Survey Unit	**4cSU20 – Hastings** **DRAFT**	canterbury city council
SMP Policy	Hold the Line	

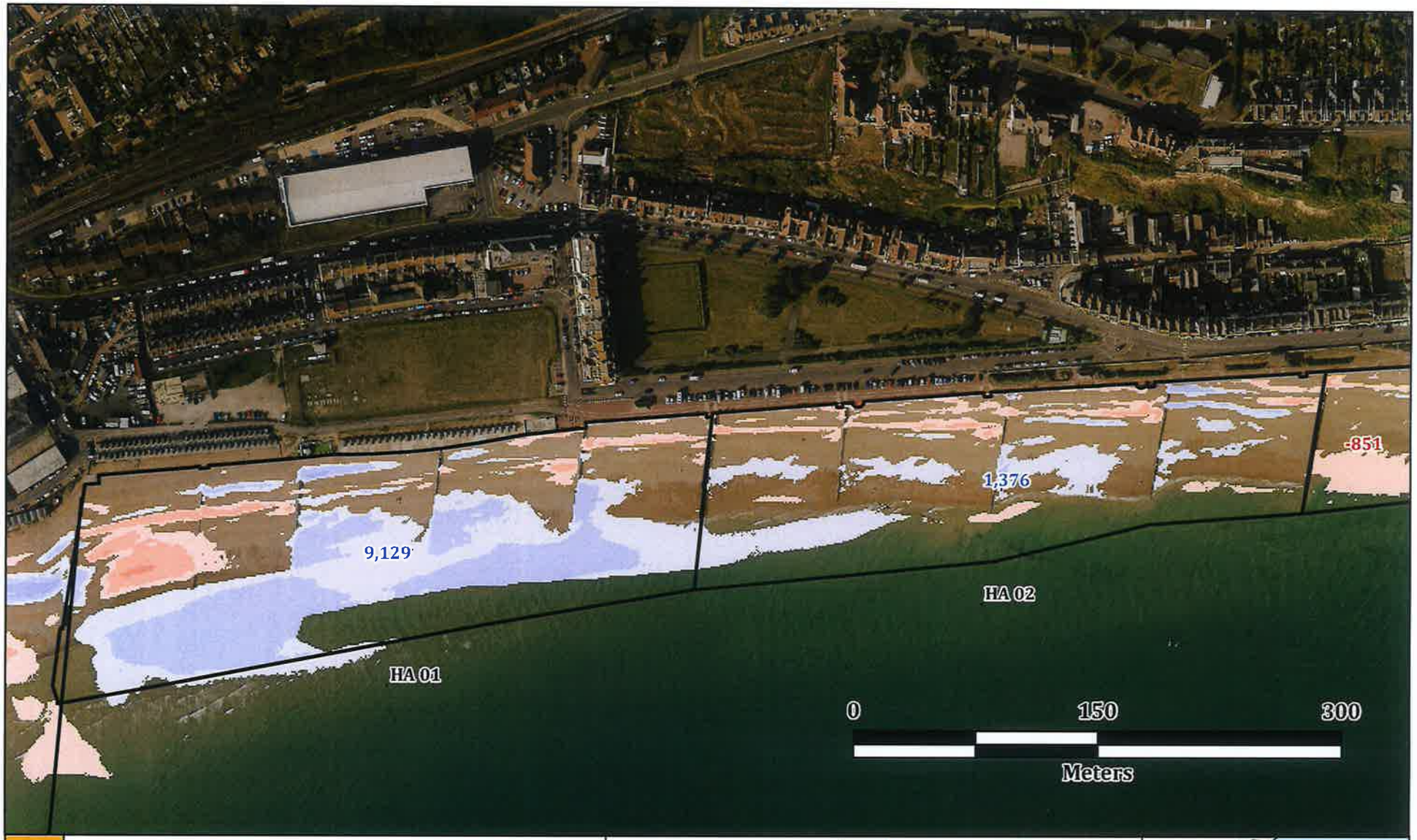
Author: CF Approved by: CF

Hastings is a shingle beach with a sand foreshore and sections of exposed chalk platform. 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.

Survey outcome:

Recycling works were carried out in June 2021, whereby 4,904m³ of material was extracted directly west of the harbour arm and deposited within the groyne bays to the east of the pier. For more information, refer to the recycling logs in Appendix C.

Survey type		Survey dates	Comments
Most recent survey: Autumn 2021			
Spring to Spring	Topographic difference model and Profile Change	09/06/2020 13/04/2021	Hastings beach has gained a total of 34,247m³ between June 2020 and April 2022. The majority of this gain is recorded along the open beach to the east of the Pier with polygons HA11, 12 and 13 accumulating 45,754m³. To counteract this gain, the majority of the western side of the Pier lost material. Fisherman's beach and Rock-a-Nore lost 2,655m³ and 948m³ respectively. Beach recycling exported 4,900 from HA13 to HA11 in June 2021.
Baseline to Spring		30/09/2004 13/04/2021	Since monitoring started in 2004 Hastings has gained 222,642m³. The majority of this can be attributed to sediment transported from Pevensey Bay. With the exception of one polygon between western boundary and the large rock groyne to the west of Fisherman's beach, the entire frontage gained material. The Fisherman's beach and Rock-a-Nore both lost 4,499m³ and 5,584m³ respectively.
Spring to Autumn	Profile Change Summary	13/04/2021 11/10/2021	In the short term, April to October, the beach levels appear stable. Profile 4c01389, directly west of the Pier lost 23m² (12%) which was the largest recorded loss of the frontage. Profile 4c01376, east of the Pier, recorded the largest gain of 29m² (10%), with Profile 4c01353 gaining 25m² (4%).



