

Survey Unit	4cSU20- Hastings	
SMP Policy	Hold the Line	

Author: EC Approved by: ??

Hastings survey unit is a shingle beach with a sand foreshore with sections of chalk platform exposed. The unit extends 4.6 km between Cinque Ports Way and East Hill. There are a number of timber and rock groynes throughout the frontage, at varying intervals. Occasional beach management works are undertaken as required.

1. Introduction

Date of survey	10/11/2023
Reason for survey	As requested by Hastings Borough Council, following Storm Ciara which caused strong winds and storm waves on 01/11/2023 and 02/11/2023.
Area surveyed	Entire frontage (4c01337 to 4c01457A)
Flood warnings	N/A
Summary of beach operations	N/A
Areas flooded	None

2. General Observations - Survey Results

General observations	
Shingle on promenade	Significant shingle on promenade west of the pier which has covered some of the control surfaces
Structure condition	No damage to structures

Beach condition	<p>Access to all groyne bays was not possible due to wave run-up and the reduced height of shingle at back of beach. Additionally, discharge from a pipe in profile 4c01368 has caused significant scour, changing this profile greatly.</p> <p>West of the Pier, beach levels at Defence Sections A, B and D have increased since the spring 2023 levels. In contrast the beach at Defence Section C has been depleted, although most beach levels remain within mid-range of their recorded CSA values.</p> <p>East of the pier most profiles have increased their CSA relative to Spring 2023, with a large number of profiles at or near their highest recorded CSA value. Some exceptions such as 4c01338 and 4c01337 have depleted and now sit close to or at their lowest recorded CSA value.</p>
-----------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

