



Cell 1 Regional Coastal Monitoring Programme Walkover Inspection Surveys 2016

South Tyneside Council

September 2016

South Tyneside Council

Walkover Inspection Surveys 2016

Contents Amendment Record

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Contents

Disclaimer	i
Preamble	ii
1. Introduction	1
1.1 Study Area	1
1.2 Methodology.....	1
2. Overview.....	3
3. Condition Assessment	4
3.1 River Tyne to Rive Tyne South Pier (MA 1)	4
3.2 Rive Tyne South Pier to Trow Point (MA 2)	6
3.3 Trow Point to Frenchman's Bay (MA 3)	8
3.4 Frenchman's Bay to Lizard Point (MA 4)	9
3.5 Lizard Point to Souter Point (MA 5)	13
3.6 Souter Point to South Bents (MA 6).....	15
4. Comparison with Previous Assessment	16
5. Problems Encountered and Uncertainty in Analysis	16
6. Conclusions and Recommended Actions	16

Appendices

Appendix A	Asset Location Maps
Appendix B	Asset Condition & Recommendations

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Preamble

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

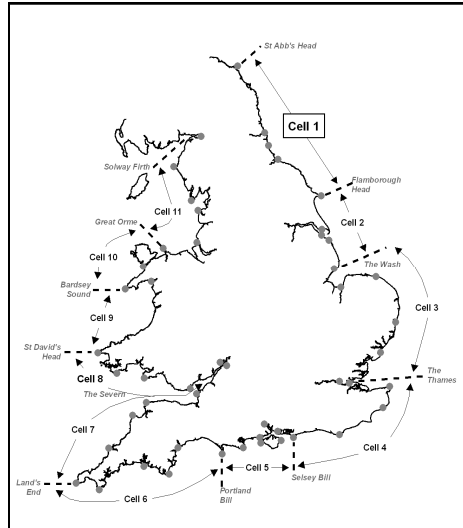


Figure 0-1 - Sediment Cells in England and Wales

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.



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 South Tyneside Council's frontage that are undertaken once every 2 years.

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

1. Introduction

1.1 Study Area

South Tyneside Council's coastal frontage is approximately 14km in length (including the South Pier) extending from the River Tyne in the north to Whitburn in the south, shown in **Figure 1-1**. This frontage includes approximately 27 assets (17 man-made assets and 10 natural assets). Detailed maps showing the location of each of these assets are presented in **Appendix A**.



Figure 1-1: South Tyneside Council study area

1.2 Methodology

This section presents the approach taken by the asset inspectors for the South Tyneside Council coastal frontage.

The walkover inspection surveys for the South Tyneside Council frontage were undertaken on 7th June 2016. The weather experienced during the inspections was 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 walkover inspection surveys:

- **General** – There are no major concerns along South Tyneside's frontage apart from the Redwell Steps/Lifeguard Station in Marsden Bay, which remain in poor condition.
- **Littlehaven** - The sea wall and promenade scheme which was recently completed in 2014 remains in 'as built' condition and is now heavily used by visitors for recreation and amenity purposes.
- **Sandhaven** - There is a substantial volume of sand at Sandhaven, in places burying the access paths and fencing that was installed through the dunes a few years ago. The slipway at the southern end of the frontage was being replaced at the time of the inspections, following its collapse due to undermining during the December 2013 storms.
- **Trow Quarry** – The rock revetment and coastal re-grading scheme introduced in 2008 to prevent the wash-out of waste material is remaining highly effective at the present time.
- **Lizard Point** – A 'rewilding' scheme has been introduced by The National Trust at the cliff top near Lizard Point. This has largely removed the access road and car park, enabling native clifftop grassland species to be sown and the area reverted to a natural state.
- **Whitburn Coastal Park** - The sinkhole and cave at Old Harbour Quarry have both expanded in size, to the point where the cave has broken through the limestone ridge at the base of the sink hole.
- **Marsden Bay** – The Redwell Steps/Lifeguard Station in Marsden Bay remain in poor condition, and sections of cliff at a 'pinchpoint' near the coast road have vertical cracks which are likely to lead to future local, small scale rockfalls.

3. Condition Assessment

3.1 River Tyne to Rive Tyne South Pier (MA 1)

This management unit extends from the entrance to the River Tyne at the South Groyne to the South Pier. This frontage is approximately 4.9km in length (including the South Pier) and includes 7 man-made coastal defence assets, comprising revetments and seawall as well as the 2.8km long South Pier.

The grouted masonry revetment (/0101C01) starts at the boat slipway and extends along the eastern side of the wave basin to join the landward root of the South Groyne. Its management is the responsibility of the Port of Tyne. The revetment is in fair condition, although there is local undermining of the apron in one location and local voids appear in places in the crest.

Along the northern (river-facing) side of the South Groyne (/0101C02) the resurfacing of the bitmac deck remains in generally good condition, but with one area near the head starting to show signs of localised cracking. The South Groyne itself is in generally fair condition, with only occasional missing stonework and the southern side is generally less exposed and therefore in slightly better condition than river-facing side.



Grouted masonry revetment in fair condition (/0101C01)



River-facing side of South Groyne in fair overall condition (/0101C02)



Localised cracking in bitmac deck at seaward end of South Groyne (/0101C02)



More sheltered southern side of South Groyne in fair overall condition (/0101C02)

The dunes fronting Little Haven Hotel (/0101C03) were stable and in good condition. There was evidence of sand accretion and embryo dune vegetation growth at their toe. This indicates the benefit of the shelter provided to this frontage by South Groyne.

The new promenade seawall at Littlehaven was completed in May 2014 and remain in very good condition along both the curved central realigned section (/0201C02), and the rebuilt sections at the southern end along the alignment of the original wall (/0102C03) and promontory (/0102C04). It was notable that beach levels were relatively high on the upper beach, covering all but three steps on the central section which has a stepped apron. There was also a little wind-blown sand on the promenade. At the time of inspections beach combing operations were underway. Mid to lower beach levels were relatively low, exposing the remnants of the timber slipway used for launching seaplanes during World War II. Since opening in 2014, the Littlehaven Promenade and Sea Wall scheme has been recipient of ten regional or national awards and a further three high commendations. A series of flagpoles on the landscaped area behind the northern section of seawall proudly display the awards that the scheme has won.



