


Survey Unit	4cSU14- Lydd Ranges	
SMP Policy	Hold the Line	

Author: HW. Approved by: CF.

Lydd Ranges is a large barrier beach backed by an extensive, relict shingle ridge system. The sandy foreshore is only exposed at low water and increases in elevation west to east, with much of the eastern foreshore rarely exposed.

Access to this beach is restricted by the Lydd Ranges firing programme and it can be difficult to programme surveys for suitable times which combine the lowest tides with range closures.

1. Introduction

Date of survey	13/11/2019
Reason for survey	As requested by the Environment Agency, a post storm survey was conducted following a period of successive high tides during late September and early November 2019 which caused beach levels to become depleted.
Area surveyed	Laser scan survey of the first 300m of the survey unit to include profiles 4c00940 - 4c00934.
Flood warnings	N/A
Summary of beach operations	Emergency works commenced on the 14/11/2019 to repair damage to the 'green wall' defence.
Areas flooded	N/A

2. Survey Results

2.1 Post Storm Profiles

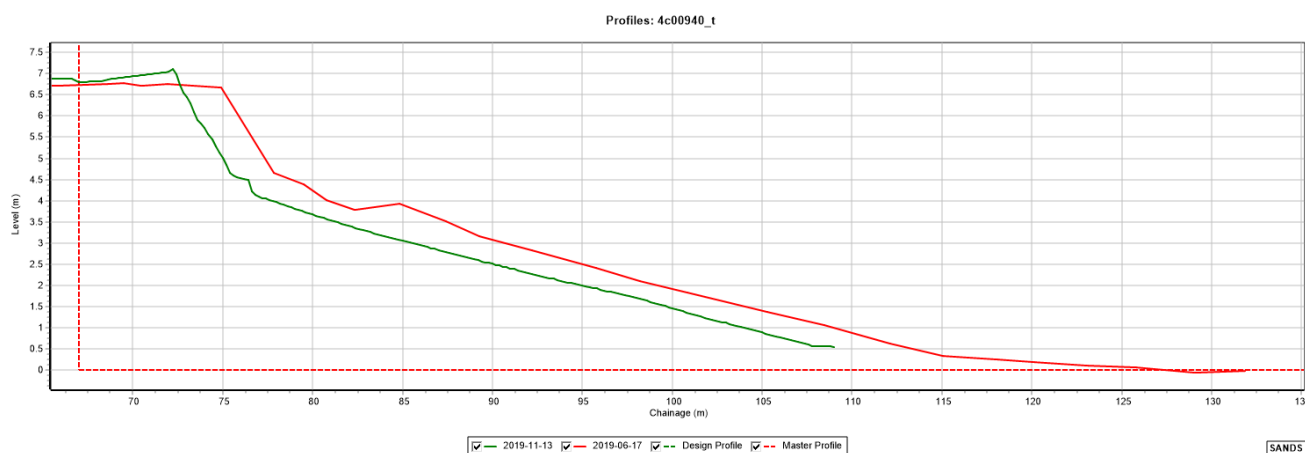


Figure 1- Depleted beach levels Profile 4c00940

