

EcoNomics

resources & energy

GOSFORD CITY COUNCIL
OPEN COAST AND BROKEN BAY BEACHES
COASTAL ZONE MANAGEMENT STUDY

APPENDIX 3 - COASTAL HAZARD SUMMARY

	Inundation Hazard	Immediate ZSA	Immediate ZRFC	2050 ZSA	2050 ZRFC	2100 ZSA	2100 ZRFC	Old 2097 Coastal Hazard Line
No. properties affected	49							10
No. private dwellings affected	42							1
No. commercial buildings affected	5							2
No. public buildings affected								1 (picnic shelter)
Roads affected			50 m length Patonga Dr, 150 m unnamed road to boatramp	60 m length Patonga Dr, 150 m unnamed road to boatramp	75m length Patonga Dr, 1 m unnamed road to boatramp	60 75 m length Patonga Dr, 160 m unnamed road to boatramp		215 m access road to boat ramp, 163m Patonga Dr
Stormwater infrastructure affected		67 m drainage pipe underlying carpark at eastern end, two kerb inlets and one headwall						67 m drainage pipe underlying carpark at eastern end, two kerb inlets and one headwall, 2 x 600 x 1200 box culverts under Patonga Dr adjacent to picnic shelter
Water infrastructure affected							50m length watermain	85m length watermain
Sewer infrastructure affected								
Other public infrastructure affected		75 m length carpark on Patonga Drive, jetty and footpath, boatramp and boatramp carpark, dune fencing adjacent to boatramp access road (all within Council Managed Crown Reserve)	Wharf and power supply			three powerpoles adjacent to boatramp	Power pole at east end of carpark, wharf and associated power supply	Main carpark, boatramp and boatramp carpark, three powerpoles adjacent to boatramp

	Inundation Hazard	Immediate ZSA	Immediate ZRFC	2050 ZSA	2050 ZRFC	2100 ZSA	2100 ZRFC	Old 2097 Coastal Hazard Line
No. properties affected	38	37	38	38	44	41	51	37
No. private dwellings affected	36	1	28	1	37	16	42	33
No. commercial buildings affected	1	1	1	1	1	1	2	1
No. public buildings affected		1 (amenities block)	1 (amenities block)	1 (amenities block)	1 (amenities block)	1 (amenities block)	1 (amenities block)	1 (amenities block)
Roads affected			130m Pearl Parade	85m Pearl Pde	215m Pearl Parade	135m Pearl Parade	235m Pearl Parade	160m Pearl Parade
Stormwater infrastructure affected		Headwall + 375mm stormwater pipe near amenities block; 19m length stormwater discharge pipe and headwall from carpar	discharge pipe and headwall from carpark,	Headwall + 375mm stormwater pipe near amenities block; 25m length stormwater discharge pipe and headwall from carpark, stormwater RCP near 11 Pearl Pde	Headwall + 375mm stormwater pipe near amenities block; 35m length stormwater discharge pipe and headwall from carpark, stormwater RCP near 11 Pearl Pde	Headwall + 375mm stormwater pipe near amenities block; 35m length stormwater discharge pipe and headwall from carpark, stormwater RCP near 11 Pearl Pde	Headwall + 375mm stormwater pipe near amenities block; 70m length stormwater discharge pipe and headwall along Pearl Parade shops and down through carpark, stormwater RCP near 11 Pearl Pde	near amenities block; 35m length stormwater discharge pipe and
Water infrastructure affected			25m water main along Pearl Pde; end of water main at Gem Rd	end of water main at Gem Rd	150m watermain along Pearl Pde, 10 m length water main at Gem Rd	105m watermain along Pearl Pde, 10 m length water main at Gem Rd	245m watermain along Pearl Pde; 20m length watermain at Gem Road	150m watermain along Pearl Pde, 10 m length water main at Gem Rd
Sewer infrastructure affected		75m sewer pipe and maintenance pit at end of Gem Road	85m sewer pipe and maintenance pit at end of Gem Road	85m sewer pipe and maintenance pit at end of Gem Road	100m sewer pipe and maintenance pit at end of Gem Road	100m sewer pipe and maintenance pit at end of Gem Road	125m sewer pipe and maintenance pit at end of Gem Road; 10 m length sewer along Green Point Creek	100m sewer pipe and maintenance pit at end of Gem Road
Other public infrastructure affected		Power pole at Gem Road, public reserve and playground, dune fencing		Power pole at Gem Road, public reserve and playground, carpark, dune fencing, powerpole and public telephone near amenities block	Power pole at Gem Road, public reserve and playground, carpark, dune fencing, powerpole and public telephone near amenities block	Power pole at Gem Road, public reserve and playground, carpark, dune fencing, powerpole and public telephone near amenities block	Power pole at Gem Road, power poles along Pearl Parade at Pearl Beach south; public reserve and playground, carpark, dune fencing, powerpole and public telephone near amenities block	Power pole at Gem Road, public reserve and playground, carpark, dune fencing, powerpole and public telephone near amenities block

