockwork surfacing on promenade steps (/1001c03).



Incomplete or failed crack repairs on face of seawall (/1001c03).

At the south end of the seawall the rock revetment is in fair condition with no change evidence since previous inspection. Some flattening of the slope at the south end is evident along with some minor localised erosion, cliffing and slips in the grass embankment behind.

3.3 Spittal to Cheswick Sands (MU 3)

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

At the south end of Spittal Beach a significant landslip was reported in the previous inspection, exposing underlying rock. This landslip doesn't appear to have worsened since 2010 however it was noted that the masonry wall remains very close to the cliff edge. The cliffs between Spittal beach and Cocklawburn beach are in fair condition although erosion and significant but localised collapse of rock headlands continues.



Landslip in soft cliffs at the south end of Spittal seawall (/1001c05).



Localised collapse of rock headlands between Spittal beach and Cocklawburn beach (/1101c01).

Immediately north of Cocklawburn Beach there is significant erosion of the soft earth cliffs with continued loss of the disused paved roadway.



Erosion at toe of soft earth cliffs fronting Sea House (/1101c04).



Significant but localised erosion of earth cliffs at Saltpan Rocks (1101c05).

The coastline between Cocklawburn Beach to Cheswick Sands comprises dunes interspersed with areas of rock outcrops and clay cliffs. This frontage has a history of periods of erosion and accretion with different lengths of the coast respond differently to wave conditions. The following photos show a comparison of the current condition with that observed during the previous inspection in 2012.

At the northern end of the dunes at Salt Pan Rocks there is evidence of continued erosion of the dunes from the previous inspection in 2012 with some re-growth of vegetation on the dune face.



Dunes at Salt Pan Rocks in 2012.



Dunes at Salt Pan Rocks in 2014 (/1201c01).

The condition of the dunes at Middle Skerr and Far Skerr do not appear to have significantly worsened since the previous inspection in 2012 however erosion to the dune face appears to be continuing.



Dunes at Far Skerr in 2012



Dunes at Far Skerr in 2014 (/1202c02)

3.4 Cheswick Sands to Bamburgh Moor (MU 4)

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

At Cheswick Sands and Goswick the dunes are wide, low and well vegetated with a well-defined toe at the strand line. The rapid developed of embryo dunes vegetation noted in the 2012 inspection was no longer apparent suggesting that the area previously identified as a sediment sink might now be eroding.



Dunes at Cheswick Sands in 2012.



Dunes at Cheswick Sands in 2014 (1201c03).

To the south of Beal Point at the entrance to the South Low channel a large sluice through the flood bank was constructed in March 2010 as part of the 4Shores Project. This allows salt water incursion over pastureland to create a 5ha salt marsh and 20ha of brackish wetland. Along the low coastal slope on the north side of Beal Point the earth embankment remains in good condition. Signs of localised erosion at the toe as noted in the previous inspection were not observed.



New sluice structure south of Beal Point constructed in 2010.



Localised erosion at the toe of the vegetated slope appears to have recovered (/1401c02).

From the landfall of Holy Island causeway near Beal south to Fenham Burn the shoreline is characterised by a good fronting width of salt marsh of mud and sand flats. Little change is noticeable since the previous inspection in 2012 with the marsh becoming narrower towards Fenham Mill, widening again towards Fenham-le-Moor. The shoreline itself comprises vegetated coastal slopes which are not experiencing erosion. The low timber retaining wall noted at Fenham Mill in the 2010 inspection was not observed.



Narrow but healthy salt marsh at Fenham Mill (/1401c23).



Salt marsh wider but more patchy near Fenham-le-Moor (/1401c23).

East of the bird hide at Elwick there is a flood embankment fronted by salt marsh. The embankment is protected by an asphalt and stone revetment which is generally in good condition despite being largely overgrown. This structure appears to continue to be effective in preventing sea flooding to a local low-lying bank of farmland across Ross. However a few areas could benefit from routine maintenance to infill gaps in the stones. Further along the frontage is a bracken-covered coastal slope leading to the Ross Links dunes. This remains mostly stable with some signs of erosion at the toe and historic blow-outs.



Flood embankment east of bird hide at Elwick (1401c98).



Asphalt and stone revetment largely overgrown (1401c98).

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



Landward side of Old Law dunes appear stable (/1401c99).



Erosion of seaward face of Old Law dunes (/1401c99).

The dunes along Ross Back Sands appear very stable with continued signs of accretion and embryo dune growth as report in the 2010 inspection. Some 'very

localised' toe erosion was reported in 2010 but this was not observed during the 2012 or 2014 inspections. The dunes at Ross Links extend towards Budle Bay where they are fronted by salt marsh and mud flats.



Embryo dune growth at north end of Ross Back Sands (/1401c06).



Embryo dune growth at south end of Ross Back Sands (/1401c06).

Various walls and grouted stone revetments, rip-rap and concrete retaining walls extending around Links End towards the sluice at Ross Low channel. These assets are generally in fair condition although undermining and collapse of one structure appears to have worsened resulting in breach of the adjacent embankment. Recent but localised lowering of foreshore levels along another section of revetment has started the onset of undermining of the toe.



Undermining and collapse of south end of grouted stone revetment at Links End (/1401c27).



Breach in the embankment at south end of revetment (/1401c27).



Concrete walls at Links End in fair condition (/1401c27)..



Concrete walls at Links End in fair condition (/1401c27)..

The sluice at Ross Low channel continues to be in good a good state of repair with sheet piles, capping beams, hand-railings and ladders generally in good condition.



The sluice structure south of Ross Low channel appears in good condition (/1401c18).



Sheet piles at the sluice repainted in 2008 (/1401c19).

Along the Chesterhill Slakes in Budle Bay the salt marsh remains generally in a healthy condition with little change evident since the previous inspection. Some salt pans were evident although marsh edge erosion as reported in the previous inspection was not observed. The 2010 inspection noted Chord Grass (*Spartina*) growth on the foreshore.



Generally healthy salt marsh at Chesterhill Slakes (/1501c08).



Some salt pans evident in salt marsh (/1501c08).

At Warren Mill, the wall fronting the private land at the head of the bay remains in very poor condition with significant collapse along the central section of masonry. Through discussion with the owners it is understood that they are arranging to have the wall repaired.



Significant collapse of central section of blockwork wall at Warren Mill (/1501c02).



Significant collapse of central section of blockwork wall at Warren Mill (/1501c02).

The revetment fronting the B1342 appears in good condition although somewhat overgrown and in need of repointing. The masonry wall at the south end of the revetment appears in good condition. These structures are fronted by a wide salt marsh with some evidence of edge erosion.



Gaps between blocks and overgrowth on stone revetment along B1342 (/1501c04).



Masonry wall at south end of revetment in good condition (/1501c04).

The dunes along the south side of Budle Bay are relatively healthy however continued erosion and cliffing of the dune face and pedestrian erosion of vegetation was evident near Heather Cottages.

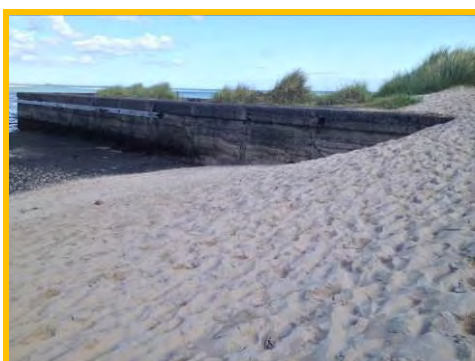


Erosion at toe of dunes fronting Heather Cottages in 2012.



Continued erosion and cliffing of dune face in 2014 (1501c06).

The disused pier near Heather Cottages continues to control beach sediment as noted in the 2010 inspection. However, this structure is in poor condition with loss of fill and partial collapse of the northern wall scattering blocks across the foreshore. This structure presents a public safety hazard and should be monitored for further deterioration.



Disused pier in poor condition.



Partial collapse of northern wall of pier and loss of fill.

3.5 Holy Island (MU 5)

This management unit is approximately 15.5km in length and extends around the entire shoreline of Holy Island. This frontage includes approximately 25 coastal

defence assets, comprising mostly low natural cliffs and sand dunes. The inspection proceeded anti-clockwise around the island, commencing from Chare Ends adjacent to the informal car park, where the road turns and rises up onto the main island.

The damage to the causeway road at Chare Ends reported during the 2012 inspection has not been repaired but does not appear to have worsened. The dunes extending south from the causeway road towards The Basin are well vegetated and remain stable.



Localised erosion damage to road at Chare Ends (4901c01).



Vegetated and stable dunes south of Chare Ends (4901c01).

At The Basin, the low cliffs are locally active with several lengths bare of vegetation and occasional sumps. However, this does not appear to have worsened since the previous inspection. As noted in the 2012 inspection, holes from Sand Martins are still present in the exposed section of cliff.



Erosion and cliffing of low earth cliffs at The Basin (/4901c03).



Holes from Sand Martins in exposed section of cliff at The Basin (/4901c03).

At the small bay sheltered by St Cuthbert's Isle, the narrow sandy beach is backed by a cobble berm. No noticeable change is apparent to the beach which appears stable since the 2008 inspection, however erosion of the low grass bank was evident, most notable at the north end behind the low wall.



Narrow sandy beach and cobble berm in the lee of St Cuthbert's Isle (/4901c04).



Erosion along low grass bank at the back of the beach (/4901c04).

Beach levels of the shingle beach at the boat houses west of the pedestrian footpath to Heugh headland appears to have raised slightly. However, beach levels in front of the low masonry wall have reduced exposing the rock ledges and previous erosion and outflanking at the west end.



Increase in crest level of the shingle beach in front of boat houses (/4901c05).



Lowering of beach levels at west end of masonry wall exposing previous outflanking (/4901c05).

The previously noted shingle beach fronting the low masonry wall has been completely removed exposing the rock foreshore. This has re-exposed the toe of the wall showing the undermining as noted during the 2010 inspection. The concrete apron along the top of the wall is showing signs of damage with some loose fill material evident on the foreshore. Slumps in the softer cliff material above the wall identified during the previous inspection remain visible but do not appear to have worsened.



Higher beach levels obscure wall toe in 2012



Shingle beach completely removed exposing rock foreshore in 2014 (/4901c06).



Damage to concrete apron along crest of wall (/4601c06).



Cliff slumps at beach access ramp in 2012

As noted during the previous inspection, the highly fissured hard rock outcrop of Steel End that provides natural sheltering to the harbour and bay to the north had not changed.

As first noted in the 2008 inspection, there is missing mortar and voids in the masonry section at the landward end of the harbour pier. There are also gaps between the deck slab and coping and also below the coping along the pier. Of more concern is the undermining of the toe of the northern face and voids (~0.3-0.5m deep) beneath the wall. Whereas this does not appear to have worsened since identified during the 2012 inspections, repairs are recommended before the damage progresses to destabilise the pier.



Missing mortar and voids in masonry section of harbour pier (/4901c09).



Missing mortar below coping (/4901c09).



Undermining and voids at toe of northern face of pier (/4901c09).



Undermining and voids at toe of northern face of pier (/4901c09).

Within the harbour bay (The Ouse) the sand and gravel beach appears stable with little change evident since the 2010 inspection. The levels at the outfall near the centre of the bay have not changed. As identified during the previous inspection, erosion and cliffing of the soft earth embankment around the north side of the bay adjacent to the path out to Lindisfarne Castle remains active.



Beach within Harbour bay (The Ouse) remains stable (4901c10).



Active erosion and cliffing of earth slopes around the north side of the bay (4901c11).

At Lindisfarne Castle, damage to the hexagonal netting and stone fill placed to stabilise the soft material covering the harder rock base below the castle does not appear to have worsened. However, this still requires repair and refilling to help delay further slumps. Erosion of the upper soft earth cliffs at the east end of the erosion control matting appears to be continuing. The 2010 inspection also recommended extending the erosion control matting further east but this still needs to be undertaken.

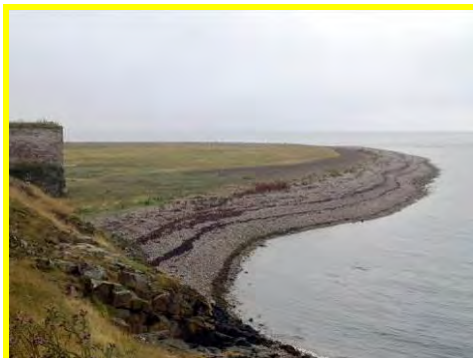


Hexagonal erosion control matting below castle in fair condition (/4901c12).



Slumps in cliff below castle east of erosion matting (/4901c12).

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



Shingle ness at Castle Point remains in a healthy condition (/4901c014)



Erosion and undermining of grassed shingle on north side of ness (4901c14).



Erosion adjacent to boundary wall in 2012.



Erosion and partial collapse of boundary wall in 2014 (/4901c14).

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



Eroding shingle cliff north of Castle Point (/5001c01).



Erosion at grassed area of cobbles and shingle at Sheldrake Pool (/5001c03).

The 2012 and 2014 photographs below looking from Red Brae north to Emmanuel Head shows that through the ongoing cliff slumps the overall change is slow but there has been some cut-back and loss of a small section of the field boundary fence.



View to Emmanuel Head in 2012.



Recent erosion of earth cliffs at Red Brae in 2014 (/5001c05).

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



View of Sandham Bay from Emanuel Head (/5001c06).



Eroding dunes in centre of Sandham Bay (/5001c06).

There is continued evidence of local rockfalls along with erosion and cliffing of the softer material in the cliffs at Nessend. However this is localised and does not represent significant concern. The caves and overhangs at Nessend continue to show signs of ongoing rock falls which would be a danger to members of the public. The 2012 inspection noted sand accretion on the dune ridge in Coves Have. However this was not observed and instead evidence of loss of vegetation on the face and undercutting at the crest was apparent.



Locally active cliff falls at Nessend (/5001c07).



Loss of vegetation on the face of the dune ridge in Coves Haven (/5001c08).

The dunes at The Links, in the shelter of Back Skerrs rocks appear very stable, with minimal change since the walk over inspections began in 2004. The dunes between Back Skerrs and the causeway road to the mainland are well vegetated with only localised evidence of erosion from recent storms. The very wide and flat sandy beach appears stable or accreting.



Cobble beach and stable dunes at west end of Back Skerrs rocks (/5001c09).



Well vegetated dunes and stable beach between Back Skerrs and causeway (/5001c10).



Vegetated dunes and foreshore north of causeway road (/5001c10).



Growth of new vegetation across foreshore north of causeway (/5001c10).

Between where the causeway meets the island and Chare End where the road bends away towards the main tourist car park, the road is protected by a width of salt marsh and wide sand flats to the south and the dunes and wide beach to the north.



Causeway road looking west (/5001c11).



Causeway road at Chare End looking west (/5001c11).

3.6 Bamburgh Moore to Seahouses (MU 6)

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

North of Bamburgh the beach material appears to have continued to accrete since the 2012 inspection and now covers much of the underlying rock foreshore.



Low beach levels over rock foreshore north of Bamburgh in 2012.



Beach levels accreting in 2014 (/1501c07).

The dunes south of Bamburgh Castle towards North Sunderland are generally wide, healthy and well vegetated. However, ongoing erosion and cliffing of the dune toe was evident along much of the frontage.



Wide, healthy and well vegetated dunes south of Bamburgh Castle (/1601c05).



Erosion and cliffing along much of the dune toe (/1601c02).

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



Onset of outflanking at the west end of seawall at St. Aidan's Road (/1701c54).



Erosion of upper earth cliff at east end of seawall.

The retaining wall adjacent to the pay and display car park north of North Sunderland Harbour consists of two blockwork walls either side of a central masonry section. The masonry wall is quite abraded and has gaps and missing mortar between stones. Some settlement behind the crest wall is apparent with localised holes and some landward rotation of the crest wall at the north end. Along the concrete blockwork sections some of the concrete blocks at the toe are showing signs of abrasion and there are a number of missing sections to the concrete toe.



Concrete blockwork wall fronting car park in fair condition (/1701c02).



Missing mortar and gaps between upper masonry wall (/1701c03).



Settlement of fill and rotation of crest wall (/1701c03).



Missing concrete coping blocks along part of toe (/1701c02).

At Seahouses the seawalls, pier, quays and breakwater structures at North Sunderland Harbour are generally in fair/ good condition. Through discussions with the local Harbour Master (Stannard/ Brabban, 12-Aug-14) it is understood that the following recent maintenance and repairs works have been undertaken:

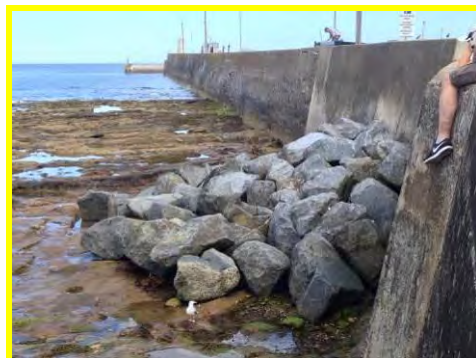
- Encasement of Inner Pier (south) and Inner Harbour (north), 2004
- Repairs to Breakwater crest wall and encasement of landward end, 2008
- New low seawall along Harbour Road, 2008
- Placement of rock armour attenuation at Main Pier and Outer Harbour, 2010
- Infill of voids in deck of Main Pier and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

Major refurbishment of the Main Pier was expected during 2014/15 however no evidence of this work was apparent. This is becoming more urgent.

A significant horizontal crack in the crest of the seawall opposite the RNLI building remains, however this does not appear to have worsened. The seaward face of the Main Pier remains heavily abraded with scour holes reported. These holes were identified during the last inspection in 2010, repairs to the largest of these holes were recently undertaken by the Harbour Master. The localised rock armour attenuation at the landward end is in fair condition but the profile continues to flatten with some stones displaced across the rock foreshore.



Significant horizontal crack in crest of seawall opposite RNLI building (/1701c06).



Abrasion and scour holes along seaward face of Main Pier and flattening of rock armour profile (/1701c07).

The inner face of the Main Pier is also highly abraded with various small holes and voids apparent. Although not observed during the inspection it was reported by the Harbour Master that a significant scour hole approx. 1-2m deep has developed beneath the south east corner of the stub end at the end of the Main Pier. This scour hole is cause for increasing concern and remains in urgent need of repair. Resurfacing on the Main Pier undertaken in 2011 to improve safety for pedestrian's remains in good condition. A flexible asphalt (rather than concrete) is understood to

have been selected in order that any further loss of fill material could be observed through settlement of the surfacing. However no settlement or cracking was apparent at the time of the inspection.



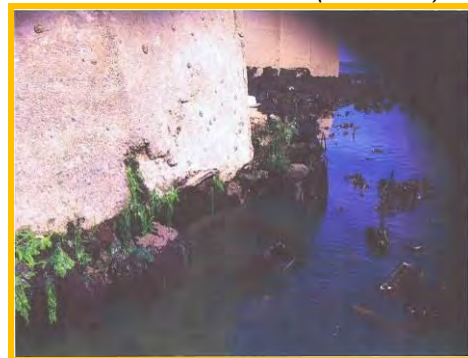
Significant abrasion, holes and small voids in inner face of Pier (/1701c09).



Significant abrasion, holes and small voids in inner face of Pier (/1701c09).



Large scour hole reported beneath Main Pier stub (/1701c08).



View of scour hole from water level (photo courtesy of Harbour Master).

The quay walls along the Inner Pier and inner harbour were upgraded in 2004 by concrete encasement and remains in good condition. However, cracks below the cope and gaps between some blocks continue to be observed along the old north face. It is also reported that part of the construction works have caused an underwater obstruction preventing berthing to a short section of this quay, although this was not observed. The rock armour attenuation placed in the Outer Harbour in 2010 appears angular and well interlocked although placement of smaller rock at the crest suggests some movement may be occurring.



Rock armour attenuation with smaller rocks along crest (/1701c10).



Some gaps beneath crest of Central Pier (/1701c10).

The inner face of the Main Pier was refurbished in 2004 and remains in good condition with only minor vertical cracks apparent. The older south quay wall shows signs of abrasion to blocks and loss of mortar along the masonry sections.



Inner face of Main Pier in good condition with only minor vertical cracks apparent (/1701c11).



Some weathering of masonry blocks and loss of mortar (/1701c13).

Along the South Pier the inner concrete face appears in good condition. There was possibly signs of undermining at the seaward end, however it was not possible to inspect this closely so will need further investigation. The outer masonry face of the pier is showing signs of general weathering and loss of mortar. Of more interest is the apparent movement across a large area of blocks at the centre of the wall. This should continue to be monitored.



Inner concrete face of South Pier in good condition (/1701c14).



Some evidence of undermining seaward end of South Pier (/1701c14).



General weathering and missing mortar of blocks along outer face of South Pier (/1701c14).



Apparent movement in an area of masonry blocks on outer face of Pier (/1701c14).

The various masonry and concrete seawalls to the east of the harbour generally appear to be in good condition with no cause for concern. Erosion of beach material at the bottom landing of the access steps, possibly due to rain water run-off, has resulted in some undermining. Work to the Breakwater in 2008 to repair the crest wall and encase the landward end remains in good condition. A new security gate and warning signs have been installed at the landward end of the breakwater although access to the structure is still possible.



Masonry wall along back of sheds in good condition (/1701c15).



Onset of undermining of bottom landing of steps at low concrete seawall (/1701c16).



Concrete Seawall south of North Sunderland Harbour in good condition (/1701c18).



Repairs to crest of North Sunderland Harbour breakwater in good condition (/1701c21).

3.7 Seahouses to Beadnell (MU 7)

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

To the south of Seahouses around North Sunderland (Snook) Point there is evidence of continued erosion and cliffing in the soft earth cliffs fronting the caravan park and golf course. Historic localised rock falls in the high cliffs is also occurring. Erosion of the thin ridge along the south facing frontage of the golf course (less than 2m wide in places) continues.



Erosion and cliffing of low earth cliffs fronting caravan park at Seahouse Pt (/1701c19).



Localised rock falls near the sewage works at North Sunderland Point (/1701c22).



Erosion and cliffing of low earth cliffs fronting golf course (/1701c22).



Erosion of the thin earth ridge (2m wide) at North Sunderland Point (/1701c23).

Along Annstead Links there is evidence of minor localised erosion of the dunes however this does not appear to have worsened since the previous inspection.

3.8 Beadnell to Links House Farm (MU 8)

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

At Beadnell Haven the additional private defences, consisting of dumped rock, remain largely intact but with some movement evident. These do not provide a robust defence and would need improvement to adequately protect the properties immediately behind. The masonry and concrete seawalls to the north of Dell Point (Red Brae) are generally in fair condition with some small cracks, loss of mortar and minor outflanking evident.



Masonry seawall north of Dell Point (/1701c25).



Masonry and concrete seawalls north of Dell Point in fair condition (/1701c25).

The soft earth cliffs around Dell Point (Red Brae) are experiencing erosion along most of the frontage and are in a poor condition. The concrete seawall fronting the property at the north end of the main bay is in good condition with only minor signs of cracking and rust staining. Shingle beach levels at the toe remain relatively high. However, the low earth bank fronting the adjacent driveway is in poor condition with ongoing erosion despite continued tipping of building waste.



Ongoing erosion of soft cliffs south of Dell Point (/1701c30)



Minor signs of cracking and rust staining to concrete seawall (/1701c31).

The various masonry seawalls around Nackers Hole remain generally in poor condition with significant abrasion and gaps between blocks. In one area missing blocks has resulted in a hole and sizable (~1.5m deep) void. The resurfacing undertaken c2011 remains in good condition with no evidence of reoccurrence of the significant overtopping damage noted in the 2010 inspection. The loose and missing coping stones at the south end of the wall reported in the 2012 inspection continued to worsen. Concerns over the general undermining and potential loss of footing raised during the 2012 inspection remain.



Masonry seawalls around Nackers Bay in poor condition (/1701c36).



Missing blocks resulting in a deep hole and void behind (/1701c36).



General undermining at mid-point of wall with potential loss of concrete toe works (/1701c36).



Loose coping stones at south end of seawall at Beadnell (/1701c37).

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



Burst baskets along the toe of the gabion revetment at Ladies Hole (/1701c39).

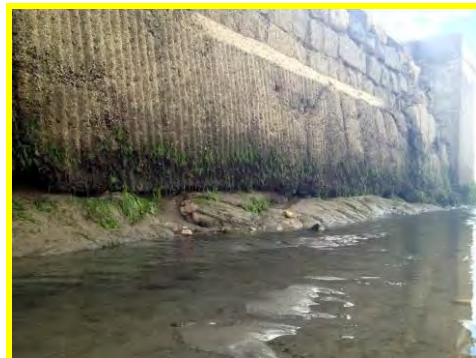


Burst baskets at the toe and loss of stone across the foreshore (/3701c39).

The structures at Beadnell Harbour are generally in good condition with masonry walls and concrete coping showing only minor signs of abrasion. Repairs c2012 to the mortar joints of the outer and inner walls remain in good condition. At the seaward end of the breakwater arm localised undermining of the concrete toe apron identified during the 2012 inspection has not worsened. Along the inner face of the breakwater arm lowering of bed levels (possible a result of maintenance dredging by fishermen c2012) has resulted in undermining along much of this face. Voids are voids typically 0.3m deep but up to 1.5m deep in places. Whereas this does not appear to have worsened, progression should be monitored closely. Of more concern is the undermining along the north quay inner face which was not observed during the previous inspection. This undermining appears to be causing localised movement in the lowest course of blocks, with loss of fill resulting in voids behind.



Undercutting of the toe apron at the head of Beadnell Harbour breakwater (/1701c50).



Undercutting of the main wall of Beadnell Breakwater (/1701c49).



Localised undermining at the north quay resulting in movement of some blocks (/1701c52).



Localised undermining at the north quay resulting in movement of some blocks (/1701c52).

At the north end of Beadnell Bay partial collapse of the concrete revetment protecting the beach access steps has not worsened. Localised dumping of rock

continues to provide some protection to the dunes fronting the harbour access road. As initially reported during the 2010 inspection, localised erosion of the dunes at the access to the Beadnell Bay car park/ recreational area continues, although some new vegetation growth was noticed. Otherwise, there has been little noticeable erosion elsewhere around the bay.



Localised dumping of rock at north end of Beadnell Bay to protect harbour road (/1701c52).



Localised erosion of dunes at the access to the car park (/1701c53).

3.9 Newton Link House to Dunstanburgh Castle (MU 9)

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

The vegetated dunes and natural coastal slopes fronted by sandy beach and rock/shingle foreshore south of Beadnell Bay to Dunstanburgh Castle are generally in good condition with no signs of recent erosion. There is however some noticeable erosion and cliffing of dunes fronting holiday homes at Dunstanburgh Castle Golf Course. Historic movement of some concrete blocks was evident. At Low Newton-by-the-sea the concrete slipway is in fair condition although there are some noticeable areas of spalling on the wall at the top of the ramp.



Vegetated dunes and sandy foreshore at Football Hole (/1901c02).



Vegetated dunes and sandy foreshore at Newton Haven (/2001c01).



Erosion and cliffing of dune fronting holiday homes at golf course (/2001c03)



Low natural coastal slopes and shingle beach at Dunstanburgh Castle (/2001c05).

3.10 Dunstanburgh Castle to Boulmer (MU 10)

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

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



Gentle coastal slopes south of Dunstanburgh Castle (/2101c01).



Gentle coastal slopes south of Dunstanburgh Castle (/2101c02).

At Craster Harbour no significant change was evident since the last inspection with all structures remaining in a fair condition. The landward and seaward face of both north and south harbour arms show noticeable signs of abrasion and localised spalling along the crest wall. Initial undermining of the toe apron at the seaward end of the pier was observed however this did not appear to progress beneath the main wall. As noted during the previous inspection, a historical full height crack approximately 10m from the end of the north arm is evident through both faces but not across the decking. This crack does not appear to have worsened since the previous inspection but should be monitored regularly for signs of movement. Undermining and a deep void beneath the boat ramp continues to worsen.



Abrasion to the seaward face of the north harbour arm at Craster (/2201c04).



Initial undermining of toe apron at seaward end of north pier (/2201c04).



Full height crack on outside and inside face at seaward end of north pier (/2201c04).



Undermining and a deep void beneath the boat ramp at back of harbour (/2201c06).

The full height crack and gaps at the toe on the outer face on the south pier has not worsened since the previous inspection. Previously identified cracks in the concrete decking have recently been repaired.



Abrasion and vertical cracks to outer face of south pier (/2201c11).



Recent repairs to the concrete decking on the south pier (/2201c11).

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



Rock slabs and vegetated upper slopes at Black Hole (/2301c01).



Some erosion of upper earth slopes south of Cullernose Point (2401c01).

The high masonry wall around The Bathing House is in good condition with no signs of undermining or loss of mortar. Further south at Howick Haven there are two masonry retaining walls at the back of the beach. These walls are in a poor condition with weathering of blocks and loss of mortar in both walls and seaward rotation of the lower wall evident.



High masonry wall around The Bathing House in good condition (/2401c02).



Weathering of blocks, missing mortar and seaward rotation of masonry retaining walls at Howick Haven (2501c01).

3.11 Boulmer to Seaton Point (MU 11)

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

At Boulmer, erosion of the steep undefended earth slopes at the north end of the village continues resulting in cliffing along the crest. Holes from Sand Martins are also visible in this exposed section of cliff. As identified during the previous inspection one property is within a few meters of the edge but erosion of this section of cliff does not appear to have worsened.



Erosion of earth cliff and overhanging crest north of Boulmer (I2601c01).



Property within a few metres of cliff edge at Boulmer (I2601c01).



Rock armour added to north end of concrete block revetment (I2602c02).



Rock armour added to south end of concrete block revetment (I2602c02).

The village frontage consists of ad-hoc defences of concrete blocks, tipped stone and building rubble. Erosion identified in the 2010 inspection does not appear to have worsened although the tipping of building rubble seems to have continued. An outhouse to one property is within a few metres of the cliff edge.

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



Localised erosion of low vegetated coastal slopes at Seaton Point (I2601c07).



Localised erosion of low vegetated coastal slopes at Seaton Point (I2601c07).

3.12 Seaton Point to Foxtan Hall (MU 12)

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

South of Seaton Point the cliff line continues to show signs of slippage and cliffing although there does not appear to have been any recent toe erosion since the 2010 inspection. The footpath along the cliff edge remains closed. The beach is relatively narrow with the strand line close to the toe of the slope. The 2010 inspection noted that the level of the beach in this area can fluctuate. The concrete steps and rock armour at the centre of the bay appear to be fair condition although outflanking due to erosion of the adjacent soft earth cliffs continues.



Rock armour at access steps in fair condition but outflanking continues (/2601c09).



Signs of significant historic slippage along the cliffs south of Seaton Point (/2601c09).

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

3.13 Foxton Hall to Birling Carrs (MU 13)

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

The coastal slopes and embankments from Foxton Hall are generally in good condition and fronted by a relatively wide sand and shingle beach. The deteriorating rock breakwater structure continues to disintegrate at the seaward end with rock scattered across the foreshore. At Marden Rocks erosion at the toe of the earth cliffs was observed with some slippages in the lower slopes. South of Marden Rocks the timber groynes are in poor condition with gaps and missing boards, however beach levels remain relatively high. Some localised erosion is apparent along the low vegetated dunes along the back of the beach.



Localised erosion of low vegetated dunes behind groyne field at Marden Rocks (/2701c05).



Groynes in poor condition and high beach levels south of Marsden Rocks (/2701c05).

To the north of the River Aln estuary, beach levels in front of the car park appear relatively stable with only a slight lowering apparent since the previous inspection. The low earth slopes along this frontage are in good condition with no signs of recent erosion and some evidence of embryo dune on the foreshore. However, where the concrete blocks end in front of Marine Road some erosion and cliffing of the dunes is apparent.



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



Beach levels slightly lower in 2014 (/20701c07).



Embryo dune growth on the foreshore fronting the car park (/20701c07).



Erosion and cliffing of dunes at south end of relic anti-tank blocks (/2701c08).

The dunes on the north side of the estuary are wide and well vegetated and appear stable with no signs of erosion. Some embryo dune growth was apparent.



No recent erosion of dunes north of River Aln estuary (/2801c01).



Some embryo dune growth north of River Aln estuary (/2801c01).

Beach levels in front of the masonry wall along Riverside Road appear relatively stable and unchanged since the previous inspection. Continued vegetation growth was evident at the bottom of the timber steps. The central section of masonry wall shows some historic signs of rotation as indicated by two vertical cracks. However, this does not appear to have worsened since the previous inspection but should continue to be monitored.



Stable beach levels and vegetation growth fronting the wall at Riverside Road (/2801c02).



Vertical crack and some rotation in central section of wall (/2801c02).

The low masonry wall fronting the River Aln Boat Club and Peases Park was constructed in 1993 and remains in good condition. The masonry wall along the footpath from Peases Park is in fair condition. The previous inspection raised concerns over cracking, gaps and missing blocks along much of the masonry wall to the north. This wall has now partially collapsed (possibly due to large waves during the recent winter storms) resulting in a 50m section of crest blocks moving landward. The footpath behind this wall has been diverted and the damaged area fenced off.



Low masonry wall at River Aln Boat Club (/2801c03).



Minor cracks visible in masonry wall fronting the boat club (/2801c03).



Collapse section of wall crest north of Peases Park and diversion of footpath (/2801c06).



General abrasion, missing mortar and gaps along much of wall at Peases Pk (/2801c06).

The downstream side of the low earth banks along the spit of land south of the river Aln road bridge is fronted by wide healthy salt marsh. Some erosion is evident on the edge of this marsh. The upstream bank of this spit is in poor condition with significant erosion, undercutting and collapse of the earth bank along most of its length.

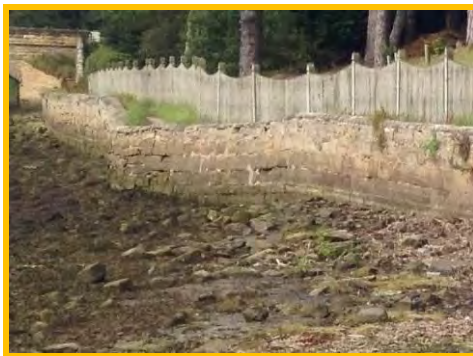


Generally wide healthy salt marsh on downstream side of spit (/2801c08)t.



Total erosion and undermining of earth bank on upstream face of spit (2801c09).

The low masonry wall supporting the footpath south of the B1338 river bridge is generally in a fair condition. Some cracks, missing mortar, loose cope stones and initial undermining is evident. The apparent settlement/ bulging of the wall along the central section and further opening of the joints remains of concern however no movement was apparent since the previous inspection. The localised hole in the path behind the wall in 2012 was not observed so likely to have been filled. However monitoring for potential loss of fill material lost through the open joints should continue.



Settlement and bulging causing gaps in the masonry south of the B1338 river bridge (/2801c10).



Initial undermining along one section of wall (/2801c10).

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

The low masonry wall around the bottom of Church Hill remains in very poor condition with some missing coping blocks, loss of mortar joins and two significant full height cracks in the joints and blocks at the centre of the wall. There continues to be some displaced blocks along the wall, most notably at the location where a 2m hole was identified during the previous inspection which has now collapsed. Some outflanking of the wall is also occurring at the inland end. Progressive collapse is expected to continue if remedial works are not undertaken urgently. The wall is largely buried by high beach levels at the seaward end.



Cracks, loss of mortar and displaced blocks causing loss of material behind wall at Church Hill (/2801c13).



Collapse of section of wall due to loss of mortar, displaced blocks and loss of retained fill (/2801c13).

The high dunes along the south bank of the River Aln and further south towards Birling Carrs are in fair/poor condition. Ongoing erosion and cliffing along much of the length continues despite the presence of concrete blocks. This erosion appears to have continued to worsen since the previous inspection.



Erosion and cliffing of dunes south of Rive Aln (/2901c01).



Cutting back of dunes south of River Aln despite the presence of concrete blocks (/2901c01).

3.14 Northfield to Amble (MU 14)

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

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



Stable dunes north of Birling Carrs (/2901c02).



Partial erosion and slips continuing along the Warkworth Dunes (/2901c02).

3.15 Warkworth Harbour and Amble (MU 15)

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

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



Rock armour on north side of pier in good condition, some gaps visible in blockwork (/3001c01).



Rock armour and masonry on south face of North Pier in good condition (/3001c03).

The seaward end of the North Pier remains in very poor condition with extensive abrasion of the concrete and a missing section of deck. The large crack (~1m wide) and rotation of the tip of the pier identified during the previous inspections is still cause of concern. However, no further movement appears to have occurred. Through discussions with the Harbour Master it is understood that this displacement is historic and dates back many decades however, it should still be monitored.



Loss of concrete deck slab at seaward end of North Pier.



Large crack and rotation of tip of North Pier.

