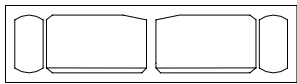


<b>TUNNEL NAME/LOCATION/DATE COMPLETED:</b> <b>Deas Island Tunnel; Vancouver, British Columbia, Canada; 1959</b>		<b>T.17 - Deas Island</b> 	
<b>TUNNEL TYPE AND USE:</b> Reinforced concrete box elements; Vehicular tunnel		<b>LANES/TRACKS:</b> Two tubes; four lanes (two in each tube)	
<b>NO OF ELEMENTS:</b> 6	<b>LENGTH:</b> 104.9 m	<b>HEIGHT:</b> 7.16 m	<b>WIDTH:</b> 23.8 m
<b>TOTAL IMMERSED LENGTH:</b> 629 m		<b>DEPTH AT BOTTOM OF STRUCTURE:</b> 22 m	
<b>ENVIRONMENTAL CONDITIONS:</b>	Extensive river, tunnel placement, and cover stability laboratory modelling was conducted. Designed for earthquake loadings (Zone 3).		
<b>FABRICATION METHOD:</b> Casting basin next to tunnel site for all six elements	<b>OUTFITTING:</b> At outfitting jetty next to tunnel site	<b>JOINT TYPE:</b> Inflatable rubber-gasketed joint used for initial seal. Final seal made in conventional way, by dewatering joint and mobilizing hydrostatic pressure. Monolithic permanent joint.	
<b>WATERPROOFING METHOD:</b>	5 mm steel plate on bottom lapping with bituminous membrane up the sides and over the roof slab. The waterproofing was protected with a 10 cm layer of reinforced concrete under the bottom and on the top and by 10 cm of wood planking on the walls.		
<b>PLACEMENT METHOD:</b>	Four barges, two on each side of the element, were arrayed in a catamaran arrangement. Manuevering lines included vertical lifting lines, transverse and longitudinal tag lines and rigging from fairleads on the element, acting horizontally to main anchors. Control and survey towers were used to access the inside of the elements and control the positioning of the element		
<b>FOUNDATION METHOD:</b> Sandjetted foundation		<b>DREDGING METHOD:</b> Cutterhead suction dredging; also used for casting basin.	
<b>VENTILATION TYPE:</b>	Semi-transverse from two ventilation buildings. Fresh air is drawn into the tunnel through the portal. In the second half, air is introduced into the tube and leaves the tunnel at the exit portal.		
<b>COVER AND TYPE:</b>	Double layers of 1,500 lb. stone on top of the structure with additional protection of the sides consisting of 500 lb. stone extending out 50 ft on either side of the tunnel box		
<b>ADDITIONAL INFORMATION:</b>	OWNER: Department of Highways of British Columbia DESIGNERS: Foundation of Canada Engineering Corporation Ltd and Christiani & Nielsen Canada assisted by Christiani & Nielsen Copenhagen CONTRACTOR: Peter Kiewit & Sons Co of Canada Ltd and B.C. Bridge and Dredging Co Ltd Joint Venture; Narod Construction Ltd and Dawson and Hall		