	Inundation Hazard	Immediate ZSA	Immediate ZRFC	2050 ZSA	2050 ZRFC	2100 ZSA	2100 ZRFC	Old 2097 Coastal Hazard Line
No. properties affected	2	2	3	2	3	2	3	4
No. private dwellings affected	2	1	1	1	1	1	1	4
No. commercial buildings affected								
No. public buildings affected								
Roads affected			Approx. 200 m length of The Esplanade north of Ocean Beach SLSC		Approx. 200 m length of The Esplanade north of Ocean Beach SLSC		Approx. 200 m length of The Esplanade north of Ocean Beach SLSC	
Stormwater infrastructure affected	a	350 diameter elevated concrete pipe nd headwall at Ocean Beach SLSC arpark; 375 mm dia. Stormwater pipe a nd of Barrenjoey Rd + Rickard St.	•	1350 diameter elevated concrete pipe and headwall at Ocean Beach SLSC carpark; 375 mm dia. Stormwater pipe at end of Barrenjoey Rd + Rickard St.	1350 diameter elevated concrete pipe and headwall at Ocean Beach SLSC carpark; 375 mm dia. Stormwater pipe at end of Barrenjoey Rd + Rickard St.	1350 diameter elevated concrete pipe and headwall at Ocean Beach SLSC carpark; 375 mm dia. Stormwater pipe at end of Barrenjoey Rd + Rickard St.	1350 diameter elevated concrete pipe and headwall at Ocean Beach SLSC carpark; 375 mm dia. Stormwater pipe at end of Barrenjoey Rd + Rickard St.	1350 diameter elevated concrete pipe and headwall at Ocean Beach SLSC carpark; 375 mm dia. Stormwater pipe at end of Barrenjoey Rd + Rickard St.
Water infrastructure affected								
Sewer infrastructure affected								
Other public infrastructure affected	fe	lower pole at Berrima Cres, dune encing and accessways along entire eachfront	Power pole at Berrima Cres, dune fencing and accessways along entire beachfront; carpark at Ocean Beach SLSC; carpark between Rickard & Augusta St.	Power pole at Berrima Cres, dune fencing and	Power pole at Berrima Cres, dune fencing and accessways along entire beachfront; carpark at Ocean Beach SLSC; carpark between Rickard & Augusta St.	Power pole at Berrima Cres, dune fencing and accessways along entire beachfront	Power pole at Berrima Cres, dune fencing and accessways along entire beachfront; carpark at Ocean Beach SLSC; carpark between Rickard & Augusta St.	Power pole at Berrima Cres, dune fencing and accessways along entire beachfront; carpark at Ocean Beach SLSC; carpark between Rickard & Augusta St.