Northern section of Littlehaven promenade and seawall in very good condition (/0102C02)



Central section of Littlehaven promenade and seawall in very good condition (/0102C02)

Unlike during the 2012 and 2014 inspections, when access was restricted, the South Pier was inspection in its entirety, albeit only from the deck. The structure is privately owned and maintained by the Port of Tyne. At the root of the structure a series of natural boulder stones have been placed at the berm of the upper beach for additional protection to the root and the pier's deck is heavily abraded/spalled at this location, with several previous repairs notable. Also, towards the seaward end, there is heavy abrasion/spalling on the crest wall where the trolley rails are present. Overall, however, the pier is in fair condition along its length and on both faces.



Deck abrasion and previous repairs on South Pier (/0103C01)



South Pier in overall fair condition along northern face (/0103C01)



Deck abrasion/spalling and previous repairs on South Pier (/0103C01)



South Pier in overall fair condition along southern face (/0103C01)

3.2 Rive Tyne South Pier to Trow Point (MA 2)

This management unit is approximately 1.7km in length and extends from the South Pier to Trow Point in the south. This frontage includes 7 assets, comprising a mix of seawalls, promenades and revetments as well as natural beaches backed by vegetated dunes.

The northern section of Sandhaven between South Pier and the children's play area has a cobble berm in front of the dunes at its northern end which narrows and thins with progression south (/0201C01). Dune condition is fair with plentiful sand but relatively spare vegetation. The dunes continue south of the children's play with a wide fronting sand beach (/0201C02), continuing in fair condition. The 'donkey track' extends from the South Pier, initially mid-way through these dunes before switching to seaward of the dune toe to meet the Lifeguard Station further south before returning to the main promenade. The donkey track had been swept clear of sand immediately before the inspections and it was apparent that previous defects in the surface have been repaired and are holding well, retaining the structure in overall fair condition. In places there is too much sand accumulation, causing burial of the recently constructed boardwalks and fencing.



Plentiful sand but relatively sparse vegetation in dunes (/0201C01)



Sand accumulation swamping dunes and burying footboards and fencing (/0201C01)

At the amphitheatre, sand accumulation has resulted in high and healthy beach levels, with the upper beach being flush with, or slightly higher than, the backing promenade (/0201C03). However, this means that sand sweeping is required to keep the promenade deck usable. Further south, the recently reconstructed wall around a lifeguard station (/0201C04) remains in good condition, with high surrounding beach levels.



Healthy beach levels at amphitheatre (/0201C03)



Good condition of reconstructed wall, with high surrounding beach levels (/0201C04)

Previous inspections have reported minor spalling and abrasion and even minor settlement in the sloping concrete revetment extending south of the lifeguard station (/0201C05 and C06), but at the time of the present inspections beach levels were healthy and flush with the wall crest and promenade deck so these defects could not be observed. The wall to the rear of the promenade along this length appears to have been rebuilt or re-rendered along a substantial length in recent times, but there is one area of original wall at the rear of the promenade behind the dunes at the southern car park (/0202C01) which has major cracking and is in poor condition.



Healthy beach levels south of lifeguard station (/0201C05)



Cracking in wall to rear of promenade at southern end of Sandhaven (/0202C01)

The narrow dunes at the southern end of Sandhaven (/0202C01) are currently in good condition, covering buried gabions, with no evidence of erosion or slumping. There are several informal access routes formed by pedestrian activity (especially to Mangos Public House) and along dune crest. The previously failed concrete slipway at the south end of Herd Sands (/0202C01) had been demolished at the time of the inspections, with a replacement structure under construction.

[Note: construction of the replacement slipway was completed in August 2016].



Stable but narrow dunes at south end of Herd Sands (/0202C01)



Old slipway demolished ready for construction of replacement at southern end of Herd Sands (/0202C01)

3.3 Trow Point to Frenchman's Bay (MA 3)

This management unit is approximately 1km in length and extends from Trow Point in the north to Frenchman's Bay in the south. This frontage includes 4 assets, comprising a mix of undefended cliff headlands and rock revetments.

The Trow Point headland (/0302C01) remains as a competent mass controlling evolution of the bay to its south, despite localised rockfalls in the harder material and slumps in the overlying softer material. Some areas of softer material remain in an over-steep condition and therefore further local slumps should be expected. This area should be monitored at regular intervals. Vermin continues to be a problem in this area.

The rock revetment and re-graded slope at Graham's Sand (/0302C02) remain in a very good condition since completion of the scheme in 2008. There were signs that rabbits were still active in the area. Vermin control should be implemented to avoid them burrowing in the re-graded slope and destabilising it.



Localised slumps in soft material at Trow Point Trow Point (/0302C01)



Rock revetment and re-graded slope at Graham's Sand (/0302C02)

The headland at Target Rock (/0302C03) has always been the most vulnerable of the three headlands at Trow Quarry due to its partly fragmented state, with undercutting at lower levels and caves forming at the base. The material between the rock masses continues to erode, with rock debris and brickwork evident on the foreshore. As in previous inspections, there is sufficient residual rock headland not to cause a concern relating to the potential outflanking of the defences in Graham's Sand and Southern Bay.

The rock revetment and re-graded slope at Southern Bay (/0302C04) remain in a very good condition since completion of the scheme in 2008.



Localised fragmentation of Target Rock (/0302C03)



Rock revetment and re-graded slope at Southern Bay (/0302C04)

3.4 Frenchman's Bay to Lizard Point (MA 4)

This management unit is approximately 5km in length and extends from Frenchman's Point to Lizard Point in the south, encompassing Marsden Bay. This frontage includes 6 assets, comprising largely undefended high rock cliffs with two short sections of masonry walls at access points.

The rock headland at Frenchman's Point (/0401C04) was in a competent form but there are a number of arches formed on the southern side formed by undercutting at the toe. A major rock fall occurred within Frenchman's Bay in 2010 (/0401C04). This resulted in the cliff face moving closer to the coastal path and The National Trust realigning the path, fencing and installing new warning signs. The rock debris at the toe of the cliffs partly remains to the present day and will continue to provide a degree of protection to the cliff toe until the material is moved away by marine action and the process will start again.