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South East Regional Coastal Monitoring Programme
Difference Model 2021 - 2021

Change in Elevation (m)

Volume change (m3) area boundary

< -1.5	0.25 to 0.5
-1.0 to -1.5	0.5 to 1.0
-0.5 to -1.0	1.0 to 1.5
-0.25 to -0.5	> 1.5
0.25 to -0.25	

4cSU20 2 of 7

South East Regional Coastal Monitoring Programme
Difference Model 2021 - 2021

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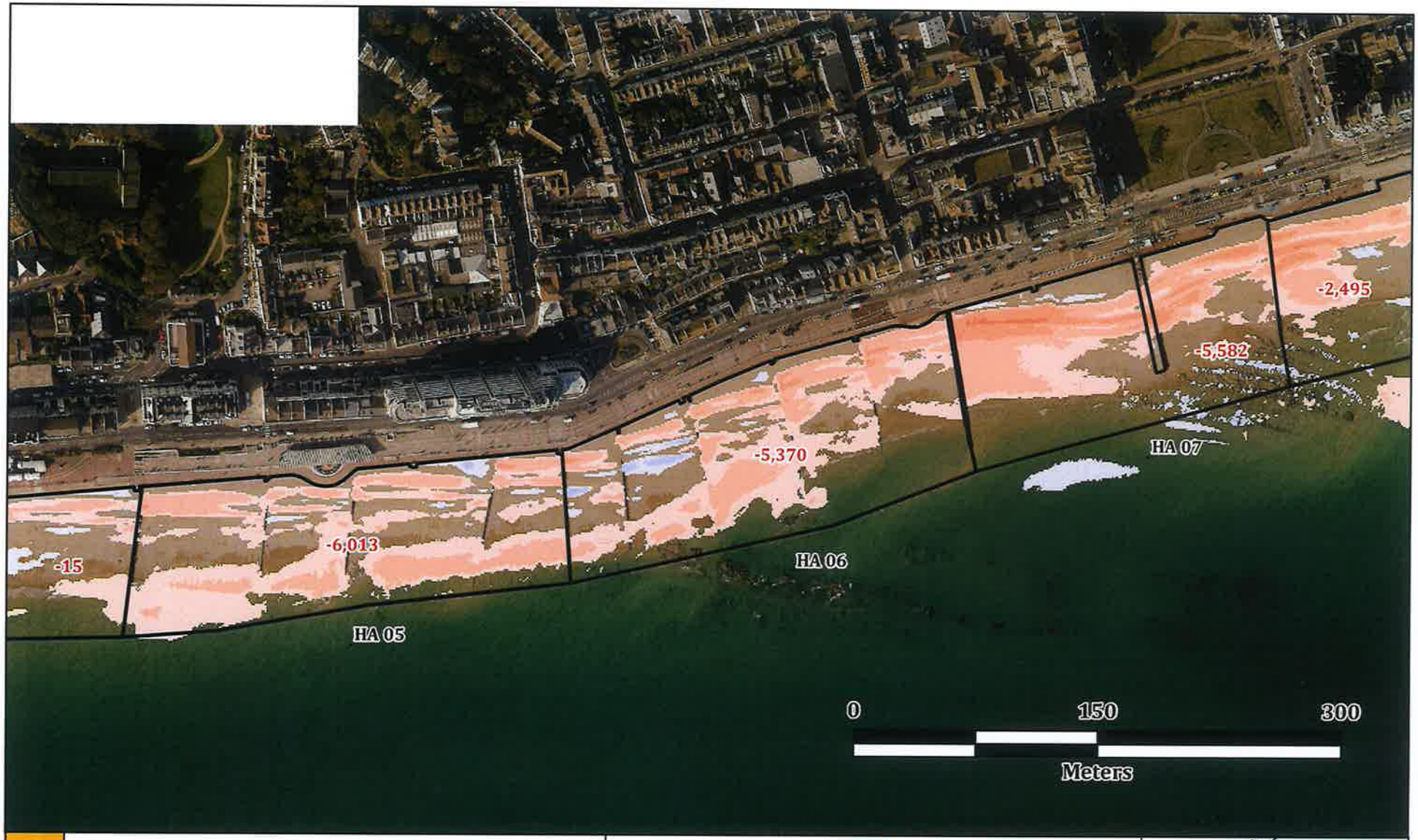
-0.5 to -1.0	1.0 to 1.5
-0.25 to -0.5	> 1.5
0.25 to -0.25	



4cSU20 3 of 7

South East Regional Coastal Monitoring Programme
Difference Model 2021 - 2021

Change in Elevation (m)