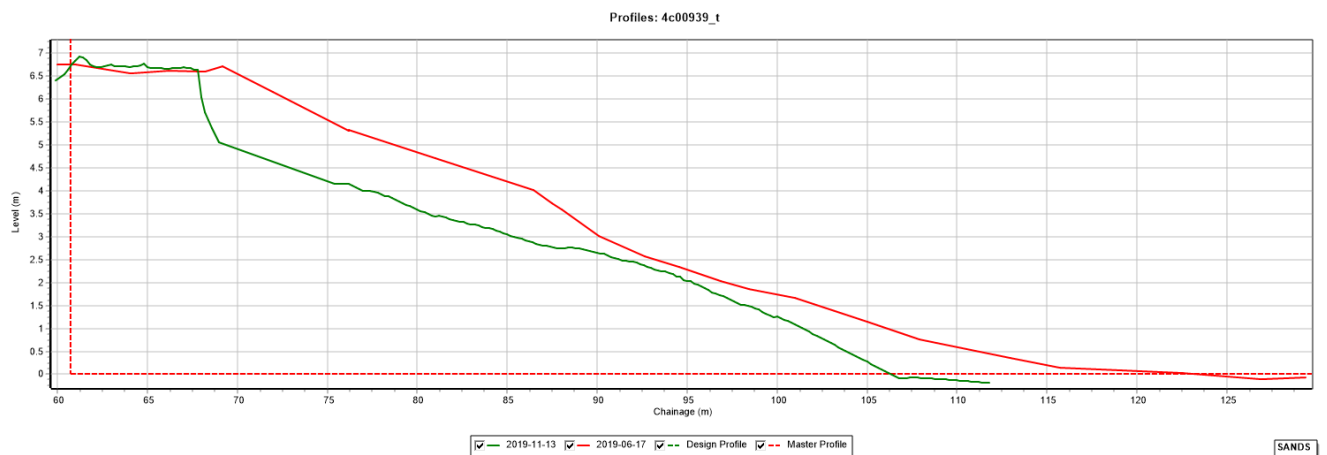


Figure 2- Depleted beach levels and reduced berm width Profile 4c00941

2.2 General Observations

General observations	
Structure condition	<p>There are several stretches where the clay has eroded, leaving the seaward edges of the reinforced concrete slabs suspended.</p> <p>Damage or loss of the apron. Further to this, there are large slabs (assumed to be a former ramp/protective apron) which have broken away from the bund and are now lying as debris on the beach (Figure 3).</p> <p>The concrete pathway on top of the bund is severely cracked, and there are possible voids beneath.</p>
Erosion of the clay bund	<p>Erosion of the clay bund is evident by the large scallops on the seaward elevation (Figure 4).</p> <p>The landward elevation of the bund shows indications of overtopping, vegetation has uprooted and remaining vegetation has clearly been flattened and dragged down the slope due to the weight and direction of water.</p>
Depletion of beach levels	<p>The beach within the western two groyne bays has been severely depleted, exposing the geotextile bags which were placed as part of emergency works to protect the bund (Figure 5).</p>



