Cell 1 Regional Coastal Monitoring Programme
Walkover Inspection Surveys 2016

Northumberland County Council

September 2016

Northumberland County Council

Walkover Inspection Surveys 2016

Contents Amendment Record

This report has been issued and amended as follows:

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Appendices

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[1] Scarborough Borough Council is acting as lead authority on behalf of all Local Authorities within 'Coastal Cell 1'

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 till to varying thicknesses, softer rock cliffs, and extensive landslide complexes.

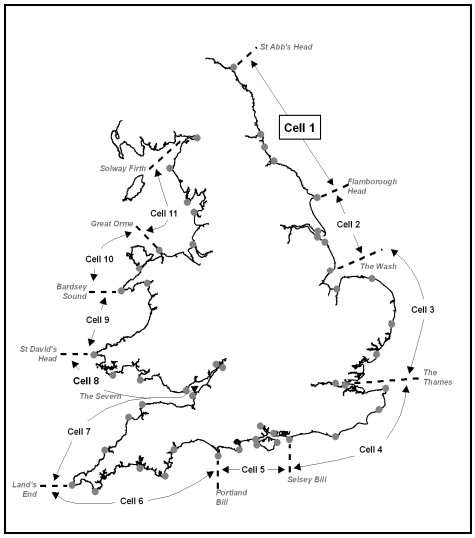


Figure 0-1 - Sediment Cells in England and Wales

The work commenced with a three-year monitoring programme in 2008 that was managed by Scarborough Borough Council on behalf of the North East Coastal Group. This initial phase was followed by a five-year programme which started in 2011 and the current five-year programme which started in 2016. The programme funded by the Environment Agency, working in partnership with the following organisations.

Northumberland County Council

Northumberland Coast AONB

North Tyneside Council

South Tyneside Council

Sunderland City Council

Durham County Council

Redcar & Cleveland Borough Council

Hartlepool Borough Council

Whitby Scarborough Filey Borough of Scarborough

A great place to live, work & play

East Riding of Yorkshire Council

Environment Agency

Natural England

The National Trust

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
- walkover inspection surveys

Royal HaskoningDHV has been appointed to provide Analytical Services in relation to the Cell 1 Regional Coastal Monitoring Programme 2016 - 2021.

The present report is **Walkover Inspection Surveys 2016** and provides a summary of the main findings from the walkover inspections of Northumberland County Council's frontage that are undertaken once every 2 years.

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

1. Introduction

1.1 Study Area

Northumberland County Council's coastal frontage is approximately 100km in length extending from Scottish Border in the north to Hartley in the South as shown in Error! Reference source not found.. 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

1.2 Methodology

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

The walkover inspection surveys for the Northumberland County Council frontage were undertaken on various dates between June and September 2016. The weather experienced during the inspections was generally clear and fine with no access or visibility problems caused by adverse weather.

The frontage has been split into a number of 'asset lengths' (Appendix A), as defined in the National Flood and Coastal Defence Database (NFCDD) that was established by the Environment Agency.

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

For built assets the grading classification was undertaken in accordance with the Condition Assessment Manual (EA, 2012), with estimates made of the urgency of any necessary repairs. An extract of the grading classification for built assets is presented in ***Table 1-1***. For ease of reference the built asset photographs presented in this report have also been bordered with the colours key indicated below.

Grade	Rating	Description
1	Very Good	'As built' condition or cosmetic defects that have no effect on performance.
2	Good	Minor defects that will not reduce overall performance of the asset.
3	Fair	Defects that could reduce overall performance of the asset.
4	Poor	Defects that would significantly reduce overall performance of the asset.
5	Very Poor	Severe defects resulting in overall performance failure of the asset.

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 walkover inspections within Cell 1 was used. This grading classification is presented in ***Table 1-2***. For ease of reference the natural asset photographs presented in this report have also been bordered with the colours key indicated below.

Grade	Class	Description
1	Dormant	Features with no interaction with marine processes.
2	Inactive	Features with no visible evidence of erosion or landsliding activity.
3	Locally active	Features with localised evidence of small erosion or landsliding activity.
4	Partly active	Features with widespread evidence of small erosion or landsliding activity or areas of intense erosion or landsliding.
5	Totally active	Features with large-scale or intense erosion or landsliding.

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 are provided in **Appendix B**.

In addition to this report, full details of the inspection and a selection of appropriate photographs have been entered into the SANDS (Shoreline And Nearshore Database System) database and provided along with this report with SANDS viewer software. Additionally, all data from the obsolete Northumberland Coastal Group MS Access database previously used for North Tyneside coastal defence inspections from 2002 to 2010 has been imported to the SANDS database and a new asset data display form “Northumberland Sea Defence” has been created in SANDS to allow easy viewing of the data.

2. Overview

The following significant findings were observed during the 2016 inspections:

- **Magdalene Fields** - The cliffs continue to be susceptible to local and occasional slumping in the upper soft material. Previous slumps have cut the cliff top back to the footpath in places at the Golf Course.

- **Green's Haven** (also known as Fisherman's Haven) – The breakwater remains in poor condition but there has been no significant further deterioration since the previous survey. The cliffs show fairly frequent activity in terms of slippages and there have also been occasional rock falls. Signs are erected warning holiday makers at the caravan park of unstable cliffs.

- **Berwick and the River Tweed** - The Berwick Pier underwent substantial refurbishment during 2012/13, including repair of a significant void midway along the leeward face and replacement of the concrete deck. These repairs are holding well. The masonry seawall along Pier Road remains in fair condition overall, but as previously reported there is outflanking and localised collapse of the wall at its western end. The historic masonry wall of Fisher's Fort remains in relatively good condition although some local areas would benefit from re-pointing. The Reno mattresses on the south bank of the Tweed remain in poor condition.

- **Beal** – there is been a failure in the flood embankment between the new sluice and the main Beal Sluice.

- **Waren Mill** – despite repairs by the local property owner, the wall fronting the private land remains in poor condition.

- **Budle Bay** – The jetty at Heather Cottages might be considered a public safety hazard, but has not significantly altered in condition since the 2014 inspection.

- **Holy Island** – repairs have been made to the highway and the harour pier, returning both to good condition.

- **Seahouses Harbour** – whilst there appear to have been some repairs made (presumably by the Harbour Commissioners) since the past inspections, several notable defects remain and some of these have deteriorated further in the past 2 years. Proposed capital works are strongly recommended.

- **Beadnell** – The sea wall (Nacker's Hole) and stone-filled mattresses (Lady's Hole) at Beadenll North have both deteriorated since the previous inspections and capital works are recommended. The condition of the harbor is poor in places, with abrasion and undermining evident.

- **Newton Point** – there has been localised erosion in the coastal slope at Newton Point headland, with the National Trust fencing off a small area adjacent to a fence line. This fence now requires relocation inland.

- **Boulmer** – a rock revetment constructed in 2016 has improved the condition of the defences at Boulmer village.

- **River Aln** – works were underway at the time of the inspection to reinstate a collapses section of river wall just downstream of the B1338 road bridge.

- **Church Hill, Alnmouth** – the low masonry wall around the foot of Church Hill has collapsed along a length of approximately 10m, but it is concerning that adjacent sections are also in very poor condition and work should be undertaken to avoid a larger scale collapse that potentially could lead to slumping of Church Hill. Further around Church Hill (into the estuary) another short section of lower wall has collapsed. The whole end-section of the wall needs rebuilding.

- **Warkworth Harbour** – North Pier remains in a collapsed section at its seaward end. It is understood that this crack and rotation occurred in the end of the structure soon after its construction. Although not formally defined as a coastal defence asset, the North Jetty is in a largely dilapidated condition.

- **Amble** - The low vegetated bank that was eroding at the intersection of South Jetty and Little Shore Wave Basin had previously been protected, to a degree, by rock armour and tipped construction waste. Recently the area has been improved with the construction of some beach huts and the provision of more formalised defence in the form of gabion baskets and fronting rock armour. The area looks in good condition and is now much improved. The South Jetty is very heavily abraded, most notably along the base, at the access steps to the lighthouse and at the junction with the South Pier. The poor condition of the concrete seawall along Bay View road within Little Shore Wave Basin continues to worsen, with horizontal cold joints and vertical cracking, toe undermining, missing sections of coping, corroded hand railing and voids in the access ramp. Safety issues should be addressed urgently and capital improvement works should follow when funding is secured.

- **Hauxley** - The outfall of Hauxley Nature Reserve, at the northern end of Druridge Bay, has previously been reported as being in poor condition, with concrete blocks placed to the north of the outfall to shelter the structure also showing signs of movement and cracking. Since the previous inspections, the Northumberland Wildlife Trust has 'daylighted' the majority of the drainage channel (although seaward parts of the structure and the adjacent concrete blocks remain on the beach), creating a more natural aesthetic in line with the recommendations of the *Druridge Bay Adaptation Study*. The drainage from the reserve now occurs along a natural open channel and then alongside the remnant outfall structure, across gravel, cobbles and boulders. It is understood that ultimately the remnant structural sections will be removed.

- **Druridge Bay** – There is ongoing erosion immediately south of the terminal end of the rock revetment adjacent to the outfall of Ladyburn Lake. There is also one section of collapsed outfall pipe in the bay.

- **Cresswell** - The cliffs fronting the Golden Sands Holiday Park, just north of Snab Point, have become more active once again. There is one area where a slippage has previously occurred, cutting the cliff top right back to the coast road. At this location, the gabions at the cliff toe are now almost entirely obsolete. The entire slope was saturated at the time of the inspections, suggesting a lot of groundwater build up in the failed cliff section. It is likely that further recession at this point will occur, thus affecting the coast road.

- **Blyth South Beach** – the eroding dunes adjacent to Meggies Burn have been stabilized with sand-filled geotextile bags and sand cover. The marker beacon of one of the timber groynes has failed.

3. Condition Assessment

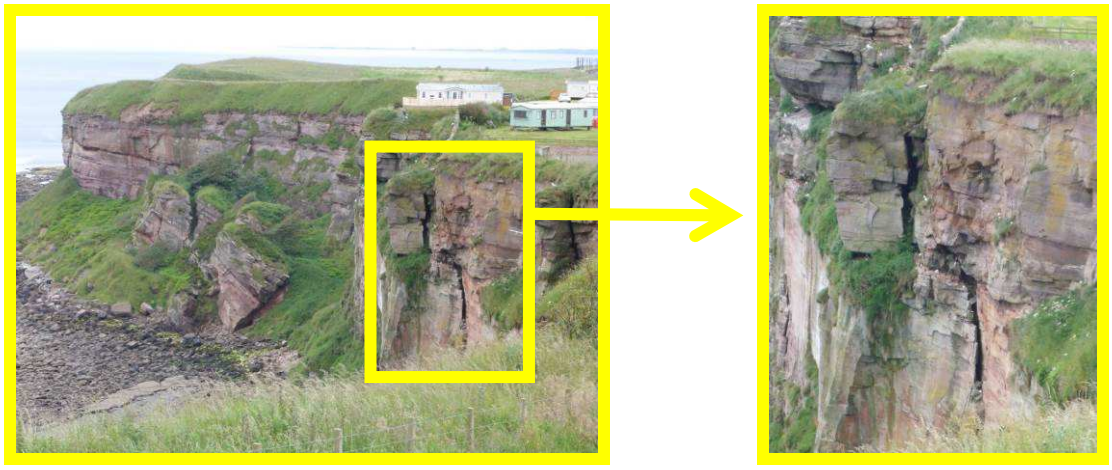
3.1 Scottish Border to Berwick-on-Tweed Pier (MU 1)

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 and high exposed rock cliffs with occasional man-made defences.

Inspection the frontage between the Scottish Border and Marshall Meadows Point is limited since the face of the cliff cannot easily be viewed. However, the cliffs along this length appear stable.

The cliffs at Marshall Meadows Bay are fractured in places adjacent to the caravan park but have been in this condition for some time. At the time of the inspections, no recent movement was observed in terms of either rock falls in the harder rock base or slumping in the overlying softer material, although both processes remain the characteristic behaviour of these cliffs.



Fractured cliffs at Marshall Meadows Bay (/0601C02)

Fractured cliffs at Marshall Meadows Bay (/0601C02))

The cliffs along St John's Haven 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 arch of Needle's Eye remains a prominent feature along this stretch.

Stable cliffs at St. John's Haven (/0601C04)

Needle's Eye (/0601C05)

The cliffs at the northern section of Magdalene Fields continue to be susceptible to local and occasional slumping in the upper soft material, which was particularly observed at Brotherston's Hole. Previous 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.

Localised slumping at Brotherston's Hole (/0701C01)

Caves at base of cliffs (/0701C01)

Between Burgess' Cove and Sharpers' Head the hard rock base is highly fissured and 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.

Fissures and caves along base of cliffs at Dodd's Well (/0701C02)

Concrete pavilion structure in fair/poor condition (/0701C02)

South of Shapers' Head the cliffs continue to be characterised by large vertical fissures, caves along the base and local slumps in the overlaying softer material.

Green's Haven (also known as Fisherman's Haven) Breakwater remains in poor condition but there has been no significant further deterioration since the previous survey. The structure continues to show signs of heavy abrasion along most of its length with loss of the upper section of crest at two locations. Ongoing horizontal cracking and spalling along much of the rest of its length is likely to lead to further damage of the crest. Whilst the structure is well founded on rock, this is being undercut.
Although the structure is in poor condition it is still performing the function of retaining sand within the bay.

Green's Haven Breakwater remains in poor condition but still retains beach sand (/0701C04)

Abrasion, damage and rock undercutting along the breakwater (/0701C04)

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.

The cliffs around Green's Haven show fairly frequent activity in terms of slippages and there have also been occasional rock falls. Signs are erected warning holiday makers at the caravan park of unstable cliffs. One slippage, just to the north of the southern access steps, has left a length of fencing suspended in mid-air, whilst the backing land has been fenced off to ensure that visitors stay well away from the cliff edge.

Rock fall in cliffs at Green's Haven (/0701C05)

Slumping in cliffs at Greens' Haven (/0701C08)

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, although at the time of the inspections beach levels were relatively high and large parts of the aprons were covered by sand. One short section of wall in particular has outflanking due to slope slippages and the toe apron is actively breaking-up. Concrete access steps at the centre of the bay and the concrete steps at the south end of the bay remain in fair condition but the adjacent ramp at the southern steps is in poor condition.

The cliffs along the southern part of Magdalene Fields are actively slumping and the fence and footpath have been moved in response.

Slumping cliffs along Magdalene Fields Golf Course (/0701C12)

Relocation of fencing and footpath due to slumping cliffs along Magdalene Fields (/0701C12)

At Meadow Haven, just north of the Berwick Pier, there is a wide foreshore known as Little Beach, backed by wide, stable and well vegetated dunes.

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 void midway along the leeward face and replacement of the concrete deck.

Berwick Pier in good overall condition following refurbishment in 2012/13 (/0701C14 & C15)

The new repairs remain in good condition, but some minor cracking, which does not seem to have worsened since the previous inspections, is evident in the older (inland section) deck. Vegetation growth is occurring in some of these cracks. In addition, some of the concrete render on the crest of the outer wave wall is spalling along the seaward sections and the older, inner section of this wave wall is heavily abraded on its landward face.

Older (inland) sections of cracked deck and abraded wave wall on Berwick Pier (/0701C14)

Repairs to deck and southern face of Berwick Pier (/0701C15)

There is an accumulation of gravel and cobbles at the root of Berwick Pier, which has become vegetated and indicates stability.

The masonry seawall along Pier Road remains in fair condition overall, with occasional minor cracking and spalling of the concrete coping. However, as previously reported, there is outflanking and localised collapse of the wall at its western end, although this does not appear to have worsened since the previous inspection and appears to have changed little since 2004. An old cobble slipway which crosses an outfall pipe midway along the wall continues to deteriorate with blocks continuing to be displaced across the foreshore. The nearshore section of the outfall is encased in concrete which has cracked notably.

Local failed section of river slope revetment/wall (/0801C07)

Local failed section of slipway over foreshore outfall (/0801C07)

The historic masonry wall of Fisher's Fort remains in relatively good condition although some local areas would benefit from re-pointing. Previous repairs have been made at the junction of the wall and the roundhead. Where the wall has a toe apron several of the blocks in the apron are heavily abraded.

Berwick's historic town walls in good overall condition (/0801C06)

Abrasion to toe apron where present (/0801C06)

The short sections of masonry seawall (with concrete deck) fronting the properties at Gardo's Battery are in fair condition and where fronted by a rock revetment this remains in good condition with armour well packed. The timber slipway at this location is obsolete.

Rock revetment in good overall condition (/0801C04)

Rock revetment in good overall condition with wall in fair overall condition (/0801C05 & C04)

The Berwick quayside consist mostly of sheet piled walls, with a short masonry wall extending around the dock area. The steel piles, concrete capping beam, ladders and timber fenders are all in good condition. The masonry wall in the small dock is in fair condition with some blocks broken and abraded and a number of open joints evident that would benefit from re-pointing. There is one crack to the coping near The Chandlery.

Steel sheet piled quay walls in good overall condition (/0801C03)

Masonry quay walls in dock area in fair overall condition with some open joints, cracks and abrasion (/0801C03)

Defence length 121AA901A0901/ C04 runs from the southern jetty at the entrance of the Berwick Dock through to the area of the Pier and IRB Station at Carr Rock. The defence comprises two sections, the first being a masonry revetment protecting land formerly occupied by sheds (removed between 2006 and 2008). This section has undergone previous repairs and is generally in fair condition. The main section of defence, protecting the open grass area in front of Dock Road, comprises gabion (Reno-mattress) defence. This defence appears to have undergone stages of major repairs. Much of the exposed original square mess baskets have failed along the toe. It appears that a new upper layer of mattress was constructed by 2006. This was reported as in poor condition in 2014 (and previously in 2012, 2008 and 2006) and continues to deteriorate. In particular there is undermining at the upstream end and continuing loss of integrity around the small outfall.

Masonry revetment 901c04 at northern end.

Undermining due to failure of lower baskets at northern end.

901c04 in 2006 showing small out fall.

Loss of toe and local damage at outfall 2016, 901c04.

At the southern end of defence 901/ C04 a different type of mesh has been used (constructed by 2006), using a wrapped wire basket as opposed to a square welded mesh. This change in baskets has survived 10 years without major failure but is now showing local corrosion of the wire.

901c04 in 2006 showing change in mesh.

Deterioration due to corrosion of wrapped basket 2016, 901c04.

This defence seems unlikely to suffer catastrophic failure. However, as identified in the SMP2, there is a need to review ongoing management of the area.

Defence lengths 121AA901A0901/ C05, and C06 comprise a section of masonry / concrete wall linking through to the Spital Pier. Previous reports highlight the main risk being the condition of the masonry and gaps between masonry. These are old structures and can only really be assessed in term of change rather than in terms of immediate condition.

In both cases there has been little change and while both structures show significant gaps and cracking, neither structure appears to have deteriorated further. Part of the upper surface of the pier has been resurfaced with tarmac improving previous concerns over surface deterioration.

901c06 in 2008 showing toe level and condition of masonry.

901c06 in 2016 showing little change compared to 2008.

901c06 in 2008.

901c06 - 2016,.Little change since 2008

The open piled timber jetty remains in a dilapidated condition. The section behind the RNLI section is in fair condition. There appears to be some spalling of the concrete support structure to the RNLI Station and this possibly need further investigation.

901c07 no substantial change since 2014.

901c07 – evidence of concrete spalling to support structure of RNLI building.

The general beach level to the eastern end of the main jetty section remains high (as identified in 2012 and 2014 compared to 2008). However, the open masonry revetment beneath the jetty continues to deteriorate. The change along this section has been linked to behaviour of Spital Point.

901c07 continuing high sand levels.

901c07 – further displacement of revetment, associated with maintenance of flap valve.

Generally the increase in beach levels continue along the dunes to Sandstell Point, however this clearly changes over the length with erosion towards the centre of the dunes and significant accretion over the northern end. The following images show the variation both by position and over time. These changes are linked to the change in the Sandstell Point bank across the mouth of the estuary and the associated movement of the channel. The SMP recommends that a buffer zone is recognised to allow for change.

901c08 - erosion in 2012.

901c08 – substantial accretion 2016

901c08 - developed front dune 2014

901c08 – cliffing and erosion 2016.

901c08 – developing embryo dune ridges 2014.

901c08 – fully developed front dune 2016.

The accretion at the northern end of the dune system continues around the headland, although there are signs of cliffing of the upper beach on the open coast, demonstrating the continued variability associated with the estuary sand bar.

901c09 – high beach levels.

901c10 – high beach levels.

Beach levels along the northern section of the open coast 121AA901A1001/ C01 remain relatively high, there has been some erosion since 2014 but no worsening of erosion at crest (2014).

1001 c01 – Northern end, showing cliffing of beach around headland.

1001 c01 – showing no worsening of erosion at crest but also showing alignment in advance of natural beach shape.

1001 c01 – 2006 showing very high beach levels.

1001 c01 – 2016 showing reduced beach levels.

Beach levels and hence the pressure on this frontage was identified in the SMP as being closely associated with the position and shape of the sand bar and channels at Sandstell Point. The monitoring certainly seems to confirm this. This suggests that the frontage (and the area to the south) is dependent on broader scale change rather than purely on-going trends of beach loss.

Beach levels remain high over defence length 121AA901A1001/ C02 with no deterioration from 2014.

1001 c02 – high beach levels with good crest width.

1001 c02 – high beach levels with good crest width..

Beach levels to 121AA901A1001/ C03 remain high. The missing paving block in 2014 has not been repaired. The crack or failed repair identified in 2014 remains in the same condition. Further investigation of this shows that this crack was present in 2010 and does not appear to have deteriorated. There is significant loss of joint sealant as previously indicated but overall the defence appears in good condition.

1001 c03 – relatively high beach levels.

1001 c03 – Crack noted previously 2008 through to 2014.

There has been some minor erosion of the lower grassed slope to the south of the frontage but, in comparison with 2006, very little change in the upper slope. The rock revetment at the south of the sea wall remains in good condition.

1001 c04/ 05 – low foreshore levels and erosion and slippage of coastal slope in 2006.

1001 c04/ 05 – higher beach levels, vegetation to previous coastal slope slippage..

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 cliffs through to the dune system at Cocklawburn / Salt Pan Rocks. The frontage, even down towards the Salt Pan Rocks dunes, is strongly controlled by a wide and high rock platform. Locally at Salt Pan the dunes are backed by boulder clay cliffs.

As noted in the previous unit (MU2) there has been some slight erosion of the lower coastal slope just to the south of the Spittal frontage but little change since 2008 effecting the upper crest and upper slope.

In particular, there is no obvious fresh slippage of the area below the masonry wall at the crest of the slope and no loss of fence posts further to the south. As such, although there is longer term concern for this section, in general at present the condition is assessed as fair.

General slippage and erosion of lower coastal slope to 1001/ C05

No substantial change to upper slope of 1001/ C05

Between Spittal and Sea House farm (Scremerston) the high cliffs continue to exhibit slow erosion but with no assets at risk.

1101/c01 general view of cliffs and beach to north of Sea House.

1101/c03 Cliff immediately north of Sea House, showing ruins of masonry structure.

Sea House Farm is possibly founded to the underlying rock rather than being reliant on the eroding vegetated surface cover. However, the adjacent section to the north of the house is protected by a concrete wall, which is cracked at its base and shows evidence of water weeping through the crack. The land owner should be made aware of the risks.

1101/c04 Sea House possibly constructed to rock with erosion of surface cover.

1101/c04 Outfall and concrete slope protection, cracked and weeping water.

Further south of Sea House Farm, the shoreline reverts to a generally hard rock basal cliff with varying thickness of surface deposits. Some sections continue erode but where the road comes down to the Cocklawburn beach the cliff remain relatively stable.

1101/c05 general view of frontage showing continued erosion in area of old road.

1101/c05 Critical section of frontage closest to road.

The dune frontages to the south of this section continue to erode but at the time of this inspection (2016) there is some indication that the previously eroded face has revegetated. Within the centre of the frontage there are healthy embryo dunes. To the southern end, beyond Far Skerr there is some regrowth of vegetation despite the beach being lower than 2014, re-exposing a backshore shingle bank.

1202/c01 north, continuing eroding dune edge but

1202/c05 central to Far Skerr. Dune growth.

1202/c05 south of Far Skerr. 2008

1202/c05 south of Far Sker 2016. Continued erosion but with vegetation to crest.

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 and encompasses the Lindisfarne National Nature Reserve. The unit is broken down into four different frontages.

Cheswick and Goswick to Beal Point

This frontage includes the major dune system running as a series of dune ridges through to the northern section of the sand/mud flats lying behind Holy Island.

To the northern end of this area the dunes continue erode slowly, cutting back to crest of dune ridge but maintain slope and vegetation.

1201/ C02 – 2008 showing lower beach levels than present day.

1201/ C02 – 2016 showing set back of frontage but higher beach levels and accumulation of sand to front face.

1201/ C02, C03 – 2006 showing recent erosion but dune system further forward than present day

1201/ C02, C03 – 2016 showing set back of frontage but some re-vegetation.

The inspection in 2014 highlighted some erosion over the central area of this frontage (around the entrance channel to the North Low and further south around the Beachcomber access point). It is recognised that it is quite difficult to directly compare sections over this relatively featureless zone of the shoreline. However, the current inspection tends to suggest that, while there are areas of erosion such as on the face of the isolated dune "island" and in areas around the outfall to the North Low, this may be adjustment along the developing embryo dune face and specifically relating to the constraint imposed by generally increasing beach levels on the channel of the North Low. Overall, the indications appear to be one of accretion. In particular, there appears to be a development of a higher beach and dune vegetation between the island dune and the main dune face of the North Low. Uncertainty over future development of this area in response to beach levels was highlighted in the SMP.

1201/ C03, 1301/C01 – at main golf course access looking north, showing recent continued development of embryo dunes.

1301/ C01, erosion of "isolated dune island" interaction North Low channel but dune growth beyond.

1301/C01 – North Low channel cutting through higher beach and embryo dune "tail" from island.

1301/ C01, North Low sluice

1301/C01 – 2008 at Beachcomber access

1301/ C01, 2016 at Beachcomber access showing continued dune development.

To the south of the Beachcomber access the dunes appear to have continued to develop. There has been some slight erosion over the central section of defence length 121AA901A1401C31 but in general there appears to be continuing development of the dune toe. The upper grass flats to the south potentially stop accumulation of dune growth in this area.

1401/C31 – 2010 north of Beachcomber access

1401/ C31, 2016 north of beachcomber access

1401/C31 – grass flats potentially limiting sediment supply to dunes.

1401/ C31, Sluice to South Low. New fencing installed.

1401/C31 – channel development to South Low.

1401/ C31, Bank failure to area of South Low.

The new sluice as part of the Northumberland 4shores project allows saline intrusion to the area behind. The development of vegetation is presumably being monitored. Between the new sluice and the main Beal Sluice (121AA901A1401C01) there has been a bank failure. This needs to be reinstated.

There is minor damage / undercutting to edge bank protection either side of main Beal Sluice.

1401/C01 – undermining of edge protection.

1401/ C01, undermining of edge protection. .

The frontage between Beal Sluice and the Holy Island causeway remains generally healthy with good vegetation growth. The coastal path, however, is tidally constrained around the headland Beal Point and there is the need to climb over the bank which is difficult.

1401/C02 – Good vegetation to Beal Point .

1401/ C02, access issues around Beal Point. .

<u>Beal to Elwick</u>

From the landfall of the Holy Island causeway, near Beal, south to Fenham Burn, the shoreline is characterised by a good fronting width of salt marsh and mud and sand flats. The marsh becomes narrower and patchier towards Fenham Mill, and again along the section between Lowmoor point and and Tealhole Point, at the outfall of Fenham Burn.

1401/C23 – wide vegetation looking from causeway.

1401/ C23, reduced vegetated width looking back towards Fenham Mill.

1401/C23 – relatively wide vegetation around Lowmoor.

1401/ C23 Narrowing vegetation looking towards Tealhole Point.

Generally the marsh fronts a low earth bank to rising land behind and overall is in fair condition. There are various local defences at Fenham Mill, including to the slipway. Towards Tealhole Point there has been some minor erosion and local piling up of rock has been undertaken to mitigate this.

1401/C23 – local timber defence.

1401/ C23, Slipway.

1401/C23 – local defence north of slipway.

1401/ C23, Local piling of rock to prevent erosion.

Beyond the Fenham Burn the width of saltmarsh tends to reduce. There has been minor erosion in places and again, possibly some local piling of rocks to mitigate this.

1401/C24 – Fenham Burn.

1401/ C24, Minor erosion to bank to rising land.

Elwick to Budle Bay

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 but locally is in poor condition where voids have opened due to lose or sunken stones. Despite this, the 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 would benefit from routine maintenance by the local landowner to infill gaps in the stones.

1401C98 – generally fair but locally poor stone-revetted embankment.

1401C98 – generally fair but locally poor stone-revetted embankment.

Further along the frontage is a bracken-covered coastal slope leading to the Ross Point dunes. This remains mostly stable with some signs of erosion at the toe and historic blow-outs.

The dunes at Old Law are in good condition. The landward side of the dunes is well vegetated and stable and fronted by a wide cobble berm. Two navigation beacons are present at Guile Point, one directly on the foreshore and the other on the dunes. The seaward side of these dunes shows only very localized and small-scale signs of partial erosion.

The dunes along Ross Back Sands appear very stable with continued signs of accretion and embryo dune growth. The fronting foreshore is wide and healthy. The dunes at Ross Links extend towards Budle Bay where they are fronted by salt marsh and mud flats.

Various walls and grouted stone revetments, rip-rap and concrete retaining walls extend around Links End towards the sluice at Ross Low channel. These assets are generally in fair condition although would benefit from some maintenance by the local landowner.

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

1401C14 – Fair condition revetted bank, but local maintenance would be beneficial

1401C16 – Good condition sluice at Ross Low channel

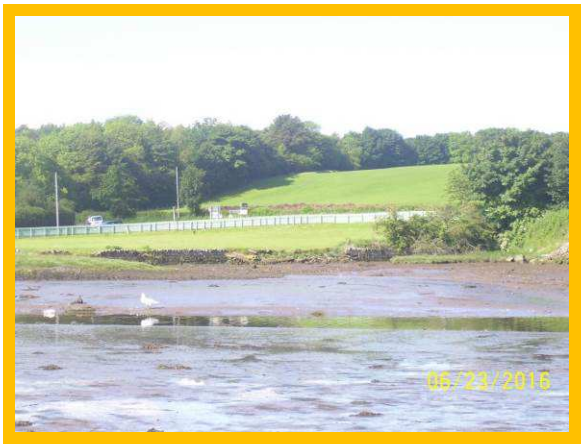
Along the Chesterhill Slakes in Budle Bay the salt marsh remains generally in a healthy condition, with salt pans evident in several locations, with little change evident since the previous inspection. Whilst marsh edge erosion was reported in the 2012 inspections, it has not been evident since then with a healthy marsh edge. In some places there is Chord Grass (*Spartina*) growth on the foreshore.

1401C21 – Salt marsh in healthy condition in Budle Bay

1401C21 – Salt pans within the salt marsh in Budle Bay

<u>Budle Bay to Bamburgh Moor</u>

At Waren Mill, the wall fronting the private land at the head of the bay was reported as being in very poor condition during the 2014 inspections, with significant collapse along the central section of masonry. This was has been repaired by the owners but remains in general poor overall condition. The revetment fronting the B1342 appears in fair condition although somewhat overgrown and in need of repointing.



1501/C02 – poor condition of masonry wall

1501/C04 – gaps and local movement of stone to revetment.

There was concern over safety with respect to the old Jetty at Heather Cottages within section 121AA901A1501C06 reported in the 2014 inspection. This has not substantially deteriorated but still might be considered a public safety hazard. There has been significant erosion to the south of the jetty, although at present this only cuts back as far as the second dune ridge shown in 2008. This is considered to be associated with the growth of the spit across Budle Bay, changing the position of the channel. The jetty does strongly influence the ability of the channel to cut further to the south.

1501/C06 – Partial collapse of northern wall to jetty

1501/C06 – south face and core of jetty

1501/C06 – 2008 major area of dune to south of jetty

1501/C06 – 2016 major area of erosion to south of jetty

There continues to be growth of the dune head to the north of Budle Point. The dunes between Budle Point and Harkness Point continue to show areas of erosion and more general accretion, with development of embryo dunes in some places. There has been a significant land slip at the crest of the coastal slope close to the lookout point and golf club. There is no evidence of erosion at the toe of the slope and the slip is considered to be due to ground water and slope instability.

1501/C07 – areas of dune lower dune growth

1501/C07 – significant slip at crest of slope

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 and 2014 inspections has now been repaired with resurfacing, a new kerb and adjacent stone armouring.

Localised erosion damage to road at Chare Ends in 2014 (4901c01)

Repaired road surface and kerb at Chare Ends in 2016 (4901c01)

Repaired road surface and kerb at Chare Ends in 2016 (4901c01)

The dunes extending south from the causeway road towards The Basin are well vegetated and remain stable. There is evidence of small-scale sand accretion and embryo vegetation growth at their toe. Where salt marsh fronts the dunes, it is in healthy condition.

At The Basin, the dunes make way to gentle coastal slopes and then low cliffs which are fronted by a gravel and cobble ridge. 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 inspections. Holes from Sand Martins are still present in the some exposed sections of cliff.

Stable dunes approaching The Basin (/4901c03).

Holes from Sand Martins in exposed section of cliff at The Basin (/4901c02).

South of The Basin the cliffs increase in height and whilst mostly stable are eroding in places. 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, and erosion of the low grass bank which was evident in the previous inspections was not apparent at the time of the most recent inspections.

Eroding section of higher cliff (/4901c03).

Beach in shelter of St. Cuthbert's Isle (/4901c04).

Following a short section of hard rock cliff, there is a shingle beach at the boat houses west of the pedestrian footpath to Heugh headland. This beach appears stable and previously reported problems in 2010 and 2012 regarding poor condition at the toe of the low masonry wall which extends to the south were not observed due to coverage by shingle along part of the wall and a new *in situ* cast toe along visible sections.

