

16 Ohawini

Description and geomorphology

Ohawini is located approximately 41 km north of Whangarei. The site includes the two embayment beaches of Ohawini (northern beach, cells 16A to 16E) and Parutahi Beach (southern beach, cells 16F to 16H). Both beaches are east to north east facing and are relatively sheltered being situated within the Whangaruru Harbour.

Parutahi Beach is approximately 400 m long and is located at the northern end of Ohawini Road. The beach comprises fine to medium sand and is situated between two Greywacke headlands and associated rock reefs. The backshore is relatively low lying with elevations of RL 2 to 4 m. A small stream enters the shoreline at the middle of the site.

Ohawini is located immediately north of Parutahi Beach and access is limited to the foreshore via an intertidal section of road constructed over the rock reef. The beach is approximately 850 m long and comprises fine to medium sand. A Greywacke cliff is located near the southern end of the beach and the majority of the shoreline south of the cliff is protected by a grouted rock seawall.

The Ohawini Stream enters the site immediately north of the cliff and meanders some 100 m north along the shoreline before cutting through the beach slope. The beach north of Ohawini Stream has a berm width of approximately 5 m. The backshore is relatively low in this area with elevations of RL 2 to 5 m. No native dune vegetation exists in this area.

Local considerations

There are a wide range of erosion protection structures located on the site. Approximately 300 m of shoreline is currently protected by seawalls or revetments including concrete block and grouted rock seawalls and rock revetments.

Vehicle access is provided by Ohawini Road which is located at the southern end of Parutahi Beach.



Site Photograph A (Parutahi Beach)



Site Photograph B (southern end of Ohawini)



Site Photograph C (northern end of Ohawini)

Coastal Erosion Hazard Assessment

The site is split into eight cells based on differences in geomorphology, dune height and shoreline movement trends.

Adopted component values are presented within Table 16-1. Short term erosion values range

from 5 to 10 m as the bay is relatively sheltered from large NE to SE events. Long-term trends are variable on the beaches (-0.1 to +0.15 m/year) and the greywacke cliffs exhibit typical low erosion rates (-0.02 to -0.05 m/year).

Histograms of individual components and resultant CEHZ distances using a Monte Carlo technique are shown in Figure 16-1 to Figure 16-8.

Coastal Erosion Hazard Zone widths are presented within Table 16-2 to 16-4 and Figure 16-9. CEHZ1 values range from 10 to 20 m for the cliffs and 18 to 20 m for beaches. CEHZ2 values range from 16 to 28 m for cliffs and 56 to 60 m for beaches. CEHZ3 values range from 17 to 28 m for cliffs and 74 to 79 m for beaches. CEHZ's have been mapped in agreement with the calculated values.

Figure 16-10 shows the available historic shorelines for Ohawini

Table 16-1 Component values for Erosion Hazard Assessment

Site		16. Ohawini							
Cell		16A	16B	16C	16D	16E ²	16F	16G	16H
Cell centre (NZTM)	E	1721722	1721689	1721678	1721697	1721747	1721948	1722042	1722170
	N	6084871	6084739	6084526	6084389	6084268	6084188	6084076	6083999
Chainage, m (from N/W)		0-50	50-280	280-500	500-580	580-900	900-970	970-1200	1200-1290
Morphology		Dune	Dune	Dune	Greywacke	Dune	Greywacke	Dune	Greywacke
Short-term (m)	Min	5	5	5	0	5	0	4	0
	Mode	8	8	8	0	8	0	6	0
	Max	10	10	10	0	10	0	8	0
Dune/Cliff elevation (m above toe or scarp)	Min	2.1	2.4	1.9	6.2	1.2	2.6	1.4	2.0
	Mode	2.5	3.1	2.6	7.6	3.1	4.0	3.0	3.7
	Max	2.9	3.4	3.7	9.2	4.9	5.8	4.8	4.7
Stable angle (deg)	Min	30	30	30	18.4	30	18.4	30	18.4
	Mode	32	32	32	22.5	32	22.5	32	22.5
	Max	34	34	34	26.6	34	26.6	34	26.6
Long-term (m) -ve erosion +ve accretion	Min	0.15	0.15	0.15	-0.02	0.15	-0.02	0.1	-0.02
	Mode	0.05	0.05	0.05	-0.03	0	-0.03	0	-0.03
	Max	-0.05	-0.05	-0.05	-0.05	-0.05	-0.05	-0.1	-0.05
Closure slope (beaches)	Min	0.046	0.046	0.046	0.5	0.046	0.5	0.046	0.5
	Mode	0.022	0.022	0.022	0.25	0.022	0.25	0.022	0.25
	Max	0.013	0.013	0.013	0	0.013	0	0.013	0
SLR 2080 (m)	RCP 2.6	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
	RCP 4.5	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
	RCP 8.5M	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
	RCP 8.5H+	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
SLR 2130 (m)	RCP 2.6	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
	RCP 4.5	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
	RCP 8.5M	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
	RCP 8.5H+	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17

²CEHZO included behind coastal protection structure.