Arches formed by undercutting at base of cliffs at Frenchman's Point (/0401C04)



Residual debris from previous large rock fall in Frenchman's Bay (/0401C04)

Further south of the collapsed cliff there are many very precarious locations within Frenchman's Bay and between here and Man Haven Bay (/0401C04). Arches and caves have formed at the cliff toe with overhanging rocks and recent slumps in the over lying softer material, including several locations where the footpath and fencing is close to the cliff edge. Further local falls and slumps are expected on a regular basis.

Within Man Haven Bay and within the northern most of the three mini-bays between here and Camel Island (/0401C04), there appears to be evidence of debris flow and in one location just south of Man Haven Bay a sink hole which has previously been recorded appears to have expanded in size. There is also a concrete casing around an outfall which is breaking up, just to the north of Camel Island.



Debris flow in softer material (/0401C04)



Sink hole south of Man Haven Bay (/0401C04)

At the northern end of Marsden Bay the cliff and arch formation at the toe of the cliff continues (/0401C04). The debris associated with a previous rockfall in 2010 adjacent to the lifeguard station has now entirely been washed-away by marine action.

Also within the northern end of Marsden Bay there are three structures all of which are in very poor condition, likely to lead to collapse and debris spillage onto the beach unless intervention is undertaken.

1. Along the access ramp to the northern end of Marsden Bay (by Camel Island) there is a concrete bunker located high and precariously within the upper cliff (/0401C04).
2. At the disused lifeguard station the stone-faced wall (/0401C01) is undermined leading to voiding beneath the building. There are also numerous notable gaps between the stonework and concrete coping.
3. The buttress landing to the Redwell Steps (/0401C01) is badly damaged along its length. The National Trust has guided access down the steps along specified routes, using hand railing in order to ensure the public avoids the worst affected areas. They have also bolted a temporary metal step at the base of the concrete steps to ease access to the beach. In many places along the toe, the buttress is undermined and badly abraded. The buttress houses a storage building which has an entrance and bricked-up window at the southern end. This face of the structure is particularly badly undermined and the wall is cracking.



Concrete bunker at northern access ramp to Marsden bay (/0401C04)



Disused lifeguard station and the Redwell Steps access (/0401C01)



Undermining and voids at disused lifeguard station (/0401C01)



Undermining and cracking at storage building on south face of buttress to access steps (/0401C01)

Between the Redwell Steps and the Grotto Public House (/0401C03), the cliffs have small arches and caves along their base in places. Marsden Rock remains stable with cave formations at its base.

At Marsden Grotto (/0401C02), the masonry wall is in fair condition because it is well protected by a cobble berm on the upper beach. The rock netting constructed on the cliff face adjacent to the access steps in 2007 remains in very good condition.

Between the Grotto and the former access road to Lizard Point Car Park (/0401C05) the cliffs generally (currently) appear more stable than those in the north of the bay and in places are fronted by small cobble berms. However, occasional rock falls and numerous caves and arches at the base of the cliffs are still evident. Elsewhere along this southern section of Marsden Bay there are several other areas where small and localised toppling or slumping has occurred in the softer material that overlays the harder rock structure, including several areas where further local slumping is imminent. Additionally there is evidence of vertical cracking in the cliff face at several locations, including those where the cliff is within closest proximity to the coast road. Further rockfalls are likely at these locations although the presence of nesting birds in many of these sections suggest that such failure is not necessarily imminent.



Vertical cracks in the cliff face (/0401C05)



Proximity of cracked cliff to Coast Road (/0401C05)

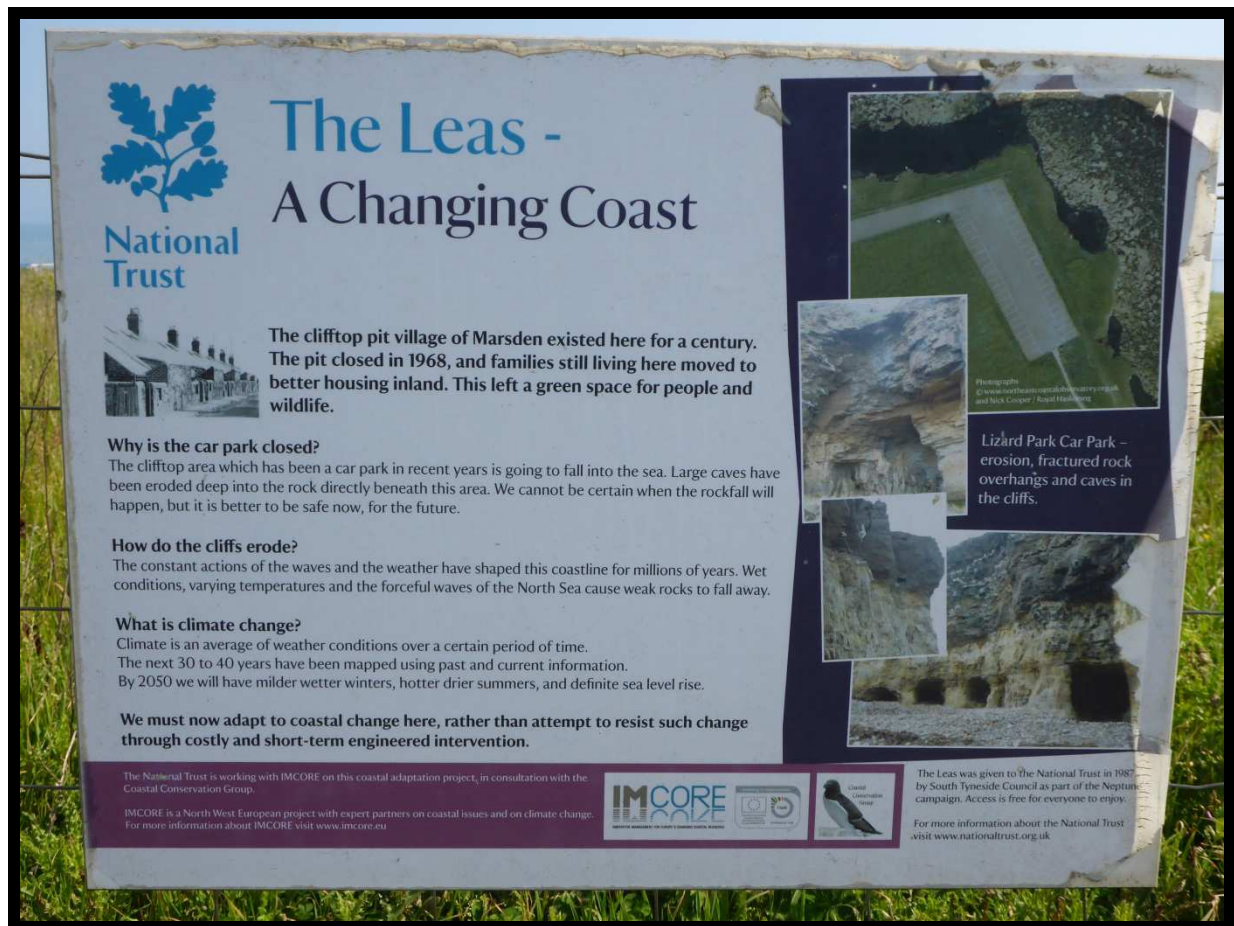
The section of cliff that extends along the access road to Lizard Point Car Park (/0402C01) currently appears generally stable along most of its length, but does have caves formed along its base. A rock fall along the cliffs immediately in front of the car park in 2010 (near Jack Rock) led to its closure on public safety grounds and a policy of 'adaptation to coastal change' was implemented by The National Trust through alternative use of this area. The car park has since been closed and the area mostly returned to a natural state by seeding with natural vegetation. A public information board explains the reasons for the adaptation project.