2.1 Post Storm profiles

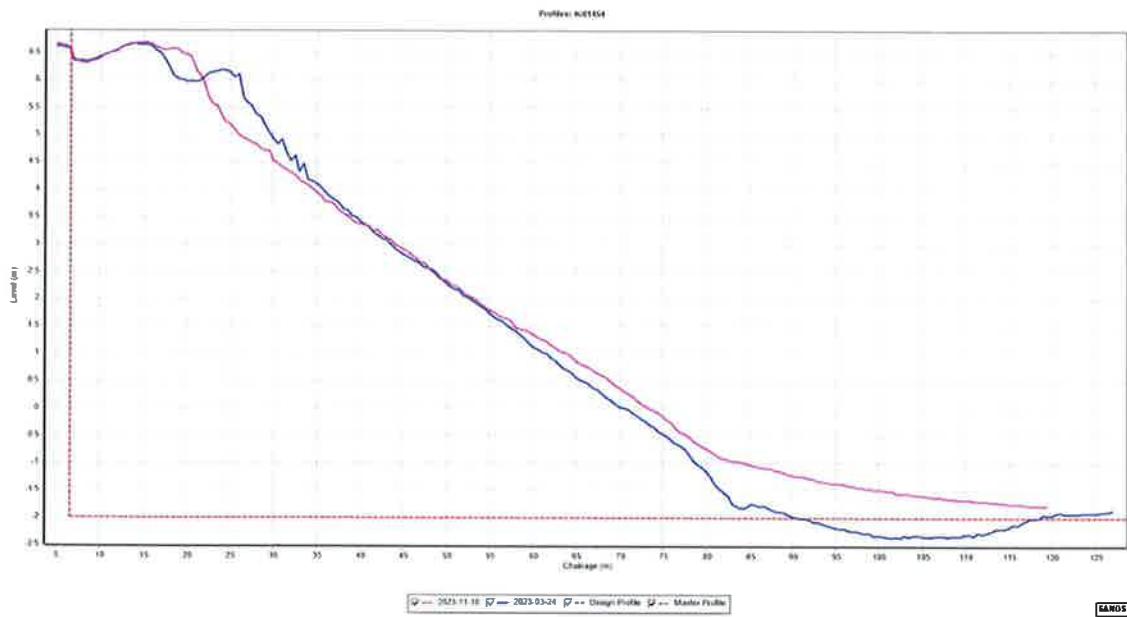


Figure 1- Profile 4c01454 west of the Pier in Defence Section A

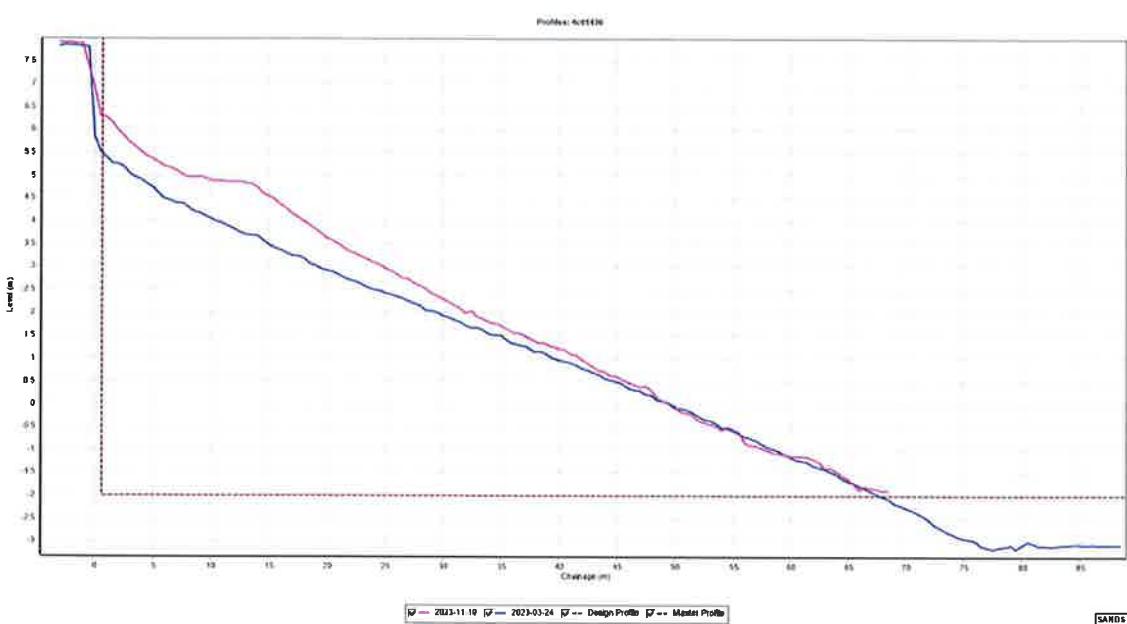


Figure 2- Profile 4c01436 west of the pier in Defence Section B

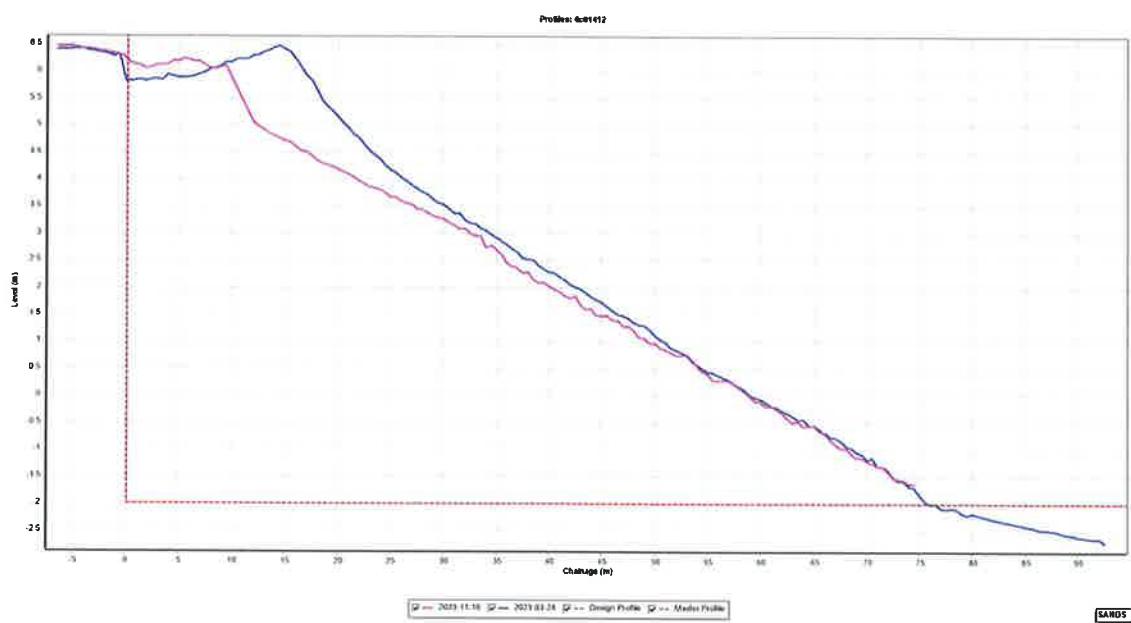