	Inundation Hazard	Immediate ZSA	Immediate ZRFC	2050 ZSA	2050 ZRFC	2100 ZSA	2100 ZRFC	Old 2097 Coastal Hazard Line
	38 (all within National							
No. properties affected	Park)	22 (all within National Park)	26 (all within National Park)	27 (all within National Park)	32 (all within National Park)	31 (all within National Park)	36 (35 within National Park)	16 (all within National Park)
No. private dwellings affected							1	
No. commercial buildings affected								
					2 (surf club and camping area amenities	2 (surf club and camping area amenities	2 (surf club and camping area amenities	
No. public buildings affected	1 (surf club)	1 (surf club)	1 (surf club)	1 (surf club)	block)	block)	block)	1 (surf club)
Roads affected					120 m length Taworri Road (access to camping area); 40 m length access road to surf club	80 m length Taworri Road (access to camping area); 40 m length access road to surf club	150 m length Taworri Road (access to camping area); 40 m length access road to surf club	
Stormwater infrastructure affected		750 and 1050 diam. Pipes at Surf Club	750 and 1050 diam. Pipes at Surf Club	750 and 1050 diam. Pipes at Surf Club	750 and 1050 diam. Pipes at Surf Club	750 and 1050 diam. Pipes at Surf Club	750 and 1050 diam. Pipes at Surf Club; 375mm dia. stormwater drainage at Kilcare main carpark	750 and 1050 diam. Pipes at Surf Club
Water infrastructure affected			15 m length water main under surf club carpark	15 m length water main under surf club carpark	25 m length water main under surf club carpark	25 m length water main under surf club carpark	35m length water main under surf club carpark	
Sewer infrastructure affected						40m length sewer pipe at Surf Club carpark	40m length sewer pipe at Surf Club carpark	
Other public infrastructure affected		Surf club carpark; surf club viewing tower; dune fencing and accessways	·	re Surf club carpark; surf club viewing tower; dune fencing and accessways; part of carpark at camping area at Taworri Rd	Surf club carpark; surf club viewing tower; dune fencing and accessways; part of Kilcare main carpark; part of carpark at camping area at Taworri Rd	Surf club carpark; surf club viewing tower; dune fencing and accessways; part of Kilcare main carpark; part of carpark at camping area at Taworri Rd	Surf club carpark; surf club viewing tower dune fencing and accessways; part of Kilcare main carpark; part of carpark at camping area at Taworri Rd; bbq and picnic facilities	Surf club carpark; surf club viewing tower; dune fencing and accessways