The concrete quay wall at the western end of Warkworth Harbour is generally in good condition with only minor localised cracks visible in the concrete deck. The slight bulge in the quay wall and small hole in the deck identified during the 2010 inspections was not observed. However, recommendations for the area to be inspected from the river using a vessel-based inspection at an appropriate stage of the tide is still advised. The masonry walls in the small harbour basin are generally in fair condition with some gaps between blocks, missing mortar, abrasion to the concrete cope and some small voids in the upper wall. A brickwork repair to the coping and timber edging at the back of the harbour has recently been undertaken.



Slight bulge in quay wall adjacent to lifeboat station not observed (/3001c05).



Some gaps between masonry blocks, timber edging protecting the cope (/3001c06).

At the east end of the Warkworth Harbour, repairs to the collapsed Broom Hill quay were completed in 2013. This section of quay reopened to vessels after being closed for 5 years. The rest of the wall appears in good condition with no cracking or settlement of the deck or obvious defects in the face of the wall. However, at the time of the inspection boats moored against the wall made inspection difficult and no below water inspections were undertaken. The Warkworth Harbour structures are owned and maintained by Warkworth Harbour Commission.



Existing quay wall at Warkworth Harbour in good condition (/3001c05).



Repairs to failed section of Broom Hill quay completed in April 2013 (/3001c05).

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



Continued erosion of low earth bank despite dumping of construction waste (/3001c07).

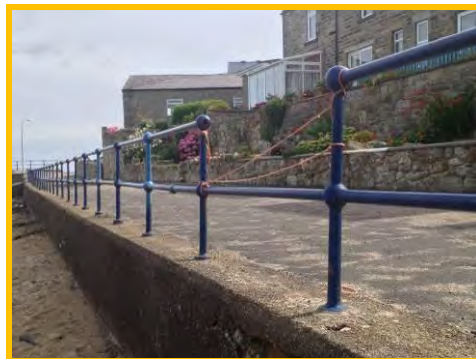


Some localised cracking and missing stones in masonry wall (/3001c09).

The condition of the concrete seawall along Bay View road continues to worsen with horizontal cracking and missing sections of coping, corroded and missing hand railing and voids in the access ramp. Safety issues should be addressed.



Horizontal cracks along the cope of the seawall at Bay View Road (/300c10).



Corrosion and missing sections of hand railing (/300c10).



Abrasion, spalling and voids in seawall access ramp (/300c10).



Localised spalling of the coping at the seaward end (/300c10).

The South Jetty is in good condition with no gaps in the timber decks and all hand railing intact. The top section of all timber piles has previously been replaced and are in good condition. The lower section of piles remains in a reasonable condition. The half tide barrier remains effective with noticeable accretion within the basin. New lighting posts were installed in 2012.



Timber piles and superstructure of South Jetty in good condition (/3001c11).



Timber decking in good condition (/3001c11).

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



Significant abrasion to the base of the South Pier Head (/3101c01).



Minor movement in one deck section and loss of sealant (/3101c01).

The condition of the inner face of the South Pier does not appear to have changed significantly since the last inspection and remains in fair condition along most of its length. Abrasion and cracking at the junction with the Bay View Road and the South Jetty identified during the previous inspection remains unaddressed.

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



South Pier generally in fair condition with some abrasion and cracking evident (/3101c02).



Abrasion and cracking of the South Pier at the junction with Bay View Road (/3101c02).



Horizontal cracks along South Pier and highly abraded toe (/3101c03).



Highly abraded access steps presenting a public safety hazard (/3101c03).

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

3.16 Amble to Beacon Hill (MU 16)

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

The seawall fronting the children's play area south of Pan Point is generally in fair/good condition with no signs of undermining or movement. Some localised cracks, rust staining and spalling along the wave return wall and setback wall were noted. The damaged bitumen surfacing has recently been replaced with a concrete decking which is in very good condition.



Localised cracks, rust staining and spalling along the wave wall (/3101c05).



Spalling and rust staining to the setback wall, new concrete decking (/3101c05).

The earth slopes and dunes along the Amble Links are showing signs of erosion with cliffing along much of the frontage although this does not appear to have worsened. Dumped rock armour is controlling erosion at the centre of the embayment and adjacent to the seawall at the south end. Fly tipping as identified in 2010 was not apparent. The concrete seawall at Island View headland (constructed in 2003) at the south end of the dunes remains in good condition with no evidence of movement at construction joints, as noted in 2010.



Erosion and cliffing in face of dunes along much of the Amble Links frontage (/3101c06).



Seawall at Wellhaugh Point in good condition (/3101c07).

The low vegetated dunes north of Wellhaugh Point were reported to be subject to erosion in 2009/10. Some erosion and cliffing is still apparent at the north side of the bay but this does not seem to have worsened. Some new vegetation growth is apparent at the centre of the bay. The outfall structure remains in a dilapidated condition and previous recommendations for either removal or repair remain.



Erosion and cliffing of dunes north of Wellhaugh Point has not worsened (/3101c09).



Dilapidated outfall requiring removal or repair (/3101c09).

A short low masonry wall backed by a rock revetment at Wellhaugh Point remains in good condition with no signs of deterioration apparent. The notable erosion, slumping and recession of the dunes south of Wellhaugh Point continues. Towards Beacon Hill the dunes become more stable with protection provided by a cobble toe berm. The highly rusted outfall structure remains in need of repair or removal. The gabions by the access steps remain generally in good condition but are becoming slightly deformed with a notable dune blown out to the south.



Low masonry wall at Wellhaugh Point in good condition (/3101c10).



Damage to masonry along crest of low masonry wall at Wellhaugh Point (/3101c10).



Erosion and collapse of dune face south of Wellhaugh Point (/3101c12).



Erosion and collapse of dune face south of Wellhaugh Point (/3101c12).

3.17 Beacon Hill to High Hauxley (MU 17)

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

South of Beacon Hill there is a section of informally dumped rock armour. This armour is loosely packed and but appears in fair condition, continuing to stabilise the backing vegetated cliff. The one small area of minor movement observed during the 2010 inspection was not apparent. The rock revetment fronting the property north of the access ramp at Low Hauxley also remains in fair condition although beach levels appear to have dropped by around 0.5m since the previous inspection.



Stable vegetated cliff fronted by rock armour south of Beacon Hill (/3201c02).



Lower beach levels fronting the rock revetment at Low Hauxley (/3201c02).

The dumped stone revetment south of the access ramp at Low Hauxley is in good condition although erosion to the vegetated bank behind the crest and tipped building rubble was evident. The line of concrete blocks forming the toe of the rubble revetment to the north of Hauxley Nature Reserve has a number of large gaps between the blocks with some movement apparent. Erosion and cliffing of the low earth bank continues with ongoing dumping of construction waste largely ineffective.



Dumped stone revetment south of Low Hauxley in good condition (/3201c03).



Erosion of low earth bank and dumped construction waste at Hauxley Nature Reserve (/3201c04).

Immediately south of this revetment, erosion has resulted in continued cut back of vegetated dunes resulting in some outflanking the structure. However, this does not appear noticeable worse than observed during the 2012 inspection. The outfall along the shore at the north boundary of Hauxley Nature Reserve was reported to be in poor condition in 2010 with undermining especially around the south side and head. However, at the time of this inspecting this structure was not observed.

South of the outfall at Bondi Carrs active erosion of the dunes continues with cliffing and collapse evident along much of the length. However, this does not appear to have significantly worsened since the previous inspection. Erosion of the lower peat layer was also evident although no clumps were apparent on the foreshore as noted during the 2010 inspection.



Erosion of lower peat layer and cliffing in the upper slopes south of Bondi Carrs (/3201c07).



Erosion, cliffing and collapse of dunes south of Bondi Carrs (/3201c08).

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



Abrasion of blocks, broken concrete and missing flap valve cover to outfall (/3201c09).



Erosion and slumps in the soft earth cliffs south of Hauxton Nature Reserve (/3201c10).

The large outfall structure adjacent to the Hadston Scaurs Boat Club remains largely in good condition with minor cracking to the wing walls. Undermining, settlement and cracking of the concrete apron reported in 2012 is now buried by high beach levels.



Undermining, settlement and cracking of to Hadston Scaurs outfall apron in 2012.



Higher beach levels in 2014 burying apron (/3201c12).

The rock revetment protecting the Hadston Scaurs Boat Club slipway is in fair condition with no movement at the toe or erosion behind the crest. However, the structure continues to be actively outflanked at the northern end resulting in unravelling of the structure with some rocks displaced across the foreshore. The low vegetated earth cliffs to the south are in poor condition with recent slumps and cliffing evident causing cut back to within a metre of the road. This does not appear to have worsened since the previous inspection.



Outflanking of the revetment south of the Hadston Scaurs slipway (/3201c13).



Cut back of the low earth cliffs close to the road at Hadston Scaurs slipway (/3201c14).

The low soft cliffs and dunes at the north of Druridge Bay are in poor condition with evidence of ongoing erosion resulting in cliffing and collapse. However, further south at Druridge Country Park the wide vegetated dunes are less active and protected by a cobble berm along the toe. They are also protected by concrete blocks which extend around much of the bay. At the centre and south ends of the bay the beach is wide and stable with little or no erosion of the dunes evident. Storm-related damaged noted in the 2010 inspection, especially at gaps between the frontage protected by the concrete blocks was not observed.



Active erosion of low earth cliffs and dunes in northern extent of Druridge Bay (/3201c14).



Dunes at north end of Druridge Bay protected by cobble berm and concrete blocks (/3201c15).



Healthy beach levels and stable dunes at the centre of Druridge Bay (/3201c15).



Healthy beach levels and stable dunes at the south end of Druridge Bay (/3201c16).

North of Cresswell the foreshore builds seaward in the form of a tombolo in the lee of The Scars outcrop. Beach levels at the steps appear to have lowered by around 1m since the previous inspection, exposing more of the rock revetment as well as previously buried concrete blocks along the beach. The revetment to the north of the steps is of loose construction but in good condition, with evidence of additional smaller rocks tipped on top. As noted during the previous inspection, localised erosion at the crest was observed, but this has not worsened. The revetment to the south of the steps remains in fair condition with loss of interlock and some new smaller rocks added. No new erosion at the crest was evident.



Loosely placed rock and localised crest erosion south of Cresswell access steps (/3201c17).



Lower beach levels at access steps north of Cresswell (/3201c17).

3.18 Cresswell to Snab Point (MU 18)

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

This revetment blends into a low concrete wall built at the back of the rocky foreshore with rock armour placed behind the wall to protect the vegetated earth cliffs. Beach levels appear to have remained low along the northern section of the wall compared to the 2010 inspection with much of the rock foreshore and north end of the wall exposed. The wall is generally well founded on the rock foreshore and in fair condition with minor cracking and staining. Previous patch repairs are in good condition although some locations repairs appear not to have been completed and reinforcement continues to corrode. Some rocks in the revetment appear to have moved over the toe wall. The earth face along the upper slope is showing signs of overtopping damage with significant dumping of construction rubble noticeable.



Lower beach levels fronting low concrete wall at Cresswell (/3201c18).



Incomplete crack repair resulting in corrosion and rust staining (/3201c18).



Erosion of earth slopes behind crest and tipping of building rubble (/3201c18).



Erosion of earth slopes behind crest and tipping of building rubble (/3201c18).

To the south of Cresswell the low concrete wall and concrete block revetment is largely in good condition. One missing block apparent along with an area of spalling and minor signs of abrasion.



Missing block along concrete revetment at south end of Cresswell (/3201c19).



Minor abrasion to low concrete wall at south end of Cresswell (/3201c19).

The low earth cliffs backing Stank Letch Rocks continue to show evidence of erosion along much of their length although this does not appear to be recent. The boundary fence previously suspended over the edge appears to have been realigned. In the sandy bay south of Stank Letch Rocks high beach levels at the back of the beach mean that the earth cliffs/dunes are mostly stable.

Further south fronting the Golden Sands Holiday Park north of Snab Point, the cliffs become more active once again, where the cobble berm is sparser. The condition of the gabions continues to degrade along with ongoing erosion and large scale slippage of the earth slopes to within a few meters of the road. Construction of a vehicle barrier has now been completed along the top of the slump identified in 2010. However, movement of the road base below the concrete foundations already appears to have occurred suggesting this area is still active.

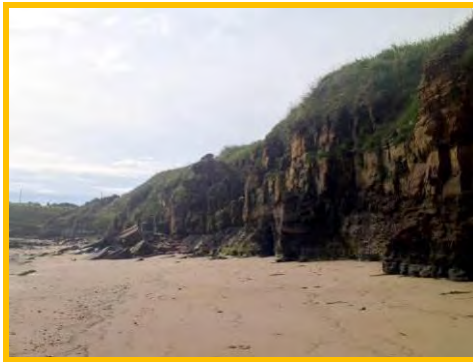


Damage to gabions and loss of material along toe of slopes north of Snab Point (3201c22).



Slope showing recent signs of movement below the new barrier (3201c22).

To the north of Snab Point headland the two large rock falls noted by the 2010 inspection are still evident, along with more recent minor erosion of the soft material at the crest. The erosion noted in the 2012 inspection along the mound of land running along the south edge of the disused Boghall Quarry does not appear to have worsened. Some erosion at the bottom of the car park access steps was still observed but this footpath appears to have been reopened since the previous inspection.



Two large rock falls south of Snab Point identified in 2010 (/3301c01).



Erosion along the mound of land at the disused quarry has not worsened (/3301c01).

The private defences north of Snab Point comprising timber breastwork retaining walls built around 2008 and remain in good condition. Further improvements are reported to have been undertaken in 2010 with two new rows of timber breastwork in the area where slumping was continuing in the upper cliff. Erosion and upper cliff slippage to the north side of the structure which could result in outflanking does not appear to have worsened since the previous inspection.



Erosion and slips at the northern edge of retaining wall could lead to outflanking (/3301c01).



Timber breastwork extended in 2010 to prevent slips in upper slopes (/3301c01).

Generally, further south around Snab Point erosion of the toe and occasional local slumps/ cliffing of the upper softer material continues with local rock falls in the underlying rock ledge. Along this frontage an obsolete masonry revetment built on the rock ledge to protect the softer upper cliff material continues to actively break up. To the south, the earth bank behind the timber access steps rebuilt in 2012 is not showing further signs of recession.



Erosion of toe of soft cliffs at Snab Point (/3301c01).



No recession evident in earth cliffs behind access steps at Snab Point (/3301c01).

3.19 Snab Point to Beacon Point (MU 19)

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

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



Rock falls and erosion of the soft upper cliffs at the north end of Lynemouth Bay (/3301c02).



Wide spoil beach providing protection to the coastal slopes (/3401c01).

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



Spoil beach narrows at the centre of Lynemouth Bay (/3401c01).



Erosion and cliffing along the toe of the coastal slope (/3401c05).

South of the River Lyne the high vertical colliery spoil 'cliff' formed by historic waste tipping over the coastal slope continues to be actively eroding. Waste of various descriptions continues to be released onto the foreshore. The land behind this actively eroding frontage is effectively a colliery spoil yard with no built assets at risk. However consideration should be given to the environmental impact of the continued release of waste from this eroding frontage and the safety implications to the members of public walking on the foreshore.



Actively eroding colliery spoil cliff south of the River Lyne (/3401c06).



Slumps in colliery spoil cliff releasing construction waste onto the foreshore (/3401c06).

The large rock armour revetment constructed in front of the Power Station in 1995 and subsequently extended around the coal stocking yard in 2005 remains in good condition. Rock armour is angular and well packed with no displaced stones or movement at the toe. Minor erosion was observed behind the crest. At the southern end erosion of the crest continues where the revetment 'tapers out' and the cliff line is undefended. This is not presently outflanking the defence but the situation should be monitored. Between the Power Station and Beacon Point the shoreline again comprises colliery spoil with erosion of the spoil cliff in the north continuing. The central and southern sections of this bay become more stable with wide backing dunes and a fronting cobble berm.



Rock armour revetment fronting coal stocking yard (/3401c07).



Minor erosion behind crest of revetment fronting power station (/3401c08).



Erosion and onset of outflanking at south end of revetment (/3401c08).



Active erosion of colliery spoil cliff at the north end of the bay (/3501C01).

3.20 Beacon Point to Spittal Point (MU 20)

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

The cliffs leading around the headland to Beacon Point comprise of a hard rock base and a thin overlying layer of softer material. Here the small-scale rock falls and occasional local slumps in the soft material identified in 2012 continue. Further around Beacon Point the slumps in the upper cliff have cut the cliff top back to the footpath in a number of areas although there is sufficient space to realign the path landwards should this be necessary. The cliffs here are fronted by an extensive rock ledge and therefore the recession rates are low and the events are very localised.



Ongoing erosion in thin layer of overlying soft material at Beacon Point (/3501C03).



Upper cliffs fronted by extensive rock ledge slowing rates of erosion (/3501C03).

At Newbiggin Moor within the shallow bay fronting the golf course the cliffs are unprotected by rock platform and have no rock base. Historic erosion and slumping of the low earth cliffs was observed. However recent accretion of beach material at the toe appears to have slowed this erosion and provided some protection to the soft cliffs. Should these beach levels reduce, cracking in the cliff top and steep profiles indicate that slumping will remain ongoing and parts of the golf course may need to be reconfigured over time. In one location, the cliffs dip to a lower level and here rubble has been tipped to prevent erosion and flooding.



Erosion and slumping of soft upper cliffs at north end of Newbiggin Moor (/3501C04).



Accretion of beach material providing protection to soft cliffs in centre of bay (/3501C04).

The cliffs fronting Newbiggin Caravan Park comprise three distinct sections. The northern section is unprotected by coastal defences or rock platforms and in poor condition with active erosion continuing through a series of regular local slumps. This has prompted the Caravan Park to erect warning signs along the cliff top footpath and realign short lengths of its boundary fencing, as noted by the previous inspection. The central section is protected by concrete blocks and remains in fair condition. Despite some localised slumps having continued this section of cliff is considerably less active than the undefended section to the north.



Active erosion in cliffs fronting north end of Newbiggin Caravan Park (/3501C05).



Cliffs fronting central section of caravan park stabilised by anti-tank blocks (/3501C06).

The southern section is protected by a rock ledge but, despite this, occasional local slumps remain evident. In both sections, efforts to arrest the slumping have been made by local tipping of rubble down the cliff face. Along the southern section of the Newbiggin Caravan Park, two pill boxes are located on the rock ledge. Erosion of the surrounding soft cliff material has left these structures perched precariously. However, this erosion has not worsened since the previous inspection.



South end of cliffs fronting Newbiggin Caravan Park protected by rock ledge (/3501C07).



Pill box perched precariously on cliff edge (/3501C07).

Extending between Newbiggin Point and Church Point is a continuation of the rock ledge, with overlaying softer material, interspersed with a series of ad-hoc defences to 'patch' local areas. At Beacon End a short length of concrete seawall is present which appears in fair condition on the seaward face. However abrasion and initial undermining of the toe was observed as well as undermining of the south return wall. Active erosion, cliffing and slumping of the soft cliff material behind the structure has continued since the previous inspection.



Outflanking and erosion behind the crest of the concrete wall at Newbiggin Point (/3501C08).

The second length of concrete wall is further south around Newbiggin Point and remains in very poor condition. The tie-in sections are actively breaking however no new damaged was observed. Although the damage at the northern tie-in looks recent, this situation was first noted in 2008. Erosion of the soft earth cliffs behind the structure continues.



Damage to crest slab and undermining of the low wall at Newbiggin Point (3501c09).



Undermining, outflanking and collapse of south end of low wall (3501c09).

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



Slumps in cliffs and unravelling of soil netting west of Newbiggin Point (3601c01).

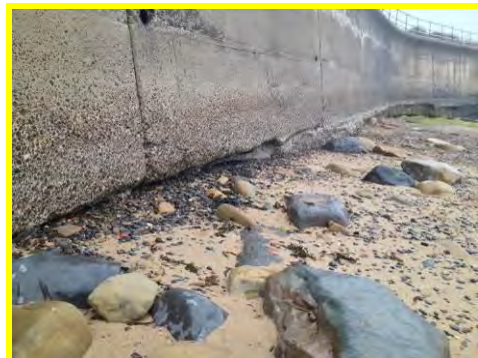


Abrasion and undermining of toe of localised masonry/ concrete walls (3601c01).

The vertical concrete seawall at Church Point remains in overall fair condition. However, there is a reasonable amount of abrasion at the toe and crest as well as signs of local undermining between the toe and rock slab. There is also erosion of the slope behind the crest and the hand railing is showing signs of corrosion.



Erosion of the vegetated slope behind the crest of the seawall at Church Point (/3601c12).



Abrasion of the toe and localised undermining (/3601c12).

The recurved section of seawall to the west is well founded on the rock foreshore and generally in good condition. Slight undermining of the concrete apron nearer its western end remains although this is unlikely to affect the stability of the structure.



Some minor undermining of the toe apron of the recurved seawall (/3601c13).

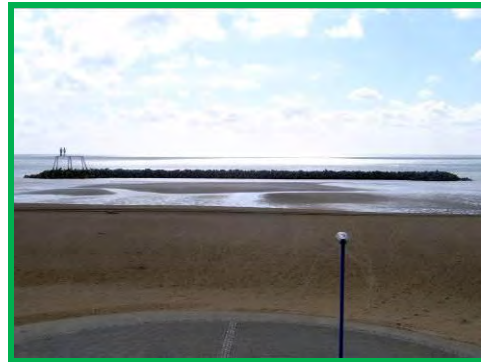


New sealant to joints in recurved seawall (/3601c13).

The start of Newbiggin Bay is marked by a rock armour breakwater, built along the edge of Hully Rocks and extending from just off shore of Church Point. This structure is in good condition though there are some smaller rocks displaced across the foreshore on the seaward side. The profile and crest level along the structure appears stable with no signs of displaced rock, toe erosion or settlement. The new offshore breakwater in the centre of the bay was constructed in 2007 and comprises inter-locking concrete armour units. Although this structure could only be inspected from the beach it appears in very good condition with a uniform crest and no signs of displaced units or settlement.



Displaced rocks along seaward side of north breakwater in Newbiggin Bay (/3601c14).



Offshore breakwater in the centre of the bay appears in very good condition (/3601c14).

In Newbiggin Bay the new Maritime Centre at the north end of the bay was opened in 2012. The sea walls along this frontage are still protected by very healthy beach levels following replenishment operations in 2007. This has led to windblown sand on the promenade. Due to these high beach levels only the very northern section of seawall was visible during the inspection. At the centre of the bay the salient in the lee of the breakwater continues to form.



The new Maritime Centre built behind the seawall at the north end of the bay (/3601c06).



Windblown sand on the promenade (/3601c06).

The high recurved seawall and promenade at the centre of the bay are in good condition. High beach levels mean the lower stepped seawall and piled toe which was previously identified as being vulnerable to erosion and undermining was almost completely buried. At the south end of the bay the vertical section of seawall is protected by a rock revetment. This revetment is part of the defences that were in poor condition prior to the 2007 scheme, but is now largely buried by high beach levels. Where visible this rock revetment continues to appear in good condition. High beach levels have also resulted in windblown sand on the promenade.



Increased beach levels largely burying toe apron of Newbiggin seawall (/3601c07).



Rock armour largely buried by high beach levels at the south end of the bay (/3601c08).

At the south end of Newbiggin Bay the soft earth slopes are largely stable and protected by a wide beach with new vegetation growth evident on the foreshore. However, at Spital Point there is evidence of continued rock falls and slips in the overlying softer material which is noticeably worse since the previous inspection.



Wide beach and new vegetation growth at south end of Newbiggin Bay (/3601c09).



Occasional rock falls and slips in the soft upper slopes at Spital Carrs (/3601c10).

3.21 Spital Point to Blyth Harbour (MU 21)

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

A meeting was held with the Coastal Warden at Blyth South Beach (Stannard/Cranson 13-Aug-14) to discuss recent key issues along the frontage from Newbiggin to Seaton Sluice.

On the south side of Spital Point, the storm outfall and slipway remains very well protected by rock armour and the concrete headwalls appear in good condition.

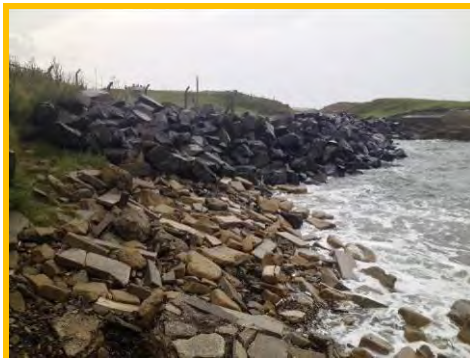


Concrete headwalls of outfall at Spital Point (/3601c10).



Slipway Slight undermining and outflanking of old concrete outfall at Spital Point (/3601c11).

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



Tipped building/quarry waste scattered across foreshore (/3701c01).



Erosion of soft cliffs continues despite tipping of building/quarry waste (/3701c01).

Hawks Cliff is known to typically experience gradual, local erosion caused by slumping in the upper soft material and occasional rock falls in the base. Previous inspections reported that over the severe winter of 2009/10 the whole length had been active. A number of local rock falls, fractures, overhangs, slump in some of the overburdening till and a noticeable section of partially collapse cliff was evident. The footpath along this section of cliffs has been closed in the interest of public safety due to severe erosion.



Partially collapsed cliff and closed footpath at Hawk Cliffs. In 2012.



Partially collapsed cliff and closed footpath at Hawk Cliffs in 2014 (/3701c02).

The cliffs directly fronting Sandy Bay Caravan Park are in very poor condition. Active erosion continues along the entire length resulting in recession of the cliff top to within a few meters of the caravans. Sand has accumulated in the lee of the three near-shore rock breakwaters providing some limited protection to the cliffs behind but erosion continues despite tipping of building rubble.



Active erosion and slumping of cliffs along the Sandy Bay Caravan park (/3701c03).



Accumulation of sand in lee of breakwaters but erosion continues (/3701c03).

On the south side of the River Wansbeck estuary there are various lengths of masonry walls and slipways associated with the Wansbeck Boat Club. These are not included within this inspection. The undefended section of cliff within the estuary mouth is still very stable with no visible signs of erosion or slippage and with the face being densely vegetated.

Progressing from the sheltered estuarine frontage with its stable cliffs to the more active open coastline of Cambois Bay there is a transitional section of cliff fronting Cambois House. These cliffs are in poor condition with slips along the entire frontage and more significant erosion and cliffing of the upper slope further south. Erosion appears to have worsened since the previous inspection with up to 5m of recession reported by the Coastal Warden. Breakup of the pill box on the foreshore continues. North of the access ramp the rock armour and some dumped concrete rubble continues to partially stabilising the outflanking problem of the ramp.



Continued slumps along the cliffs and breakup of pill box at Cambois House (/3901c01).



Rock armour and dumped concrete rubble partially stabilising cliff at slipway (/3901c01).

The rock revetment to the south is understood to have been constructed by private industry to protect the former foundry. This structure remains largely in good condition although displacement of some rocks along the toe were noted. The well vegetated slope behind is general stable with no signs of erosion, except one minor area at the north end. At the south end erosion of the cliffs is leading to the onset of outflanking. The disused and damage outfall pipe across the beach at this locations is reported by the Coastal Warden as causing access issues for beach users.



Some displaced rocks along toe of revetment fronting site of old foundry (/3901c05).



Minor erosion and cliffing of earth cliffs behind crest at north end (/3901c05).

The low earth cliffs to the south of the revetment are experiencing erosion and slumping along most of their length. Up to 4m of erosion was reported by the Coastal Warden. In particular, immediately south of the revetment erosion and cliffing is leading to the onset of outflanking of the structure. However this does not appear to have significantly worsened since the previous inspection. A new timber stairs structure was constructed in 2012 adjacent to the southern car park providing access to the beach.



Erosion of earth cliffs and outflanking of revetment at south end (/3901c03).



New timber stairs constructed adjacent to southern car park (/3901c03).

To the south of the outfall adjacent to The Rockers rocks the frontage is characterised by wide well vegetated dunes. Whereas the previous inspection reported the dunes to be relatively stable with no signs of recent erosion, these dunes appear to now be active along most of their length. Lowering of beach levels has exposed the cobble toe along most of the length and erosion of the dune face has led to significant cliffing and collapse. Further south the dunes appear more stable, with the occasional slumps as noted by the previous inspection not observed. Towards the south end of the dunes a cobble toe berm continues to afford protection to the backing dunes.



High beach levels and relatively stable dunes in 2012.



Low beach levels exposing cobble toe, erosion and collapse of dunes in 2014 (/3901c03).

The North Blyth frontage is protected entirely by man-made defences. At the northern end, this comprise a substantial rock revetment with rock-filled gabions along the crest. Despite some displaced stones along the toe and areas of slight settlement of the profile, this structure remains in good condition. At the north end of this revetment there has been cut-back erosion in the soft cliffs. Efforts appear to have been made to address this by tipping smaller rock armour which has provided some protection to the structure but moved the erosion to the north.



Some displacement of rocks at the toe of the revetment at North Blyth (/4001c01).



Erosion and outflanking at the north end and placement of smaller armour rocks (/4001c01).

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



Corrosion and failed steelwork and slumps in upper earth slopes (/4001c02).



Dumped construction waste and smaller tipped rocks along crest (/4001c02).

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

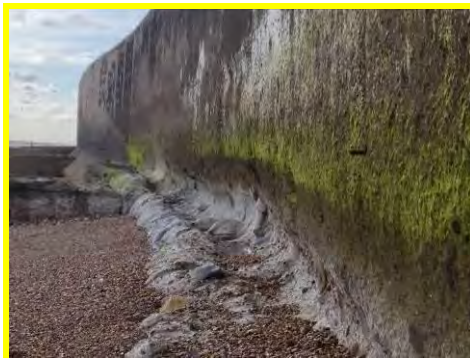


Broken and missing timber boards and rotten wailing beam to breastwork (/4001c03)



Erosion of slopes behind timber breastwork and dumped construction waste (/4001c03).

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



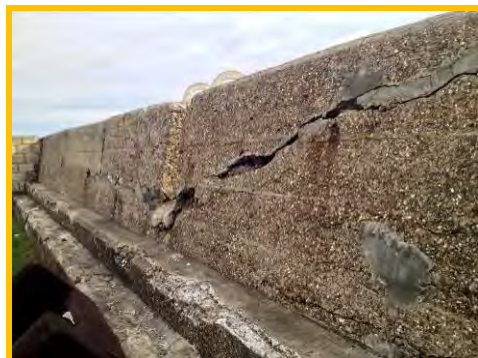
Abrasion of toe, vertical cracks and gaps in joints at the East Pier seawall (/4001c04).



Significant horizontal cracking and spalling of crest wall (/4001c04).



Breakup of concrete deck behind crest wall (/4001c04).



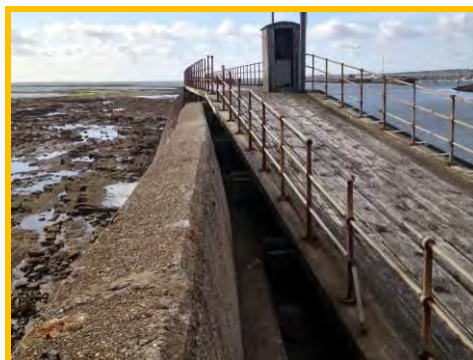
Spalling of concrete and significant cracking and movement of crest wall (/4001c04).

Access to the northern section of Blyth East Pier was not possible at the time of the visit so this structure was not inspected. As noted by the previous inspection, access

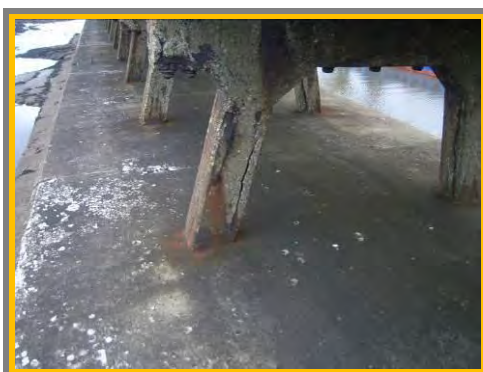
to the southern 2/3rds of the structure adjacent to the derelict stub pier was limited by a locked gate and removed section of decking. The section of the structure inspected in 2012 was generally in fair condition with no noticeable signs of undermining at the toe or movement in the sub structure or superstructure. However, significant corrosion was occurring to the majority of the trestle legs with concrete spalling and staining apparent. The timber decking was worn with the onset of rot around fixings of some boards and a number of boards missing. The timber edge beam was missing in one location causing collapse of one section of hand railing. Since the previous inspection, all 7 wind turbines have now been removed from the pier.



Security gate locked at time of inspection preventing access (/4001c05).



All 7 wind turbines removed from pier since previous inspection in 2012. Sections of hand railing missing (/4001c05).



Corrosion and spalling to trestle legs along Blyth East Pier in 2012.



Missing sections of timber decking and rot at some fixings in 2012.

3.22 Blyth Harbour River Mouth (MU 22)

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

3.23 Blyth Harbour to Seaton Sluice (MU 23)

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

A meeting was held with the Coastal Warden at Blyth South Beach (Stannard/Cranson 13-Aug-14) to discuss recent key issues along the frontage from Newbiggin to Seaton Sluice.

The northern section of Blyth South Beach comprises a wide sandy beach backed by narrow vegetated dunes. At the rear of the dunes is a masonry boundary wall to

the Royal Northumberland Yacht Club and Port of Blyth. Beach levels at the spending beach area between the West Pier and the South Pier remain healthy with the strand line 10m from the toe of the dunes. The dunes are well vegetated and stable with some historic erosion and cliffing but no recent activity evident. The masonry boundary wall is generally in fair condition with some vertical cracking in the brickwork and occasional loss of mortar at joints in the concrete coping. A slightly seaward rotation in the wall was noted at the south end. Although no recent signs of movement were apparent, this should continue to be monitored for further change.



Historic erosion and cliffing to face of dune at spending beach but no recent activity (/4201c10).



Some vertical cracking in the brickwork and loss of mortar at the coping (/4201c10).

Further south the boundary wall changes to a concrete post and plank construction. The dunes remain wide and well vegetated for the majority of their length, narrowing at the far south end. This wall generally remains in a fair condition although a noticeable seaward rotation along a 20-30m section at the north end was noted. Along the rest of the wall there are occasional cracked and missing concrete planks with some planks having been replaced. Further south towards the outfalls that cross the foreshore, the dune width narrows considerably and the seaward face of the dunes is cliffing through erosion. As noted in the 2012 report, this section of dunes needs careful consideration by the Port of Blyth as there is a risk of breaching through the haulage road to the port.



Some rotation of concrete post and plank wall at back of dunes (/4201c11).



Some broken and missing planks along wall at back of dunes (/4201c11).

Along the southern-most section of the port boundary wall, the dunes are protected along the seaward face and toe by cobble-filled gabions. These continue to deteriorate at both ends of this length with broken gabions spilling cobbles onto the foreshore. At the north end, the gabions have been outflanked and erosion of the dune has started to expose the foundations of the concrete wall. Replacement of broken gabions in conjunction with consideration of management options for the undefended dunes further north therefore remains urgent to prevent loss of the dune and collapse of this wall.



Deformed and burst gabions along the toe of the dunes at north end of South Beach (/4201c03).



Outflanking of gabions at north end, erosion of dunes and exposure of wall foundations (/4201c03).

South of the gabions at Blyth South Beach is a short section of sea wall that protects adjacent properties. Beach levels at this frontage are known to vary and were reported to be relatively low during the previous inspection, exposing the rock armour toe resulting in some undermining. Current beach levels appear to have recovered by around 0.5m and the toe is now buried. The wall is generally in fair condition although previous exposure of the toe and onset of undermining remains a concern. The gaps at construction joints noted during the previous inspection remain and require re-sealing. Since the previous inspection a new property has been constructed immediately behind wall and the high post and plank crest wall has been removed. The function of this crest wall is likely to have been to limit wave overtopping and as such its removal may lead to crest erosion and increased risk of wave overtopping damage and flooding to the property.



Low beach levels and undermining of toe of seawall in 2012.



Higher beach levels burying toe in 2014 (/4201c04).



Post and plank crest wall observed in 2012.



New property constructed and post and plank crest wall removed in 2014 (/4201c04).

South of the beach access ramp, the short section of sea wall is mostly buried by high beach levels and narrow vegetated dunes. These dunes appear to have been stable since 2008 when they were reported to be eroding. The wall, surfacing and

setback wall remain generally in good condition in the visible areas, although minor cracks and spalling to the face of the wall should be repaired through routine maintenance. A new outfall through the wall was constructed in 2009/10 which continues to cause some scour to the edge of the dunes.



Minor cracks and spalling in the seawall to the south of the access ramp (/4201c05).



Localised erosion to the dune edge from the outfall constructed in 2009/10 (/4201c05).