Volume change (m3) area boundary

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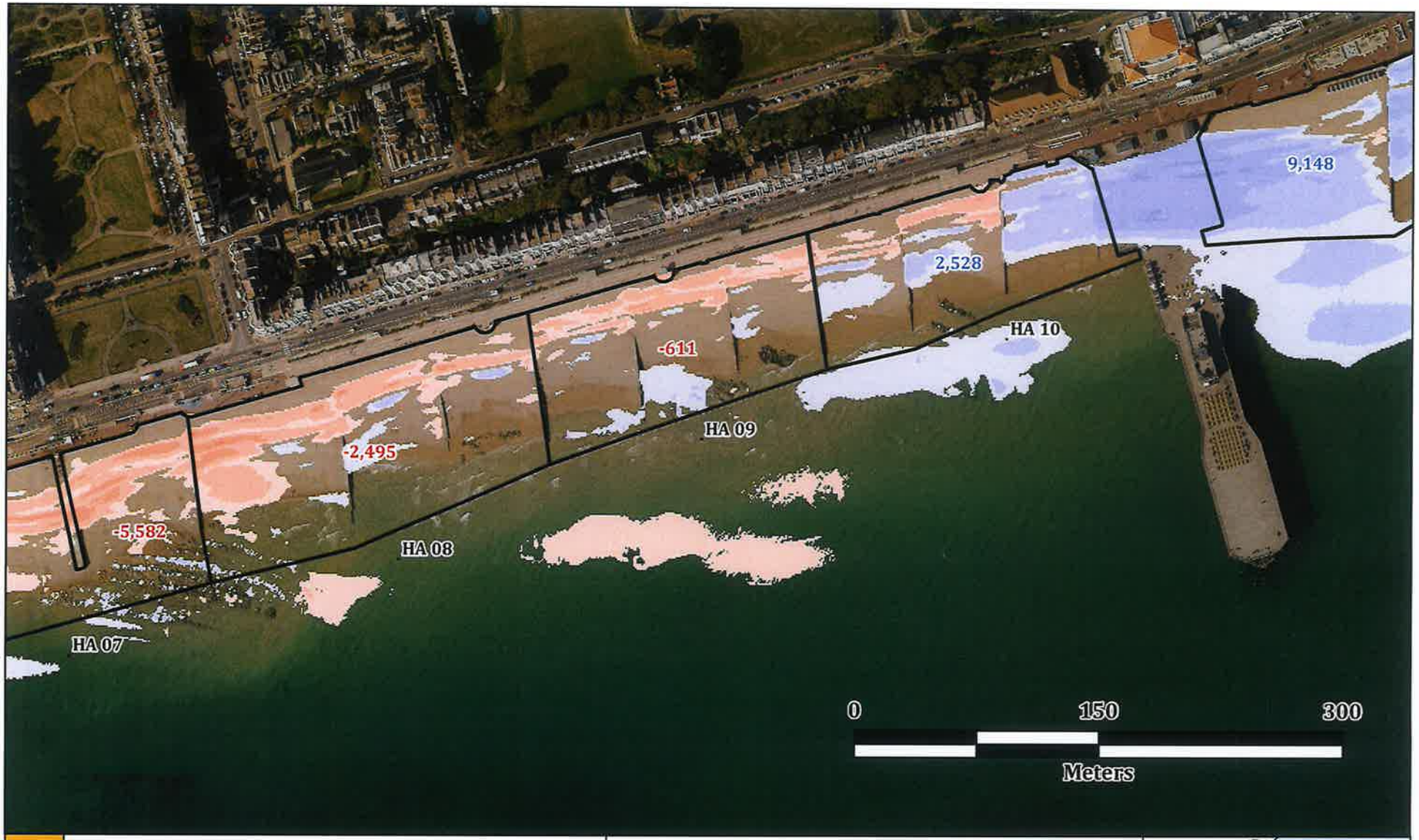
-0.25 to -0.5	> 1.5
0.25 to -0.25	



4cSU20 4 of 7

South East Regional Coastal Monitoring Programme
Difference Model 2021 - 2021

Change in Elevation (m)

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-0.25 to -0.5	> 1.5
0.25 to -0.25	

4cSU20 5 of 7

South East Regional Coastal Monitoring Programme
Difference Model 2021 - 2021

Change in Elevation (m)

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-0.25 to -0.5	> 1.5
0.25 to -0.25	

4cSU20 6 of 7

South East Regional Coastal Monitoring Programme
Difference Model 2021 - 2021

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-0.25 to -0.5	> 1.5
0.25 to -0.25	

4cSU20 7 of 7

South East Regional Coastal Monitoring Programme
Difference Model 2021 - 2021

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Volume change (m3) area boundary