Figure 3- Profile 4c01412 west of the pier in Defence Section C

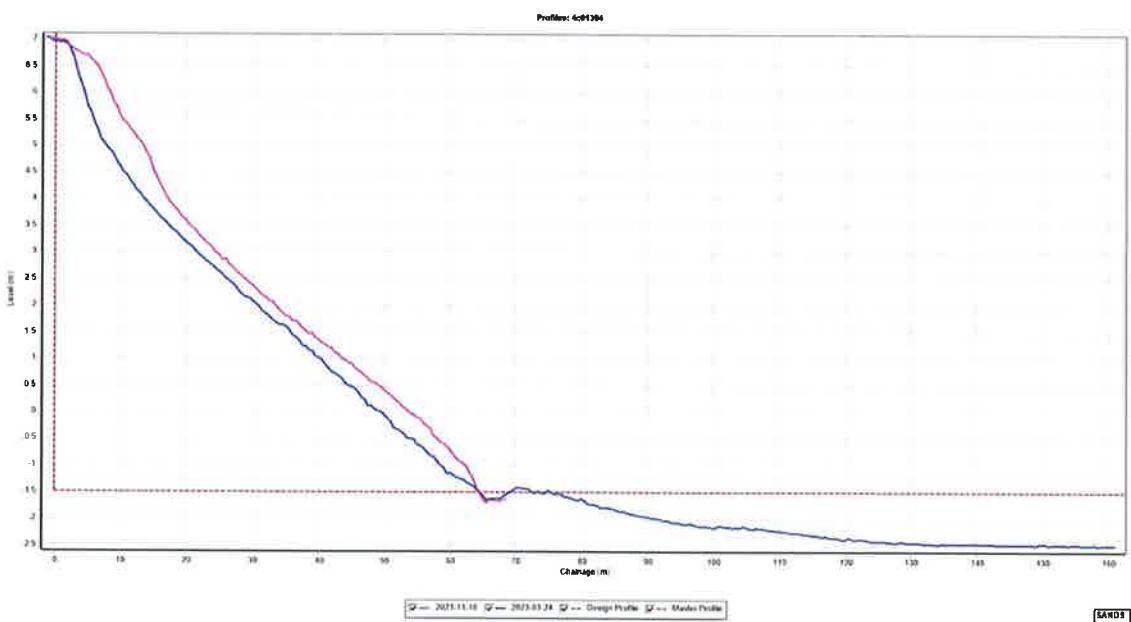


Figure 4- Profile 4c01394 west of the pier in Defence Section D

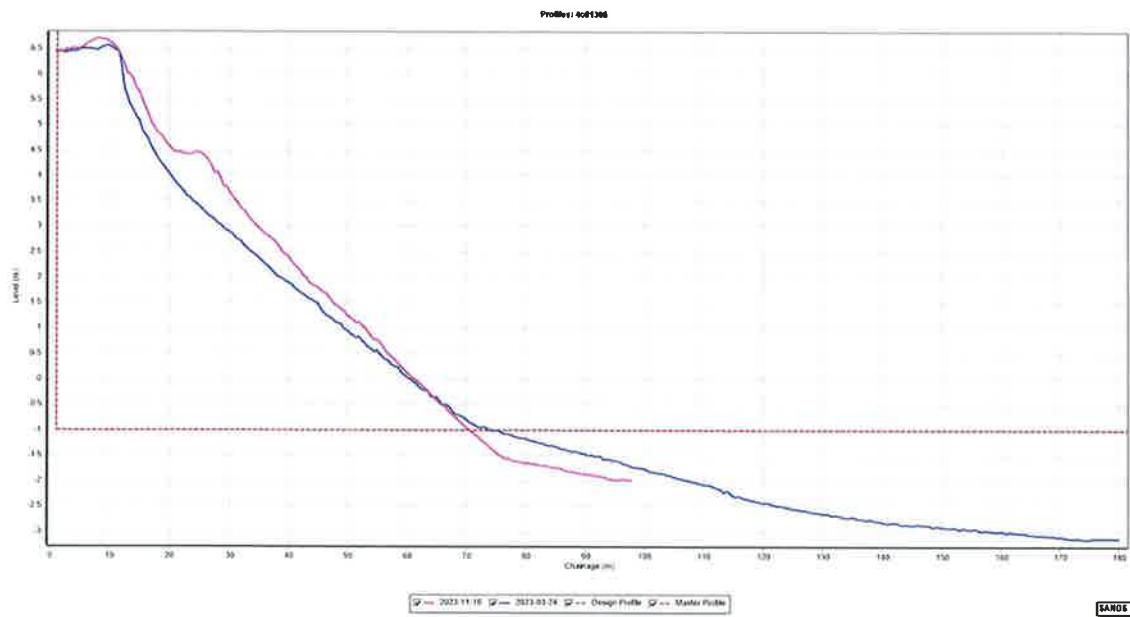


Figure 5- Profile 4c01386 east of the pier in Defence Section E