South of the dune section, the seawall is in a slightly worse condition with numerous cracks and notable abrasion and staining at its northern end which could usefully be addressed through maintenance. Some cracks have previously been filled, but these remain in need of further attention. At the northern end, there is some horizontally cracking in the access steps and lower beach levels have re-exposed undermining of the toe as identified during the 2010 inspection. The thin veneer of cobbles along the northern section noted in the previous inspection in 2010 were not observed.



High beach levels burying the bottom of the steps south of the dunes (/4201c06).



Cracks and staining in the seawall adjacent to the Dave Stephens Centre (/4201c06).

The main promenade and setback amenity area towards the north of Blyth South Beach underwent notable regeneration in 2009/10. This included construction of a new promenade decking, beach recharge, amenity centre, micro wind turbine, large children's play area and several beach huts. The sea wall fronting the promenade continues to be largely buried by high beach levels approximately 1m below the cope. The visible parts of the wall remained largely in good condition with some minor cracks and gaps at construction joints as well as a few areas of abrasion leading to exposed and corroded reinforcement bars.



Areas of abrasion and exposed rebar on seawall adjacent to Links Road carpark (/4201c07).



High beach levels, minor cracks and gaps at construction joints (/4201c07).

At the southern end of the sea wall, the sheet piles protecting the return section of seawall remain in a fair condition with no apparent signs of movement. The majority of the structure is buried by high beach levels so could not be inspected. However significant corrosion and loss of section thickness was apparent along with holes through the web face on a number of piles. These holes were not observed during the previous inspection. Corrosion of piles and tie-back plates is resulting in a noticeable loss of thickness. The concrete capping beam is in good condition.



High beach levels in front of sheet pile return wall (/4201c08).



Corrosion of steel piles resulting in loss of section thickness and holes in the web (/4201c08).

The three timber groynes remain in poor condition, with missing timber planks, arson damage and many sizeable gaps. Beach levels are relatively low in the lower and middle beach with accretion of windblown sand in the upper beach along the toe of the dunes. The course of Meggie's Burn is understood to be variable and since the previous inspection the channel has realigned northwards and now flows beneath the southern groyne causing scour at this location. Since there is little noticeable difference in the beach level either side of these structures they appear to be relatively ineffective. Some historic erosion of the dune face was apparent but this was not active.



Gaps between groyne planks, arson damage and low beach levels (/4301c01).



Scour beneath southern groyne due to re-alignment of Meggie's Burn (/4301c01).

Further south at the centre of the bay the beach remains relatively wide and healthy. Some new vegetation growth along the toe of the dunes continues. As noted during the 2010 inspection, this may be due to natural recovery following storm damage over the winter of 2009/10 or may have been assisted by replenishment with sand recycled from the spending beach in the same year. It was previously noted that sand-filled geotextile bags have been used to stabilise the dune toe at the two most vulnerable sections of the central frontage. However these were not observable due to high beach levels. It is understood that annual burying of old Christmas trees to encourage sand trapping and control erosion from walkers continues to be reasonably effective. However, erosion across the dune crest by walkers due to numerous uncontrolled access points remains a concern. At the south end of the bay towards Seaton Sluice the dunes remain highly stable with notable pioneer vegetation growth on the lower dunes.



New vegetation growth at toe of dunes at the south end of the bay (/4301c02).



Erosion of dune crest due by walkers due to numerous uncontrolled access points (/4301c02).

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



High beach levels and vegetation burying masonry wall north of harbour (/4401c01).



High beach levels and vegetation burying masonry wall north of harbour (/4401c01).

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



Missing planks and damage to timber groyne at mouth of Seaton Burn (/4402c02).



Undermining of concrete deck adjacent to groyne (/4402c02).

The western bank of the Seaton Sluice harbour is a masonry wall extending around the east side of the entrance. This wall is largely in good condition, possibly owing to the fact that the original wall is believed to have been re-constructed as a concrete structure faced with masonry blocks. The concrete decking at the harbour entrance is in danger of being undermined from behind the timber groyne. At the seaward end a vertical crack and missing block was evident suggesting possible movement. This should be monitored. The adjacent length of masonry wall within the entrance continues to have sand accumulation on the crest, making access difficult and potentially dangerous. Some further loss of mortar and gaps between blocks was also observed.



Vertical crack and missing block at seaward end of east harbour wall (/4401c03).



Accumulation of sand along crest of masonry wall on west side of entrance (/4401c04).

The wall along the inner north bank of the harbour includes a boat ramp. This ramp remains in poor condition with missing blocks on the outer side and some movement apparent. There are also large gaps in the joints at the top and bottom of the ramp suggesting that some settlement may be occurring. This should be monitored.



Some missing blocks and rotation of outer wall of slipway (/4401c05).

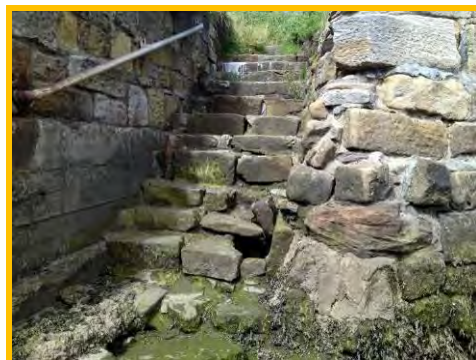


Full width cracks at top and bottom of slipway ramp (/4401c05).

The rest of the masonry quay wall along the inner north bank of the harbour is generally in fair condition with little change since the previous inspection. Some slight bulging of the wall was apparent as well as missing mortar and gaps between blocks. A number of small but deep holes are evident in the ground behind the crest along much of the length suggest that fill material might be being lost through gaps in the masonry. This is supported by comments by the Coastal Warden that additional material has previously been placed behind this wall to fill the voids. The void in the steps identified during the previous inspection have worsened with displaced stones becoming a trip hazard.



Some small gaps between blocks in wall along the inner north bank (/4401c05).



Void in steps in wall along the inner north bank adjacent to road bridge (/4401c05).

Along the south bank of Seaton Sluice harbour, the west end of the masonry quay wall is generally in fair condition with no movement apparent. There is however some noticeable loss of mortar and gaps between blocks at the west end of the wall. At the east end the concrete coping is highly abraded and cracked with a number of large gaps and some missing blocks along the bottom of the wall. However, this has not worsened since the previous inspection.



Gaps between blocks at west end of south bank quay wall (/4401c06).



Coping at east end of wall cracked and highly abraded with large gaps and some missing blocks at the toe (/4401c06).

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



Gaps and missing blocks in the masonry wall along the man-made channel (/4401c07).



Gaps and missing blocks at the east end of the wall (/401c07).

The masonry quay wall along the east bank of Seaton Sluice Harbour is generally in fair condition with local areas of abrasion and settlement, some missing mortar and gaps between blocks as noted in the 2010 inspection continuing. These should be repaired through routine maintenance. Some undermining of the wall at mid-length was also reported by the Coastal Warden, however this was not observed during the inspection.



Missing mortar and gaps between blocks along eastern harbour quay wall (/4401c08).



Settlement, abrasion and missing mortar in masonry quay wall (/4401c08).

At the western end of Rocky Island is a large concrete pier build in 1995 with a shallow grouted stone revetment extending along its leeward face. This revetment and pier remains generally in a good condition with no signs of movement and only minor cracking and loss of joint sealant. Undermining of the toe apron at the seaward end of the pier was observed but appears to have not worsened since the 2010 inspection. The hand railing and emergency egress ladder are in good condition.



Undermining of toe at seaward end of pier (/4401c10).



Minor cracking and missing joint sealant (/4401c10).

Extending eastwards from the pier, along the northern side of Rocky Island, is a length of masonry sea wall fronted by a rock platform. There is missing mortar and gaps between blocks along much of its length. Adjacent to a previous brickwork repair a section of blockwork appears to have moved slightly resulting in larger gaps opening on either side. This movement is likely to be due to missing blocks at the toe resulting in loss of retained fill. Towards the west end large gaps between blocks have resulted in some loss of fill and a void forming behind the wall. Repair to both these section is required urgently to prevent further movement. As noted during the 2010 inspection, on the landward side of the wall poured concrete slurry continues to break up and soil erosion of the land is continuing.



Cracks in upper section of masonry seawall on Rocky Island (/4401c11).



Gaps and some larger holes between blocks in masonry seawall (/4401c11).

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



Occasional overhangs and local rock falls on the north edge of Rocky Island (/4401c12).



Slumps in the upper soft material cutting back to the footpath (/4401c12).

3.24 Seaton Sluice to Hartley (MU 24)

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

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

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



Slips in soft cliffs above seawall and material falling onto foreshore (/4401c14).



Spalling of concrete along upper section of seawall at north end of Collywell Bay (/4401c14).

To the south the adjacent section of wall is of similar construction but includes a sloping brickwork revetment supporting the upper part of the cliff. The concrete section of the wall is in generally good condition despite loss of mortar at the recurve along most of the wall and noticeable abrasion along the base above the stepped toe. At the centre of the upper masonry wall the full height crack in the brickwork identified during the 2012 inspection does not appear to have worsened.



Loss of mortar on the recurve along most of the wall (/4401c15).



Full height gaps in the brickwork in the upper wall (/4401c15).

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



Missing flap valves and calcium deposits blocking southerly weep hole (/4401c16).



Abrasion, rotting timber wailing and undercutting at toe of seawall (/4401c16).

Immediately south of this wall, there a short brickwork/ concrete wall end supporting the access ramp. The brick section of wall is generally in a fair condition although

there are several missing bricks along the base. The concrete section has a large horizontal crack along the base and appears to have rotated seaward slightly. The toe of the ramp is abraded.



Missing bricks along toe of wall supporting access ramp (/4401c17).



Large horizontal crack at base of wall and undercutting at south end (/4401c17).

The high vertical concrete sea wall at the centre of Collywell Bay is generally in fair condition. Maintenance work to fill three notable vertical cracks is still required however, no movement was apparent at these locations and they don't appear to have worsened since the previous inspection. The toe apron and access steps remain highly abraded and cracked in places. Above the structure, fencing along the access path appears to have moved suggesting that there may be slippage in the steep vegetated slopes above. However no significant change was apparent since the previous inspection.



Notable vertical crack in high seawall at centre of the bay (/4401c17).



Significant abrasion at the toe and horizontal cracks (/4401c17).



Significant abrasion of access steps from foreshore.



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

The concrete seawall at the south end of Collywell Bay is generally in good condition. Beach levels rise towards the south end. At the north end a cobble toe berm is visible along with abrasion and onset of undermining of the toe. Minor cracks and gaps at construction joints identified during the 2010 inspection were still

apparent but have not worsened. Above the wall slips in the vegetated earth slopes remain apparent but only appear partially active with no material visible on the foreshore. The escape ladder at the centre of the wall is completely missing.



Slips in upper earth slopes and material on the foreshore at the south end of the bay (/4401c18).



Initial undermining of toe at north end of wall (/4401c08).

At the south end of Collywell Bay gabions protect the toe of the coastal slope above the beach access ramp. These gabions are in poor condition and continue to degrade, spilling rocks across the foreshore. The access ramp itself has some undermining where it joins the rocky shore platform, although this has not worsened since the previous inspection. There is also some undermining and onset of outflanking where the ramp joins the undefended cliffs at its other end.



Gabion baskets at the bottom of the access ramp continue to degrade (/4401c19).



Undermining of concrete access ramp (/4401c19).

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

The harder rock cliffs extending from Crag Point to the southern boundary of Northumberland County Council part-way along Hartley Cove have some fracturing to the rock structure. As a result of this fracturing, several rock falls have occurred leaving numerous overhangs and in places caves have formed at the base of the cliffs. However, no change was evident since the previous inspection. A wide crack was also noticed a few meters from the cliff edge close to the fence line although this does not appear to be recent. The footpath runs very close to the cliff edge in this area and so may need realignment if slips/ rock falls continue.



Several historic rock falls evident in high rock cliffs at Crag Point (/4401c21).



Several historic rock falls evident in high rock cliffs at Crag Point (/4401c21).

4 Comparison with Previous Assessments

The previous formal assessment across the whole study frontage was undertaken in October 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 to the following man-made assets appeared to have been undertaken since the previous inspection:

- Completion of repairs to voids in Berwick-on-Tweed Pier;
- Boarding of gap between timber planks at Spittal Quay;
- Crack repairs along Spittal sea wall;
- Filling of large scour hole in Main Pier at North Sunderland Harbour;
- New security gate on breakwater at North Sunderland Harbour in Seahouses;
- Crack repairs to decking of south quay wall at Craster;
- New rock revetment south of concrete block wall at Boulmer;
- Completion of repairs to failed section of Broom Hill quay in Amble;
- New concrete decking to seawall at Pan Point in Amble;
- New vehicle barrier at Golden Sands Holiday Park in Cresswell;
- New pedestrian access steps at Cambois;

Ongoing Deterioration

There is general ongoing deterioration of many of the man-made assets along the coastline with some undermining and outflanking of coastal structures. Despite the large storm waves and surge of winter 2013/14 this does not appear to have had a significant affected the man-made assets. The following structures have been graded as in 'poor' or 'very poor' condition:

- Damage to the crest of Green Haven's Breakwater;
- Continued deterioration of relic lime kiln north of the Skerrs;
- Undermining and collapse of grouted stone revetment at Ross Links;
- Partial collapse of masonry retaining wall at Warren Mill;
- Partial collapse of relic pier along dunes at Budle;
- Undermining and voids in harbour wall on Holy Island;
- Large void at toe in seaward end of main pier at North Sunderland Harbour;
- Abrasion/ cracking along inner face of main pier at North Sunderland Harbour;
- Undercutting and abrasion of concrete seawall at Beadnell Haven;
- Burst gabions and loss of fill at Nacker Hole in Beadnell;
- Collapse of a section of crest along the masonry seawall at Alnmouth;
- Missing blocks and settlement of masonry wall along Alnmouth riverbank;
- Partial collapse of masonry wall at Church Hill, Alnmouth;
- Historic collapse of seaward end of north pier at Amble;
- Continued movement of loosely packed rip-rap at root of South Jetty in Amble;
- Significant cracks, spalling and voids in access ramp in low seawall at Amble;
- Significant erosion of crest backing concrete blocks at Hauxley Nature Reserve.
- Movement in concrete block breakwater south of Hauxley Nature Reserve;
- Erosion and cut back of bank behind concrete revetment at New Biggin;
- Erosion of crest behind small concrete seawall at Newbiggin;
- Undermining and collapse of west end of short concrete seawall at Newbiggin;
- Abrasion of timber breastwork and washout of fill at North Blyth;
- Groynes in poor condition and erosion of dunes south of Blyth;

- Groyne in poor condition at entrance to Seaton Sluice.
- Displaced blocks and localised cracks in masonry seawall at Seaton Sluice;
- Heavy abrasion and full height cracks in high concrete seawall at Collywell Bay;

4.2 Natural Assets

There is also general ongoing deterioration of the majority of the natural assets along the coastline including rock falls, slumping and fracture of undefended cliffs. These assets appear to have been partially affected by the severe storms, heavy rain and flooding experienced during the winter of 2013/14. The following areas assets have been graded as in 'poor' or 'very poor' condition:

- Continued slips in earth cliffs south of Spittal seawall;
- Historic erosion and cliffing along dunes on west coast of Holy Island;
- Ongoing erosion of high earth cliff at Emmanuel Head, Hole Island.
- Beach in earth embankment at Ross Links;
- Partial erosion and slumps in dunes near Budle;
- Partial erosion and undercutting of soft upper cliffs at Dell Point, Beadnell;
- Ongoing erosion, cliffing and cut back along low earth bank at Beadnell;
- Partial erosion and cliffing of earth cliffs at Boulmer;
- Partial erosion or earth bank at Boulmer;
- Partial erosion and slips along high clay cliffs north of Foxton Hall;
- Significant erosion and collapse of low earth bank along Alnmouth riverbank;
- Erosion of low earth bank at root of South Jetty, Amble;
- Erosion and slips in face of dune at Pan Point, Amble;
- Partial erosion, cliffing and slips in dunes north of Hauxley;
- Ongoing erosion, cliffing and slumps of dune face at Hauxley Nature Reserve;
- Cutback of dunes close to road at Hadson Carrs;
- Partial erosion and slumps in soft upper slopes at Brig Head, Cresswell;
- Large scale slips in earth slopes cutting back to road at south of Cresswell;
- Ongoing erosion to soft upper cliffs at Snab Point, Cresswell;
- Significant erosion, cliffing and recession along embankment north of Lynemouth Power Station;
- Significant erosion, cliffing and recession along embankment south of Lynemouth Power Station;
- Continued localised erosion and slumps in soft lower cliffs at Newbiggin Moore;
- Erosion and slumping of earth cliffs at Newbiggin;
- Ongoing erosion and clumps in soft upper cliff at Newbiggin;
- Partial erosion, cliffing and slumps in low soft cliffs along most of frontage at Links Quarry south of Newbiggin;
- Ongoing erosion and collapse of Hawks cliffs south of Newbiggin;
- Significant erosion, cliffing and slumping behind offshore breakwaters south of Newbiggin.
- Erosion and loss of dune exposing crest wall foundation at south beach, Blyth.

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:

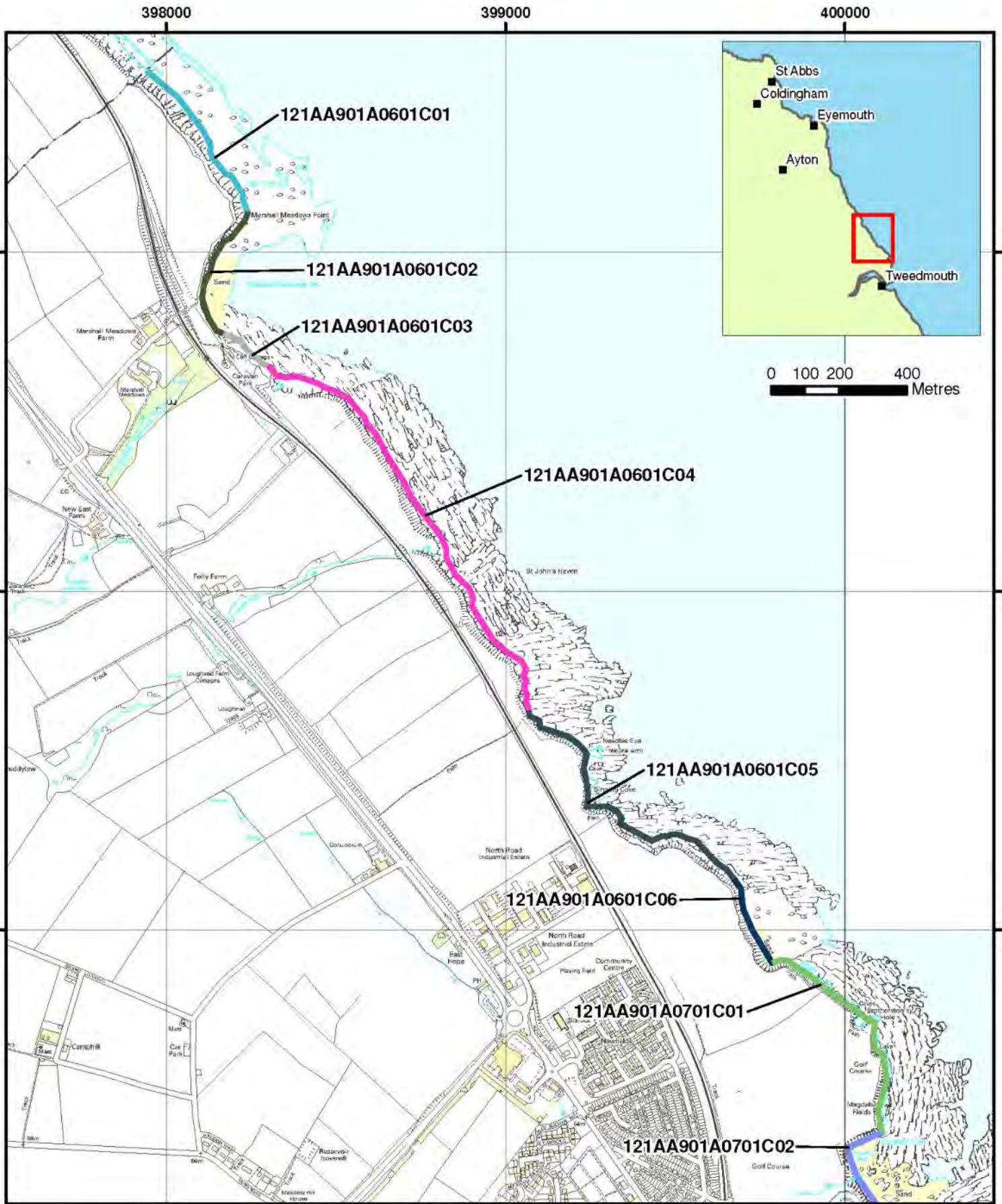
- Local tide tables were used to provide key information to plan inspection of tidal structures at low water, and where possible during spring tides, to ensure that as much of the structure as possible was visible for the inspection. Where structures fully dry out at low tide a full visual inspection 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 Berwick Pier and quaywalls, North Sunderland Harbour, Craster Harbour arms, Warkworth Harbour Pier and Quaywalls, Newbiggin breakwaters and Blyth East Pier. For these structures a vessel based or dive inspection would be required, which was not within the scope of this inspection.
- Access across the causeway to/ from Holy Island is restricted during high water. Timing of inspections of access on Holy Island should be planned in coordination with the local tide tables available from the following web site: <http://orawww.northumberland.gov.uk/www2/holyisland/holyisland.asp>
- The majority of assets could be access without problem and access to private property was not an issue, with the following exceptions: Access to Blyth East Pier was restricted by a locked gate and inspection was not possible. The low masonry retaining wall at Warren Mill is located on private grounds, the owner was working in the grounds at the time of the survey and allowed excess to the wall.
- 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 particularly notable at Spittal seawall, South Pier and Bay View Road seawall at Amble, Newbiggin seawall and Blyth South Beach seawall.
- The inspections were undertaken following the severe storms and heavy rainfall and flooding experienced during the winter of 2013/14.

6 Conclusions & Recommended Actions


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


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

Appendix A – Asset Maps



Legend

 Asset location

 NFCDD Asset Number

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

Figure 1 - Map 1
Northumberland County Council Frontage

Coastal Walkover Inspection Report
 Drawing Scale 1:15,000 at A4

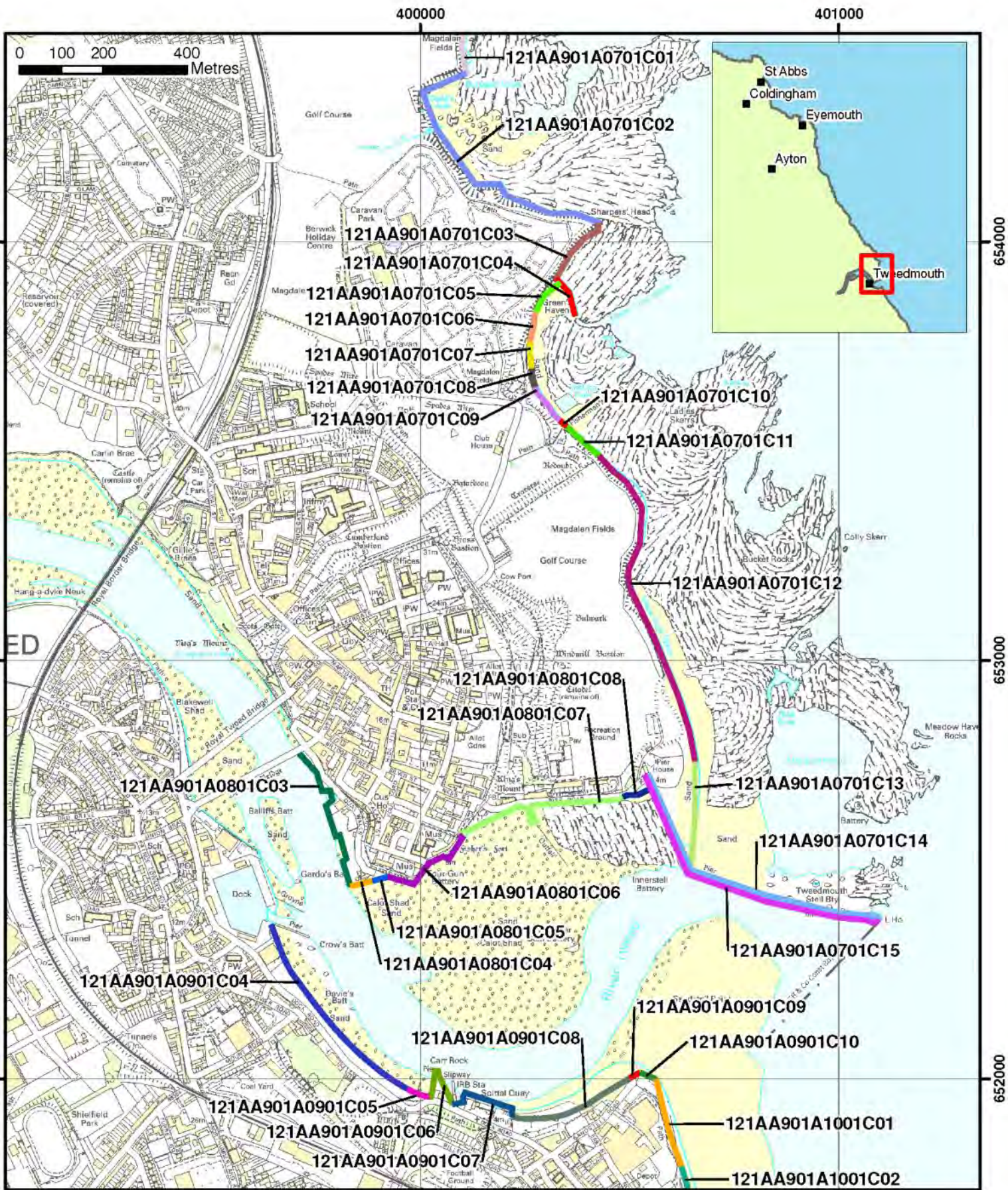
Halcrow Group Limited
 Burderop Park
 Swindon
 Wiltshire
 SN4 0QD

+44 (0)1793 812479




 A CH2M HILL COMPANY

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
 Northumberland County Council
 Frontage**

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

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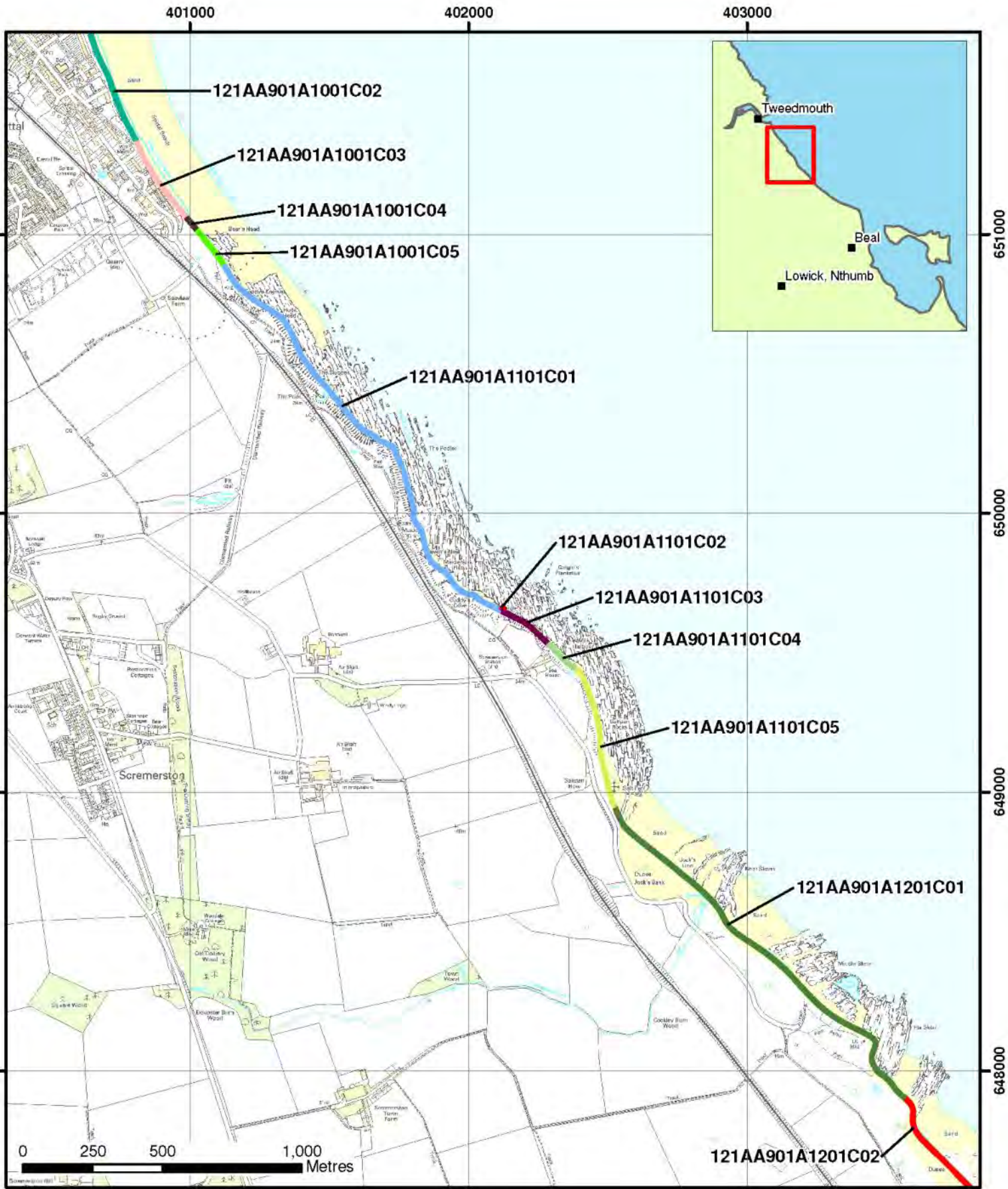
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Notes:

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 3
 Northumberland County Council
 Frontage**

Coastal Walkover
 Inspection Report
 Drawing Scale 1:18,000 at A4

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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 4
 Northumberland County Council
 Frontage**

Coastal Walkover
 Inspection Report
 Drawing Scale 1:60,000 at A4

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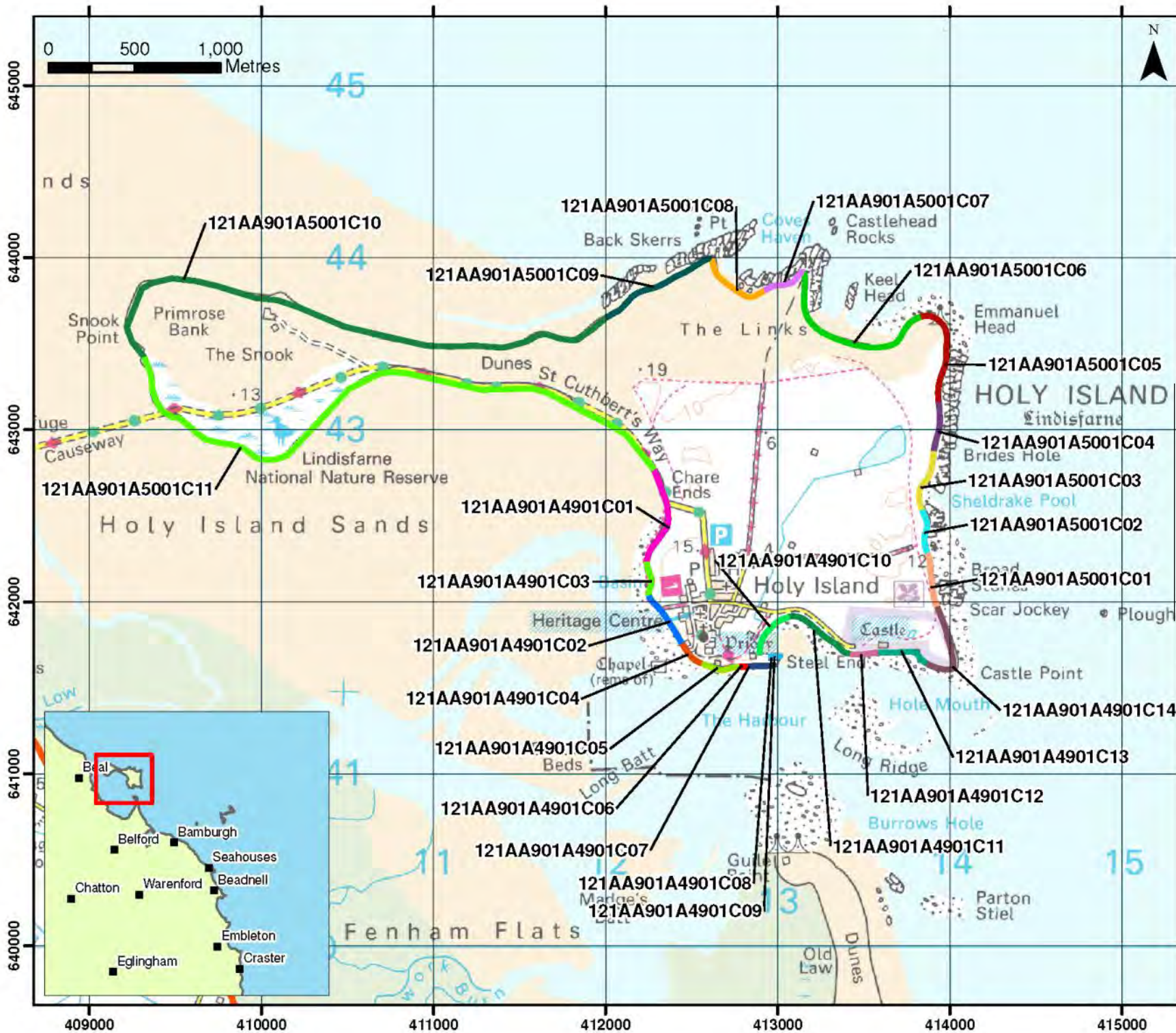
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Notes:

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



Legend

- Asset location
- NFCDD Asset Number*

Notes:

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

Lead Authority: Scarborough Borough Council

Project: Cell 1 Regional Coastal Monitoring Programme

**Figure 1 - Map 5
Northumberland County Council Frontage**

Coastal Walkover Inspection Report

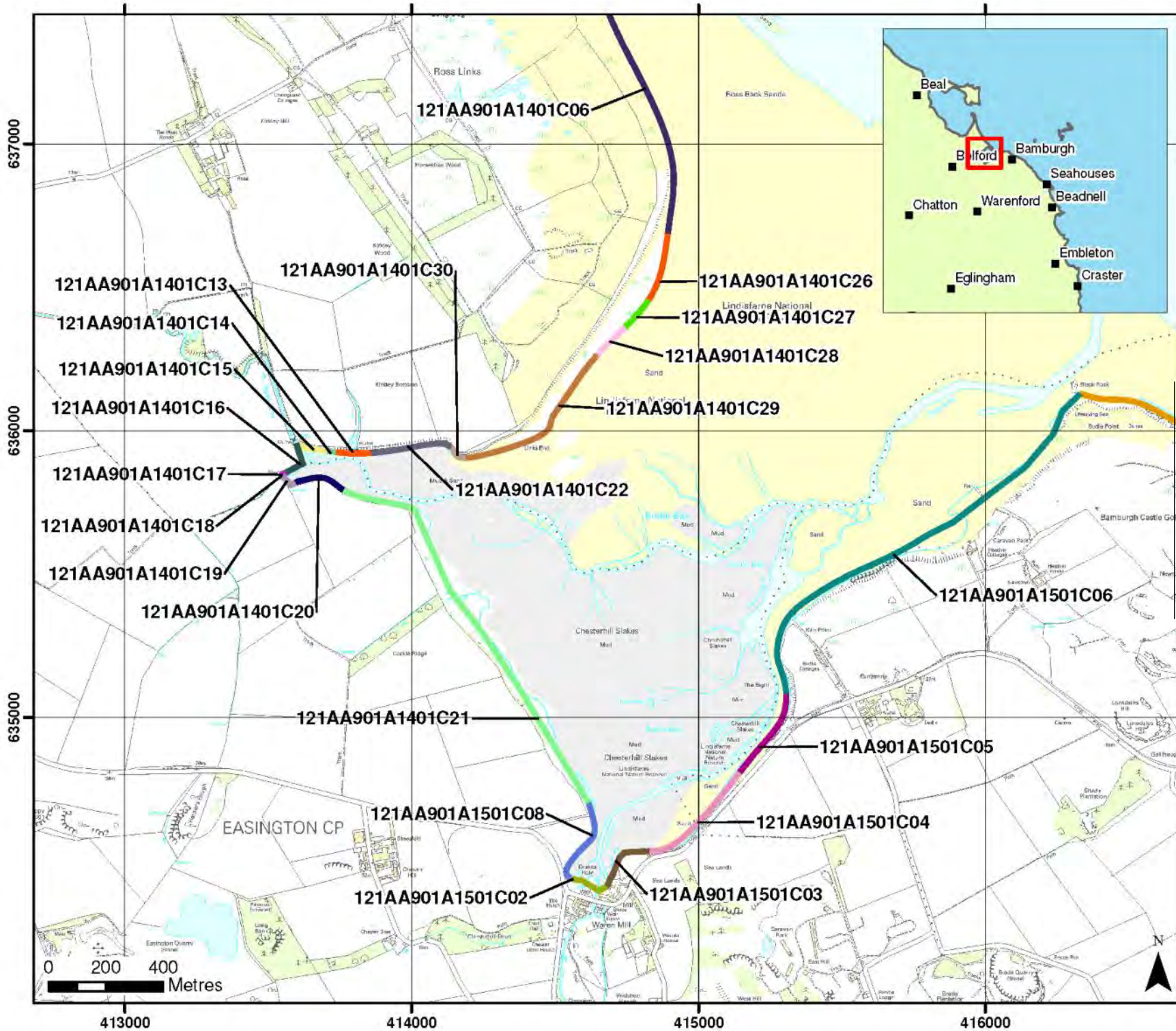
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Legend