The highly fissured hard rock outcrop of Steel End provides natural sheltering to the harbour and bay to the north. Following successive inspections from 2008 onwards which reported several defects with the harbour pier, a major repair of the structure has been undertaken, with concrete encasement of upper sections. This has improved the condition of the pier to good. Problems previously noted, associated with undermining were not observed due to high beach levels at the toe.

Improvement works to harbour pier (/4901c09)

Improvement works to harbour pier (/4901c09)

Improvement works to harbour pier (/4901c09)

Within the harbour bay (The Ouse) the sand and gravel beach appears stable with little change evident over a number of recent inspections. As identified during the previous inspections, 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, but localised.

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

Active but localised 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 ideally 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 over almost all if its extent, but there is erosion and cliffing of the grassed low cliffs on the north face where it nears the path.

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

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

The low coastal slopes between Castle Point and Emmanuel Head are fronted by wide and high shingle berms and are relatively stable and in good condition. There is some evidence of shingle 'washover' during storms in the form of washover fans deposited above the crest. North of Brides Hole, cliffs become higher and these 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.

Relatively stable shingle bay near Sheldrake Pool with washover fans (/5001c03)

Erosion of soft cliffs remains an ongoing process (/5001c04).

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.

Locally active cliffs at Nessend (/5001c07).

Locally active cliffs at Nessend (/5001c07).

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. 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.

Well vegetated dunes at Snook Point (/5001c10).

Causeway road and salt marsh (/5001c011).

3.6 Bamburgh Moor 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.

Despite relatively low foreshore levels, evidenced by exposure of the rock platform, there has been little evidence of significant erosion of the dune /coastal slope north of Bamburgh compared to 2014.

General view showing exposed rock platform north of Bamburgh.

Embryo dune growth evident just north of castle and along main dune frontage 1601/ C05

Along much of the frontage down to Islestone Rocks (121AA901A1601C05) there has been recent embryo dune growth. There is slight cliffing of the dune local to Islestone Rocks.

"The Dice" provide a useful reference point for this frontage and as shown below highlight: the steep cliffing in 2006, the slight growth of the dune immediately to the Dice in 2008, slight improvement generally to the dunes in 2010 and the significant growth of embryo dunes behind and to the south of the Dice in 2016.

View of the dune at "the Dice" 2006

View of the dunes at "the Dice" 2008

View at “the Dice” 2010.

View at “the Dice” 2016, 1601/ C05

Beyond Islestone Rocks, the dune systems show a trend of recovery with in some areas build-up of sand at the toe of the dune and embryo dune development in other areas.

General improvement in dune toe 1601/ C02.

Sand to upper rock platform and embryo dune growth between rock outcrop areas 1601/ C03

Some evidence of recent dune cliffing to the north of Monk’s House but associated with subsequent of the upper beach 1601/C03

Embryo dune growth in front of Monk’s House 1601/ C03

recent cliffing to St Aidan's dunes (north) and subsequent of the upper beach growth 1601/C04

recent cliffing to St Aidan's dunes (south) and subsequent of the upper beach growth 1601/C04

The sea wall to the south of St Aidan's dunes along Seafield Road remains in good condition. As identified in the 2014 inspection there is general separation of the coping and the upper section of the wall. However, there is no loss of coping nor displacement. While there is some outflanking to the northern end of the wall this has not significantly worsened since 2006. The slight erosion of the bank at the southern end has not significantly worsened.

Outflanking of northern end of wall 1701/C54 - 2006

Outflanking of northern end of wall 1701/C54 - 2016

The defences immediately to the north of Seahouses harbour (121AA901A1701C02 to C04) remain in fair condition. Some minor damage has occurred since 2006 as shown below.

1701/C02 to 04 - 2006

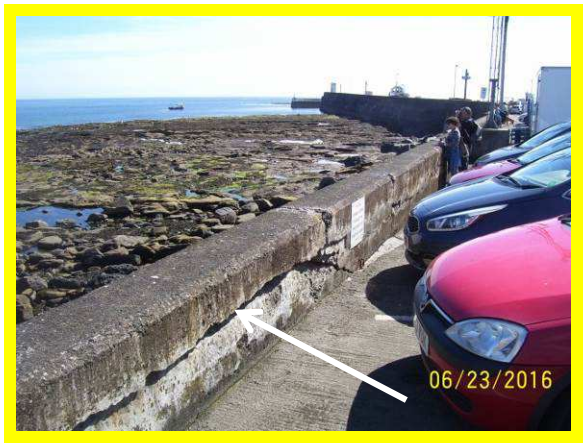
Damage of lower coping 1701/C02 - 2016

1701/C03 2016, requires repointing.

No significant damage 1701/C04 - 2016

There has been no significant deterioration to the two concrete walls to storage yard and outer parking area. There are, however significant cracks to wall 121AA901A1701C06.

1701/C05.



Old crack not noticeably worse 1701/C06

There has possibly been some further flattening of the wave reduction rock feature. However, this may be achieving stability. The need for any improvement should be reviewed against whether the structure still reduces wave impact.

Rock armour wave reduction 1701/C06 – C07

Old crack not noticeably worse 1701/C07

The outer the main north Pier does not appear to have worsened, except in one location towards low water. Here there has been further abrasion of an old developing hole.

Developing abrasion hole 1701/C07 2010

Increased depth of abrasion hole 1701/C07 2016

The 2014 report identified reports of undermining to the south east corner of the stub to the main pier. This has worsened to 2016 and repairs are recommended.

Pier head 1701/C08

South East corner to stub 1701/C09

No obvious worsening of abrasion areas 1701/C09

No obvious worsening of abrasion areas 1701/C09

Some repairs have been undertaken to the Inner Pier, including to the encasement of the inner face of the Inner Pier.

Inner face of the Inner Pier 1701/C10

Inner face to North Pier 1701/c11

No signs of deterioration 1701/C12

No signs of deterioration 1701/C13

It was reported in 2014 that there might be some undermining to the head of the Main Pier, although no sign of movement was observed in 2016. To the outer face of the Main Pier there is no further sign of movement in the damaged masonry area.

No signs of undermining 1701/C14

No signs of deterioration 1701/C14

There is little or no significant change to the walls to the south of the main harbour area.

1701/C15 Good condition

1701/c16 Good condition, no sign of undermining.

1701/C17 Good condition

1701/C18 Good condition

There has been slight erosion to the crest above the rock revetment to the east of the Crewe Street wall. However, this poses no significant risk at this time.

1701/C19 minor erosion above rock

1701/C19 ridge to back of harbour.

The Outer Breakwater was reinforced and encased in 2008. This structure has suffered no significant damage and remains in good condition.

1701/C20 No signs of damage

1701/C21 Good condition, some cracks in original deck but no significant damage

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 120AA901A1701C22 there is continued erosion to the crest of the access ramp, although this does not pose a significant risk at present. Further along the frontage there is some embryo dune development giving way to the slowly eroding cliffs around North Sunderland Point. There seems to be no immediate significant risk.

Erosion to access ramp 1701/ C22

Embryo dunes within bay with slow erosion to cliffs to the south 1701/ C22

Beyond North Sunderland Point erosion continues to the thin bounder clay ridge, running along the sea ward face of the golf course to the Annstead Burn. Access along the ridge has been closed off and the ridge is no longer possible. There is limited erosion to the north bank of the Annstead Burn but also areas where the toe to the dune has recovered. This poses no significant risk.

1701/C23 Narrowing ridge

1701/C23 limited erosion to golf course

Minor areas of erosion and some areas of toe dune development to Annstaed Burn.

1701/C23 bridge to Annstead Burn

Further south along the main Annstead Dunes, there is some evidence of recent erosion but this has recovered to a degree with a build-up and vegetation to the toe of the dunes.

1701/C23 some evidence of erosion but with general recovery at the toe of the dunes.

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 a harbour at Beadnell and a wide natural dune system to the south.

At Beadnell Haven there are private defences, consisting of dumped rock, which remain largely intact but 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 cracks and loss of mortar evident, but the outflanking issues warrant a poor overall classification. The soft earth cliffs around Dell Point (Red Brae) have previously experienced erosion along most of their length but presently have not significantly deteriorated. The concrete seawall fronting the property at the north end of the main Beadnell North bay is in good condition with only minor signs of cracking and rust staining.

Poor overall classification of walls north of Dell Point (/1701C25)

Good condition seawall (/1701C31)

The various masonry seawalls at Nacker's Hole remain generally in poor condition with significant abrasion and gaps between blocks. In one area missing blocks has resulted in a sizable void. Undermining and voids are prevalent along much of the length. There appears no overtopping damage since the previous repairs c2011. It is recommended that the improvement works proposed in the Beadnell North PAR (also covering Lady's Hole) be implemented as soon as funding becomes available to prevent failure of this seawall.

Undermining of seawall at Beadnell North (Nacker's Hole) (/1701C36)

Voiding within seawall at Beadnell North (Nacker's Hole) (/1701C36)

Further south at Lady's Hole, the rock-filled mattresses remains in poor condition and in need of repair with burst baskets along the toe. It is recommended that the improvement works proposed in the Beadnell North PAR (also covering Nacker's Hole) be implemented as soon as funding becomes available to prevent failure of this seawall.

Failing mattresses at Beadnell North (Lady's Hole) (/1701C40)

Failing mattresses at Beadnell North (Lady's Hole) (/1701C40)

Further south there are smaller rock-filled gabion baskets protecting several properties at the southern end of Lady's Hole. In past inspections these have been observed to be splitting in places, although not to the same extent as the larger mattresses further north. However, during the present inspection there was beach material (large cobbles) built up on the upper beach, largely burying these gabions. The seawall fronting the southern property in lady's Hole remains in good condition.

The headland of Beadnell Point (Ebb's Nook) remains in a stable condition. A stone retaining wall near the Lime Kilns appears stable despite some gaps, whilst the rock revetment at the intersection of the coastline and the harbour also appears to be effective and stable.

The structures at Beadnell Harbour are generally in fair to poor condition with masonry walls and concrete coping showing signs of abrasion and cracking. However, there is also evidence of toe undermining on both the outer and inner face of several of the structures. It is suggested that this situation is monitored closely, perhaps with a more detailed structural inspection and investigations, because a breach previously occurred in the harbour wall, requiring emergency repair works.

Abrasion and undermining of Beadnell Harbour wall (outer face of eastern wall) (/1701C47)

Open joints between blocks on Beadnell Harbour wall (inner face of eastern wall) (/1701C51)

Undermining of Beadnell Harbour wall (inner face of southern wall) (/1701C51)

Undermining of Beadnell Harbour wall (inner face of southern wall) (/1701C51)

Missing block at toe of Beadnell Harbour wall (inner face of northern wall) (/1701C52)

Undermining of Beadnell Harbour wall (inner face of northern wall) (/1701C51)

At the northern end of Beadnell Bay, adjacent to the harbour, the poured concrete revetment protecting the access steps is in poor condition. Elsewhere within Beadnell Bay, the dunes appear to have suffered erosion in places since the 2014 inspections, but have subsequently recovered with healthy beach levels and embryonic vegetation development at their toe.

Missing block at toe of Beadnell Harbour wall (inner face of northern wall) (/1701C53)

Sand accretion and embryonic vegetation growth at toe of dunes in Beadnell Bay (/1801C01)

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 in Football Hole are in good condition, with only very small areas of localised slumping and generally sand accretion and embryonic vegetation growth at the toe. There has been some localised erosion in the coastal slope at Newton Point headland, however, with the National Trust fencing off a small area adjacent to a fence line. This now requires relocation of the fencing inland. The wall at Low Newton-by-the-Sea remains in fair condition.

Stable dunes in Football Hole (/1901C02)

Coastal slope erosion at Newton Point headland (/2001C01)

The dunes within Newton Haven appear to have experienced slumping on a measureable scale at some point since the previous inspections in 2014. However, since that damage was incurred, the dunes have recovered with currently accreting sand levels and embryonic vegetation growth at the toe. This means they are currently in fair condition once again, although remain susceptible to winter storm damage and the long term sustainability of some of the bungalows must be questioned. The most vulnerable section is at the intersection of Newton Haven and Embleton Bay where the shore protrudes seawards in the lee of Embleton Out Carr rocks and where bungalows are close to the dune crest.

Previous dune damage followed by recovery at Newton Haven (/2001C03)

Previous dune damage followed by recovery at Newton Haven (/2001C03)

There have been interesting changes in Embleton Bay at the outflow of the Embleton Burn. The channel has changed its route as it flows to sea, running to the south very close to the toe of the dunes before flowing across the inter-tidal towards low water. This has resulted in localised erosion to those dunes, but this does not present any risk to assets. Otherwise, the dunes are relatively stable and in good condition, especially at the southern end where protected by a beach composed of large cobbles.

Change in course of Embleton Burn as it discharges to sea (/2001C04)

Localised dune erosion adjacent to channel of Embleton Burn (/2001C04)

Stable dunes in Embleton Bay (/2001C04)

The hard rock cliffs at Dunstanburgh Castle are highly stable, aside from one local area of rockfall.

Hard rock cliffs at Castle Point (/2001C05)

Localised rock fall at Castle Point (/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 a harbour at Craster and natural defences.

The gentle coastal slopes from Dustanburgh Castle to Craster Harbour are well protected by a shingle/ boulder foreshore and are generally in good condition. A low vertical masonry wall and steeper coastal slopes immediately adjacent to the north pier of Craster Harbour remain in good condition.

Stable gentle slopes and rocky foreshore south of Dunstaburgh Castle (/2101C02)

Stable slopes and masonry wall north of Craster Harbour north pier (/2201C02)

At Craster Harbour no significant change was evident since the last inspection with all structures remaining in a fair condition. The landward and seaward faces of both north and south harbour arms show noticeable signs of heavy abrasion and spalling along the crest wall. This is not unexpected for a structure which was built in 1906.

Abrasion and spalling on crest wall of north pier (/2201C03)

Abrasion and spalling on inner face toe of crest wall of south pier (/2201C11)

Previous concrete repairs in the south pier deck and renders to the inner facing wall are starting to break-up in places. A previous observed crack in the south pier walls does not appear to have worsened since the previous inspection but should be monitored regularly for signs of movement. Undermining of the toe apron at the seaward end of the pier has previously been observed, but was not noted during this survey due to beach sediment (sand and cobbles) at the toe.

The previous inspection noted undermining and a deep void beneath the boat ramp but this was not noted during the present inspection due to the presence of accumulated beach sediment (sand and cobbles).

The coastal slopes to the immediate south of the harbour are inactive, and initially are protected by a rock revetment at the toe that is in good condition. There is only one area, further south of the revetment, where localised slumping has occurred in the till, but this does not threaten the footpath or properties. Where the rock revetment ends, the toe of the slopes becomes well protected by hard rock slabs forming a ledge.

Inactive slopes with rock revetment at toe (/2201C13)

Inactive slopes with rock ledge at toe, with one minor area of slippage (/2201C14)

The coastline south of Craster to Howick consists largely of hard rock slabs with vegetated upper slopes which are generally stable and in mostly good condition. The high masonry wall around The Bathing House near Howick is in good condition with no signs of undermining, abrasion or loss of mortar.

Inactive slopes with natural rock platform at toe (/2301C01)

Masonry wall at The Bathing House in good condition (/2401C02)

Just south of here, at Rumbling Kern, a short length of low masonry retaining wall at the back of the beach is in fair condition. Further south, at Howick Haven, there are two further short lengths of masonry retaining walls at the back of the beach; one with a set of access steps. These walls are in a poor to fair condition with weathering of blocks and loss of mortar evident.

Poor condition retaining wall (/2501C01)

Poor condition retaining wall (/2501C01)

The footbridge just to the north of Iron Scars has a short section of masonry retaining wall with a concrete toe beam, located adjacent to its southern landing. One section of the toe beam appears to have rotated and broken away, whilst there are is notable damage, including voiding, in the deck and outflanking where the wall abuts the adjacent cliff. Steel sheet piling which contains the concrete where it supports abutments under the footbridge is badly corroded and one long section of concrete has totally broken away from the northern landing of the footbridge. The structure is in need of some maintenance.

Voiding in concrete at southern bridge abutment (/2501C01)

Detached toe beam at northern bridge abutment (/2501C01)

The bays of Sugar Sands and Howdiemont Sands comprise healthy sandy beaches backed by stable dunes, with mature and embryonic vegetation. The only sign of (minor) erosion is in a highly localised patch immediately south of the footbridge across the small burn which discharges at the southern end of Howdiemont Sands. This erosion is affecting the fence line which is in need of repositioning.

Stable dunes with mature and embryonic vegetation growth (/2501C01)

Local erosion affecting fence line (/2501C01)

An outfall pipe extends across the rocky shore platform at Longhoughton Steel. The shore platform and hard rock cliffs at Longhoughton Steel and Boulmer Steel mean that the coastline is very stable.

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 and rock revetment at Boulmer village.

At Boulmer village, a capital coast protection scheme was undertaken between April and May 2016 to address the problems of erosion identified in previous reports. Initially, the defences comprised two separate sections of stacked concrete blocks, one to the north of the village and one to the south.

Previous attempts to provide some defence in the central section were made on an *ad hoc* basis by local residents by tipping small boulders and reprofiling beach sand. However, in December 2013 the North Sea storm surge caused erosion of the frontage, threatening properties at both the northern and southern ends where the concrete blocks became outflanked.

In response to this, Northumberland Estates (in liaison with Northumberland County Council) received approval to place rock armourstone from nearby Howick Quarry as an emergency defence scheme to prevent loss of properties.

Since that time, work has been ongoing on securing funding, undertaking design and consenting and recently delivering a scheme involving the placement of more rock armourstone as a defence toe to the coastal slope and backfilling and reprofiling with beach sand above the rock toe. This was initially focused on the central 'gap' in the earlier defences, but was also extended to provide separate 20m length slightly further north to protect an isolated property that would otherwise have lain outwith the scheme. Given that the works were completed in December 2013 and May 2016, they have been defined as being in 'good' and 'very good' condition respectively.

New rock revetment toe to locally protect isolated property at northern end of Boulmer village (/2601C01) – constructed May 2016

Stacked concrete blocks (original scheme) and rock revetment (emergency scheme) at northern end of Boulmer village (/2601C02)

New rock revetment toe to protect previous central 'gap' at Boulmer village (/2601C03) – constructed May 2016

Stacked concrete blocks (original scheme) and rock revetment (emergency scheme) at southern end of Boulmer village (/2601C05)

The dunes and low vegetated coastal slopes at Boulmer Haven are in good condition with accretion and embryo vegetation, but around Seaton Point the dunes reduce to generally fair condition due to some localised slumping.

Stable dunes around Boulmer Haven (/2601C06)

Local slumping to dunes around Seaton Point (/2601C07)

3.12 Seaton Point to Foxton Hall (MU 12)

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

With progression around the Seaton Point headland and into the northern part of Foxton Bay, the erosion of the cliffs increases. This is particularly linked to the absence of rock platform fronting the cliffs with progression away from the headland. In places where there are bungalows at the northern end of the bay, local attempts to slow the erosion have been made with stone built walls or timber breastwork, but these have suffered damage or are largely ineffective.

Local stone built wall at toe of eroding cliffs (/2601C08)

Local timber breastwork at toe of eroding cliffs (/2601C08)

The access steps towards the northern end of Foxton Bay are protected by rock armour but erosion of the cliffs either side continues. Just to the south of the access steps, the eroding cliffs are largely bare of vegetation on their face and sand martins are nesting in the upper sections of cliff. The ongoing erosion has caused the fence to become lost in places.

Rock armour around access steps in north of Foxton Bay (/2601C09)

Actively eroding cliffs causing loss of fencing (/2701C01)

At Foxton Hall, the eroding cliffs reduce to stable and well vegetated earth slopes that are protected by a shingle and cobble berm. In front of the properties there is localised timber breastwork. Remnants of an earlier concrete structure remain on the shore.

Stable and well vegetated slopes near Foxton Hall (/2701C02)

Timber breastwork fronting property (/2701C02)

At the footpath access to the beach, there is a small ‘breakwater’ wall coming around the headland and extending seaward. The landward section is concrete and in fair condition. The adjacent stone section is also in fair condition, but the seaward end is comprised of loose boulders and in poor condition.

Breakwater wall at Marden Rocks headland in fair to poor condition (/2701C03)

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 18 coastal defence assets, comprising a number of man-made defences at Alnmouth and other natural coastal slopes and dunes.

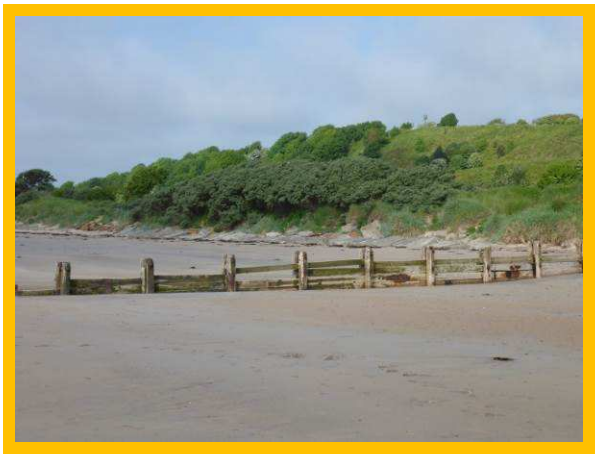
Immediately south of the breakwater style wall south of Foxton Hall, the backing slopes are well protected by foreshore boulders and rocky shore platform, although slumping has occurred locally in one place. Further around the headland is an isolated, short and mostly buried timber groyne in fair condition, with a very short section of remnant timber from another groyne structure slightly further south.

Generally stable slope protected by rocky shore platform but one area of local slumping (/2701C04)

Isolated timber groyne (/2701C04)

Further around the Marden Rocks headland into the northern part of Alnmouth Bay a set of five further timber groynes is present. Usually these groynes are not visible due to burial by beach sand, but low beach levels at the time of the inspections have led to their exposure and corresponding erosion along the toe of the backing low dunes. The first groyne is generally fair but has some missing planks and its piles are rotten in places. The second groyne is short in length and suffers from lateral deflection. The third groyne has gaps between planks and rotten piles. The fourth and fifth groynes have notable missing planks. Overall the groyne field is in poor condition.

Rotten timber piles on first (northerly) groyne in field of five groynes (/2701C05)



Missing timber planks on fifth (southerly) groyne in field of five groynes (/2701C05)

Immediately south of the last groyne, concrete blocks placed at the toe of the low dunes has helped stabilise them initially, although some minor erosion continues. To the north of the River Aln estuary, beach levels in front of the car park appear relatively stable due to the estuary channel taking a more direct route to discharge at sea, rather than running along the toe of the dunes at the present time.

Further south, nearer the estuary mouth, concrete blocks are again visible and there is initially some minor dune slumping, but directly at the mouth and around into the estuary the dunes are wide, high and stable.

Relatively stable dunes protected by concrete blocks in north of Alnmouth Bay (/2701C06)

Minor slumping in dunes protected by concrete blocks by Alnmouth Golf Clubhouse (/2701C08)

A masonry wall that extends into the estuary appears stable but appears to bow at its seaward and should be monitored for future signs of rotational displacement. The concrete and cobble toe apron of the wall is initially buried but, with progression into the estuary, becomes higher and eventually merges into a low masonry stone wall at the River Aln Boat Club which extends along Peases Park. This wall remains in good condition and is fronted by salt marsh offering addition surface roughness against incoming tidal energy.

Masonry wall with concrete and cobble toe apron (/2801C02)

Masonry wall at Boat Club (/2801C03)

The footpath along the estuary extends away from Peases Park and is protected by an older low masonry wall which is in fair condition. A previously collapsed section of crest wall (reported during the 2014 inspections) has been repaired, but there are occasional missing blocks and the wall would generally benefit from re-pointing in many places. Salt marsh continues to front this section of wall.

Masonry wall fronted by salt marsh (/2801C06)

Missing block in masonry wall (/2801C06)

A small spit of land comprised of natural ground extends into the estuary, causing the channel to meander around it. The margin of this ground is undercut along much of its length, leading to slumping into the river.

Between the spit of land and the B1338 road bridge over the River Aln, the riverbank footpath was closed at the time of the inspections because an eroded section of bank and collapsed section of wall was being repaired. These works should restore the masonry wall to good condition when complete.

Footpath closure for repairs (/2801C10)

Repair of masonry riverbank wall (/2801C10)

On the south bank of the river, downstream of the B1338 road bridge, the flood embankment has been deliberately breached in one area as part of the Northumberland 4Shores project to create new inter-tidal habitat.

The low masonry wall around the bottom of Church Hill has collapsed along a length of approximately 10m, but it is concerning that adjacent sections are also in very poor condition and work should be undertaken to avoid a larger scale collapse that potentially could lead to slumping of Church Hill. Further around Church Hill another short section of lower wall has collapsed. The whole end-section of the wall needs rebuilding.

Collapsed section of wall at Church Hill (/2801C13)

Defective section of masonry wall adjacent to collapsed section (/2801C13)

The high dunes along the south bank of the River Aln and further south towards Birling Carrs are in variable condition. There is slumping along dunes at the channel edge of the Aln estuary (including one location where a mature tree will be lost imminently to erosion) but some stable or accreting dunes further south as they extend round to the main coastal frontage. However the first 50m or so south of the estuary, the erosion is quite notable and concrete blocks have been placed in attempt to arrest this. For a further 150m the erosion continues, but is less severe, and then the dunes become considerably more stable to Birling Carrs.

Eroding dunes at northern end of Birling Carrs frontage (/2901C01)

Defective section of masonry wall adjacent to collapsed section (/2801C13)

3.14 Northfield to Warkworth Harbour (MU 14)

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

The dunes immediately north of the rocky outcrop of Birling Carrs are stable although the hard rock base has suffered from local undermining and rock falls. However, immediately south of Birling Carrs a slippage appears to have occurred although remedial groundworks (presumably by the caravan park) were ongoing at the time of the inspections.

In the northern section of the Warkworth Dunes, the dunes were generally stable and some embryo dune vegetation growth and sand accretion was observed, decreasing with progression to the south. The sand accretion was so extensive that concrete blocks placed at the toe were largely buried. In the southern section, there was clear evidence of previous erosion forming a distinct cliffline at the toe of the dunes, but subsequent sand accretion and embryo dune vegetation growth.

3.15 Warkworth Harbour and Amble (MU 15)

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

The large armourstones along the exposed north face of the North Pier continue to appear in fair condition. The masonry blockwork at the seaward end is also in fair condition with no obvious gaps or cracks. The revetment on the south face of the Pier is also in fair condition as is the concrete deck. However, 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 a cause of concern although no further movement appears to have occurred. It is understood that this crack and rotation occurred in the end of the structure soon after its construction. Although not formally defined as a coastal defence asset, the North Jetty is in a largely dilapidated condition.

Rock armourstones on north face of North Pier (/3001C01)

Rock armourstones on south face of North Pier (/3001C03)

Seaward end of North Pier in very poor condition (/3001C02)

Dilapidated North Jetty (no asset reference)

The concrete quay wall at the western end of Amble quayside (/3001C05) is generally in good condition with only minor localised cracks visible in the concrete deck. The masonry walls in the small dock basin (/3001C05 & C06) are generally in fair condition, but have several open joints between blocks which would benefit from repointing and one area of concrete spalling. At the eastern end of Amble quayside the previously repaired Broomhill Quay (/3001C05) appears in good condition with no cracking or settlement of the deck or obvious defects in the face of the wall.

At the east end of Broomhill Quay the timber linkspan bridge erected 2008/09 is still in very good condition. Previously the low vegetated bank that was eroding at the intersection of South Jetty and Little Shore Wave Basin (/3001C07) had been protected, to a degree, by rock armour and tipped construction waste. Recently the area has been improved with the construction of some beach huts and the provision of more formalised defence in the form of gabion baskets and fronting rock armour. The area looks in good condition and is now much improved. 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 healthy dunes/links (/3001C08 &09).

Quay wall in good overall condition (/3001C05)

New gabions and beach huts (/3001C07)

The poor condition of the concrete seawall along Bay View road (/3001C10) continues to worsen, with horizontal cold joints and vertical cracking, toe undermining, missing sections of coping, corroded hand railing and voids in the access ramp. Safety issues should be addressed urgently and capital improvement works should follow when funding is secured.

Sea wall along Bay View in poor overall condition (/3001C10)

Access ramp to Little Shore Wave Basin in poor condition (/3001C10)

The South Jetty is in good condition along the length enclosing the Little Shore Wave Basin (/3001C11), with no gaps in the timber decks, all hand railing intact and the steel sheet piling forming the half-tide barrier remaining effective. However, the seaward end, extending to the lighthouse (/3101C01), is very heavily abraded, most notably along the base, at the access steps to the lighthouse and at the junction with the South Pier.

South Jetty in good overall condition (/3001C11)

Poor condition at junction of South Pier and South Jetty (seaward face) (/3101C01)

The condition of the inner face of the South Pier (/3101C02) does not appear to have changed significantly since the last inspection and remains in fair condition along most of its length, although there is abrasion and cracking at the junctions at each end, namely with the Bay View road seawall and with the South Jetty. The seaward face of the south Pier (/3101C02 & C03) is generally in fair condition with frequent horizontal cracking at the south end. The access steps at the south end of the Pier (/3101C03) 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.

There is no noticeable change in the condition of the concrete wall protecting Cliff House and Pan Point (/3101C04). This structure continues to show numerous cracks and cold joints throughout. Some cracks expose corroded and broken reinforcement bars, and toe undermining is still observed at the westerly end.

Heavily abraded access steps to foreshore (/3101C02)

Cracks in private seawall around Pan Point (/3101C04)

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 Paddler's Park children's play area (/3101C05) to the south of Pan Point is generally in good to fair condition, despite being heavily stained. It shows no signs of undermining or movement. Some minor abrasion, localised cracks and spalling to the wave return wall and setback wall were noted. The previously damaged bitumen surfacing was replaced with a concrete decking a few years ago and this remains in very good condition with all joints well sealed.

Seawall in good condition despite rust-staining (/3101C05)

Promenade deck remains in very good condition following previous repairs (/3101C05)

The earth slopes and dunes along Amble Links (/3101C06) have previously been reported as showing signs of erosion, with cliffing along much of the frontage. However, at the time of the present inspections the earth slopes and dunes appeared generally stable with only local areas of very minor slumping. Rock armourstone has been placed at the centre of the embayment and adjacent to the seawall at the south end.

The concrete seawall at Island View headland (/3101C07; constructed in 2003) at the south end of the dunes is substantial and remains in good condition, although there is some evidence of the onset of outflanking at both ends and one crack is evident in the apron at the southern end.

Dunes and low slopes above rock ledge (/3101C06)

Substantial seawall in overall good condition (/3101C07)

The low vegetated cliffs and dunes north of Wellhaugh Point (/3101C08 & C09) were reported to be subject to erosion on some previous inspections but were stable at the time of the present inspection.

The outfall structure remains in a dilapidated condition and previous recommendations for either removal or repair remain valid.

The rocky cliffed headland around Wellhaugh Point (/3101C11) is stable and protected by a wide rock shore platform. As the cliffs blend into low dunes, a rock ledge is present at the base and the frontage remains relatively stable. In one location a set of timber steps has been provided to enable access to the foreshore through the low dunes.

Further to the south, the dunes (/3101C12) are generally stable initially except for a few discrete areas suffering from localised slumping in the face. In one of these areas some concrete debris is present near the dune crest. With progression south a cobble berm is notable at the upper beach, overlaying sand. This helps to stabilise these dunes further, although some local slumping in the front face continues and nearer towards the Beacon Hill headland the erosion worsens and peat layers and petrified tree stumps are visible due to low beach levels.

Cliffed headland around Wellhaugh Point (/3101C11)

Exposed peat layer at base of dunes (/3101C12)

At one location within these dunes is a rust-stained outfall with concrete encasement and rock armour side protection. At another location is a set of access steps with gabion protection and rock armour. However because the rock is small and too light to remain stable on the upper beach it has become scattered around.

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.

Around Beacon Hill, the dunes are formed on top of a rock ledge base and initially are stable. However, where the rock base ends, south of Beacon Hill, the dunes become less stable and there is a section of informally dumped rock armour aimed at reducing risks to properties near the cliff top at Low Hauxley. This armour is loosely packed but appears in fair condition, although slippages remain ongoing in the cliffs behind. In one location immediately south of the end of the revetment, locally won beach sand has been tipped down the cliff in attempt to backfill an area of previous slippage directly in front of one property.

There is a short length of low, undefended dune which has received some sand accretion and is experiencing embryo vegetation growth, but immediately south of here (down to and beyond the beach access ramp) the coastal margin is protected by rock revetment in front of further properties. This is in good condition and towards its southern end forms an overlap to the subsequent concrete block revetment which extends further south. This has a number of large gaps between the blocks, with some rotational displacement apparent at the southern end. Erosion and cliffing of the low earth bank above the blocks continues, with ongoing dumping of construction waste.

Wide rock revetment in good condition (/3201C03)

Rotational displacement at southern end of concrete block revetment (/3201C04)

Immediately south of this revetment is an outfall in poor (but draining) condition. It is clearly evident that terminal erosion extends around 100m south of the end of the defended section, cutting the dunes back. The dunes merge into low cliffs sitting on top of a lower exposed peat layer. The peat has been subject to erosion, with toe slumping and formation of mini 'clifflets' in the face of the peat

The outfall of Hauxley Nature Reserve, at the northern end of Druridge Bay, has previously been reported as being in poor condition, with concrete blocks placed to the north of the outfall to shelter the structure also showing signs of movement and cracking. Since the previous inspections, the Northumberland Wildlife Trust has 'daylighted' the majority of the drainage channel (although seaward parts of the structure and the adjacent concrete blocks remain on the beach), creating a more natural aesthetic in line with the recommendations of the *Druridge Bay Adaptation Study*. The drainage from the reserve now occurs along a natural open channel and then alongside the remnant outfall structure, across gravel, cobbles and boulders. It is understood that ultimately the remnant structural sections will be removed. At the present time, the drainage is working well, although some geotextile placed on the re-graded bank slopes of the open channel section has become exposed and would benefit from being pinned or tied so that it does not unravel and locally erode or destabilise the side slopes. There is some gravel accumulation to the north of the remnant outfall and its protective concrete blocks it is possible that this may move south to block the natural outfall if the remnant structure is removed. This will require inspection and maintenance as necessary to ensure free-flowing drainage from the reserve is unhindered.