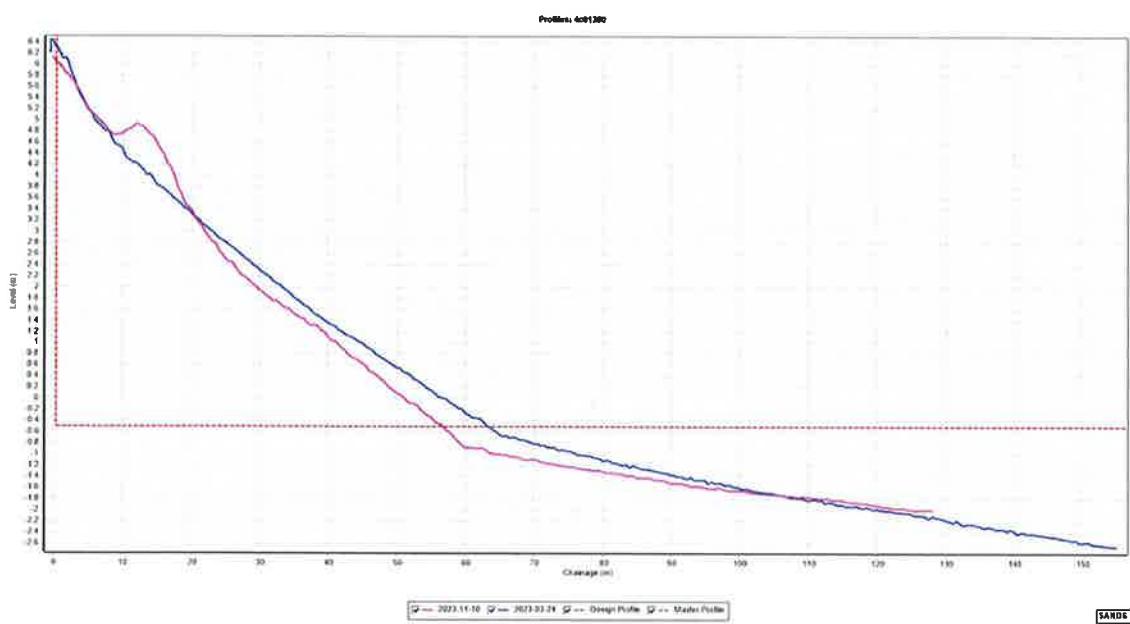


Figure 6- Profile 4c01380 east of the pier in Defence Section F

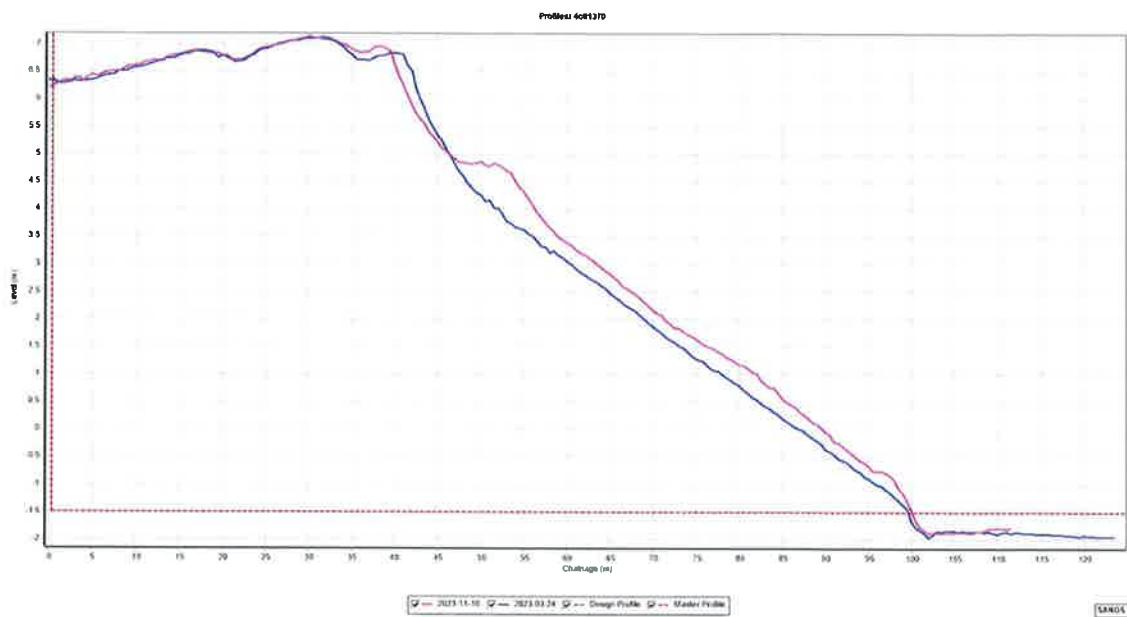


Figure 7- Profile 4c01370 east of the pier in Defence Section G

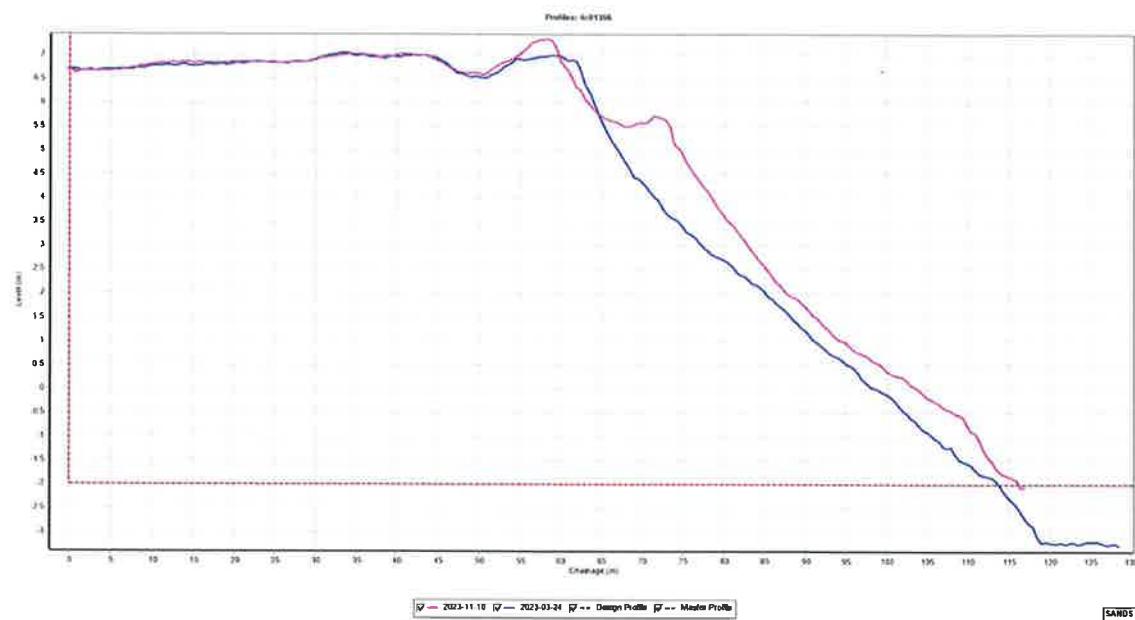