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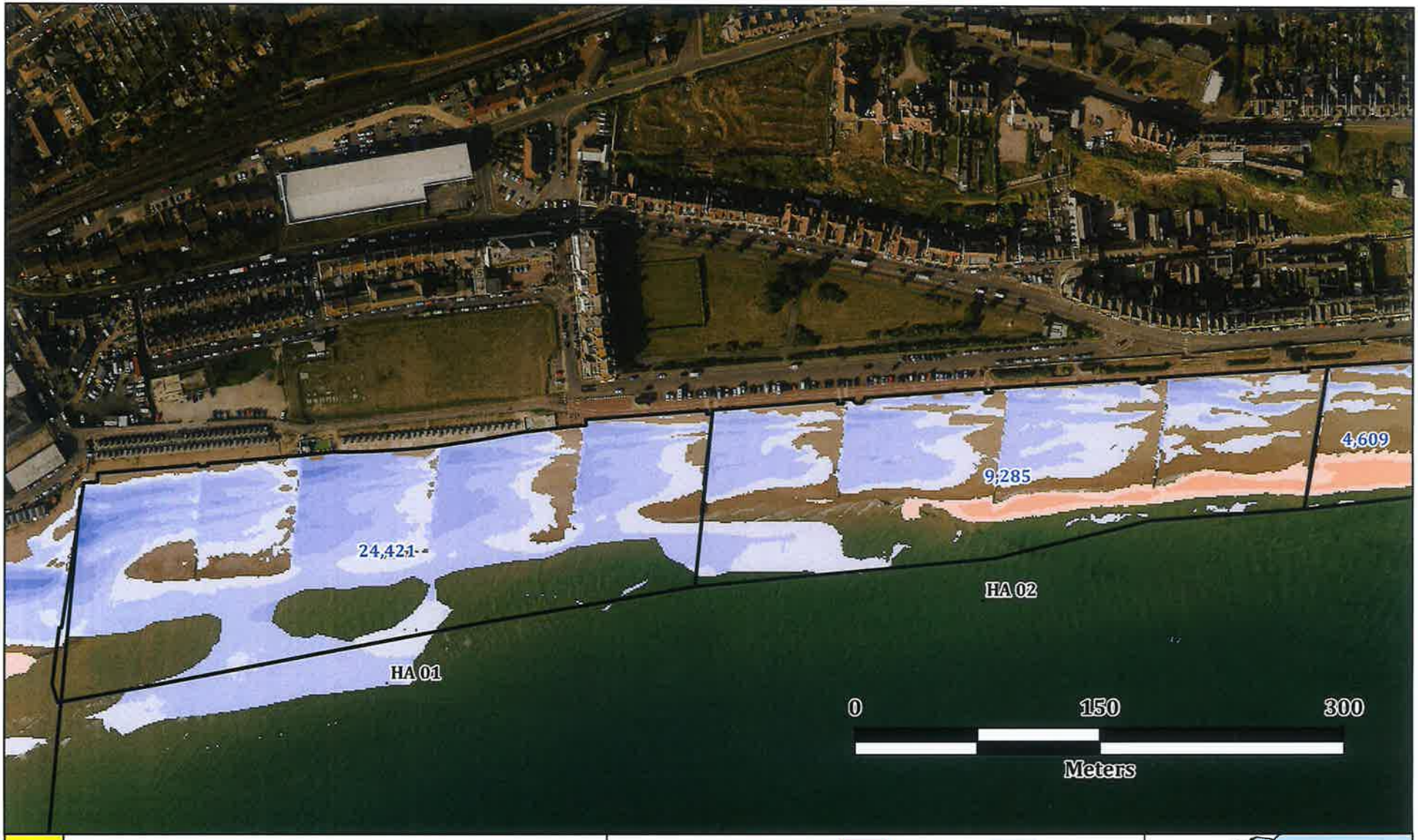
-0.5 to -1.0	1.0 to 1.5
-0.25 to -0.5	> 1.5
0.25 to -0.25	



4cSU20 1 of 7

South East Regional Coastal Monitoring Programme
Difference Model 2004 - 2021

Change in Elevation (m)

Volume change (m3) area boundary

< -1.5	0.25 to 0.5
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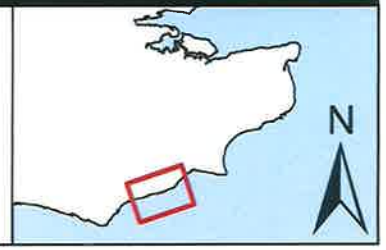
-0.5 to -1.0	1.0 to 1.5
-0.25 to -0.5	> 1.5
0.25 to -0.25	



4cSU20 2 of 7

South East Regional Coastal Monitoring Programme
Difference Model 2004 - 2021

Change in Elevation (m)