Natural re-wilding of the car park access road (/0402C01)



Natural re-wilding of the car park (/0402C01)



Information board about the coastal adaptation project (/0402C01)

Further south of Jack Rock (/0402C01) the cliff remains active. There are areas where there have been cliff failures of a local nature. The whole section south of Lizard Point remains highly unstable and further failures are expected due to overhangs, caves and extensive fissures in the rock structure.

3.5 Lizard Point to Souter Point (MA 5)

This management unit is approximately 2.4km in length and extends from Lizard Point in the north to Souter Point in the south, encompassing the bays of Byer's Hole and Potter's Hole. This frontage includes 3 assets, comprising undefended high rock cliffs.

South of Lizard Point itself to the southern end of Potters Hole (/0501C01), the frontage is typically characterised by the formation of caves, arches and sea stacks caused by erosion of the cliffs. Whitburn Coastal Park covers the area of the former Old Harbour Quarry, which has subsequently been in-filled with waste material. At the headland separating Byer's Hole from Potter's Hole, cave formation has breached the limestone ridge that was left at the seaward edge of the former quarry, causing the wash-out of fill material and in one location creating a sink hole.

This sink hole has increased markedly in size since it first appeared around 2005 and The National Trust has fenced off this area and placed warning signs and diverted the public coastal footpath. In 2005 the sink hole measured 11m long by 6m wide at the cliff top, whilst in 2015 it measured 17m long by 13m wide. The cave formation at the base of the cliffs has also increased, with 'daylight' now clearly visible from the enlarged sink hole above at the rear of the cave. At some point, a large section of cliff at this headland is likely to collapse. However, the adjacent caves still have not breached through the limestone ridge. The existing concrete defences, previously used to 'plug' two nearby caves at this headland, are continuing to be undermined.



Enlarged sink hole at the former Old Harbour Quarry – general view (/0501C01)



Enlarged sink hole at the former Old Harbour Quarry – detailed view (/0501C01)



Enlarged cave at the former Old Harbour Quarry – general view (/0501C01)



Enlarged cave hole at the former Old Harbour Quarry – detailed view (/0501C01)

There are two sections of rock revetment at this headland, around the beach access routes. Both are in fair condition, but the one to the south has the rock relatively loosely placed and sitting atop a major rock ledge in front of the backing slopes.

Along the Whitburn Nature Reserve (/0502C01), erosion has in a small number of locations caused the cliff top to come in close proximity to the public footpath. Low level fencing and warning signs have been erected by The National Trust in these areas. Elsewhere the cliffs remain stable.

The northern section of the Rifle Ranges frontage (extending southwards to Souter Point, /0502C02) exhibits a different character to adjacent sections of the coast because the frontage comprises a wide raised beach (possibly comprising colliery spoil, although this is unconfirmed). As a result of this, the coastal slopes behind the raised beach are not currently exposed to marine action and therefore are highly stable at present.



Generally stable cliffs but some local slumps close to footpath at Whitburn nature Reserve (/0502C01)

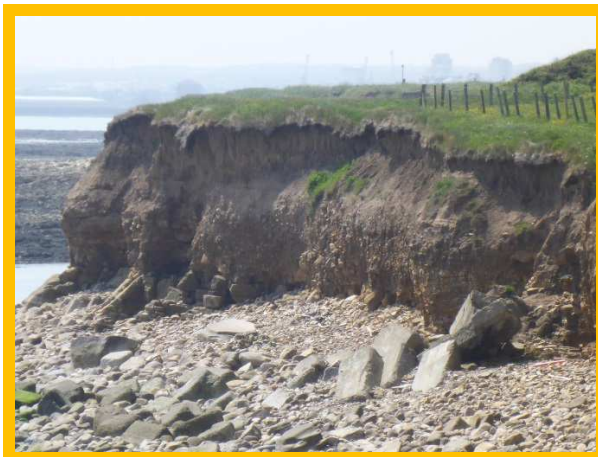


Backshore and slopes well protected by wide foreshore at northern section of Rifle Ranges (/0502C02)

3.6 Souter Point to South Bents (MA 6)

The South Tyneside portion of this Management Area (MA) is approximately 1.7km in length and extends from Souter Point in the north to the border with Sunderland at South Bents at the north of Whitburn Bay. This frontage includes 2 assets, comprising eroding sandstone cliffs.