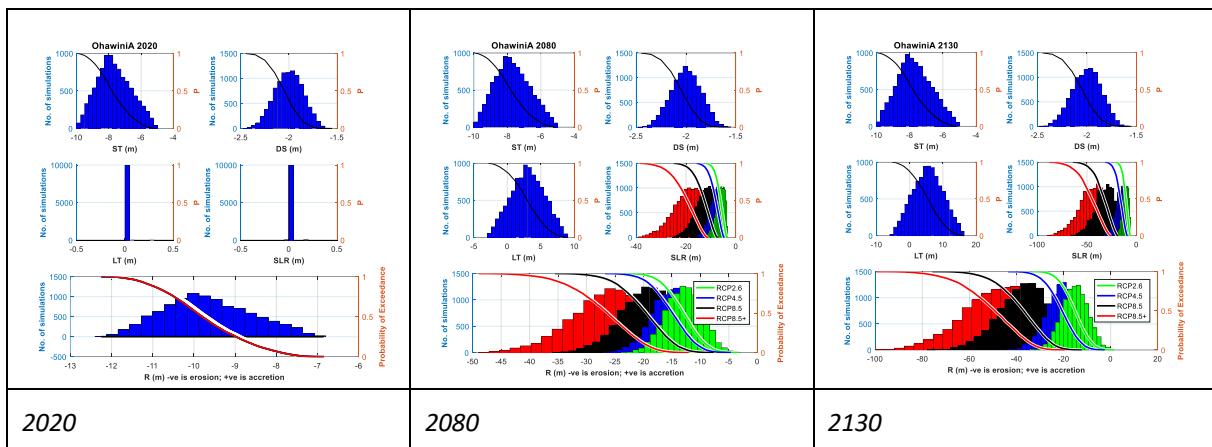


Figure 16-1 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 16A

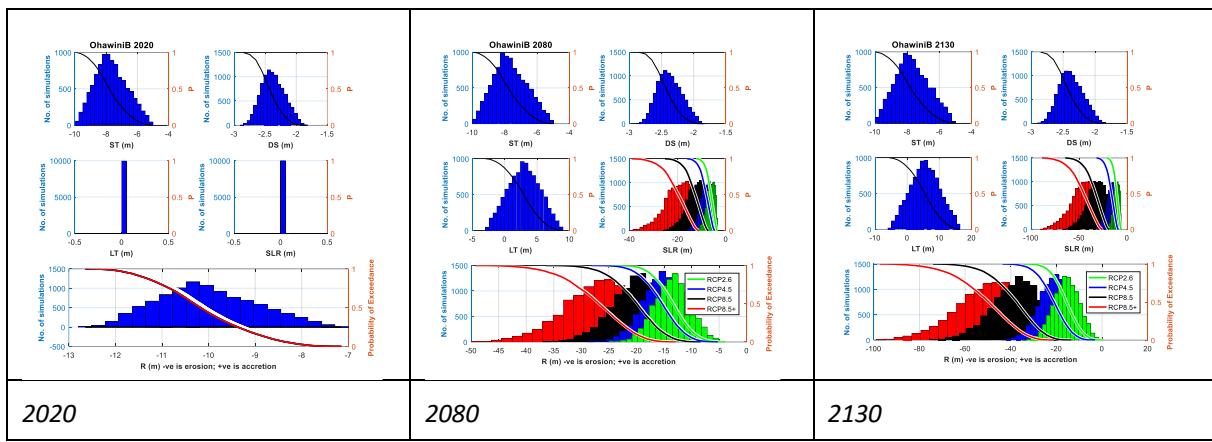


Figure 16-2 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 16B

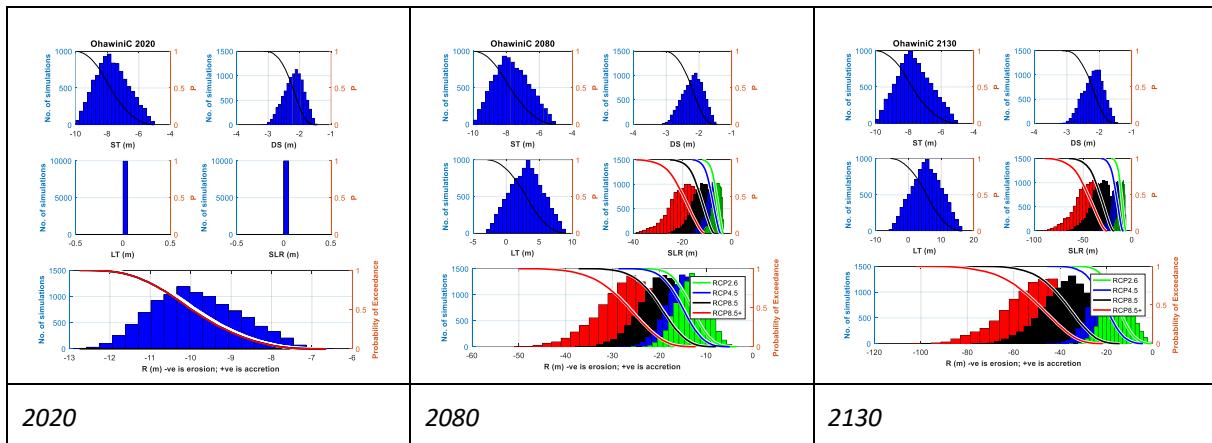


Figure 16-3 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 16C

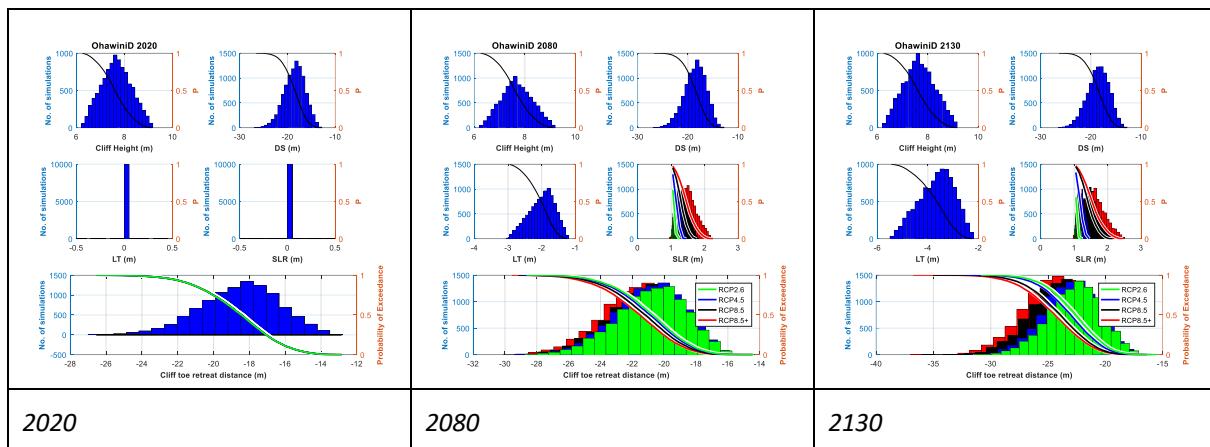


Figure 16-4 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 16D