Volume change (m3) area boundary

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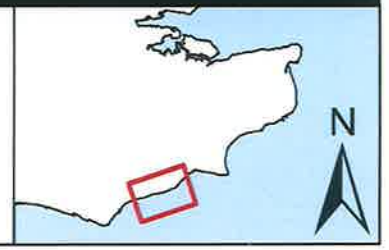
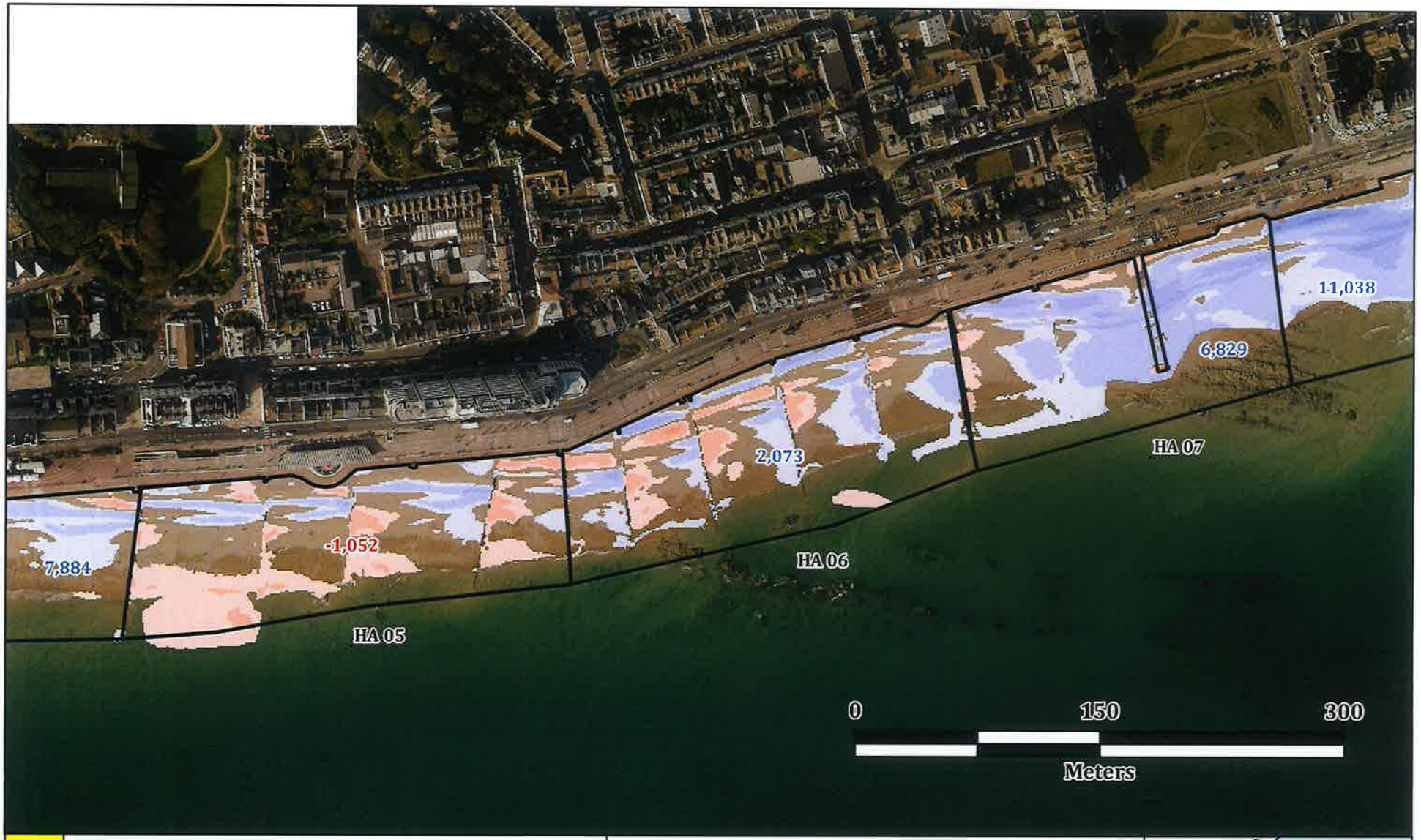
0.25 to -0.25	





4cSU20 3 of 7

South East Regional Coastal Monitoring Programme
Difference Model 2004 - 2021

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0.25 to -0.25	

4cSU20 4 of 7

South East Regional Coastal Monitoring Programme
Difference Model 2004 - 2021

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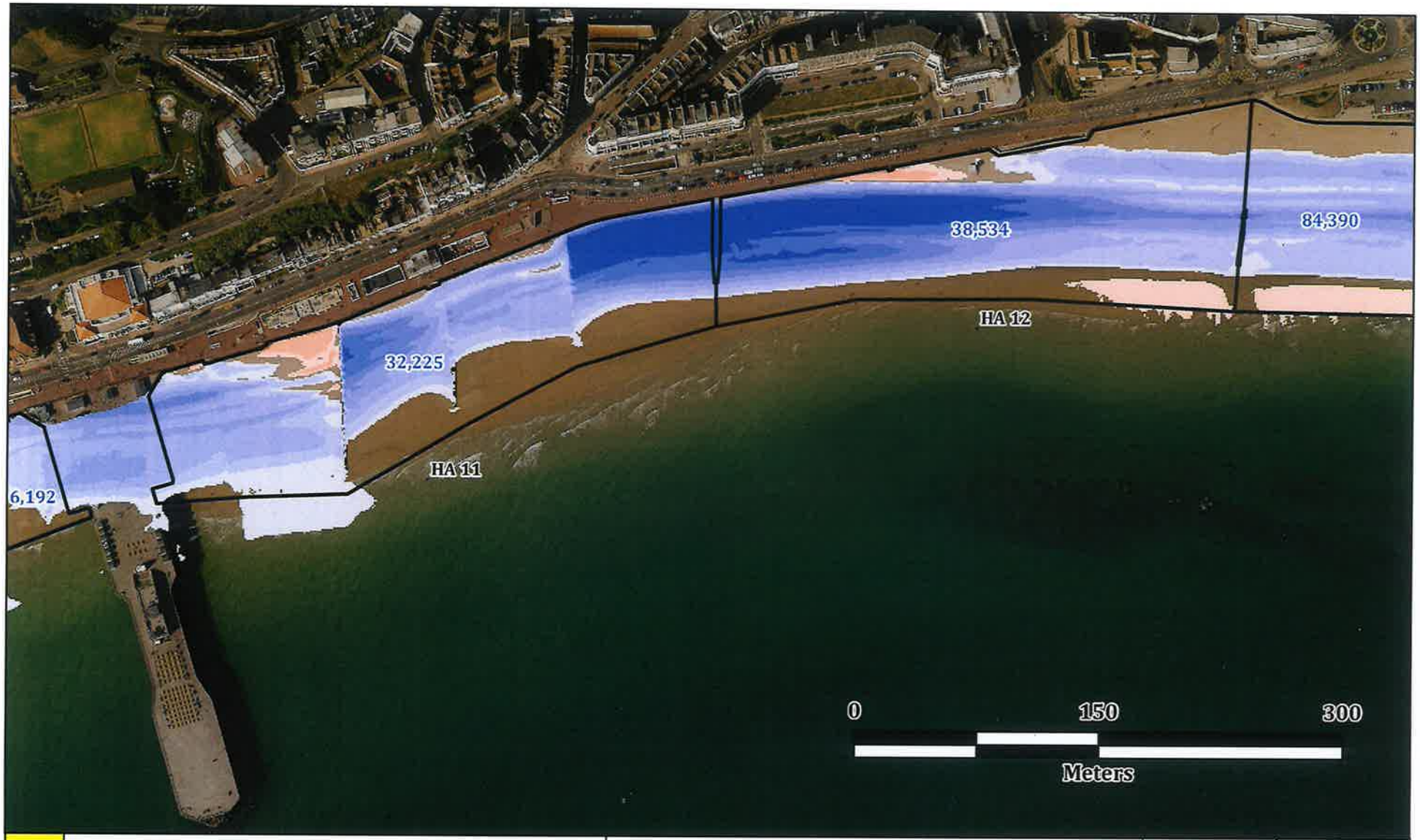
0.25 to -0.25	