The southern section of the Rifle Ranges (/0601C02) is actively experiencing small and localised slumps along its length, a few of which are becoming close to the public coastal footpath, but still nothing of major concern. In one area, close to the mound and military building, concrete blocks appear to have been dumped at the toe of the cliffs to slow recession. In another area, a drainage pipe has lost its headwall due to localised slumping and this needs attention to ensure adequate drainage and remove the concrete debris.



Regular small and localised slumps at southern section of Rifle Ranges (/0601C02)



Failed headwall due to localised slumping (/0601C02)

The final section of cliffs (/0601C01) in front of houses and the school at Whitburn are generally stable with occasional local slumps.



Generally stable cliffs with occasional small and localised slumps (/0601C01)



Generally stable cliffs with occasional small and localised slumps (/0601C01)

4. Comparison with Previous Assessment

The previous formal walkover inspections across the whole study frontage were undertaken in summer/autumn 2014. Most of the frontage remains unchanged in overall condition grading since that time, with few major problems.

The main concern arises at Marsden Bay where the Redwell Steps and former lifeguard station remain in very poor condition. Elsewhere, recent major capital schemes at Littlehaven (2014), Sandhaven (also known as Herd Sands) (2015) and Trow Quarry (2008) have resolved issues previously faced at these locations.

The National Trust has a policy of 'adaptation to coastal change' whereby footpaths, fencing and, when necessary, land uses will be adapted in response to erosion events. One notable change, however, has been an increase over time in the size of the sinkhole and breaching through of the associated sea cave at Old Harbour Quarry within Whitburn Coastal Park.

Whilst several areas of cliff, especially within Marsden Bay, were identified as having cracks that could lead to rock falls, their condition does not seem to have worsened since the previous inspections.

5. Problems Encountered and Uncertainty in Analysis

All assets were inspected at suitable stages of the tide and therefore there were no major problems encountered.

The South Groyne and the South Pier of the River Tyne were both only observed from the deck and the Port of Tyne may undertake its own vessel based inspections of these structures to inform its maintenance regime.

6. Conclusions and Recommended Actions

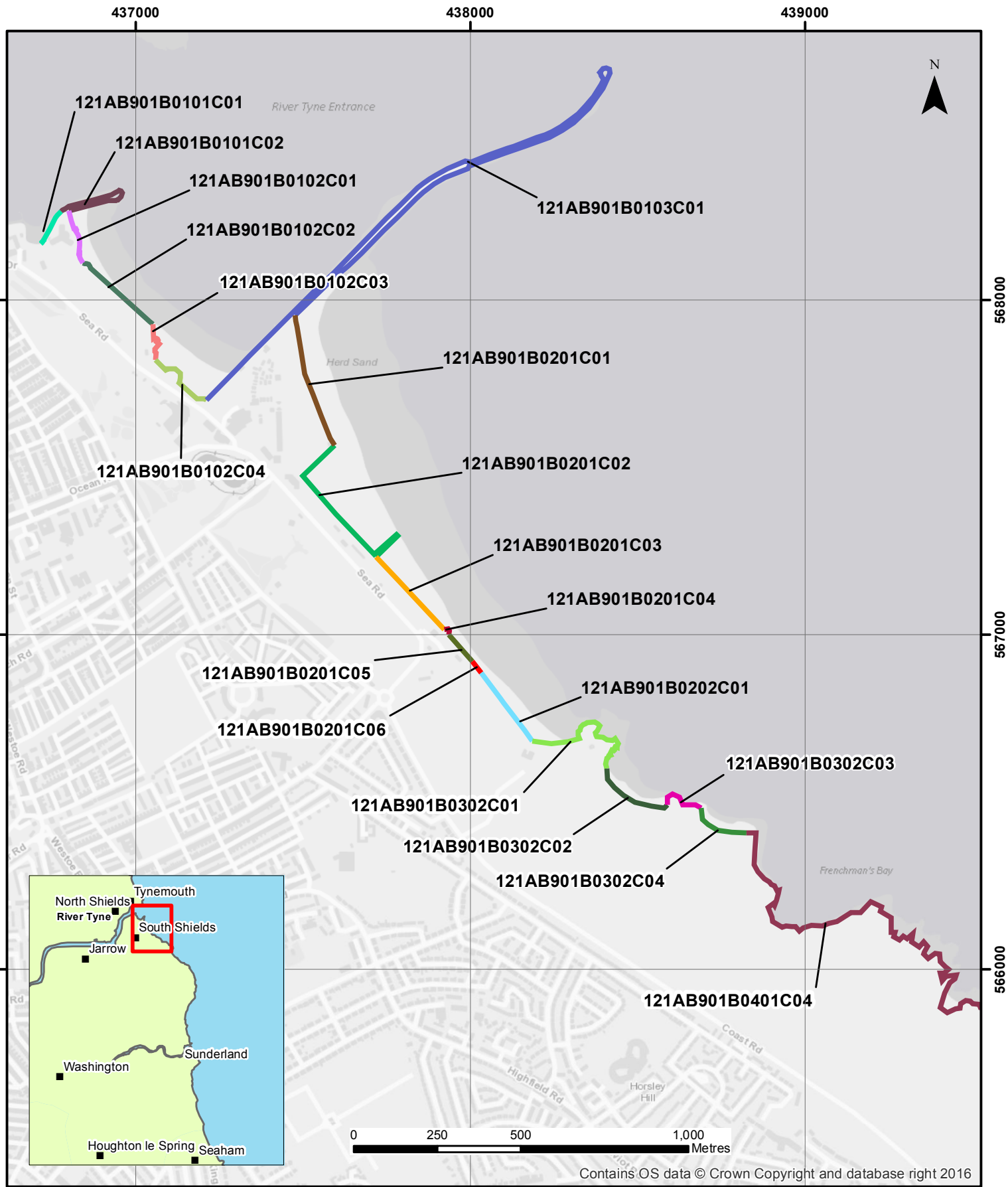
Further to the visual inspection of all assets, specific conclusions and recommendations for individual assets are given in **Appendix B**.

All condition assessment data and selected photographs have been uploaded to SANDS (Shoreline And Nearshore Database System). This includes all data and photographs from the previous inspections since 2002 that were originally held on an MS Access Databases that had become obsolete.