McMasters

	Inundation Hazard	Immediate ZSA	Immediate ZRFC	2050 ZSA	2050 ZRFC	2100 ZSA	2100 ZRFC	Old 2045 Coastal Hazard Line
No. properties affected	2	13	33	22	64	63	85	29
No. private dwellings affected		1	19	9	33	35	57	13
No. commercial buildings affected					3	0	6	
No. public buildings affected	1 (McMasters surf club)		2 (Copacabana and McMasters SLSC)	2 (Copacabana and McMasters SLSC)	3 (SLSCs and amenities block at McMasters Beach)	3 (SLSCs and amenities block at McMasters Beach)	3 (SLSCs and amenities block at McMasters Beach)	1 (Copacabana SLSC)
Roads affected		50m length Marine Pde	260 m length Del Monte PI; 280 m length Marine Pde	180 m length Del Monte PI; 280 m length Marine Pde	260 m length Del Monte PI; 400 m length Marine Pde	260 m length Del Monte PI; 400 m length Marine Pde	380 m length Del Monte PI; 400 m length Marine Pde	100m length Marine Parade; 330m length Del Monte Pl
Stormwater infrastructure affected		1050 diam pipe culvert at McMasters carpark; 1500 dia. Pipeline at McMasters surf club; 10m length stormwater pipe east of Copacabana SLSC	1050 diam pipe culvert at McMasters carpark; 50 m length 600mm dia. Pipe at Marine Pde; 1500 dia. Pipeline at McMasters surf club; 180m length 1650 dia. Concrete pipe drainage along Del Monte Pl east of Copacabana SLSC	1050 diam pipe culvert at McMasters carpark; 50 m length 600mm dia. Pipe at Marine Pde; 1500 dia. Pipeline at McMasters surf club; 180m length 1650 dia. Concrete pipe drainage along Del Monte Pl east of Copacabana SLSC	McMasters surf club; 180m length 1650 dia.	1050 diam pipe culvert at McMasters carpark; 50 m length 600mm dia. Pipe at Marine Pde; 1500 dia. Pipeline at McMasters surf club; 180m length 1650 dia Concrete pipe drainage along Del Monte Pl east of Copacabana SLSC; 50 m length stormwater drainage nea		1050 diam pipe at McMasters carpark; 1500 dia. Pipeline at surf club; 120m length stormwater pipe at Del Monte Pl; large box culvert near Copacabana SLSC
Water infrastructure affected			50m length water main along DelMonte PI at Copacabana; 160m length water main at Marine Pde	100m length water main at Marine Pde	340m length water main at Del Monte PI; 230m length water main at Marine Pde	340m length water main at Del Monte Pl; 230m length water main at Marine Pde	340m length water main at Del Monte Pl; 230m length water main at Marine Pde	200m length water main at Del Monte Pl
Sewer infrastructure affected		50m sewer pipe at Marine Pde	300m length sewer pipe at Marine Parade; 150m sewer pipe west of Copacabana Surf Club along Del Monte Pl	300m length sewer pipe at Marine Parade; 75m sewer pipe west of Copacabana Surf Club along Del Monte Pl	300m sewer pipe west of Copacabana Surf	350m length sewer pipe at Marine Parade; 300m sewer pipe west of Copacabana Surf Club along Del Monte PI; sewer maintenance pit at 112 Tudibaring Pde	350m length sewer pipe at Marine Parade; 300m sewer pipe west of Copacabana Surf Club along Del Monte Pl; sewer maintenance pit at 112 Tudibaring Pde	280m sewer pipe around Copacabana SLSC at Del Monte Pl
Other public infrastructure affected		McMasters Surf club carpark; Marine Parade carpark, power pole at carpark; poles and wires at Marine Parade carpark; surf lifesaving viewing platform; dune fencing and accessways	McMasters Surf club carpark; Marine Parade carpark, power pole at carpark; poles and wires at Marine Parade carpark; surf lifesaving viewing platform; dune fencing and accessways	McMasters Surf club carpark; Marine Parade carpark, power pole at carpark; poles and wires a Marine Parade carpark; surf lifesaving viewing platform; dune fencing and accessways	McMasters Surf club carpark; Marine Parade carpark, power pole at carpark; poles and wires at Marine Parade carpark; surf lifesaving viewing platform; dune fencing and accessways; poles and wires along DelMonte PI west of Copacabana SLSC	McMasters Surf club carpark; Marine Parade carpark, power pole at carpark; poles and wires at Marine Parade carpark; surf lifesaving viewing platform; dune fencing and accessways; poles and wires along DelMonte PI west of Copacabana SLSC	McMasters Surf club carpark; Marine Parade carpark, power pole at carpark; poles and wires at Marine Parade carpark; surf lifesaving viewing platform; dune fencing and accessways; poles and wires along DelMonte PI west of Copacabana SLSC; Copacabana fire station carpark	McMasters Surf club carpark; Marine Parade carpark, power pole at carpark; poles and wires at Marine Parade carpark; surf lifesaving viewing platform; dune fencing and accessways