4cSU20 5 of 7

South East Regional Coastal Monitoring Programme
Difference Model 2004 - 2021

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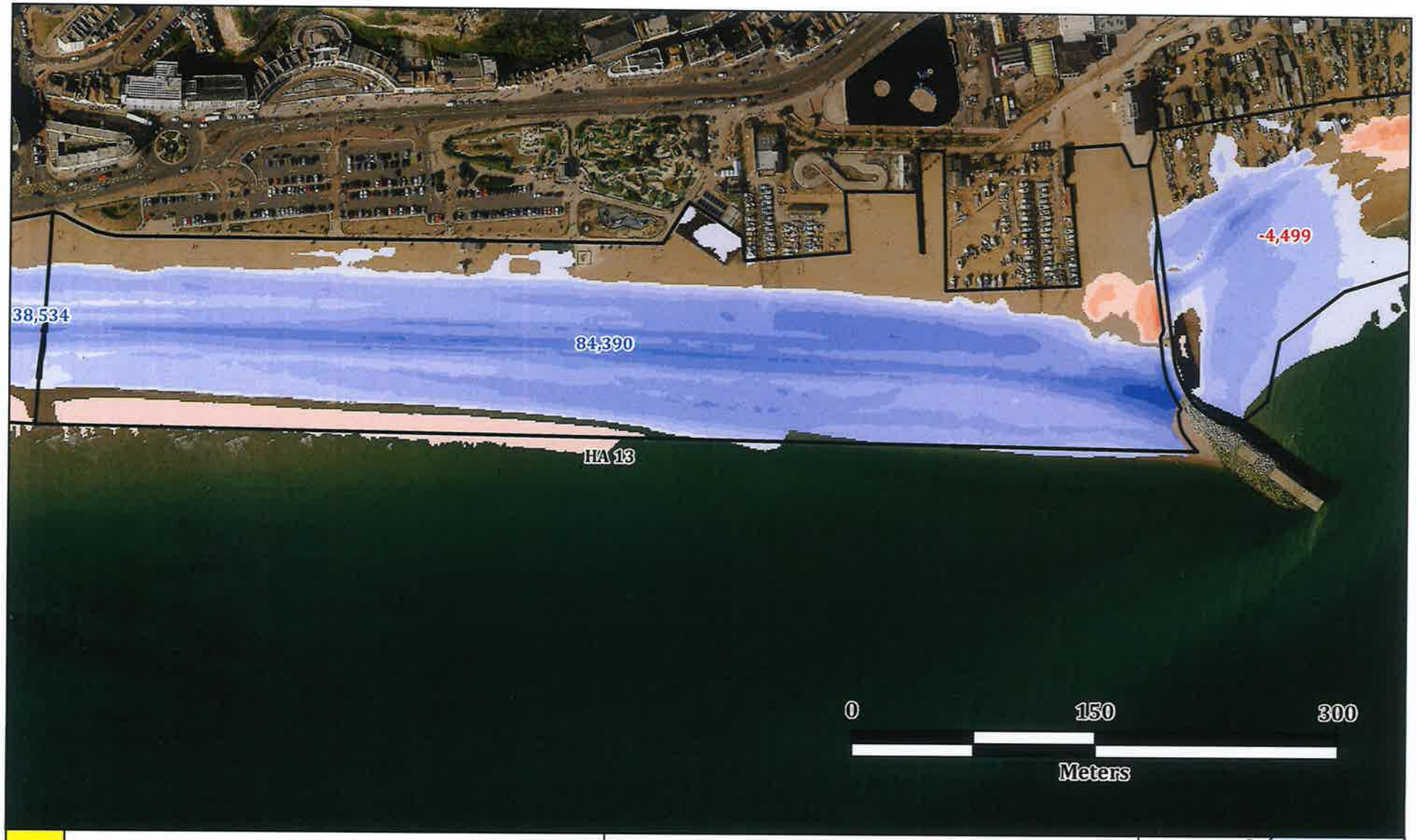
-0.5 to -1.0	1.0 to 1.5
-0.25 to -0.5	> 1.5
0.25 to -0.25	