- Asset location
- NFCDD Asset Number

Notes:

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

Lead Authority: Scarborough Borough Council

Project: Cell 1 Regional Coastal Monitoring Programme

Figure 1 - Map 6 Northumberland County Council Frontage

Coastal Walkover Inspection Report

Drawing Scale 1:30,000 at A4

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Legend

-  Asset location
-  NFCDD Asset Number

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

**Figure 1 - Map 7
 Northumberland County Council
 Frontage**

Coastal Walkover
 Inspection Report
 Drawing Scale 1:40,000 at A4

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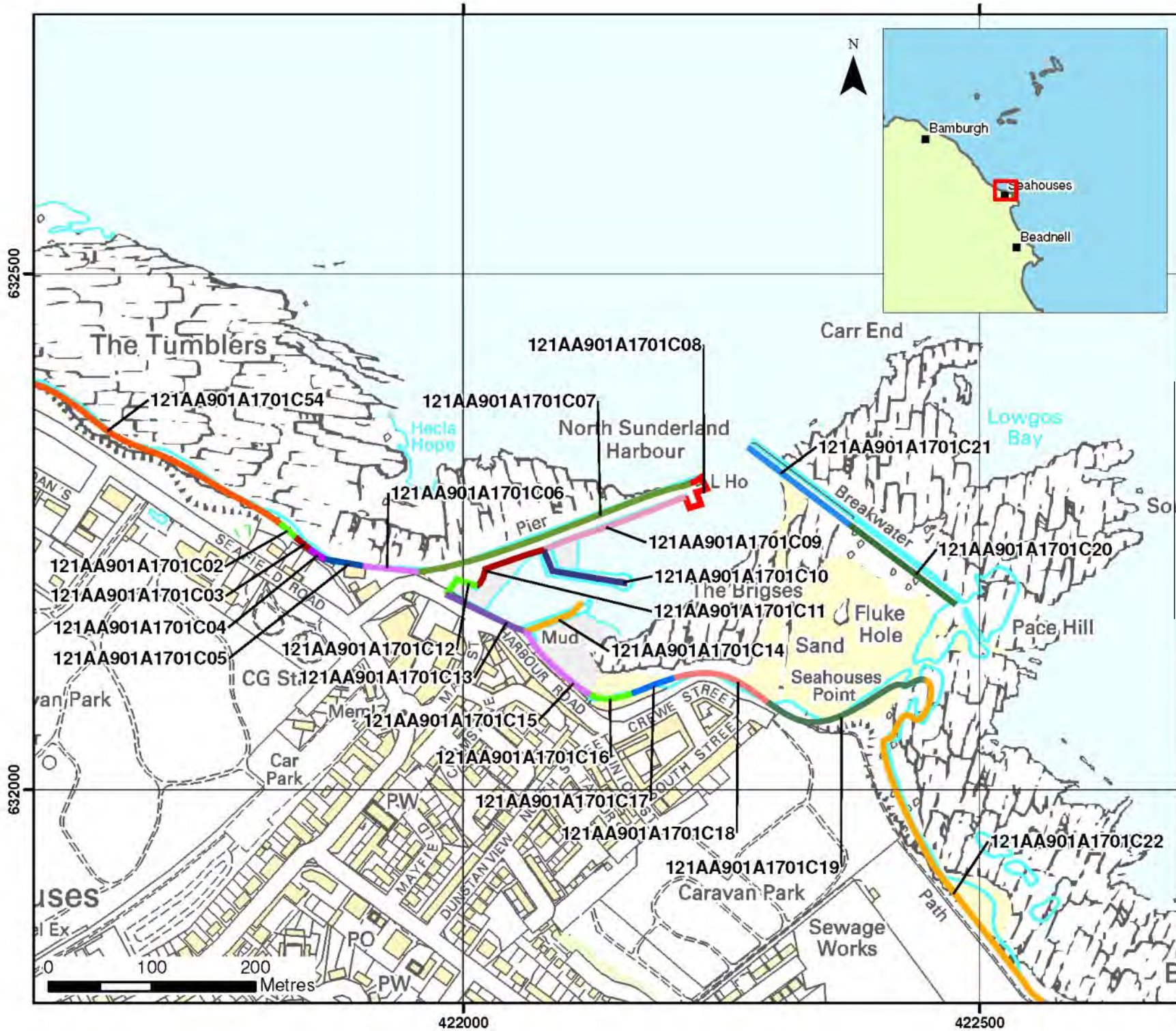
Burderop Park
 Swindon
 Wiltshire
 SN4 0QD

+44 (0)1793 812479



Notes:

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



Legend

- Asset location
- NFCDD Asset Number

Notes:

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

Lead Authority: Scarborough Borough Council

Project: Cell 1 Regional Coastal Monitoring Programme

Figure 1 - Map 8 Northumberland County Council Frontage

Coastal Walkover Inspection Report

Drawing Scale 1:5,000 at A4

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Burderop Park
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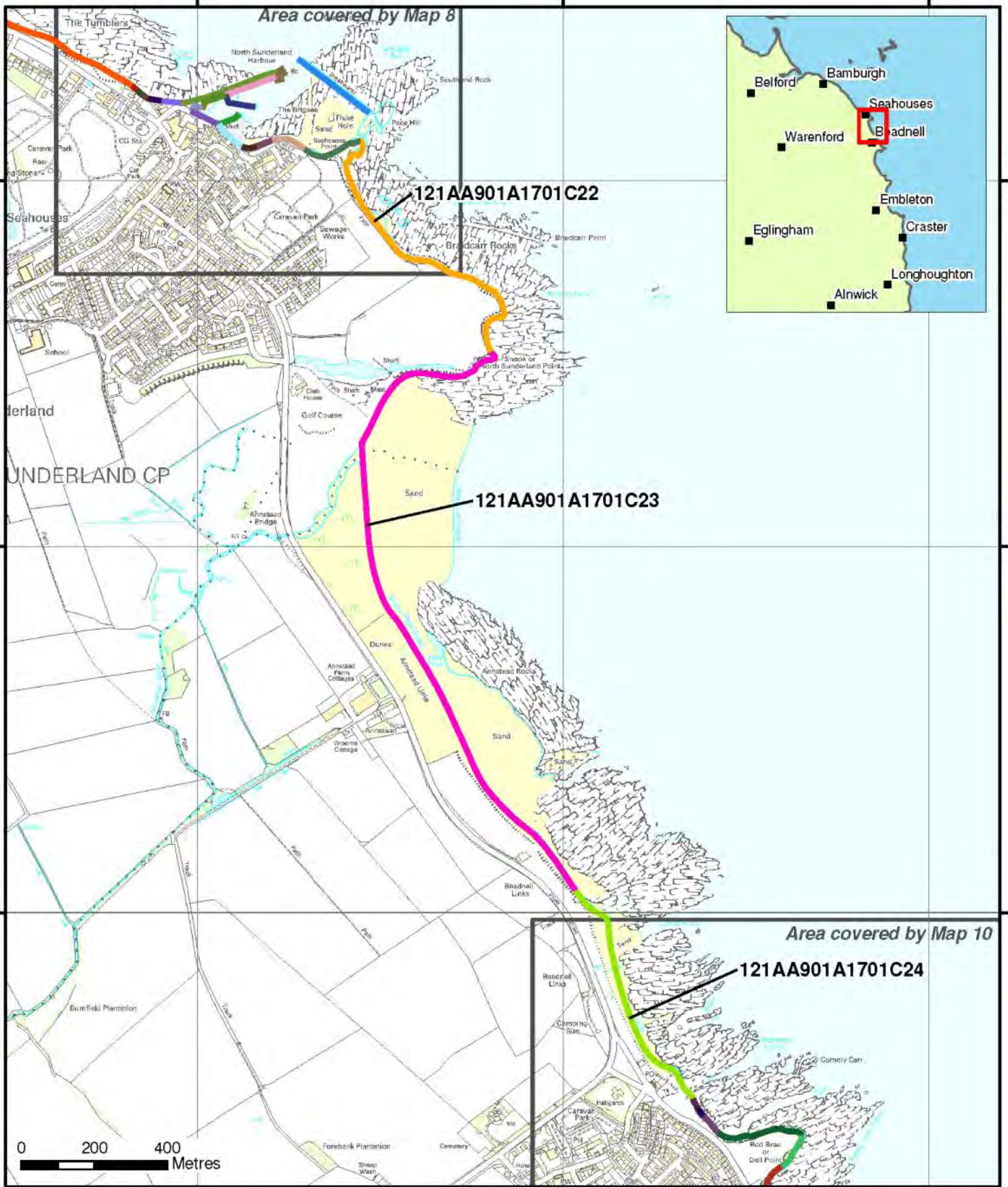
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
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Legend

-  Asset location
-  NFCDD Asset Number

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

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

Coastal Walkover
 Inspection Report
 Drawing Scale 1:14,000 at A4

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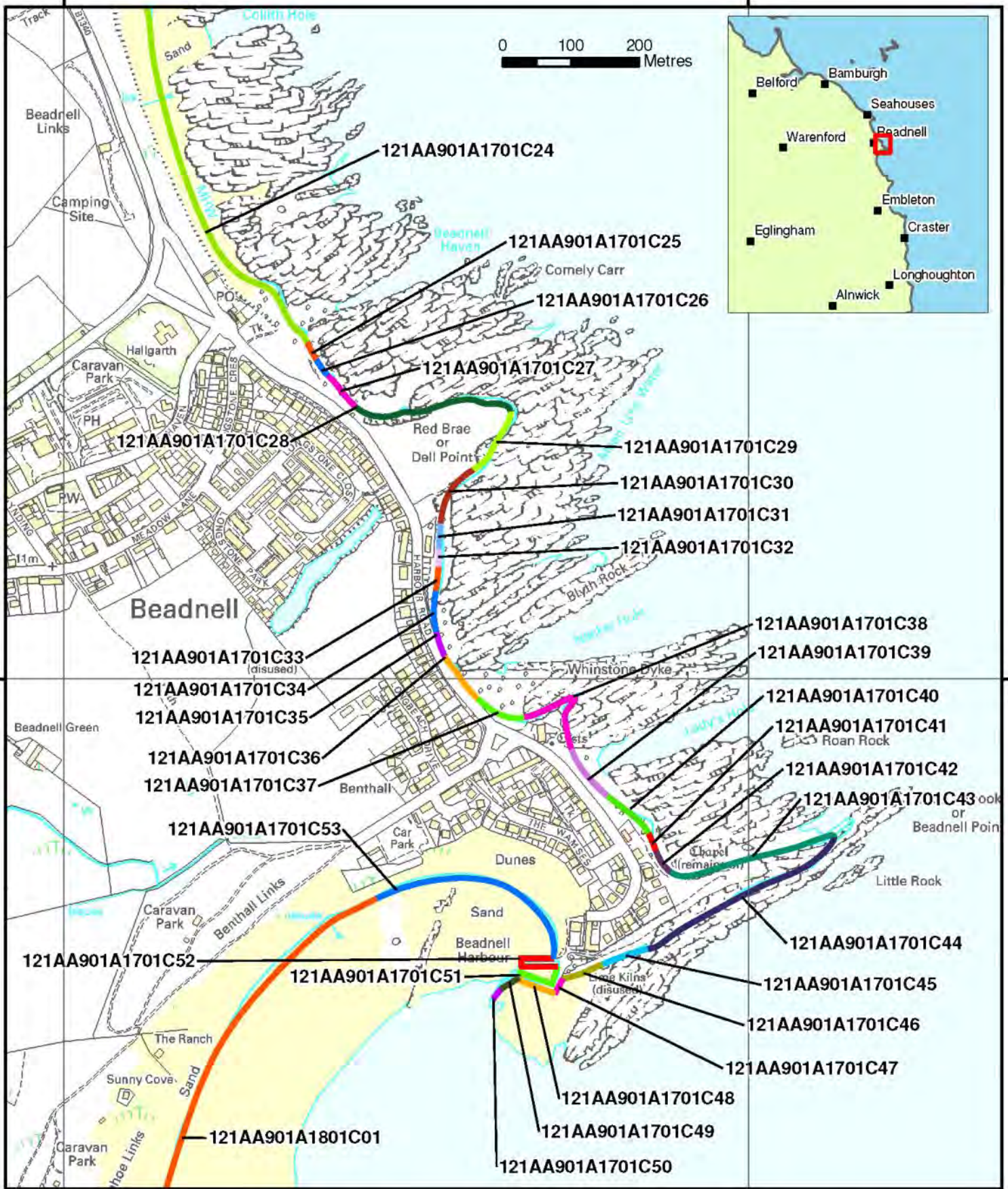
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Notes:

All maps taken from
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Legend

-  Asset location
-  NFCDD Asset Number

Lead Authority: Scarborough Borough Council
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**Figure 1 - Map 10
 Northumberland County Council
 Frontage**

Coastal Walkover
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-  Asset location
-  NFCDD Asset Number

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**Figure 1 - Map 11
 Northumberland County Council
 Frontage**

Coastal Walkover
 Inspection Report
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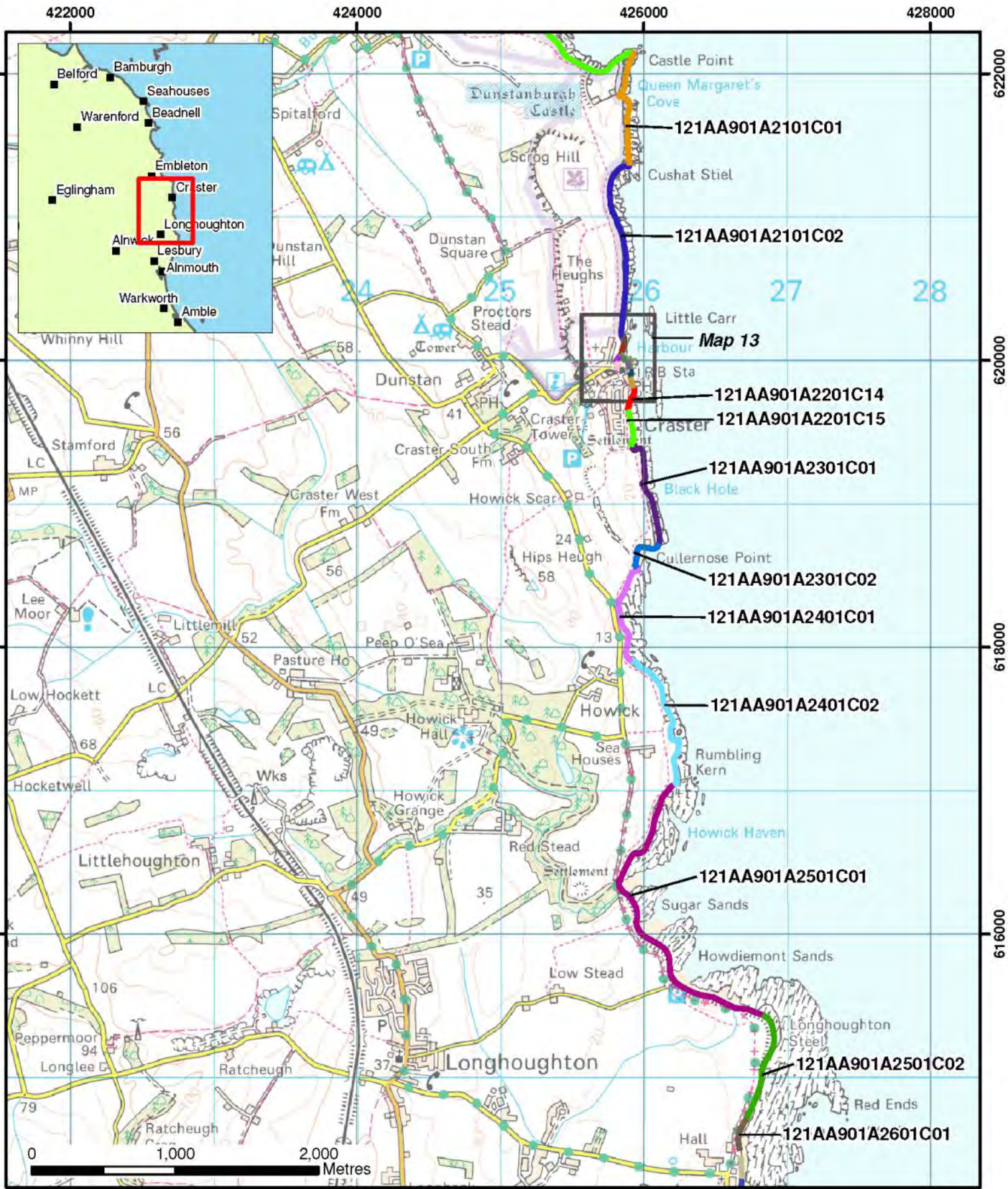
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Legend

- Asset location
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**Figure 1 - Map 12
 Northumberland County Council
 Frontage**

Coastal Walkover
 Inspection Report
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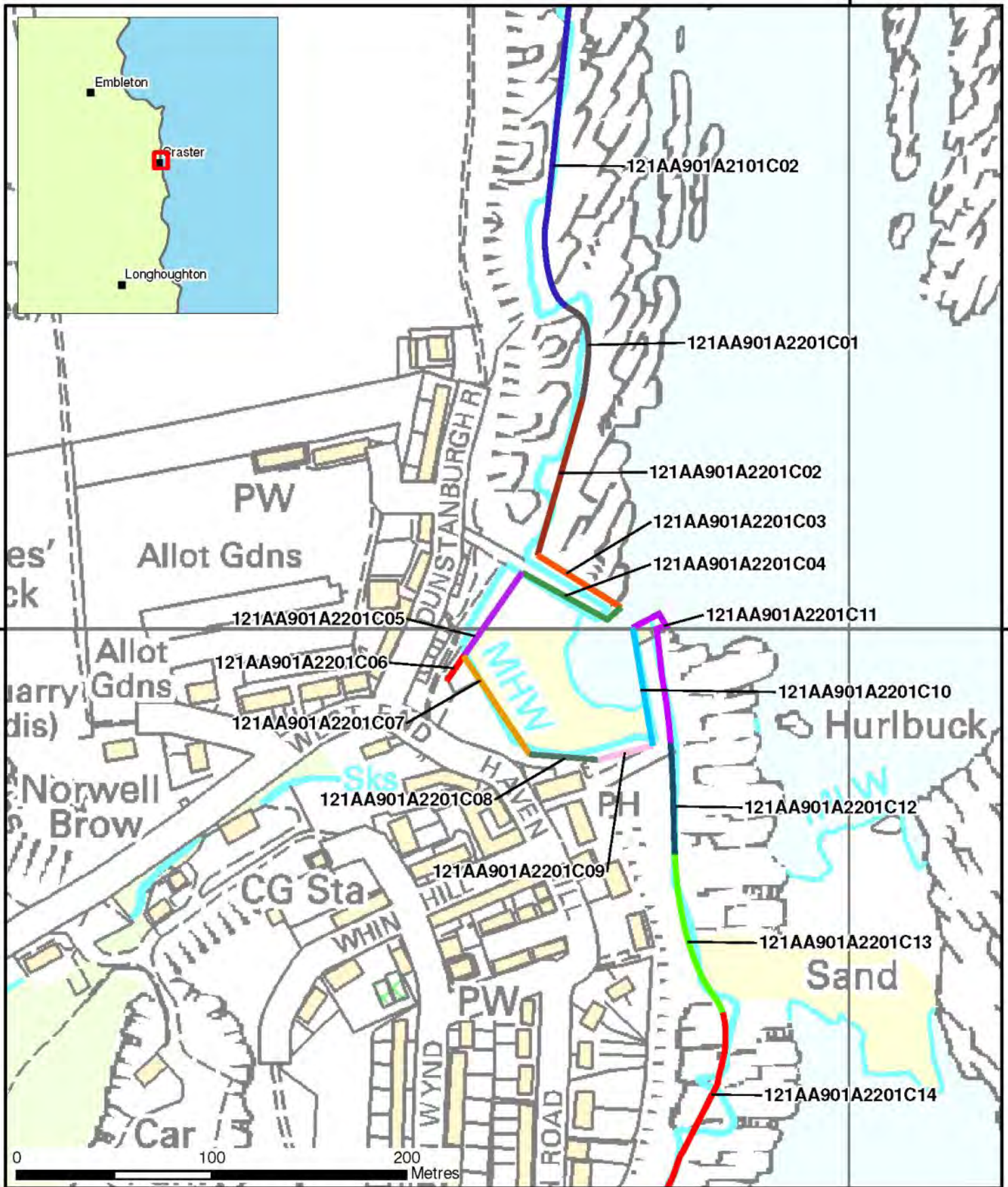
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


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Legend

-  Asset location
-  NFCDD Asset Number

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

**Figure 1 - Map 13
 Northumberland County Council
 Frontage**

Coastal Walkover
 Inspection Report
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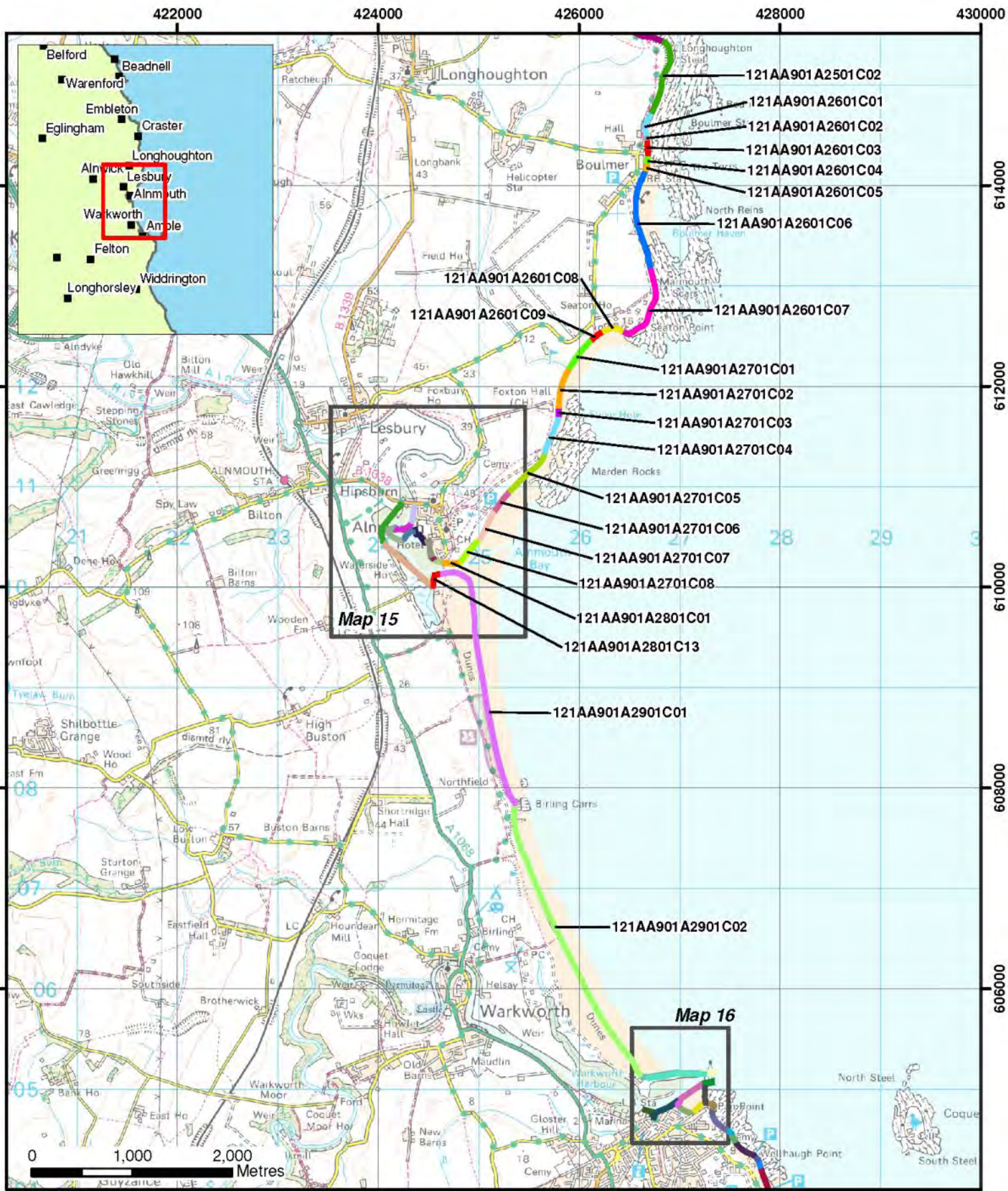
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Legend

- Asset location
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**Figure 1 - Map 14
 Northumberland County Council
 Frontage**

Coastal Walkover
 Inspection Report
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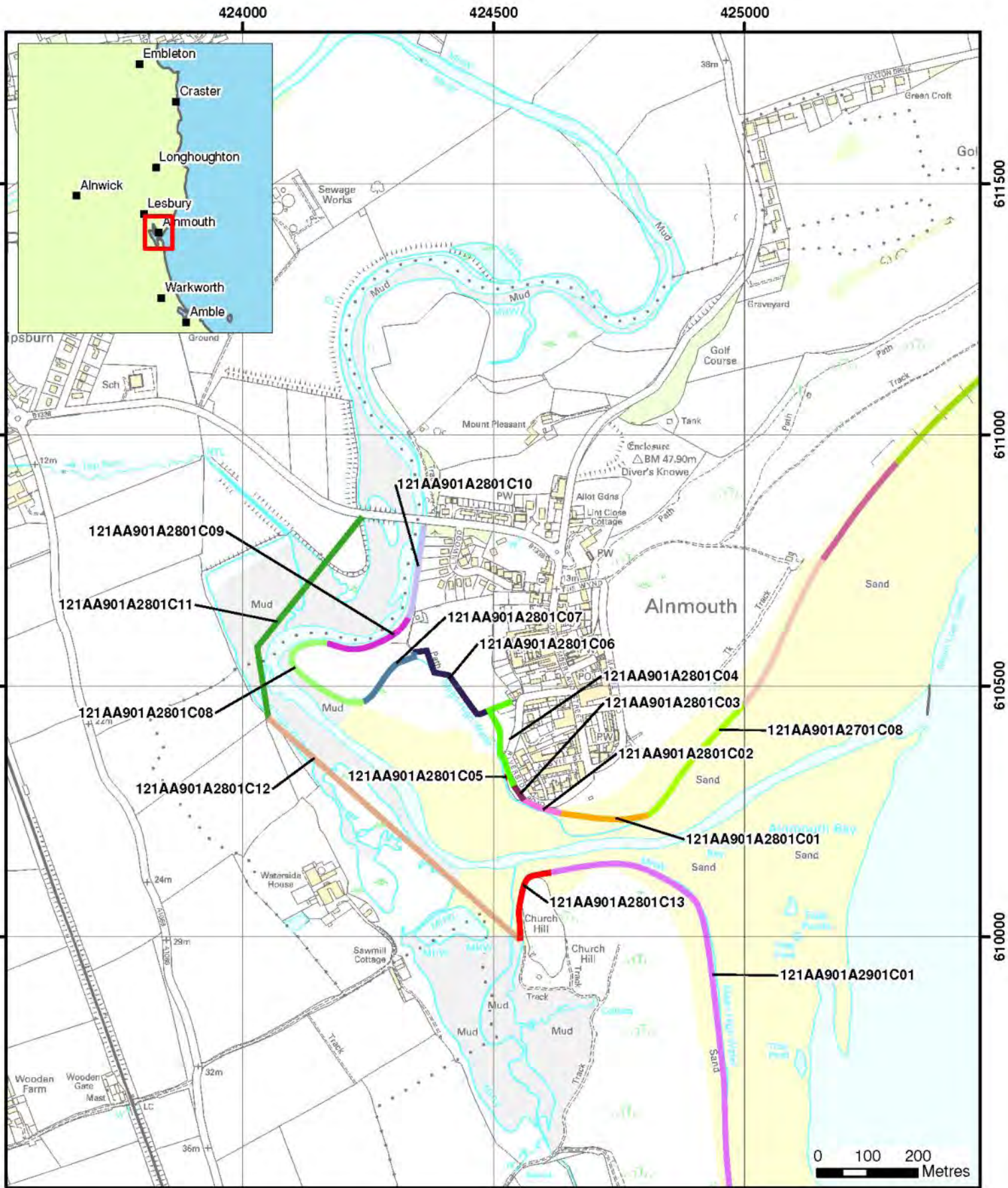
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Figure 1 - Map 15
Northumberland County Council
Frontage

Coastal Walkover
 Inspection Report

Drawing Scale 1:50,000 at A4

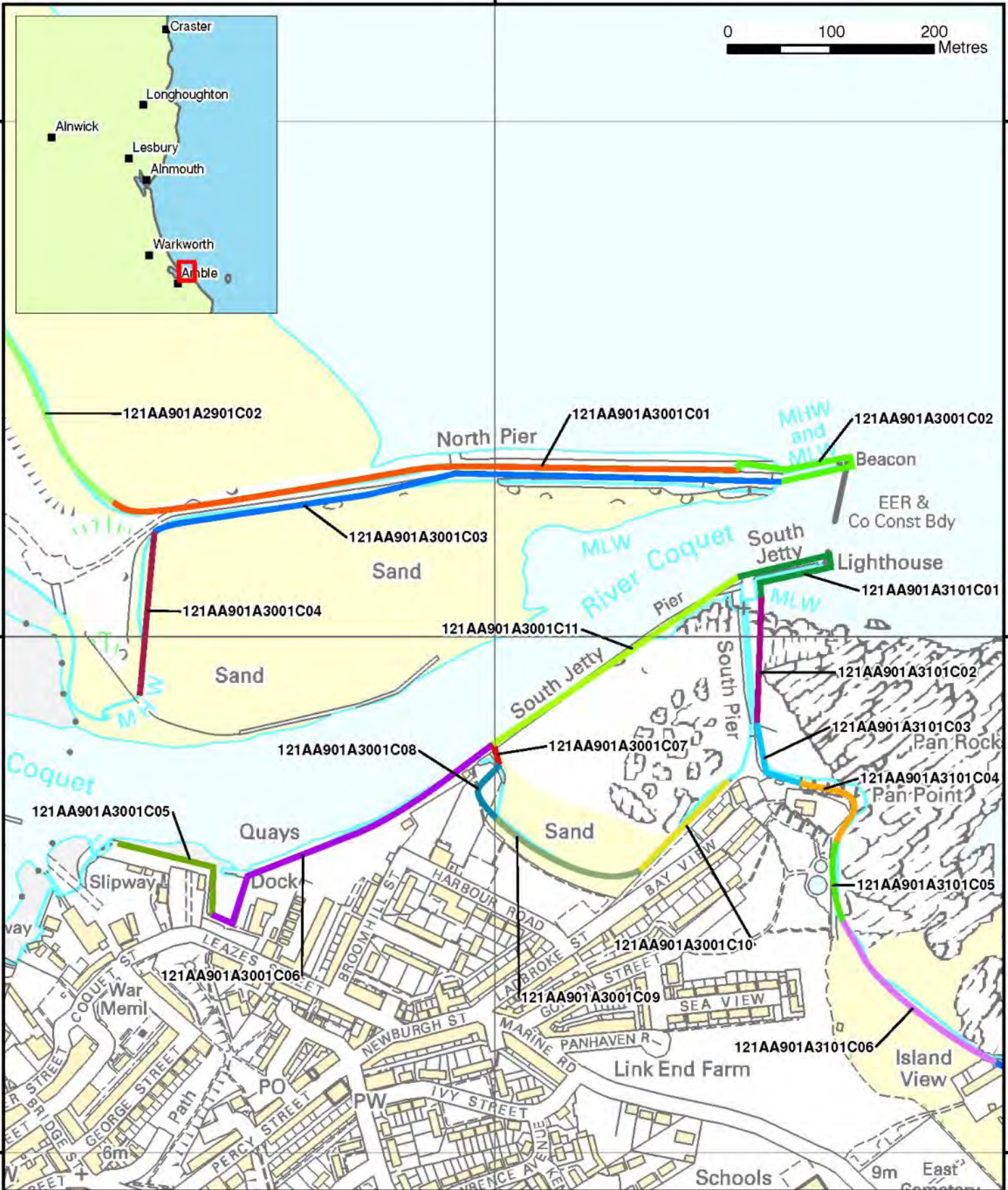
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Asset location

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Figure 1 - Map 16
Northumberland County Council Frontage

Coastal Walkover Inspection Report
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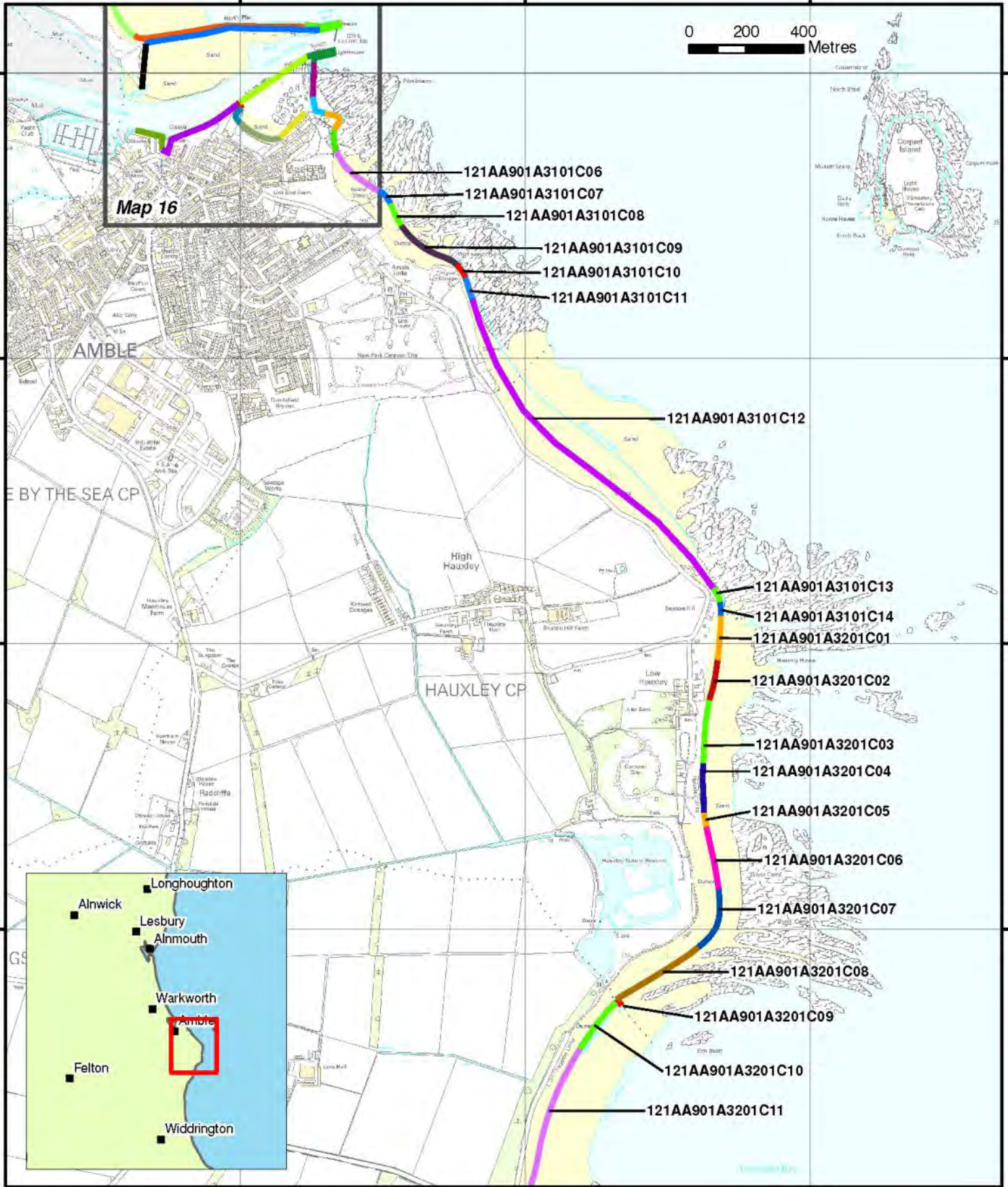
Notes:
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Map 16