Landward view of newly 'daylighted' open channel section of outfall from Hauxley Nature Reserve (/3201C09)

Seaward view of newly 'daylighted' open channel section of outfall from Hauxley Nature Reserve (/3201C09)

Drainage occurring alongside of remnant outfall structure through gravel, cobbles and boulders (/3201C09)

Exposure of geotextile on re-graded side slopes of newly 'daylighted' open channel section (/3201C09)

The dunes along Togston Links continue to erode with partial cliffing of the exposed basal peat layer and slumping evident along most of the frontage. Sand martins are nesting in the upper sections and in places the erosion comes quite close to the Country Park's road.

The large structure at the outfall to Ladyburn Lake remains in good condition. The adjacent slipway belonging to the Hadston Scaurs Boat Club remains in fair condition, as does its protective rock revetment. However, the revetment continues to be actively outflanked at the northern end resulting in unravelling of the structure with some rocks displaced across the foreshore and severe cut-back terminal erosion of the low vegetated earth cliffs to the south. These cliffs are in poor condition with recent erosion impinging on the flanks of the road carriageway.

Erosion of low cliffs (/3201C14) at terminal end of rock revetment

Erosion of low cliffs exposing carriageway of access road (/3201C14)

Around 100m south of the rock revetment, the wide vegetated dunes become less active and are protected by a cobble berm along the toe. Where the berm ends the protection is provide instead by concrete blocks. Generally throughout Druridge Bay, the dunes were stable and healthy at the time of the inspections and upper beach levels were notably high and wide. Towards the south of the beach there are outfall pipes in two different locations which have collapsed but are still discharging. It is notable that several of the natural discharge outlets were running dry at the time of the inspections.

Healthy dunes in Druridge Bay (/3201C15 & C16)

Collapsed section of outfall pipe in southern end of Druridge Bay (/3201C16)

Closer to Cresswell, sandstone emerges at the base of the dunes and at the shore platform, with the dunes remaining very stable and healthy. Immediately north of Cresswell the foreshore builds seaward in the form of a tombolo in the lee of The Scars outcrop. This frontage is protected initially by scattered concrete blocks and then by rock revetment. These structures are in fair condition, with some outflanking to the north of the revetment. The revetment itself is fairly loosely packed and some stones have scattered.

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 slopes.

The revetment in the lee of the Scars blends into a low concrete wall built at the back of the rocky foreshore with rock armour continuing behind the wall to protect the vegetated earth cliffs. The wall is generally well founded on the rock foreshore and in fair condition with minor cracking and staining. However, there are local areas of more significant defects such as undermining, crest abrasion and break-up of some of the numerous previous patch repairs. The earth face along the upper slope continues to show signs of ongoing slumping.

To the south of Cresswell the low concrete wall and interlocking concrete unit revetment is largely in good condition and the area of apparent settlement towards its southern end has not worsened since it was first observed.

Low concrete wall and rock revetment at Cresswell (/3201C18)

Low concrete wall and interlocking concrete unit revetment at Cresswell (/3201C19)

The low earth cliffs backing Stank Letch Rocks continue to show evidence of slumping along much of their length although this does not appear to be recent. There has been previous loss of fencing and timber access steps at this location.

In the sandy bay south of Stank Letch Rocks, the earth cliffs/dunes are mostly stable and there is one outfall in poor condition, but still functioning. There is a haul road access towards the north of the bay and both steps and an access slope converging at another point on the foreshore slightly further south. At these locations a wide cobble berm provides protection at the toe of the cliffs/dunes.

Further south still, fronting the Golden Sands Holiday Park just north of Snab Point, the cliffs become more active once again, where the cobble berm at the toe is sparser. There is one area where a slippage has previously occurred, cutting the cliff top right back to the coast road. At this location, the gabions are now almost entirely obsolete. The entire slope was saturated at the time of the inspections, suggesting a lot of groundwater build up in the failed cliff section. It is likely that further recession at this point will occur, thus affecting the coast road.

Failed section of cliff adjacent to coast road (/3201C22)

Failed section of cliff adjacent to coast road (/3201C22)

To the north of Snab Point headland the two large rock falls first noted by the 2010 inspection are still evident, along with more recent minor erosion of the soft material at the crest.

There are private defences north of Snab Point comprising timber breastwork retaining walls. These were initially built around 2008 built have been further developed over time and remain in good condition. Generally, further south around Snab Point, there are occasional local rock falls in the underlying rock ledge and occasional local slumps/ cliffing of the upper softer material.

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 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.

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 actively eroding, releasing debris to the foreshore.

'Dormant' section of cliff protected by spoil beach (/3401C01)

Actively eroding spoil cliff (/3401C05)

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. There is clear evidence quad-bike / motocross racing in this area and one local resident claimed it is causing considerable frustration and ecological damage.

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. The typical tendency is for small-scale rock falls and occasional local slumps in the soft material but this was not prevalent at the time of the inspections and the cliffs were relatively stable. Further around Beacon Point the previous 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 and at present there appear to be no recent episodes of failure. The cliffs here are fronted by an extensive rock ledge and therefore the recession rates are low and the events are highly localised.

At Newbiggin Moor, within the shallow bay fronting the golf course, the cliffs are unprotected by rock platform and have no rock base. At present, the cliffs are recovering from historic erosion which has occurred, with sand accumulation and embryo dune vegetation growth at the toe.

Currently stable cliffs around Beacon Point (/3501C03)

Recovering cliffs/dunes at Newbiggin Moor golf course (/3501C04)

The cliffs fronting Newbiggin Caravan Park comprise three distinct sections.

1. The northern section is unprotected by coastal defences or rock platforms and is 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.

2. 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.

3. The southern section is protected by a rock ledge but, despite this, frequent local slumps remain evident. Two pill boxes are located on the rock ledge and erosion of the surrounding soft cliff material has left these structures perched precariously. However, this erosion has not worsened since the previous inspection.

In both the central and southern sections, rubble has been tipped down the cliff face.

Active slumping at northern section fronting caravan park (/3501C05)

More stable central section fronting caravan park (/3501C06)

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, reducing its overall condition to poor. Active erosion, cliffing and slumping of the soft cliff material behind the structure has continued since the previous inspection.

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-up. 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.

Seawall with undermining and outflanking (/3501C08)

Seawall actively breaking-up since at least 2008 (/3501C10)

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 short wall sections.

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.

Church Point seawall in fair overall condition (/3601C12)

Local crest damage to Church Point seawall (/3601C12)

The recurved section of seawall to the west of Church Point 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.

The start of Newbiggin Bay is marked by a rock armour breakwater, built along the edge of Hully Rocks and extending from just offshore 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 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.

North breakwater in Newbiggin Bay in overall good condition (/3601C13)

Detached breakwater in central Newbiggin Bay remains in very good condition with salient/tombolo developed in lee (/3601C13)

In Newbiggin Bay the new Maritime Centre at the north end of the bay was opened in 2012. The sea walls along Newbiggin Bay are well protected by very healthy beach levels following replenishment operations in 2007 and subsequent net accretion of sand in the lee of the detached breakwater. This has led to windblown sand on the promenade which at the time of the inspection had been swept clear, although 'dunes' were forming in areas of backing car park and play areas. At the centre of the bay the salient / tombolo in the lee of the breakwater is well established.

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 completely buried. All joints appear well sealed.

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.

At the south end of Newbiggin Bay the soft earth slopes are largely stable and protected by a wide beach with new dune vegetation growth evident on the foreshore. At Spital Point the there is no evidence of new rock falls or slips in the overlaying softer material since the previous inspection.

High beach levels and wind-blown sand to rear of promenade in northern sections of Newbiggin Bay (/3601C06)

High beach levels and well-sealed joints in central sections of Newbiggin Bay (/3601C07)

High beach levels fronting rock revetment (/3601C08)

High beach levels and embryo dune vegetation growth at southern end of Newbiggin Bay (/3601C09)

3.21 Spital Point to Blyth Harbour (MU 21)

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

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

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

Hawks Cliff is known to typically experience gradual, local erosion caused by slumping in the upper soft material and occasional rock falls in the harder rock base. The latter is caused by preferential erosion along a mudstone layer leading to undercutting and collapse of the overlying sandstone. Previously, over the severe winter of 2009/10, the whole length of these cliffs 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 previous severe erosion episodes.

The cliffs directly fronting the northern section of Sandy Bay Caravan Park are relatively well protected by a sandstone boulder berm at their toe and here the seaward face of the slopes are well vegetated. However, further south the slopes and cliffs become more unstable and are actively eroding. In places, recession of the cliff top has occurred to within a few meters of the caravans. There are three near-shore rock breakwaters which have helped stabilise the cliffs immediately in their lee, but erosion recommences immediately to the south. Attempts to slow this using tipped rubble are ineffective and unsightly.

Slopes stabilised due to protection by sandstone boulder berm at toe (/3701C02)

Erosion recommences to immediate south of rock berms (/3701C03)

As the coastline turns west at the mouth of the River Wansbeck estuary, there is a sandstone cobble berm which has helped stabilise the dunes on the northern bank. Within the estuary itself there are healthy dunes, sandflats and salt marsh.

On the south side of the estuary, there are various lengths of privately owned masonry walls and slipways associated with the Wansbeck Boat Club. These are generally in fair to poor condition, with one area of collapsed wall in very poor condition and in need of rebuilding before further riverbank erosion occurs.

The undefended section of cliff within the estuary mouth is 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. Whilst episodes of erosion have happened historically, there does not seem to be significant worsening since the last inspection. North of the access ramp the rock armour and some dumped concrete rubble continues to partially stabilise the outflanking problem of the ramp.

Stable dunes within estuary mouth (/3801C02)

Eroding cliffs south of Cambois House (/3901C01)

The rock revetment to the south was constructed by private industry to protect the former foundry. This structure remains largely in good condition although displacement of some rocks along the toe was noted. The well vegetated slope behind is generally stable with no signs of erosion, although it is somewhat hummocky in profile. There is a failed and disused outfall pipe across the beach at the southern end of the revetment. After this point, the low earth cliffs to the south of the revetment are experiencing terminal erosion along a length of approximately 100m and are actively slumping along most of their length.

Rock revetment protecting former foundry site (/3901C05)

Failed section of outfall pipe (/3901C05)

Erosion of cliffs at terminal end of rock revetment (/3901C03)

Erosion of cliffs at terminal end of rock revetment (/3901C03)

Further south of the zone of terminal erosion, there are wide, stable and well vegetated dunes. These appear to have suffered a previous erosion episode leading to cliffing, but subsequently are experiencing accretion of sand and growth of embryo dune vegetation. A set of timber access steps constructed in 2012 adjacent to the southern car park remains in good condition.

At the time of the inspection, South Bay Civils was on site undertaking a 16 week programme of repair works to the outfall towards the southern end of Cambois Bay. Immediately south of the outfall, the dunes become more active, with slumping on their face but then become more stable once again with progression south and protection by a narrow cobble berm.

Stable and well vegetated dunes (/3901C04)

Repair works to outfall on foreshore (/3901C04)

The North Blyth frontage is protected entirely by man-made defences. At the northern end, this comprises 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.

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.

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 is highly unsightly and 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.

Composite defence with corroded steel breastwork (/4001C02)

Composite defence with timber breastwork (/4001C03)

To the south of the timber breastwork a large concrete seawall extends to Blyth East Pier. This structure is generally in fair structural condition with no visible evidence of undermining or movement. However, 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. These are most prevalent at access points through the wall's crest. Of more concern, however, is the significant but damage to the crest wall at its more landward end, 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. The damage to this section of wall was first noted in the 2010 report and has deteriorated progressively since. The crest remains in urgent need of repair. A series of concrete groynes on the foreshore in front of the wall remain very heavily abraded. There is a large crack in the wall at its southern end, near the interface with the main pier section.

Access to the deck of the southern section of Blyth East Pier was not possible at the time of the visit so this structure was inspected solely from the foreshore as far as the tides allowed. The structure is 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.

Damaged crest wall and deck of landward section of Blyth East Pier (/4001C04)

Generally fair condition of main Blyth East Pier substructure (although superstructure in poorer condition) (/4001C05)

3.22 Blyth Harbour River Mouth (MU 22)

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

3.23 Blyth Harbour to Seaton Sluice (MU 23)

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

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, occasional cracked concrete planks.

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 previous reports, 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.

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.

South of the gabions at Blyth South Beach is a short section of sea wall that protects newly constructed backing properties. The wall is generally in fair condition although the poured concrete apron at the southern end is undermined.

Failing gabions protecting very narrow strip of dunes (/4201C03)

Existing sea wall protecting new properties (/4201C04)

South of the beach access ramp, the short section of sea wall is in fair condition but with abrasion and cracks, especially to the access steps. Previous repairs have been made to this structure and it will need to be maintained into the future.

South of a short section of fair condition dune, 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 damage has previously been addressed, especially at the access steps and coping. Overall the wall is structurally fair but aesthetically poor.

The wall merges seamlessly into the main promenade and setback amenity area towards the north of Blyth South Beach which underwent notable regeneration in 2009/10. The new promenade decking, is faring well and the sea wall fronting the promenade continues to be largely buried by high beach levels. 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.

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.

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.

[Note: Following the inspections, a further personal visit was made to the beach in late August 2016 by the inspector and it was noted at this time one of the groyne market beacons had fallen down. This was immediately pointed out to Northumberland County Council].

Healthy beach fronting sea wall and promenade (/4201C07)

Missing timber planks on groynes (/4201C07)

The dune stabilisation works in 2015 continue to be effective, with the sand-filled geotextile bags placed at the toe of the dunes along the south flank of Meggie's Burn remaining covered (or having been re-covered) with emplaced beach sand. It is know from previous visits to the site that the course of the burn did come close to the toe of these dunes and expose some of the geotextile bags, so it is likely that some intervention has been undertaken. It is known that in 2016 some rock armourstones have been placed in attempt to train the course of the burn and keep it away from the toe of the dunes. Christmas trees have been placed just to the south of the area benefiting from the previous works in further attempt to help stabilise this section.

Stabilised, replenished and re-profiled dunes near Meggie's Burn (/4301C01)

Rock armourstone placed in 2016 to train course of Meggie's Burn away from dune toe (/4301C01)

Further south at the centre of the bay, the beach remains very wide and healthy and this is to such an extent that the dunes are not affected by marine processes at the present time. Some new vegetation growth along the toe of the dunes continues. This is likely to be a natural recovery following storm damage over the winter of 2009/10. At the two areas in the centre of South Beach where sand-filled geotextile bags have been used to stabilise the dune toe there was wide, healthy beach volumes and no visible signs of dune erosion.

At the south end, towards Seaton Sluice the dunes remain highly stable with notable embryonic vegetation growth. The low masonry wall and promenade at Sandy Island, immediately north of Seaton Sluice harbour, was almost completely buried by high beach levels with vegetation established over the centre section of the wall. The exposed sections of the wall remain in good condition.

Very wide and healthy beach protecting dunes in centre of South Beach (/4301C02)

Stable dunes and good condition low wall at Sandy Island (/4401C01)

The timber groyne at the mouth of Seaton Burn remains in poor condition showing signs of timber damage and missing planks where it retains rock armour. 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.

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 fair 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. However, there are some open joints that would benefit from filling. The concrete decking at the harbour entrance is in danger of being undermined from behind the timber groyne. The adjacent length of masonry wall within the entrance continues to have sand accumulation on the crest, making access difficult and potentially dangerous. Some loss of mortar and gaps between blocks was also observed.

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 and there is undermining on the inner face at the toe.

Undermining at toe on inner face of boat ramp (/4401C05)

Collapsed wall on outer face of boat 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.

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.

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 to poor condition.

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 previous inspections. These should be repaired through routine maintenance.

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. The sealant should be replaced.

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. In one or two areas there are missing blocks and in many locations there are abraded blocks. On the landward side of the wall the poured concrete slurry continues to break up and soil erosion of the land is continuing.

Missing mortar and gaps between blocks *(/4401C11)*

Break-up of poured concrete slurry and erosion of slope (/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 and local rock falls.

3.24 Seaton Sluice to Hartley (MU 24)

This management unit extends from Seaton Sluice harbour in the north to 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 remains generally in good condition with some minor cracks and staining with more significant spalling along the upper protruding section.

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.

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. 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.

The high vertical concrete sea wall at the centre of Collywell Bay is generally in fair condition, tending to poor in local areas of defects. Maintenance work to fill three notable vertical cracks is still required, however no movement was apparent at these locations and they do not appear to have worsened since the previous inspection. The toe apron and access steps remain highly abraded and cracked in places.

The concrete seawall at the south end of Collywell Bay is generally in good condition but above the wall slips in the vegetated earth slopes remain apparent, but only appear partially active with no material visible on the foreshore.

At the south end of Collywell Bay gabions protect the toe of the coastal slope above the beach access ramp. These appear to be relatively new replacements for previously failed gabions but some are already starting to tend towards poor condition in places, with split caging likely to lead to spilling of stones. 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.

One of three notable vertical cracks in the sea wall *(/4401C17)*

Break-up of gabion baskets (/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's frontage, 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.

4. Comparison with Previous Assessment

The previous formal assessment across the whole study frontage was undertaken in summer and autumn 2014. Since that time it is notable that several areas have benefited from maintenance, repairs or capital schemes, most notably:

- Waren Mill
- Holy Island causeway
- Holy Island harbour
- Seahouses harbour
- Boulmer village
- Hauxley Nature reserve
- Meggies Burn in Blyth South Beach

Of the remaining areas, some sections of sea wall or pier structures have suffered from further deterioration since the 2014 inspections, most notably:

- Beal flood embankment
- Seahouses harbour
- Beadnell seawall and stone-filled mattresses
- Beadnell harbour
- Newton Point
- Church Hill, Alnmouth
- Little Shore Wave Basin
- Cresswell
- Blyth South Beach (loss of a groyne marker beacon)

Also, the most major changes along the natural frontages since 2014 exist along undefended dunes, which generally have recovered well from the damage suffered during winter storms in 2013/14.

5. Problems Encountered and Uncertainty in Analysis

All assets were inspected at suitable stages of the tide and in good weather conditions. Therefore there were no major problems encountered during the inspections.

Some harbor structures were only viewed from a distance (e.g. seaward end of Blyth East Pier) or from the deck. In these cases, vessel-based or underwater inspections are recommended to inform future maintenance and capital works programmes.

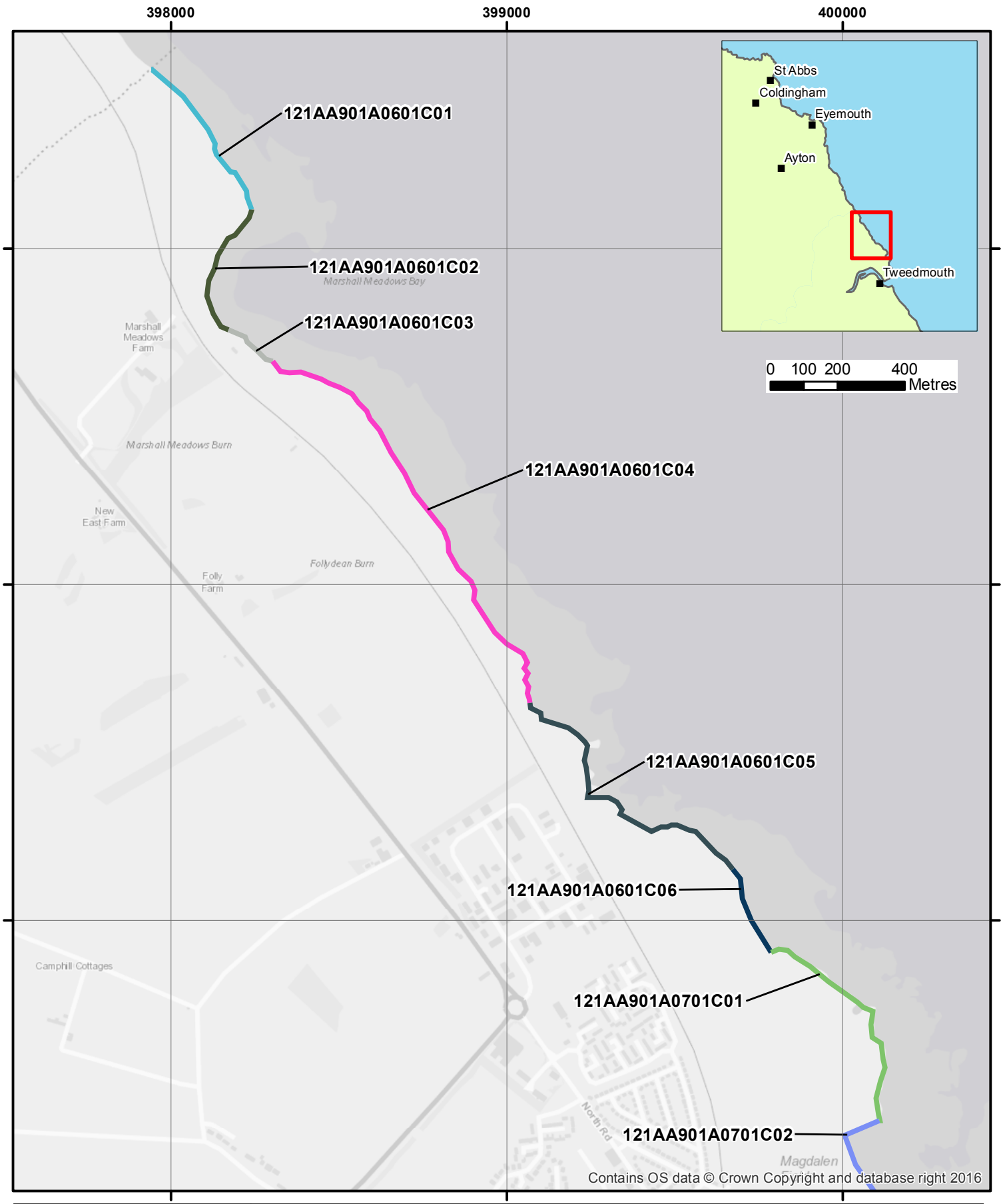
6. Conclusions and Recommended Actions

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.

Appendices

Appendix A
Asset Location Maps



Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 1

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:15,000 at A4

Client:
North East Coastal Group

Project:
Cell 1 Regional Coastal Monitoring Programme

WATER
Royal HaskoningDHV
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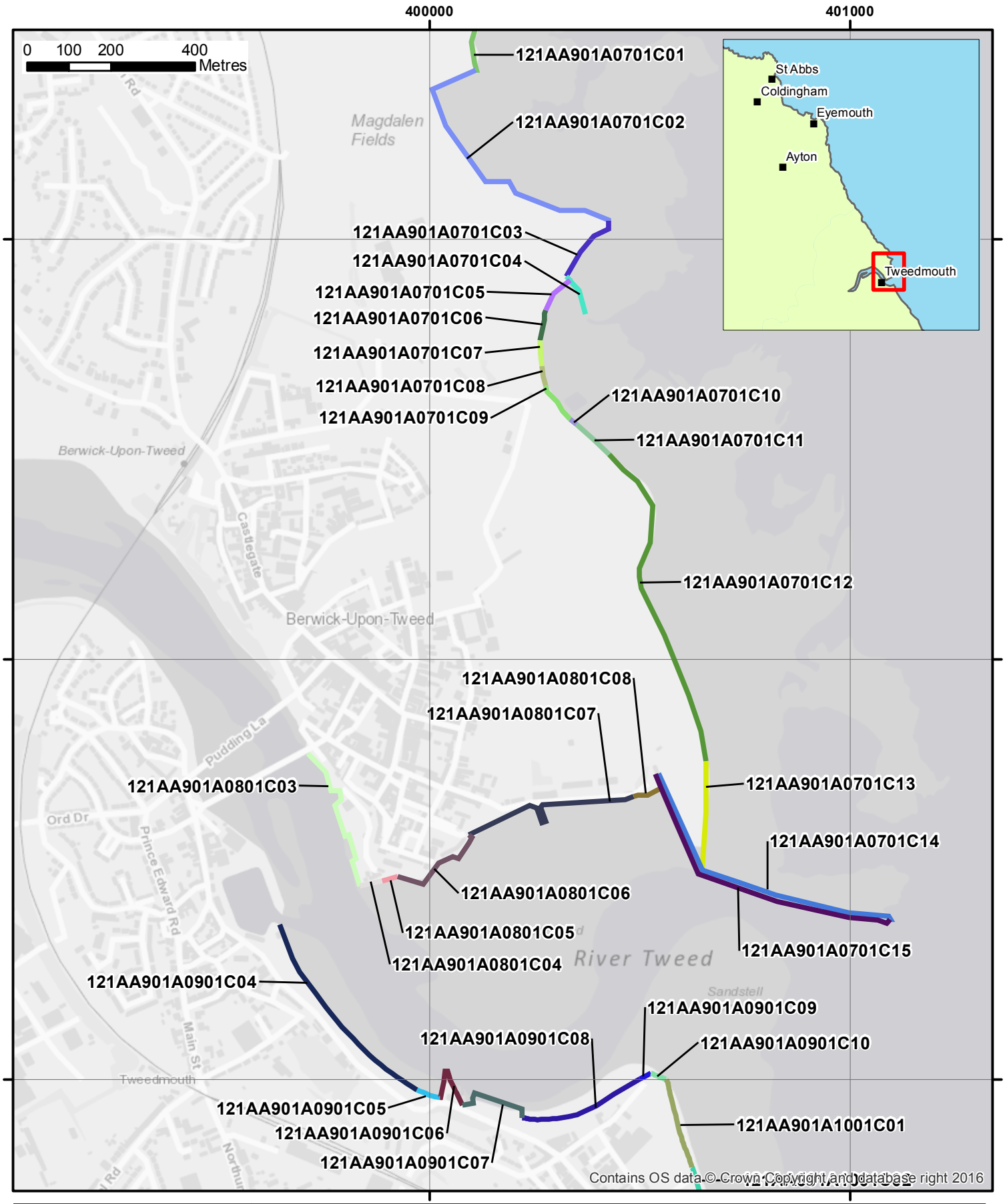
Enhancing Society Together



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Asset location

NFCDD Asset Number

Figure 1 - Map 2

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:12,000 at A4

Client:
North East Coastal Group

Project:
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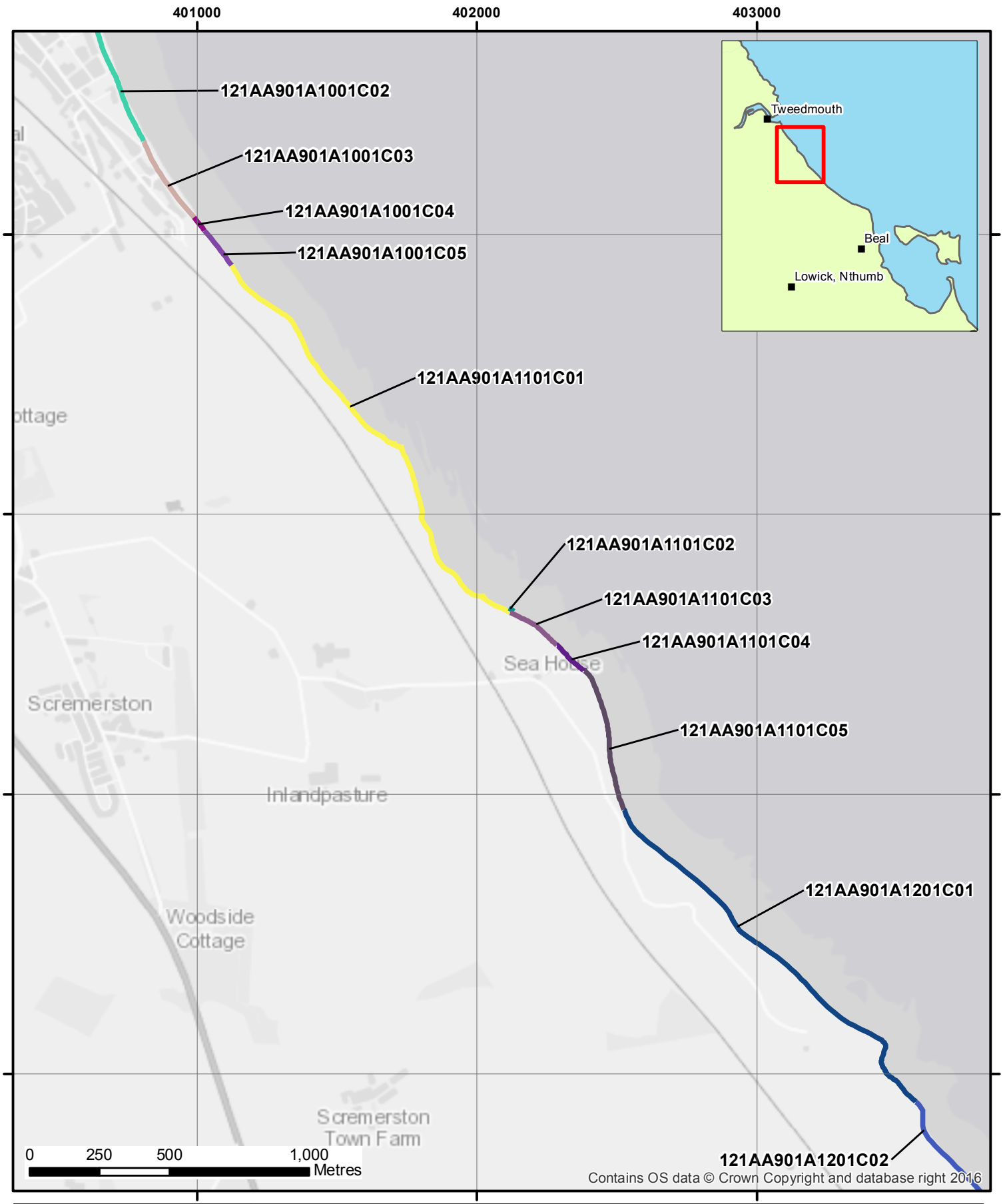

Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 3

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:18,000 at A4

Client:
North East Coastal Group

Project:
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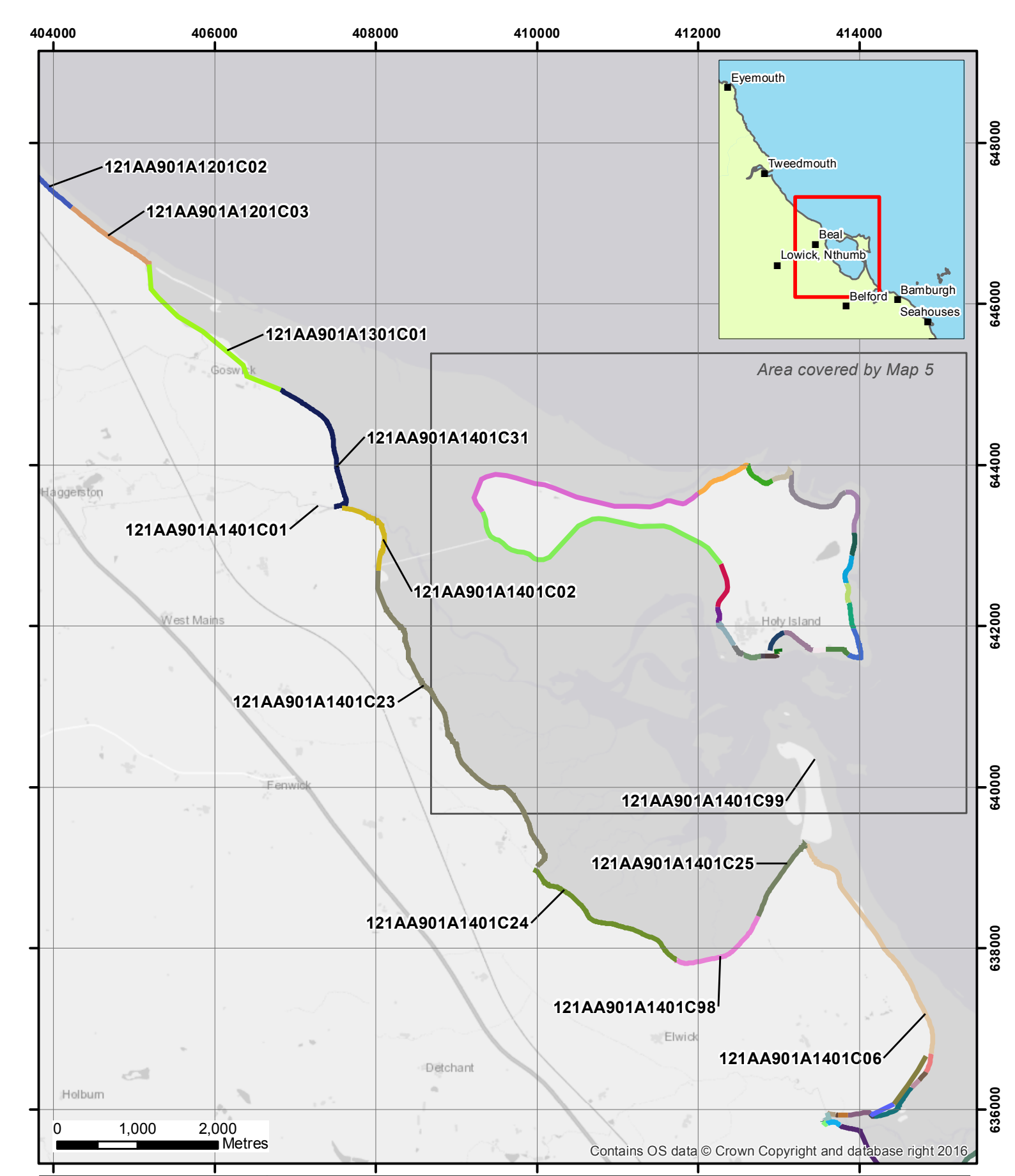