4cSU20 6 of 7

South East Regional Coastal Monitoring Programme
Difference Model 2004 - 2021

Change in Elevation (m)

Volume change (m3) area boundary

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-0.5 to -1.0	1.0 to 1.5
-0.25 to -0.5	> 1.5
0.25 to -0.25	

4cSU20 7 of 7

South East Regional Coastal Monitoring Programme
Difference Model 2004 - 2021

Change in Elevation (m)

Volume change (m3) area boundary

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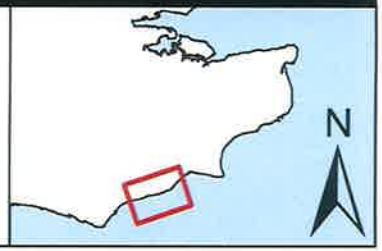
-0.5 to -1.0	1.0 to 1.5
-0.25 to -0.5	> 1.5
0.25 to -0.25	



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South East Regional Coastal Monitoring Programme

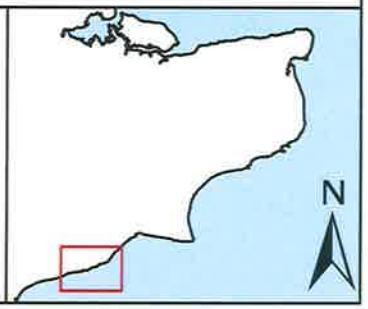
Profile Change Summary for Spring 2021 to Autumn 2021

Annual Change in Cross- Sectional Area (m^2)

ACCRETION
- >30%
- 15-30%
- 5-15%

EROSION
- 5-15%
- 15-30%
- >30%

Less than 5% (no change)



4cSU20 2 of 3
South East Regional Coastal Monitoring Programme
Profile Change Summary for Spring 2021 to Autumn 2021
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Additional overlaid information is copyright of Canterbury City Council 2021
Annual Change in Cross- Sectional Area (m²)
ACCRETION
>30%
15-30%
5-15%
EROSION
5-15%
15-30%
>30%
Less than 5% (no change)
N
0
150
300
Meters
4c01436_f 8% (18)
4c01431_f -6% (-15)
4c01425_f -3% (-11)
4c01420_f 4% (12)
4c01415_f 5% (17)
4c01411_f 1% (2)
4c01406_f -1% (-3)
4c01401_f -1% (-3)
4c01397_f 0% (-1)
4c01393_f 0% (-1)
4c01389_f -12% (-23)
4c01382_f 0% (1)
4c01376_f 10% (29)
4c01374_f 0% (-1)
4c01371_f 3% (13)

4cSU20 3 of 3

South East Regional Coastal Monitoring Programme

Profile Change Summary for Spring 2021 to Autumn 2021

Annual Change in Cross- Sectional Area (m^2)

ACCRETION
- >30%
- 15-30%
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EROSION
- 5-15%
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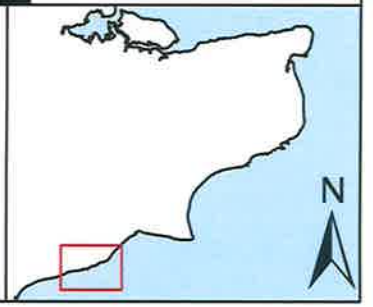
Less than 5% (no change)



Appendix A: Explanation of the Trigger Levels

CRITICAL LEVEL – This is the minimum beach level required to prevent overtopping exceeding tolerable limits in a 1:200 year storm event and/or a significant risk of structural damage or undermining. A Sub-Critical level is also defined which is the equivalent level for a standard of protection of 1:10 (approximately equal to half the CSA of the 1:200 event).

MAINTENANCE LEVEL – This level is higher than the critical level. The difference in beach cross sectional area is defined by the largest observed annual drop in beach level (since monitoring began in 2003), or where greater the largest loss during a storm event.

DESIGN LEVEL – This is higher than the maintenance level and takes into consideration the impact of the defence failing (though undermining or significant overtopping), and builds in an appropriate factor of safety. When carrying out works, where possible, the beach size should be constructed to this level.

The historic changes in cross-sectional area for each profile are summarised and plotted against the trigger levels as follows:

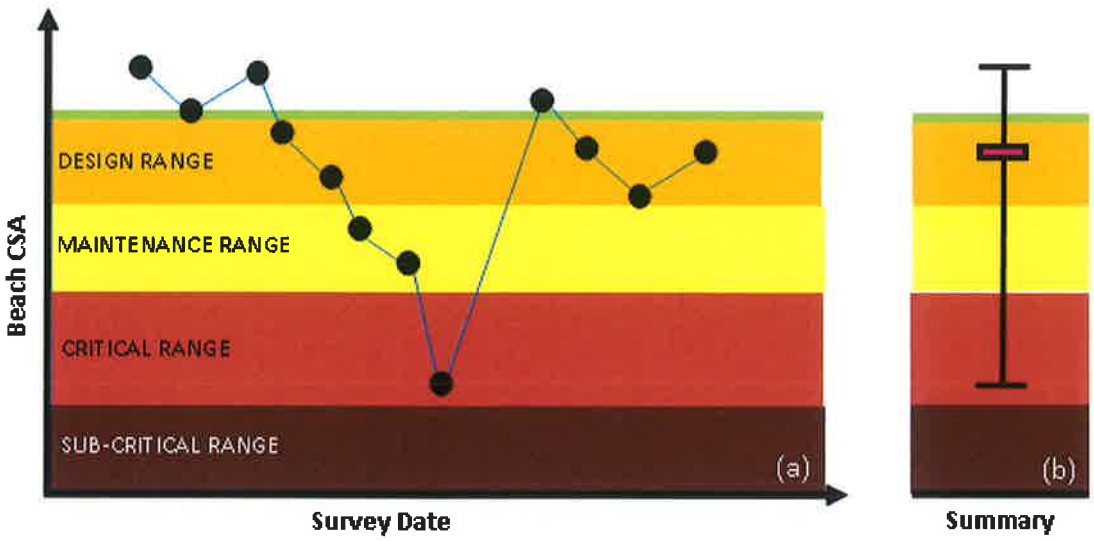


FIGURE A1: PRESENTATION OF STANDARD OF PROTECTION AND TRIGGER LEVELS

(A) HISTORIC VARIATION OF BEACH LEVELS (CSA)

(B) SUMMARY OF DATA, PINK BAR – CURRENT BEACH LEVEL, BLACK BARS – HISTORIC HIGH AND LOW

For further information on calculation of the trigger levels please see the relevant Regional Shingle Beach Management Plan.

Appendix B: Profile Change Summary

Changes along individual profiles for a range of timeframes are summarised in a series of thematic maps on the previous pages. The maps show the location of each beach profile, superimposed on aerial photography (note the lines have been extended for clarity). The name of the profile, the percentage change of beach material and the change in m^2 has been including upon the line, which is illustrated in Figure B1.

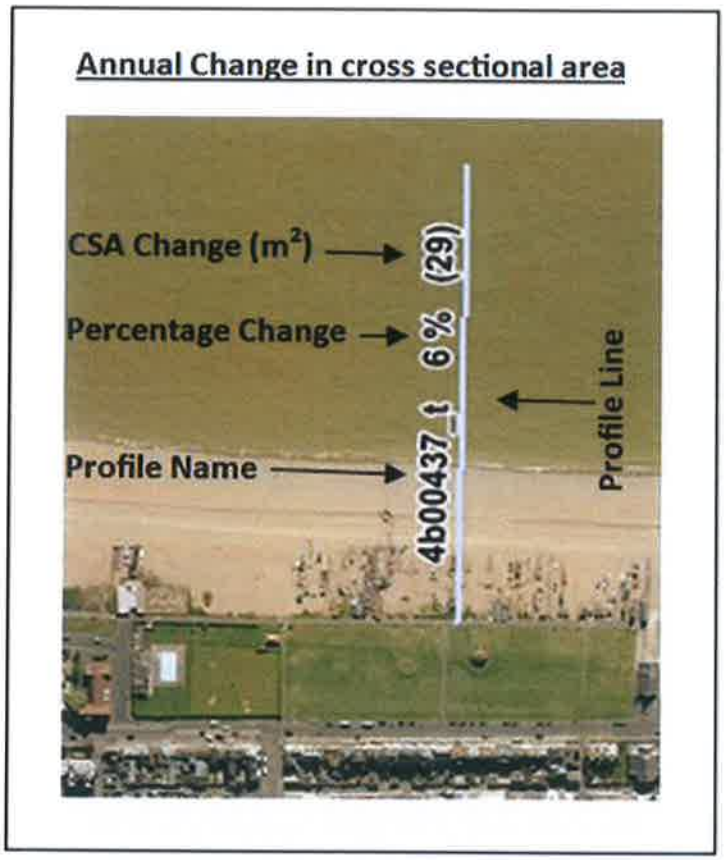


FIGURE B1: PRESENTATION OF THE PROFILE CHANGE SUMMARY

Appendix C: Recycling Logs

Maintenance Log: Hastings

☒Deposition ☐Extraction ☐Reprofiling

Date	June 2021	Logged by	A. Baker Gooderson

Description of Works/Notes
8,827 tonnes of shingle to the west of the Harbour Arm was extracted and deposited in the four groyne bays to the east of Hastings Pier.

Description of Frontage			
Before	Depleted beach levels in the groyne bays.	**After**	Beach levels replenished in the groyne bays.

Quantify extraction/deposition (Note: If volume unknown conversion used is 1.8 tonne: 1 m^3 of material)

Profile/Groyne No. Start	Profile/Groyne No. End	Quantity (m^3)	Or	Lorry Capacity (m^3)	Number of lorry loads	Material Description (click in cell for drop down)
4c01374	4c01383	4,904				Shingle
	Total:	**4,904**	m^3			

Maintenance Log: Hastings

☐Deposition ☒Extraction ☐Reprofiling

Date	June 2021	Logged by	A. Baker Gooderson

Description of Works/Notes
8,827 tonnes of shingle to the west of the Harbour Arm was extracted and deposited in the four groyne bays to the east of Hastings Pier.

Description of Frontage			
Before	Build-up of beach material on the western side of the Harbour Arm.	**After**	Beach levels reduced.

Quantify extraction/deposition (Note: If volume unknown conversion used is 1.8 tonne: 1 m^3 of material)

Profile/Groyne No. Start	Profile/Groyne No. End	Quantity (m^3)	Or	Lorry Capacity (m^3)	Number of lorry loads	Material Description (click in cell for drop down)
4c01350	4c01354	4,904				Shingle
	Total:	**4,904**		m^3		