Figure 3- Exposure of the reinforced concrete slabs

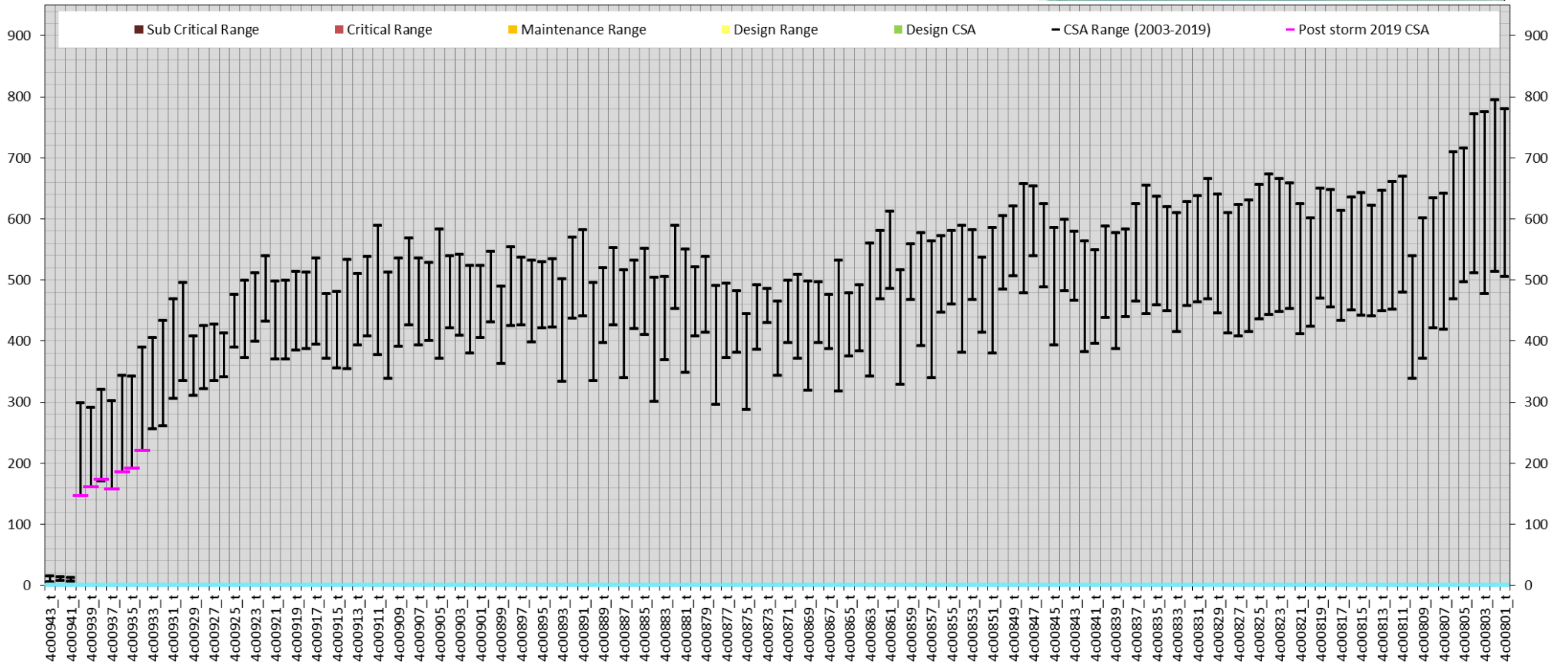


Figure 4- Erosion of the clay bund



Figure 5- Depleted beach levels, geotextile bags have been exposed

2.3 Whole Beach CSA



Current and Historic Beach Cross-Sectional Areas (m²) based on

a datum of -1 mOD

Design Standard = 1:200 years

3. Hydrodynamics

Highest storms at Pevensey Bay	
Date	Significant wave height (m)
13-Dec-2011	4.42
18-Jan-2007	4.2
08-Nov-2010	4.13
03-Dec-2006	4.1
11-Nov-2010	4.02
13-Dec-2008	3.97
15-Jan-2008	3.96
15-Jan-2015	3.95
31-Jan-2004	3.92
10-Mar-2008	3.89