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Asset location

NFCDD Asset Number

Figure 1 - Map 4

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:60,000 at A4

Client:
North East Coastal Group

Project:
Cell 1 Regional Coastal Monitoring Programme

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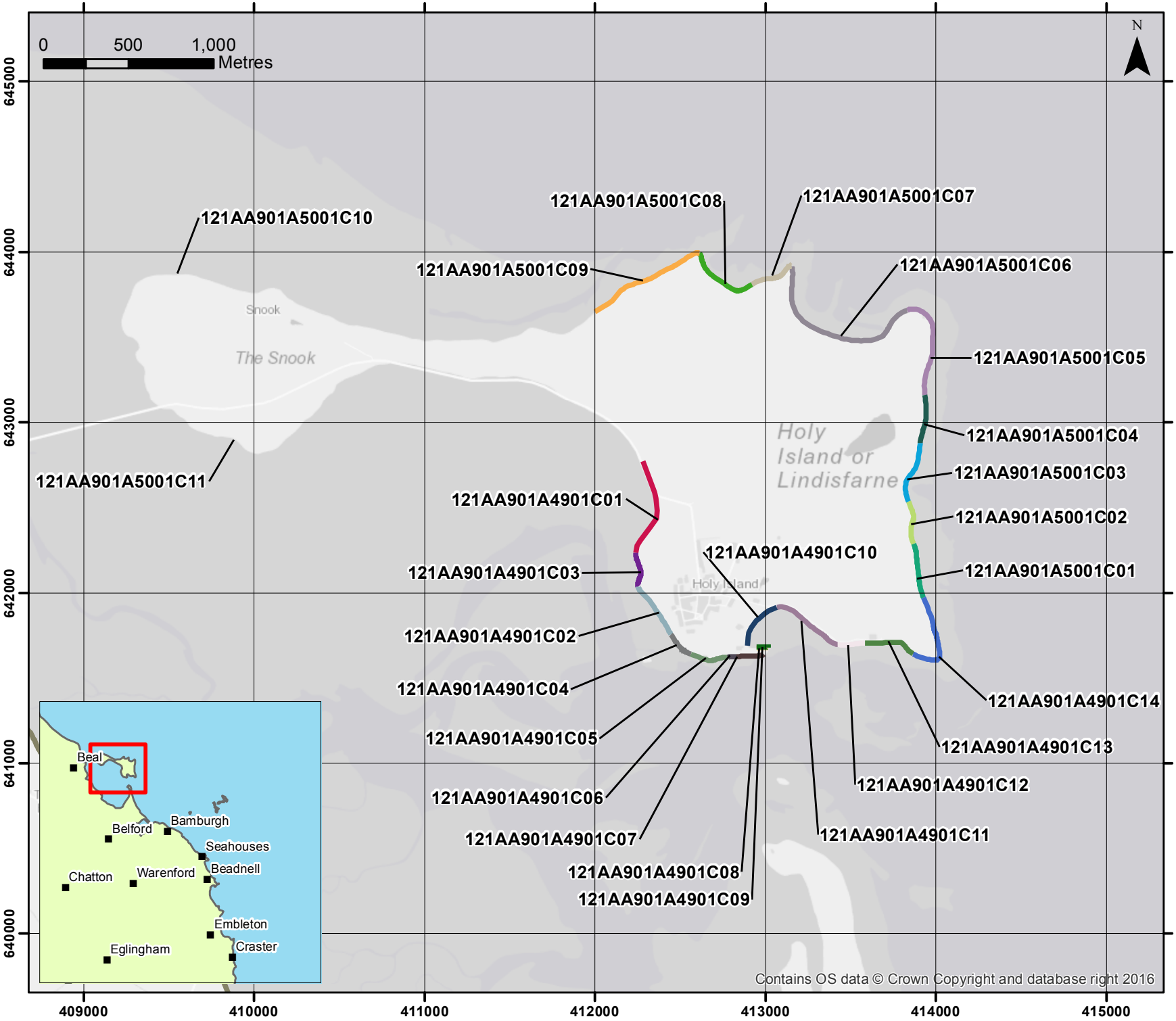

Legend

Asset location

NFCDD Asset Number

Client: North East Coastal Group

Project: Cell 1 Regional Coastal Monitoring Programme

Figure 1 - Map 5

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:30,000 at A4

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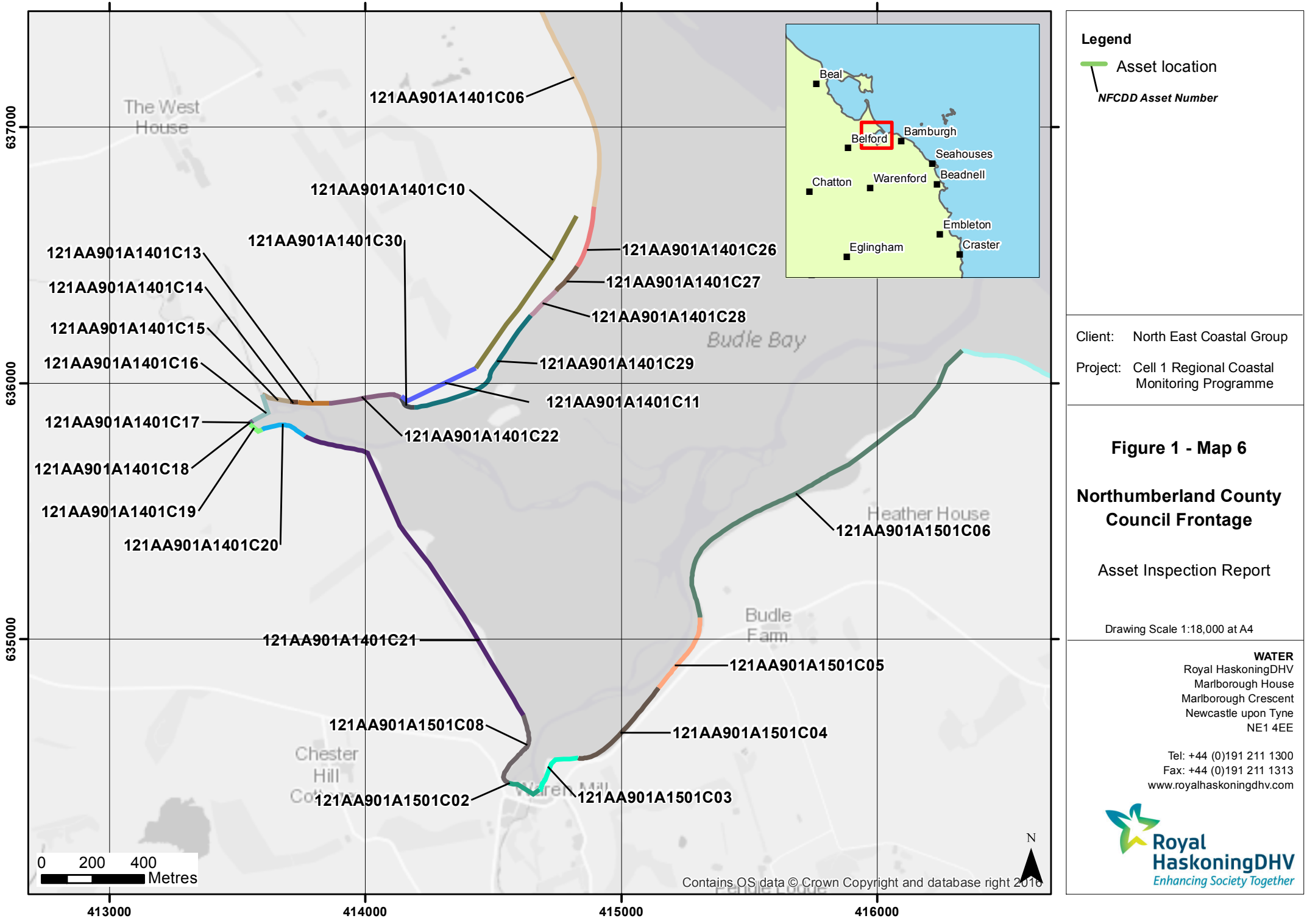

Legend

Asset location

NFCDD Asset Number

Client: North East Coastal Group

Project: Cell 1 Regional Coastal Monitoring Programme

Figure 1 - Map 6

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:18,000 at A4

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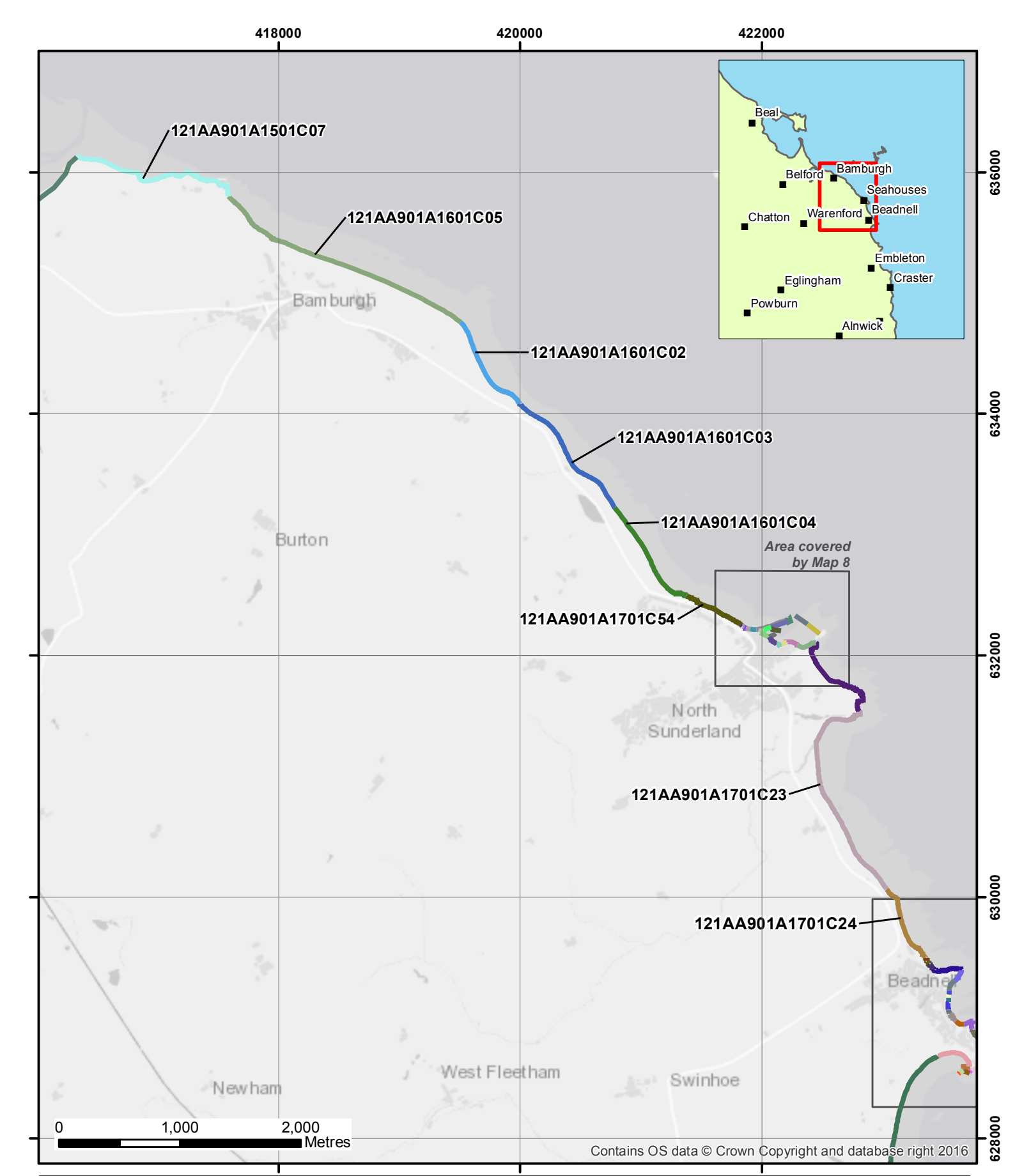

Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 7

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:40,000 at A4

Client:
North East Coastal Group

Project:
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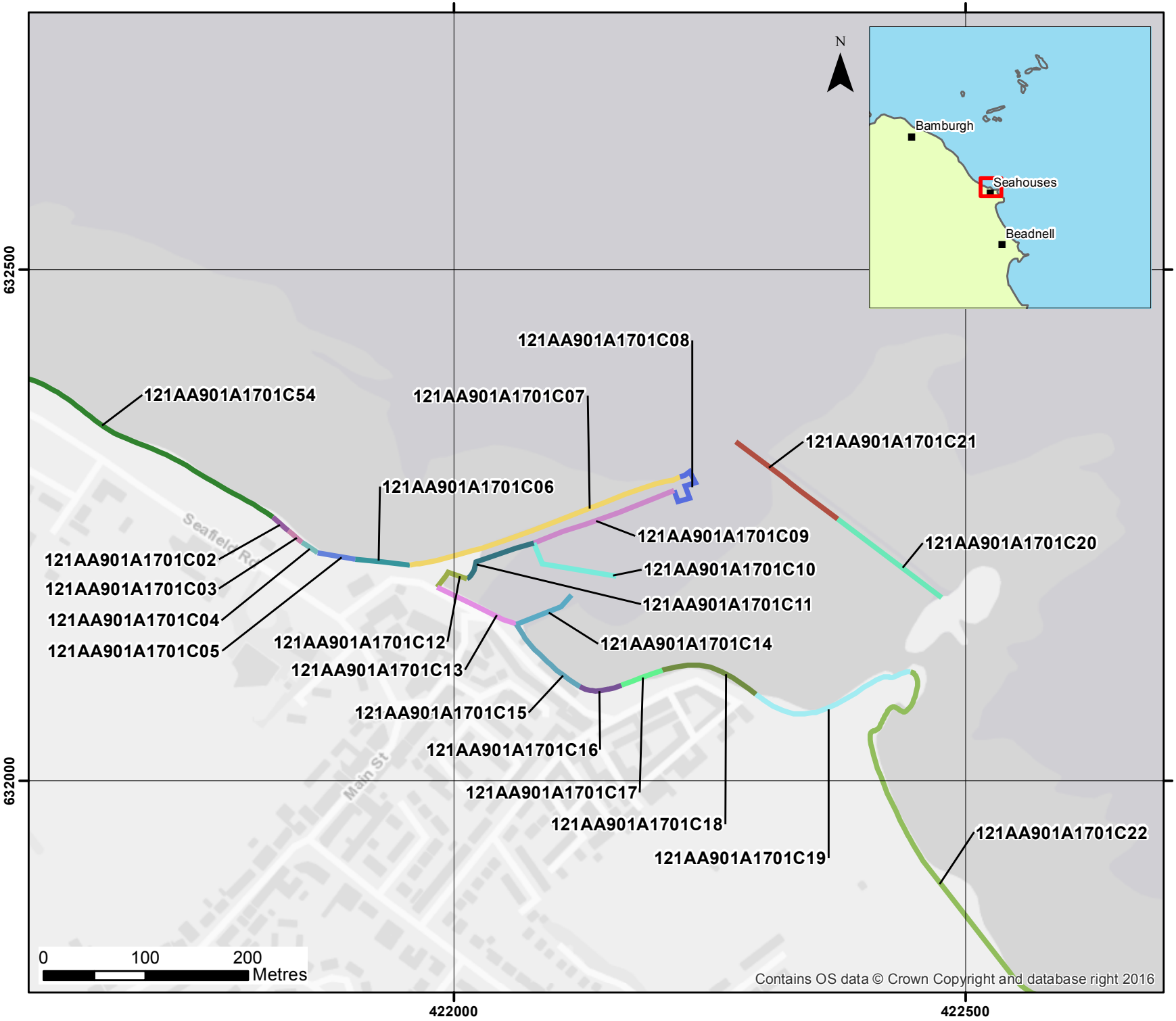

Legend

Asset location

NFCDD Asset Number

Client: North East Coastal Group

Project: Cell 1 Regional Coastal Monitoring Programme

Figure 1 - Map 8

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:5,000 at A4

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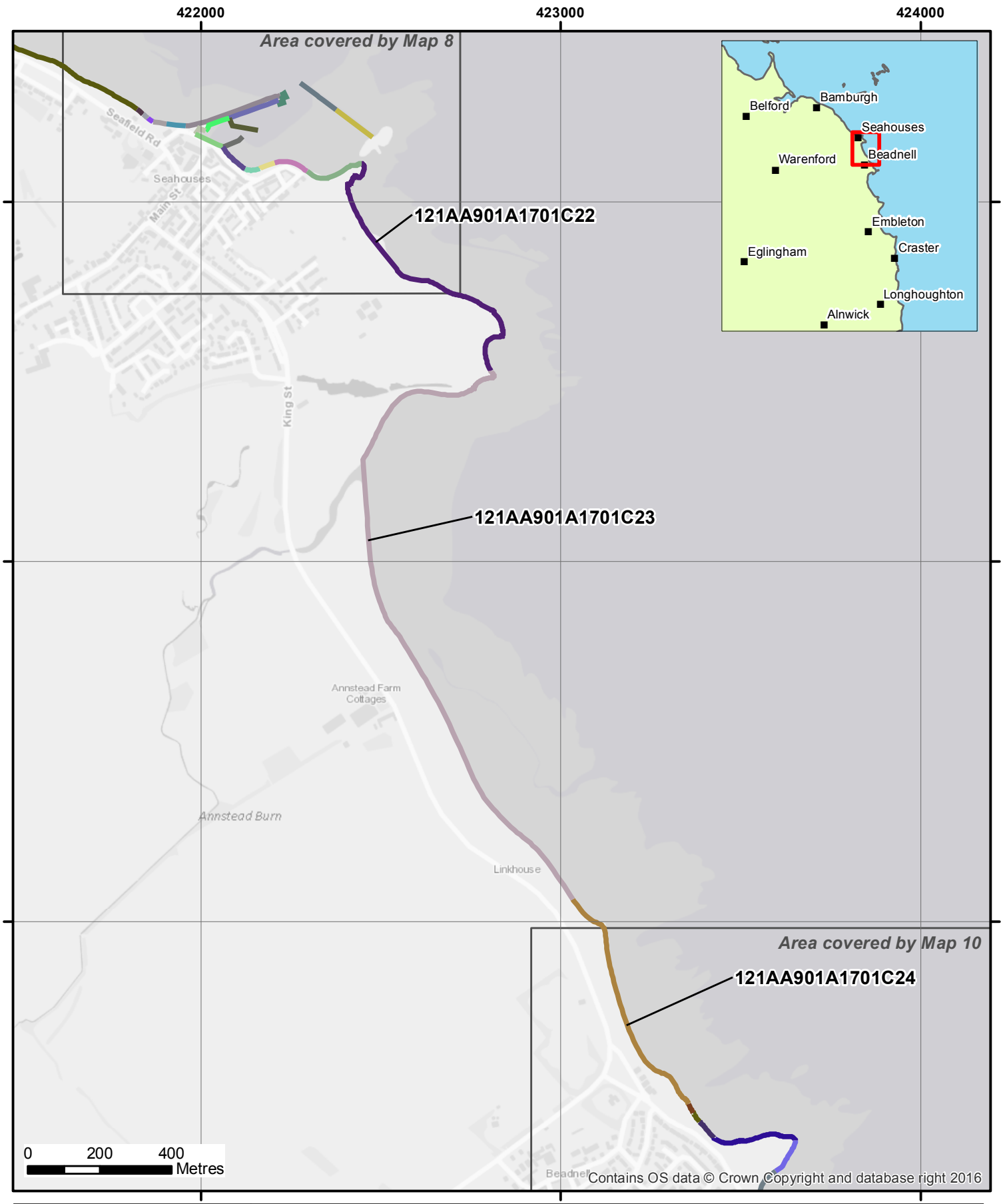

Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 9

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:14,000 at A4

Client:
North East Coastal Group

Project:
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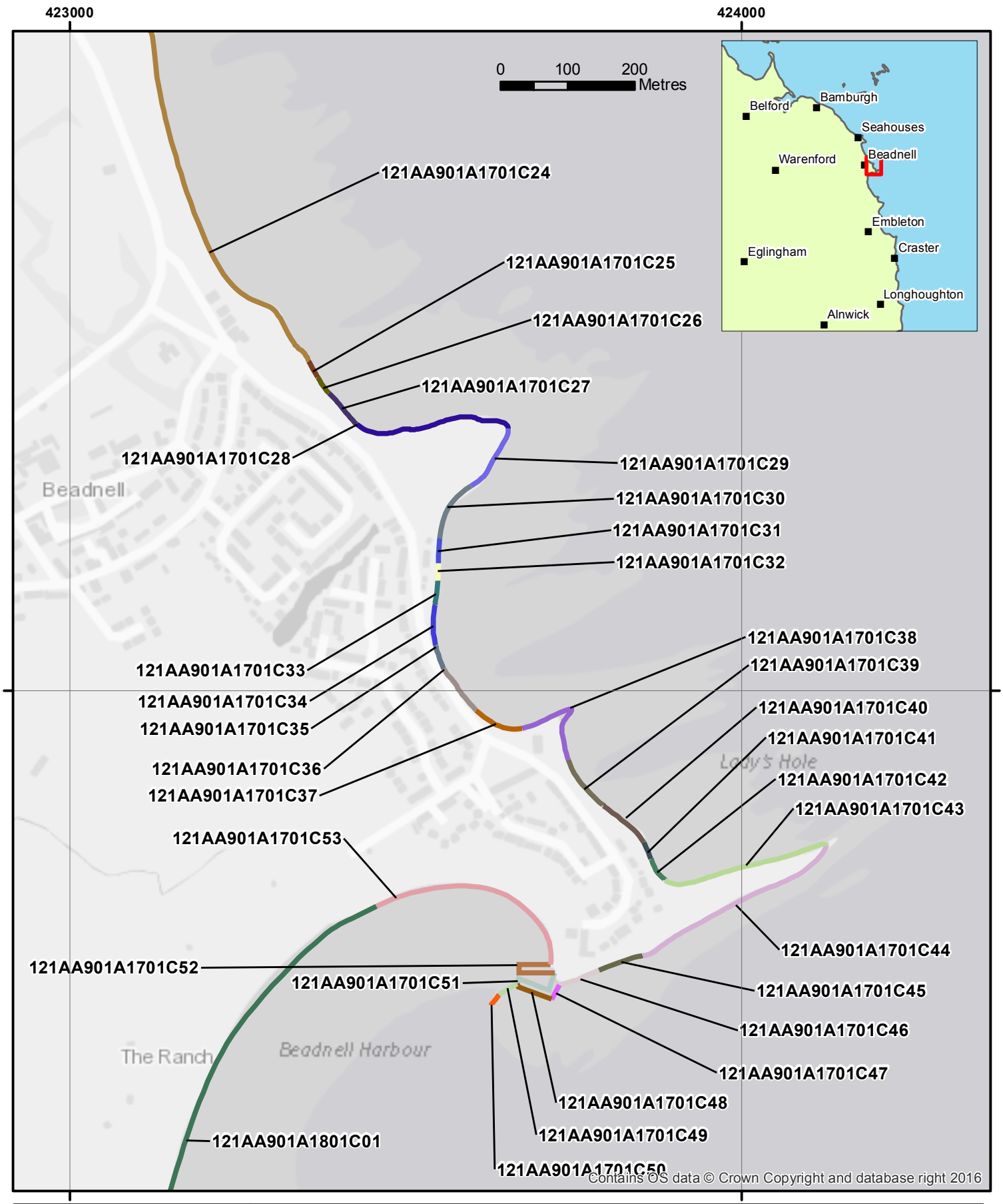

Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 10

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:7,500 at A4

Client:
North East Coastal Group

Project:
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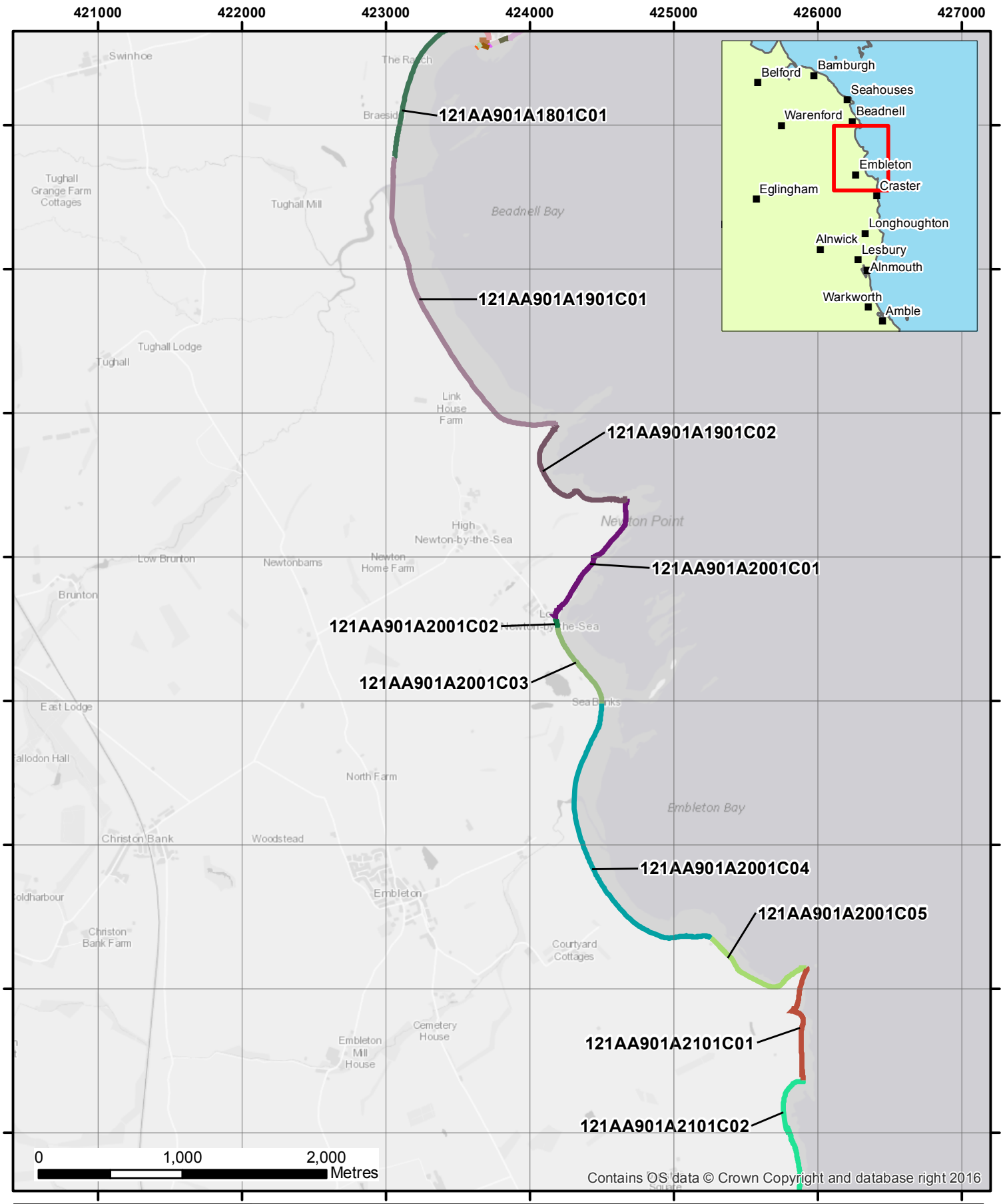

Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 11

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:35,000 at A4

Client:
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Project:
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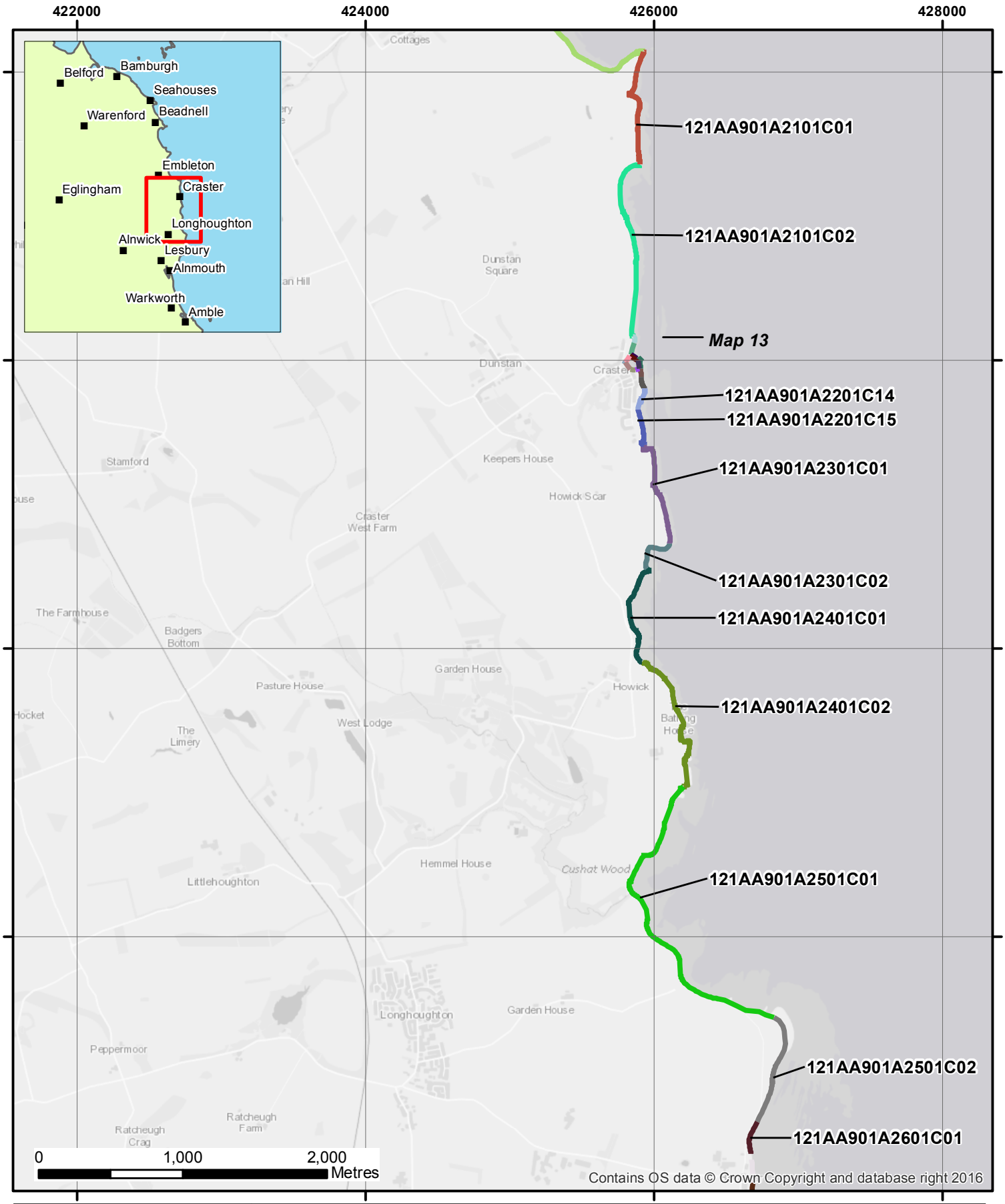

Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 12

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:35,000 at A4

Client:
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Project:
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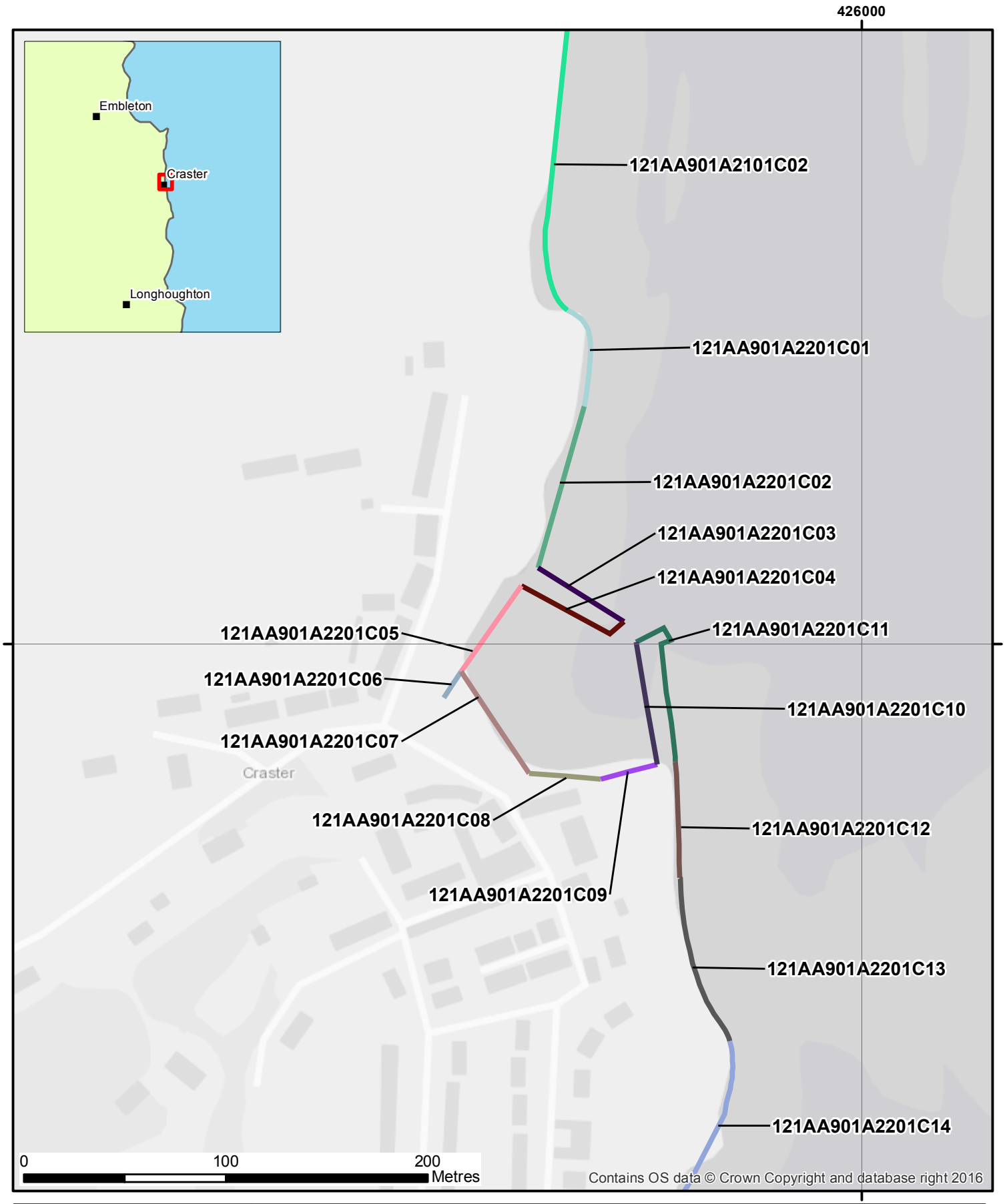

Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 13

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:2,500 at A4

Client:
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Project:
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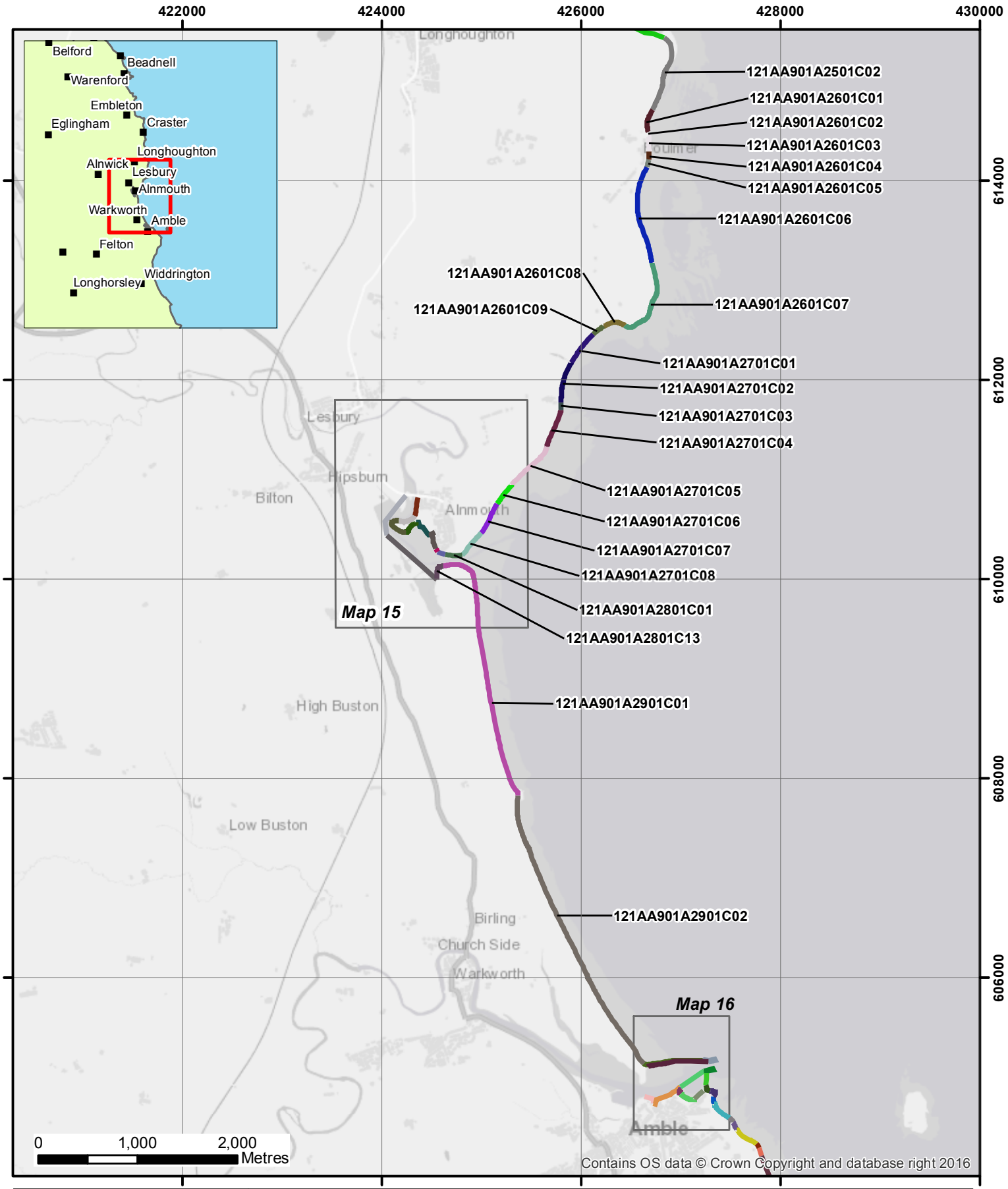

Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 14

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:50,000 at A4

Client:
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Project:
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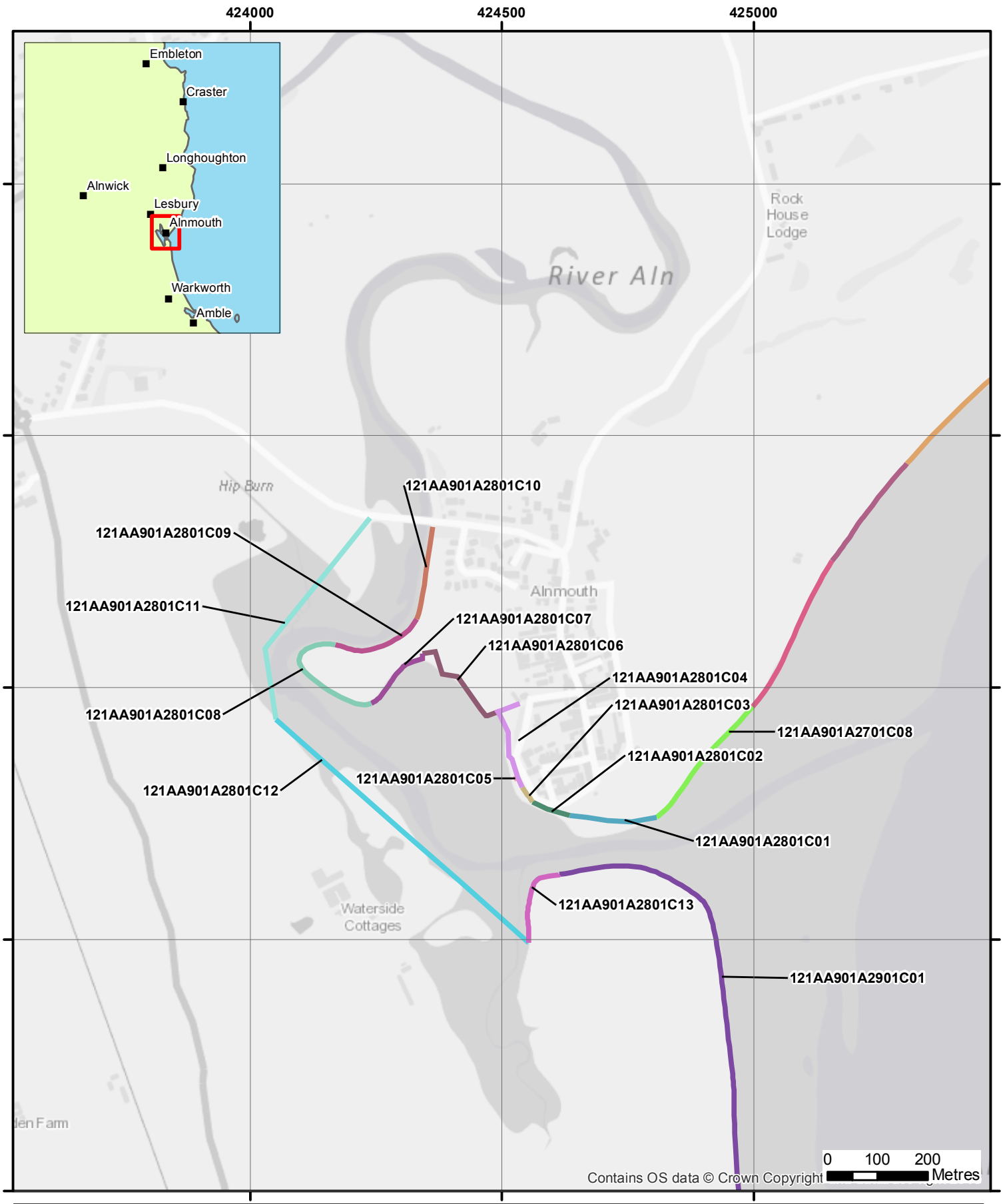

Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 15

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:10,000 at A4

Client:
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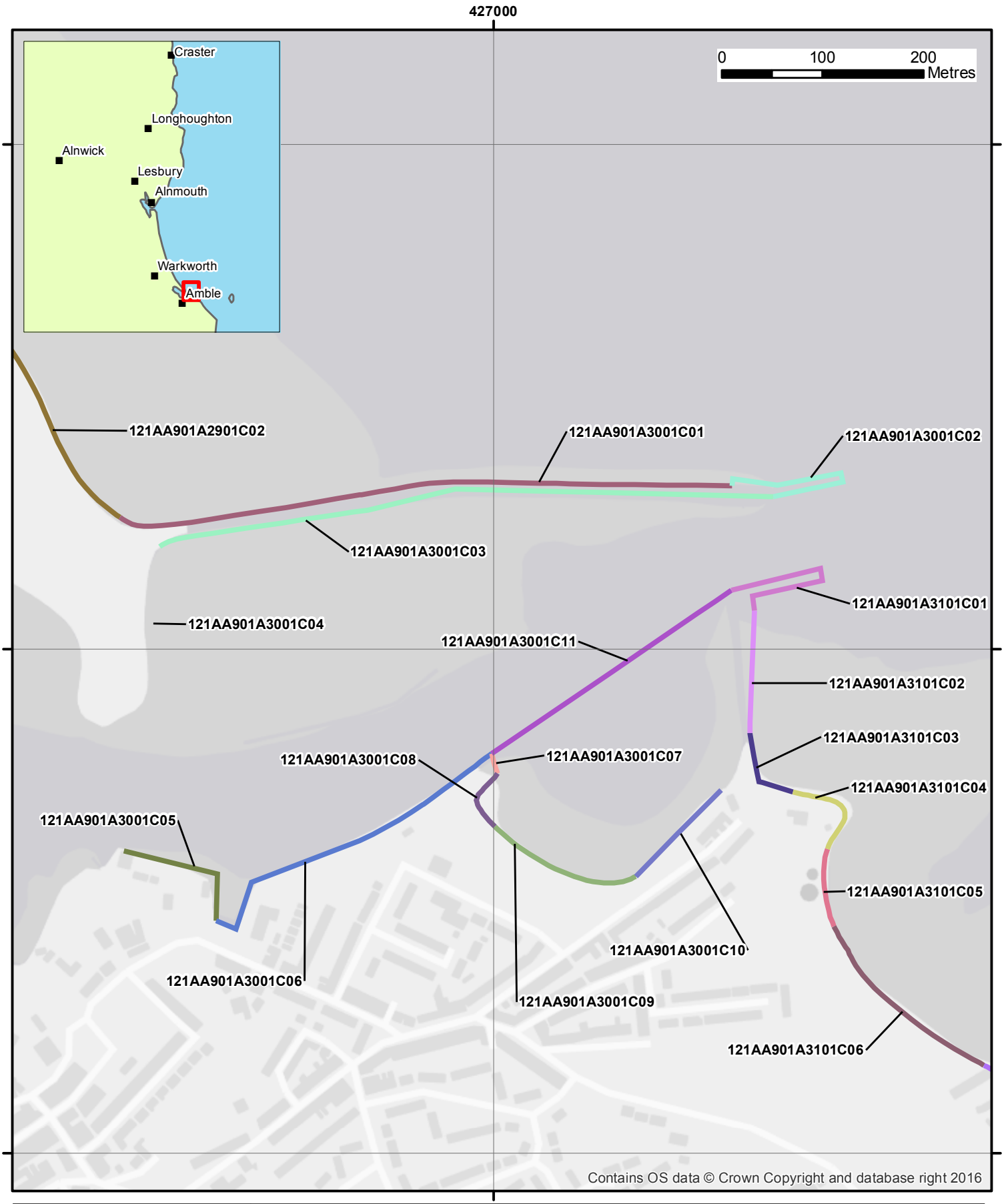

Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 16

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:5,000 at A4

Client:
North East Coastal Group

Project:
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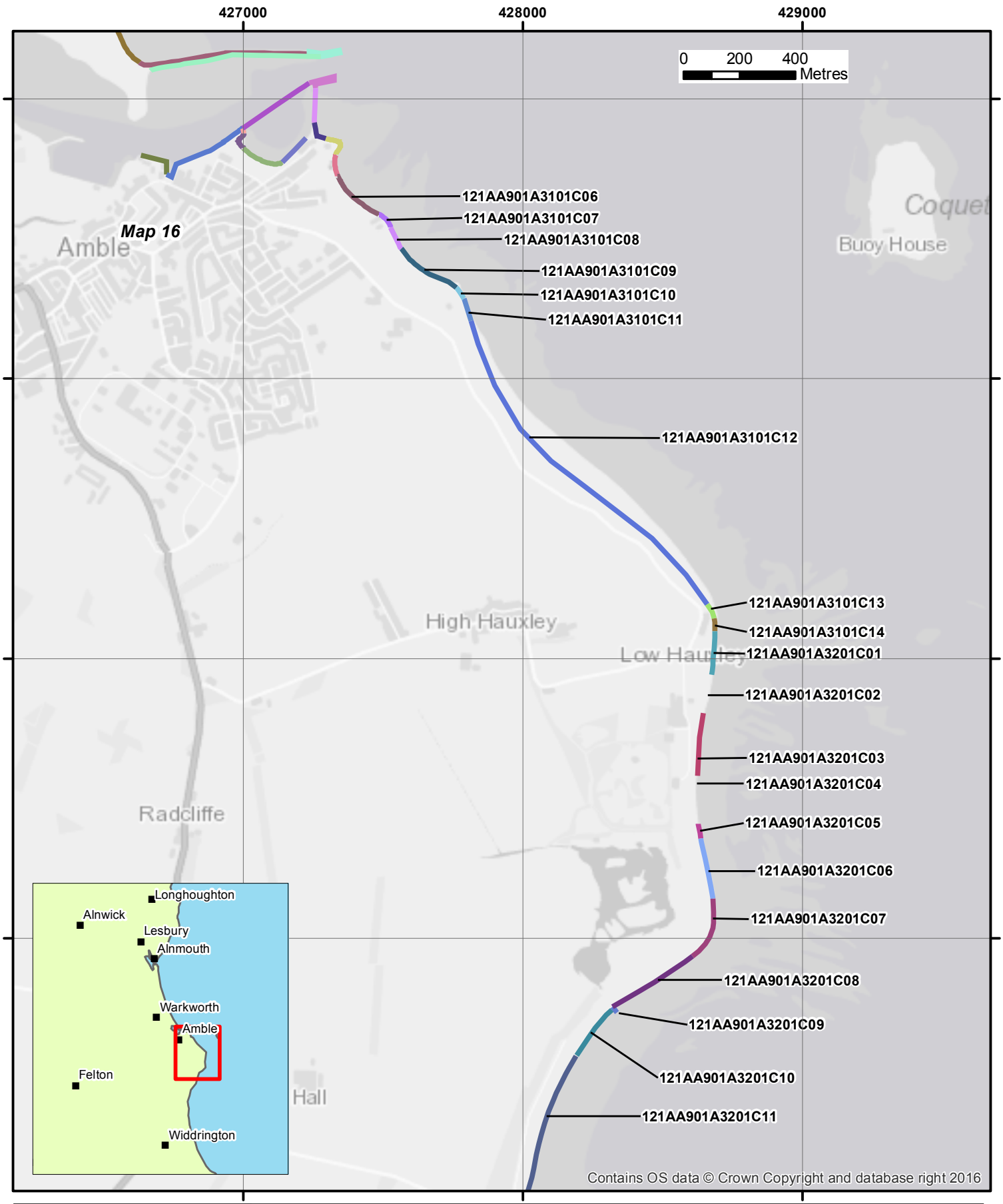

Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 17

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:18,000 at A4

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Project:
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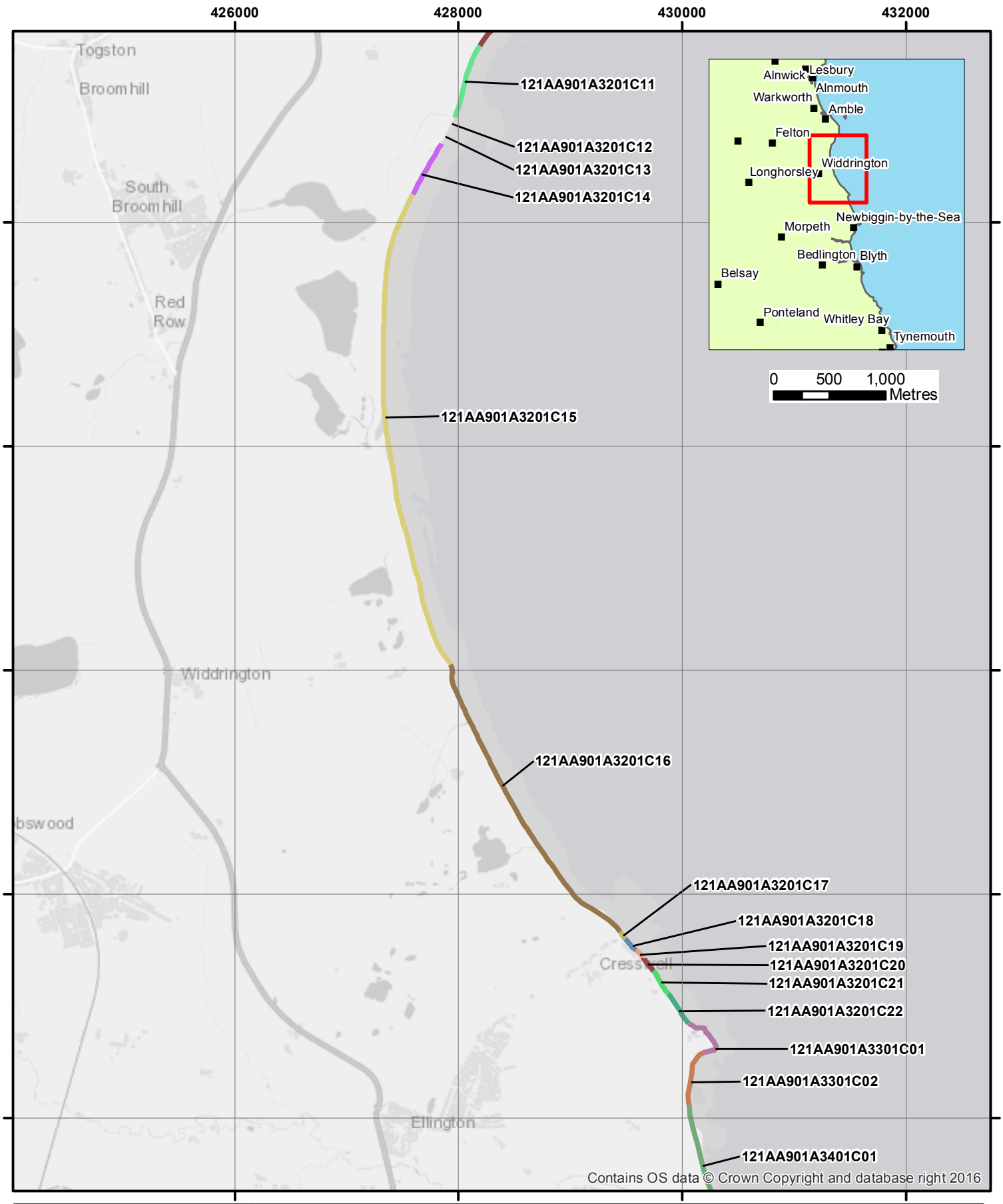

Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 18

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:45,000 at A4

Client:
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Project:
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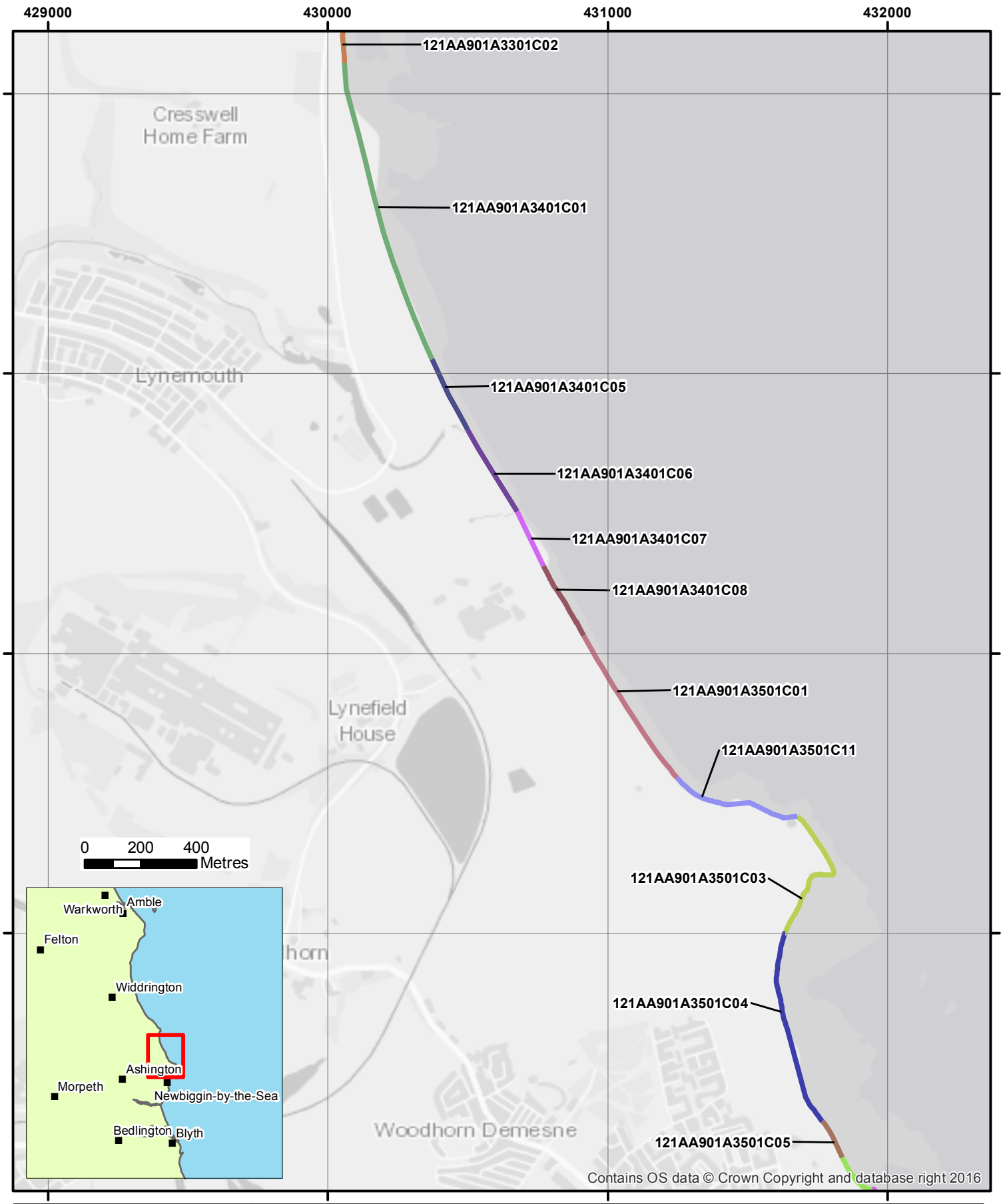

Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 19

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:18,000 at A4

Client:
North East Coastal Group

Project:
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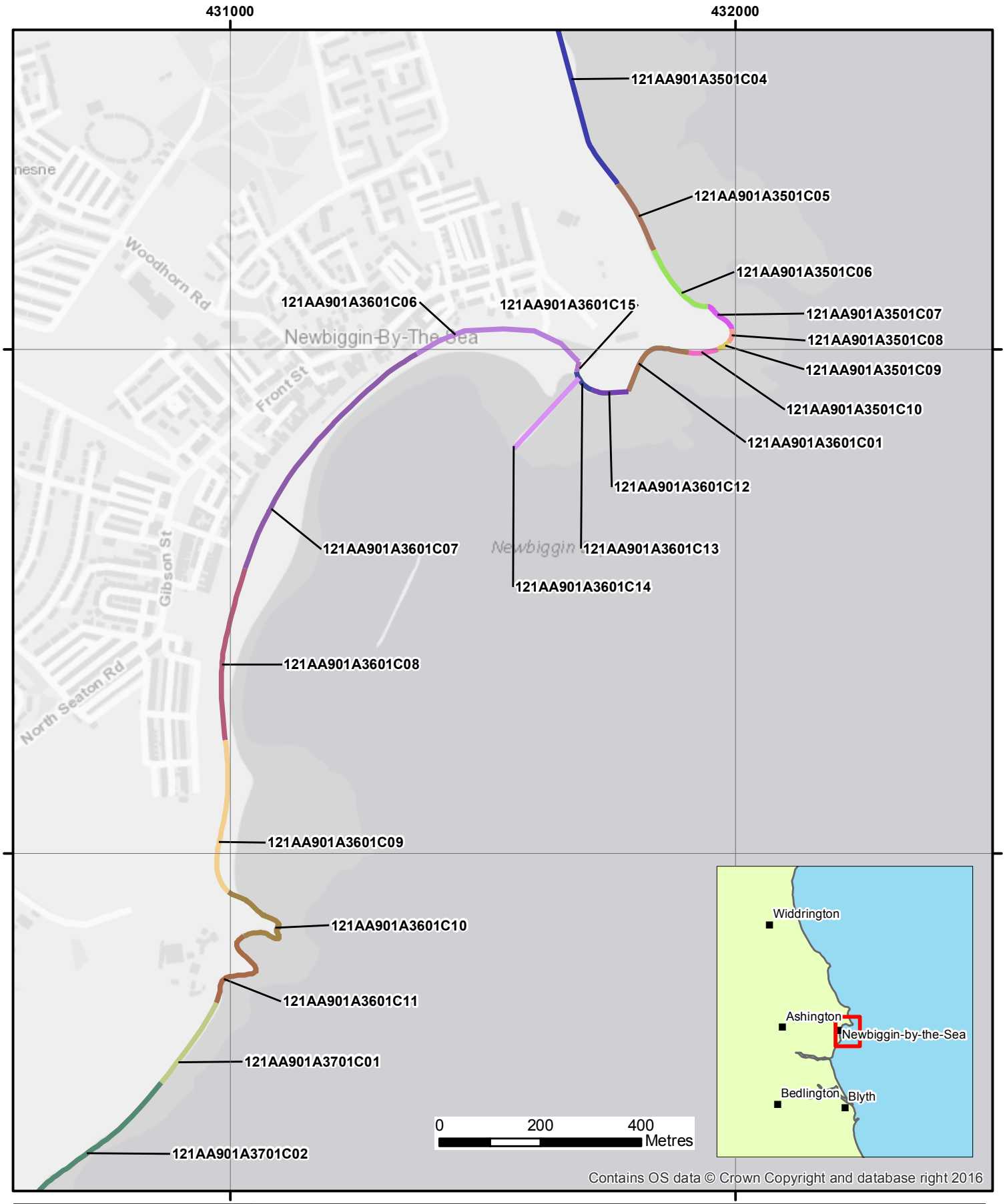

Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 20

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:10,000 at A4

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Project:
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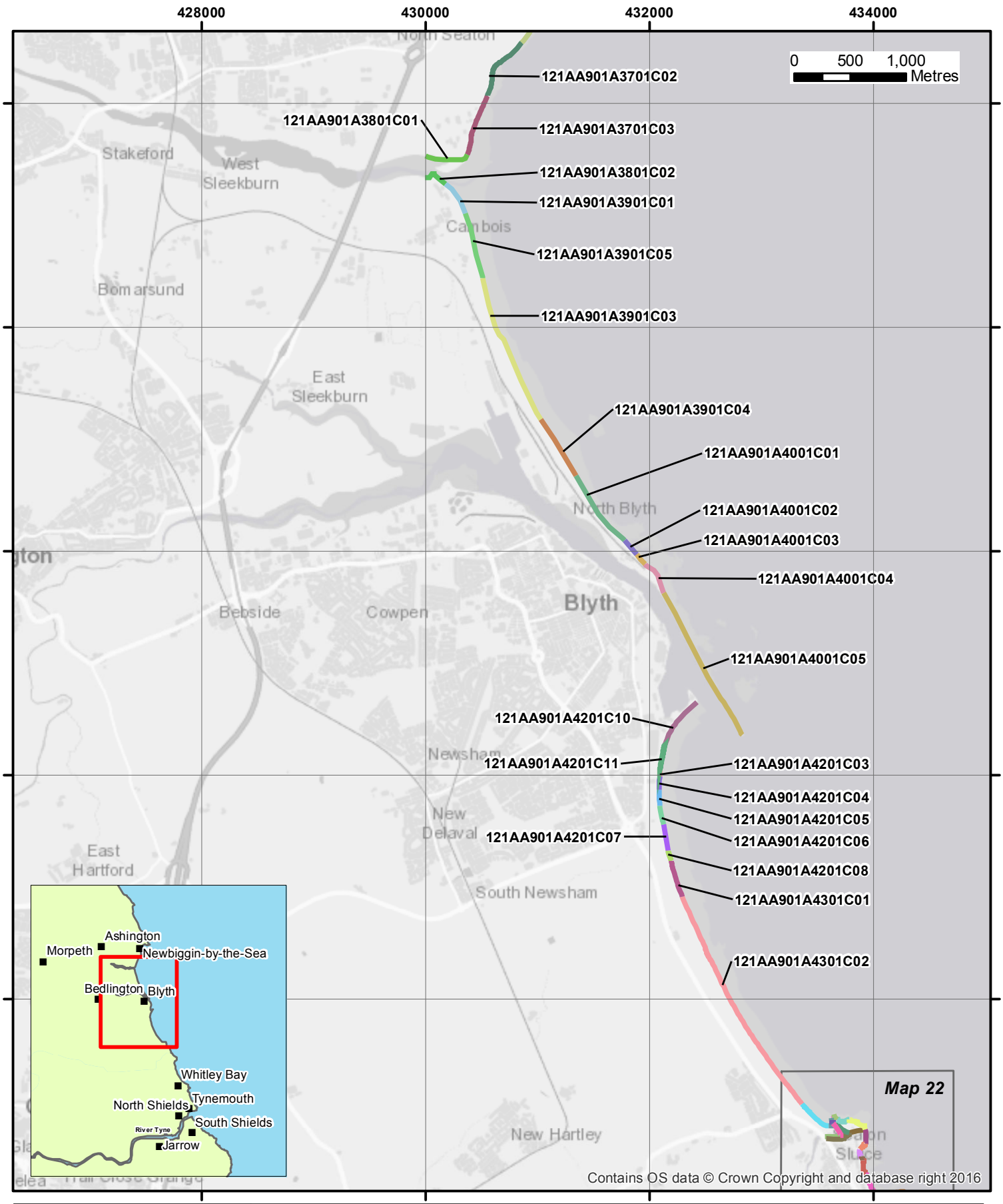

Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 21

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:45,000 at A4

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Project:
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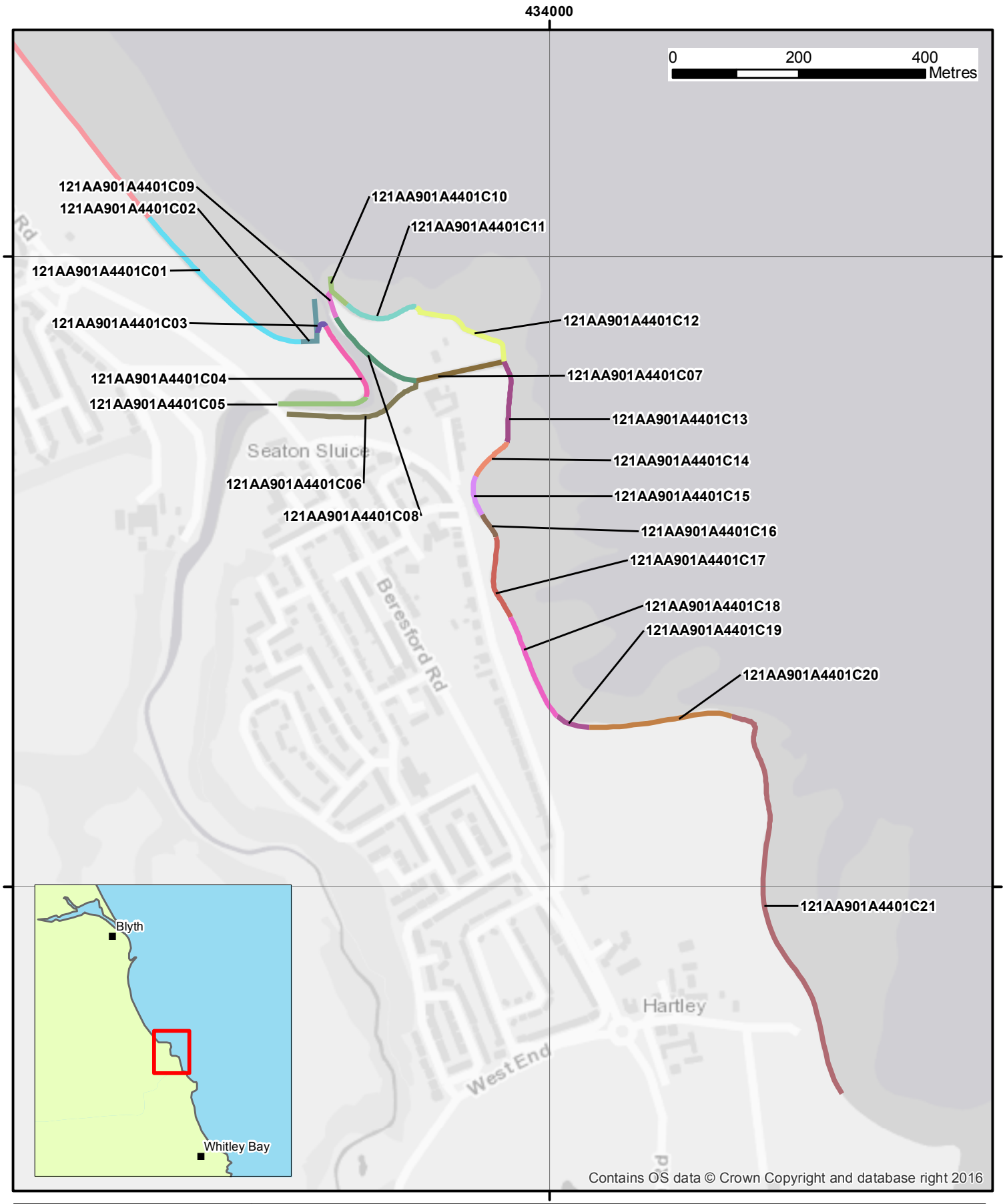