Appendices

Appendix A

Asset Location Maps



Contains OS data © Crown Copyright and database right 2016

Legend

- Asset location
- NFCDD Asset Number

Figure 1 - Map 1

South Tyneside 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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Newcastle upon Tyne
NE1 4EE

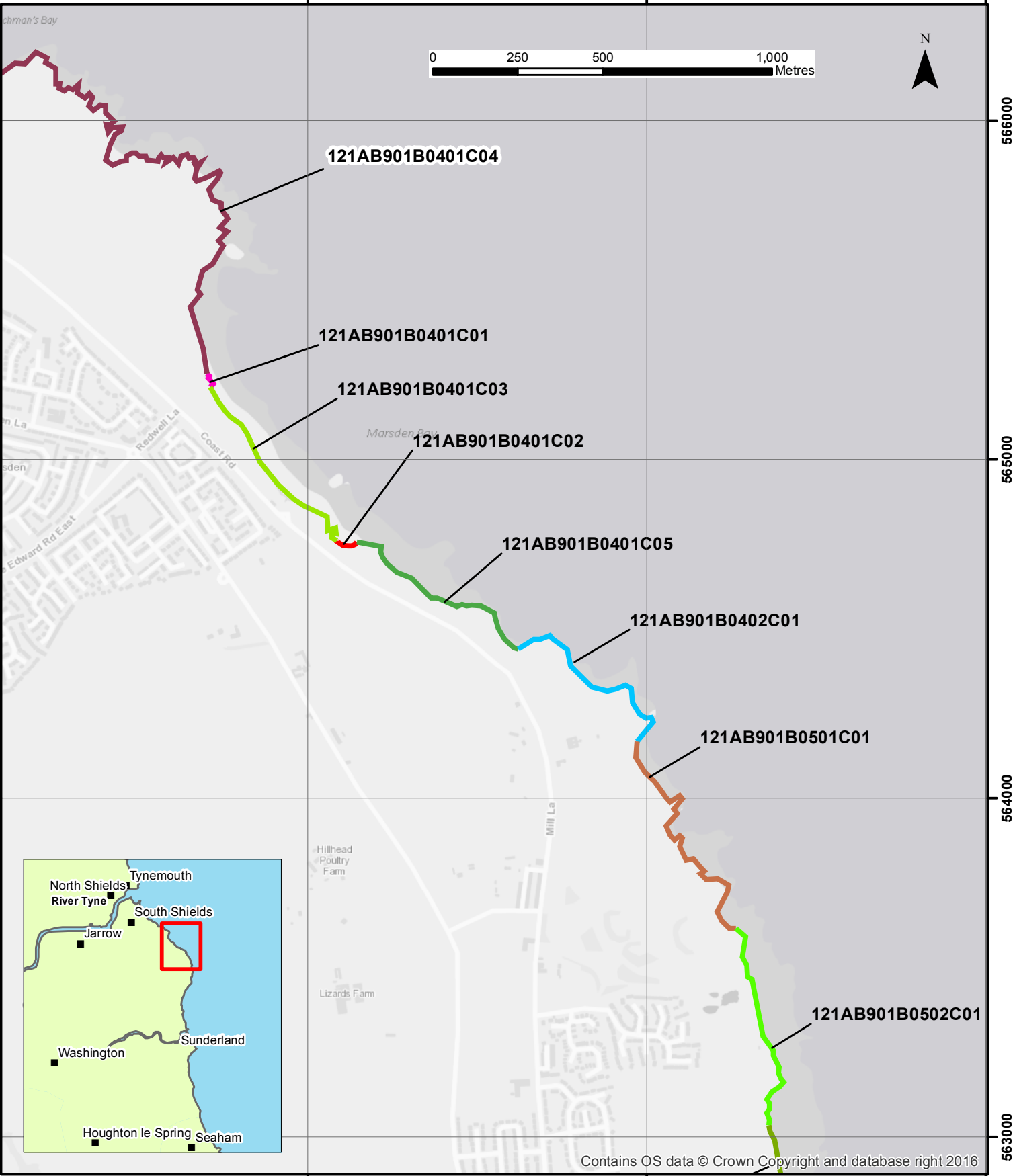
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
-  Asset location
-  NFCDD Asset Number

Figure 1 - Map 2

South Tyneside 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
Marlborough House
Marlborough Crescent
Newcastle upon Tyne
NE1 4EE