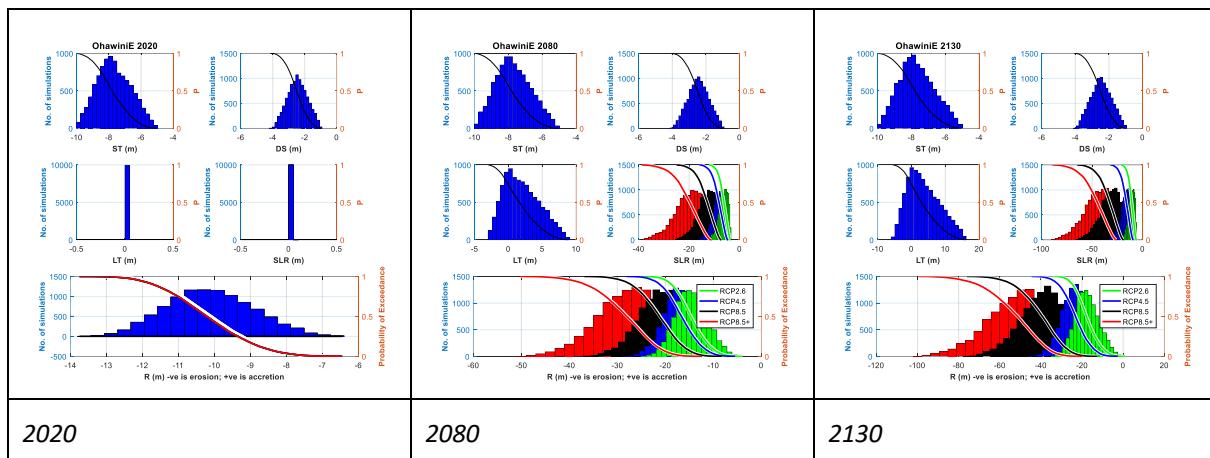


Figure 16-5 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 16E

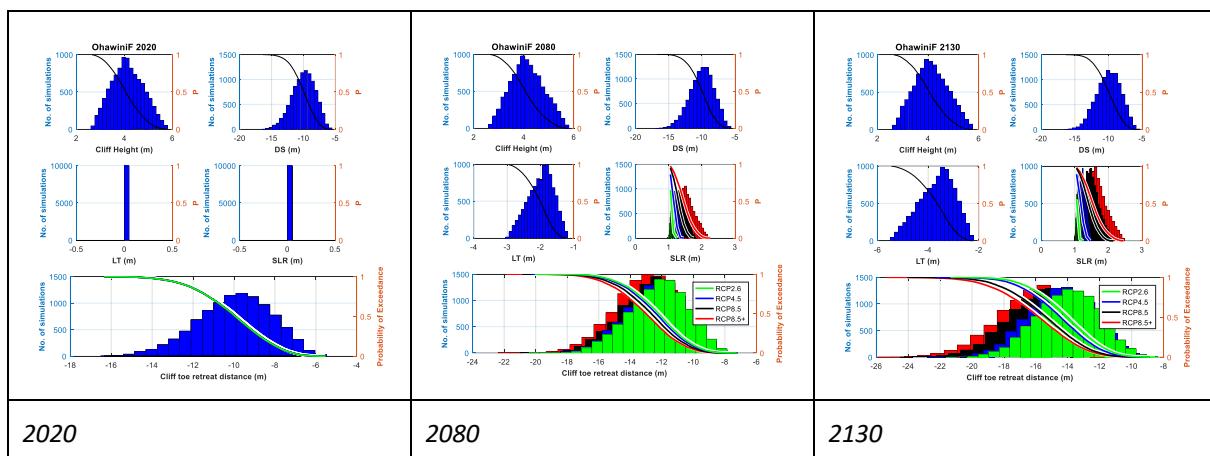


Figure 16-6 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 16F

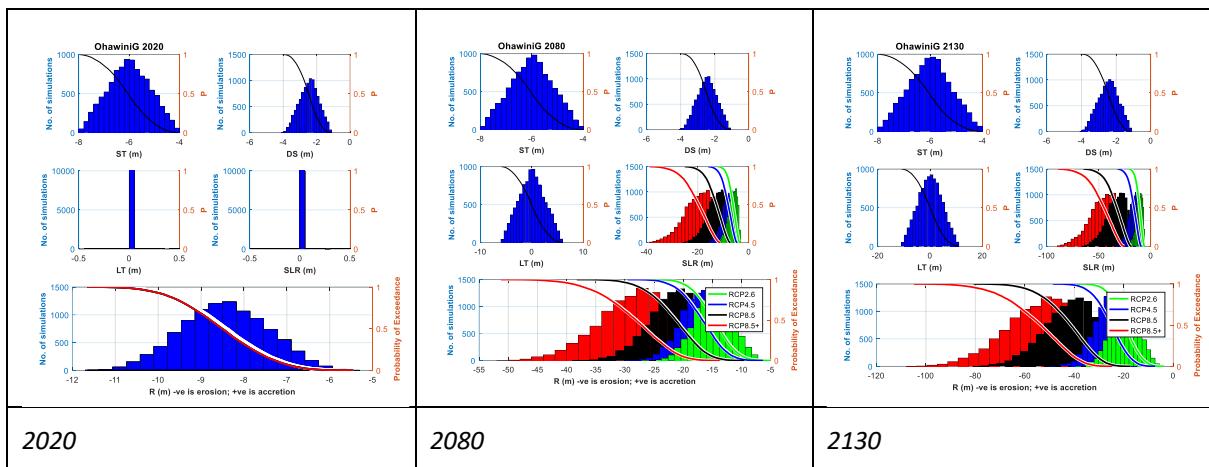


Figure 16-7 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 16G

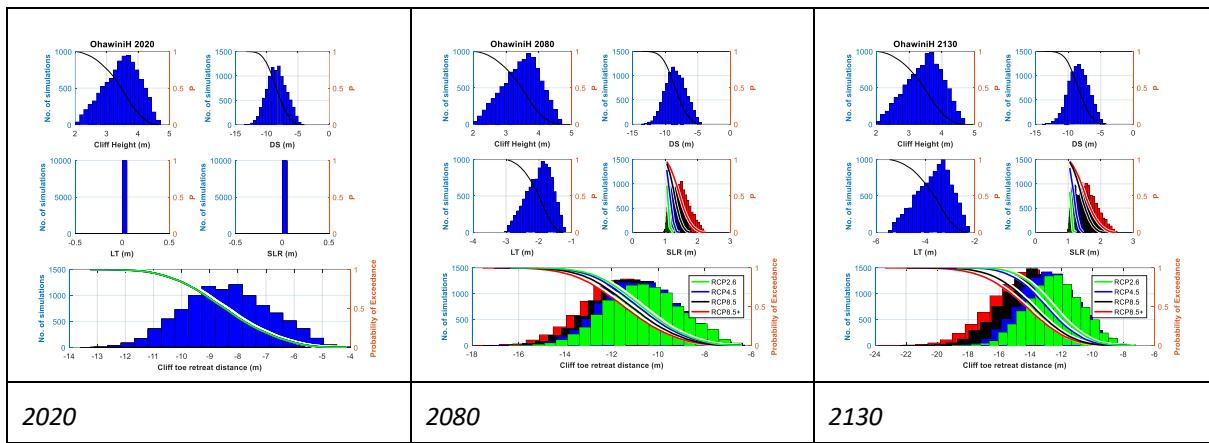


