



Dr ANTHEA AIREY BSc(Hons) PhD MBA
MRACI CChem
Associate Director - Science
AIREY TAYLOR CONSULTING

Qualifications

Master of Business Administration (La Trobe, 2007)
Doctor of Philosophy (Chemistry, Australian National University, 1997)
Bachelor of Science with Honours (University of Western Australia, 1987)

Professional

Concrete Institute of Australia: Member, 2009-present, Past President (WA Branch 2012-14), National Councillor 2014-2021

Membership

Royal Australian Chemical Institute: Member (Chartered Chemist 27 years)
Australasian Corrosion Association: Member (2008 - present)

Career Posts

- **Associate Director - Science** - Airey Taylor Consulting Jan 2020 - present
- **Senior Scientist/ Project Leader/Expert Scientist** - Airey Taylor Consulting July 2005 – Jan 2017; 2020
- **Technical Director - Structures, Maritime & Materials**, GHD Sydney Jan 2018 - June 2020
- **Technical Manager, Composite Wood Panel Industry** – WESFI 2000 -2001; The Laminex Group 2000-2003; Carter Holt Harvey 2004-2005
- **Research & Development Technologist** - WESFI 1997–2000
- **Analytical Chemist** - Western Mining Corporation 1998-1991; Shell Refining (Aust) Ltd 1995-1997
- **Risk Assessor (Chemical)** - Commonwealth Environment Protection Agency 1996-1997

Expertise

- Durability and Sustainability
- Remedial Specifications
- Forensic Investigations
- Expert Witness Services
- Heritage Restoration
- Chemical Mechanisms
- Corrosion & Coatings
- Damp & Mould Investigation & Remediation
- Concrete & Shotcrete Technology
- Project Management
- Knowledge Based programme development
- Technical Communications & Events

Background

Anthea is a Scientist with over twenty-five years expertise in the total building product lifecycle including product development and manufacturing, waste and pollution reduction programmes, identifying mechanisms of deterioration of built-environment materials and specifying preventative/remedial solutions.

Anthea's history of successful technical project delivery enables her to lead teams in developing targeted technical solutions and communicate effectively with project participants. Her understanding of site geotechnical, and environmental challenges and their interaction with structures and materials are key to the strategic solutions supplied.

Her advice includes large-scale condition and dilapidation surveys, corrosion assessments, durability modelling, forensic investigation reports, concrete mix design assessments, materials specifications, purchasing and construction phase support, and quality assurance.



Airey Taylor Pty. Ltd.
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Background, cont...

Anthea is familiar with a wide range of diagnostic techniques applicable to reinforcement corrosion, concrete condition, composite materials, polymers, soil and air chemistry. As a PhD chemist from Australian National University's Research School of Chemistry (ranked in the top 50 worldwide at time of attendance) Anthea is capable of developing non-standard testing programmes with a range of specialised laboratories with whom she regularly liaises.

Anthea is an experienced corrosion investigator and her specifications have been responsible for steel and concrete structural restoration including heritage assets, throughout New South Wales and Western Australia. Anthea's investigation and remediation project experience extends to a range of structures including buildings, facades, dams, canals, aquatic facilities, basements and tunnels. Anthea's specifications include remediation and new build of maritime structures and rail infrastructure.

Anthea is an experienced forensic scientist and court expert witness conducting in-depth investigation and reporting on structural and civil facilities.

Anthea is highly connected as a past Standards committee member and National Councillor of the Concrete Institute of Australia (8 years), coordinating over 100 events on topics fostering excellence and innovation in concrete materials, design and construction. In addition to contributing her own papers, Anthea has contributed to Conference event organisation and peer review.

Selected Expert Witness Case List

As a consultant for Airey Taylor Consulting, Anthea conducts forensic investigations into failures of structures and civil infrastructure, prepares reports, develops remedial advice, and supplies expert conferral and court expert witness services to resolve disputes arising. Specialist expertise and leadership is in the area of the diagnostics and remediation of damp structures.

