

APPENDIX I

LIST OF PERSONS INTERVIEWED

- Mr Elton Georges - *Deputy Governor*
- Ms J. Worrell - *BVI National Disaster Co-ordinator*
- Mr Jim Scott - *Virgin Islands Search and Rescue*
- Mr Arthur Swain - *Disaster Preparedness Officer (O.D.P.)*
Emergency Telecommunications
- Mr R. Skelton - *Head, Electricity Corporation*
- Mr L. Potter - *Chief Physical Planning Officer*
- Mr M. Creque - *Director of Civil Aviation*
- Ms S. Ward - *Chief Information Officer*
- Captain B. Salah - *Chief Marine Officer*
Ministry of Communications and Works
- Mr. S. Gordon - *Permanent Secretary*
Ministry of Communications and Works
- Mr J. Kumar - *Chief Agricultural Officer*
- Mr R. Matavious - *Head, Financial Services*
- Mr. J. Williams - *Caribbean Insurers Ltd.*
- Mr B. Smith - *Chief Engineer, Public Works Department*
- Mr Glenroy Forbes - *Financial Secretary*
- Mr Aubrey George - *Chief Environmental Health Officer*
- Mr Gary Penn - *Chief Engineer, Water and Sewerage Dept*
- Mr Paul Watley - *Architect*
- Mr Quito Rhymer - *Business Owner, Cane Garden Bay*
- Mr R. deCastro - *Asst Project Manager, Ports Dev Project*
- Mr McLeod Walters - *Engineer Private Consultant*

APPENDIX II

SITE DESCRIPTIONS *COASTAL DAMAGE*

BEEF ISLAND

Trellis Bay: Public jetty has been destroyed. Ten (10) yachts beached, most can be refloated, estimate 2 small power boats total loss. Two (2) yachts grounded on Bellamy Cay. Beach erosion about 5 yards measured at Beef Island Guest House where the roof has gone and the old jetty remains almost demolished.

Beach between well Bay and Goose Hole: This beach is at the Western end of the airport runway, the beach is eroded back as far as the road in one place.

Long Bay: The beach was eroded some 5 yards, the water line was at the vegetation line, considerable sand had been washed in to the primary dune. The beach-rock had been re-exposed.

TORTOLA

East End: Go Vacations - concrete wall intact, but reclamation undermined at eastern end where the flank is unprotected. West of Go Vacations reclamations eroded, the one partially protected with steel rods in bags cut back 10 yards. Mangroves and reclaimed land in front of "Darwin Lettsome's Dry Goods Store" and Apartment Black eroded now placing the building at risk.

Fat Hogs Bay: East of the detached jetty the sea has come inland 15 yards due to a sand mining hole. Beach berm here has disappeared. Other erosion along this beach averages 5-7 yards.

Hodges Creek: Road has been damaged, at least 2 jetties destroyed, 1 barge, 2 power boats, 1 yacht grounded. Erosion of stone beach approximately 5 yards.

Paraquita Bay: The main entrance has been widened, the breakwater under construction is partially destroyed. Approximately 30% of the mangroves damaged by wind. Road severely damaged at one site where the mangroves had been cleared. Several yachts, (estimate 10) damaged mainly as a result of inadequate mooring.

Brandywine Bay: The sea had cut back into the road, strip of land between the sea and the road is now gone. Erosion here of at least 5 yards. One yacht was grounded at the west side of the bay.

Sonie Bay: One yacht beached here.

Kingstown Bay: Stone ridge was washed out in front of the apartments. Sand had been washed inland at the eastern end of the beach, completely covering the vegetation. The beach had been eroded about 5 yards here.

Fish Bay: Considerable flooding on the reclaimed land by Shell. As at Brandywine Bay, the sea came right across the road. The reclaimed land in front of the Mitsubishi Dealer was severely eroded, 3-5 yards.

Baughers Bay: Pickering reclamation eroded, jetty which was formerly 8 yards wide is now just a line of rocks. The CSY yacht breakwater is damaged. The rock revetment east of the Fisheries terminal had eroded and the fill behind revetment was partially washed out. 1 yacht and 1 smaller boat washed onto revetment.