Legend

Asset location

NFCDD Asset Number

Figure 1 - Map 22

Northumberland County Council Frontage

Asset Inspection Report

Drawing Scale 1:8,000 at A4

Client:
North East Coastal Group

Project:
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Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A0601C01	Slumped cliff to scree slope.	Cliff - Marshall Meadows Point	531.4	04/07/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A0601C02	Steep cliff within bay.	Cliff - Marshall Meadows Point	425.2	04/07/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A0601C03	Slumped cliff with rocky foreshore.	Cliff - Marshall Meadows Point	167.7	04/07/2016	Royal HaskoningDHV	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	>20	Monitor cliff falls and alert caravan park as required.	no repairs
121AA901A0601C04	Steep exposed cliff to rocky foreshore.	Cliff - St Johns Haven	1374.4	04/07/2016	Royal HaskoningDHV	No change evident since last survey. Stable cliffs protected by wide shore platform.	2	>20	None.	no repairs
121AA901A0601C05	Steep hard cliff with rocky foreshore.	Cliff - Needles Eye	925.1	04/07/2016	Royal HaskoningDHV	No change evident since last survey.	3	>20	None.	no repairs
121AA901A0601C06	Slumped cliff with narrow beach and rocky foreshore.	Cliff - East Hope Bay	278.5	04/07/2016	Royal HaskoningDHV	No significant change since last survey.	3	>20	None	no repairs
121AA901A0701C01	Steep hard cliff with rocky foreshore.	Cliff - Brotherston's Bay	708.2	04/07/2016	Royal HaskoningDHV	Minor slumping at Brotherston's Hole. 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	3	>20	Some realignment of footpath in land may be required.	routine

Appendix B
Asset Condition & Recommendations

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A0701C02	Steep cliff above hard base with narrow beach above a rocky foreshore.	Cliff - Sharper's Head	689.4	04/07/2016	Royal HaskoningDHV	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/poor condition. Static caravans within 20m of cliff edge.	3	>20	Monitor erosion and inform holiday park as required.	no repairs
121AA901A0701C03	Steep hard cliff fronting Caravan Park with a rocky foreshore.	Cliff - Green's Haven	176	04/07/2016	Royal HaskoningDHV	No significant change apparent since last survey. Very local rockfall at Sharper's Head. Vertical fissures and caves in hard rock. Occasional local slumps in overlaying softer material. Static caravans within 20m of cliff edge.	3	>20	Monitor cliff erosion and notify holiday park as required.	no repairs
121AA901A0701C04	Concrete breakwater with stepped to inner face, founded to rock.	Breakwater - Green's Haven	103.4	04/07/2016	Royal HaskoningDHV	No significant change evident since last survey. Damage to crest (holes and cracks are present) and abrasion to all sections, especially seaward end. High beach levels, Undercutting of rock apparent.	4	1 - 5	Repairs required at various locations along crest.	urgent
121AA901A0701C05	Steep hard cliff with steps giving access to beach.	Steps	93.6	04/07/2016	Royal HaskoningDHV	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	11 - 20	Erosion protection to prevent enlarging of cave and potential collapse.	routine
121AA901A0701C06	Shale and mudstone cliff with sandy beach foreshore. Upper slope is vegetated.	Cliff - Green's Haven	72.8	04/07/2016	Royal HaskoningDHV	Rockfall leading to collapse of softer material.	4	>20	Monitor erosion and advise holiday park as required.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A0701C07		Apron - Fisherman's Haven	61.9	04/07/2016	Royal HaskoningDHV	Masonry and concrete retaining walls in poor condition. Increase in beach levels, concrete apron mostly buried. Strandline at toe of steps.	4	11 - 20	Monitor beach levels.	routine
121AA901A0701C08	Steep cliff	Cliff - Fisherman's Haven	47.4	04/07/2016	Royal HaskoningDHV	Slumps in cliff have affected fenceline and land use of backing common park.	4	>20	None.	no repairs
121AA901A0701C09	Concrete wall fronting steep cliff.	Sea Wall - Fisherman's Haven	100.3	04/07/2016	Royal HaskoningDHV	No change since previous survey. Concrete wall in fair condition, abrasion and spalling of toe. Increase in beach levels, apron partially buried.	4	>20	Monitor beach levels.	no repairs
121AA901A0701C10		Wall/Apon/Bank - Fisherman's Haven	20.1	04/07/2016	Royal HaskoningDHV	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.	4	>20	Monitor erosion and stability of access road.	no repairs
121AA901A0701C11	Steep cliff with step access to beach.	Steps - Fisherman's Haven	105.4	04/07/2016	Royal HaskoningDHV	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	11 - 20	Monitor undermining at access ramp.	no repairs
121AA901A0701C12	Steep hard cliff with narrow sandy beach and rocky foreshore.	Cliff - Colly Skerr	804.4	04/07/2016	Royal HaskoningDHV	Ongoing erosion and cliffing in upper soft earth cliffs. Cliff top cut-back to fence posts in one area. Post and rail fencing missing in many locations.	4	>20	Repairs to fencing along foot path	no repairs
121AA901A0701C13	Well vegetated dune with sandy beach in front. Concrete and masonry wall behind.	Dunes - Meadow Haven	257.6	04/07/2016	Royal HaskoningDHV	Wide, healthy and well vegetated dunes. New vegetation growth at dune edge. Wide sandy foreshore.	2	>20	None.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A0701C14	Concrete and masonry breakwater with stepped crest - North face.	Breakwater - Meadow Haven	718.2	04/07/2016	Royal HaskoningDHV	No significant change since last survey. Refurbishment works undertaken to deck and south face in 2012/13. Seaward face of breakwater generally in good condition. No inspection of below water elements.	2	>20	Inspection of below water elements.	no repairs
121AA901A0701C15	Concrete and masonry breakwater with stepped crest - South face.	Breakwater - Berwick	733.6	04/07/2016	Royal HaskoningDHV	Refurbishment works undertaken in 2012. New concrete deck and repointing of joints along outer section and new blockwork face at mid-length.	3	>20	Inspection of below water elements.	no repairs
121AA901A0801C08	Grass embankment fronted by rocky foreshore with shingle beach.	Bund - Berwick City Walls	70.3	21/06/2016	Royal HaskoningDHV	No change since previous survey. Narrow but stable steep shingle beach, well vegetated at crest.	2	>20	None.	no repairs
121AA901A0801C07	Concrete wall.	Sea Wall - Berwick City Walls	484.8	04/07/2016	Royal HaskoningDHV	No change since previous survey. Concrete faced masonry wall in fair condition, some cracks/ spalling along cope. Localised undermining and loss of concrete facing/ crest apron at west tie-in. Slipway over outfall pipe continues to deteriorate with loss of cobbles.	3	11 - 20	Localised repairs to concrete cope and masonry slipway.	routine
121AA901A0801C06	High masonry wall around the Fisher's Fort.	Sea Wall - Berwick City Walls	247.8	04/07/2016	Royal HaskoningDHV	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	>20	None.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A0801C05	Masonry wall with concrete cope fronted by sandy beach.	Sea Wall - Berwick City Walls	37.8	04/07/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A0801C04	Short section of rock revetment.	Revetment - Berwick City Walls	54.5	04/07/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A0801C03	Steel sheet piles with concrete cope including short sections of masonry sea wall and a small dock area.	Other - Berwick City Wall	388.7	04/07/2016	Royal HaskoningDHV	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, corrosion to hand railings.	2	>20	Monitor movement in masonry wall. Repair cracks. Replace corroded hand rails.	routine
121AA901A0901C04	Gabions with sloping grassy bank behind. Concrete and masonry revetment slope upstream of the gabions.	Bank and Revetment - Davies Batt	519.9	21/06/2016	Royal HaskoningDHV	Continued deterioration of many gabions along toe. Localised corrosion of lower baskets and loss of stone causing settlement/ slumping of crest. Particular concern to upstream end and at position around outfall.	4	1 - 5	Re-assess defence approach and undertake repairs as required to existing.	urgent
121AA901A0901C05	Concrete and masonry quay wall.	Sea Wall - South Bank	58.5	21/06/2016	Royal HaskoningDHV	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	6 - 10	Replace mortar between masonry blocks.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A0901C06	Masonry Pier protecting the small dock where the RNLI Lifeboats launch ramp is located and tipped rock revetment protecting the root of the pier.	Pier - Spittal Quay	158.6	21/06/2016	Royal HaskoningDHV	No significant deterioration, similar to last survey. Resurfacing undertaken. Localised cracks to concrete capping and exposed reinforcement. Deck and ladders in fair condition. Movement in rock armour at slipway.	3	11 - 20	Maintenance	routine
121AA901A0901C07	Vertical timber retaining wall with large masonry toe.	Wall - South Bank	191.4	21/06/2016	Royal HaskoningDHV	Timber retaining wall in fair condition, some loss of fill at repaired section. Ongoing deterioration of timber jetty and loss of deck boards. Localised loss of masonry toe at east end, some undermining and onset of outflanking.	4	11 - 20	Secure access, replace missing boards. Detailed inspection beneath structure.	routine
121AA901A0901C08	Well vegetated dune with narrow beach to front.	Dunes - Spittal	305.2	21/06/2016	Royal HaskoningDHV	Wide, well vegetated dunes. Varriation in dune erosion and accretion linked to estuary behaviour. Some erosion from pedestrian access.	2	>20	Control pedestrian erosion. Review behaviour based on geomorphological review.	routine
121AA901A0901C09	Concrete wall and rock apron.	Sea Wall - Spittal Point	28.7	21/06/2016	Royal HaskoningDHV	The concrete wall in fair condition, gaps in construction joints at east end. Wall covered by dune.	2	11 - 20	Review behaviour based on geomorphologial review.	no repairs
121AA901A0901C10	Concrete revetment with rock armour.	Revetment - Spittal Point	40.2	21/06/2016	Royal HaskoningDHV	Rock armour fronting carpark remains in good condition, some displaced stones along toe. High beach levels.	2	>20	Monitor beach levels.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A1001C01	Gabions fronted by rock armour.	Wall and rock armour - Spittal Point	217.6	21/06/2016	Royal HaskoningDHV	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, but no worse than previous survey. General lowering of beach levels influenced more by bigger scale beach change. Groynes largely ineffected.	3	11 - 20	Requires consideration in review of geomorphology.	routine
121AA901A1001C02	Concrete wave wall with handrails. Stepped access to the promenade.	Sea wall - Spittal Promenade	493.4	21/06/2016	Royal HaskoningDHV	Concrete seawall, hand railings, flap valves, joint sealant and blockwork promenade in good condition. Beach levels relatively high at time of survey.	2	>20	None.	no repairs
121AA901A1001C03	Concrete wave wall with handrails. Stepped access to the promenade.	Sea Wall - Spittal Promenade	328	21/06/2016	Royal HaskoningDHV	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	>20	Replace joint sealant. Repair blockwork surfacing on promenade steps.	routine
121AA901A1001C04	Rock revetment to end of seawall (Defence Code 10b/09/3).	Revetment - Spittal Promenade	60.1	21/06/2016	Royal HaskoningDHV	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	>20	None.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A1001C05	Vegetated cliffs fronted by rock foreshore/platform.	Cliff - Spittal Promenade	158.2	21/06/2016	Royal HaskoningDHV	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.	3	>20	Monitor movement of masonry wall at crest.	no repairs
121AA901A1101C01	Vegetated cliff with rock platform foreshore, with railway behind.	Cliff - East of Scremeston	1665.9	21/06/2016	Royal HaskoningDHV	Some recent localised but large scale rock falls evident.	3	>20	Monitor erosion	no repairs
121AA901A1101C02	Brick structure forming promontory in vegetated cliffs.	Other - Scremerston	19.9	21/06/2016	Royal HaskoningDHV	Continued deterioration to relic lime kiln and undermining and collapse of rock foundation.	4	6 - 10	Monitor and consider repair or removal if considered unsafe.	no repairs
121AA901A1101C03	Vegetated cliff with rock platform with railway behind.	Cliff - Scremerston	204.8	21/06/2016	Royal HaskoningDHV	Some localised rock falls apparent, large rocks on foreshore. Undercutting and slips of vegetation.	3	>20	None.	no repairs
121AA901A1101C04	Vegetated cliffs fronted by brick structure and outfall.	Other - Scremerston	134.9	21/06/2016	Royal HaskoningDHV	No significant in change evident in relic masonry lime kiln or concrete outfall structure fronting Sea House. However water seepage through concrete.	4	11 - 20	Investigate water seepage for general voiding. Confirm ownership/responsibility.	no repairs
121AA901A1101C05	Vegetated cliffs fronted by rock platform and narrow shingle beach.	Cliff - Scremerston	524.3	21/06/2016	Royal HaskoningDHV	Partial erosion and undercutting of upper soft cliffs at south end. Continued undermining of relic paved track observed.	3	>20	None.	no repairs
121AA901A1201C01	Vegetated cliffs fronted by rock outcrops and sandy beach.	Dunes - The Skerrs	1525.8	21/06/2016	Royal HaskoningDHV	Same recovery of dune toe but long term erosion. Relic masonry lime kiln at south end in poor condition and liable to collapse.	3	11 - 20	Monitor erosion of dunes/ soft cliffs and safety of relic fort structure.	no repairs
121AA901A1201C02	Wide beach with rock outcrops with vegetated dunes behind.	Dunes - Cheswick Black Rocks	979.1	21/06/2016	Royal HaskoningDHV	Localised erosion along toe of dunes and slips in face. Some localised regrowth of vegetation on face evident.	2	>20	None.	no repairs

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121AA901A1201C03	Vegetated dunes fronted by sandy beach.	Cliff/Dune - Cheswick	1192.5	21/06/2016	Royal HaskoningDHV	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. General ongoing erosion.	3	11 - 20	None.	no repairs
121AA901A1301C01	Vegetated dunes fronted by a wide sandy beach.	Dune - Cheswick Sands	2387.5	21/06/2016	Royal HaskoningDHV	Wide flat foreshore with well vegetation wide dune system behind. Some embryo dune growth apparent. Local dune erosion due to North Low Channel cutting through higher beach levels.	2	>20	None.	no repairs
121AA901A1401C31			1895.9	01/08/2016	Royal HaskoningDHV	Stable and well vegetated dunes and wide salt marsh foreshore. No significant recent change apparent.	2	>20	None.	no repairs
121AA901A1401C01	Sluice with local stone protection to sides.	Sluice - Goswick Sands	21.1	21/06/2016	Royal HaskoningDHV	Sluice in good condition. Minor damage to stone pitching.	2	>20	Minor repairs to local revetment protection.	routine
121AA901A1401C02	Low natural coastal slope fronted by a sandy beach located just north of the Lindisfarne Causeway.	Slope - Goswick Sands	1123.2	21/06/2016	Royal HaskoningDHV	Wide well vegetated foreshore with vegetated embankment behind. Minor localised erosion along toe of embankment. Two WWII pill boxes well buried in bank.	2	>20	Review tidal access at Beal Point.	no repairs
121AA901A4901C01	Low vegetated dunes fronted by rocky foreshore.	Dune - Holy Island	586.7	01/09/2016	Royal HaskoningDHV	Wide silty foreshore with road and low well vegetated dunes behind.	2	>20	None.	no repairs
121AA901A4901C02	Low vegetated cliff with rocky foreshore.	Dune - Holy Island	204.2	01/09/2016	Royal HaskoningDHV	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.	3	6 - 10	Monitor erosion.	no repairs
121AA901A4901C03	Sandstone cliff with rocky foreshore.	Cliff - Holy Island	341.5	01/09/2016	Royal HaskoningDHV	Cliffs relatively stable (vegetated) in parts, locally actively eroded again at southern end. Previous defects to low wall not visible.	3	11 - 20	None.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A4901C04	Rocky foreshore going down to a shingle beach.	Foreshore - Holy Island	165.5	01/09/2016	Royal HaskoningDHV	Steep shingle foreshore fronting steep vegetated bank. Localised erosion along toe of earth bank adjacent to boat house.	3	>20	Reposition benches if local erosion continues.	routine
121AA901A4901C05	Steep hard cliff fronted by a rocky foreshore	Cliff - Holy Island	227.4	01/09/2016	Royal HaskoningDHV	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	>20		no repairs
121AA901A4901C06	Masonry and concrete wall protecting concrete access ramp fronted by a rocky foreshore.	Wall - Holy Island	51.6	01/09/2016	Royal HaskoningDHV	Previous defects to toe of wall repaired where visible. Some sections covered by high shingle beach.	3	6 - 10	Monitor outflanking at west end and undermining.	routine
121AA901A4901C07	Steep hard cliff fronted by a rocky foreshore.	Cliff - Holy Island	160.7	01/09/2016	Royal HaskoningDHV	Hard rock outcrop protecting harbour stable. No evidence of rock falls.	2	>20	n/a	no repairs
121AA901A4901C08	Concrete quay with access steps. Concrete slipway.	Wall - Holy Island	69.4	01/09/2016	Royal HaskoningDHV	South side of harbour jetty in good condition. No undermining evident, some abrasion of concrete steps, boat ramp and deck in good condition. Recent repairs.	2	>20	none.	routine
121AA901A4901C09	Pier trunk leading out to quay.	Breakwater - Holy Island Pier	74.8	01/09/2016	Royal HaskoningDHV	Condition of harbour jetty improved to good following repairs since 2014 inspection.	2	>20		routine
121AA901A4901C10	Sandy beach with some shingle	Foreshore - The Harbour	302.6	01/09/2016	Royal HaskoningDHV	Beach appears stable. Low dunes behind cobble beach are healthy and well vegetated.	2	>20		routine
121AA901A4901C11	Rubble or cobble bank with a rocky foreshore.	Bank - Holy Island	429.7	01/09/2016	Royal HaskoningDHV	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	11 - 20	Erosion protection at north end.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A4901C12	Masonry wall fronted by a rocky foreshore.	Wall - Holy Island	161.7	01/09/2016	Royal HaskoningDHV	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	11 - 20	Infill void under wall, replace missing stones, repair concrete coping.	routine
121AA901A4901C13	Steep hard cliff fronting Lindisfarne Castle with a rocky foreshore. Soft cliffs overlying rock at eastern end.	Cliff - Holy Island	308.6	01/09/2016	Royal HaskoningDHV	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	6 - 10	Maintain netting, extend netting at east end.	routine
121AA901A4901C14	Cobble and pebble bund fronted by a rocky foreshore.	Bund - Holy Island	532.6	01/09/2016	Royal HaskoningDHV	Shingle beaches healthy. Partial erosion, undercutting and collapse of low earth bank along local section on east side.	3	11 - 20	Repair collapsed wall. Realign fencing.	routine
121AA901A5001C01	Soft vegetated cliff fronted by a rocky foreshore.	Cliff - Holy Island	321.7	01/09/2016	Royal HaskoningDHV	Low earth cliffs shows 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	11 - 20	Continue to monitor.	no repairs
121AA901A5001C02	Cobble and pebble bund fronted by a rocky foreshore.	Bund - Holy Island	259.3	01/09/2016	Royal HaskoningDHV	Steep shingle foreshore and noticeable shingle ridge along crest. Shingle encroaching on low lying vegetated hinterland, possibly due to storm wave run-up.	2	>20	Continue to monitor.	no repairs
121AA901A5001C03	Low vegetated cliff with a rocky foreshore.	Cliff - Holy Island	365.1	01/09/2016	Royal HaskoningDHV	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.	2	>20	Continue to monitor.	no repairs

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121AA901A5001C04			284.5	01/09/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A5001C05	Steep vegetated cliff with a rocky foreshore.	Cliff - Holy Island	610.8	01/09/2016	Royal HaskoningDHV	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.	3	6 - 10	Monitor erosion, repair fencing.	no repairs
121AA901A5001C06	Vegetated dunes fronted by a narrow sandy beach and a rock outcrop.	Dunes - Holy Island	1047	01/09/2016	Royal HaskoningDHV	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 headlands and stable.	3	11 - 20	None.	no repairs
121AA901A5001C07	Steep rock cliff fronted by a rocky foreshore with vegetated dunes behind.	Cliff - Holy Island	268.9	01/09/2016	Royal HaskoningDHV	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 headlands and stable.	2	>20	None.	no repairs
121AA901A5001C08	Vegetated dunes fronted by a sandy beach.	Dunes - Holy Island	419.2	01/09/2016	Royal HaskoningDHV	Wide sandy beach backed by high but narrow vegetated dunes.	2	11 - 20	None.	no repairs
121AA901A5001C09	Steep vegetated dunes fronted by a rocky foreshore and boulderrs at dune toe.	Dune - Holy Island	712.3	01/09/2016	Royal HaskoningDHV	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	>20	None.	no repairs

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121AA901A5001C10	Vegetated dunes fronted by sandy beach.	Dune - Holy Island	3264	01/09/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A5001C11	Sand flats with saltmarsh adjacent to causeway road.	Dune - Holy Island	3628.6	01/09/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A1401C23	Natural coastal slope fronted by wide sand/mudflats, sheltered by Lindisfarne Causeway and Holy Island.	Slope/Bank - Fenhan Flats	4504.9	01/08/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A1401C24	Natural coastal slope fronted by wide sand/mudflats, sheltered by the Causeway and Holy Island. Located at the back of the bay, with slightly higher hinterland.	Slope/Bank - White Hall	2181.9	01/08/2016	Royal HaskoningDHV	Wide well established salt marsh backed by vegetated coastal slopes. No change evident since last survey.	2	>20	None.	no repairs
121AA901A1401C98	Embankment with stone and asphalt reveted toe fronting lower-lying area of Ross.	Embankment - Cockly Knowes	1270.4	01/08/2016	Royal HaskoningDHV	Wide and well vegetated salt marsh and backed by heavily overgrown pitched stone flood embankment. Some loss of binding resulting in gaps between stones.	3	>20	Remove vegetation, fill gaps between stones	routine
121AA901A1401C25	Natural coastal slope fronted by wide sand/mudflats, sheltered by the causeway and Holy Island. Located eastern end of the bay, with lowered land behind	Slope/Bank - Cockly Knowes	1076.4	01/08/2016	Royal HaskoningDHV	Wide vegetation mudflats backed by well vegetated high dune ridge. One historic blowout at north end.	2	>20	None.	no repairs

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121AA901A1401C99	Natural 'spit' of dunes, separated from Ross Point by wide opening.	Dunes - Guile Point	1542.9	01/08/2016	Royal HaskoningDHV	Inland-facing side of dune spit well vegetated and stable. Seaward face showing some historic erosion and slumping along some of its length. Recent regrowth of vegetation along foreshore.	2	>20	Monitor erosion of seaward face.	routine
121AA901A1401C06	Low natural dune coastline, forming Ross headland. Sandy beach fronting the dunes.	Dunes - Ross Back Sands	3138.2	25/05/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A1401C26	Low natural coastal slope forming northern part of the bay, fronted by wide sandy beach.	Slope - Budle Bay	245.6	01/08/2016	Royal HaskoningDHV	Wide flat foreshore backed by well vegetated sand spit. No significant change since last survey.	2	>20	None.	no repairs
121AA901A1401C27	Mortared rock revetment.	Revetment - Budle Bay	125.5	01/08/2016	Royal HaskoningDHV	Wide flat foreshore backed by grouted stone revetment and well vegetated embankment. Some cracking at north end.	3	1 - 5	Maintenance	routine
121AA901A1401C28	Low natural vegetated coastal slope fronted by mudflats.	Slope - Budle Bay	136.4	01/08/2016	Royal HaskoningDHV	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.	3	1 - 5	Maintenance	routine
121AA901A1401C29	Mortared rock revetment fronted by mudflats.	Revetment - Budle Bay	616.9	01/08/2016	Royal HaskoningDHV	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	11 - 20	Fill void along toe, repair cracks.	routine
121AA901A1401C30	Low natural vegetated coastal slope fronted by mudflats.	Slope - Budle Bay	72.2	01/08/2016	Royal HaskoningDHV	Wide well vegetated foreshore backed by heavily vegetated embankment.	3	>20	None.	no repairs

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121AA901A1401C10		Ross South Dunes/Sea Defence	701.6	01/08/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A1401C11		Ross South Dunes/Sea Defence	271.1	01/08/2016	Royal HaskoningDHV	No significant change since last survey. Well vegetated earth slope fronted by wide healthy saltmarsh, narrowing in south.	3	>20	None.	no repairs
121AA901A1401C22	Rock revetment fronted by mudflats with a concrete toe visible for the final 50m (outfall end of area).	Revetment - Budle Bay	283.4	01/08/2016	Royal HaskoningDHV	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	11 - 20	Remove vegetation from revetment.	routine
121AA901A1401C13	Concrete sea wall with outfall.	Seawall - Budle Bay	121.6	01/08/2016	Royal HaskoningDHV	No change since previous survey. Healthy, stable foreshore with no signs of erosion at the toe of structure. Concrete retaining wall in fair condition with some vertical cracking but no movement evident. Outfall structure in fair condition.	3	>20	None	no repairs
121AA901A1401C14	Rock revetment fronted by mudflats.	Revetment - Budle Bay	32.8	01/08/2016	Royal HaskoningDHV	Wide flat and well vegetated foreshore backed by grouted stone revetment. Revetment heavily vegetated. Some erosion at west end and displacement of stones.	3	>20	Repair displaced stones along toe at east end.	routine
121AA901A1401C15	Concrete sea wall forming river bank.	Seawall - Budle Bay	110	01/08/2016	Royal HaskoningDHV	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	11 - 20	None.	no repairs

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121AA901A1401C16	Rock revetment. Portions bound together with concrete mortar.	Revetment - Budle Bay	141.7	01/08/2016	Royal HaskoningDHV	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	>20	None.	routine
121AA901A1401C17	Steel sheet piles providing protection for sluice structure.	Sheet Piling - Budle Bay	17.2	01/08/2016	Royal HaskoningDHV	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	11 - 20	None.	no repairs
121AA901A1401C18	Sluice regulating flow in/out of river.	Sluice Gate - Budle Bay	6.7	01/08/2016	Royal HaskoningDHV	Sluice gates in good condition. Previous survey reported that the gates were cleaned and repainted in 2008. Gates, ladders and hand railing in good condition.	3	11 - 20	None.	routine
121AA901A1401C19	Steel sheet piles providing protection for sluice structure.	Sheet Piling - Budle Bay	59.5	01/08/2016	Royal HaskoningDHV	Sheet piles to west side of sluice remain in good condition. Some rusting apparent. Previous survey reported piles having been repainted in 2008.	2	11 - 20	None.	routine
121AA901A1401C20	Rock revetment protecting the end of sheet piles.	Revetment - Budle Bay	181.9	01/08/2016	Royal HaskoningDHV	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	>20	Monitor settlement of structure.	no repairs

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121AA901A1401C21	Low vegetated coastal slope.	Slope - Budle Bay	1445.5	01/08/2016	Royal HaskoningDHV	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 corner where frontage turns inland to Ross not observed.	2	>20	None.	no repairs
121AA901A1501C08	Coastal slope fronted by mudflats. Road and residential properties behind.	Slope - Waren Mill	315.5	22/06/2016	Royal HaskoningDHV	Flat silty foreshore backed by saltmarsh and well vegetated embankment. No erosion of embankment evident.	2	>20	None.	no repairs
121AA901A1501C02	Mudflats backed by blockwork wall or revetment.	Wall - Waren Mill	137.5	01/08/2016	Royal HaskoningDHV	Wide flat silty foreshore backed by masonry retaining wall protecting private gardens. Wall repaired since 2014 but remains poor.	4	6 - 10	Maintenance	routine
121AA901A1501C03	Vegetated slope fronted by mudflats.	Slope - Waren Mill	222.8	01/08/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A1501C04	Reveted coastal slope with road at crest, fronted by mudflats.	Revetment - Chesterhill Slakes	429.8	01/08/2016	Royal HaskoningDHV	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	11 - 20	Remove vegetation from revetment	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A1501C05	Coastal slope and higher banks fronted by mudflats. Road behind.	Slope - Budle	326.7	22/06/2016	Royal HaskoningDHV	Flat narrow silty foreshore with salt marsh, narrowing at north end. Evidence of on-going marsh erosion and creek development. Heavily vegetated coastal slope with no erosion evident. Some mature trees close to foreshore edge.	2	>20	None.	no repairs
121AA901A1501C06	Vegetated dunes fronted by a sandy bay.	Slope - Newtown Hill	1581.1	22/06/2016	Royal HaskoningDHV	Wide sandy beach backed by high well vegetated dunes. Severe cut back of dune sout of old concrete pier, although not threatening properties. On-going deterioration of relic concrete pier and on-going loss of retained fill.	4	>20	Monitor dune face erosion. Control pedestrian erosion. Monitor safety of pier	routine
121AA901A1501C07	Vegetated cliff fronted by beaches of varying width and rock platforms.	Cliff - Bamburgh Moor	1448.7	22/06/2016	Royal HaskoningDHV	Rock ledges overlain by wide sandy beaches to high vegetated earth cliffs. Some localised minor erosion along toe. Crest slippage at golf club area (not obviously linked to toe erosion).	2	>20	None.	no repairs
121AA901A1601C05	Wide sandy bay backed by extensive vegetated dunes with a rock outcrop at either end.	Dunes - Redbarns Links	2215.5	22/06/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A1601C02	Wide sandy beach backed by extensive vegetated dunes, with a rock outcrop at each end of the frontage.	Dunes - Redbarns Links	868.5	22/06/2016	Royal HaskoningDHV	Wide sandy foreshore fronting wide well vegetated dune system. Previous erosion, cliffing and cutback along most of the dune toe. Some regrowth of vegetation along toe generally.	2	11 - 20	Monitor erosion	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A1601C03	Wide sandy beach with rocky outcrop backed by vegetated dunes.	Dunes - Greenhill Links	1191.9	22/06/2016	Royal HaskoningDHV	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, generally but recent dune cliffing.	2	>20	Review long term approach of property.	no repairs
121AA901A1601C04	Wide sandy beach backed by vegetated dunes, with a rock outcrop at each end of the frontage.	Dunes - St Aidan Dunes	982.5	22/06/2016	Royal HaskoningDHV	Wide sandy foreshore fronting wide well vegetated dune system. Previous erosion, cliffing and cutback along most of the dune toe, but with recent regrowth.	3	11 - 20	Monitor erosion.	no repairs
121AA901A1701C54	Steep vegetated cliff with rocky/shingle foreshore with a 40m concrete wall.	Cliff/Wall - North Sunderland	515.8	22/06/2016	Royal HaskoningDHV	No deterioration of coping but remains vulnerable. No worsening of outflanking of northern end.	2	>20	Examine potential weakness in coping.	routine
121AA901A1701C02	Concrete blockwork wall with concrete apron.	Wall - Heela Hope	20.1	22/06/2016	Royal HaskoningDHV	High concrete blockwork retaining wall founded on rock foreshore. Structure well founded, no undermining evident. Missing concrete lower coping along north end. Some settlement, rotation and cracking evident in upper blocks where adjoining masonry wall	3	>20	Replace coping along toe. Monitor movement in upper blocks.	routine
121AA901A1701C03	Old masonry wall with concrete apron.	Wall -Heela Hope	17.6	22/06/2016	Royal HaskoningDHV	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	>20	Repoint gaps between masonry.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A1701C04	Concrete blockwork wall with concrete apron.	Wall - Heela Hope	18.3	22/06/2016	Royal HaskoningDHV	High concrete blockwork retaining wall founded on rock foreshore. Structure well founded, no undermining evident. Abrasion of concrete blocks beneath toe coping.	2	>20	None.	routine
121AA901A1701C05	Concrete recurved wall to boathouse, Car park and RNLI.	Wall - North Pier	37	22/06/2016	Royal HaskoningDHV	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 r cracking.	3	>20	Access to RNLI property for more detailed inspection.	no repairs
121AA901A1701C06	Concrete wall with rocky foreshore, Car park, boatyard and RNLI behind.	Wall - North Pier	53.7	22/06/2016	Royal HaskoningDHV	Concrete seawall founded on rock foreshore. Significant horizontal crack/ spalling visible on both sides of wall at crest but may not have worsened since 2008. Toe of wall appears well founded on rock foreshore. Remainder of wall in fair/ good condition	3	11 - 20	Repair cracks.	routine
121AA901A1701C07	Concrete wall / breakwater forming outer harbour arm.	Wall/Revetment - North Breakwater	277.1	22/06/2016	Royal HaskoningDHV	Main harbour pier founded on rock foreshore. Abrasion, cracks and scour holes in seaward face, largest holes repaired by harbour master. Possibly further abrasion locally. Some movement in rock armour. Crest wall in fair condition, repairs sound. No cracks in bitumen surfacing.	3	11 - 20	Repair scour holes in seaward face, repair void and seaward end. Monitor.	urgent