- ☐ **Durability implications of cracked and salt-water flooded basement car park of a newly constructed prestige riverside apartment complex**
Budget of repairs estimated by Anthea as \$ 1.5 million; Client: C/O Hotckin Hanly Lawyers, 2021
- ☐ **Causal Analysis of Copper Pipe Corrosion 2020-Present**
Value of copper pipe plumbing installations investigated: circa \$5 Million. Clients: Anonymous.
- ☐ **Brightwater Nursing Home Causes of Remediated Vinyl Delamination**
Swinton Contract Flooring Pty Ltd v. Sandrada Nominees Pty Ltd, Perth Magistrates Court No. 3954 of 2013 (client: Sandrada Nominees Pty Ltd C/O Lewis Blyth and Hooper Lawyers).
- ☐ **Island Apartments Durability Investigation**
Owners of Strata Plan 52597 v. Pindan Pty Ltd, State Administrative Tribunal Matter CC 6 of 2015 (client: Lavan Legal on behalf of SP 52597).
- ☐ **Industrial v. environmental contributors to rusting of a 20-year old galvanized industrial shed 1 km from the Ocean containing a stainless steel pickling plant**
Prada Developments Pty Ltd v. Orontide Group Pty Ltd, District Court of Western Australia CIV 375 of 2014 (client: Prada Developments C/O Hotckin Hanly Lawyers)
- ☐ **Causes of Swimming Pool Render Deterioration**
State Administrative Tribunal Matter CC172 of 2015 McGorman & Anor v. Aquatic Leisure Technologies Pty Ltd (client: Aquatic Leisure Technologies)
- ☐ **Westralia Square causal analysis of car park cracking**
State Administrative Tribunal Matter C077655 of 2009 (client: Insurance Commission of WA C/O HBWL Ebsworth Lawyers)



Select Technical Project Management

Anthea is a Scientist with significant experience in senior management roles including Technical Director, Technical Manager and Project Manager in construction, manufacturing, and environmental projects. All project descriptions available on request.

As Associate Director – Science, Airey Taylor Consulting - present

- ❑ **Project Manager (2021-present). “The Views” 23 Swan St South Perth Façade Remediation**
Client: SP 6660, South Perth, WA. Project value: \$1.6 million
- ❑ **Project Manager: Fremantle Woolstores Structural Hazard Assessment Report (2021-2022)**
ATC conducted a wholistic pre-sale safety assessment of a 14400 m² 1927 Heritage and 21,500 m² 1947 extension structure and provided make safe recommendations and developed in situ preservation approach for heritage woodwork during this period (asbestos by others).

As Technical Director, Structures Maritime & Materials, GHD (Sydney) Feb 2018 – June 2020

- ❑ **Materials Advisor (October 2019). Supply Chain Readiness – Materials Suitability Report**
Client: Sustainability Victoria, Melbourne, VIC
- ❑ **Durability and Concrete Technology Advisor (2018-2019). Western Sydney Airport**
Client: WSA Co, Sydney, NSW
- ❑ **Project Manager (2020). Multiple Properties, Barangaroo Hickson Rd Close-Out Dilapidation Survey**
Client: Enviropacific Services Pty Ltd, Sydney, NSW
- ❑ **Technical Lead (2019). K2 Wharf Unloader Concrete Repair**
Client: Port of Newcastle, Newcastle, NSW
- ❑ **Durability & Product Sustainability Advisor (Feb 2018-Feb 2020). Central Station Main Works, Aurecon GHD Joint Venture, D&C**
Client: Laing O’Rourke for Transport for NSW, Sydney, NSW. Project Value: \$1 billion
- ❑ **Durability Reviewer (2019). 25 year Design Life Boat Ramp Design, Port of Adelaide, Adelaide, SA**
- ❑ **Technical Lead and Specifier (2019). Lake Medlow Dam Circumferential Concrete Cracking Investigation and Specification to Remediate**
Client: WaterNSW, Sydney, NSW
- ❑ **Durability Advisor (2019-2020). Total (Disability) Access Plan (TAP 3) Fairy Meadow & Mittagong Train Stations, Design and Construct (D&C)**
Client: Degnan for Transport for NSW, Regional NSW
- ❑ **Team Lead – Condition Assessments (2019). TAP 3 - Beecroft, Bexley North, Como, Petersham and Wahroonga Train Stations and Associated Bridges**
D&C client Laing O’Rourke for Transport for NSW, Sydney, NSW
- ❑ **Durability Lead and Project Manager (2018-2019). Upper Canal Stage 2 (remediation of 100 year old water canal carrying 40% of Sydney’s drinking water)**
D&C client Comdain for WaterNSW, Sydney, NSW. Project Value: > \$1 million
- ❑ **Technical Lead (2018). Warragamba Dam Spillway Concrete Cracking including AAR Investigation**
Client: WaterNSW, Sydney, NSW
- ❑ **Durability Advisor (2018). Crack Investigation Concrete Access Way Topping Slab – Northern Breakwater and Advice to Remediate**
Client: Department of Industry, Crown Lands, Coffs Harbour, NSW
- ❑ **Project Manager and Technical Lead (2018). Glebe Tunnel Multiple Source Water Ingress Investigation**
Client: Transdev, Sydney, NSW