Figure 16-8 Histograms of parameter samples and the resultant shoreline distances for 2020, 2080 and 2130 timeframes for cell 16H

Table 16-2 Coastal Erosion Hazard Zone Widths for 2020

Site		16. Ohawini							
Probability of CEHZ (m) Exceedance		A	B	C	D	E	F	G	H
	Min	-7	-7	-7	-13	-6	-6	-5	-4
	99%	-7	-8	-7	-14	-7	-6	-6	-5
	95%	-8	-8	-8	-15	-8	-7	-7	-6
	90%	-8	-9	-8	-16	-9	-8	-7	-6
	80%	-9	-9	-9	-17	-9	-8	-8	-7
	70%	-9	-10	-9	-17	-10	-9	-8	-8
	66%	-9	-10	-9	-18	-10	-9	-8	-8
	60%	-9	-10	-10	-18	-10	-9	-8	-8
	50%	-10	-10	-10	-18	-10	-10	-8	-8
	40%	-10	-10	-10	-19	-10	-10	-9	-9
	33%	-10	-11	-10	-19	-11	-11	-9	-9
	30%	-10	-11	-10	-20	-11	-11	-9	-9
	20%	-11	-11	-11	-20	-11	-12	-9	-10
	10%	-11	-11	-11	-21	-12	-12	-10	-10
5%	-11	-12	-12	-22	-12	-13	-10	-11	-11
1%	-12	-12	-12	-24	-13	-14	-11	-12	-12
Max	-12	-13	-13	-26	-13	-17	-12	-12	-14