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A1701C08	Concrete head of the harbour arm. With concrete access steps with handrailing to the harbour.	Wall - North Breakwater	70.4	23/06/2016	Royal HaskoningDHV	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	6 - 10	Undertake dive survey of below water elements. Fill large void at toe.	urgent
121AA901A1701C09	Inner face of the concrete breakwater.	Wall - North Breakwater	145.9	23/06/2016	Royal HaskoningDHV	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	6 - 10	Repairs to abrasion and holes.	urgent
121AA901A1701C10	Concrete inner pier.	Breakwater - North Sunderland	95.1	23/06/2016	Royal HaskoningDHV	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	>20	Repoint joints and fill gaps between blocks.	routine
121AA901A1701C11	Concrete encased masonry wall	Wall - North Sunderland	78.3	23/06/2016	Royal HaskoningDHV	Concrete wall in good condition. Some minor vertical cracking. Joint sealant, timber cope and ladders in good condition.	2	>20	None.	no repairs
121AA901A1701C12	Concrete encased masonry wall with concrete slipway to North.	Wall - North Sunderland	37.8	23/06/2016	Royal HaskoningDHV	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	>20	Repair to mortar joints, monitor undercutting of slipway.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A1701C13		Wall - North Sunderland	85.4	23/06/2016	Royal HaskoningDHV	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	>20	Maintenance	routine
121AA901A1701C14	Concrete pier	Wall - North Sunderland	62	23/06/2016	Royal HaskoningDHV	Concrete wall in good condition, some localised undercutting at toe. Masonry wall in fair/good condition, some weathering of blocks, loss of mortar on south face. Timber coping, ladders and surfacing in fair/good condition	3	>20	Monitor undercutting.	routine
121AA901A1701C15	Old stone block wall with cabins, buildings and road above.	Wall - North Sunderland	88.2	23/06/2016	Royal HaskoningDHV	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	>20	None	no repairs
121AA901A1701C16	Masonry clad dwarf wall to steep grassy slope and steps has been replaced by concrete wall.	Wall - North Sunderland	41.5	23/06/2016	Royal HaskoningDHV	Concrete sea wall in good condition. No erosion evident in grass slope behind. Healthy beach levels along toe, some vegetation growth at east end. Good beach levels.	1	>20	Monitor.	no repairs
121AA901A1701C17	Concrete wall fronting steep grassy bank with road and houses behind.	Wall - North Sunderland	43	23/06/2016	Royal HaskoningDHV	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	>20	None.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A1701C18	Concrete recurve wall with block reveted slope behind.	Wall - North Sunderland	99	23/06/2016	Royal HaskoningDHV	Recurve concrete seawall well founded on rock foreshore. Joint sealant in good condition. No signs of cracking or deterioration.	2	>20	None.	no repairs
121AA901A1701C19	Tipped rubble slope with steep vegetated slope behind. Fronted by rocky foreshore.	Revetment - North Sunderland	166.1	23/06/2016	Royal HaskoningDHV	Rock foreshore backed by rock cliffs and vegetated slope. Tipping of boulders to control erosion. No recent erosion evident.	3	11 - 20	Monitor erosion.	no repairs
121AA901A1701C20	Northeast breakwater (aka Southern Breakwater). Low level concrete breakwater founded on bed rock built in the 1930s. Concrete encasement build in 2008.	Breakwater - North Sunderland	127.1	23/06/2016	Royal HaskoningDHV	Concrete breakwater generally in good condition. Toe well founded on rock foreshore, no signs of cracks, abrasion or spalling. New security gate.	2	>20	None.	no repairs
121AA901A1701C21	Northeast breakwater with additional splash wall (aka Northern Breakwater). Reinforced concrete caisson filled with mixed material breakwater constructed in 1930 and founded to bed rock. The breakwater has a concrete deck. Concrete encasement 2008.	Breakwater - North Sunderland	124.3	23/06/2016	Royal HaskoningDHV	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	>20	Repair cracks	routine
121AA901A1701C22	Low level rock cliffs fronted by a rocky foreshore with a ramp down to the beach in front of the caravan park.	Cliff - Braidcarr Rocks	874.5	23/06/2016	Royal HaskoningDHV	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	11 - 20	Review possible action to ramp from caravan park.	no repairs
121AA901A1701C23	Vegetated dunes with sandy beach to front. Rocky foreshore fronting the beach becoming more prominent to the south.	Dunes - Beadnell	1895.2	23/06/2016	Royal HaskoningDHV	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	6 - 10	None.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A1701C24	Vegetated dunes fronted by a rocky foreshore.	Dunes - Beadnell	685.6	26/05/2016	Royal HaskoningDHV	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	>20	Monitor erosion.	routine
121AA901A1701C25	Masonry wall fronted by a sandy beach and a rocky foreshore.	Wall - Beadnell Haven	27	26/05/2016	Royal HaskoningDHV	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.	4	11 - 20	Repair missing blocks at south end.	routine
121AA901A1701C26			30.2	25/05/2016	Royal HaskoningDHV	Hard rock lower cliffs, well vegetated soft upper cliffs with some historic erosion evident. Shingle foreshore levels relatively high.	3	>20	None.	no repairs
121AA901A1701C27	Concrete wall fronted by a sandy beach with a rock and residential properties behind.	Wall - Beadnell Haven	61.6	25/05/2016	Royal HaskoningDHV	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 along toe.	3	>20	None.	no repairs
121AA901A1701C28	Low level cliff fronted by a rocky foreshore forming headland.	Cliff - Dell Point	238.3	25/05/2016	Royal HaskoningDHV	Rock ledges on foreshore backed soft upper cliffs with partial erosion and undercutting evident along most of the frontage.	4	6 - 10	Monitor erosion.	no repairs
121AA901A1701C29	Eroding headland, clay over fractured rock.	Bank - Dell Point	103.8	25/05/2016	Royal HaskoningDHV	Rock ledges on foreshore backed by soft cliffs showing with partial erosion along most of the frontage.	4	11 - 20	Monitor erosion.	no repairs

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121AA901A1701C30	Low cliffs with rocky foreshore.	Cliff - Red Brae	95.8	25/05/2016	Royal HaskoningDHV	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	11 - 20	Monitor erosion.	routine
121AA901A1701C31	Precast vertical concrete wall protecting private property.	Wall -Beadnell	36.9	25/05/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A1701C32	Low coastal slope, partly vegetated with evidence of tipping of building waste and garden material. Fronting the slope is a narrow sandy beach.	Slope - Beadnell	26.1	25/05/2016	Royal HaskoningDHV	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	1 - 5	Consider formal defenses to replace tipped material	urgent
121AA901A1701C33		Wall - Beadnell	35.7	25/05/2016	Royal HaskoningDHV	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	>20	Remove vegetation from behind wall.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A1701C34	Concrete blockwork wall fronted by a stony foreshore with a road and houses behind.	Wall - Beadnell	60.7	25/05/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A1701C35	The wall is in three sections, the top section is a masonry wall, the middle section is concrete blockwork wall and the base being a concrete apron.	Wall - Beadnell	37.1	25/05/2016	Royal HaskoningDHV	Narrow shingle/ rubble ridge fronting lower concrete and masonry wall. Abrasion, horizontal cracking, missing sections of concrete toe apron. Abrasion to masonry blocks, some mortar joints missing, mortar repairs at crest in good condition. No OT damage	3	11 - 20	Repair mortar joints. Repair missing concrete along toe.	routine
121AA901A1701C36	Masonry wall with a concrete toe and a masonry splash wall. The wall is fronted by a sandy beach	Wall - Beadnell	79	25/05/2016	Royal HaskoningDHV	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 OT damage. Outfall missing flap valve	4	6 - 10	Repair mortar joints. Replace missing blocks. Localised underpinning of toe.	urgent
121AA901A1701C37	Masonry wall. The wall is fronted by a shingle beach.	Wall - Beadnell	76	25/05/2016	Royal HaskoningDHV	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	11 - 20	Repair mortar joints. Replace coping stones.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A1701C38	Low level rocky cliff forming headland.	Cliff - Whinstone Dyke	160.3	25/05/2016	Royal HaskoningDHV	Rocks ledges on foreshore backed by low rock cliffs with vegetation along crest. Some localised erosion along soft upper cliffs.	2	>20	None.	no repairs
121AA901A1701C39	Gabion mattress.	Gabions - Laydy's Hole	87.2	25/05/2016	Royal HaskoningDHV	Steep narrow shingle foreshore with gabions, well vegetated earth bank behind. Gabions in poor condition, most lower baskets burst. Upper gabions in fair condition, gabions buried at south end. Localised erosion of earth bank at north end.	4	6 - 10	Replace lower gabions.	routine
121AA901A1701C40	Gabion wall.	Gabions - Roan Rock	81.4	25/05/2016	Royal HaskoningDHV	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	11 - 20	Monitor condition of gabions.	no repairs
121AA901A1701C41	Gabion wall.	Gabions - North of Beadnell Point	27	25/05/2016	Royal HaskoningDHV	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	11 - 20	Replace corroded gabions.	routine
121AA901A1701C42	Concrete block revetment.	Revetment - North of Beadnell Point	38.1	25/05/2016	Royal HaskoningDHV	High shingle ridge with precast concrete block revetment and private gardens behind. No obvious deterioration to blocks, some minor vegetation growth to joints and toe. Minor mortar loss at north end. Small crack at back of steps. No erosion to gardens	2	>20	None.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A1701C43	Steep rock cliff with a rocky foreshore.	Cliff - Ebbe's Snook	250.4	25/05/2016	Royal HaskoningDHV	Rock ledges and boulder foreshore backed by steep rock cliffs. No significant change since last survey. Evidence of localised historic collapse.	2	>20	None.	no repairs
121AA901A1701C44	Low vegetated coastal slope.	Slope - Ebbe's Snook	322.7	25/05/2016	Royal HaskoningDHV	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	11 - 20	Consider formal erosion defence.	no repairs
121AA901A1701C45	Masonry revetment with a stepped masonry toe.	Revetment - Beadnell	68.4	25/05/2016	Royal HaskoningDHV	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	11 - 20	Remove vegetation. Repair undermined toe wall. Re-grout gaps.	routine
121AA901A1701C46	Masonry wall forming old disused lime kilns, fronted by a rock revetment.	Wall - Beadnell	62.5	25/05/2016	Royal HaskoningDHV	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	>20	Monitor movement of toe armour.	no repairs
121AA901A1701C47	Low masonry wall with concrete copping and concrete deck forming the root of the harbour. Fronted by a stony foreshore.	Wall - Beadnell Harbour	24.2	26/05/2016	Royal HaskoningDHV	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.	4	>20	Replace missing grout and toe undermining. Fill void.	urgent

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A1701C48	Low masonry wall with concrete copping and concrete deck forming the Southern arm of the harbour. Fronted by a rock revetment.	Wall - Beadnell Harbour	58.2	26/05/2016	Royal HaskoningDHV	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.	3	>20	None.	no repairs
121AA901A1701C49	Low masonry wall with concrete deck forming the southern arm of the harbour.	Wall - Beadnell Harbour	31.2	25/05/2016	Royal HaskoningDHV	Stepped masonry outer wall in good condition. Some historic slumping of blocks, no gaps evident. Mortar repairs and new concrete decking in good condition. Low foreshore levels resulting in undercutting and deep horizontal voids along most of leeward toe	3	11 - 20	Fill voids along toe.	routine
121AA901A1701C50	Large concrete blockwork wall with concrete deck forming southern end of the harbour arm.	Wall - Beadnell Harbour	18.7	25/05/2016	Royal HaskoningDHV	Concrete breakwater in good condition, no signs of movement. Localised undermining of toe apron at seaward end. Ladders in fair/ good condition.	3	>20	Monitor undermining.	routine
121AA901A1701C51	Masonry inner harbour wall.	Wall - Beadnell Harbour	82.7	26/05/2016	Royal HaskoningDHV	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.	4	>20	Fill undercutting at toe	routine

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121AA901A1701C52	Masonry pier.	Pier - Beadnell	111.7	26/05/2016	Royal HaskoningDHV	Localised undercutting and gaps along toe of masonry wall, slight displacement of some blocks. No gaps between blocks. Spalling of concrete coping along most of length. Undercutting and partial collapse of grouted stone revetment protecting access steps	4	>20	Fill voids along toe and replace missing blocks.	routine
121AA901A1701C53	Soft vegetated cliff fronted by a sandy beach.	Cliff - Benthall Links	329.8	25/05/2016	Royal HaskoningDHV	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	>20	Monitor erosion	no repairs
121AA901A1801C01	Vegetated dunes fronted by a wide sandy beach.	Dunes - Beadnell Bay	1027.1	26/05/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A1901C01	Vegetated dunes in front of Newton Links. Wide sandy foreshore forming south end of Beadnell Bay, with rock outcrops to south	Dunes	2415.7	26/05/2016	Royal HaskoningDHV	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	>20		no repairs
121AA901A1901C02	Vegetated dunes with rocky foreshore, forming small bay	Dunes - Football Hole	1061.4	26/05/2016	Royal HaskoningDHV	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	>20	None.	no repairs

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121AA901A2001C01	Natural vegetated coastal slope with sandy beach and a rocky foreshore	Coastal Slope	1012	26/05/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A2001C02	Low concrete wall in front of wide sandy beach. Backed by amenity area of Low Newton by the Sea	Sea Wall	68.6	26/05/2016	Royal HaskoningDHV	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	>20	None.	routine
121AA901A2001C03	Vegetated dunes at back of wide sandy beach at south end of St Mary's Haven	Dunes - St Mary's Bay	621.8	26/05/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A2001C04	Vegetated dunes with wide sandy beach forming Embleton Bay	Dunes - Embleton	2239.4	26/05/2016	Royal HaskoningDHV	Wide sandy beach with occasional rock slabs backed by well vegetated high sand dunes. No recent erosion evident at toe.	2	>20	None.	no repairs
121AA901A2001C05	Natural vegetated coastal slope with sandy / rocky foreshore	Coastal Slope - Embleton	843.1	26/05/2016	Royal HaskoningDHV	Cobble foreshore backed by low well vegetated sand dunes. No signs of erosion.	2	>20	None.	no repairs
121AA901A2101C01	Gentle coastal slope & foreshore	Coastal Slope - Queen Margarets Cove	852.6	26/05/2016	Royal HaskoningDHV	Rocky foreshore backed by well vegetated low coastal slopes. No change.	2	>20	None.	no repairs
121AA901A2101C02	Rocky coastal slope & foreshore	Coastal Slope - Oxberry Law	1297	23/05/2016	Royal HaskoningDHV	Well vegetated stable coastal slopes protected by rocky foreshore. No change.	2	>20	None.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A2201C01	Earth embankment fronted by rocky foreshore	Embankment - Craster Harbour	52.5	23/05/2016	Royal HaskoningDHV	Rocky foreshore backed by well vegetated low coastal. Outfall and manhole in fair/ good condition and well founded on rock. Some concrete repairs around manhole.	2	>20	None.	no repairs
121AA901A2201C02	Low, near vertical masonry wall at back of rock platform foreshore.	Sea Wall - Craster Harbour	83.1	23/05/2016	Royal HaskoningDHV	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	>20	Repointing to masonry.	routine
121AA901A2201C03	Outer wall of northern harbour arm. Near vertical concrete encased masonry wall, extending above the deck of the arm.	Sea Wall - Craster North Harbour Arm	50.3	23/05/2016	Royal HaskoningDHV	Signs of heavy abrasion on crest of wall.	3	>20	Monitor undermining and full height vertical crack.	no repairs
121AA901A2201C04	Inner wall of northern harbour arm. Vertical masonry face with concrete capping beam & deck.	Sea Wall - Craster Harbour	59.2	23/05/2016	Royal HaskoningDHV	Deck damaged but not significantly.	3	>20	Monitor full height vertical crack.	routine
121AA901A2201C05	Near vertical wall, seems to be masonry encased in concrete, founded on raised rock. Silty/ sandy foreshore & roadway immediately behind	Sea Wall - Craster Harbour	52.1	23/05/2016	Royal HaskoningDHV	Signs of heavy abrasion on crest of wall.	3	>20	None.	routine
121AA901A2201C06	Concrete slipway over natural coastal slope in corner of harbour, with cobble foreshore.	Other - Craster Harbour	15.5	23/05/2016	Royal HaskoningDHV	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	11 - 20	Repair deep void.	urgent
121AA901A2201C07	Natural cobbled slope & foreshore.	Coastal Slope - Craster Harbour	60.6	23/05/2016	Royal HaskoningDHV	No significant change since last survey. Sandy beach backed by shingle ridge and well vegetated crest.	2	>20	None.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A2201C08	Vertical masonry seawall, founded on rock,, with cobble foreshore & road & properties immediately behind.	Sea Wall - Craster Harbour	35.5	23/05/2016	Royal HaskoningDHV	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	11 - 20	Repoint wall.	routine
121AA901A2201C09	Hard rock cliff, rising to the east, with little foreshore.	Cliff - Craster Harbour	28.7	23/05/2016	Royal HaskoningDHV	Rocky foreshore with stable rock cliffs above. Well vegetated crest. Some few loose rocks on foreshore. No significant change since last survey.	1	>20	None.	no repairs
121AA901A2201C10	Inner face of southern harbour arm. Near vertical concrete face & deck.	Sea Wall - Craster South Harbour Arm	61.4	23/05/2016	Royal HaskoningDHV	Concrete quay wall in fair condition, no movement. Heavy abrasion/ spalling along lower wall and at joints. Some gaps between joints. Possible undermining at seaward end, not accessible. Recent repairs to cracks in desk. Timber cope in poor condition.	3	>20	Investigate undermining at seaward end. Repair abraded concrete.	routine
121AA901A2201C11	Outer face of southern harbour arm. Near vertical concrete encased masonry, with rock foreshore	Sea Wall - Craster Harbour	86.1	23/05/2016	Royal HaskoningDHV	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. Signs of heavy abrasion on crest and some inner-facing sections of outer wall.	3	11 - 20	Repair void, monitor cracks, repair abraded concrete.	routine
121AA901A2201C12	Concrete harbour wall with rocky foreshore	Sea Wall - Muckle Carr	57.4	23/05/2016	Royal HaskoningDHV	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	>20	None.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A2201C13	Rock revetment toe to steep earth bank with properties close to the crest.	Revetment - Craster Harbour	85.8	23/05/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A2201C14	Rock revetment providing toe protection to an earth embankment. Rock foreshore. Concrete outfall down the embankment and along the foreshore.	Revetment - Muckle Carr	157.7	23/05/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A2201C15	Steep vegetated coastal slope with rock revetment at the toe, fronted by rocky foreshore. Evidence of rock gabions behind the rock revetment.	Coastal Slope - Muckle Carr	266.9	23/05/2016	Royal HaskoningDHV	Numerous tippings (e.g. grass cuttings) on slope. One area of very minor slippage, but presents no threat to properties.	2	>20	None.	no repairs
121AA901A2301C01	Low gentle cliff & rocky foreshore	Cliff - Black Hole	784.8	23/05/2016	Royal HaskoningDHV	Wide sloping rock foreshore backed by well vegetated coastal slope. No signs of erosion.	2	>20	None.	no repairs
121AA901A2301C02	Sandy slope & stony / rocky foreshore.	Coastal Slope - Swine Den	314.7	23/05/2016	Royal HaskoningDHV	No significant change.	2	>20		routine
121AA901A2401C01	Low rock cliff with wide rock foreshore. Forms a slight bay between Cullernose Point and Howick village	Cliff - Swine Den	743.8	23/05/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A2401C02	Low rock cliff with wide rock foreshore. Forms a slight headland south of Howick village	Cliff - Rumbling Kern	1069.7	23/05/2016	Royal HaskoningDHV	Sloping rocky foreshore backed by high well vegetated coastal slopes. No signs of erosion. Masonry wall forming seawall boundary to property in good condition. Minor slumping in the softer cliff.	2	>20	None.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A2501C01	Well vegetated dune system behind beaches. Headland cliffs control bays. Foreshore is mixture of rock platforms with sandy/stony beaches within smaller bays.	Cliff - Howick Haven	2325.6	23/05/2016	Royal HaskoningDHV	Stable wide beach and embryonic dunes.	3	>20	Consider repair of footbridge and steel piling and abutments.	routine
121AA901A2501C02	Low rock cliffs / slope, with wide rock foreshore forming headland	Coastal Slope - Longhoughton Steel	791.7	23/05/2016	Royal HaskoningDHV	Very stable.	3	>20	Monitor erosion.	no repairs
121AA901A2601C01	Natural vegetated coastal slope with a sandy / rocky foreshore.	Coastal Slope - Boulmer Steel	236.1	23/05/2016	Royal HaskoningDHV	Some very minor slumps but presents no threats.	4	6 - 10	Monitor erosion. Consider formal erosion protection.	urgent
121AA901A2601C02	Concrete block revetment at toe of earth embankment, with wide rock/sandy foreshore. Surrounded by rock placed in Dec 2013 as 'emergency works' following erosion which threatened properties.	Revetment - Boulmer	40	23/05/2016	Royal HaskoningDHV	No obvious deterioration. Dec 2013 emergency works remain in 'good' condition. No further erosion since.	2	>20	Monitor.	routine
121AA901A2601C03	Low sand/earth embankment with wide sandy beach, protected by rock revetment at toe of embankment.	Embankment - Berwick Stone	160.2	23/05/2016	Royal HaskoningDHV	Scheme to prevent erosion, completed in May 2016. Condition is 'as built'. Rock revetment and sand on slope.	1	>20		routine
121AA901A2601C04	Rock revetment providing toe protection to earth embankment.	Revetment - The Torrs	81.5	23/05/2016	Royal HaskoningDHV	Improvements to original revetment made in May 2016 coast protection works. Condition now 'as built'. Rock revetment and sand profiling on slope.	1	>20	None.	routine
121AA901A2601C05	Large concrete blocks placed at toe of earth/sand embankment. Surrounded by rock placed following erosion of the embankment in Dec 2013 as 'emergency works'.	Revetment - The Torrs	75	23/05/2016	Royal HaskoningDHV	No obvious deterioration. Dec 2013 emergency works remain in good condition.	2	>20		no repairs
121AA901A2601C06	Vegetated natural coastal slope with a wide sandy beach & rock outcrops.	Coastal Slope - Boulmer Haven	1000.8	06/06/2016	Royal HaskoningDHV	Wide sandy beach backed by low well vegetated dunes.	2	11 - 20	Monitor erosion to dunes. Repair or remove outfall.	routine
121AA901A2601C07	Low gentle rock cliff/slope with wide rock foreshore, forming a headland.	Cliff - Seaton Point	830.7	06/06/2016	Royal HaskoningDHV	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	11 - 20	Monitor ongoing erosion, liaison with caravan park as necessary.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A2601C08	Low vegetated embankment at northern end of embayment, with wide sandy beach & shingle at back.	Embankment - Seaton Point	228	06/06/2016	Royal HaskoningDHV	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	11 - 20	Monitor erosion	no repairs
121AA901A2601C09	Concrete access steps through embankment, with rock armour toes protection forming an apron. Wide sandy beach in front.	Other - Boulmer	134.9	06/06/2016	Royal HaskoningDHV	Sandy beach with concrete steps, rock armour and high vegetated slopes. Erosion and outflanking to both sides of structure. Rock armour angular, loosely packed but stable. Concrete steps and hand railings in good condition, bottom of steps buried	3	11 - 20	Monitor outflanking. Consider extending rock armour on north side.	no repairs
121AA901A2701C01	Relatively high clay cliffs with shingle at toe, & wide sandy beach. Cliff falling to the south. Whaw Burn discharges at south end	Cliff - Alnmouth	358.2	06/06/2016	Royal HaskoningDHV	Sandy beach backed by high vegetated slopes. Partial erosion and slippage of slope along most of frontage although vegetation regrowth apparent. Cliff top path remains closed. Golf course at risk.	4	11 - 20	Monitor ongoing erosion.	no repairs
121AA901A2701C02	Vegetated slope/bank, with shingle margin at base & wide sandy beach in front. South of Whaw Burn	Coastal Slope - Foxton Hall	416.3	06/06/2016	Royal HaskoningDHV	Wide sandy foreshore with steep shingle ridge backed by high well vegetated coastal slope. Local slip in one area.	3	>20	None.	no repairs
121AA901A2701C03	Natural coastal slope with extensive rock foreshore with deteriorating breakwater structure.	Coastal Slope - Marden Rocks	79.5	06/06/2016	Royal HaskoningDHV	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.	4	11 - 20	Monitor erosion and potential beach change as breakwater/ groyne deteriorates.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A2701C04	Vegetated earth bank with shingle/cobbles at toe with extensive rock foreshore & sandy beach.	Embankment - Alnmouth	397.7	06/06/2016	Royal HaskoningDHV	Rock foreshore backed by high well vegetated earth bank. Partial erosion along toe at northern end with some localised slips evident. Vegetation growth on foreshore at south end.	3	>20	Monitor erosion.	no repairs
121AA901A2701C05	Large concrete blocks forming toe of vegetated dunes, with wide sandy beach in front. Small groyne field within beach.	Revetment - Alnmouth Bay	522.2	06/06/2016	Royal HaskoningDHV	Wide sandy beach backed by low well vegetated dunes. Ongoing but localised erosion and cliffing of dune and undermining of post and wire fence. Groynes exposed, some gaps and missing planks and rotten piles.	4	6 - 10	Erosion protection required at north end. Repair groynes.	routine
121AA901A2701C06	Variety of protection types for toe of earth bank including concrete blocks, rock gabions and rubble.	Embankment - Alnmouth Bay	242.7	06/06/2016	Royal HaskoningDHV	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. Golf course at risk.	3	11 - 20	Monitor erosion.	no repairs
121AA901A2701C07	Vegetated dunes leading into the mouth of the Aln. Wide sandy beach divided by the outflowing river.	Dunes - Alnmouth Bay	330.7	06/06/2016	Royal HaskoningDHV	Wide sandy beach backed by concrete blocks, well vegetated earth bank and a car park. Some vegetation growth on foreshore. No erosion evident along bank.	3	6 - 10	None	no repairs
121AA901A2701C08	Low sand dunes fronted by wide sandy beach	Dunes - Alnmouth Bay	291.1	06/06/2016	Royal HaskoningDHV	Wide sandy beach backed by concrete blocks along toe of high well vegetated dunes. Partial erosion and cliffing along most of dune face. Some blocks dislodged from dune face.	3	11 - 20	Monitor erosion of dune face.	routine
121AA901A2801C01	Vegetated dunes with sandy beach	Dunes - Alnmouth Bay	173.8	06/06/2016	Royal HaskoningDHV	Wide well vegetated dunes backed by road and properties. Good vegetation growth on foreshore.	2	>20	None.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A2801C02	Masonry wall with a concrete toe fronting vegetated dunes with road and residential properties behind	Sea Wall - Alnmouth Estuary	78.5	06/06/2016	Royal HaskoningDHV	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	>20	Monitor movement of central section.	no repairs
121AA901A2801C03	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.	Sea Wall - Alnmouth Estuary	34.9	06/06/2016	Royal HaskoningDHV	Masonry wall fronting boat club in good condition. No signs of movement. All concrete coping slabs in good condition.	2	>20	Monitor beach levels at toe.	no repairs
121AA901A2801C04	Low masonry wall providing protection to a children's play area	Sea Wall - Alnmouth Estuary	208.1	06/06/2016	Royal HaskoningDHV	Masonry wall fronting playground in good condition. No signs of movement. All concrete coping slabs in good condition.	2	>20	None.	no repairs
121AA901A2801C05	Concrete access ramp fronting residential properties	Access Ramp - Alnmouth Estuary	8.4	06/06/2016	Royal HaskoningDHV	Concrete boat ramp in good condition, minor spalling along seaward edge. No signs of cracking or undercutting of toe.	2	>20	None.	no repairs
121AA901A2801C06	Masonry wall with higher land behind fronted by saltmarsh. Walkway on top of the wall.	Sea Wall - Alnmouth Estuary	230.9	06/06/2016	Royal HaskoningDHV	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 now repaired.	3	6 - 10	Repair upper section of wall. Repoint and replace missing blocks.	urgent
121AA901A2801C07	Low earth bank fronted by saltmarsh	Embankment - Alnmouth Estuary	148.4	06/06/2016	Royal HaskoningDHV	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	11 - 20	Monitor erosion.	no repairs
121AA901A2801C08	Saltmarsh to slightly higher land forming control point in estuary	Embankment - Alnmouth Estuary	263.1	06/06/2016	Royal HaskoningDHV	No significant change since last survey.	2	>20	None.	no repairs

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121AA901A2801C09	Earth embankment	Embankment - Alnmouth Estuary	184.8	06/06/2016	Royal HaskoningDHV	Ongoing significant erosion and undercutting of low vegetated banks along entire length of frontage. Collapse of some sections of bank.	4	6 - 10	Monitor erosion.	no repairs
121AA901A2801C10	Low masonry wall to edge of estuary. Walkway at the crest of the wall.	Sea Wall - Alnmouth Estuary	186	06/06/2016	Royal HaskoningDHV	Wall collapsed and under repair at time of inspection.	5	6 - 10	Rebuild central section of wall. Repoint.	urgent
121AA901A2801C11	Vegetated flood plain	Flood Plain - Alnmouth Estuary	476	06/06/2016	Royal HaskoningDHV	No significant change evident since last survey.	3	>20	None.	no repairs
121AA901A2801C12	vegetated flood plain	Flood Plain - Alnmouth Estuary	667.9	06/06/2016	Royal HaskoningDHV	Wide healthy salt marsh. No significant change since last survey.	2	>20	None.	no repairs
121AA901A2801C13	Low masonry wall fronting a vegetated bank that is church hill	Sea Wall - Church Hill	174	06/06/2016	Royal HaskoningDHV	Continued washout of backfill resulting in collapse of central section of wall. Partial localised settlement at south end, full height cracks through mortar joints. Some outflanking and displaced blocks south end. Beach levels high at north end. Second collapsed section of wall.	5	1 - 5	Rebuild failed section of wall, replace missing blocks, repoint joints.	urgent
121AA901A2901C01	Partly vegetated dunes with wide sandy beach in front, forming central section of Alnmouth Bay.	Dunes - Buston Links	2617.3	06/06/2016	Royal HaskoningDHV	Wide sandy beach backed by concrete blocks and high well vegetated dunes. Dunes generally stable. Localised widespread erosion and slumping of dunes at north end. Concrete block defences not effective. Some erosion of central and south dune face	4	11 - 20	Monitor erosion.	routine
121AA901A2901C02	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.	Dunes - Birling Links & Warkworth Dunes	3016.2	06/06/2016	Royal HaskoningDHV	Dunes in the most northerly section stable over short length. Dune previously eroded in southern section but recovering.	3	>20	Dune management.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3001C01	Harbour arm with rock armour inner & outer faces & concrete walkway on crest.	Breakwater - North Pier, Warkworth Harbour	610.5	06/06/2016	Royal HaskoningDHV	Rock armour stable with no change in profile, minor displacement of rock at toe, no major voids evident. No signs of damage to concrete blocks or masonry slope, appears stable. No signs of settlement, spalling or cracking to concrete crest	3	>20	Monitor.	no repairs
121AA901A3001C02	Concrete/masonry extension to pier, accommodating the navigation beacon	Sea Wall - North Pier (head), Warkworth Harbour	195.1	06/06/2016	Royal HaskoningDHV	Large voids in concrete face. Section of concrete deck missing. Full height crack and displacement of seaward 5m section. Full height vertical crack in south face continuing through deck with displacement evident. Safety risk to fishermen.	5	6 - 10	Repair to end section needed, but no coast protection benefit.	urgent
121AA901A3001C03	Harbour arm with rock armour inner & outer faces & concrete walkway on crest. Structure widens out at base	Breakwater - North Pier (central), Warkworth Harbour	612.9	06/06/2016	Royal HaskoningDHV	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	>20	Repair gaps in masonry, monitor toe armour and replace as necessary.	routine
121AA901A3001C04	Inside corner of North Pier. Sand beach with rock revetment.	North Wave Basin, Warkworth Harbour	158.6	06/06/2016	Royal HaskoningDHV	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	>20	None.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3001C05	Vertical wall with concrete capping beam & tarmac surfacing behind forming quayside. No foreshore.	Quay Wall - Amble	141.3	21/06/2016	Royal HaskoningDHV	Concrete quay and timber cope generally in good condition, no signs of movement or settlement. Small localised cracks in deck. Limited access.	2	>20	Monitor below water elements for scour.	routine
121AA901A3001C06	Vertical wall with concrete capping beam and tarmac surfacing behind forming quayside. No foreshore.	(Quay) Wall - Amble	341.4	21/06/2016	Royal HaskoningDHV	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 and holding well.	3	11 - 20	Repointing of masonry wall. Monitor below water elements for scour.	routine
121AA901A3001C07	Gabions and rock	Revetment - South Jetty (Landward)	20.3	21/06/2016	Royal HaskoningDHV	Newly constructed gabions protecting area against erosion. Some rock and boulders scattered for extra protection.	2	11 - 20	Monitor effectiveness of new gabions.	routine
121AA901A3001C08	Gabions	Coastal Slope - Little Shore Wave Basin	66.4	21/06/2016	Royal HaskoningDHV	Newly constructed gabions protecting area against erosion. Some rock and boulders scattered for extra protection.	2	11 - 20	Monitor effectiveness of new gabions.	routine
121AA901A3001C09	Low masonry wall at back of sheltered embayment, with partially vegetated sandy beach and dunes in front, and amenity area behind.	Dunes - Little Shore Wave Basin	156.2	21/06/2016	Royal HaskoningDHV	Wide stable dune system continues to develop along beach crest. Masonry wall well protected and generally in fair condition, some localised areas of missing blocks which require repair.	2	>20	Maintenance repairs to holes in wall.	routine
121AA901A3001C10	Low concrete seawall along side of embayment. Sandy beach to the west, exposed rock to the east. Backed by road / promenade.	Sea Wall - Little Shore Wave Basin	120.3	21/06/2016	Royal HaskoningDHV	Concrete wall in poor condition. Some vertical and horizontal cracking along entire length, spalling along sections of cope. Corrosion to hand railing. Access ramp in very poor condition, significant spalling, abrasion and voids.	4	1 - 5	Repair cracks and voids in wall and ramp.	urgent