Moorings - Treasure Isle Hotel: The sea came over the road and the land between the road and the sea was eroded. The revetment in front of Tobacco Wharf was damaged. Some of the Moorings' recently reclaimed dyke was damaged.

Road Town Waterfront: Car Park opposite Pusser's was completely destroyed, sea eroded the reclaimed land 8-10 yards back to the road edge and tried to create a beach. Sea also eroded fill behind the concrete bulkhead. Eastern Road Town jetty also damaged. Western side of Customs building undermined, and the fill behind the revetment has been eroded for 5 yards inland. In front of the Governor's House there was a yacht on the road and two smashed up on the rocks. Revetment damaged. At the Queen Elizabeth Park, the Land was washed out behind the revetment and some of the reclaimed land lost. Estimate 5-10 yards loss of land here.

Prospect Reef: (Not visited) Reported that there was some damage to the revetment, and some of the ground floor rooms were flooded.

West of Slaney Point: Severe damage to the road.

Sea Cows Bay: Estimate 30-50% of the mangroves damaged - branches snapped etc. Several boats in the mangroves and the "Bomba Charger" on the rocks.

Nanny Cay: Reclaimed beach on the eastern side of Nanny Cay eroded 5-10 yards, beach umbrellas and trees undermined. Several of the yachts in the shipyard were blown over, at least one of the masts had snapped. The pathway seaward of the swimming pool had been eroded, and the high water mark was at the foundation of the swimming pool. There had been erosion 5-7 yards.

Havers: Additional reef rubble had been washed onto the reef crest. At the reclamation by the condominiums, some fill had been washed away and coral rubble had been thrown up on the seaward side of the revetment. The coastal land east of the seapool had been covered by the sea.

Pockward Pond: The sea had come in here 30 yards and washed away most of the sand dyke. The concrete conduit draining the pond was broken. Mangroves previously killed by the dredging operations are easily visible now that the leaves are blown off. The main jetty was intact.

Pockward Pond to west of Coxheath: Road has been severely eroded.

Towers Reclamation - L. Fraser: The reclamation has been eroded to sea level and reduced in length from 60 yards to 35 yards. An adjacent sand mining hole is now part of the sea

Long Bay Belmont: Very severe damage to trees and buildings. Roofs blown off the seaside cottages on the sea was still intact. At the dune edge there was a vertical cliff 2 yards high. Some of the cottages are now less than 8 yards (24 feet) from the water. Many of the buildings on the hill have been destroyed. At the east end of Long Bay Hotel, sand has been washed out from behind the retaining wall and the wall is now leaning at an angle. Several palm trees had been blown down along the beach front.

Cannon Bay: There had been 3-5 yards erosion of land and trees on the seaward side of the road, the road is now in a more vulnerable position.

Apple Bay - Great Carrot Bay: The roof had been blown off the Sugar Mill Beach Bar but the groynes were intact. The sea wall was intact, but where there was no sea wall, the land between the sea and the road was eroded and many of the seagrasses and palms had blown down.

Josiaks Bay: There had been considerable erosion here, between the sand mining pit and the pond exit, the dune had been eroded back some 10+ yards. The rest of the beach had been eroded some 3-5 yards. (The recently constructed chain to prevent vehicular access to the beach had been slightly damaged - the poles had been undermined)

APPENDIX III

TABLE 1 MEASURED AND ESTIMATED QUANTITIES					
SECTION	LENGTH (FT.)	ARMOURING CROSS SECTION (SQ. FT.)	VOLUME OF ARMOURING (CU. YD.)	AREA OF SHOULDER RECONSTRUCTION (SQ. FT.)	AREA OF PAVEMENT RECONSTRUCTION (SQ. FT.)
1	700	68	1763		3000
2	500	88	1630		
2A	700	72	1866	350	4000
3	450	80	1333		
3A	250	36	333		
4	1000	100	3704		
4A	600	64	1422		
4B	700	48	1244		
5	750	40	1111	350	
6	1760	92	5997	1730	9000
7	2640	25	2444	6027	32818
	10050		22847	8477	51818

