

Christopher Tillotson Brown

Bus: Deborah McLaren Consulting Ltd,
9 Collingwood Villas, Stoke, Plymouth PL1 5NZ
Home: 14 Wellington St, Stoke, Plymouth PL1 5RT
Phone: +44 [0]1752 657 610 Mobile: +44 [0]7533817482
Email: chrisbrown.seabees@gmail.com

Professional Qualifications & Associations

BSc (Eng) London: 1964
BSc (Honorary) Surrey 2012
CEng, MICE: 1970 to date
MIEAust: 1977-1988
MEngSc (Coursework): 1975-76 (Two High Distinctions)
(Thesis): 1976-79 (Published as 'Gabion Report' by UNSW WRL in 1979)
AISC: 1982-86 (Member NSW State Committee, 1982-4)
NIC (Greenwich): 1998 (2 week residential Nuclear Introduction Course)

Professional Experience

Chris Brown is a Director at Deborah McLaren Consulting Ltd. He is a senior consultant specialising in the fields of Heavy Civil, Nuclear, Maritime and Coastal Engineering. He has 40 years experience of Maritime and Seismic structures in Australia, the Caribbean and UK and 12 years of working to modern UK Nuclear Standards for MoD facilities in England and Scotland. He has been responsible for management of design teams of 50 engineers, architects and draftsmen and for control of construction teams of a similar size. He is experienced in concept and evaluation of both large and small engineering projects.

Chris Brown has broad experience across the spectrum of Civil Engineering, from Design Management of major Nuclear Projects, as Chief Civil/Structural Engineer for a Multinational Design & Build mining company in Australia, as Resident Engineer for construction of a major export facility in NSW and as Contractor's Agent for the construction of a RoRo facility in Jamaica. He has current MoD security clearance and pass for work in Devonport Royal Dockyard.

He has designed and contributed to the design of over 40 seawalls and breakwaters and is the inventor and patentee for the Seabee Armour Unit, publishing numerous publications on theory and practice of construction of seawalls, breakwaters and armour units in UK and Australia and also on river estuary dynamics and stability.

Domestic & Commercial Buildings

- **1998-date** Inspection, acquisition and restoration of dilapidated buildings for residential use.
- **1976-date** Flood Risk assessments for residential development projects in fluvial & estuarine & coastal situations in NSW, New England and Devon. Pioneering development of beach erosion hysteresis volume concept for design of piled foundations for buildings on coastal dunes.
- **1988-91** Backwall yard development for Rosehaugh Stanhope & Reuters [Richard Rogers/Arup]
- **1987-8** Embankment Palace air-rights building: Structural design & vibration analyses of Villiers St building which provided 50% wind load resistance to Embankment Place., including piled foundations threaded between and cantilvered over Northern Line tunnels.[Noram Foster/Arup]
- **1986-7** Wentworth Golf Club re-development [W.A.Fairhurst]
- **1986** Design of structural elements of Invicta House, Thames embankment, including load transfer trusses and curved fascia beams [Sir Robert McAlpine]

Maritime & Coastal Engineering Works, 1968 to date

- **2006 -Date:** Review of use of 100te wavebreaker blocks on Plymouth Breakwater & input to MMO application for continuation of manufacture & placement in environmentally sensitive zones. Development and implementation of strategy for Integrated LIDAR & bathymetric surveys to 10cm

& 3cm resolution. Presentations to RN, MoD, E.A., IStructE, BSA, ICS2015 etc to encourage input from all interested parties to supplement meagre funding for investigations currently available.