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121AA901A3201C01

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121AA901A3201C11



Legend

- Asset location
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Lead Authority: Scarborough Borough Council
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**Figure 1 - Map 17
 Northumberland County Council
 Frontage**

Coastal Walkover
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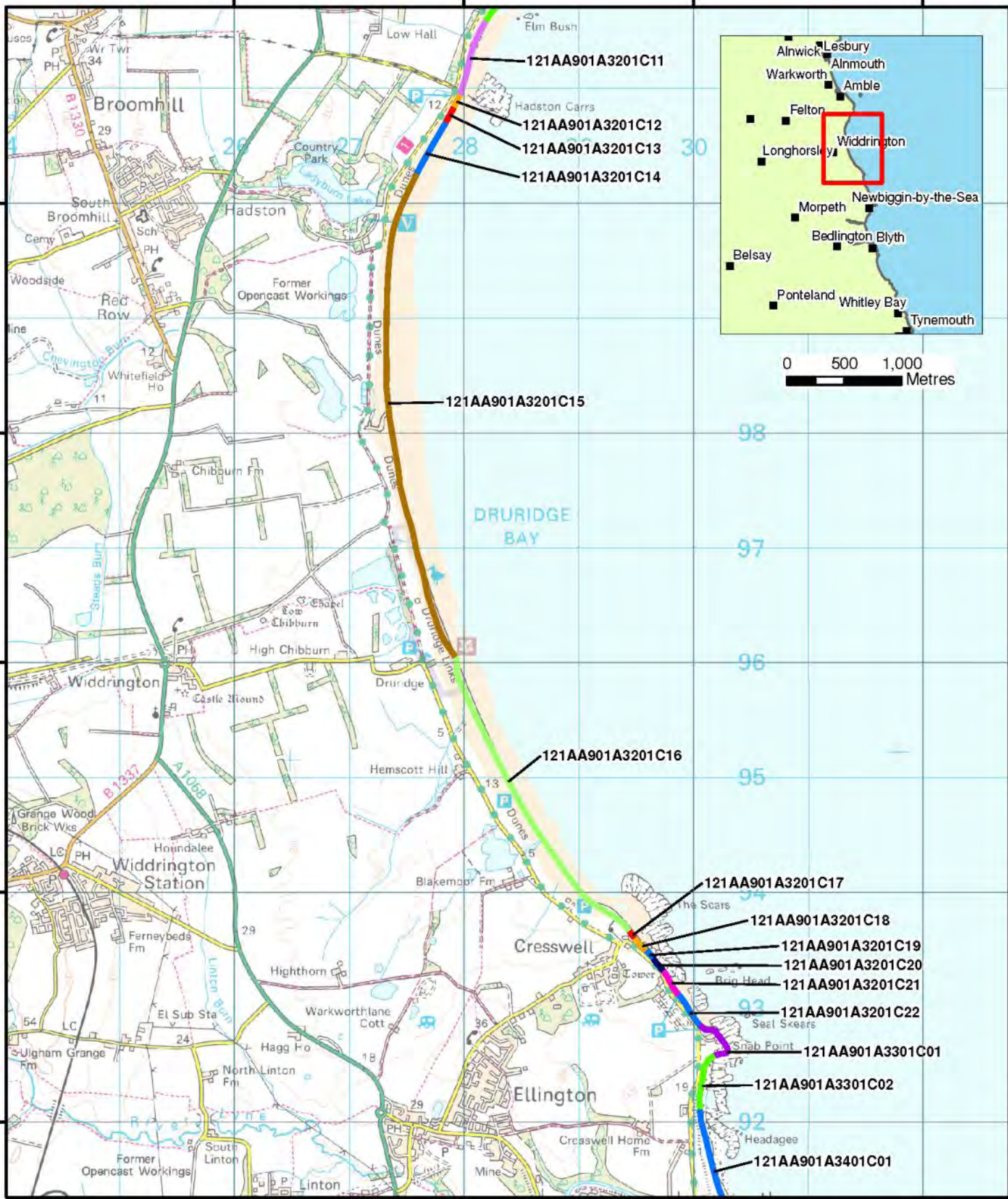
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Legend

-  Asset location
-  NFCDD Asset Number

Lead Authority: Scarborough Borough Council
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**Figure 1 - Map 18
 Northumberland County Council
 Frontage**

Coastal Walkover
 Inspection Report
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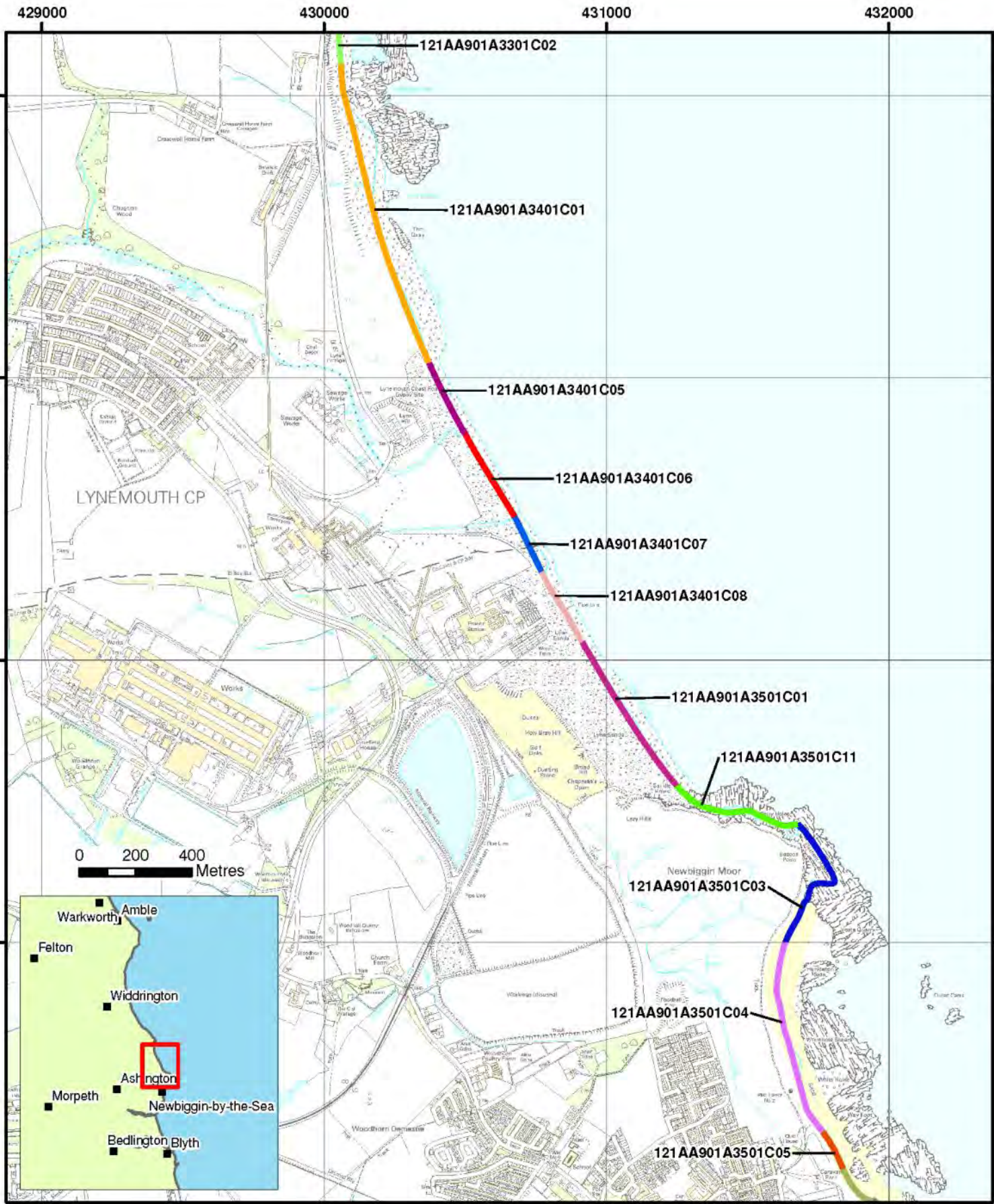
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-  Asset location
-  NFCDD Asset Number

Lead Authority: Scarborough Borough Council
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**Figure 1 - Map 19
 Northumberland County Council
 Frontage**

Coastal Walkover
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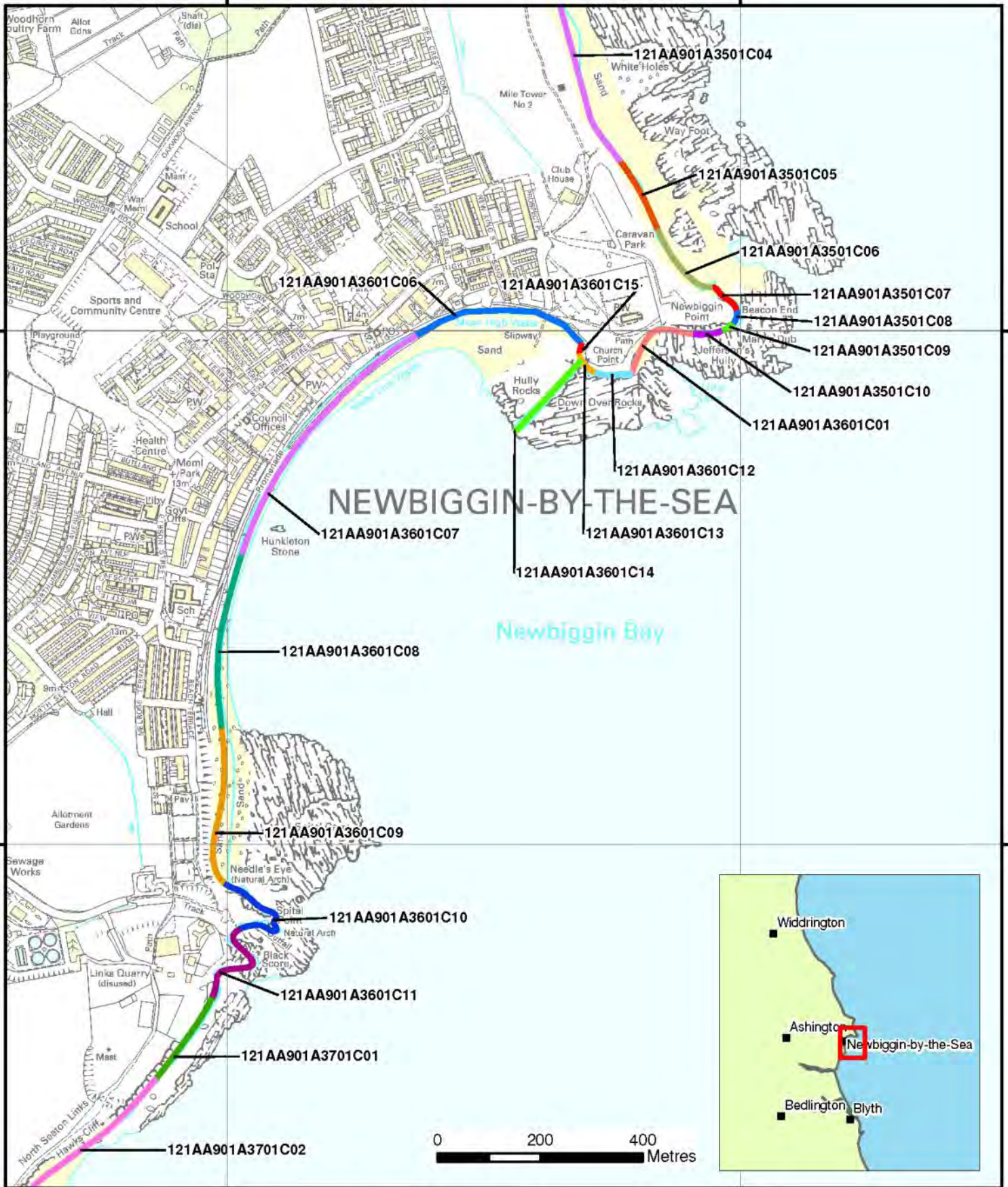


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Legend

- Asset location
- NFCDD Asset Number

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

Figure 1 - Map 20
Northumberland County Council
Frontage

Coastal Walkover
 Inspection Report
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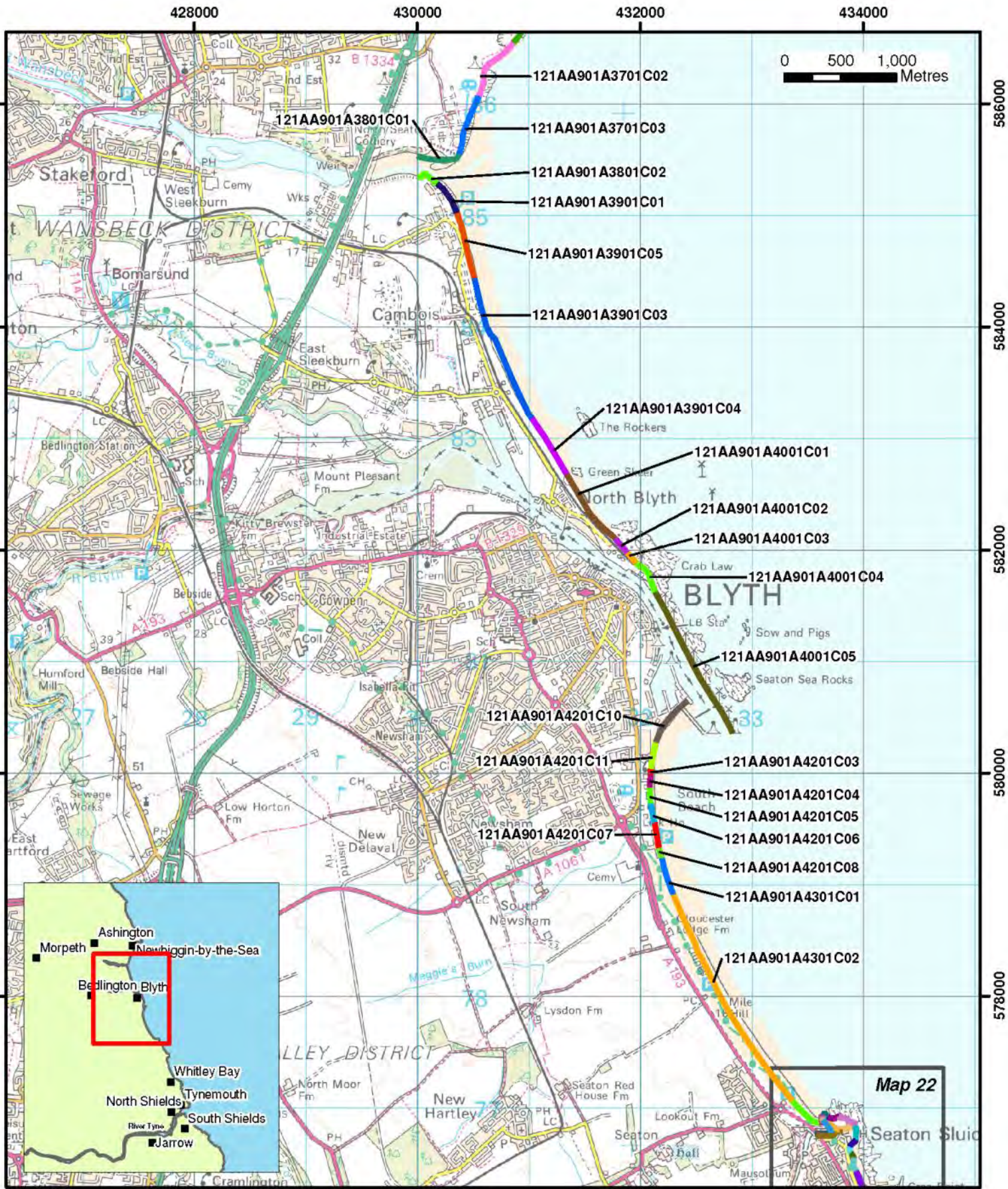
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


Notes:

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Legend

-  Asset location
-  NFCDD Asset Number

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

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

Coastal Walkover
 Inspection Report
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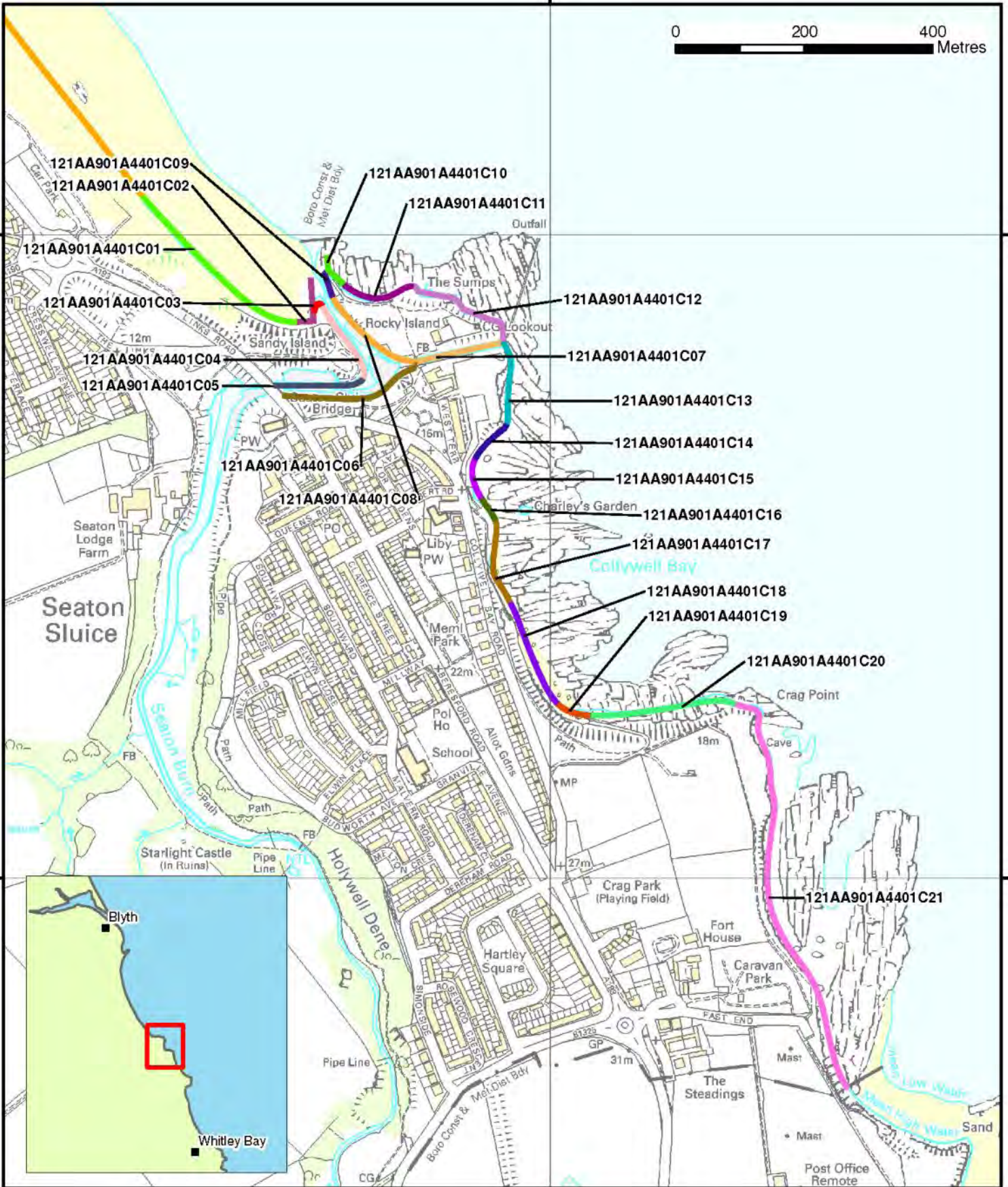
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


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Legend

-  Asset location
-  NFCDD Asset Number

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

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

Coastal Walkover
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Appendix B – Asset Condition & Recommendations

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 0601C01	Cliff	Slumped cliff to scree slope.	531.4	5-Aug-14	Halcrow MS	No change evident from last survey. Relatively stable. Short sections of masonry wall along cliff edge close to collapsing over edge. New footpath, post and wire fencing in very good condition.	2	None.	no repairs	>20
121AA901A 0601C02	Cliff	Steep cliff within bay.	425.2	5-Aug-14	Halcrow MS	No change evident since last survey, Local slumps in softer upper cliff have cut cliff top back close to footpath in small number of areas. Post and wire fencing along foot path in good condition.	3	None.	no repairs	>20
121AA901A 0601C03	Cliff	Slumped cliff with rocky foreshore.	168	5-Aug-14	Halcrow MS	No change evident since last survey. Visible signs of rock fracturing in hard cliff in front of brick building. Future rock falls anticipated. A number of static caravans very close to cliff edge.	3	Monitor cliff falls and alert caravan park as required.	no repairs	>20
121AA901A 0601C04	Cliff	Steep exposed cliff to rocky foreshore.	1374.5	5-Aug-14	Halcrow MS	No change evident since last survey. Stable cliffs protected by wide shore platform.	2	None.	no repairs	>20
121AA901A 0601C05	Cliff	Steep hard cliff with rocky foreshore.	927	5-Aug-14	Halcrow MS	No change evident since last survey.	3	None.	no repairs	>20
121AA901A 0601C06	Cliff	Slumped cliff with narrow beach and rocky foreshore.	278.9	5-Aug-14	Halcrow MS	No significant change since last survey.	3		no repairs	>20
121AA901A 0701C01	Cliff	Steep hard cliff with rocky foreshore. Outfall structure present at the southern end of the defence unit.	709.4	5-Aug-14	Halcrow MS	No change evident since last survey. A local rock fall and areas of slumping in upper soft material were observed in 2010. Hard rock has caves, fissures and overhangs present. An outfall present at south end. Erosion has caused loss of footpath in places.	2	Some realignment of footpath in land may be required.	routine	>20
121AA901A 0701C02	Cliff	Steep cliff above hard base with narrow beach above a rocky foreshore. Small concrete structure at the base of the cliff at the southern end of the defence unit.	690.9	5-Aug-14	Halcrow MS	No significant change since last survey. A small recent rock fall at north end was noted in 2010. Dodd's Well discharges down cliff face towards northern end of frontage. Concrete structure in fair condition. Static caravans within 20m of cliff edge.	2	Monitor erosion and inform holiday park as required.	no repairs	>20
121AA901A 0701C03	Cliff	Steep hard cliff fronting Caravan Park with a rocky foreshore.	176.3	5-Aug-14	Halcrow MS	No significant change apparent since last survey. Very local rock fall at Sharper's Head. Vertical fissures and caves in hard rock. Occasional local slumps in overlaying softer material. Static caravans within 20m of cliff edge.	3	Monitor cliff erosion and notify holiday park as required.	no repairs	>20
121AA901A	Breakwater	Concrete breakwater with stepped	103.5	13-Aug-14	Halcrow	No significant change evident since last	4	Repairs required	urgent	1 - 5