Table 16-3 Coastal Erosion Hazard Zone Widths Projected for 2080

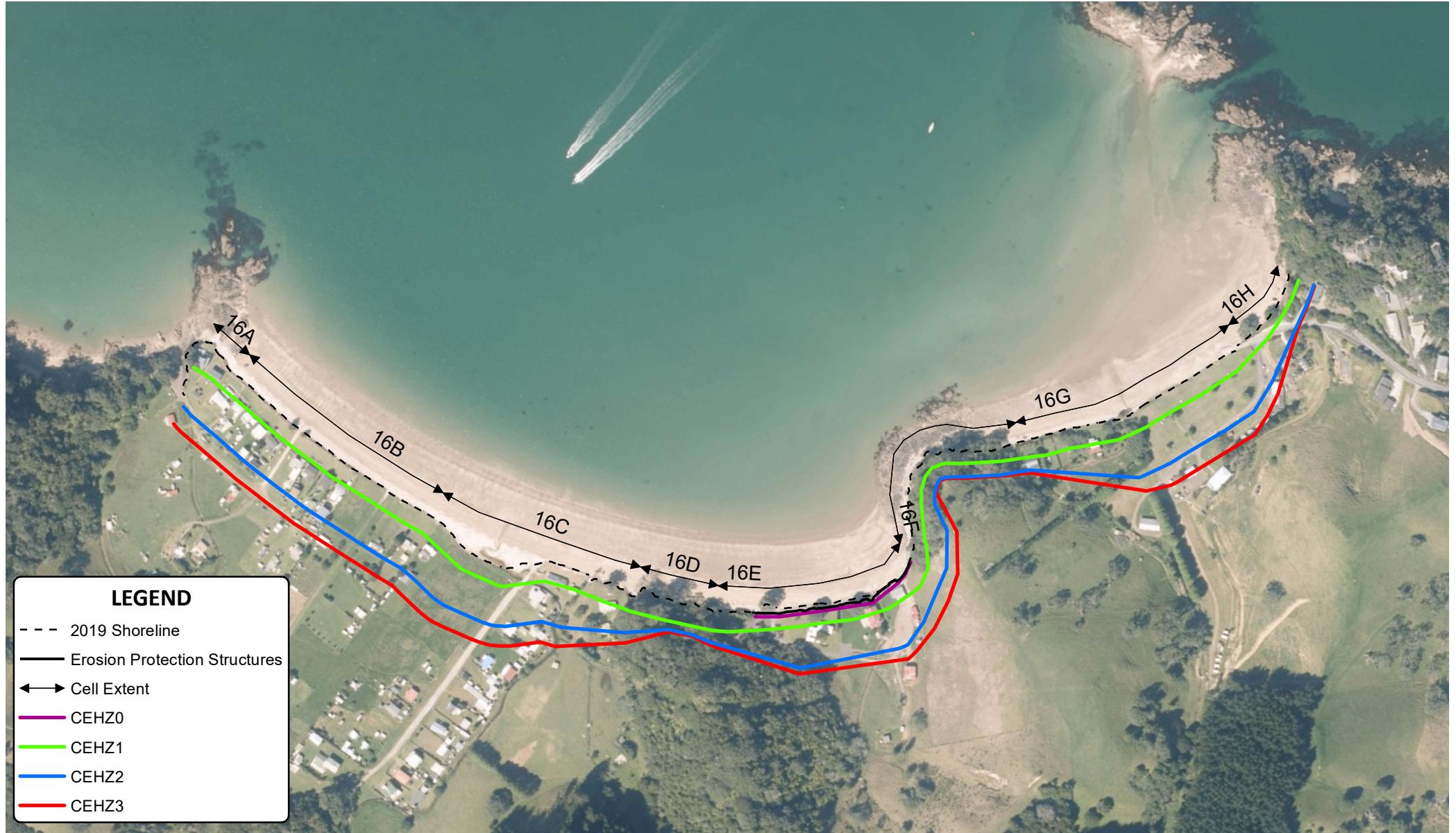
Site		16. Ohawini															
Cell		16A				16B				16C				16D			
RCP scenario	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	
Probability of CEHZ (m) Exceedance	Min	-3	-5	-8	-12	-4	-5	-8	-13	-4	-5	-8	-12	-14	-14	-14	-14
	99%	-6	-7	-11	-16	-6	-8	-11	-16	-6	-8	-11	-16	-16	-16	-17	-17
	95%	-8	-9	-13	-18	-8	-10	-13	-18	-8	-10	-13	-18	-17	-18	-18	-18
	90%	-9	-11	-14	-20	-9	-11	-15	-20	-9	-11	-14	-20	-18	-18	-18	-19
	80%	-10	-12	-16	-22	-11	-12	-16	-22	-10	-12	-16	-22	-19	-19	-19	-20
	70%	-11	-13	-17	-23	-12	-13	-18	-24	-11	-13	-17	-23	-20	-20	-20	-20
	66%	-12	-13	-18	-24	-12	-14	-18	-24	-12	-14	-18	-24	-20	-20	-20	-21
	60%	-12	-14	-18	-25	-13	-14	-19	-25	-12	-14	-19	-25	-20	-20	-21	-21
	50%	-13	-15	-19	-26	-13	-15	-20	-27	-13	-15	-20	-26	-21	-21	-21	-21
	40%	-14	-16	-21	-28	-14	-16	-21	-28	-14	-16	-21	-28	-21	-21	-22	-22
	33%	-14	-17	-22	-29	-15	-17	-22	-30	-15	-17	-22	-29	-22	-22	-22	-23
	30%	-15	-17	-22	-30	-15	-17	-22	-30	-15	-17	-22	-30	-22	-22	-22	-23
	20%	-16	-18	-23	-32	-16	-18	-24	-32	-16	-18	-24	-32	-23	-23	-23	-23
	10%	-17	-19	-25	-35	-18	-20	-26	-35	-17	-20	-26	-35	-24	-24	-24	-25
	5%	-18	-21	-27	-38	-19	-21	-28	-38	-18	-21	-28	-38	-25	-25	-25	-26
	1%	-20	-23	-31	-43	-21	-24	-31	-43	-20	-24	-31	-43	-26	-26	-27	-27
	Max	-23	-27	-36	-49	-25	-28	-36	-49	-25	-29	-37	-50	-29	-29	-29	-30
CEHZ1		-18				-18				-18				-20			