Figure 8- Profile 4c01356 east of the pier in Defence Section H

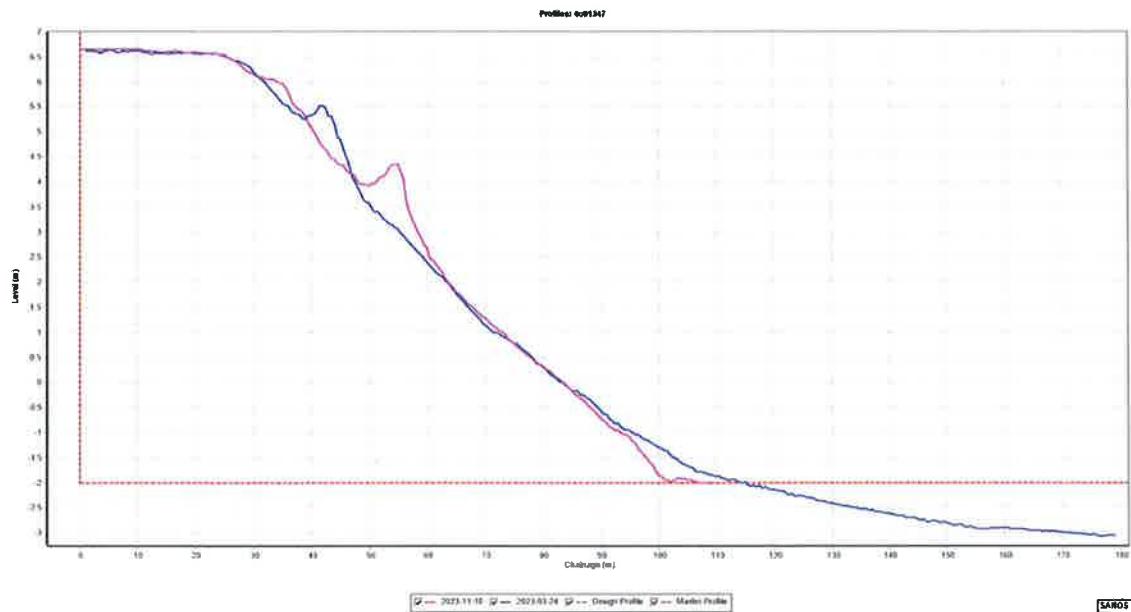


Figure 9- Profile 4c01347 east of the pier in Defence Section I

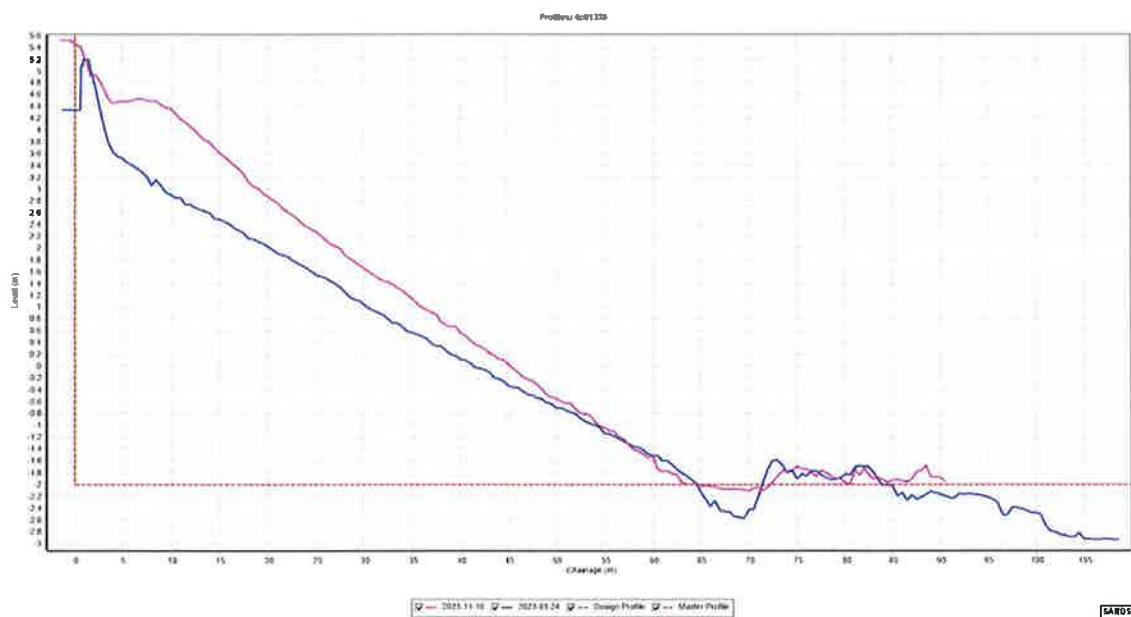
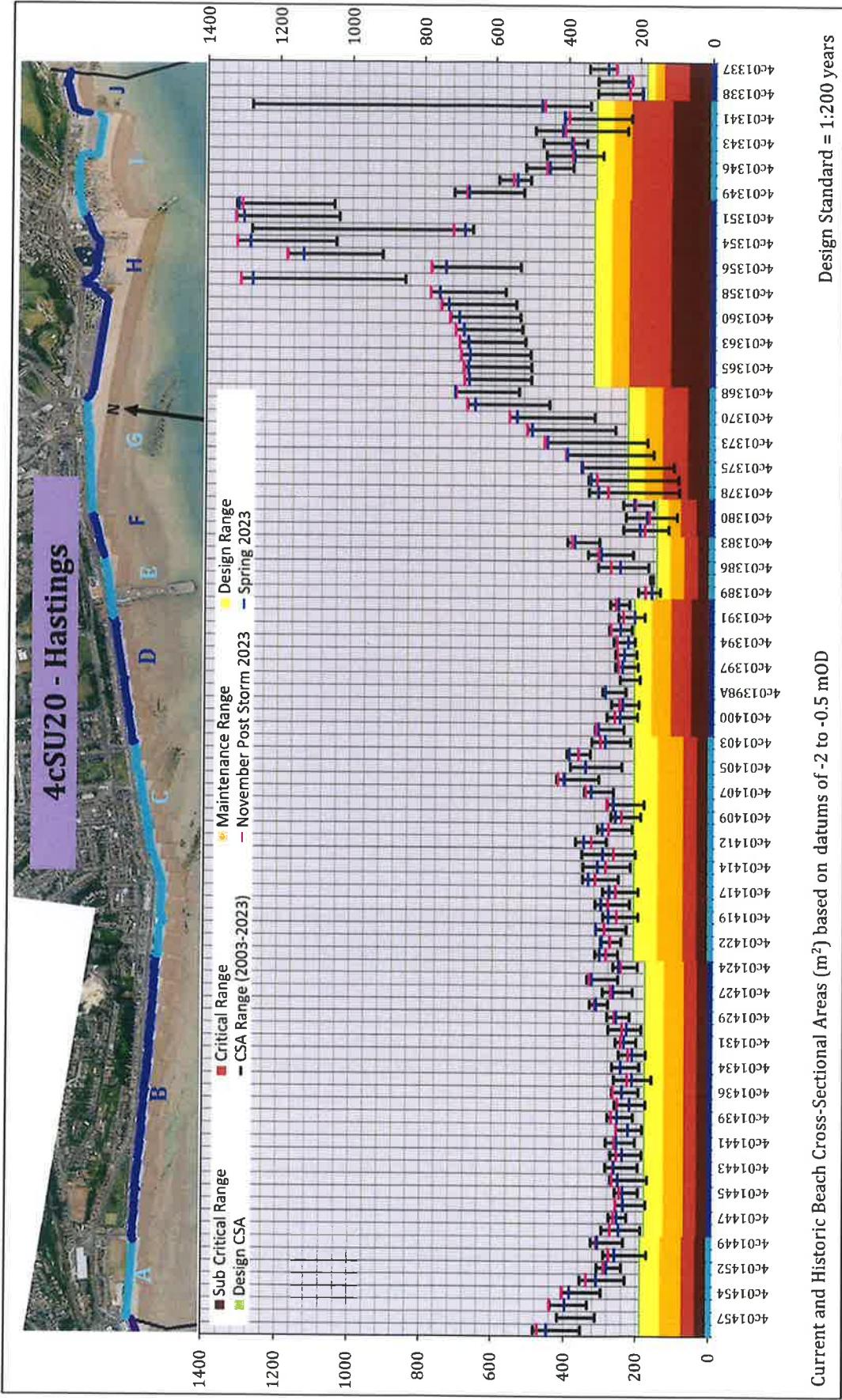