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
0701C04		to inner face, founded to rock.			MS	survey. Damage to crest (holes and cracks are present) and abrasion to all sections, especially seaward end. High beach levels, No undermining or settlement apparent.		at various locations along crest.		
121AA901A 0701C05	Steps	Steep hard cliff with concrete steps giving access to beach.	93.7	5-Aug-14	Halcrow MS	No significant change since previous survey. Upper concrete steps, lower timber steps and hand railing in good/fair condition. Masonry retaining walls in good condition, some repairs evident. Deep caved (1m x 2m x 5m deep) formed at base of cliff.	2	Erosion protection to prevent enlarging of cave and potential collapse.	routine	11 - 20
121AA901A 0701C06	Cliff	Shale and mudstone cliff with sandy beach foreshore. Upper slope is vegetated.	72.9	5-Aug-14	Halcrow MS	No significant change apparent since last survey. Occasional slumps in soft cliff overlaying the harder rock base along the majority of length. Static caravans within 10m of cliff edge.	3	Monitor erosion and advise holiday park as required.	no repairs	>20
121AA901A 0701C07	Apron		61.9	5-Aug-14	Halcrow MS	No change apparent since previous survey. Masonry and concrete retaining walls in fair condition. Increase in beach levels, concrete apron mostly buried. Strandline at toe of steps.	3	Monitor beach levels.	routine	11 - 20
121AA901A 0701C08	Cliff	Steep cliff with concrete stepped access to beach.	47.4	5-Aug-14	Halcrow MS	No change since previous survey. Upper cliffs in good condition, no signs of slips or erosion. Concrete access steps abraded, hand railing in fair condition. Increase in beach levels.	3	None.	no repairs	>20
121AA901A 0701C09	Sea Wall	Concrete wall fronting steep cliff.	100.3	5-Aug-14	Halcrow MS	No change since previous survey. Concrete wall in fair condition, abrasion and spalling of toe. Increase in beach levels, apron partially buried.	3	Monitor beach levels.	no repairs	>20
121AA901A 0701C10	Wall/Apron/ Bank		20.1	5-Aug-14	Halcrow MS	Abrasion and spalling of concrete apron. Ongoing erosion and slumping of soft upper vegetated cliff. Cut back to within a few meters of fence and access road at crest.	3	Monitor erosion and stability of access road.		>20
121AA901A 0701C11	Steps	Steep cliff with step access to beach.	105.6	5-Aug-14	Halcrow MS	No change since previous survey. Concrete steps and hand railing in fair condition, some abrasion and undermining at ramp. Ad-hoc rock armour, narrow beach.	3	Monitor undermining at access ramp.	no repairs	11 - 20
121AA901A 0701C12	Cliff	Steep hard cliff with narrow sandy beach and rocky foreshore.	804.4	5-Aug-14	Halcrow MS	Ongoing erosion and cliffing in upper soft earth cliffs. Cliff top cut-back to fence posts in one area. Post and rail fencing	3	Repairs to fencing along foot path	no repairs	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						missing in many locations.				
121AA901A 0701C13	Dunes	Well vegetated dune with sandy beach in front. Concrete and masonry wall behind.	257.8	5-Aug-14	Halcrow MS	Wide, healthy and well vegetated dunes. New vegetation growth at dune edge. Wide sandy foreshore.	2	None.	no repairs	>20
121AA901A 0701C14	Breakwater	Concrete and masonry breakwater with stepped crest - North face.	719.8	5-Aug-14	Halcrow MS	No significant change since last survey. Refurbishment works undertaken to deck and south face in 2012. Seaward face of breakwater generally in good condition. No inspection of below water elements.	2	Inspection of below water elements.	no repairs.	>20
121AA901A 0701C15	Breakwater	Concrete and masonry breakwater with stepped crest - South face.	735.2	5-Aug-14	Halcrow MS	Refurbishment works undertaken in 2012. New concrete deck and repointing of joints along outer section and new blockwork face at mid-length.	2	Inspection of below water elements.	no repairs.	>20
121AA901A 0801C03	Other	Steel sheet piles with concrete cope including short sections of masonry sea wall and a small dock area.	388.7	5-Aug-14	Halcrow MS	Sheet piles in good condition, some minor corrosion. Minor cracks and spalling along cope and surfacing. Ladders and timber fenders in good. Masonry wall in fair condition, some cracks and movement evident, corrossions to hand railings.	2	Monitor movement in masonry wall. Repair cracks. Replace corroded hand rails.	routine	>20
121AA901A 0801C04	Revetment	Short section of rock revetment.	54.5	5-Aug-14	Halcrow MS	Rock revetment in good condition, armour stones stable with no signs of erosion or movement at the toe. High beach levels burying toe. Structure extended east to slipway c2010.	2	None.	no repairs	>20
121AA901A 0801C05	Sea Wall	Masonry wall with concrete cope fronted by sandy beach.	37.7	5-Aug-14	Halcrow MS	No apparent change since last survey. Some signs of abrasion to masonry wall but wall and concrete capping slab generally in good condition. Wall protected by steep, narrow sand/ single beach with ad-hoc rock/ concrete on foreshore.	3	None.	no repairs	>20
121AA901A 0801C06	Sea Wall	High masonry wall around the Fisher's Fort.	247.8	5-Aug-14	Halcrow MS	No change evident since last survey. Heavy abrasion of masonry toe but no undermining apparent. Previous repairs to stonework and mortar jointing in good condition. Localised evidence of historic cracking.	2	None.	no repairs	>20
121AA901A 0801C07	Sea Wall	Concrete wall.	484.8	5-Aug-14	Halcrow MS	No change since previous survey. Concrete faced masonry wall in fair/ good condition, some cracks/ spalling along cope. Localised undermining and loss of concrete facing and crest apron at west tie-in. Slipway continues to deteriorate	3	Localised repairs to concrete cope and masonry slipway.	routine	11 - 20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						with loss of cobbles.				
121AA901A 0801C08	Bund	Grass embankment fronted by rocky foreshore with shingle beach.	70.3	5-Aug-14	Halcrow MS	No change since previous survey. Narrow but stable steep shingle beach, well vegetated at crest.	2	None.	no repairs	>20
121AA901A 0901C04	Bank and Revetment		519.9	5-Aug-14	Halcrow MS	Continued deterioration of many gabions along toe. Localised corrosion of lower baskets and loss of stone causing settlement/ slumping of crest. Some vegetation growth at northern end. Repairs at south end.	3	Repair/ replace damaged gabions.	urgent	6 - 10
121AA901A 0901C05	Sea Wall	Concrete and masonry quay wall.	58.5	5-Aug-14	Halcrow MS	No apparent change since last survey. Concrete facing to part of masonry wall in fair condition. Localised loss of mortar resulting in large gaps between masonry blocks near flap value.	3	Replace mortar between masonry blocks. Consider extending concrete facing east.	routine	6 - 10
121AA901A 0901C06	Pier	Masonry Pier protecting the small dock where the RNLi Lifeboats launch ramp is located and tipped rock revetment protecting the root of the pier.	158.6	5-Aug-14	Halcrow MS	Significant abrasion to blocks, large gaps between blocks and beneath concrete capping. No undermining of settlement. Localised cracks to concrete capping and exposed reinforcement. Deck and ladders in fair condition. Movement in rock armour at slipway.	3	Concrete repairs to large gaps between blocks, repair cracks in concrete coping.	routine	11 - 20
121AA901A 0901C07	Other	Vertical timber retaining wall.	191.4	5-Aug-14	Halcrow MS	Timber retaining wall in fair condition, some loss of fill at repaired section. Ongoing deterioration of timber jetty and loss of deck boards. Gate unlocked and open. Localised loss of masonry toe at east end, some undermining and onset of outflanking.	3	Secure access gate, replace missing deck boards, repairs to masonry toe	routine	11 - 20
121AA901A 0901C08	Dunes	Well vegetated dune with narrow beach to front.	272	5-Aug-14	Halcrow MS	Wide, well vegetated and stable dunes. Recovery of beach levels, some new vegetation growth along dune toe. Some erosion from pedestrian access.	2	Control pedestrian erosion.	routine	11 - 20
121AA901A 0901C09	Sea Wall	Concrete wall and rock apron.	28.7	5-Aug-14	Halcrow MS	The concrete wall in fair condition, gaps in construction joints at east end. Beach levels relatively low exposing toe at seaward end. Movement evident in ad-hoc rock armour. Previous repairs to the concrete wall remain intact.	3	Monitor beach levels for undermining.	routine	11 - 20
121AA901A 0901C10	Revetment	Concrete revetment with rock armour.	40.2	5-Aug-14	Halcrow MS	Rock armour fronting carpark remains in good condition, some displaced stones along toe. Low beach levels at time of survey. Groynes in poor condition	2	Monitor beach levels.	no repairs	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 1001C01	Wall and rock armour		217.6	5-Aug-14	Halcrow MS	Rock revetment in good condition, some displaced stones along toe. Low beach levels at time of survey. Some localised corrosion and deformation of crest gabions. Structure buried by wind blow sand at north end. Groynes in poor condition.	2	Monitor beach levels, movement of armour along toe and corrosion of gabions.	routine	11 - 20
121AA901A 1001C02	Sea wall	Concrete wave wall with handrails. Stepped access to the promenade.	493.4	5-Aug-14	Halcrow MS	Concrete seawall, hand railings, flap valves, joint sealant and blockwork promenade in good condition. Beach levels relatively high at time of survey.	2	None.	no repairs	>20
121AA901A 1001C03	Sea Wall	Concrete wave wall with handrails. Stepped access to the promenade.	328	5-Aug-14	Halcrow MS	Higher concrete seawall, hand railing and block work promenade in good condition. Repairs to some construction joints good. Localised area of joint sealant missing. Beach levels relatively high. Missing blockwork on promenade steps	2	Replace joint sealant. Repair blockwork surfacing on promenade steps.	routine	>20
121AA901A 1001C04	Revetment	Rock revetment to end of seawall (Defence Code 10b/09/3).	60.1	5-Aug-14	Halcrow MS	No significant change since last survey. Rock armour in good condition, some localised flattening/ displacement of toe rocks fronting seawall. Hand railing and concrete steps in good condition. High beach levels at south end of structure.	2	None.	no repairs	>20
121AA901A 1001C05	Cliff	Vegetated cliffs fronted by rock foreshore/platform.	158.5	5-Aug-14	Halcrow MS	Evidence of significant historic slips in upper soft material along part of cliff with some large rocks on beach. Short section of masonry retaining wall on cliff edge showing signs of some movement and loss of some blocks.	4	Monitor movement of masonry wall at crest.	no repairs	>20
121AA901A 1101C01	Cliff		1665.9	5-Aug-14	Halcrow MS	Some recent localised but large scale rock falls evident.	3	Monitor erosion	no repairs	>20
121AA901A 1101C02	Other		19.9	5-Aug-14	Halcrow MS	Continued deterioration to relic lime kiln and undermining and collapse of rock foundation.	4	Monitor and consider repair or removal if considered unsafe.	no repairs	6 - 10
121AA901A 1101C03	Cliff		204.8	5-Aug-14	Halcrow MS	Some localised rock falls apparent, large rocks on foreshore. Undercutting and slips of vegetation.	3	None.	no repairs	>20
121AA901A 1101C04	Other		134.9	5-Aug-14	Halcrow MS	No significant in change evident in relic masonry lime kiln or concrete outfall structure fronting Sea House.	3	None.	no repairs	>20
121AA901A 1101C05	Cliff		524.3	5-Aug-14	Halcrow MS	Partial erosion and undercutting of upper soft cliffs at south end. Continued	3	None.	no repairs	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						undermining of relic paved track observed.				
121AA901A 1201C01	Dunes		1525.8	5-Aug-14	Halcrow MS	Continued partial erosion and undercutting along the toe of the dunes at the north and south end of frontage. Relic masonry lime kiln at south end in poor condition and liable to collapse.	3	Monitor erosion of dunes/ soft cliffs and safety of relic fort structure.	no repairs	11 - 20
121AA901A 1201C02	Dunes		979.1	5-Aug-14	Halcrow MS	Localised erosion along toe of dunes and slips in face. Some localised regrowth of vegetation on face evident.	2	None.	no repairs	>20
121AA901A 1201C03	Cliff/Dune		1192.5	5-Aug-14	Halcrow MS	Well vegetated wide dune system. Some regrowth of vegetation on face at north end, some localised erosion and cliffing along toe at south end. Narrow foreshore.	3	None.	no repairs	11 - 20
121AA901A 1301C01	Dunes		2387.5	5-Aug-14	Halcrow MS	Wide flat foreshore with well vegetation wide dune system behind. Some embryo dune growth apparent.	2	None.	no repairs	>20
121AA901A 1401C02			1123.2	5-Aug-14	Halcrow MS	Wide well vegetated foreshore with vegetated embankment behind. Minor localised erosion along toe of embankment. Two WWII pill boxes well buried in bank.	2	None.	no repairs	>20
121AA901A 1401C06	Dunes		3138.2	7-Aug-14	Halcrow MS	Wide flat foreshore backed by well vegetated low dune system. Embryo vegetation growth on foreshore continues. Wide Open used by nesting birds in June / July.	2	None.	no repairs	>20
121AA901A 1401C07	Floodbank					asset replaced by 121AA901A1401C98				
121AA901A 1401C08	Dunes					asset replaced by 121AA901A1401C98				
121AA901A 1401C10	Ross South Dunes/Sea Defence			7-Aug-14	Halcrow MS	Well vegetated earth bank in good condition. North end sheltered by vegetated spit. No signs of erosion of toe. Fronted by wide healthy salt marsh, narrowing in south.	2	None.	no repairs	>20
121AA901A 1401C11	Ross South Dunes/Sea Defence			7-Aug-14	Halcrow MS	No significant change since last survey. Well vegetated earth slope fronted by wide healthy saltmarsh, narrowing in south.	3	None.	no repairs	>20
121AA901A 1401C13	Seawall		121.6	7-Aug-14	Halcrow MS	No change since previous survey. Healthy, stable foreshore with no signs of erosion at the toe of structure. Concrete	3	None	no repairs	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						retaining wall in fair condition with some vertical cracking but no movement evident. Outfall structure in fair condition.				
121AA901A 1401C14	Revetment		32.8	7-Aug-14	Halcrow MS	Wide flat and well vegetated foreshore backed by grouted stone revetment. Revetment heavily vegetated. Some erosion at west end and displacement of stones.	3	Repair displaced stones along toe at east end.	routine	>20
121AA901A 1401C15	Sea Wall		110	7-Aug-14	Halcrow MS	Narrow silty foreshore backed by low concrete seawall along toe of vegetated embankment. Timber toe erosion protection in poor condition but no undermining evident. Poor quality finish of concrete but no movement apparent.	3	None.	no repairs	11 - 20
121AA901A 1401C16	Revetment		141.7	7-Aug-14	Halcrow MS	Narrow silty channel bed backed by rip-rap along vegetated embankment. No undermining at toe, angular stone densely packed. Some minor displacement of stones and vegetation along crest but no settlement observed.	3	None.	routine	>20
121AA901A 1401C17	Sheet Piling		17.2	7-Aug-14	Halcrow MS	Sheet piles to east side of sluice remain in good condition. Some minor rusting apparent. Previous survey reported piles having been repainted in 2008.	2	None.	no repairs	11 - 20
121AA901A 1401C18	Sluice Gate		6.7	7-Aug-14	Halcrow MS	Sluice gates in good condition. Previous survey reported that the gates were cleaned and repainted in 2008. Gates, ladders and hand railing in good condition.	2	None.	routine	11 - 20
121AA901A 1401C19	Sheet Piling		59.5	7-Aug-14	Halcrow MS	Sheet piles to west side of sluice remain in good condition. Some rusting apparent. Previous survey reported piles having been repainted in 2008.	2	None.	routine	11 - 20
121AA901A 1401C20	Revetment		181.9	7-Aug-14	Halcrow MS	Rip rap stone revetment along well vegetated embankment. Some displaced stones along toe. Movement at toe causing some settlement and gaps along crest, initially noted in 2008 but has not worsened.	3	Monitor settlement of structure.	no repairs	>20
121AA901A 1401C21	Slope		1445.5	7-Aug-14	Halcrow MS	Wide flat mudflats backed by salt marsh and heavily vegetated embankment. Some saltpan formation and minor erosion along edge of marsh evident. Previously noted loosely tipped rock at	2	None.	no repairs	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						corner where frontage turns inland to Ross not observed.				
121AA901A 1401C22	Revetment		283.4	7-Aug-14	Halcrow MS	Wide flat and well vegetated foreshore backed by grouted stone revetment. Vegetation growth along much of revetment but no or erosion at toe evident.	3	Remove vegetation from revetment.	routine	11 - 20
121AA901A 1401C23	Slope/Bank		4504.9	6-Aug-14	Halcrow MS	Wide well established salt marsh backed by vegetated coastal slopes. No change evident since last survey. Patchy shingle foreshore at south end. Timber retaining wall by Fenham Mill not observed.	2	None.	no repairs	>20
121AA901A 1401C24	Slope/Bank		2181.9	6-Aug-14	Halcrow MS	Wide well established salt marsh backed by vegetated coastal slopes. No change evident since last survey.	2	None.	no repairs	>20
121AA901A 1401C25	Slope/Bank		1076.4	6-Aug-14	Halcrow MS	Wide vegetation mudflats backed by well vegetated high dune ridge. Minor localised erosion at toe and one historic blowout at north end. Mudflats remain in reasonable condition.	2	None.	no repairs	>20
121AA901A 1401C26	Slope		245.6	7-Aug-14	Halcrow MS	Wide flat foreshore backed by well vegetated sand spit. No significant change since last survey.	2	None.	no repairs	>20
121AA901A 1401C27	Revetment		125.5	7-Aug-14	Halcrow MS	Wide flat foreshore backed by grouted stone revetment and well vegetated embankment. Some cracking at north end. Localised but significant undermining and breakup of structure at south end. Breaching of embankment south of structure.	4	Repair structure at south end. Extend structure south to protect breach.	urgent	1 - 5
121AA901A 1401C28	Slope		136.4	7-Aug-14	Halcrow MS	Wide sandy foreshore backed by well vegetated embankment. Brea of embankment at north end. High beach levels at toe, occasional rip-rap stone visible but largely buried.	4	Repair breach to embankment.	Urgent	1 - 5
121AA901A 1401C29	Revetment		616.9	7-Aug-14	Halcrow MS	Wide sandy foreshore backed by grouted stone revetment and vegetated embankment. Lowering of foreshore and undermining of toe along south end of structure. Some minor horizontal cracking and localised broken sections along toe.	3	Fill void along toe, repair cracks.	Routine	11 - 20
121AA901A 1401C30	Slope		72.2	7-Aug-14	Halcrow MS	Wide well vegetated foreshore backed by heavily vegetated embankment.	2	None.	no repairs	>20
121AA901A			1895.9		Halcrow	Stable and well vegetated dunes and	2	None.	no	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
1401C31					MS	wide salt marsh foreshore. No significant recent change apparent.			repairs	
121AA901A 1401C98	Embankment - Cockly Knowes	Embankment with stone and asphalt reveted toe fronting lower-lying area of Ross.	1270.4	6-Aug-14	Halcrow MS	Wide and well vegetated salt marsh and backed by heavily overgrown pitched stone flood embankment. Some loss of binding resulting in gaps between stones.	2	Remove vegetation, fill gaps between stones	routine	>20
121AA901A 1401C99	Dunes - Guile Point	Natural 'spit' of dunes, separated from Ross Point by wide opening.	1542.9	6-Aug-14	Halcrow MS	Inland-facing side of dune spit well vegetated and stable with one minor area of erosion. Seaward face showing some historic erosion and slumping along most of its length. Recent regrowth of vegetation along foreshore.	3	Monitor erosion of seaward face.	routine	>20
121AA901A 1501C02	Wall		137.5	12-Aug-14	Halcrow MS	Wide flat silty foreshore backed by masonry retaining wall protecting private gardens. Continued collapse of wall along part of length. Horizontal gaps opening along base of wall suggesting settlement. Some displaced stones along crest.	5	Re-build masonry wall.	urgent	<1
121AA901A 1501C03	Slope		222.8	7-Aug-14	Halcrow MS	Wide silty foreshore with narrow saltmarsh and well vegetated earth embankment. Minor erosion to edge of wide salt marsh. Some dumped rubble and more substantial rock armouring adjacent to properties.	3	None.	no repairs	>20
121AA901A 1501C04	Revetment		429.8	7-Aug-14	Halcrow MS	Wide flat foreshore and narrow by health saltmarsh fronting open stone revetment and masonry wall along road embankment. Revetment heavily vegetated with some large gaps between stones. No movement apparent.	2	Remove vegetation from revetment	routine	11 - 20
121AA901A 1501C05	Slope		326.7	7-Aug-14	Halcrow MS	Flat narrow silty foreshore with healthy salt marsh, narrowing at north end. Some minor erosion along edge. Heavily vegetated coastal slope with no erosion evident. Some mature trees close to foreshore edge.	2	None.	no repairs	>20
121AA901A 1501C06	Slope		1581.1	7-Aug-14	Halcrow MS	Wide sandy beach backed by high well vegetated dunes. Partial erosion and slumps along much of the dune face. Some erosion of vegetation due to uncontrolled pedestrian access. Partial collapse of relic concrete pier and ongoing loss of retained fill.	4	Monitor dune face erosion. Control pedestrian erosion. Monitor safety of pier	routine	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 1501C07	Cliff		1448.7	7-Aug-14	Halcrow MS	Rock ledges backed by narrow sandy beaches and high vegetated earth cliffs. Some localised minor erosion along toe.	2	None.	no repairs	>20
121AA901A 1501C08			315.5	7-Aug-14	Halcrow MS	Flat silty foreshore backed by saltmarsh and well vegetated embankment. No erosion of embankment evident.	2	None.	no repairs	>20
121AA901A 1601C02	Dunes		868.5	7-Aug-14	Halcrow MS	Wide sandy foreshore fronting wide well vegetated dune system. Significant erosion, cliffing and cutback along most of the dune toe. Some regrowth of vegetation along toe at south end.	3	Monitor erosion	no repairs	11 - 20
121AA901A 1601C03	Dunes		1191.9	7-Aug-14	Halcrow MS	Rock outcrops protecting a wide sandy foreshore backed by wide well vegetated dune system. Some localised and ongoing erosion along toe of dunes at south end. New vegetation growth along toe.	2	None.	no repairs	>20
121AA901A 1601C04	Dunes		982.5	7-Aug-14	Halcrow MS	Wide sandy foreshore fronting wide well vegetated dune system. Significant erosion, cliffing and cutback along most of the dune toe.	3	Monitor erosion.	no repairs	11 - 20
121AA901A 1601C05	Dunes		2215.5	7-Aug-14	Halcrow MS	Wide sandy foreshore backed by wide stable well vegetated dune system. Some historic erosion of toe and face along most of frontage. Vegetation regrowth on upper beach.	2	None.	no repairs	>20
121AA901A 1701C02	Wall		20.1	7-Aug-14	Halcrow MS	High concrete blockwork retaining wall founded on rock foreshore. Structure well founded, no undermining evident. Missing concrete coping along north end of toe. Some settlement, rotation and cracking evident in upper blocks where adjoining masonry wall.	3	Replace coping along toe. Monitor movement in upper blocks.	Routine.	>20
121AA901A 1701C03	Wall		17.6	7-Aug-14	Halcrow MS	Concrete toe well founded on rock foreshore. No undermining. Abrasion and gaps between masonry evident in main masonry wall however previous survey reported no obvious deterioration since 2008.	3	Repoint gaps between masonry.	routine	> 20
121AA901A 1701C04	Wall		18.3	7-Aug-14	Halcrow MS	High concrete blockwork retaining wall founded on rock foreshore. Structure well founded, no undermining evident. Abrasion of concrete blocks beneath toe coping.	3	None.	routine	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 1701C05	Wall		37	7-Aug-14	Halcrow MS	Concrete seawall founded on rock foreshore. Limited inspection limited due to difficult access to foreshore and behind crest due to RNLI property. Wall appears sound with no obvious movement or cracking.	3	Access to RNLI property for more detailed inspection.	no repairs	>20
121AA901A 1701C06	Wall		53.7	7-Aug-14	Halcrow MS	Concrete seawall founded on rock foreshore. Significant horizontal crack/spalling visible on both sides of wall at crest. Previous surveys suggest this may not have deteriorated since 2008. Toe of wall appears to be well founded on rock foreshore. Remainder of wall in fair/ good condition.	3	Repair cracks.	Urgent	11 - 20
121AA901A 1701C07	Wall/Revetment		277.1	12-Aug-14	Halcrow MS	Main harbour pier founded on rock foreshore. Abrasion, cracks and scour holes in seaward face, largest holes repaired by harbour master. Some movement in rock armour. Crest wall in fair condition, repairs sound. No cracks in bitumen surfacing.	3	Repair scour holes in seaward face, repair void and seaward end.	urgent	11 - 20
121AA901A 1701C08	Wall		47.1	12-Aug-14	Halcrow MS	Localised undermining at seaward end of pier reported by harbour master. Scour hole 1-1.5m deep. Remaining wall in good condition with only minor cracks and staining. No cracks in surfacing. Hand railing and ladders in fair condition.	4	Undertake dive survey of below water elements. Fill large void at toe.	Urgent	6 - 10
121AA901A 1701C09	Wall		169.2	12-Aug-14	Halcrow MS	Heavy abrasion and cracking along full length inner face. Some large holes developing. Large horizontal cracks along coping. Previous concrete repairs in poor condition. Timber coping and ladders in fair condition. New hand railing at east end.	4	Repairs to abrasion and holes.	urgent	6 - 10
121AA901A 1701C10	Breakwater		95.1	12-Aug-14	Halcrow MS	Abrasion, loss of mortar between masonry, some larger gaps. Localised loss of mortar beneath timber cope. Small cracks in concrete wall. Some movement in rock armour, smaller stones added at crest. Timber coping and concrete surfacing in good condition.	3	Repoint joints and fill gaps between blocks.	routine	>20
121AA901A 1701C11	Wall		78.3	12-Aug-14	Halcrow MS	Concrete wall in good condition. Some minor vertical cracking. Joint sealant, timber cope and ladders in good	2	None.	no repairs	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						condition.				
121AA901A 1701C12	Wall		37.8	12-Aug-14	Halcrow MS	Masonry walls in fair/good condition, minor loss of some mortar. Wall well founded on rock foreshore. Some undercutting at end of slipway. hand railing in good condition.	3	Repair to mortar joints, monitor undercutting of slipway.	routine	>20
121AA901A 1701C13	Wall		85.4	12-Aug-14	Halcrow MS	Masonry wall in fair/good condition. Some weathering of blocks and loss of mortar to masonry sections. Concrete section of wall in good condition. Timber coping, ladders and surfacing in fair/good condition.	3	Repairs to mortar joints.	routine	>20
121AA901A 1701C14	Wall		62	12-Aug-14	Halcrow MS	Concrete wall in good condition, some localised undercutting at toe. Masonry wall in fair/good condition, some weathering of blocks, loss of mortar and possible localised movement on south face. Timber coping, ladders and surfacing in fair/good condition.	3	Monitor undercutting. Monitor possibly movement in masonry, repoint joints.	routine	>20
121AA901A 1701C15	Wall		88.2	7-Aug-14	Halcrow MS	Some abrasion of masonry blocks. Repairs to joints undertaken c2009, joints now in good condition. Foreshore levels remain high at north end, no signs of undermining.	2	None	no repairs	>20
121AA901A 1701C16	Wall		41.5	7-Aug-14	Halcrow MS	Concrete sea wall in good condition. No erosion evident in grass slope behind. Healthy beach levels along toe, some vegetation growth at east end. Minor undercutting of concrete apron fronting steps continues, likely due to storm water run-off from road.	1	Monitor undercutting of concrete apron.	no repairs	>20
121AA901A 1701C17	Wall		43	7-Aug-14	Halcrow MS	Vertical concrete seawall well founded on rock foreshore, no obvious cracking or signs of deterioration. Sealant to expansion joints replaced recently and in good condition. No erosion evident in grass bank above wall.	2	None.	no repairs	>20
121AA901A 1701C18	Wall		99	7-Aug-14	Halcrow MS	Recurve concrete seawall well founded on rock foreshore. Joint sealant in good condition. No signs of cracking or deterioration.	2	None.	no repairs	>20
121AA901A 1701C19	Revetment		166.1	7-Aug-14	Halcrow MS	Rock foreshore backed by rock cliffs and vegetated slope. Tipping of boulders to control erosion. No recent erosion	3	Monitor erosion.	no repairs.	11 - 20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						evident.				
121AA901A 1701C20			127.1	12-Aug-14	Halcrow MS	Concrete breakwater generally in good condition. Toe well founded on rock foreshore, no signs of cracks, abrasion or spalling. New security gate.	2	None.	no repairs	>20
121AA901A 1701C21	Breakwater		124.3	12-Aug-14	Halcrow MS	Some localised abrasion, cracking and spalling along lower structure. Upper concrete crown wall in good condition, small vertical cracks. Wall well founded on rock foreshore, no signs of movement or scour.	2	Repair cracks	routine	>20
121AA901A 1701C22	Cliff		874.6	7-Aug-14	Halcrow MS	Partial ongoing erosion of low vegetated upper cliffs along entire frontage. Some vegetation regrowth. Localised undermining of rock cliffs and recent localised rock falls at the south end of the frontage.	3	None.	no repairs.	11 - 20
121AA901A 1701C23	Dunes		1895.2	12-Aug-14	Halcrow MS	Continued partial erosion of upper earth cliffs at north end. Narrow vegetated ridge adjacent to lakes liable to breach. Wide, stable and well vegetated dunes at south end, narrow cobble toe with localised erosion and cliffing, some vegetation regrowth	3	None.	no repairs	6 - 10
121AA901A 1701C24	Dunes		685.6	12-Aug-14	Halcrow MS	Well vegetated and wide dune system appears stable. Narrow sandy foreshore. Historic erosion and cliffing along face appears to have stabilised with some vegetation regrowth evident.	3	Monitor erosion.	routine	11 - 20
121AA901A 1701C25	Wall		27	4-Aug-14	Halcrow MS	Masonry blockwork wall well founded on rock foreshore. Heavy abrasion of blocks and some localised cracks. Mortar in good condition. Outflanking of wall at south end and some missing blocks.	3	Repair missing blocks at south end.	routine	>20
121AA901A 1701C26			30.2	4-Aug-14	Halcrow MS	Hard rock lower cliffs, well vegetated soft upper cliffs with some historic erosion evident. Shingle foreshore levels relatively high.	3	None.	no repairs	>20
121AA901A 1701C27	Wall		61.6	4-Aug-14	Halcrow MS	Some minor vertical and horizontal cracking in concrete seawall. No erosion of vegetated bank above. Minor erosion of embankment at south end causing some outflanking. Wide cobble berm	3	None.	no repairs	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						along toe.				
121AA901A 1701C28	Cliff		238.3	4-Aug-14	Halcrow MS	Rock ledges on foreshore backed soft upper cliffs with partial erosion and undercutting evident along most of the frontage.	4	Monitor erosion.	no repairs	6 - 10
121AA901A 1701C29	Bank		103.8	4-Aug-14	Halcrow MS	Rock ledges on foreshore backed by soft cliffs showing with partial erosion along most of the frontage.	4	Monitor erosion.	no repairs	11 - 20
121AA901A 1701C30	Cliff		95.8	4-Aug-14	Halcrow MS	Rock foreshore backed by high soft cliffs with crest well vegetated. Erosion and cliffing along most of the frontage. Previous tipping of garden and building waste over garden gate not observed. No immediate risk to properties.	3	Monitor erosion.	routine	11 - 20
121AA901A 1701C31	Wall		36.9	4-Aug-14	Halcrow MS	Rock foreshore with narrow shingle/ rubble ridge along toe of precast concrete retaining wall. Minor cracking, spalling and some rust staining evident at north end of wall. No signs of movement or undermining.	2	None.	no repairs	>20
121AA901A 1701C32	Slope		26.1	4-Aug-14	Halcrow MS	Rock foreshore with narrow shingle/ rubble ridge and low partially vegetated earth bank fronting private drive. Ongoing erosion, cliffing, undermining and cutback along most of bank. Continued informal tipping of building rubble evident. Risk to property.	4	Consider formal defenses to replace tipped material	urgent	1 - 5
121AA901A 1701C33	Wall		35.7	4-Aug-14	Halcrow MS	Rock foreshore with narrow shingle/ rubble ridge and low vegetated earth bank fronting masonry wall. No movement or gaps in wall. Ongoing erosion and cutback of earth bank to within 1m of toe. Earth bank behind is well vegetated.	2	Remove vegetation from behind wall.	no repairs	>20
121AA901A 1701C34	Wall		60.7	4-Aug-14	Halcrow MS	Narrow shingle/ rubble ridge along toe of concrete blockwork wall. Toe well buried, no apparent movement or obvious deterioration to blockwork or joints. Minor spalling beneath coping. Post and rail fence behind wall in good condition.	2	None.	no repairs	>20
121AA901A 1701C35	Wall		37.1	4-Aug-14	Halcrow MS	Narrow shingle/ masonry ridge fronting lower concrete and masonry wall. Abrasion, horizontal cracking and missing	3	Repair mortar joints. Repair missing concrete	routine	11 - 20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						sections of concrete toe apron. Abrasion to most masonry blocks, some mortar joints missing, mortar repairs along crest in good condition. No overtopping damage to road behind.		along toe.		
121AA901A 1701C36	Wall		79	4-Aug-14	Halcrow MS	Low rock foreshore backed by higher masonry wall. Low shingle foreshore exposing undercutting and abrasion of concrete toe. Masonry blocks in lower wall very worn, gaps between many blocks and hole at north end. No evidence of overtopping damage. Outfall missing flap valve.	4	Repair mortar joints. Replace missing blocks. Localised underpinning of toe.	urgent	6 - 10
121AA901A 1701C37	Wall		76	4-Aug-14	Halcrow MS	High shingle foreshore backed by lower masonry wall. Masonry blocks and joints in fair/ good condition. Some limited mortar loss. Some displaced coping stones at south end. Some vegetation growth on foreshore.	3	Repair mortar joints. Replace coping stones.	routine	11 - 20
121AA901A 1701C38	Cliff		160.3	4-Aug-14	Halcrow MS	Rocks ledges on foreshore backed by low rock cliffs with vegetation along crest. Some localised erosion along soft upper cliffs.	2	None.	no repairs	>20
121AA901A 1701C39	Gabions		87.2	4-Aug-14	Halcrow MS	Steep narrow shingle foreshore with gabions and well vegetated earth bank behind. Gabions remain in poor condition with most lower baskets burst. Upper gabions in fair condition. No undermining evident, gabions buried at south end. Localised erosion of earth bank at north end.	4	Replace lower gabions.	routine	6 - 10
121AA901A 1701C40	Gabions		81.4	4-Aug-14	Halcrow MS	Wide shingle beach backed by gabions and private gardens. Gabions mostly buried by high shingle levels. Some distortion and corrosion to seaward gabions. No erosion apparent to gardens.	2	Monitor condition of gabions.	no repairs	11 - 20
121AA901A 1701C41	Gabions		27	4-Aug-14	Halcrow MS	Narrow shingle ridge fronting gabions and private gardens. Works being undertaken to increase height of structure by adding additional row of gabions. Corrosion and distortion of gabions at south end. Toe of gabions well buried.	2	Replace corroded gabions.	routine	11 - 20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 1701C42	Revetment		38.1	4-Aug-14	Halcrow MS	High shingle ridge with precast concrete block revetment and private gardens behind. No obvious deterioration to blocks, some minor vegetation grown in joints and at toe. Minor loss of mortar at north end. Small crack at back of steps. No erosion to gardens.	2	None.	no repairs	>20
121AA901A 1701C43	Cliff		250.3	4-Aug-14	Halcrow MS	Rock ledges and boulder foreshore backed by steep rock cliffs. No significant change since last survey. Evidence of localised historic collapse.	2	None.	no repairs	>20
121AA901A 1701C44	Slope		322.7	4-Aug-14	Halcrow MS	Inclined rock ledges backed by low well vegetated dunes. Some partial toe erosion evident along west end. Localised ad-hoc placement of boulders to prevent erosion only partially effective. Properties located 10-15m behind foreshore at risk.	3	Consider formal erosion defence.	no repairs	11 - 20
121AA901A 1701C45	Revetment		68.4	4-Aug-14	Halcrow MS	Shingle foreshore backed by grouted stone wall and revetment. Some gaps between stones, vegetation growth on revetment. Some cracks along toe wall and minor undermining. Loss of short section of blocks at west end.	3	Remove vegetation. Repair undermined toe wall. Re-grout gaps.	routine	11 - 20
121AA901A 1701C46	Wall		62.5	4-Aug-14	Halcrow MS	Shingle foreshore burying toe of rocks. Rock armour angular, well interlocked and stable. Some rocks displaced along toe. Localised deformation and corrosion to buried gabions. Masonry lime kiln structure behind crest in good condition.	2	Monitor movement of toe armour.	no repairs	>20
121AA901A 1701C47	Wall		24.2	13-Aug-14	Halcrow MS	Masonry wall, concrete crest wall and concrete apron in fair/ good condition. Some minor loss of grout, one small void above toe at seaward end. Concrete repairs along crest appear good. New concrete pavement in good condition.	2	Replace missing grout. Fill void.	no repairs	>20
121AA901A 1701C48	Wall		58.2	13-Aug-14	Halcrow MS	Lower masonry wall in good condition, no movement evident. New concrete crest wall (c2001) in good condition, joint sealant good, minor vertical cracks at joints. Rock armour stable, no signs of movement, boulder foreshore covering toe.	2	None.	no repairs	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 1701C49	Wall		31.2	13-Aug-14	Halcrow MS	Stepped masonry outer wall in good condition. Some historic slumping of blocks, no gaps between blocks evident. Mortar repairs and new concrete decking in good condition. Low foreshore levels has resulted in undercutting and deep horizontal voids along most of leeward toe.	3	Fill voids along toe.	routine	11 - 20
121AA901A 1701C50	Wall		18.7	13-Aug-14	Halcrow MS	Concrete breakwater in good condition, no signs of movement. Localised undermining of toe apron at seaward end. Ladders in fair/ good condition.	3	Monitor undermining.	routine	>20
121AA901A 1701C51	Wall		82.7	13-Aug-14	Halcrow MS	Recently rebuilt masonry quay wall (c2001) in good condition. No obvious deterioration to stone or concrete elements. Some localised undercutting at toe, believe to be due to historic maintenance dredging activities. Deck in good condition.	2	Monitor undercutting at toe	no repairs	>20
121AA901A 1701C52	Pier		111.7	13-Aug-14	Halcrow MS	Localised undercutting and gaps along toe of masonry wall resulting in slight displacement of some blocks. No gaps evident between blocks. Spalling of concrete coping along most of the length. Undercutting and partial collapse of grouted stone revetment protecting beach access steps.	3	Fill voids along toe. Repair revetment.	routine	>20
121AA901A 1701C53	Cliff		330	4-Aug-14	Halcrow MS	Wide flat foreshore backed by wide well vegetated dunes. Some localised historic erosions along dune face but vegetation regrowth evident. Erosion at east end partly controlled by tipped rock.	2	Monitor erosion	no repairs	>20
121AA901A 1701C54			515.8		Halcrow MS	Rock foreshore backed by concrete block wall and grassed embankment. No undermining at toe, some minor vertical cracks and missing grout under coping blocks. Missing coping at east end and overtopping damage to bank. Some outflanking at west end.	2	Repoint gaps under coping. Erosion protection at west end.	routine	>20
121AA901A 1801C01	Dunes		1027.1	4-Aug-14	Halcrow MS	Wide flat sandy beach with high vegetated dunes behind. Beach levels high along toe of dunes. Signs of historic erosion of face but none recent, some vegetation regrowth along toe.	2	None.	no repairs	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 1901C01	Dunes	Vegetated dunes in front of Newton Links. Wide sandy foreshore forming south end of Beadnell Bay, with rock outcrops to south	2415.7	7-Aug-14	Halcrow MS	Sandy beach and boulders at south end fronting very well vegetated wide sand dunes. No sign of erosion. Historic localised erosion on dune face but some vegetation regrowth. No assets at risk.	2		no repairs	>20
121AA901A 1901C02	Dunes	Vegetated dunes with rocky foreshore, forming small bay	1061.4	7-Aug-14	Halcrow MS	Wide sandy beach with rock slabs at headlands, backed by wide low very well vegetated sandy dunes. Strand line some distance from toe, localised historic erosion, cliffing and cutback along dune face, some new vegetation regrowth on foreshore.	2	None.	no repairs	>20
121AA901A 2001C01	Coastal Slope	Natural vegetated coastal slope with sandy beach and a rocky foreshore	1012	7-Aug-14	Halcrow MS	Rock slabs on foreshore backed by wide well vegetated soft earth slopes coastal. Signs of minor erosion along toe. Previous surveys reported good growth of dune adjacent to Low Newton defence.	2	None.	no repairs	>20
121AA901A 2001C02	Sea Wall	Low concrete wall in front of wide sandy beach. Backed by amenity area of Low Newton by the Sea	68.6	7-Aug-14	Halcrow MS	Concrete wall and ramp fronted by wide sandy beach and well vegetated bank. Some cracks in wall and localised spalling at joints. No cracks evident in ramp. Toe of wall and ramp well buried by high beach levels. Vegetation growth along toe of wall.	3	None.	routine	>20
121AA901A 2001C03	Dunes	Vegetated dunes at back of wide sandy beach at south end of St Mary's Haven	621.8	7-Aug-14	Halcrow MS	Wide sandy beach backed by well vegetated high sand dunes. Historic erosion and cliffing along much of dune frontage. Some vegetation regrowth. Relic anti-tank blocks at headland largely buried.	3	None.	no repairs	>20
121AA901A 2001C04	Dunes	Vegetated dunes with wide sandy beach forming Embleton Bay	2239.4	7-Aug-14	Halcrow MS	Wide sandy beach with occasional rock slabs backed by well vegetated high sand dunes. No recent erosion evident at toe.	2	None.	no repairs	>20
121AA901A 2001C05	Coastal Slope	Natural vegetated coastal slope with sandy / rocky foreshore	843.1	7-Aug-14	Halcrow MS	Cobble foreshore backed by low well vegetated sand dunes. No signs of erosion.	2	None.	no repairs	>20
121AA901A 2101C01	Coastal Slope	Gentle coastal slope & foreshore	852.6	8-Aug-14	Halcrow MS	Rocky foreshore backed by well vegetated low coastal slopes. No change.	2	None.	no repairs	>20
121AA901A 2101C02	Coastal Slope	Rocky coastal slope & foreshore	1297	8-Aug-14	Halcrow MS	Well vegetated stable coastal slopes protected by rocky foreshore. No change.	2	None.	no repairs	>20
121AA901A 2201C01	Embankment	Earth embankment fronted by rocky foreshore	52.5	8-Aug-14	Halcrow MS	Rocky foreshore backed by well vegetated low coastal. Outfall and	2	None.	no repairs	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						manhole in fair/ good condition and well founded on rock. Some concrete repairs around manhole.				
121AA901A 2201C02	Sea Wall	Low, near vertical masonry wall at back of rock platform foreshore.	83.1	8-Aug-14	Halcrow MS	Concrete and masonry wall well founded on rock foreshore. No movement apparent. Some loose capping stones, missing mortar and gaps between blocks evident. Repairs to mortar in good condition.	2	Repointing to masonry.	routine	11 - 20
121AA901A 2201C03	Sea Wall	Outer wall of northern harbour arm. Near vertical concrete encased masonry wall, extending above the deck of the arm.	50.3	11-Aug-14	Halcrow MS	Heavy abrasion along toe of wall. Undermining of toe apron at seaward end. Localised spalling along crest wall. Full height vertical crack at seaward end also apparent on inside face. Concrete deck in fair condition, some cracks and loss of surface material, numerous repairs.	3	Monitor undermining and full height vertical crack.	routine	>20
121AA901A 2201C04	Sea Wall	Inner wall of northern harbour arm. Vertical masonry face with concrete capping beam & deck.	59.2	11-Aug-14	Halcrow MS	Concrete quay wall remains in fair condition, some abrasion and exposure of aggregate along lower wall. Various cracks. Full height crack at seaward end through to seaward face. Ladders in poor condition. Concrete cope in fair condition, some loss of surfacing to deck.	3	Monitor full height vertical crack.	routine	>20
121AA901A 2201C05	Sea Wall	Near vertical wall, seems to be masonry encased in concrete, founded on raised rock. Silty/ sandy foreshore & roadway immediately behind	52.1	11-Aug-14	Halcrow MS	Wall well founded on rock foreshore. Minor cracks and repairs in concrete wall. Rendering in good condition.	3	None.	routine	11 - 20
121AA901A 2201C06	Other	Concrete slipway over natural coastal slope in corner of harbour, with cobble foreshore.	15.5	11-Aug-14	Halcrow MS	Slipway and edge wall in good condition, no movement evident. Minor abrasion. Slight undermining at toe. Washout and deep void along south edge. Shingle beach levels level with toe.	3	Repair deep void.	urgent	11 - 20
121AA901A 2201C07	Coastal Slope	Natural cobbled slope & foreshore.	60.6	11-Aug-14	Halcrow MS	No significant change since last survey. Sandy beach backed by shingle ridge and well vegetated crest.	2	None.	no repairs	>20
121AA901A 2201C08	Sea Wall	Vertical masonry seawall, founded on rock,, with cobble foreshore & road & properties immediately behind.	35.5	11-Aug-14	Halcrow MS	Masonry wall remains in fair/good condition. No movement or loss of masonry, some large gaps between blocks along lower wall. Previous repairs to pointing along crest wall appears good.	3	Repoint wall.	routine	11 - 20
121AA901A	Cliff	Hard rock cliff, rising to the east,	30	11-Aug-14	Halcrow	Rocky foreshore with stable rock cliffs	1	None.	no	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
2201C09		with little foreshore.			MS	above. Well vegetated crest. Some few loose rocks on foreshore. No significant change since last survey.			repairs	
121AA901A 2201C10	Sea Wall	Inner face of southern harbour arm. Near vertical concrete face & deck.	61.4	11-Aug-14	Halcrow MS	Concrete quay wall in fair condition. No movement evident. Heavy abrasion and spalling along lower wall and at construction joints. Some gaps between joints. Possible undermining at seaward end, not accessible. Recent repairs to cracks in desk. Timber cope in poor condition.	3	Investigate undermining at seaward end. Repair abraded concrete.	routine	>20
121AA901A 2201C11	Sea Wall	Outer face of southern harbour arm. Near vertical concrete encased masonry, with rock foreshore	86.1	11-Aug-14	Halcrow MS	Wall well founded on rock foreshore. No signs of movement, some minor gaps along base. Some full height cracks, small void at bottom of southern crack. Spalling of facing concrete on inner/outer face of crest wall.	3	Repair void, monitor cracks, repair abraded concrete.	routine	>20
121AA901A 2201C12	Sea Wall	Concrete harbour wall with rocky foreshore	57.4	11-Aug-14	Halcrow MS	No change evident since last survey. Concrete wall well founded on rock foreshore. No signs of movement or undermining. Some minor cracks and abrasion. Various concrete repairs appear sound.	3	None.	no repairs	>20
121AA901A 2201C13	Revetment	Rock revetment toe to steep earth bank with properties close to the crest.	85.8	8-Aug-14	Halcrow MS	Wide rocky foreshore with rock armour protecting well vegetated coastal slope. Rock armour angular, well interlocked and stable. Vegetation along toe. No erosion evident in slope.	2	None.	no repairs	>20
121AA901A 2201C14	Revetment	Rock revetment providing toe protection to an earth embankment. Rock foreshore. Concrete outfall down the embankment and along the foreshore.	157.7	8-Aug-14	Halcrow MS	Rock foreshore stable with no significant change since last survey. Low coastal slope well vegetated with no signs of erosion. Concrete outfall in fair/good condition.	2	None.	no repairs	>20
121AA901A 2201C15	Coastal Slope	Steep vegetated coastal slope with rock revetment at the toe, fronted by rocky foreshore. Evidence of rock gabions behind the rock revetment.	266.9	8-Aug-14	Halcrow MS	Wide rocky foreshore backed by low well vegetated coastal slopes. No signs of erosion.	2	None.	no repairs	>20
121AA901A 2301C01	Cliff	Low gentle cliff & rocky foreshore	790	8-Aug-14	Halcrow MS	Wide sloping rock foreshore backed by well vegetated coastal slope. No signs of erosion.	2	None.	no repairs	>20
121AA901A 2301C02	Coastal Slope	Sandy slope & stony / rocky foreshore.	314.7	8-Aug-14	Halcrow MS	Stable rocky foreshore with shingle beach backed by high rock cliffs. Some localised	2	Repair fencing. Monitor	routine	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						undercutting of cliffs and rock falls at back of bay. Damage to post and wire fencing, likely due to bird watchers.		undercutting of cliffs.		
121AA901A 2401C01	Cliff	Low rock cliff with wide rock foreshore. Forms a slight bay between Cullernose Point and Howick village	750	8-Aug-14	Halcrow MS	No significant change since last survey. Wide rocky foreshore with boulders backed by high well vegetated coastal slopes. Continued evidence of localised erosion along toe. Localised rock falls. No properties at risk.	3	None.	no repairs	>20
121AA901A 2401C02	Cliff	Low rock cliff with wide rock foreshore. Forms a slight headland south of Howick village	1070	8-Aug-14	Halcrow MS	Sloping rocky foreshore backed by high well vegetated coastal slopes. No signs of erosion. Masonry wall forming seawall boundary to property in good condition.	2	None.	no repairs	>20
121AA901A 2501C01	Cliff	Well vegetated dune system behind beaches. Headland cliffs control bays. Foreshore is mixture of rock platforms with sandy/stony beaches within smaller bays.	2325.6	8-Aug-14	Halcrow MS	Narrow rocky foreshore backed by high well vegetated coastal slopes. Partial erosion of toe and undercutting of soft vegetated slopes along most of frontage. Heavy abrasion, loss of mortar and rotation of low masonry wall. Some loss of mortar in high masonry wall. No assets at risk.	3	Remove low masonry wall. Repoint high masonry wall. Monitor erosion of slopes.	routine	>20
121AA901A 2501C02	Coastal Slope	Low rock cliffs / slope, with wide rock foreshore forming headland	791.7	8-Aug-14	Halcrow MS	Narrow rocky foreshore backed by low well vegetated coastal slopes. Partial erosion along toe of slopes at north end. Accretion and vegetation re-growth on foreshore at south end. No assets at risk	3	Monitor erosion.	no repairs	>20
121AA901A 2601C01	Coastal Slope	Natural vegetated coastal slope with a sandy / rocky foreshore.	236.1	8-Aug-14	Halcrow MS	Narrow sandy foreshore backed by well vegetated high sandy slopes. Partial erosion at toe and cliffing along most of slope. Some vegetation re-growth on foreshore. One building and boundary wall within a few meters of cliff edge at risk.	4	Monitor erosion. Consider formal erosion protection.	urgent	6 - 10
121AA901A 2601C02	Revetment - Boulmer	Concrete block revetment at toe of earth embankment, with wide rock/sandy foreshore.	40	8-Aug-14	Halcrow MS	Narrow sandy beach with concrete block revetment and private garden at crest. Blocks in poor condition but structure stable, additional rock armour added along crest and at south end.	3	Monitor wall for movement and outflanking.	routine	11 - 20
121AA901A 2601C03	Embankment	Low sand/earth embankment with wide sandy beach.	160.2	8-Aug-14	Halcrow MS	Narrow sandy beach backed by low vegetated embankment. New rock armour revetment along north end. Loosely placed rock at toe mostly buried. Evidence of partial erosion of bank along much of frontage. Ad-hoc tipping of	4	Monitor ongoing erosion. Consider formal erosion protection.	urgent	6 - 10