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3001C11	Timber jetty with walkway, forming a continuation of the quay alignment and linking up to the lighthouse. Sheltered 'lagoon' called Little Shore Wave Basin formed landward using "part-tide" barrier constructed from sheet piling.	Jetty - South Jetty	287.2	21/06/2016	Royal HaskoningDHV	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	11 - 20	None.	no repairs
121AA901A3101C01	Concrete pier head, housing the lighthouse, and linking up to the South Jetty structure.	Other - South Pier Head	187.5	21/06/2016	Royal HaskoningDHV	No significant change since last survey. Abrasion and cracking of concrete/masonry at root of pier/jetty. Walkway section fair condition.	3	>20	Fill cracks.	routine
121AA901A3101C02	South Pier, between mainland and South Jetty. Inner face: vertical concrete face with sloping concrete apron at toe, stony foreshore. Concrete deck. Outer wall vertical concrete with rock armour protection, and rocky foreshore.	Sea Wall - Amble South Pier	121.8	21/06/2016	Royal HaskoningDHV	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	>20	Repointing and fill cracks. Replace missing blocks	routine
121AA901A3101C03	Vertical concrete seawall forming part of base of South Pier. Sandy/rocky beach in front, access and properties behind.	Sea Wall - Amble	83.6	21/06/2016	Royal HaskoningDHV	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	>20	Fill cracks wall face. Repair access steps.	routine
121AA901A3101C04	Rock cliffs and wide rock foreshore, forming headland. Concrete wall on the top of the rock cliff.	Cliff	98.9	21/06/2016	Royal HaskoningDHV	No significant change since last survey. Horizontal cracking and spalling along crest of wall, reinforcement steel exposed and corroding. Erosion or rock platform and some undermining at west end.	3	11 - 20	Repair cracks in wall	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3101C05	Near vertical concrete seawall founded to rock. Steel handrailing provide protection for walkway.	Sea Wall - Amble	78.9	21/06/2016	Royal HaskoningDHV	No signs of movement or undermining. Localised abrasion and spalling along cope. Localised spalling, exposed reinforcement and loss of sealant along front and rear face of setback wall. New concrete surfacing installed 2013/14.	2	11 - 20	Repair spalling and cracks. Replace joint sealant.	routine
121AA901A3101C06	Low vegetated cliffs with sand beach and rock foreshore. Some localised sections of rock armour protection to toe of cliffs.	Cliff - Amble	206	21/06/2016	Royal HaskoningDHV	Narrow sandy beach with rock ledges and well vegetated, wide dune system. Loosely placed armourstone at center and south end providing limited protection	3	6 - 10	Consider formal erosion protection along toe of dunes. Dune management.	routine
121AA901A3101C07	Concrete seawall around slight promontory, founded on rock outcrop.	Sea Wall - Amble	63.4	21/06/2016	Royal HaskoningDHV	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	>20	Repair cracks. Replace lost sealant.	routine
121AA901A3101C08	Low vegetated soft cliffs fronted by a beach and rocky foreshore	Cliff - Amble Links	85.2	21/06/2016	Royal HaskoningDHV	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	11 - 20	Monitor erosion.	no repairs
121AA901A3101C09	Vegetated dunes and wide sandy beach. Old concrete outfall structure on beach.	Dunes - Amble Links	243.6	21/06/2016	Royal HaskoningDHV	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	>20	Repair or removal outfall.	urgent

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3101C10	Low masonry and block seawall backed by a narrow rock revetment at the toe of soft cliffs	Sea Wall - Wellhaugh Point	48.7	21/06/2016	Royal HaskoningDHV	Low masonry seawall with rock armour along crest. Wall well founded on rock foreshore, no undermining or movement, partially buried at south end. Localised breakup and centre, loss of coping stones. Rock armour stable. Slope well vegetated, no erosion	2	>20	None.	no repairs
121AA901A3101C11	Vegetated cliff with rocky foreshore	Cliff - Amble	82.9	21/06/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A3101C12	Vegetated dunes/low cliffs fronted by beach. Oufall onto beach.	Dunes	1345.7	21/06/2016	Royal HaskoningDHV	Narrow shingle ridge and high well vegetated dunes. Partial erosion, cliffing and slumps in dune face along most of frontage. Outfall in poor condition, hole in concrete pipe. Initial deformation of gabions. Localised erosion of dune face at south end.	4	>20	Repair or remove outfall	routine
121AA901A3101C13	Vegetated cliff with rocky foreshore	Cliff - Beacon Hill	55.7	21/06/2016	Royal HaskoningDHV	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	>20	None.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3101C14	Concrete seawall and rock revetment at promontory with vegetated cliffs behind	Revetment - Beacon Hill	46.9	21/06/2016	Royal HaskoningDHV	Rock armour stable although informally placed. Some rubble/rock placed to counter outflanking of revetment. Cliff well vegetated and relatively stable. Sparser rock at south end with less vegetation and more erosion. No evidence of concrete seawall	3	>20	Monitor erosion	routine
121AA901A3201C01	Coastal slope fronted by narrow sandy/shingle beach	Higher Ground - Beacon Hill	156.3	21/06/2016	Royal HaskoningDHV	Wide sandy beach based by high well vegetated earth bank. Localised erosion, cliffing and some slips evident. Properties within 10m of slope.	3	>20	Monitor erosion. Consider dune management.	routine
121AA901A3201C02	Rock armour revetment in front of low soft cliff. Sandy beach.	Revetment - Hauxley Links	140.8	21/06/2016	Royal HaskoningDHV	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	11 - 20	None.	no repairs
121AA901A3201C03	Wide rock armour revetment at toe of earth embankment.	Revetment - Hauxley Links	225.5	21/06/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A3201C04	Revetment comprising large concrete cubes place in an ad-hoc straight alignment at toe of earth embankment. Sandy beach in front.	Revetment/Embankment - Hauxley Links	170.8	21/06/2016	Royal HaskoningDHV	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	6 - 10	Consider formal revetment to protect upper slope.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3201C05	Rock armour revetment/bullnose extending beyond the adjacent line of defence, with vegetated dunes behind & sandy beach in front.	Revetment - Hauxley Links	52.7	21/06/2016	Royal HaskoningDHV	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	11 - 20	Remove/repair outfall	routine
121AA901A3201C06	Partially vegetated dunes, with wide sandy beach	Dunes - Hauxley Nature Reserve	220.7	21/06/2016	Royal HaskoningDHV	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	>20	Monitor erosion.	no repairs
121AA901A3201C07	Soft sand upper cliff and clay/peat lower cliff, with sandy beach and rocky outcrops. In front of vegetated dunes	Cliff	232.4	21/06/2016	Royal HaskoningDHV	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	11 - 20	Monitor erosion.	no repairs
121AA901A3201C08	Soft sand upper cliff and clay/peat lower cliff, with sandy beach & rocky outcrops. In front of vegetated dunes	Cliff - Hauxley Nature Reserve	337.4	21/06/2016	Royal HaskoningDHV	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	11 - 20	Monitor erosion.	no repairs
121AA901A3201C09	Two small breakwater type structures, comprising large concrete blocks, running perpendicular for the shoreline, extending just beyond high water, protecting outfalls.	Breakwater - Togston Links	27.1	21/06/2016	Royal HaskoningDHV	Outfall 'daylighted' in 2016, with remnant outfall and concrete blocks for temporary protection.	2	>20	Replace flap valve.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3201C10	Vegetated dunes with wide sandy beach	Dune - Togston Links	205.7	21/06/2016	Royal HaskoningDHV	Narrow shingle ridge with low well vegetated dunes. Partial erosion, cliffing and slumps along most of frontage releasing boulders onto beach.	3	11 - 20	Monitor erosion	routine
121AA901A3201C11	Vegetated dunes with wide sandy beach	Dune - Togston Links	682.7	21/06/2016	Royal HaskoningDHV	Narrow sandy beach backed by high well vegetated earth bank. Partial erosion, cliffing and slumps along most of frontage. Ongoing localised erosion of rock armour at south end, outflanking to the south. Dunes stabilising at south end near outfall.	3	11 - 20	Monitor erosion near parking area.	routine
121AA901A3201C12	Reinforced concrete outfall/culvert with side walls & apron. Flows through earth bank onto mainly sandy beach. Concrete access ramp to south.	Outfall - Hadston Carrs	121.5	21/06/2016	Royal HaskoningDHV	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	>20	Repair cracks. Monitor beach levels at access ramp for undermining.	routine
121AA901A3201C13		Revetment - Druridge Bay	140.7	21/06/2016	Royal HaskoningDHV	Some rocks displaced 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	11 - 20	Extending revetment at south end.	urgent
121AA901A3201C14	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.	Dunes - Druridge Bay	516.6	21/06/2016	Royal HaskoningDHV	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	6 - 10	Extend existing revetment at north end to protect road.	urgent

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3201C15	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.	Dunes - Chiburn Links	4339.6	21/06/2016	Royal HaskoningDHV	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	>20	Monitor erosion	no repairs
121AA901A3201C16	Vegetated dunes with wide sandy beach. Forms southern section of Druridge Bay. Several lakes and ponds discharge across the foreshore via outfalls.	Dunes - Blakemore	2888.4	21/06/2016	Royal HaskoningDHV	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	>20	None.	routine
121AA901A3201C17	Shallow rock armour revetment protecting lower half of vegetated dunes.	Revetment - Cresswell	76.3	21/06/2016	Royal HaskoningDHV	Rock armour loosely packed, toe well buried at north end. Dune narrow but well vegetated, movement and crest erosion at north end. Some small rocks tipped at sound end. Concrete steps and handrail good, partly buried. Property close to cliff edge.	3	11 - 20	Monitor erosion of crest	no repairs
121AA901A3201C18	Low concrete wall built at the back of a rocky foreshore. Rock armour revetment behind wall protects vegetated cliff.	Sea Wall - Cresswell	139.4	21/06/2016	Royal HaskoningDHV	Wall well founded on rock. Some localised abrasion, spalling and rust-staining. Some of the numerous previous repairs starting to break apart. Some movement and gaps in rock armour at south end. Localised erosion of upper slope along most of frontage. Tipped rubble evident.	3	>20	Repair abrasion. Place additional rock armour.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3201C19	Concrete blockwork revetment with low concrete wall at toe and rock foreshore.	Revetment - Cresswell	102.8	21/06/2016	Royal HaskoningDHV	Concrete toe beam well founded on rock, 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	>20	Replace missing block. Monitor settlement.	routine
121AA901A3201C20	Natural soft cliff/ dune at the back of high rock foreshore.	Dunes - Cresswell	140.2	21/06/2016	Royal HaskoningDHV	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.	3	11 - 20	None.	no repairs
121AA901A3201C21	Vegetated cliff with wide sandy beach, forming a short shallow bay between outcrops of Stark Letch Rocks and Brig Head.	Dunes - Cresswell	246.4	21/06/2016	Royal HaskoningDHV	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	>20	Monitor erosion.	no repairs
121AA901A3201C22	Vegetated embankment rising out of the dunes to the north, founded on rocky/ stony foreshore.	Cliff/Embankment - Cresswell	320	21/06/2016	Royal HaskoningDHV	Narrow sandy beach backed by shallow earth slope. Erosion of toe, cliffing and large scale global slip at south end, crest 2m from road. Gabions at south end in poor and ineffective. Vehicle barrier 2013/14 already being undermined, road at risk.	5	1 - 5	Large scale erosion protection/ slope stabilisation solution required.	urgent
121AA901A3301C01	Low earth/rock cliffs with rocky outcropping foreshore forming Snab Point.	Cliff - Snab Point	970.3	21/06/2016	Royal HaskoningDHV	Rock ledges and cliffs. Ongoing rock falls at north end. Timber retaining wall good, some undermining at toe. Collapse of masonry revetment at south end. Timber steps in fair condition. Ongoing erosion of soft upper cliffs at south end	3	11 - 20	Monitor erosion.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3301C02	Low rock cliff with rocky and sandy foreshore forming a bay which is sheltered by Snab point.	Cliff - Headagee	508.3	21/06/2016	Royal HaskoningDHV	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 well vegetated and stable, sandy foreshore widens at south end.	3	>20	Monitor erosion.	no repairs
121AA901A3401C01	Low vegetated soft cliff with rocky toe at back of beach comprising of colliery waste.	Cliff - Lynemouth	1108.4	21/06/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A3401C05	Low vegetated cliff at back of beach. Beach comprised of colliery waste.	Cliff - Lynemouth	283.8	21/06/2016	Royal HaskoningDHV	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	>20	None.	routine
121AA901A3401C06	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	Embankment	340.2	21/06/2016	Royal HaskoningDHV	Embankment replaced by revetment, in good condition. Angular rock armour, some displaced rocks at toe but, obvious settlement. Structure profile largely uniform. Some minor overtopping erosion to access track behind crest. Some outflanking at south end	4	1 - 5	Control public access to crest. Consider environmental issues.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3401C07	Rock revetment. Original revetment constructed in 1995 was extended by April 2006 to encompass the coal stocking yard area adjacent to the Power Station.	Revetment - Lynemouth Power Station	216.6	21/06/2016	Royal HaskoningDHV	Rock revetment in very 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	>20	None.	no repairs
121AA901A3401C08	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	Embankment - Lyne Sands	286.7	21/06/2016	Royal HaskoningDHV	Embankment replaced by revetment in 2013/14. 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	>20	Monitor outflanking at south end.	no repairs
121AA901A3501C01	Vegetated slope fronted by shingle and colliery waste beach with some cliffing in the beach profile	Coastal Slope - Lyne Sands	606.7	23/06/2016	Royal HaskoningDHV	Narrow sandy shingle beach widens at south end. Erosion and cliffing of vertical bank at north end resulting in outflanking of adjacent revetment. Dune damage by quadbike/motorbike.	3	11 - 20	Monitor erosion and outflanking at north end.	no repairs
121AA901A3501C11	Low soft cliff with vegetated top founded on rocky foreshore forming north side of Beacon Point headland	Cliff - Beacon Point	471.5	23/06/2016	Royal HaskoningDHV	Low rock cliffs backed by low vegetated earth slope.	3	>20	Repair erosion netting.	routine
121AA901A3501C03	Low soft cliff with stoney foreshore forming south side of Beacon Point Headland.	Cliff - Beacon Point	554	23/06/2016	Royal HaskoningDHV	Rock foreshore and soft earth upper vegetated cliff. Minor 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. No major recent events.	3	>20	Monitor erosion.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3501C04	Low soft cliff/dunes with mainly sandy foreshore, forming central section of shallow bay. Large rock randomly dumped at the toe of the dunes.	Cliff - Whitehole Skears	705	23/06/2016	Royal HaskoningDHV	Continued localised erosion, cliffing and slumps in soft lower cliffs, but minor compared to previous inspections.	3	11 - 20	Monitor erosion. Re-align access as necessary.	routine
121AA901A3501C05	Low soft cliff with sandy/ stony foreshore	Cliff - Way Foot, Newbiggin Moor	149.8	23/06/2016	Royal HaskoningDHV	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	1 - 5	Consider erosion protection to caravan park.	urgent
121AA901A3501C06	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.	Revetment - Dolls Carrs	163.1	23/06/2016	Royal HaskoningDHV	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.	4	6 - 10	Monitor erosion. Liaise with caravan park.	no repairs
121AA901A3501C07	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.	Cliff - Dolls Carrs	65.8	23/06/2016	Royal HaskoningDHV	Stable rock foreshore with low earth slope behind. Cliffs well vegetated, some localised erosion/ slumping. Undermining of concrete pill boxes, risk of collapse. Ad-hoc dumping of boulders along cliff largely ineffective. Caravans very close to edge	3	11 - 20	Monitor erosion. Liaise with caravan park.	no repairs
121AA901A3501C08	Near vertical concrete seawall, founded on rock foreshore.	Sea Wall - Newbiggin Point	29	23/06/2016	Royal HaskoningDHV	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	6 - 10	Repair/remove wall.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3501C09	Low earth/clay cliff on top of rock platform.	Cliff - Newbiggin Point	25.6	23/06/2016	Royal HaskoningDHV	Wide rock foreshore backed by low earth bank. Rock platform appears stable 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.	3	11 - 20	Erosion protection to upper slope.	routine
121AA901A3501C10	Near vertical concrete seawall, founded on rock foreshore, with low and gentle sloping concrete revetment at crest, protecting earth behind defences	Sea Wall - Newbiggin Point	57.8	23/06/2016	Royal HaskoningDHV	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.	5	1 - 5	Remove or repair wall, erosion protection to upper cliff.	urgent
121AA901A3601C01	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.	Cliff - Newbiggin Point	171	23/06/2016	Royal HaskoningDHV	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.	4	11 - 20	Erosion protection to upper slope. Repair masonry walls	routine
121AA901A3601C12	Vertical concrete seawall with re-curved crest and narrow promenade behind. Short lengths of concrete toe proection works at interface with rock foreshore. Low exposed earth cliff at rear of promenade.	Sea Wall - Little Bay	72.6	23/06/2016	Royal HaskoningDHV	Rock ledge, bounder 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	>20	Repair undermining. Repair cracks. Replace joint sealant.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3601C13	Recurved concrete seawall and integrated promenade backed by low earth cliff. Founded on rock foreshore	Sea Wall - Church Point	48.6	23/06/2016	Royal HaskoningDHV	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	3	>20	Repair cracks/undermining	routine
121AA901A3601C14	Linear rock armour breakwater	Breakwater - Hully Rocks	189.9	23/06/2016	Royal HaskoningDHV	Rocks angular, well interlocked and stable. Minor settlement along crest evident. Some minor displacements of smaller filter/ core material along southeast side.	2	>20	Monitor settlement of crest and loss of filter/core.	no repairs
121AA901A3601C15	Recurved concrete seawall with a short rock revetment at the toe. Beach replenishment and offshore breakwater completed 2007.	Revetment - Newbiggin	21	23/06/2016	Royal HaskoningDHV	Relic asset. Rock armour removed, likely at the same time as construction of Maritime Centre (2011/12).	2	>20	None.	routine
121AA901A3601C06	Recurved concrete seawall and integral promenade with all but the top of the recurved buried by the wide sandy beach. Beach replenishment and offshore breakwater completed 2007.	Sea Wall - Newbiggin Bay	352.4	23/06/2016	Royal HaskoningDHV	Seawall and promenade in fair/good condition. Beach levels very healthy, over-spilling onto promenade at south end. New offshore acropode breakwater in good condition.	2	>20	None.	no repairs
121AA901A3601C07	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.	Sea Wall - Newbiggin Bay	554.8	23/06/2016	Royal HaskoningDHV	Seawall and promenade in good condition, no evidence of settlement. Sealant joints new, minor spalling at south end. Hand railing good. High beach levels, sand over-spilling onto prom. No groynes/piles visible.	2	>20	None	no repairs
121AA901A3601C08	Shallow sloping rock armour revetment backed by capping beam and seafront promenade backed by masonry sloped revetment. Beach replenishment and offshore breakwaters completed 2007.	Revetment - Newbiggin Bay	346.3	23/06/2016	Royal HaskoningDHV	High beach levels over-spilling onto prom. Rock mostly buried, some vegetation growth at south end. Hand railing and surfacing in good condition.	2	>20	None	no repairs

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121AA901A3601C09	Low rock outcrop forming southern end of sandy beach and coastal slope, backed by gently rising vegetated slope	Cliff - Spital Carrs	310.2	23/06/2016	Royal HaskoningDHV	Wide sandy beach backed by well vegetated coastal slope. Strand line 50m+ from toe of slopes. Large areas of new vegetated growth on foreshore.	2	>20	None.	no repairs
121AA901A3601C10	Outcrop forming low rock cliff and foreshore with vegetated slope behind	Cliff - Spital Point	223.1	23/06/2016	Royal HaskoningDHV	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.	2	>20	Monitor erosion.	no repairs
121AA901A3601C11	Rock armour revetment at the back of small inlet/ strongly indented bay with concrete outfall at centre. (NWL storm outfall).	Revetment	207.5	23/06/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A3701C01	Low soft cliffs with some debris at toe sitting on raised rock platforms/ beaches	Cliff - Links Quarry	193	23/06/2016	Royal HaskoningDHV	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.	4	11 - 20	Consider formal erosion protection.	urgent
121AA901A3701C02	Rock cliff with scree at toe forming small bay between two areas of outcropping rock. Part of the cliff has a dipping seam of coal measures.	Cliff - North Seaton Links	593.7	23/06/2016	Royal HaskoningDHV	Boulder foreshore backed by high cliffs. Previous 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.	4	1 - 5	Monitor ongoing erosion. Realign footpath.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3701C03	Exposed earth cliff with rubble foreshore and regular discontinuous low rock armour breakwater.	Breakwater - North Seaton Links	561.6	23/06/2016	Royal HaskoningDHV	Continued significant erosion, cliffing and slumping of soft upper cliff along most of frontage. Boulders/ rubble along toe. Ongoing collapse of boundary walls onto foreshore. Slipway/ rock armour protection ok. Caravans close to edge	5	6 - 10	Consider formal erosion protection. Liaison with caravan park.	no repairs
121AA901A3801C01	Low earth embankment/ cliff forming north bank of estuary mouth with sandy foreshore	Embankment - North Bank River Wansbeck	396.8	23/06/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A3801C02	Low earth embankment/cliff forming south bank of estuary mouth with sandy foreshore	Embankment	231.6	23/06/2016	Royal HaskoningDHV	Boulder foreshore with shallow earth embankment behind. Well vegetated. No signs of erosion at toe. Minor localised erosion of toe at south end. [Note collapsed section of private boat club wall.]	2	>20	None.	no repairs
121AA901A3901C01	Partially vegetated clay cliff with wide sandy beach	Cliff - Cambois Links	321.9	23/06/2016	Royal HaskoningDHV	Sandy beach with high earth slopes behind. Previous erosion, cliffing and slips along most of frontage, but presently stable ties within 25m of cliff top, at risk.	3	1 - 5	Monitor.	routine
121AA901A3901C05	Rock armour revetment giving toe protection to vegetated coastal slope	Revetment - Cambois Links	600.7	23/06/2016	Royal HaskoningDHV	Rock armour stable, no settlement, some displaced rocks at toe. Upper slope well vegetated, minor erosion and outflanking at north and south ends. Sheet piles at ramp exposed. Beach levels healthy. Outfall pipe causing obstruction to beach users	2	>20	Consider extending revetment at north and south ends.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A3901C03	Low, vegetated clay cliff with cobbles at toe and a wide sandy beach	Cliff - Cambois Links	1373.1	23/06/2016	Royal HaskoningDHV	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	6 - 10	Consider erosion protection.	routine
121AA901A3901C04	Low vegetated clay cliff/dunes with beach build up in lee of the Rockers outcrop	Cliff - The Rockers	592.3	23/06/2016	Royal HaskoningDHV	Wide well vegetated and dunes, occasional low areas along crest. Wide healthy beach, strandline 10m from toe. Recovering from previous erosion episode.	3	6 - 10	Monitor.	routine
121AA901A4001C01	Rock armour revetment and rock gabions protecting low soft cliff, with wide sandy beach infront.	Revetment - North Beach	727.3	23/06/2016	Royal HaskoningDHV	Rock angular and well interlocked, uniform profile. Some displacement of armour along toe. One area of minor settlement, displaced stones along edge of ramp and at base, localised erosion at crest. Crest gabions good, no erosion at crest.	2	>20	None.	no repairs
121AA901A4001C02	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.	Revetment - Shinny Gripe Lug	167.9	23/06/2016	Royal HaskoningDHV	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	11 - 20	Monitor armour movement at toe.Monitor erosion at crest. Repair steel breakwater	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A4001C03	Composite seawall comprising timber breastwork and concrete and rock armour apron with narrow foreshore	Sea Wall - Alcan Reclaim	114.3	23/06/2016	Royal HaskoningDHV	Concrete foundation and toe armour stable, no movement. 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	1 - 5	Repair timber breastwork. Erosion protection to upper slopes.	urgent
121AA901A4001C04	Vertical concrete seawall and crestwall with concrete groynes on scree strewn rock foreshore forming part of the Blyth East Pier	Sea Wall - Crab Law	322	23/06/2016	Royal HaskoningDHV	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.	4	6 - 10	Repairs to cracks. Assessment of crest wall failure.	urgent
121AA901A4001C05	Concrete breakwater with raised timber walkway on crest, founded on bedrock, forming the tip of Blyth East Pier	Breakwater - Blyth East Pier	1448	23/06/2016	Royal HaskoningDHV	No access to structure. Sub-structure appears in fair condition, well founded on rock foreshore, no settlement. Significant cracking/ spalling of trestle legs. Some missing deck boards and hand railings. All wind turbines removed from pier in 2013/14.	3	>20	Repair cracks in trestle. Repair decking/ handrailings.	no repairs
121AA901A4201C10	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.	Sea Wall - West Pier, Blyth	485	24/06/2016	Royal HaskoningDHV	Wide sandy healthy beach, strandline 20m from toe. Dunes narrow but well vegetated. Brick wall generally in good condition, some vertical cracks, seaward rotation evident to south end.	3	11 - 20	Repair cracks, strongbacks and footings to brickwall.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A4201C11	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.	Sea Wall - South Beach	230.5	24/06/2016	Royal HaskoningDHV	Wide healthy beach, strandline 20m from toe. Well vegetated but narrow dunes. Localised seaward rotation of wall at north end, occasional vertical cracking.	3	11 - 20	Replace missing planks. Monitor movement in wall.	routine
121AA901A4201C03	Sandy beach with vegetated sand dune behind and gabion revetment at base of dune.	Dunes - South Beach	55.6	24/06/2016	Royal HaskoningDHV	Dunes very narrow, cliffing and partial loss of vegetation, complete loss of dune at one location exposing wall foundation. Some gabions burst with loss of stone. No movement in wall, post and planks in fair condition, some minor cracking	4	1 - 5	Repair gabions. Extend gabions northwards. Dune management.	routine
121AA901A4201C04	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.	Sea Wall - South Beach	119.1	24/06/2016	Royal HaskoningDHV	Wall in fair/ good condition, no evidence of movement or undermining, some minor cracking and loss of joint sealant. Higher beach levels burying toe. Ad-hoc tipping of precast concrete and poured concrete along south flank, now undermined.	3	>20	Monitor undermining at toe.	no repairs
121AA901A4201C05	Concrete seawall with protruding crest lip and promenade behind. Wide sandy beach in front.	Sea Wall - Beach Gardens	143.8	24/06/2016	Royal HaskoningDHV	Wide sandy beach, cobble berm, strand line 20m from toe. Wall in fair condition, no 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	3	>20	Monitor cracks in surfacing.	no repairs
121AA901A4201C06	Near vertical concrete seawall with lip at crest in advance of adjoining defences. Wide sandy beach in front.	Sea Wall - Promenade	169.6	24/06/2016	Royal HaskoningDHV	Wall in fair 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.	3	>20	Repair to cracks. Monitor undermining at steps.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A4201C07	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.	Sea Wall - Blyth Links	237.8	24/06/2016	Royal HaskoningDHV	Wide sandy beach, strand line 15m from wall. Minor cracks in wall, localised spalling/abrasion exposing rebar. Further gaps/cracks in capping blocks at south end. Surfacing good. Beach levels just below crest. Outfall in good condition	2	>20	Repair abrasion and cracks.	routine
121AA901A4201C08	Steel sheet piling with concrete capping beam forming the southern end of the South beach promenade.	Sea Wall - Fort House	94.3	24/06/2016	Royal HaskoningDHV	High beach levels largely burying sheet piles. No deformation evident, surface corrosion and significant loss of thickness. Promenade surfacing in good condition.	3	6 - 10	Repair holes in piles.	routine
121AA901A4301C01	Vegetated dunes with timber groyne fields in the wide sandy beach in front.	Dunes - Blyth Cemetry	334.3	24/06/2016	Royal HaskoningDHV	Wide sandy beach, wide well vegetated dunes, historic cliffing and slumps along dune face. All 3 groynes in fair/poor condition, noticeable level difference, 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	11 - 20	Replace missing/ damaged planks on groynes.	routine
121AA901A4301C02	High sand dunes with exposed seaward face but vegetated at crest, with narrow sandy beach in front.	Dunes - Hartley Links	2146.8	24/06/2016	Royal HaskoningDHV	Wide well vegetated gently sloping dunes, stable. No erosion at toe. General pedestrian erosion at access points. Beach levels healthy, strand line 30m from toe. Annual reinforcement with Christmas tress effective	2	>20	Dune fencing to control pedestrian access.	routine
121AA901A4401C01	Low near vertical masonry wall providing toe protection to high vegetated slope. Sandy beach in front is partially vegetated.	Sea Wall - Sandy Island	318.3	24/06/2016	Royal HaskoningDHV	Wide healthy beach backed by high well vegetated dunes. Masonry wall almost entirely buried, dune actively advancing. Strand line 30m from toe.	2	>20	None.	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A4401C02	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	Sea Wall - Sandy Island	92.8	24/06/2016	Royal HaskoningDHV	Wide healthy beach, masonry section of groyne mostly buried. Timber section of groyne in poor condition, boards missing at centre, arson damage at landward end. Groyne ineffective as no retained material. Ad-hoc tipping of rocks at seaward end.	4	6 - 10	Replace missing/ damaged planks.	routine
121AA901A4401C03	Masonry harbour arm west of the western entrance to Eastern Sluice	Sea Wall - Sandy Island	24.3	24/06/2016	Royal HaskoningDHV	Masonry seawall in fair condition. No movement evident, a vertical crack at seaward end with missing block. Undermining of deck edge, localised concrete repairs appear good.	3	>20	Repair vertical crack and replace missing block. Repair undermining of deck edge	routine
121AA901A4401C04	Vertical masonry wall forming west bank of Eastern Sluice west channel. No foreshore at high water, but mud/ shingle exposed at low tide.	Sea Wall - Seaton Burn	131.4	24/06/2016	Royal HaskoningDHV	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	>20	Repair gaps between blocks. Clear sand from crest.	routine
121AA901A4401C05	Vertical masonry wall forming north bank of burn immediately upstream of split in channel. Foreshore only exposed at low water.	Sea Wall - Seaton Burn	142.5	24/06/2016	Royal HaskoningDHV	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	>20	Fill gaps between blocks. Rebuild ramp side wall. Monitor voids behind crest.	routine
121AA901A4401C06	Vertical masonry wall forming south bank of burn immediately upstream of split in channel. Crest level varies to tie in rising land behind.	Sea Wall - Seaton Burn	229.3	24/06/2016	Royal HaskoningDHV	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	11 - 20	Replace missing blocks. Repair cracks. Repair coping.	urgent

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A4401C07	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.	Sea Wall - Seaton Burn	141.9	24/06/2016	Royal HaskoningDHV	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	6 - 10	Replace missing blocks, repoint, rebuild where necessary.	routine
121AA901A4401C08	Vertical masonry wall forming east bank of Seaton Sluice west channel.	Sea Wall - Seaton Burn	166.9	24/06/2016	Royal HaskoningDHV	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	>20	Repair cracks. Vessel based survey of void at toe.	routine
121AA901A4401C09	Rock armour revetment with remains of masonry wall acting as toe protection and backed by concrete pier (Defence Code 44/12/1).	Revetment - Rocky Island	46.3	24/06/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A4401C10	Concrete pier with concrete crest wall on seaward side founded on a rocky outcrop and with rock armour (Defence Code 44/11/1) at toe.	Sea Wall - Rocky Island	55.5	24/06/2016	Royal HaskoningDHV	Boulder foreshore. Seawall well founded on rock. No signs of movement or settlement. Minor abrasion to blocks/ apron. Localised undermining of toe at seaward end. Joint sealant missing. Hand railing and ladder in good condition.	2	>20	Replace sealant. Monitor undermining at toe.	no repairs
121AA901A4401C11	Vertical masonry seawall founded on rocky foreshore with sloping toe protection comprising boulders.	Sea Wall - Rocky Island	119.3	24/06/2016	Royal HaskoningDHV	Boulder foreshore. Wall well founded on rock, no undermining. Some large gaps and cracks between blocks. Missing blocks along toe, localised area of inward movement. Some erosion behind crest. Handrail, surfacing steps in fair condition.	4	6 - 10	Repair area of movement. Fill gaps/ cracks. Stabilise eroding land behind crest	urgent
121AA901A4401C12	Rock cliff with earth slope above.	Cliff - Rocky Island	181.5	24/06/2016	Royal HaskoningDHV	Erosion of cliff line previously reported but no significant activity since.	3	11 - 20	Stabilise soft upper cliffs adjacent to Watch House.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comments	Overall Condition	Residual Life	Recommendations	Urgency
121AA901A4401C13	Cliff.	Cliff - Collywell Bay	130.5	24/06/2016	Royal HaskoningDHV	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	>20	None.	no repairs
121AA901A4401C14	Near vertical seawall with profiled crest and toe details, founded on rocky foreshore and with soft cliff above.	Sea Wall - Collywell Bay	73.4	24/06/2016	Royal HaskoningDHV	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	>20	Repair spalling.	routine
121AA901A4401C15	Near vertical seawall with integral toe detail and steep brick work revetment protecting soft cliffs above. Founded on rocky foreshore.	Sea Wall - Collywell Bay	65.4	24/06/2016	Royal HaskoningDHV	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	>20	Repoint masonry and monitor further cracking. Replace flap valves.	routine
121AA901A4401C16	Near vertical sea wall with profiled crest and steeped toe detail founded on rocky foreshore.	Sea Wall - Collywell Bay	41.6	24/06/2016	Royal HaskoningDHV	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	>20	Clear drainage holes. Replace flap valves.	no repairs
121AA901A4401C17	High near vertical concrete seawall with small vegetated slope above it and concrete apron along some of the toe. Foreshore mainly rocky with some sandy/shingle beach.	Sea Wall - Collywell Bay	134	24/06/2016	Royal HaskoningDHV	No noticeable change in 3 full height vertical cracks, no movement apparent. Significant abrasion and spalling along toe and at access steps. Handrail heavily corroded. Movement of wooden fencing on upper slope.	4	11 - 20	Repair cracks, monitor for movement.	routine