	Inundation Hazard	Immediate ZSA	Immediate ZRFC	2050 ZSA	2050 ZRFC	2100 ZSA	2100 ZRFC	Old 2045 Coastal Hazard Line
No. properties affected	73	11	27	34	37	45	47	24
No. private buildings affected	56	0	7	17	27	35	36	10
No. commercial buildings affected	2	0	1	1	1	1	1	1
	2 (SLSC and amenities							
No. public buildings affected	block)							
Roads affected								
Stormwater infrastructure affected		375mm dia stormwater drainage under carpark on western side of SLSC	end of 450mm stormwater pipe near 131 Avoca Dr; 375mm dia stormwater drainage under carpark on western side of SLSC	end of 450mm stormwater pipe near 131 Avoca Dr; end of 600 mm stormwater pipe near 111	end of 450mm stormwater pipe near 131 Avoca Dr; end of 600 mm stormwater pipe near 111 Avoca Dr; 375mm dia stormwater drainage under carpark on western side of SLSC	end of 450mm stormwater pipe near 131 Avoca Dr; end of 600 mm stormwater pipe near 111 Avoca Dr; 375mm dia stormwater drainage under carpark on western side of SLSC	end of 450mm stormwater pipe near 131 Avoca Dr; end of 600 mm stormwater pipe near 111 Avoca Dr; 600 mm drainage pipe through reserve near SLSC, 375mm dia stormwater drainage under carpark on western side of SLSC	end of 600 mm stormwater pipe near 111 Avoca Dr; 375mm dia stormwater drainage under carpark on western side of SLSC
Water infrastructure affected								
Sewer infrastructure affected		Approx. 100m length sewer pipe on seaward side of properties on Avoca Dr; approx. 50m sewer pipe under carpark on western side of SLSC	Approx. 250m length sewer pipe on seaward	Approx. 250m length sewer pipe on seaward side of properties on Avoca Dr	Approx. 250m length sewer pipe on seaward side of properties on Avoca Dr	Approx. 250m length sewer pipe on seaward side of properties on Avoca Dr	Approx. 250m length sewer pipe on seaward side of properties on Avoca Dr	Approx. 250m length sewer pipe on seaward side of properties on Avoca Dr
Other public infrastructure affected		Carpark on western side of SLSC; surf viewing tower near lagoon entrance; power poles and wires on seaward side of carpark; fencing and signage; café	· · · · · · · · · · · · · · · · · · ·	wires on seaward side of carpark; fencing and	Carpark on western side of SLSC; surf viewing tower near lagoon entrance; power poles and wires on seaward side of carpark; fencing and signage; café	Carpark on western side of SLSC; surf viewing tower near lagoon entrance; power poles and wires on seaward side of carpark fencing and signage; café; reserve behind carpark, picnic facilities and large Norfolk Is. Pine tree	Carpark on western side of SLSC; surf viewing tower near lagoon entrance; power poles and wires on seaward side of carpark; fencing and signage; café; reserve behind carpark, picnic facilities and large Norfolk Is. Pine tree	Carpark on western side of SLSC; surf viewing tower near lagoon entrance; power poles and wires on seaward side of carpark; fencing and signage; café

	Inundation Hazard	lmmediate ZSA	Immediate ZRFC	2050 ZSA	2050 ZRFC	2100 ZSA	2100 ZRFC	Old 2045 Coastal Hazard Line
No. properties affected	26	27	44	44	45	49	67	35
No. private buildings affected	25	6	36	37	42	49	55	17
No. commercial buildings affected								
No. public buildings affected	1 (SLSC)		1 (SLSC)	1 (SLSC)	1 (SLSC)	1 (SLSC)	1 (SLSC)	
Roads affected						Corner Lake St and Bareena Av; 160m length North Avoca Dr. north of surf club, ends of View St and Ocean St.	Corner Lake St and Bareena Av; 90m length Bareena Av, 220m length North Avoca Dr. north of surf club, ends of View St and Ocean St.	
Stormwater infrastructure affected		end of 1050 dia. Pipe at Tarun Rd.	end of 1050 dia. Pipe at Tarun Rd.	end of 1050 dia. Pipe at Tarun Rd.	end of 1050 dia. Pipe at Tarun Rd.	two cross drainage pipes at North Avoca Dr, end of 1050 dia pipe at Tarun Rd	two cross drainage pipes at North Avoca Dr, end of 1050 dia pipe at Tarun Rd	end of 1050 dia. Pipe at Tarun Rd.
Water infrastructure affected					end of water pipe at Tarun Rd; short section of water main at cnr Lake St & Bareena Av; ends of water pipes at Ocean St and View St.	water pipes at Ocean St and View St, water	125m water main at Bareena Av, water main along North Avoca Pde, ends of water pipes at Ocean St and View St, water pipe at Tarun Rd.	
Sewer infrastructure affected						sewer pipe at North Avoca Parade, sewer pipes at ends of Ocean and View St., 40m	Sewer pipe at Tarun Rd, 145m length sewer pipe at North Avoca Parade, sewer pipes at ends of Ocean and View St., 40m length sewer pipe at Bareena Av.	•
Other public infrastructure affected		Beach accessways and dune fencing along entire beachfront	Beach accessways and dune fencing along entire beachfront; carpark of SLSC	Beach accessways and dune fencing along entire beachfront; carpark of SLSC	Beach accessways and dune fencing along entire beachfront; carpark of SLSC	and wires at ends of View St., Ocean St.	Beach accessways and dune fencing along entire beachfront; carpark of SLSC, poles and wires at ends of View St., Ocean St. and Lake St.	Beach accessways and dune fencing along entire beachfront