Figure 2- Profile 4c01338 east of the pier in Defence Section J

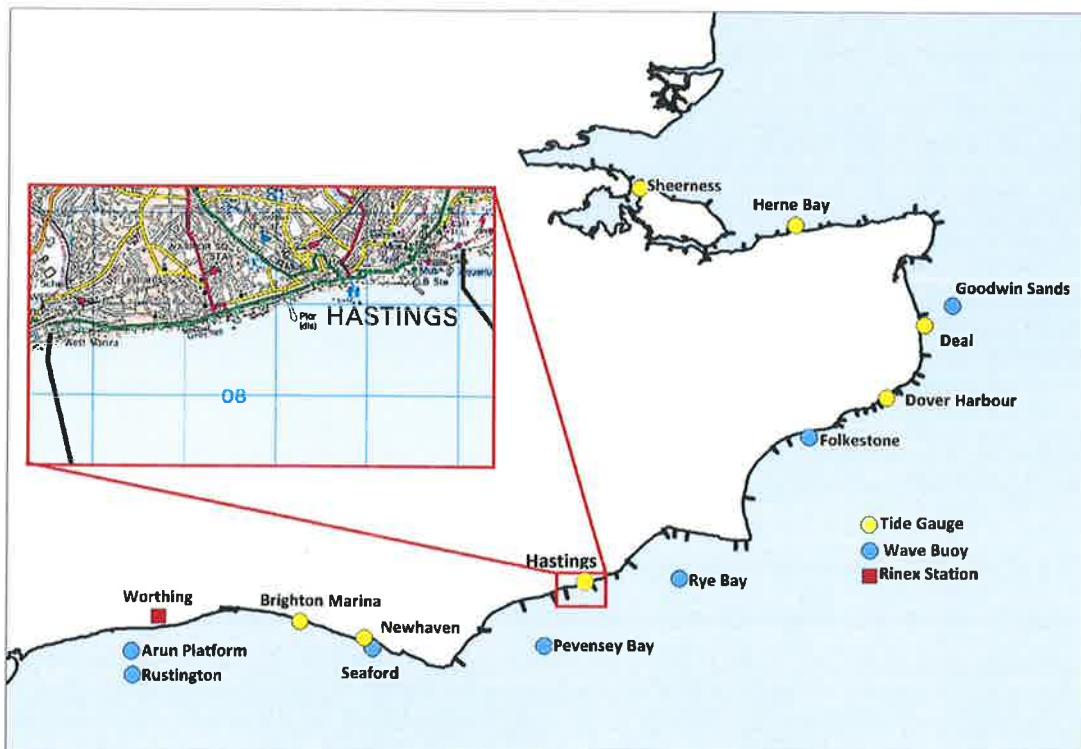
2.2 Whole Beach CSA



3. Hydrodynamics

The Hastings Tide and Wave gauge was only installed in September 2017 and does not yet provide an extensive list of previous storm events. The following tables and graphs are a combination of the Hastings Wave/Tide data, the nearest long term wave data (Pevensey wave buoy) and the nearest tide data (Folkestone).