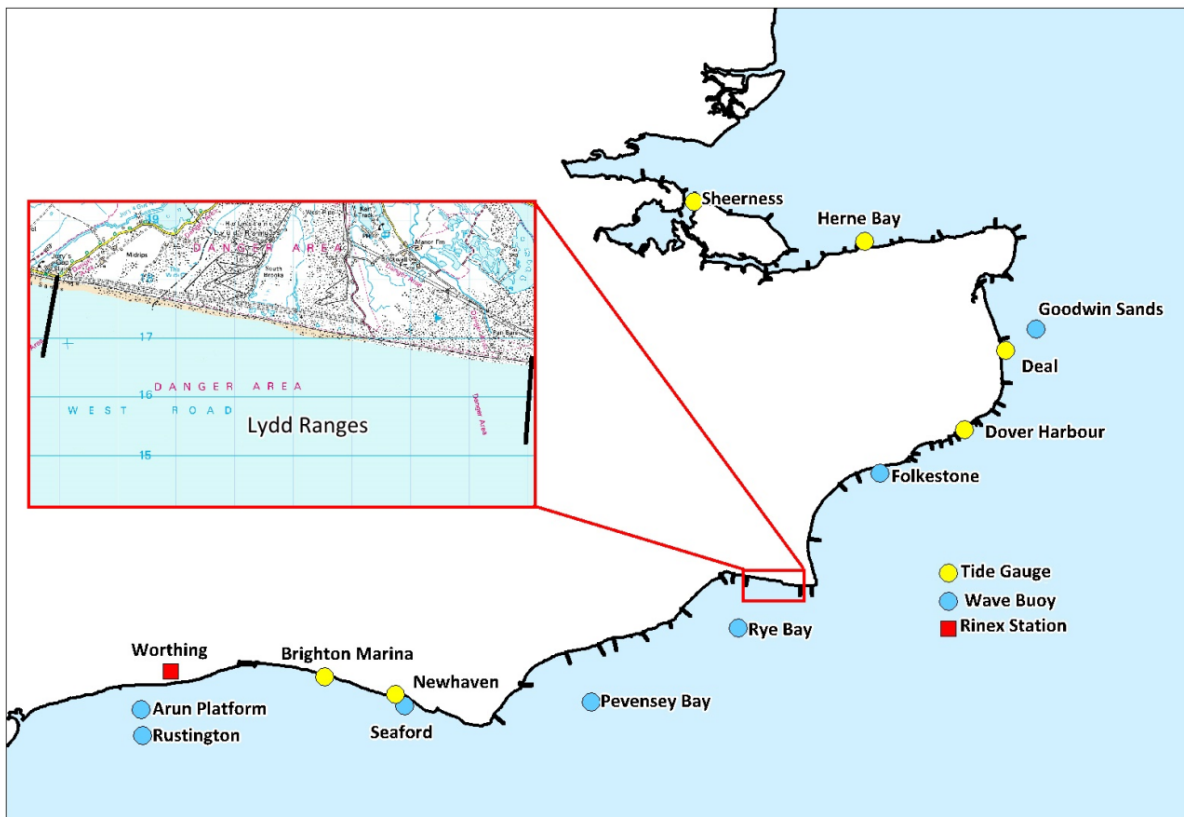
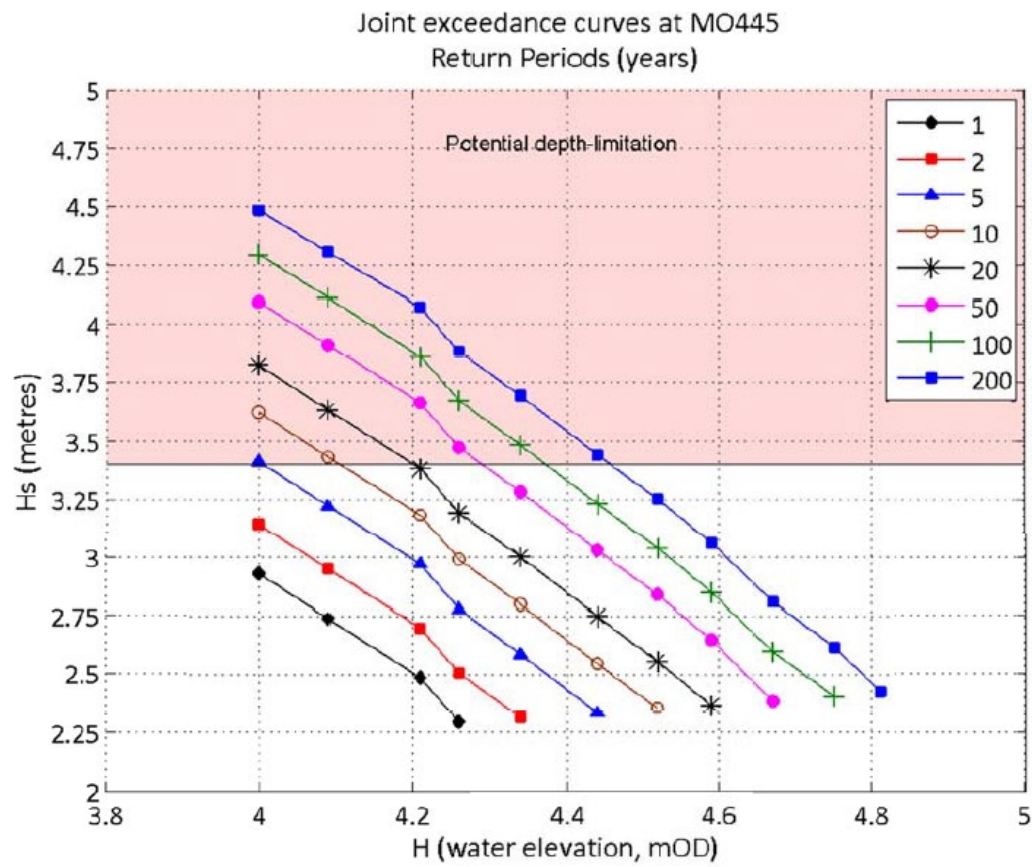