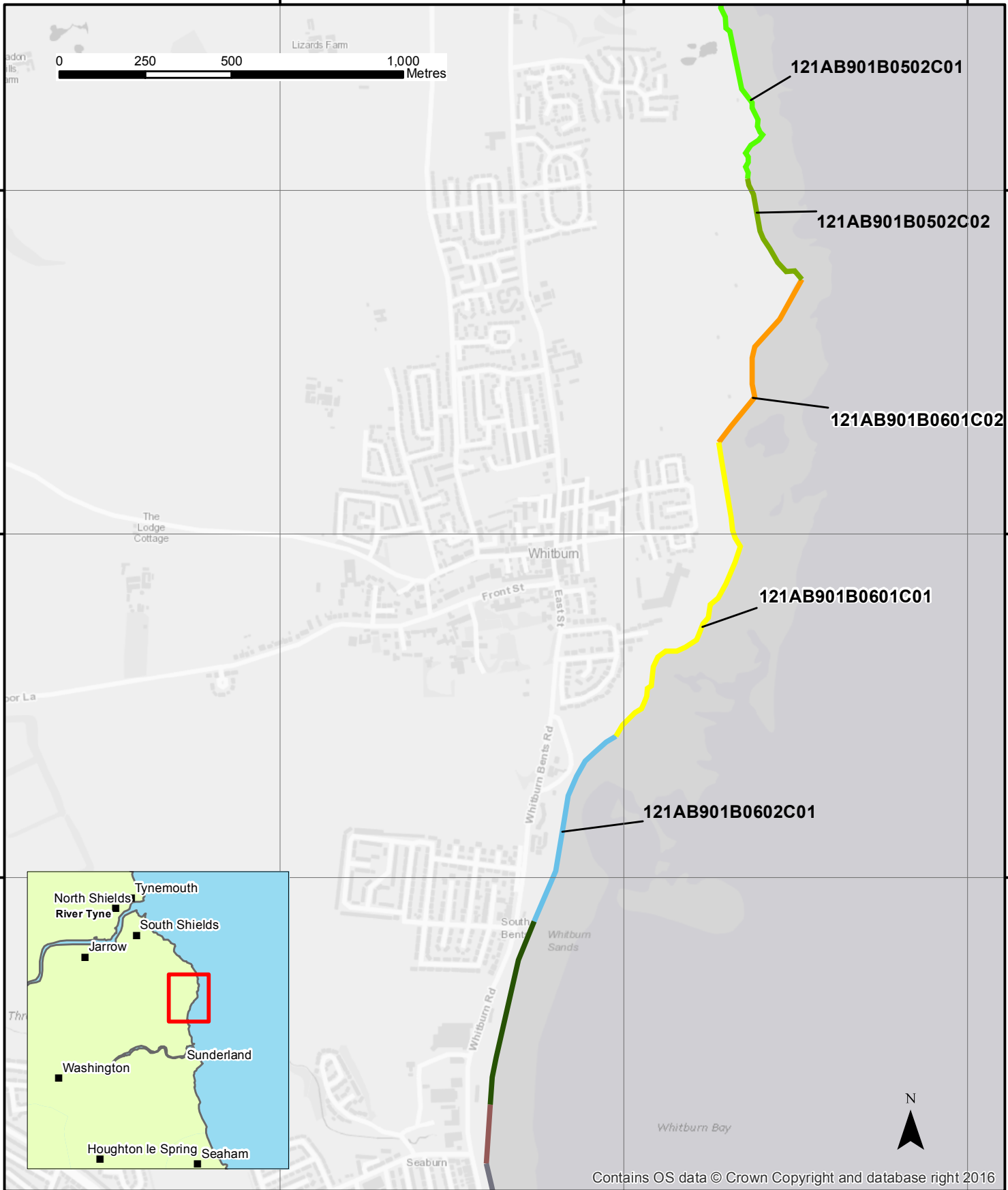
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
-  Asset location
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Figure 1 - Map 3

South Tyneside Council Frontage

Asset Inspection Report

Drawing Scale 1:15,000 at A4

Client:
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WATER
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Appendix B Asset Condition & Recommendations

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comment	Overall Condition	Residual Life	Recommendations	Urgency
121AB901B0101C01	Grouted masonry revetment badly voided in local places, especially at toe. Crest wall behind (landward side of path) built to protect little Haven Hotel against sea flooding.	Revetment - Wave Basin	115.3	07/06/2016	Royal HaskoningDHV	No significant deterioration. Gen fair to good cond, apart from voids.	3	11 - 20	Infill voids - prioritise work at toe	routine
121AB901B0101C02	Grouted stone jetty with concrete deck. Acts to retain beach to Littlehaven and prevent beach sand entering the navigation channel.	Breakwater - South Groyne	372.2	07/06/2016	Royal HaskoningDHV	Cracks in tarmac at seaward end of structure. No sig. change since last inspection.	3	>20	Infill cracks in deck. Patch repairs to missing mortar and blocks.	routine
121AB901B0102C01	700301 Picket fencing to build dune. Splash wall behind (02).	Dunes	170.8	07/06/2016	Royal HaskoningDHV	Healthy and accreting / stable frontage.	2	>20	continue to monitor	no repairs
121AB901B0102C02	Concrete seawall to promenade and carpark. Sand levels decrease as wall advances to South, and wall protrudes seawards across foreshore.	Littlehaven Seawall	279.2	07/06/2016	Royal HaskoningDHV	Asset realigned and replaced with a new reinforced concrete seawall in 2014, sheet pile toe, stepped apron, promenade and splash wall. Remains in very good condition.	1	>20	none	routine
121AB901B0102C03	Concrete seawall to promenade and car park ('return section' from protruding section)	Littlehaven Seawall	128.5	07/06/2016	Royal HaskoningDHV	Asset realigned and replaced with a new reinforced concrete seawall in 2014, toe wall, promenade and splash wall.	1	>20	none	routine
121AB901B0102C04	Concrete wall near root of South Pier and protecting promenade and amenity land.	Littlehaven Seawall	222	07/06/2016	Royal HaskoningDHV	Asset upgraded and realigned.	1	>20	none	routine
121AB901B0103C01	South Pier important to general protection both North and South.	Breakwater	2840	07/06/2016	Royal HaskoningDHV	Masonry pier with local rock armour protection.	3	>20	Port owned & to continue to maintain structure	routine
121AB901B0201C01	Stone embankment in front of dunes and fairground.	Berm - Dunes	408.8	07/06/2016	Royal HaskoningDHV	Stone revetment largely covered, burying stones, but appear thin / scattered. Well established beach with dunes provide protection. Dunes behind are well established with vegetation cover.	3	>20		no repairs
121AB901B0201C02	Undefended Frontage	Dunes	632.9	07/06/2016	Royal HaskoningDHV	Dune repairs, fencing and recent planting since last inspection. Significant sand accretion.	3	>20	Continue to monitor and maintain sand fencing and control public access	no repairs
121AB901B0201C03	Concrete toe wall and paved promenade to front of amenity building and carpark.	Wall	299.2	07/06/2016	Royal HaskoningDHV	Beach levels flush with promenade. Lots of wind-blown sand on promenade.	2	>20		no repairs
121AB901B0201C04	Small concrete wall in very poor condition - not formal defence.	Wall	29.3	07/06/2016	Royal HaskoningDHV	New structure as part of 2010 promenade works. High beach levels causing some wind-blown sand on promenade	2	>20	Control of wind-blown sand required	no repairs