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 3 - Map of Tide and Wave Gauges
(inset: © Crown copyright and database rights 2020 Ordnance Survey 100019614)*

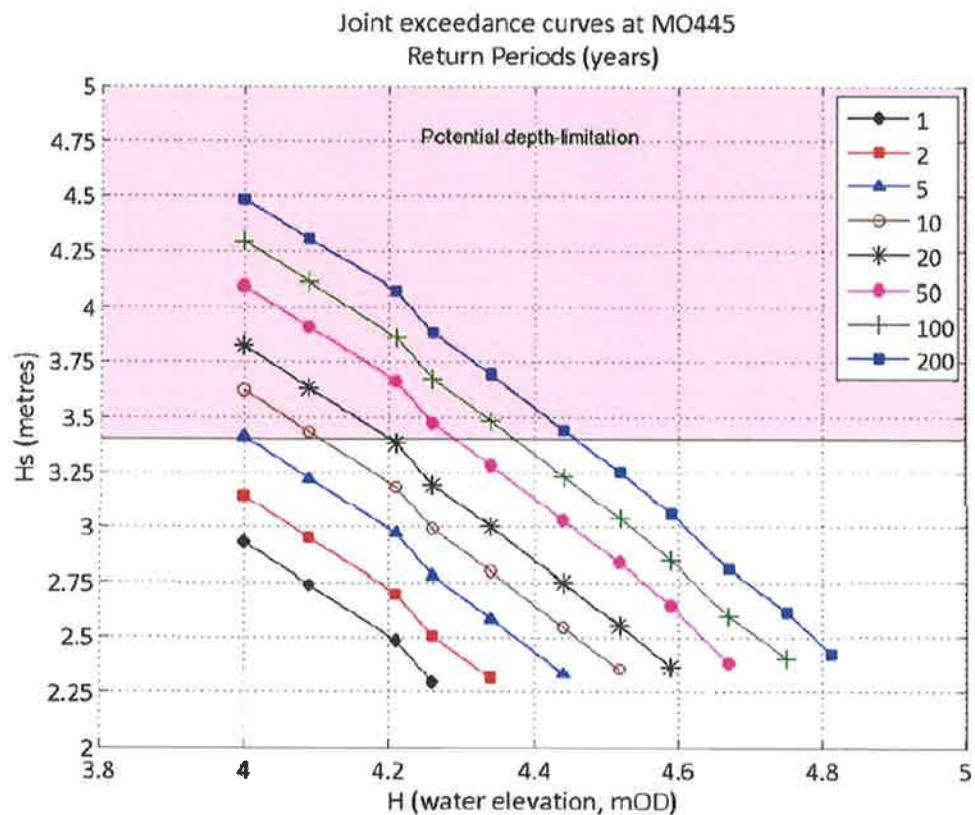
Observation Period	January 2017 to December 2022	
Return Period (years)	Significant Wave Height (m)	Comments
0.25	2.17	No depth limitations
1	2.57	
2	2.72	
5	2.89	
10	2.99	
20	3.08	
50	3.18	

(Sourced from Annual Wave Report 2022 – Hastings from <http://www.channelcoast.org/reports/>)

Observation Period	July 2003 to June 2018	
Return Period (years)	Significant Wave Height (m)	Comments
0.25	3.21	No depth limitations
1	3.85	
2	4.11	
5	4.43	
10	4.63	
20	4.82	
50	5.04	
100	5.18	Depth Limited at MLWS

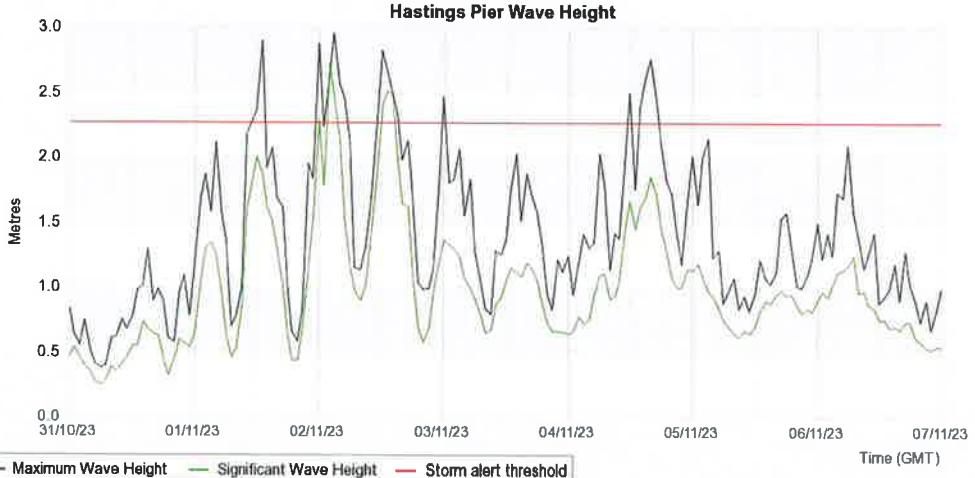
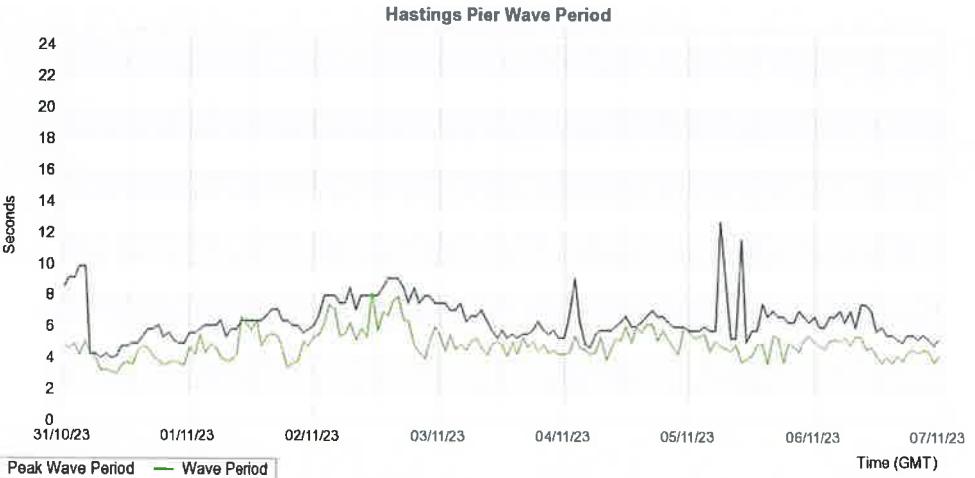
(Sourced from Annual Wave Report 2018 – Pevensey Bay from <http://www.channelcoast.org/reports/>)