TABLE 2**EXTENT OF DAMAGE**

SECTION	EXTENT OF DAMAGE	DAMAGE ASSESSMENT
1	Mild	Slight erosion at edges of formation. Protected by barrier shoal and shallow water up to 100' offshore
2	Mild	Not much erosion at edges. Asphalt pavement intact. Beach gravel washed up onto carriageway
2A	Moderate	Waves washed under wall blowing out sections of concrete shoulder. Seventy foot section of wall demolished as well as erosion of carriageway to halfway width
3	Moderate	Erosion to edges of carriageway. Protected by shallow water up to 70' offshore.
3A	Mild	Not much damage to carriageway. Protected by shoal up to 150'
4	Moderate	Erosion to edges of road formation. Telephone ducts exposed.
4A	Moderate	Erosion to edge of road formation
4B	Mild	No damage to road section. Section protected somewhat by coral reef and shallow water. Shoreline consists of loose coral rock fragments which are often washed onto the carriageway during periods of storm
5	Moderate	The damage to this section, as with many sections with walls, is undermining at the wall footing with water rushing under and blowing out sections of the concrete shoulder. The elevation of the road is extremely low with respect to sea level (at most two feet). In this section the wall seems to be setting into the sand subsoil. The fact that this section is a bay (concave to the wave direction) is a major factor contributing to its protection.
6	Severe	The section is one of the most severely affected sections. This section is exposed to the wave action, secondly water depth is relatively deep, and thirdly much of the armour protection which existed in the past had been dislodged by previous storms leaving this section relatively unprotected. Damage was caused to walls with complete sections demolished. Sections of the carriageway was also destroyed. In other stretches, sections of wall remained standing but the water came under the footing and damaged the roadway.
7	Severe	This was the other severely affected section and the damage caused here was similar to section 6.

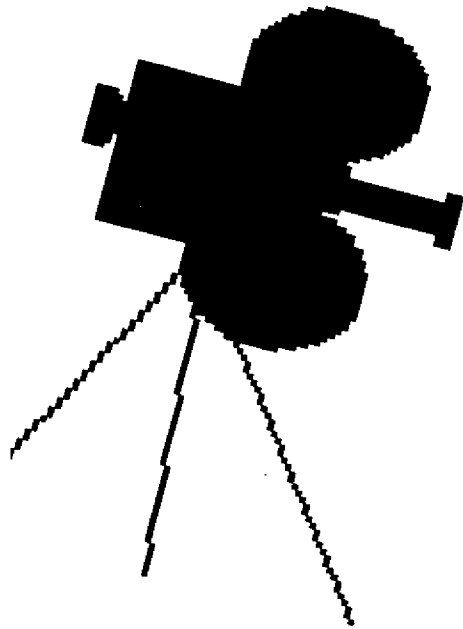
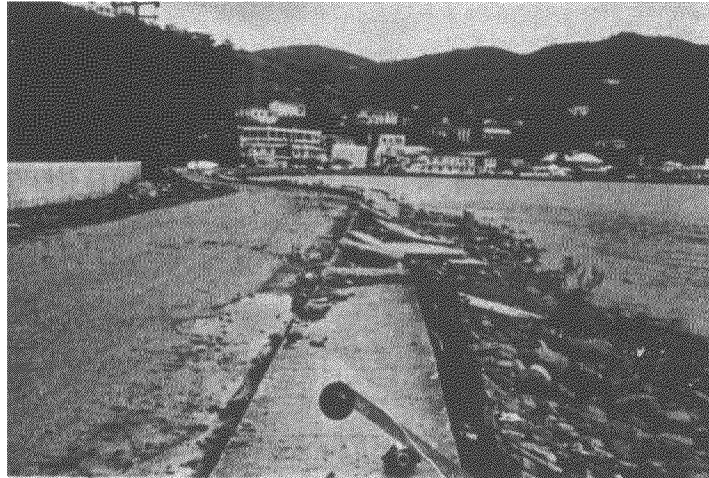


PHOTO APPENDIX



19-09-89 Road Town



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