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comment	Overall Condition	Residual Life	Recommendations	Urgency
121AB901B0201C05	Concrete sloping revetment to promenade and various buildings.	Revetment	106.9	07/06/2016	Royal HaskoningDHV	Lower elements of structure not inspected due to high beach levels.	2	>20	Monitor beach levels, inspect lower elements of structure if exposed.	no repairs
121AB901B0201C06	Concrete revetment of varying level to road and buildings. Concrete toe.	Revetment	43.1	07/06/2016	Royal HaskoningDHV	Structure not visible due to high beach levels.	3	>20	Monitor beach levels and inspect revetment toe if beach levels fall.	routine
121AB901B0202C01	Dunes covering buried gabions.	Primary Defence = Dune	254.1	07/06/2016	Royal HaskoningDHV	Well vegetated but narrow dunes with numerous blown through sections, some of which have recent cobblestone armouring. Gabions not visible due to high beach levels. Failed slipway demolished and being rebuilt.	2	6 - 10	Consider fencing to prevent public access to dunes and encourage vegetation.	routine
121AB901B0302C01	Undefended Frontage	Cliff / Scarp - Trow Point	464.7	07/06/2016	Royal HaskoningDHV	Local rock falls and local slumping in soft material. Failed slipway demolished and being rebuilt.	3	>20	Monitor for safety of public access	routine
121AB901B0302C02	Rock revetment	Rock revetment - Graham's Sands	241.1	07/06/2016	Royal HaskoningDHV	No change evident since previous survey. Rock armour toe revetment in front of regraded coastal slope. Granite rock armour ties into existing headlands. Scheme complete in Nov-08. Additional protection provided by rock outcrops on foreshore.	1	>20	None.	no repairs
121AB901B0302C03	Undefended Frontage.	Cliff / Scarp - Target Rock	147.3	07/06/2016	Royal HaskoningDHV	Caves and overhangs at base of cliffs. Sink hole infilled.	3	>20	Regular monitoring of erosion areas for safety to pedestrians	routine
121AB901B0302C04	Rock Revetment	Rock Revetment - Southern Bay	175.3	07/06/2016	Royal HaskoningDHV	No change evident since last survey. Rock armour toe revetment in front of regraded landfill embankment. Granite rock armour ties into existing headlands. Scheme completed Nov-08. Additional protection provided by rock outcrops on foreshore.	1	>20	None.	no repairs
121AB901B0401C04	Undefended Frontage	Cliff / Scarp - Frenchman's Bay and Marsden Bay (north)	2613	07/06/2016	Royal HaskoningDHV	No significant change evident since last survey. Failure along 50m section in Mar-10 causing loss of footpath. Other areas of arches, caves, overhangs and slumps. One sink hole.	4	>20	Realign footpath landward. Public information/warning signs.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comment	Overall Condition	Residual Life	Recommendations	Urgency
121AB901B0401C01	Masonry faced concrete wall to Lifeguard Station. Concrete buttress to Redwell Steps.	Wall - Redwell Steps	54.5	07/06/2016	Royal HaskoningDHV	Masonry wall in very poor condition. Previous repairs have been undercut and eroded to reveal reinforcement. Cracking and opening of voids evident in masonry infill.	5	6 - 10	Routine maintenance to steps and hand railing, repair cracks in masonry walls.	routine
121AB901B0401C02	Old masonry wall to Public House at base of eroding cliff. Rock netting and new access steps constructed in 2007.	Wall - Grotto	67.2	07/06/2016	Royal HaskoningDHV	Masonry wall in good condition, protected by high cobble berm. Rock netting in very good condition.	3	>20		no repairs
121AB901B0401C03	Eroding Sandstone cliff. The National Trust realigns cliff top path landwards when rock falls occur.	Cliff / Scarp - Marsden Bay (Central)	655.7	07/06/2016	Royal HaskoningDHV	Sandstone cliff with numerous caves and arches at toe and stacks (Lot's Wife, Marsden Rock) on foreshore.	3	>20		routine
121AB901B0401C05	Undefended Frontage	Cliff / Scarp - Marsden Bay (South)	527.5	07/06/2016	Royal HaskoningDHV	Cliffs locally unstable with local cliff falls. Some locally unstable sections are close to cliff edge.	3	6 - 10	Move safety rails and warning back when necessary.	routine
121AB901B0402C01	Undefended Frontage	Cliff / Scarp - Lizard Point	789.7	07/06/2016	Royal HaskoningDHV	Cliffs regularly failing, with recent rock falls between lighthouse and Lizard Point Car Park. Remaining sections are unstable, with overhangs, caves and extensive fissures. Further cliff failures to be expected. Car park and access have been updated to reduce risk.	4	1 - 5	Warn public. keep Lizard Point CP closed. Realign fencing /warning as necessary.	urgent
121AB901B0501C01	Undefended Frontage	Cliff / Scarp - Whitburn Coastal Park	858.7	07/06/2016	Royal HaskoningDHV	Extensive cave, arch and stack features. Sink hole has enlarged much since 2005 and cave at base has breached, but warning signs and hand rails have been relocated.	5	1 - 5	Monitor for sink holes / collapses & relocate warning signs and railing as necry	urgent
121AB901B0502C02	Coastal slope behind a wide raised beach	Cliff / Scarp - Rifle Ranges (North)	354	07/06/2016	Royal HaskoningDHV	Relict cliff behind healthy raised beach of coarse material.	2	>20	Continue active monitoring	routine
121AB901B0502C01	Undefended Frontage	Cliff / Scarp - Whitburn Nature Reserve	653.7	07/06/2016	Royal HaskoningDHV	Localised erosion and cave formation cutting back cliff top near to path.	3	>20	longer term realignment of footpath, railing and warning signs if necessary.	routine

Asset Name	Description	Type	Length	Inspection Date	Inspector	Comment	Overall Condition	Residual Life	Recommendations	Urgency
121AB901B0601C02	Eroding sandstone cliff.	Cliff / Scarp - Rifle Ranges (South)	555.5	07/06/2016	Royal HaskoningDHV	Many areas eroding with active local slumps, some very close to footpath, localised erosion by land drainage outfall impinging on footpath, and headwall has been lost to a local slump.	4	11 - 20	Warning signs and re-align footpath when needed.	routine
121AB901B0601C01	Eroding sandstone cliff.	Cliff / Scarp - Whitburn	1018	07/06/2016	Royal HaskoningDHV	Locally active cliff. Erosion getting close to path in places.	3	>20	Warning signs reqd where cliff edge close to path re-align footpath when needed.	routine