As Project Leader – Scientific Services Airey Taylor Consulting July 2005- Jan 2018

- ❑ **Project Leader (2016). Governor Stirling Senior High School Oval Redevelopment**
Client: Building Management and Works, Government of Western Australia, Woodbridge, WA. Project value: \$1.93 million.
- ❑ **Project Leader (2017). 899 & 915 Hay St Heritage Façade Remediation**
Client: Savills.
- ❑ **Project Leader (2017). Dilapidation Survey of Cracks and Variable Reinforcement Cover of Decorative & Structural Concrete Fins and Remediation Options: 21 storey structure**
Client: Anonymous Tier 1 Contractor, Perth, Western Australia
- ❑ **Project Leader and Specifier ((Phase 1-2013-2014; Phase 2 2017) 20 storey Windsor Towers, South Perth**
Project Budget \$3.5 million (\$1.5 million concrete repair); Client/Builder Trademark Constructions; Sub-contractor: Elite Concrete Repair.
- ❑ **Project Leader (2017). Moora Hospital Causes of Vinyl Delamination**
Client: Building Management and Works, Government of Western Australia
- ❑ **Project Leader (2014-2017). Aquatic Centre Condition and Service Life Projections by Core Survey**
Client: Collie (2014), Northam (2015) Morawa Shires (2016) and Churchlands SHS (2017)
- ❑ **Project Leader (2015). 108 St George's Tce - Bankwest Tower Atrium Glazing Investigation**
Client: Rope Access Inspection & Maintenance
- ❑ **Project Leader (2014). 553 Hay St Investigate and Remediate Faux Granite Concrete Column Buckling**
Client: Savills; Builder: Kulin Group; implemented for <\$100 k
- ❑ **Senior Scientist (2012). 726 Hay St – Heritage Adaptive Re-Use**
Budget \$ 5.7 million; Client: Palassis Architects; Builder: Diploma; Sub-contractor: Duratec
Concrete Remediation Project Value: > \$1 million.

Select Publications

Standards

The 16 standards Anthea contributed to are:

AS/NZS 1859.1:2001 Reconstituted wood-based panels Part 1: Particleboard and Part 2: Dry-processed fibreboard
 AS/NZS 1860.1:2001 Particleboard flooring Part 1: Specifications
 AS/NZS 1604.2:2001 Specification for preservative treatment. Part 2: Reconstituted wood-based Products
 AS/NZS 1604.2:2001 Specification for preservative treatment. Part 2: Reconstituted wood-based Products
 AS/NZS 4266 series Reconstituted wood-based panels –Methods of test (2001) (multiple).
 JANS 2000 Japanese, Australian and New Zealand Particleboard and MDF Standard and associated test methods

Patent

Patent Application WO2001064408A1 'Impact Resistant substrate particleboard and composite material using same', 2000 (with T Franco and T Bryant).

Conference Papers

'Glass Fibre Reinforcement - Durability and Structural Design' Virtual Conference (co-author Darshan Shankar), and 'Hay St Perth Art Deco Heritage; Carbonation and Chloride Observations' Concrete 2021, 30th Biannual Conference of the Concrete Institute of Australia, September 2021 (papers 226 and 186).

'Effect of exposure zone changes on the concrete service life predictions of swimming pools' Concrete 2017, 28th Biennial Conference of the Concrete Institute of Australia and the 3rd International Congress on Durability of Concrete, Adelaide, October 22-25 October 2017 (paper 178).

'Escaped Process Gases – The Unexpected in Plant Shed Corrosion' – and 'Protimeter Revisited for Large Scale Damp Investigations' - 54th Annual Conference of the Australasian Corrosion Association, Darwin, 21-24 September 2014 (papers 135 and 136).

'What Lies Beneath – Plant Room Slab Corrosion' – Concrete 2011; 25th Biennial Conference of the Concrete Institute of Australia, Perth, WA, Australia, 11-14 October, 2011.

'Concrete Carbonation – More Prevalent than Chloride Attack Down Under?' - Corrosion Control 007: 47th Annual Conference of the Australasian Corrosion Association, Australasian Corrosion Association Inc., Sydney NSW, 25-28 November 2007.

Airey, Anthea and Airey, Peter (2007). 'Design for a Concrete Future on Clays', *Concrete 2007 –Design, Materials & Structure: Proceedings of the 23rd Biennial Conference of the Concrete Institute of Australia*, Adelaide, SA, Australia, 18 – 20 October 2007.

'Relativity of Airborne Fluoride Emissions on Human Health in an Australian Capital' - 14th International Congress IUAPPA in conjunction with Clean Air Australia & NZ; Brisbane `10-14 September 2007.