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						building waste continues but proves only partially effective. Properties within 10-20m of slope at risk.				
121AA901A 2601C04	Revetment	Rock revetment providing toe protection to earth embankment.	81.5	8-Aug-14	Halcrow MS	Narrow sandy foreshore with shingle ridge and large rock armour revetment. Rocks angular, well packed and stable Buried along toe. No erosion evident along crest. Properties within 5m of crest.	3	None.	no repairs	11 - 20
121AA901A 2601C05	Revetment	Large concrete blocks placed at toe of earth/sand embankment.	75	8-Aug-14	Halcrow MS	Narrow sandy foreshore with shingle ridge and concrete block revetment. Blocks abraded and in poor condition, some movement evident. Rock armour at crest stable. Toe of structure partially buried. One block displaced on foreshore. No sign of erosion of vegetated slope.	3	Monitor stability of structure	no repairs	6 - 10
121AA901A 2601C06	Coastal Slope	Vegetated natural coastal slope with a wide sandy beach & rock outcrops.	1000.8	8-Aug-14	Halcrow MS	Wide sandy beach backed by low well vegetated dunes. Evidence of some localised erosion and cliffing of dunes. Cracking and settlement of end section of concrete outfall.	3	Monitor erosion to dunes. Repair or remove outfall.	routine	11 -20
121AA901A 2601C07	Cliff	Low gentle rock cliff/slope with wide rock foreshore, forming a headland.	830	8-Aug-14	Halcrow MS	Narrow sandy beach fronting high well vegetated dunes. Partial erosion and slipping of along much of toe. Static caravans within 10m of cliff edge may be coming at risk.	3	Monitor ongoing erosion, liaison with caravan park as necessary.	no repairs	11 - 20
121AA901A 2601C08	Embankment	Low vegetated embankment at northern end of embayment, with wide sandy beach & shingle at back.	228	8-Aug-14	Halcrow MS	Narrow rocky foreshore backed by high well vegetated dunes. Partial erosion and slips in dune face along most of frontage. Cobble toe with some vegetation on foreshore. Strand line at toe.	3	Monitor erosion	no repairs	11 - 20
121AA901A 2601C09	Other	Concrete access steps through embankment, with rock armour toes protection forming an apron. Wide sandy beach in front.	140	8-Aug-14	Halcrow MS	Narrow sandy beach with concrete steps and rock armour backed by high vegetated slopes. Erosion and outflanking to both sides of structure. Rock armour angular, loosely packed but stable. Concrete steps and hand railings in in good condition. Previous undermining of bottom step not apparent.	3	Monitor outflanking. Consider extending rock armour on north side.	no repairs	11 - 20
121AA901A 2701C01	Cliff	Relatively high clay cliffs with shingle at toe, & wide sandy beach. Cliff falling to the south. Whaw Burn discharges at south end	360	8-Aug-14	Halcrow MS	Narrow sandy beach backed by high vegetated slopes. Partial erosion and slippage off slope along most of frontage although vegetation regrowth apparent. Cliff top path remains closed. Golf course at risk.	4	Monitor ongoing erosion.	no repairs	11 - 20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 2701C02	Coastal Slope	Vegetated slope/bank, with shingle margin at base & wide sandy beach in front. South of Whaw Burn	416.3	8-Aug-14	Halcrow MS	Wide sandy foreshore with steep shingle ridge backed by high well vegetated coastal slope. No erosion evident.	2	None.	no repairs	>20
121AA901A 2701C03	Coastal Slope	Natural coastal slope with extensive rock foreshore with deteriorating breakwater structure.	79.5	8-Aug-14	Halcrow MS	Wide sandy beach with narrow shingle ridge backed by low coastal slopes and private gardens. No erosion evident. Vegetation re-growth on foreshore. Rock groyne disintegrating at seaward end, significant displacement of rock at seaward end.	3	Monitor erosion and potential beach change as breakwater/ groyne deteriorates.	no repairs	11 - 20
121AA901A 2701C04	Embankment	Vegetated earth bank with shingle/cobbles at toe with extensive rock foreshore & sandy beach.	397.7	8-Aug-14	Halcrow MS	Rock foreshore backed by high well vegetated earth bank. Partial erosion along toe at northern end with some full height localised slips evident. Vegetation growth on foreshore at south end.	3	Monitor erosion.	no repairs	>20
121AA901A 2701C05	Revetment	Large concrete blocks forming toe of vegetated dunes, with wide sandy beach in front. Small groyne field within beach.	520	8-Aug-14	Halcrow MS	Wide sandy beach backed by low well vegetated dunes. Ongoing but localised erosion and cliffing of dune at north end and undermining of post and wire fence. Groynes well buried, some gaps and missing planks.	3	Erosion protection required at north end. Repair groynes.	routine	6 - 10
121AA901A 2701C06	Embankment	Variety of protection types for toe of earth bank including concrete blocks, rock gabions and rubble.	242.7	8-Aug-14	Halcrow MS	Wide sandy beach backed by concrete blocks and low well vegetated earth bank north of carpark. Partial erosion and cliffing along most of frontage. Concrete blocks well buried. Tipping of construction waste ongoing. Golf course at risk.	3	Monitor erosion.	none	11 - 20
121AA901A 2701C07	Dunes	Vegetated dunes leading into the mouth of the Aln. Wide sandy beach divided by the outflowing river.	330	8-Aug-14	Halcrow MS	Wide sandy beach backed by concrete blocks, well vegetated earth bank and a car park. Blocks well buried. Some vegetation growth on foreshore. No erosion evident along bank.	3	None	None.	6 - 10
121AA901A 2701C08	Dunes	Low sand dunes fronted by wide sandy beach	290	8-Aug-14	Halcrow MS	Wide sandy beach backed by concrete blocks along toe of high well vegetated dunes. Partial erosion and cliffing along most of dune face. Concrete blocks well buried. Some blocks dislodged from dune face.	3	Monitor erosion of dune face.	routine	11 - 20
121AA901A 2801C01	Dunes	Vegetated dunes with sandy beach	170	8-Aug-14	Halcrow MS	Wide well vegetated dunes backed by road and properties. Localised erosion of dune face at north end. Good vegetation growth on foreshore.	2	None.	no repairs	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 2801C02	Sea Wall	Masonry wall with a concrete toe fronting vegetated dunes with road and residential properties behind	78.5	8-Aug-14	Halcrow MS	Masonry wall generally in good condition, some minor abrasion of blocks and localised loss of mortar. Vertical cracks and signs seaward rotation of central section. Toe well buried at north end, low beach levels at south end but no signs of undermining.	3	Monitor movement of central section.	no repairs	>20
121AA901A 2801C03	Sea Wall	Low masonry wall fronting Vegetated bank with a road and residential properties behind. In front of the wall is a mixture of rubble and concrete debris.	34.9	8-Aug-14	Halcrow MS	Masonry wall fronting boat club in good condition, some minor cracks in mortar evident. No signs of movement. All concrete coping slabs in good condition. Low beach levels at central section but no undermining. Cable visible across foreshore. Rubble arm protecting slipway.	2	Monitor beach levels at toe.	no repairs	>20
121AA901A 2801C04	Sea Wall	Low masonry wall providing protection to a children's play area	208.1	8-Aug-14	Halcrow MS	Masonry wall fronting playground in good condition, some minor cracks in mortar evident. No signs of movement. All concrete coping slabs in good condition. High foreshore levels and well vegetated at north end.	2	None.	no repairs	>20
121AA901A 2801C05	Access Ramp	Concrete access ramp fronting residential properties	10	8-Aug-14	Halcrow MS	Concrete boat ramp in good condition, minor spalling along seaward edge. No signs of cracking or undercutting of toe. Vehicle security barrier to River Aln Boat Club in good condition.	2	None.	no repairs	>20
121AA901A 2801C06	Sea Wall	Masonry wall with higher land behind fronted by saltmarsh. Walkway on top of the wall.	230.9	8-Aug-14	Halcrow MS	Masonry wall heavily abraded with loss of mortar and large gaps between blocks along most of length. Recent collapse of upper section of wall along most of south end. Footpath diverted. Slight evidence of rotational movement at north end.	4	Repair upper section of wall. Repoint and replace missing blocks.	urgent	6 - 10
121AA901A 2801C07	Embankment	Low earth bank fronted by saltmarsh	148.4	8-Aug-14	Halcrow MS	Wide well vegetated foreshore backed by low vegetated bank. No significant change evident since last survey. Saltmarsh in good condition, some localised erosion evident along toe.	2	Monitor erosion.	no repairs	11 - 20
121AA901A 2801C08	Embankment	Saltmarsh to slightly higher land forming control point in estuary	263.1	8-Aug-14	Halcrow MS	No significant change since last survey. Some improvement to saltmarsh but continued slow erosion.	2	None.	no repairs	>20
121AA901A 2801C09	Embankment	Earth embankment	184.8	8-Aug-14	Halcrow MS	Ongoing significant erosion and undercutting of low vegetated banks along entire length of frontage. Collapse of some sections of bank.	4	Monitor erosion.	no repairs	6 - 10

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 2801C10	Sea Wall	Low masonry wall to edge of estuary. Walkway at the crest of the wall.	186	8-Aug-14	Halcrow MS	Masonry wall abraded with missing masonry blocks and capping at south end. Localised loss of mortar beneath capping blocks. Historic settlement of central section causing open joints/ cracks, recent loss of material behind wall causing small pot hole to open in foot path.	4	Rebuild central section of wall. Repoint.	urgent.	6 - 10
121AA901A 2801C11	Flood Plain	Vegetated flood plain	476	8-Aug-14	Halcrow MS	No significant change evident since last survey.	3	None.	no repairs	>20
121AA901A 2801C12	Flood Plain	vegetated flood plain	667.9	8-Aug-14	Halcrow MS	Wide healthy salt marsh. No significant change since last survey.	2	None.	no repairs	>20
121AA901A 2801C13	Sea Wall	Low masonry wall fronting a vegetated bank that is church hill	174	8-Aug-14	Halcrow MS	Continued washout of backfill resulting in collapse of central section of wall. Partial localised settlement at south end with full height cracks through mortar joints evident. Some outflanking and displaced blocks south end. Beach levels high at north end.	5	Rebuild failed section of wall, replace missing blocks, repoint joints.	urgent	1 - 5
121AA901A 2901C01	Dunes	Partly vegetated dunes with wide sandy beach in front, forming central section of Alnmouth Bay.	2620	8-Aug-14	Halcrow MS	Wide sandy beach backed by concrete blocks and high well vegetated dunes. Dunes generally stable and well vegetated. Localised active and widespread erosion and slumping of dunes at north end. Concrete blocks not providing effective protection. Some erosion of central and south dune face.	3	Monitor erosion.	routine	11 - 20
121AA901A 2901C02	Dunes	Partly vegetated dunes with wide sandy beach in front, forming south section of Alnmouth Bay & running down to Amble. Concrete cubes along northern section fronting Birling Links.	3016.2	8-Aug-14	Halcrow MS	Dunes in the most northerly section stable over short length. At concrete blocks (relic tank defence) dunes are actively eroding, in places exposed underlying clay. South of concrete blocks, dunes more stable, very healthy in most southerly section.	3	Dune management.	routine	>20
121AA901A 3001C01	Breakwater	Harbour arm with rock armour inner & outer faces & concrete walkway on crest.	610.5	9-Aug-14	Halcrow MS	Rock armour appears stable with no change in profile, minor displacement of rock at toe, no major voids evident. No signs of damage to concrete blocks and masonry slope which appear stable. Concrete crest in good/fair condition, no signs of settlement, spalling or cracking.	3	Monitor.	no repairs	>20
121AA901A 3001C02	Sea Wall	Concrete/masonry extension to pier, accommodating the navigation beacon	195.1	9-Aug-14	Halcrow MS	Large voids in concrete face. Section of concrete deck missing. Full height crack and displacement of seaward 5m section.	5	Repair to end section needed, but no coast	urgent	6 - 10

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						Full height vertical crack in south face continuing through deck with displacement evident. Safety risk to fishermen.		protection benefit.		
121AA901A 3001C03	Breakwater	Harbour arm with rock armour inner & outer faces & concrete walkway on crest. Structure widens out at base	612.9	9-Aug-14	Halcrow MS	Pitch masonry revetment in fair/good condition, repairs to gaps between block good. Some movement of small toe armour at seaward end. Large armourstone at root appears stable, no displacement or voids. Concrete deck in good condition, no settlement evident.	3	Repair gaps in masonry, monitor toe armour and replace as necessary.	routine	>20
121AA901A 3001C04	North Wave Basin, Warkworth Harbour	Inside corner of North Pier. Sand beach with rock revetment.	158.6	9-Aug-14	Halcrow MS	Rock revetment generally stable and in good/ fair condition. Some movement of rocks at toe and flattening of slope at south end. Sandy beach levels relatively high burying toe. Dunes well vegetated and stable, no erosion of dunes at crest evident.	3	None.	no repairs	>20
121AA901A 3001C05	Sea Wall	Vertical wall with concrete capping beam & tarmac surfacing behind forming quayside. No foreshore.	141.3	9-Aug-14	Halcrow MS	Concrete quay and timber cope generally in good condition, no signs of movement or settlement. Small localised cracks in deck. Limited access.	2	Monitor below water elements for scour.	routine	>20
121AA901A 3001C06	Sea Wall	Vertical wall with concrete capping beam & tarmac surfacing behind forming quayside. No foreshore.	341.4	9-Aug-14	Halcrow MS	Masonry walls in small dock in fair condition. Stone abraded, some gaps between blocks. Brickwork and timber repair to coping on south face. Main concrete quay wall and decking in good condition. Minor cracks. Repair of collapsed section now complete.	3	Repointing of masonry wall. Monitor below water elements for scour.	routine	11 - 20
121AA901A 3001C07	Revetment	Rock armour revetment to low, gentle slope, with sandy beach. Afforded significant shelter from South Jetty.	20.3	9-Aug-14	Halcrow MS	Tipped stone revetment loosely packed with continued movement of stones evident. Some outflanking at south end, continued tipping of rubble, soil and concrete. Timber link-span bridge in good condition.	4	Extend revetment to prevent outflanking. Replace missing stones.	routine	1 - 5
121AA901A 3001C08	Coastal Slope	Natural gentle coastal slope, vegetated near crest, with a sheltered sandy beach.	66.4	9-Aug-14	Halcrow MS	Sandy foreshore backed by low earth bank. Erosion and cliffing along most of bank. Continued tipping of rubble and soil and pouring concrete slurry over part of length.	4	Formalise erosion protection.	routine	1 - 5
121AA901A 3001C09	Sea Wall	Low masonry wall at back of sheltered embayment, with partially vegetated sandy beach in front, & amenity area behind.	156.2	9-Aug-14	Halcrow MS	Wide stable dune system continues to develop along beach crest. Masonry wall well protected and generally in fair condition, some localised areas of missing	2	Maintenance repairs to holes in wall.	routine	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						blocks which require repair.				
121AA901A 3001C10	Sea Wall	Low concrete seawall along side of embayment. Sandy beach to the west, exposed rock to the east. Backed by road / promenade.	120.3	9-Aug-14	Halcrow MS	Concrete wall in fair condition, no undermining or movement evident. Some localised vertical and horizontal cracking along entire length, spalling along sections of cope. Corrosion to hand railing and missing rail section. Access ramp in very poor condition, significant spalling, abrasion and voids.	4	Repair cracks and voids in wall and ramp. Replace missing sections of hand railing.	urgent	6 - 10
121AA901A 3001C11	Other	Timber jetty with walkway, forming a continuation of the quay alignment & linking up to the lighthouse. Sheltered 'lagoon' formed landward.	287.2	9-Aug-14	Halcrow MS	Timber jetty generally in good condition. Timber piles, decking and hand railing in good condition. Half-tide barrier functioning well. Timber linkspan bridge in good condition. New lighting installed in 2012.	2	None.	no repairs	11 - 20
121AA901A 3101C01	Other	Concrete pier head, housing the lighthouse, & linking up to the South Jetty structure.	187.5	9-Aug-14	Halcrow MS	No significant change since last survey. Erosion of concrete/masonry at root of pier/jetty. Walkway section fair condition. Access steps in bad condition at southern end. Cracks and deterioration in condition of concrete at landward end.	3	Fill cracks.	routine	>20
121AA901A 3101C02	Sea Wall	Landward section of South Pier, between mainland and intersection with South Jetty. Inner face comprises vertical concrete face with sloping concrete apron at toe, and a stony foreshore. The deck is concrete. The outer wall is vertical concrete with ro	121.8	9-Aug-14	Halcrow MS	No significant change. Inner concrete apron in fair condition. Abrasion/ spalling to inner face at South Pier. Rock armour appears stable but functional. Concrete stub groyne very abraded and undercut. Outer wall sound with local minor deterioration.	3	Repointing and fill cracks. Replace missing blocks	routine	>20
121AA901A 3101C03	Sea Wall	Vertical concrete seawall forming part of base of South Pier. Sandy/rocky beach in front, access & properties behind.	83.6	9-Aug-14	Halcrow MS	Heavy abrasion, cracks and spalling along most of wall, minor damage to crest and deck. Access steps highly abraded, uneven and unsafe. Holes in the deck where hand railing installed.	3	Fill cracks wall face. Repair access steps.	routine	>20
121AA901A 3101C04	Cliff	Rock cliffs & wide rock foreshore, forming headland. Concrete wall on the top of the rock cliff.	98.9	9-Aug-14	Halcrow MS	No significant change since last survey. Horizontal cracking and spalling along crest of wall, reinforcement steel exposed and corroding. Erosion of rock platform and some undermining at west end. Access steps heavily abraded.	3	Repair cracks in wall	routine	11 - 20
121AA901A 3101C05	Sea Wall	Near vertical concrete seawall founded to rock. Steel handrailing provide protection for walkway.	78.9	9-Aug-14	Halcrow MS	Wall generally in fair/ good condition, no signs of movement or undermining. Some localised abrasion and spalling along cope. Localised spalling, exposed	2	Repair spalling and cracks. Replace joint sealant.	routine	11 - 20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						reinforcement and loss of sealant along front and rear face of setback wall. New concrete surfacing installed 2013/14.				
121AA901A 3101C06	Cliff	Low vegetated cliffs with sand beach and rock foreshore. Some localised sections of rock armour protection to toe of cliffs.	206	9-Aug-14	Halcrow MS	Narrow sandy beach with rock ledges backed by well vegetated, wide dune system with partial erosion along majority of toe. Partial slipping of dune face and loss of vegetation at south end. Loosely placed armourstone at center and south end providing limited protection.	4	Consider formal erosion protection along toe of dunes. Dune management.	routine	6 - 10
121AA901A 3101C07	Sea Wall	Concrete seawall around slight promontory, founded on rock outcrop.	63.4	9-Aug-14	Halcrow MS	Concrete wall in good condition. Well founded on rock slab, no signs of movement or undermining. Gap in toe at south end. Localised loss of joint sealant. Minor onset of outflanking at north end. Loosely placed armourstone at north end.	2	Repair cracks. Replace lost sealant.	routine	>20
121AA901A 3101C08	Cliff	Low vegetated soft cliffs fronted by a beach and rocky foreshore	85.2	9-Aug-14	Halcrow MS	Narrow sandy beach with wide and well established dunes at north end of bay. Strandline at toe, partial erosion and cliffing of earth bank along most of frontage. No properties at risk.	3	Monitor erosion.	no repairs	11 - 20
121AA901A 3101C09	Dunes	Vegetated dunes & wide sandy beach. Old, repaired concrete outfall structure on beach.	240	9-Aug-14	Halcrow MS	Sandy beach widens towards the south end. Wide well established and vegetated dunes behind. Some new vegetation growth on foreshore at south end. Outfall structure in poor condition with some undermining, becoming unsafe.	3	Repair or removal outfall.	urgent	>20
121AA901A 3101C10	Sea Wall	Low masonry and block seawall backed by a narrow rock revetment at the toe of soft cliffs	48.7	9-Aug-14	Halcrow MS	Low masonry seawall with rock armour along rest. Wall well founded on rock foreshore, no signs of undermining of movement. Toe partially buried at south end. Localised breakup of loss of coping stones at center. Rock armour appears stable. Coastal slope well vegetated, no signs of erosion.	2	None.	no repairs	>20
121AA901A 3101C11	Cliff	Vegetated cliff with rocky foreshore	80	9-Aug-14	Halcrow MS	No significant change. Hard rock cliffs well vegetated long top. Appear to be mostly stable, some very local slumps have occurred. Caving at toe identified in three small areas in 2010 but this is not precipitating major failures. One larger cave/crevice is also present.	2	None.	no repairs	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 3101C12	Dunes	Vegetated dunes/low cliffs fronted by beach. Outfall onto beach.	1340	9-Aug-14	Halcrow MS	Narrow shingle ridge backed by high well vegetated dunes. Partial erosion, cliffing and slumps in dune face along most of frontage. Outfall at south end in poor condition, hole in concrete pipe. Gabions at access steps in fair condition, some initial deformation evident. Some localised erosion of dune face at south end.	4	Repair or remove outfall	routine	>20
121AA901A 3101C13	Cliff	Vegetated cliff with rocky foreshore	50	9-Aug-14	Halcrow MS	Narrow shingle ridge with stable rock foreshore protecting well vegetated earth bank. Exposed earth on low slope but no evidence of recent erosion or slips.	2	None.	no repairs	>20
121AA901A 3101C14	Revetment	Concrete seawall and rock revetment at promontory with vegetated cliffs behind	46.9	9-Aug-14	Halcrow MS	Rock armour appears stable though informally placed. Some rubble/rock placed to counter outflanking of the revetment. Cliff well vegetated and appears relatively stable. Sparser rock at south end with less vegetation and more erosion. No evidence of concrete seawall.	3	Monitor erosion	routine	>20
121AA901A 3201C01	Other	Coastal slope fronted by narrow sandy/shingle beach	160	9-Aug-14	Halcrow MS	Wide sandy beach backed by high well vegetated earth bank. Localised erosion, cliffing and some slips evident. Properties within 10m of slope.	3	Monitor erosion. Consider dune management.	routine	>20
121AA901A 3201C02	Revetment - Hauxley Links	Rock armour revetment in front of low soft cliff. Sandy beach.	140.8	9-Aug-14	Halcrow MS	No significant change since last survey. Wide sandy beach backed by revetment and well vegetated low earth bank. Rock loosely tipped, some locally displaced stones. Toe buried by healthy beach, beach narrows at south end. No erosion along crest evident.	3	None.	no repairs	11 - 20
121AA901A 3201C03	Revetment	Wide rock armour revetment at toe of earth embankment.	225.6	9-Aug-14	Halcrow MS	Narrow sandy beach backed by rock revetment and low vegetated bank. Some displaced rock along toe but structure appears stable. Evidence of dumped rubble at south end. No sign of erosion along crest.	2	None.	no repairs	>20
121AA901A 3201C04	Revetment/ Embankment - Hauxley Links	Revetment comprising large concrete cubes placed in an ad-hoc straight alignment at toe of earth embankment. Sandy beach in front.	170.8	9-Aug-14	Halcrow MS	Narrow sandy beach. Concrete blocks heavily abraded, some settlement evident but no displacement. Significant erosion of earth slopes along most of frontage, ongoing dumping of building rubble having limited effect. No properties at immediate risk.	4	Consider formal revetment to protect upper slope.	routine	6 - 10

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 3201C05	Revetment	Rock armour revetment/bullnose extending beyond the adjacent line of defence, with vegetated dunes behind & sandy beach in front.	52.7	9-Aug-14	Halcrow MS	Some armour stones displaced but revetment generally in fair condition. Erosion of dunes behind revetment causing outflanking. Concrete pier/outlet structure in poor condition with undermining evident on the southern side and head.	3	Remove/repair outfall	routine	11 - 20
121AA901A 3201C06	Dunes	Partially vegetated dunes, with wide sandy beach	220	9-Aug-14	Halcrow MS	Wide sandy beach and cobble berm backed by high, wide and well vegetated dunes. Ongoing erosion, cliffing and slumps along most of the dune face. Beach levels relatively healthy, strand line some distance from toe. No properties at risk.	4	Monitor erosion.	no repairs	>20
121AA901A 3201C07	Cliff	Soft sand upper cliff and clay/peat lower cliff, with sandy beach & rocky outcrops. In front of vegetated dunes	232.4	9-Aug-14	Halcrow MS	Seaward face of dunes showing signs of heavy erosion along entire length. Loss of vegetation and cliffing of upper slope. Harder peat layer at toe exposed although eroding more slowly than dunes above. No properties at risk.	4	Monitor erosion.	no repairs	11 - 20
121AA901A 3201C08	Cliff	Soft sand upper cliff and clay/peat lower cliff, with sandy beach & rocky outcrops. In front of vegetated dunes	337.4	9-Aug-14	Halcrow MS	Ongoing relatively rapid erosion of lower peat and upper dune at northern end. At southern end cliffs are eroding more rapidly through ongoing slumps before becoming more stable.	3	Monitor erosion.	no repairs	11 - 20
121AA901A 3201C09	Breakwater	Small breakwater type structure, comprising large concrete blocks, running perpendicular for the shoreline, extending just beyond high water.	100	9-Aug-14	Halcrow MS	Main outfall structure in fair condition, no signs of movement, appears stable. Some displaced concrete blocks north and seaward of the outfall. Blocks in fair/poor condition with some cracks. Outfall flap missing causing some safety concerns. Shingle beach healthy.	4	Replace flap valve.	routine	>20
121AA901A 3201C10	Dunes	Vegetated dunes with wide sandy beach	210	9-Aug-14	Halcrow MS	Narrow shingle ridge with low well vegetated dunes. Partial erosion, cliffing and slumps along most of frontage releasing boulders onto beach.	3	Monitor erosion	routine	11 - 20
121AA901A 3201C11	Dunes	Vegetated dunes with wide sandy beach	680	9-Aug-14	Halcrow MS	Narrow sandy beach backed by high well vegetated earth bank. Partial erosion, cliffing and slumps along most of frontage. Ongoing localised erosion at rock armour fronting small parking area at south end, outflanking to the south. Dunes stabilising at south end near outfall.	3	Monitor erosion near parking area.	routine	11 - 20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 3201C12	Outfall - Hadston Carrs	Reinforced concrete outfall/culvert with side walls & apron. Flows through earth bank onto mainly sandy beach. Concrete access ramp to south.	121.5	9-Aug-14	Halcrow MS	Concrete outfall structure in good condition. Some minor cracks and staining. No signs of undermining or settlement of main structure. Slabs at base of slipway undermined and breaking up. High beach levels burying access ramp.	2	Repair cracks. Monitor beach levels at access ramp for undermining.	routine	>20
121AA901A 3201C13	Revetment - Druridge Bay		140.7	9-Aug-14	Halcrow MS	Narrow sandy beach with rock revetment and vegetated crest. Displacement of some rocks along toe, minor flattening of profile. No signs of erosion at crest. Significant outflanking at southern end continues causing some unravelling of rocks and risk to road.	3	Extending revetment at south end.	Urgent	11 - 20
121AA901A 3201C14	Dunes	Low soft cliffs/dunes with wide sandy beach in front forming northern section of Druridge Bay. Rounded pebbles (approx 200mm diameter) form informal toe of the dune.	516.6	9-Aug-14	Halcrow MS	Dunes actively eroding along whole frontage. Significant erosion and cliffing of crest at north end by revetment, cutback starting to cause damage to road.	4	Extend existing revetment at north end to protect road.	urgent	6 - 10
121AA901A 3201C15	Dunes	High dunes/sand cliff with wide sandy beach seaward forming main length of Druridge Bay. Concrete blocks (approx 1m cubed) placed along the toe of the dune at between 2 and 3m centres buried to varying degrees by the beach.	4339.6	9-Aug-14	Halcrow MS	Healthy well vegetated dunes and healthy shingle beach at north, increasing in width and sandy towards south. Strand line some way from dune toe. Minor localised erosion behind concrete blocks and access steps.	2	Monitor erosion	no repairs	>20
121AA901A 3201C16	Dunes	Vegetated dunes with wide sandy beach. Forms southern section of Druridge Bay.	2888.4	9-Aug-14	Halcrow MS	Wide sandy beach with wide well vegetated dunes. Beach levels high up dune, no signs of erosion. Coastline embayed around each of the outfalls, caused by erosion. Most erosion near outfall channels. Concrete blocks used locally to limit erosion.	2	None.	routine	>20
121AA901A 3201C17	Revetment	Shallow rock armour revetment protecting lower half of vegetated dunes.	76.3	9-Aug-14	Halcrow MS	Rock armour loosely, toe remains well buried at north end. Dune narrow but well vegetated. Signs of movement and crest erosion at north end. Additional small rocks tipped at sound end. Concrete steps and handrail in good condition, partly buried. Outfall in good condition. Property within a few meters of cliff edge.	3	Monitor erosion of crest	no repairs	11 - 20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 3201C18	Sea Wall	Low concrete wall built at the back of a rocky foreshore. Rock armour revetment behind wall protects vegetated cliff.	139.4	9-Aug-14	Halcrow MS	Wall well founded on rock ledges, no signs of movement or undermining. Some localised abrasion, spalling and rust-staining, repairs in good condition. Some movement and gaps in rock armour at south end. Localised erosion of upper slope along most of frontage. Tipped rubble evident.	3	Repair abrasion. Place additional rock armour.	routine	>20
121AA901A 3201C19	Revetment	Concrete blockwork revetment with low concrete wall at toe and rock foreshore.	102.8	9-Aug-14	Halcrow MS	Concrete toe beam well founded on rock foreshore, no signs of movement or undermining. Localised but minor settlement in one location on concrete revetment, loss of one interlocking block. Some vegetation growth at south end. No signs of erosion along crest.	2	Replace missing block. Monitor settlement.	routine	>20
121AA901A 3201C20	Dunes	Natural soft cliff/ dune at the back of high rock foreshore.	140.2	9-Aug-14	Halcrow MS	Stable rock ledges backed by well vegetated low earth cliffs. Partial erosion and slumps in soft upper slopes along most of frontage. Boundary fence realigned landward. No assets at risk.	4	None.	no repairs	11 - 20
121AA901A 3201C21	Dunes	Vegetated cliff with wide sandy beach, forming a short shallow bay between outcrops of Stark Letch Rocks and Brig Head.	246.4	9-Aug-14	Halcrow MS	Wide sand beach narrowing at south end. Slopes well vegetated, localised erosion and cliffing at toe along most of frontage. Outfall in poor condition.	3	Monitor erosion.	no repairs	>20
121AA901A 3201C22	Embankment	Vegetated embankment rising out of the dunes to the north, founded on rocky/ stony foreshore.	320	10-Aug-14	Halcrow MS	Narrow sandy beach backed by shallow earth slope. Erosion of toe, cliffing and large scale slips across full height of slope at south end to within 2-3m of road. Gabions at south end in poor condition and ineffective. New vehicle barrier 2013/14 already being undermined. Road at risk.	4	Large scale erosion protection/ slope stabilisation solution required.	urgent	6 - 10
121AA901A 3301C01	Cliff	Low earth/rock cliffs with rocky outcropping foreshore forming Snab Point.	485.2	10-Aug-14	Halcrow MS	Rock ledges foreshore backed by vertical cliffs. Ongoing rock falls at north end. Timber retaining wall in good condition, some undermining at toe. Collapse of masonry revetment at south end. New timber steps in fair condition. Ongoing erosion of soft upper cliffs at south end. One property at risk.	4	Monitor erosion.	routine	11 - 20
121AA901A 3301C02	Cliff	Low rock cliff with rocky and sandy foreshore forming a bay which is sheltered by Snab point.	730	10-Aug-14	Halcrow MS	Narrow rocky foreshore, continued active erosion in soft upper cliff at north end with undercutting and rock falls in lower hard rock cliff. Cliffs to south end appear	3	Monitor erosion.	no repairs	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						well vegetated and stable, sandy foreshore widens at south end.				
121AA901A 3401C01	Cliff	Low vegetated soft cliff with rocky toe at back of beach comprising of colliery waste.	399.6	10-Aug-14	Halcrow MS	No significant change since last survey. Vegetated cliffs appear stable, some slumping in soft cliff material is observed to the south near junction with the low cliff/dune frontage. High and wide beach formed by colliery waste protects backing cliffs.	2	None.	no repairs	>20
121AA901A 3401C03	Flood bank with rock armour revetment			10-Aug-14	Halcrow MS	No significant change since last survey. Embankment in fair/good condition, runs to high ground. Rock revetment large angular stone stable.	3	None.	routine	>20
121AA901A 3401C04	Flood bank			10-Aug-14	Halcrow MS	No significant change since last survey. Embankment in fair/good condition, runs to high ground. Rock revetment large angular stone stable.	3	None.	no repairs	>20
121AA901A 3401C05	Cliff	Low vegetated cliff at back of beach. Beach comprised of colliery waste.	337.1	10-Aug-14	Halcrow MS	Wide sandy beach with cobble berm, sloping earth bank well vegetated and stable. Localised erosion and cliffing along toe at south end and erosion at access points from motorbikes/ 4WDs.	2	None.	routine	>20
121AA901A 3401C06	Embankment	Embankment of tipped colliery waste. Tipping has now ceased due to due to closure of mine. Due to extension of the Power Station revetment (def. 34/00/2) the area of colliery waste embankment is now reduced to area north of the Power Station drainage out	49.9	10-Aug-14	Halcrow MS	Narrow sandy beach backed by high vertical soft cliff. Significant and ongoing erosion, cliffing and recession of tipped colliery waste long entire frontage. Un-fenced access to crest potential safety risk to public. Sand shingle foreshore. No properties at risk.	4	Control public access to crest. Consider environmental issues.	no repairs	1 - 5
121AA901A 3401C07	Revetment	Rock revetment. Original revetment constructed in 1995 was extended in 2005 to encompass the coal stocking yard area adjacent to the Power Station.	453.4	10-Aug-14	Halcrow MS	Rock revetment in good condition. Angular rock armour, some displaced rocks along toe but no obvious settlement. Structure profile largely uniform. Some minor overtopping erosion to access track behind crest.	1	None.	no repairs	>20
121AA901A 3401C08	Embankment	Power Station fronted by informal pathway below a coastal slope. The seaward side of the pathway is protected by tipped rock armour. Between this rock armour and the rock revetment of Defence Code 34/00/2 there is a roadway for the trucks down to the b	376.7	10-Aug-14	Halcrow MS	Embankment replaced by extension to revetment. Rock revetment in good condition. Angular rock armour, some displaced rocks along toe but no obvious settlement. Structure profile largely uniform. Some minor overtopping erosion to access track behind crest. Some outflanking at south end.	2	Monitor outflanking at south end.	no repairs	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 3501C01	Coastal Slope	Vegetated slope fronted by shingle and colliery waste beach with some cliffing in the beach profile	516.7	10-Aug-14	Halcrow MS	Narrow sandy shingle beach widens at south end. Erosion and cliffing of vertical bank at north end resulting in outflanking of adjacent revetment.	4	Monitor erosion and outflanking at north end.	no repairs	11 - 20
121AA901A 3501C03	Cliff	Low soft cliff with stoney foreshore forming south side of Beacon Point Headland.	554	10-Aug-14	Halcrow MS	Rock foreshore and soft earth upper vegetated cliff. Continued erosion and cliffing or upper cliff. Cliff retreated close to access track at a number of locations. South side of headland more vegetated and slightly more stable.	3	Monitor erosion.	no repairs	>20
121AA901A 3501C04	Cliff	Low soft cliff/dunes with mainly sandy foreshore, forming central section of shallow bay. Large rock randomly dumped at the toe of the dunes.	705	10-Aug-14	Halcrow MS	Continued localised erosion, cliffing and slumps in soft lower cliffs. Cutback to access track and undermining. Localised tipping of rubble evident to control erosion. Worst erosion at central section is unprotected. Golf course at risk.	4	Monitor erosion. Re-align access as necessary.	routine	11 - 20
121AA901A 3501C05	Cliff	Low soft cliff with sandy/ stony foreshore	149.8	10-Aug-14	Halcrow MS	Sandy cobble beach backed by low earth cliff. Erosion cliffing and slumps along most of frontage. Dumped building rubble on beach. Boundary fence close to edge, realigned around failed sections. Static caravans very close to cliff edge at risk.	4	Consider erosion protection to caravan park.	urgent	1 - 5
121AA901A 3501C06	Revetment	Ad-Hoc Revetment comprising large concrete cubes buried at base of a soft cliff, with some boulders behind. The foreshore is a combination of rock and sandy beach.	163.1	10-Aug-14	Halcrow MS	Rock ledges and sandy foreshore with concrete blocks and well vegetated earth back behind. No signs of recent erosion. Some dumped construction waste. Boundary fence very close to cliff edge. Caravans very close to cliff edge at risk.	3	Monitor erosion. Liaise with caravan park.	no repairs	6 - 10
121AA901A 3501C07	Cliff	Soft low cliff perched on outcropping hard rock, with rock strewn sandy beach at toe. Concrete rubble has been dumped on the upper slopes of the soft cliff.	65.8	10-Aug-14	Halcrow MS	Rock slabs with low earth slope behind. Foreshore stable, cliffs well vegetated, some localised erosion/ slumping. Undermining of concrete pill boxes, risk of collapse. Some ad-hoc dumping of boulders along soft cliff largely ineffective. Caravans very close to cliff edge at risk.	4	Monitor erosion. Liaise with caravan park.	no repairs	11 - 20
121AA901A 3501C08	Sea Wall	Near vertical concrete seawall, founded on rock foreshore.	29	10-Aug-14	Halcrow MS	Concrete wall fair condition, some cracks and undermining at north end and at toe. Continued erosion of upper soft cliff behind. Caravans within 10m of cliff top, at risk.	4	Erosion protection to upper slope.	routine	6 - 10
121AA901A 3501C09	Cliff	Low earth/clay cliff on top of rock platform.	25.6	10-Aug-14	Halcrow MS	Wide rock foreshore backed by low earth bank. Rock platform appears stable	4	Erosion protection to upper slope.	routine	11 - 20