	Inundation Hazard	Immediate ZSA	Immediate ZRFC	2050 ZSA	2050 ZRFC	2100 ZSA	2100 ZRFC	Old 2045 Coastal Hazard Line
No. properties affected	1							1
No. private buildings affected								
No. commercial buildings affected								
No. public buildings affected	1 (SLSC)							1 (SLSC)
Roads affected								
Stormwater infrastructure affected								
Water infrastructure affected								
Sewer infrastructure affected								110m sewer pipe along Terrigal Esplde west of surf club, 80m length pipe along Terrigal Esplde
Other public infrastructure affected								poles and wires in surf club carpark; SLSC carpark, fencing, public reserve seaward side of Terrigal Esplde,

	Inundation Hazard	Immediate ZSA	Immediate ZRFC	2050 ZSA	2050 ZRFC	2100 ZSA	2100 ZRFC	Old (1995 immediate) Coastal Hazard Line
No. properties affected	82	73	75	76	87	87	126	71
No. private buildings affected	72	61	66	67	68	71	102	46
No. commercial buildings affected							2 (shops on Ocean View Dr)	
No. public buildings affected	1 (SLSC)				1 (SLSC)	1 (SLSC)	1 (SLSC)	
Roads affected					End of Dover Road near SLSC; 80m length Calais Road; approx. 200m length Ocean View Dr.	End of Dover Road near SLSC; 100m length Calais Road; approx. 500m length Ocean View Dr., 200m length Pacific St	End of Dover Road near SLSC; 100m length Calais Road; approx. 1km length Ocean View Dr, all of Pacific St.	
Stormwater infrastructure affected					Stormwater drainage from surf club carpark; 80m length stormwater drainage along	Stormwater drainage from surf club carpark; 80m length stormwater drainage along Calais Rd; three cross drainage pipes at Ocean View Dr	Stormwater drainage from surf club carpark; 80m length stormwater drainage along Calais Rd; three cross drainage pipes at Ocean View Dr	
Water infrastructure affected					400m length Water supply pipeline to Pacific Street and Ocean View Dr. beachfront properties; 80m length water supply pipeline	beachfront properties; 80m length water	400m length Water supply pipeline to Pacific Street and Ocean View Dr. beachfront properties; 80m length water supply pipeline to oceanfront properties on Calais Rd.	
Sewer infrastructure affected					Short length of sewer pipeline from properties on Ocean View Dr and Pacific St.	Sewer pipeline from properties on Ocean View Dr and Pacific St.	Sewer pipeline from properties on Ocean View Dr and Pacific St.	
Other public infrastructure affected		Dune fencing, viewing platform, accessways	Dune fencing, viewing platform, accessways	Dune fencing, viewing platform, accessways	accessways; SLSC carpark, poles and wires	Dune fencing, viewing platform, accessways; SLSC carpark, poles and wires at end of Dover Rd and Calais Rd.		Dune fencing, viewing platform, accessways

Forresters

	Inundation Hazard	Immediate ZSA	Immediate ZRFC	2050 ZSA	2050 ZRFC	2100 ZSA	2100 ZRFC	Old (2045) Coastal Hazard Line
No. properties affected	0	4		4		5		30
No. private buildings affected								17
No. commercial buildings affected								
No. public buildings affected								
Roads affected								
Stormwater infrastructure affected	1 x 8	525 mm stormwater pipe on piles		1 x 525 mm stormwater pipe on piles		1 x 525 mm stormwater pipe on piles		2 x 375mm dia stormwater discharge pipes; 1 x 525 mm stormwater pipe on piles
Water infrastructure affected								
Sewer infrastructure affected								
Other public infrastructure affected	Bea	ch accessways and dune fencing		Beach accessways and dune fencing		Beach accessways and dune fencing		Beach accessways and dune fencing