- **2014 Kiribati:** Advice to Tonkin & Taylor [NZ] on seawall options.
- **2012 - 13:** Alternative design for a major oil export harbour, Africa: 4 berths & breakwater for 10m wave climate.[2012-13]
- Retained as specialist Advice on siting of mineral export facilities on the north banks of the Amazon, Amapa Province, Brazil, including site visit and field review of logistical links: for Pell Frischmann. [2007-8]..
- **2005 – 6:** Specialist advice to Buro Happold on use of Seabees for overtopping breakwater at Al Khiran, Kuwait including design of casting yard and formwork system. [approx same length and 40% wave climate of Plymouth Breakwater, with maximum armour size under 2 tonnes].[2005-6]
- **2001 - 2** Client appointed Special Consultant re wave calming measures and proposed £30M new outer breakwater at Peterhead Bay.
- **1974 – 2006:** Design & Construction & rehabilitation of numerous wet & dry docks in UK, Australia & Thailand, including 9, 10, 11 & 12 Docks at Devonport Royal Dockyard; Sattahip CVF Drydock, Thailand; Blackwall Yard, London & 150,000dwt vessel drydock at Newcastle, NSW, including design and construction supervision of dock walls, floors, gates, caissons and pumping systems to Nuclear Seismic Standards.
- **1992 - 4** Development of Monitoring and Maintenance Strategy for the main breakwaters, Peterhead harbour. Design and layout of Peterhead Bay Harbour Authority marina and breakwater.
- Design & construction of tourism & container berths, jetties & bulk material outloader and import facilities in UK , Australia [1970-86], Fiji [1973], Jamaica [1968-9] & Oceania.
- Comparison of Numerical and Physical modelling of wave disturbance profiles at sea/structure interface. [Current]
- Advice on the use of Seabees for a number of current UK and overseas coastal projects [1978-date]
- **1994-5** Design & supervision of construction of cardinal navigation mark at Out Skerries exposed to 11m waves. [Shetland Islands].
- **1996-Date** Research, testing design & construction, of seawalls & breakwaters in UK, Australia, Oceania, USA & Middle East using rock, Tribars, Dolosse, Seabees, Gabions etc.
- Development and review of wave climates for projects in UK, Australia, Fiji, USA, Phillipines. including Faslane Floating Jetty at HMNB Clyde [2004-7].
- Investigation of coastal erosion and seawall damage, UK [1986,89,90,02 etc], Caribbean [2007], Phillipines [1978-1983], Australasia & Oceania. Mathematical modelling of coastal evolution.
- Bathyspheric exploration of sites for Sydney deep ocean outfalls, including investigation of scour potential of sites: concurrent lab model studies of scour around upstand diffusers of various geometries [1984-5]
- Planning & design of floating marinas, UK [1992-6], Eire [1992] & Australia [1974-5].
- Invention, research and development, construction and commercial use of the Seabee breakwater and seawall armour system in Australia, Europe, USA, Oceania, the Middle East & elsewhere. [1976-Date]

Nuclear Engineering, 1996 to Date:

- Design liaison and management of SSN (10 Dock) & TSSBN (9Dock) Facilities, Devonport Royal Dockyard, including anticipation and prevention of conflict between adjacent facilities, design and safety substantiation and control procedures, option and value engineering studies, independent technical assessment and independent peer review, presentations to the Regulator. Resolution of anomalies and drafting of waivers and changes. Witnessing of 3rd party testing. Production and editing of D154 GEN 225 Design of Nuclear Related Concrete Structures [2001]. Author of Caisson Integrity Report [2006]
- Consultant to Amec design team for Faslane floating jetty, HMNB Clyde, for preparation of Wave Climate Report, review and response to MoD and 3rd Party ITA, & other matters. [2004-7].
- Contribution to GLUE 2 Ltd in the preparation of methodology for spatial and temporal visualisation of decommissioning of Dungeness A nuclear power station, linking to real time Primavera [P3] programme control.[2006-7]
- Development of Knowledge Retention Database for sentencing latent defects and other construction legacy issues for nuclear related structures.DML [2007]

Heavy Civil, Structural & Mining Engineering, 1964 to date

- Design & Construction of seismically qualified structures for alumina plants in Australia to US and Australian Seismic Codes including large diameter [30-60m] mudwashers & thickeners, tall pipe-racks, turbo-generator foundations, rod-ball mills, high temperature fluid-bed digestors, ore stockpilers and product outloading facilities. [1966-68, 1970-71, 1980-83]
- Radical design of 90m traction drive swing lift thickener for Baker Process, Australia [40% saving on structural steelwork and significant reduction in construction time.] [1985-6]

Canal & River Engineering, 1969 to Date

- MAFF Post Project Evaluations of six river & coastal flood protection schemes [UK].
- Evaluation & report of flooding in the Shoalhaven & Crookhaven rivers & schemes for stabilisation of river entrance on a high energy beach [NSW]. 1975-6
- Analysis & design of contractor's temporary sheet-pile flood defence works, for river flows up to and exceeding 4000 cumec: Successfully resisted such a flood during construction in 1985! [Qld] [1984].
- Design of flood alleviation gates, Kempsey Floodway, NSW. [1974-5]
- TEWGOD project, Iraq. Assessment of existing irrigation channel flows from aerial survey 7 subsequent structural design of fixed and lifting aqueducts to maintain flows during and after construction of the Tigris Euphrates West Gharraf Outfall Drain from West of Baghdad to the Basra swamps. Bored concrete piles. 1969-70

Expert Witness, 1976 to date

Provision of expert testimony & reports on storm & vessel impact damage in UK & Australia

- Technical Court, London, [storm & erosion damage, Putsborough Beach, North Devon].
- Stranraer terminal site surveys of Pile damage. 1992
- Blacksness quay model testing & forensic report. 1993-4
- Wave & storm damage to Barmouth seawall, Wales. 1986
- Report on erosion damage Uyea Sound, Shetland Islands Supreme Court of NSW, [Wave & storm damage to coastal structure at Wamberal Beach]. 1995
- Arbitration court of NSW, [Wave & storm damage to breakwaters & various coastal buildings]. 1978-86
- Land & Environment Court of NSW [Coastal developments in NSW]. 1986

List of Publications & Employment History

Available on request.