Site		16. Ohawini															
Cell		16E				16F				16G				16H			
RCP scenario	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	
Probability of CEHZ (m) Exceedance	Min	-4	-5	-8	-12	-7	-7	-7	-7	-5	-6	-10	-14	-6	-6	-6	-7
	99%	-7	-8	-12	-17	-9	-9	-9	-9	-8	-10	-13	-18	-7	-7	-8	-8
	95%	-9	-11	-14	-19	-9	-10	-10	-10	-10	-11	-15	-20	-8	-8	-8	-9
	90%	-10	-12	-16	-21	-10	-10	-10	-11	-11	-12	-16	-21	-8	-9	-9	-9
	80%	-12	-13	-18	-23	-11	-11	-11	-11	-12	-14	-18	-23	-9	-9	-10	-10
	70%	-13	-15	-19	-25	-11	-11	-12	-12	-13	-15	-19	-25	-10	-10	-10	-10
	66%	-13	-15	-19	-25	-11	-12	-12	-12	-13	-15	-19	-26	-10	-10	-10	-11
	60%	-14	-16	-20	-26	-12	-12	-12	-12	-14	-16	-20	-27	-10	-10	-11	-11
	50%	-15	-17	-21	-28	-12	-12	-13	-13	-15	-17	-21	-28	-11	-11	-11	-11
	40%	-16	-18	-22	-30	-13	-13	-13	-13	-16	-18	-22	-30	-11	-11	-12	-12
	33%	-16	-18	-23	-31	-13	-13	-14	-14	-16	-18	-23	-31	-11	-12	-12	-12
	30%	-16	-18	-24	-31	-13	-13	-14	-14	-16	-19	-24	-31	-12	-12	-12	-12
	20%	-17	-20	-25	-34	-14	-14	-14	-15	-17	-20	-25	-34	-12	-12	-13	-13
	10%	-19	-21	-27	-37	-15	-15	-15	-16	-19	-21	-27	-37	-13	-13	-13	-14
	5%	-20	-22	-29	-39	-16	-16	-16	-16	-20	-23	-29	-39	-13	-13	-14	-14
	1%	-22	-25	-32	-44	-17	-17	-17	-18	-22	-25	-32	-44	-14	-14	-15	-15
	Max	-25	-28	-37	-50	-20	-20	-21	-22	-26	-30	-38	-51	-16	-17	-17	-18
CEHZ1		-19				-12				-19				-10			

Table 16-4 Coastal Erosion Hazard Zone Widths Projected for 2130

Site		16. Ohawini															
Cell		16A				16B				16C				16D			
RCP scenario	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	
Probability of CEHZ (m) Exceedance	Min	1	-3	-12	-19	0	-3	-13	-21	-1	-4	-14	-22	-16	-16	-16	-16
	99%	-4	-7	-18	-27	-4	-8	-19	-27	-4	-8	-19	-27	-18	-18	-19	-19
	95%	-7	-11	-23	-32	-7	-11	-23	-32	-6	-11	-23	-32	-19	-19	-20	-20
	90%	-8	-13	-26	-35	-9	-13	-26	-35	-8	-13	-26	-35	-20	-20	-21	-21
	80%	-11	-15	-29	-39	-11	-16	-29	-39	-11	-16	-29	-39	-21	-21	-22	-22
	70%	-12	-17	-32	-42	-13	-18	-32	-43	-12	-17	-32	-43	-21	-22	-23	-23
	66%	-13	-18	-33	-44	-13	-18	-33	-44	-13	-18	-33	-44	-22	-22	-23	-23
	60%	-14	-19	-34	-46	-14	-19	-35	-46	-14	-19	-35	-46	-22	-22	-23	-24
	50%	-15	-21	-37	-49	-16	-21	-37	-50	-15	-21	-37	-49	-23	-23	-24	-24
	40%	-17	-22	-40	-53	-17	-23	-40	-53	-17	-22	-40	-53	-23	-24	-25	-25
	33%	-18	-23	-42	-56	-18	-24	-42	-56	-18	-24	-42	-56	-24	-24	-25	-26
	30%	-18	-24	-43	-57	-19	-24	-43	-57	-18	-24	-43	-57	-24	-24	-25	-26
	20%	-20	-26	-46	-62	-20	-27	-47	-62	-20	-26	-46	-62	-25	-25	-26	-27
	10%	-23	-29	-51	-68	-23	-30	-52	-69	-23	-29	-51	-68	-26	-26	-27	-28
	5%	-24	-32	-56	-74	-25	-32	-57	-75	-25	-32	-56	-75	-27	-27	-28	-29
	1%	-28	-36	-64	-85	-28	-37	-65	-86	-28	-36	-64	-85	-28	-29	-30	-31
	Max	-34	-44	-76	-100	-35	-44	-74	-97	-35	-46	-78	-102	-31	-32	-35	-37
CEHZ2	-56				-57				-56				-28				
CEHZ3	-74				-75				-75				-29				