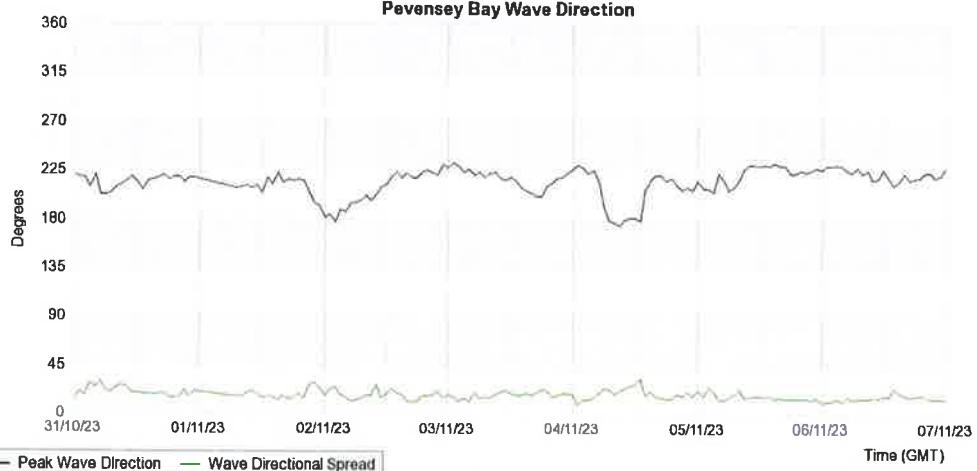
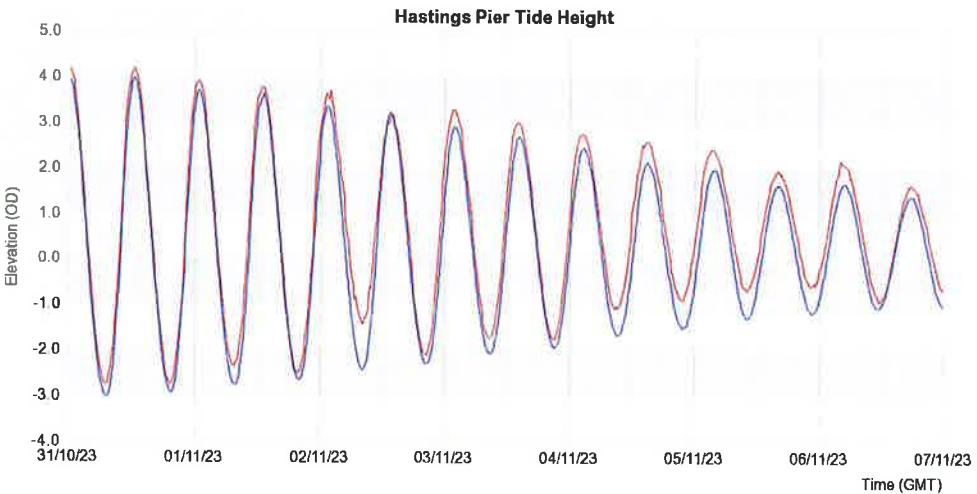
3.1 Joint Return Periods



	Date/Time	Tidal elevation (mOD)	Hs (m)	Hmax(m)	Return Period
At time of maximum water elevation	01/11/2023 at 00:40am	+3.92	0.77	1.98	<1 Year
At time of highest wave height	02/11/2023 at 02:00am	+3.65	2.73	3.65	<1 Year

3.2 Ambient wave, tide and met conditions

Nearest wave buoy	Hastings (operational 2018)
Wave height	Maximum wave height reached +3.65 on 02/11/2023 at 02:00am Significant wave height reached +2.73mOD on 02/11/2023 at 02:00am
	
Wave period	The peak wave period reached 21.3 seconds. Significant wave period reached 8 seconds.
	
<p>NB wave period values have not been quality checked.</p>	

Wave Direction	Pevensey Wave Buoy
	The dominant wave direction was SW
<p style="text-align: center;">Pevensey Bay Wave Direction</p>  <p>— Peak Wave Direction — Wave Directional Spread</p>	
Nearest tide gauge	Hastings
Tidal range	Measured at +3.92mOD on 01/11/2023 at 00:40am
<p style="text-align: center;">Hastings Pier Tide Height</p>  <p>— observed — predicted</p>	