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						although loose rock evident along base of slope. Ongoing erosion, cliffing and slumps in soft upper cliff along majority of frontage. Caravans within 15m of cliff edge, at risk.				
121AA901A 3501C10	Sea Wall	Near vertical concrete seawall, founded on rock foreshore, with low and gentle sloping concrete revetment at crest, protecting earth behind defences	57.8	10-Aug-14	Halcrow MS	Concrete wall in very poor condition, undermining and collapse of west section, abrasion on seaward face. Mass concrete crest slab undermined, missing sections. Erosion of soft upper cliff causing outflanking. Broken up rocks behind crest.	4	Repair wall, erosion protection to upper cliff.	urgent	1 - 5
121AA901A 3501C11	Cliff	Low soft cliff with vegetated top founded on rocky foreshore forming north side of Beacon Point headland	471.5	10-Aug-14	Halcrow MS	Low rock cliffs backed by low vegetated earth slope. Ongoing erosion and cliffing along most of upper slope. Erosion netting damaged. Small-scale and localised slips/ slumps. Short section of soft cliff cut back at east end cut back to footpath.	4	Repair erosion netting.	routine	>20
121AA901A 3601C01	Cliff	Low irregular rock cliff and rocky foreshore, with soft eroding layer on top of cliff. Localised concrete/masonry repairs where the rock cliff has eroded.	171	10-Aug-14	Halcrow MS	Ongoing deterioration of all masonry walls through toe undermining and loss of concrete apron. Erosion and cutback occurring along earth bank. Damage to netting and loss of gravel, not proving effective.	3	Erosion protection to upper slope. Repair masonry walls	routine	11 - 20
121AA901A 3601C06	Sea Wall	Recurved concrete seawall and integral promenade with all but the top of the recurved buried by the wide sandy beach	352.4	10-Aug-14	Halcrow MS	Seawall and promenade in good condition. Beach levels very healthy, to 1m below crest, over spilling onto promenade at south end. Minor localised erosion at access ramp exposing geotextile. New offshore acropode breakwater in good condition.	2	None.	No repairs.	>20
121AA901A 3601C07	Sea Wall	Recurved concrete sea wall with concrete steps at toe, at the back of a wide sandy beach. Promenade fronted by the recurved sea wall and backed by a masonry sloped revetment protecting the residential properties behind.	554.8	10-Aug-14	Halcrow MS	Seawall and promenade in very good condition. No evidence of settlement. Sealant joints new, minor and spalling in seaward face at south end. Hand railing in good condition. High beach levels, concrete apron just visible at south end. Sand over-spilling onto prom. No groynes/ piles visible.	2	None	No repairs.	>20
121AA901A 3601C08	Revetment	Shallow sloping rock armour revetment backed by capping beam and seafront promenade backed by masonry sloped	346.3	10-Aug-14	Halcrow MS	Some spalling below cope. High beach levels over-spilling onto prom. Rock mostly buried, some vegetation growth at south end. Hand railing and surfacing in	2	None	No repairs.	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
		revetment.				good condition. New offshore concrete breakwater in good condition.				
121AA901A 3601C09	Cliff	Low rock outcrop forming southern end of sandy beach and coastal slope, backed by gently rising vegetated slope	310.2	10-Aug-14	Halcrow MS	Wide sandy beach backed by well vegetated coastal slope. Minor localised historic erosion at toe. Strand line 50m+ from toe of slopes. Large areas of new vegetated growth on foreshore.	2	None.	no repairs	>20
121AA901A 3601C10	Cliff	Outcrop forming low rock cliff and foreshore with vegetated slope behind	223.1	10-Aug-14	Halcrow MS	Rock platform backed by steep earth cliff. Some localised breakup of rocks and boulders along toe of cliff. Erosion, cliffing and slips along most of upper cliff.	3	Monitor erosion.	no repairs	>20
121AA901A 3601C11	Revetment	Rock armour revetment at the back of small inlet/ strongly indented bay with concrete outfall at centre	207.5	10-Aug-14	Halcrow MS	Rock armour angular and well interlocked. Concrete outfall, associated masonry and concrete structures appear to be in good condition. Evidence of outflanking of tie-in of the older concrete outfall in softer cliff material.	2	None.	no repairs	>20
121AA901A 3601C12	Sea Wall	Vertical concrete seawall with recurved crest and narrow promenade behind. Short lengths of concrete toe projection works at interface with rock ofreshore. Low exposed earth cliff at rear of promenade.	72.6	10-Aug-14	Halcrow MS	Rock ledge, boulder and sandy foreshore. Abrasion along most of toe with localised undermining. Abrasion and cracks opening at construction joints. No movement apparent. Loss of joint sealant. Minor erosion along most of upper earth bank. Hand rail rusty.	3	Repair undermining. Repair cracks. Replace joint sealant.	routine	>20
121AA901A 3601C13	Sea Wall	Recurved concrete seawall and integrated promenade backed by low earth cliff. Founded on rock foreshore	48.6	10-Aug-14	Halcrow MS	Wall well founded on rock foreshore. No settlement or cracks. Localised minor undermining/ breakup of additional toe apron. Newly replaced sealant in good condition. Some minor rusting to hand railing. No erosion to upper grass crest	2	None.	no repairs	>20
121AA901A 3601C14	Breakwater	Linear rock armour breakwater	190.5	11-Aug-14	Halcrow MS	Rocks angular, well interlocked and stable. Minor settlement along crest evident. Some minor displacements of smaller filter/ core material along southeast side.	2	Monitor settlement of crest and loss of filter/core.	no repairs	>20
121AA901A 3601C15	Revetment	Recurved concrete seawall with a short rock revetment at the toe	21	10-Aug-14	Halcrow MS	Relic asset. Rock armour removed, likely at the same time as construction of Maritime Centre (2011/12).	2	None.	routine	>20
121AA901A 3701C01	Cliff	Low soft cliffs with some debris at toe sitting on raised rock platforms/ beaches	193	10-Aug-14	Halcrow MS	Rock foreshore with low earth cliffs behind. Partial erosion, cliffing and slumps in upper cliffs along most of frontage. Significant tipping of construction waste to slow erosion with some limited effect. Boundary fence at	4	Consider formal erosion protection.	urgent	11 - 20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						cliff top, properties at risk.				
121AA901A 3701C02	Cliff	Rock cliff with scree at toe forming small bay between two areas of outcropping rock	593.7	10-Aug-14	Halcrow MS	Boulder foreshore backed by high cliffs. Ongoing erosion and collapse of cliffs, localised slumps, occasional rock falls in hard rock. Whole length is active and is now precarious. Footpath along crest remains closed. No properties immediately at risk.	5	Monitor ongoing erosion. Realign footpath.	no repairs	1 - 5
121AA901A 3701C03	Breakwater	Exposed earth cliff with rubble foreshore and regular discontinuous low rock armour breakwater.	561.6	10-Aug-14	Halcrow MS	Continued significant erosion, cliffing and slumping of soft upper cliff along majority of frontage. Boulders/ rubble along toe. Ongoing collapse of boundary walls onto foreshore. Slipway/ rock armour protection in fair condition. Caravans very close to edge, at risk.	5	Consider formal erosion protection. Liaison with caravan park.	no repairs	6 - 10
121AA901A 3801C01	Embankment	Low earth embankment/ cliff forming north bank of estuary mouth with sandy foreshore	396.8	10-Aug-14	Halcrow MS	Boulder foreshore with low well vegetated dunes. Some historic erosion along toe but generally stable. Wide spit on northern side of the estuary mouth constraining channel towards the south shore.	2	None.	no repairs	>20
121AA901A 3801C02	Embankment	Low earth embankment/cliff forming south bank of estuary mouth with sandy foreshore	231.6	10-Aug-14	Halcrow MS	Boulder foreshore with shallow earth embankment behind. Well vegetated. No signs of erosion at toe. Minor localised erosion of toe at south end.	2	None.	no repairs	>20
121AA901A 3901C01	Cliff	Partially vegetated clay cliff with wide sandy beach	321.9	10-Aug-14	Halcrow MS	Sandy beach with high earth slopes behind. Erosion, cliffing and slips along most of frontage. Recession of cliff top. Remains of pillbox on foreshore. Properties within 25m of cliff top, at risk.	5	Consider erosion protection.	urgent	1 - 5
121AA901A 3901C03	Cliff	Low, vegetated clay cliff with cobbles at toe and a wide sandy beach	1373.1	10-Aug-14	Halcrow MS	Narrow sandy beach, cobbles at south end. Low well vegetated dunes. Erosion, cliffing and collapse of dunes along most of frontage. Significant and ongoing cut back at north end by revetment. New timber access steps at north end. Strandline at toe.	4	Consider erosion protection.	routine.	6 - 10
121AA901A 3901C04	Cliff	Low vegetated clay cliff with beach build up in lee of the Rockers outcrop	592.3	10-Aug-14	Halcrow MS	Wide well vegetated and dunes, occasional low areas along crest. Wide healthy beach, strandline 10m from toe. Partial erosion, cliffing and cutback along most of frontage. Significant cutback at south end adjacent to revetment.	4	Consider extending revetment at south end of frontage.	routine.	6 - 10

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 3901C05	Revetment	Rock armour revetment giving toe protection to vegetated coastal slope	600.7	10-Aug-14	Halcrow MS	Rock armour appears stable, no signs of settlement, some displaced rocks at toe. Upper slopes well vegetated, minor erosion evident at north end. Outflanking continues at north and south ends. Sheet piled toe of ramp exposed. Beach levels generally healthy. Outfall pipe causing obstruction to beach users.	2	Consider extending revetment at north and south ends.	routine.	>20
121AA901A 4001C01	Revetment	Rock armour revetment and rock gabions protecting low soft cliff, with wide sandy beach in front.	727.3	10-Aug-14	Halcrow MS	Rock angular and well interlocked, uniform profile. Some displacement of armour along toe. One area of slight settlement in slope. Area of displacement at ramp and localised erosion at crest. No corrosion or splitting of crest gabions. Crest well vegetated, no erosion evident. Some movement along edge of access ramp.	2	None.	no repairs.	>20
121AA901A 4001C02	Revetment	Rock revetment with large units on lower slope, and smaller units on upper slope separated by steel breast work. Scree on beach fronted by rock intertidal platform.	167.9	11-Aug-14	Halcrow MS	Movement of some rocks along toe. Revetment profile uneven, some settlement/ slumping evident. Steel breastwork in poor condition, corrosion and broken/missing members. Historic erosion and cliffing evident along crest. Dumped rubble at crest.	3	Monitor armour movement at toe. Monitor erosion at crest.	routine	>20
121AA901A 4001C03	Sea Wall	Composite seawall comprising timber breastwork and concrete and rock armour apron with narrow foreshore	114.3	11-Aug-14	Halcrow MS	Concrete foundation and toe armour appears stable, no movement evident. Timber breastwork in very poor condition, significant abrasion and breakage evident. Considerable wash-out and voids in fill material. Erosion along crest, ongoing tipping of rubble/ concrete.	4	Repair timber breastwork. Erosion protection to upper slopes.	urgent	1 - 5
121AA901A 4001C04	Sea Wall	Vertical concrete seawall and crestwall with concrete groynes on scree strewn rock foreshore forming part of the Blyth East Pier	322	11-Aug-14	Halcrow MS	Seawall well founded on rock foreshore, no movement or undermining evident. Heavy abrasion along toe. Significant cracks, spalling and broken concrete along crest wall and decking, movement to one section of crest wall. Groynes completely dilapidated.	3	Repairs to cracks. Assessment of crest wall failure.	urgent	6 - 10
121AA901A 4001C05	Breakwater	Concrete breakwater with raised timber walkway on crest, founded on bedrock, forming the tip of Blyth East Pier	1448	11-Aug-14	Halcrow MS	No access to structure. Concrete superstructure appears in fair condition, well founded on rock foreshore, no settlement. Significant cracking/ spalling of concrete trestle legs. Some missing	3	Repair cracks in trestle. Repair decking/ handrailings.	no repairs	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						boards in timber deck and missing hand railing a safety issue. All wind turbines now removed.				
121AA901A 4201C03	Dunes	Sandy beach with vegetated sand dune behind and gabion revetment at base of dune.	55.6	4-Aug-14	Halcrow MS	Dunes very narrow, cliffing and partial loss of vegetation, complete loss of dune at one location exposing wall foundation. Gabions in poor condition, some burst and loss of stone. No movement evident in wall, post and planks in fair condition, some minor cracking. Strandline at toe of dunes.	4	Repair gabions. Extend gabions northwards. Dune management.	routine	1 - 5
121AA901A 4201C04	Sea Wall	Composite seawall comprising near vertical solid concrete wall with vertical concrete plank and post wall sitting on crest. Wide sandy beach at toe. Returns inland at south end to allow beach access for road.	119.1	4-Aug-14	Halcrow MS	Wall in fair/ good condition, no evidence of movement or undermining, some minor cracking and loss of joint sealant. Higher beach levels now burying toe. Some ah-hoc tipping of precast concrete and poured concrete along south flank. Crest wall recently removed.	3	Monitor undermining at toe.	no repairs	>20
121AA901A 4201C05	Sea Wall	Concrete seawall with protruding crest lip and promenade behind. Wide sandy beach in front.	143.8	4-Aug-14	Halcrow MS	Wide sandy beach, cobbles along toe, strand line 20m from toe. Wall in good condition, no signs of movement, some cracking and spalling at joints. Loss of joint sealant. Some cracks in surfacing, setback wall ok. South section of wall well buried by vegetated dunes.	2	Monitor cracks in surfacing.	no repairs.	>20
121AA901A 4201C06	Sea Wall	Near vertical concrete seawall with lip at crest in advance of adjoining defences. Wide sandy beach in front.	169.6	4-Aug-14	Halcrow MS	Wall in good condition, no signs of movement. Some undermining at access steps. Some vertical cracks and loss of mortar beneath cope. Relatively healthy sandy beach. Promenade surfacing and setback wall in good condition.	2	Repair to cracks. Monitor undermining at steps.	routine	>20
121AA901A 4201C07	Sea Wall	Near vertical concrete seawall with lip at crest, almost buried by wide sandy beach in front. An outfall consisting of steel sheet piles and concrete is partially buried.	237.8	4-Aug-14	Halcrow MS	Wide sandy beach, strand line 15m from wall. Some minor cracks in wall, localised spalling/abrasion exposing rebar. Further gaps/cracks in capping blocks at south end. Surfacing in good condition. Beach levels 1m below crest. Outfall and groyne in good condition.	2	Repair abrasion and cracks.	routine	>20
121AA901A 4201C08	Sea Wall	Steel sheet piling with concrete capping beam forming the southern end of the South beach promenade.	94.3	4-Aug-14	Halcrow MS	High beach levels largely burying sheet piles. No deformation evident, surface corrosion and significant loss of thickness. A number of large holes forming evident in web faces, some loss of backfill. Promenade surfacing in good	3	Repair holes in piles.	routine.	6 - 10

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						condition.				
121AA901A 4201C10	Sea Wall	Vertical brick wall with capping beam and concrete footing, at the back of a wide sandy beach with a partially vegetated low dune immediately in front of the sea wall.	485	4-Aug-14	Halcrow MS	Wide sandy healthy beach, strandline 20m from toe. Dunes narrow by well vegetated, historic erosion along most of toe. Brick wall generally in good condition, some vertical cracks, seaward rotation evident to south end.	3	Repair cracks, strongbacks and footings to brickwall.	routine.	6 - 10
121AA901A 4201C11	Sea Wall	Vertical seawall comprising precast concrete planks spanning between concrete posts with a wide sandy beach and partially vegetated dune/slope in front. Level of dune/slope varies, almost burying walls in places.	230.5	4-Aug-14	Halcrow MS	Wide healthy beach, shingle at south end, strandline 20m from to. Well vegetated but narrow dunes, historic erosion along most of toe. Localised seaward rotation of wall at north end, occasional vertical cracking.	3	Replace missing planks. Monitor movement in wall.	routine.	11 - 20
121AA901A 4301C01	Dunes	Vegetated dunes with timber groyne fields in the wide sandy beach in front.	334.3	4-Aug-14	Halcrow MS	Wide sandy beach. Wide well vegetated dunes, historic erosion cliffing and slumps along dune face. All 3 groynes in fair/poor condition, no noticeable level difference across, some gaps and missing boards, arson damage to one section, scour and gaps beneath boards at root of south groyne where drainage channel discharges.	4	Replace missing/damaged planks.	routine	11 - 20
121AA901A 4301C02	Dunes	High sand dunes with exposed seaward face but vegetated at crest, with narrow sandy beach in front.	2146.8	4-Aug-14	Halcrow MS	Wide well vegetated gently sloping dune system, appears stable. No erosion at toe. General pedestrian erosion along crease and at access location. Beach levels relatively healthy, strand line 15m from toe. Annual reinforcement with Christmas tress working well.	2	Dune fencing to control pedestrian access.	routine	>20
121AA901A 4401C01	Sea Wall	Low near vertical masonry wall providing toe protection to high vegetated slope. Sandy beach in front is partially vegetated.	318.3	4-Aug-14	Halcrow MS	Wide healthy beach backed by high well vegetated dunes. Masonry wall almost entirely buried, dune actively advancing. Strand line 30m from toe.	2	None.	no repairs	>20
121AA901A 4401C02	Sea Wall	Composite defence structure reinforcing the western entrance to Seaton Burn. Comprises: timber groyne extending from near the root of the original masonry harbour arm and converging with it; short concrete wall connecting the end of the arm to the groyne	92.8	4-Aug-14	Halcrow MS	Wide healthy beach, masonry section of groyne mostly buried. Timber section of groyne in poor condition, boards missing at central section, arson damage to post and bracing at landward end. Groyne ineffective as no retained material. Ad-hoc tipping of rocks at seaward end.	4	Replace missing/damaged planks.	routine	6 - 10
121AA901A	Sea Wall	Masonry harbour arm west of the	24.3	4-Aug-14	Halcrow	Masonry seawall in fair condition. No	3	Repair vertical	routine	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
4401C03		western entrance to Eastern Sluice			MS	movement evident, a vertical crack at seaward end with missing block. Undermining of deck edge, localised concrete repairs appear good.		crack and replace missing block. Repair undermining of deck edge.		
121AA901A 4401C04	Sea Wall	Vertical masonry wall forming west bank of Eastern Sluice west channel. No foreshore at high water, but mud/ shingle exposed at low tide.	131.4	4-Aug-14	Halcrow MS	Some gaps between blocks. No signs of movement, possibly hole at base at north end. Mortar repairs at crest still good. Accumulation of sand along crest making the path difficult and dangerous to walk along.	3	Repair gaps between blocks. Clear sand from crest.	routine	>20
121AA901A 4401C05	Sea Wall	Vertical masonry wall forming north bank of burn immediately upstream of split in channel. Foreshore only exposed at low water.	142.5	4-Aug-14	Halcrow MS	Some voids, loss of mortar and slight bulging in some areas. No undermining apparent but some localised but deep voids in fill behind cope. Large crack at top of ramp, settlement of bottom section, some movement in side wall. Voids in steps.	3	Fill gaps between blocks. Rebuild ramp side wall. Monitor voids behind crest.	routine	>20
121AA901A 4401C06	Sea Wall	Vertical masonry wall forming south bank of burn immediately upstream of split in channel. Crest level varies to tie in rising land behind.	229.3	4-Aug-14	Halcrow MS	Some displaced blocks, notably along base at east end. Localised cracks, and gaps between blocks along entire length. Localised cracking and significant spalling to concrete capping beam at east section. Ladders in fair condition.	4	Replace missing blocks. Repair cracks. Repair coping.	urgent	11 - 20
121AA901A 4401C07	Sea Wall	Channel carved out of high rock outcrop providing second outlet for Seaton Burn out to sea. Both sides comprise vertical rock faces with steep earth slopes on top.	141.9	4-Aug-14	Halcrow MS	Large gaps and some missing blocks throughout. South east section extremely dilapidated, exposing the earth cliff behind. Erosion is also occurring at the eastern end of the section. Rock cliff sections appears stable.	3	Replace missing blocks, repoint, rebuild where necessary.	routine	6 - 10
121AA901A 4401C08	Sea Wall	Vertical masonry wall forming east bank of Seaton Sluice west channel.	166.9	4-Aug-14	Halcrow MS	Some area of minor settlement evident. Some cracks, displaced blocks and loss of mortar along inner section. Reports of significant void at toe not observed due to heavy weed growth.	3	Repair cracks. Vessel based survey of void at toe.	routine	>20
121AA901A 4401C09	Revetment	Rock armour revetment with remains of masonry wall acting as toe protection and backed by concrete pier (Defence Code 44/12/1).	46.3	4-Aug-14	Halcrow MS	No loose rocks or gaps apparent. No signs of settlement or undermining at toe of. Some displaced blocks at toe but no recent change.	2	None.	no repairs	>20
121AA901A 4401C10	Sea Wall	Concrete pier with concrete crest wall on seaward side founded on a rocky outcrop and with rock armour (Defence Code 44/11/1) at	55.5	4-Aug-14	Halcrow MS	Boulder foreshore. Seawall well founded on rock. No signs of movement or settlement. Minor abrasion to blocks/ apron. Localised undermining of toe at	2	Replace sealant. Monitor undermining at toe.	no repairs	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
		toe.				seaward end. Joint sealant missing. Hand railing and ladder in good condition.				
121AA901A 4401C11	Sea Wall	Vertical masonry seawall founded on rocky foreshore with sloping toe protection comprising boulders.	119.3	4-Aug-14	Halcrow MS	Boulder foreshore. Wall well founded on rock, no undermining evident. Some large gaps and cracks between masonry blocks. Missing blocks along toe and localised area of inward movement suggesting washout of fill. Some erosion behind crest. Handrail, surfacing steps in fair condition.	3	Repair area of movement. Fill gaps/ cracks. Stabilise eroding land behind crest	urgent	6 - 10
121AA901A 4401C12	Cliff	Rock cliff with earth slope above.	181.5	4-Aug-14	Halcrow MS	Erosion of cliff line continued, encroaching on current fence line. Slippage of grass/soil near footpath adjacent to Watch House east boundary wall prior to 2008 inspections, but no activity since. Two areas of cave formation at the base.	3	Stabilise soft upper cliffs adjacent to Watch House.	routine	11 - 20
121AA901A 4401C13	Cliff	Cliff.	130.5	4-Aug-14	Halcrow MS	Rock foreshore with rock cliffs and earth slopes above. No significant change since last survey. Occasional localised rock fall but mostly stable. No erosion at crest.	2	None.	no repairs	>20
121AA901A 4401C14	Sea Wall	Near vertical seawall with profiled crest and toe details, founded on rocky foreshore and with soft cliff above.	73.4	4-Aug-14	Halcrow MS	Wall generally in good condition, well founded on rock foreshore, no signs of movement, slight undermining. Some minor cracks, spalling in the upper section of the wall. Ladder in good condition. Localised historic slips in upper slope but none recent.	2	Repair spalling.	routine	>20
121AA901A 4401C15	Sea Wall	Near vertical seawall with integral toe detail and steep brick work revetment protecting soft cliffs above. Founded on rocky foreshore.	65.4	4-Aug-14	Halcrow MS	Wall well founded on rock foreshore. No signs of movement, some minor undermining of toe apron. Significant abrasion of lower blocks, missing flap valves. Full height vertical crack in upper masonry wall. Loss of mortar beneath coping block.	3	Repoint masonry and monitor further cracking. Replace flap valves.	routine	>20
121AA901A 4401C16	Sea Wall	Near vertical sea wall with profiled crest and steeped toe detail founded on rocky foreshore.	41.6	4-Aug-14	Halcrow MS	Wall well founded on rock foreshore. No signs of movement, minor undermining of toe apron. Minor loss of mortar below coping. Flap valves missing, one drainage hole blocked. Some abrasion of concrete at the toe.	3	Clear drainage holes. Replace flap valves.	no repairs	>20
121AA901A 4401C17	Sea Wall	High near vertical concrete seawall with small vegetated slope above it and concrete apron along some	134	4-Aug-14	Halcrow MS	No noticeable change in 3 full height vertical cracks, no movement apparent. Significant abrasion and spalling along	4	Repair cracks, monitor for movement.	routine	11 - 20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
		of the toe. Foreshore mainly rocky with some sandy/shingle beach.				toe and at access steps. Handrail heavily corroded. Movement of wooden fencing on upper slope.				
121AA901A 4401C18	Sea Wall	Concrete seawall with stepped toe detail and wave deflecting curve offering toe protection to high soft cliff with sandy and rocky foreshore.	174.6	4-Aug-14	Halcrow MS	No signs of movement, minor undermining at toe. Some abrasion and minor gaps between blocks. High beach levels south end. Ongoing active slips along majority of soft upper cliff. Escape ladder missing.	2	Monitor slips in upper cliff. Replace ladder.	routine	>20
121AA901A 4401C19	Gabions	Low gabion basket wall at toe of vegetated earth slope with concrete access ramp and retaining wall. Wide rock platform foreshore fronts this section.	55.4	4-Aug-14	Halcrow MS	Gabions corroded, bulging and burst at lower end spilling rock across foreshore. No erosion of vegetated slope. Ramp well founded on rock, undermining at lower end but appears stable. Some abrasion to ramp. Upper vegetated slope stable.	3	Repair gabions. Monitor undermining of ramp.	routine	11 - 20
121AA901A 4401C20	Cliff	Medium height earth slope above rock platform/cliff.	226.6	4-Aug-14	Halcrow MS	Rock foreshore appears stable. Some localised erosion along toe of upper earth slope and small scale slumps.	2	None.	no repairs	>20
121AA901A 4401C21	Cliff	Steep rock cliffs fronted by scree slope and rocky foreshore.	656.6	4-Aug-14	Halcrow MS	Boulder foreshore with hard rock cliffs above. Cliffs fractured, several rock falls, overhangs and caves present. Slips in upper earth cliff. Significant crack line along cliff edge close to boundary fence. Static caravans within 10m of cliff edge, Footpath and caravan park at risk	3	Monitor erosion. Liaison with caravan park. Consider diversion of footpath.	no repairs	11 - 20
121AA901A 4901C01	Dunes		586.8	6-Aug-14	Halcrow MS	Wide silty foreshore with road and low well vegetated dunes behind. Some localised erosion at dune toe. Road in good condition, minor erosion continues along edge of surfacing.	2	None.	no repairs	>20
121AA901A 4901C02	Dunes		204.2	6-Aug-14	Halcrow MS	Narrow cobble beach in front of low earth cliff. Historic erosion and cliffing along most of length but not recent. Some vegetation growth on foreshore. Fence close to edge.	4	no repairs	Monitor erosion.	6 - 10
121AA901A 4901C03	Cliff		341.5	6-Aug-14	Halcrow MS	Sandstone cliffs are bare on face still. Low wall at S junction between these cliffs and H1/14/02 has stonework falling out. Cliffs relatively stable (vegetated) in parts, locally actively eroded again at southern end.	3	None.	No repairs.	11 - 20
121AA901A 4901C04	Foreshore		165.5	6-Aug-14	Halcrow MS	Steep shingle foreshore fronting steep vegetated bank. Localised erosion along toe of earth bank adjacent to boat house.	3	routine	Reposition benches	>20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
									if local erosion continues.	
121AA901A 4901C05	Cliff		227.4	6-Aug-14	Halcrow MS	No change. Generally good along hard rock cliff, no further rock falls but rock highly fissured. Short section of soft cliff subject to occasional slumping.	2	none.	No repairs	>20
121AA901A 4901C06	Wall		51.6	6-Aug-14	Halcrow MS	Significant loss of shingle front foreshore exposing slabs. Wall in fair condition but localised undermining and breakup of crest apron apparent. Erosion and outflanking of wall at west end. Previous repaired sections in good condition.	3	routine	Monitor outflanking at west end and undermining.	6 - 10
121AA901A 4901C07	Cliff		160.7	6-Aug-14	Halcrow MS	Hard rock outcrop protecting harbour stable. No evidence of rock falls.	2	no repairs	n/a	>20
121AA901A 4901C08	Wall		69.4	12-Aug-14	Halcrow MS	South side of harbour jetty in fair condition. No undermining evident, some abrasion of concrete steps, boat ramp and deck in good condition.	3	none.	routine	11 - 20
121AA901A 4901C09	Breakwater		74.8	12-Aug-14	Halcrow MS	North side of harbour jetty in poor condition, voids in masonry at landward end, missing mortar and large gaps below concrete coping, undermining of concrete toe and some deep voids evident at. Concrete decking and ladder in fair condition.	3	urgent	Fill voids in masonry, repoint beneath coping, fill voids beneath wall.	11 - 20
121AA901A 4901C10	Foreshore		302.6	6-Aug-14	Halcrow MS	Beach appears stable. Low dunes behind cobble beach are healthy and well vegetated. Obsolete outfall breaking up.	2	Remove obsolete outfall.	Routine	>20
121AA901A 4901C11	Bank		429.7	6-Aug-14	Halcrow MS	Strand-line high on beach. Continued localised undercutting and erosion of earth bank back to castle access track. Stone blocks and rubble scattered on foreshore. Shoreline becomes more stable towards east end.	3	Erosion protection at north end.	Routine	11 - 20
121AA901A 4901C12	Wall		161.7	6-Aug-14	Halcrow MS	Ongoing erosion of earth bank in front of south end of dry stone wall causing undercutting of foundation. Some missing stones along crest and breakup of concrete coping.	3	Infill void under wall, replace missing stones, repair concrete coping.	Routine	11 - 20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
121AA901A 4901C13	Cliff		308.6	6-Aug-14	Halcrow MS	Hard rock sections generally stable. Some erosion in soft cliffs. Stones starting to spill out of rock-filled netting in upper cliff. Continued erosion of soft upper cliff at east end.	3	Maintain netting, extend netting at east end.	Routine.	6 - 10
121AA901A 4901C14	Bund		532.6	6-Aug-14	Halcrow MS	Evidence of flooding across low lying shingle spit. Shingle beaches healthy. Partial erosion, undercutting and collapse of low earth bank along most of east side. Ongoing collapse of masonry wall at north end.	3	Repair collapsed wall. Realign fencing.	Routine	11 - 20
121AA901A 5001C01	Cliff		321.7	6-Aug-14	Halcrow MS	Low earth cliffs shows significant and ongoing erosion, cliffing and collapse along most of its length. Higher cliff has slumping along its length but this presents no immediate issues. At north end erosion exposing large quantity of pebbles in bank.	3	Continue to monitor.	No repairs	11 - 20
121AA901A 5001C02	Bund		259.3	6-Aug-14	Halcrow MS	Steep shingle foreshore and noticeable shingle ridge along crest. Shingle encroaching on low lying vegetated hinterland, possibly due to storm wave run-up.	3	Continue to monitor.	No repairs	>20
121AA901A 5001C03	Cliff		365.1	6-Aug-14	Halcrow MS	Steep shingle foreshore and well vegetated low lying hinterland behind. Localised erosion and cliffing of low earth bank at back of beach and some shingle encroaching on grass area.	3	Continue to monitor.	No repairs	>20
121AA901A 5001C04			284.5	6-Aug-14	Halcrow MS	Steep shingle beach and well vegetated low earth bank behind. Historic erosion along much of earth bank exposing pebbles in bank but some regrowth of vegetation evident.	2	None.	No repairs.	>20
121AA901A 5001C05	Cliff		610.8	6-Aug-14	Halcrow MS	Ongoing erosion of high earth cliff along most of the frontage. Narrow shingle foreshore. Post and wire stock fencing erected in worst-affected areas remains intact. Rate of erosion appears to have slowed.	4	Monitor erosion, repair fencing.	No repairs.	6 - 10
121AA901A 5001C06	Dunes		1047	6-Aug-14	Halcrow MS	Healthy width beach backed by high well vegetated dunes. Ongoing erosion and cliffing along much of the dunes face but some vegetation regrowth evident. Dunes to north and south ends protected by	3	None.	No repairs.	11 - 20

Name	Type	Description	Length (m)	Inspection Date	Inspector	Comment	Overall Condition	Recommendations	Urgency	Residual Life
						headlands and stable.				
121AA901A 5001C07	Cliff		268.9	6-Aug-14	Halcrow MS	Caves and overhangs continue to show signs of ongoing rock falls. Erosion and cliffing of upper soft material.	3	None.	No repairs.	>20
121AA901A 5001C08	Dunes		419.2	6-Aug-14	Halcrow MS	Wide sandy beach backed by high but narrow vegetated dunes. Partial erosion and slumps along most of the dune face. Some embryo vegetation growth of foreshore.	3	None.	No repairs.	11 - 20
121AA901A 5001C09	Dunes		1331	6-Aug-14	Halcrow MS	Well vegetated high and wide dunes to rear of rock platform with rock platform and narrow cobble beach. No signs of erosion of dunes.	2	None.	No repairs.	>20
121AA901A 5001C10	Vegetated dunes fronted by sandy beach.	Dune - Holy Island	3264	6-Aug-14	Halcrow MS	Wide flat sandy beach with high and wide well vegetated dunes behind. Embryo vegetation growth along most of foreshore. No erosion of dunes evident.	2	None.	No repairs.	>20
121AA901A 5001C11	Sand flats with saltmarsh adjacent to causeway road.	Dune - Holy Island	3628.6	6-Aug-14	Halcrow MS	Sand flats and saltmarsh protecting causeway road appear stable. Sporadic vegetation growth across wide area foreshore on north side of causeway. Previously noted damage to road surface near western end not observed.	2	None.	No repairs.	>20