Site		16. Ohawini															
Cell		16E				16F				16G				16H			
RCP scenario	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	
Probability of CEHZ (m) Exceedance	Min	1	-3	-12	-20	-9	-9	-9	-9	-4	-7	-17	-25	-7	-8	-8	-8
	99%	-4	-8	-20	-28	-10	-10	-11	-11	-8	-12	-23	-32	-9	-9	-9	-10
	95%	-8	-12	-25	-34	-11	-11	-12	-12	-11	-15	-28	-36	-10	-10	-11	-11
	90%	-10	-15	-28	-37	-12	-12	-13	-13	-13	-17	-30	-39	-10	-11	-11	-12
	80%	-13	-18	-31	-41	-12	-13	-13	-14	-15	-20	-33	-43	-11	-11	-12	-12
	70%	-15	-20	-34	-45	-13	-13	-14	-14	-17	-22	-36	-47	-12	-12	-13	-13
	66%	-15	-20	-35	-46	-13	-14	-14	-15	-17	-22	-37	-48	-12	-12	-13	-13
	60%	-16	-21	-37	-48	-13	-14	-15	-15	-18	-23	-39	-50	-12	-12	-13	-14
	50%	-18	-23	-39	-51	-14	-14	-15	-16	-19	-25	-41	-54	-12	-13	-14	-14
	40%	-19	-25	-42	-55	-14	-15	-16	-16	-21	-27	-44	-57	-13	-13	-14	-15
	33%	-20	-26	-44	-58	-15	-15	-16	-17	-22	-28	-46	-60	-13	-14	-15	-15
	30%	-21	-27	-45	-59	-15	-16	-17	-17	-22	-28	-47	-61	-13	-14	-15	-15
	20%	-22	-29	-49	-64	-16	-16	-17	-18	-24	-30	-51	-66	-14	-14	-16	-16
	10%	-25	-31	-54	-71	-17	-17	-18	-19	-27	-34	-56	-73	-15	-15	-16	-17
	5%	-27	-34	-58	-77	-17	-18	-19	-20	-29	-36	-60	-79	-15	-16	-17	-18
	1%	-30	-38	-66	-88	-19	-19	-21	-22	-32	-41	-68	-90	-16	-17	-19	-20
	Max	-35	-44	-76	-100	-21	-22	-24	-25	-39	-49	-81	-105	-19	-20	-22	-23
	CEHZ2	-58				-25				-60				-25			
	CEHZ3	-77				-25				-79				-25			



NORTHLAND REGIONAL COUNCIL
Coastal Erosion Hazard Assessment
Ohawini
Site: 16

Tonkin+Taylor
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Rev. 1



Notes: Dashed CEHZ indicates greater uncertainty around stream mouths and backshore topography.
Northland 0.4m Rural Aerial Photos (2014-2016).

A4 SCALE 1:5,000

0 0.1 0.2 (km)



Tonkin+Taylor
105 Carlton Gore Rd, Newmarket, Auckland
www.tonkintaylor.co.nz

DRAWN	JJOU	Jun.20
CHECKED		
APPROVED		
ARCFILE		
1012360_Historicv2.mxd		
SCALE (AT A4 SIZE)		
1:5,000		
PROJECT No.		
1012360		

NORTHLAND REGIONAL COUNCIL
Historic Shorelines
Ohawini
Site: 16

FIGURE No.
Figure 16-10

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