Figure 6- Map of Tide and Wave Gauges

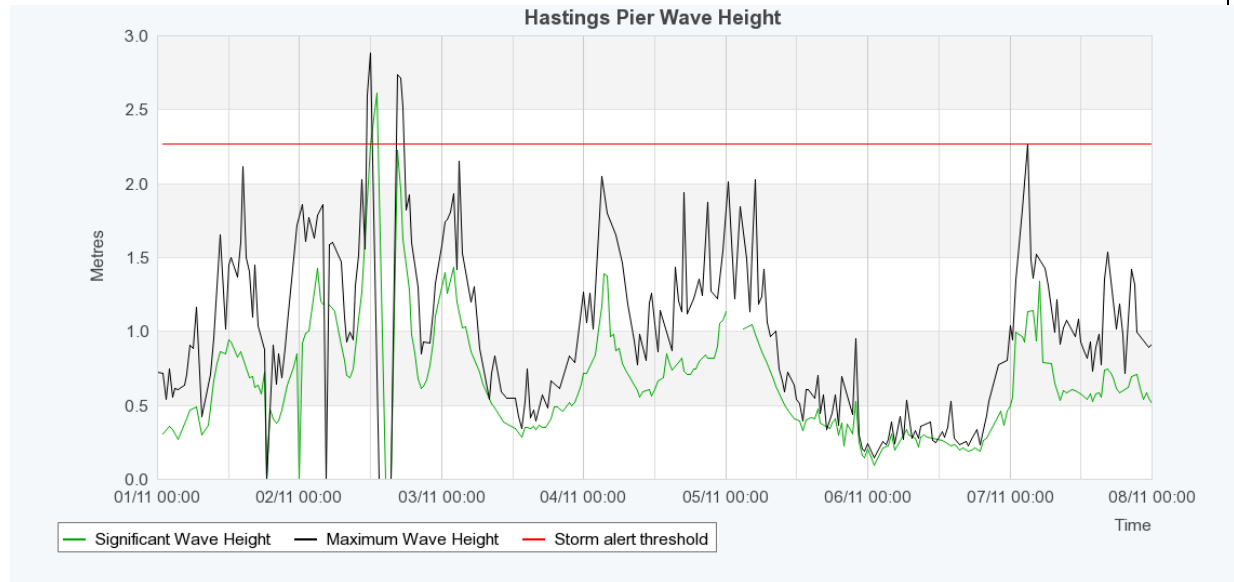
3.1 Joint Return Periods



	Date/Time	Tidal elevation	Hs (m)	Hmax(m)
At time of maximum water elevation	02/11/2019 02:10	3.46	1.91	1.07
At time of highest wave height	02/11/2019 13:00	3.00	3.09	2.6

3.2 Wave, tide and met conditions

Nearest wave buoy	Hastings (operational 2018)
Wave height	Maximum wave height reached 2.6mOD on 2 nd November 2019 Significant wave height reached 3.22mOD



Wave Direction	Pevensey Wave Buoy
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