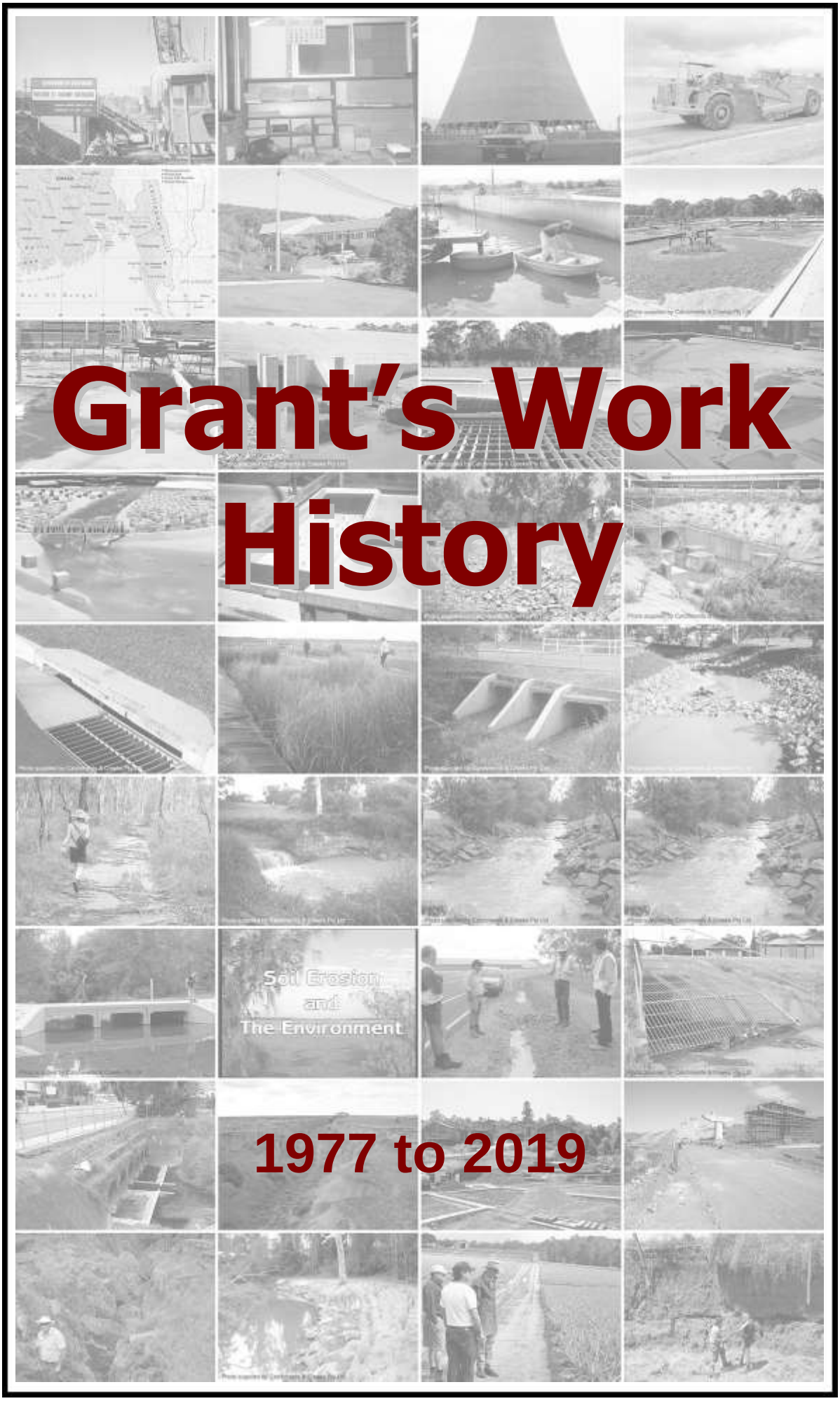

Grant's Work History

1977 to 2019

Grant's Work History, 1977 to 2019

Version 1, May 2025

Prepared and illustrated by: Grant Witheridge, Catchments and Creeks

Published by: Catchments and Creeks, Bargara, Queensland, Australia

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Purpose

I believe it is important for people who rely on the content of my publications to have access to information about my education and work experience.

The purpose of this publication is to document the work history of Grant Witheridge (of Sydney, Brisbane and Bargara) so that readers of the various *Catchments and Creeks* documents will be able to investigate the work experiences that support Grant's knowledge of various subjects.

1977 (student engineer)

University of NSW Union Card

University of NSW

- First year civil engineering.
  - **HD** – Civil Engineering A (statics)
  - **D** – Engineering B
  - **C** – Physics 1, Civil Engineering B, Mathematics 1 (low grade because I did not complete any of the computing assignments)
  - Conceded pass – Chemistry (didn't like chemistry)

McDonalds North Ryde

McDonalds, North Ryde

- Work period: late December 1976 to June 1977.
- $2.65/hr
- Started in a new restaurant as employee number 13 (unlucky, meaning that I was unlucky dating any of the girls).
- Made the first 'Manager of the Back' a weekly position in charge of staff working in the cooking area (behind the service desk).

Rutledge Street Railway Overpass

Rutledge St, Eastwood Railway Overpass

- Christmas vacation work as labourer.
- 28/11/77 to 3/2/78
- $4.33/hr
- As a sign of the times, one of my tasks was to run across the road to the pub and buy a bottle of beer for the crane driver (at any time while he was working!)
- I was also told by the steel reinforcing guys, during a delay in a concrete pour, to run down to the office and bring back some more 'chairs' (reo chairs!)

Half-completed bridge

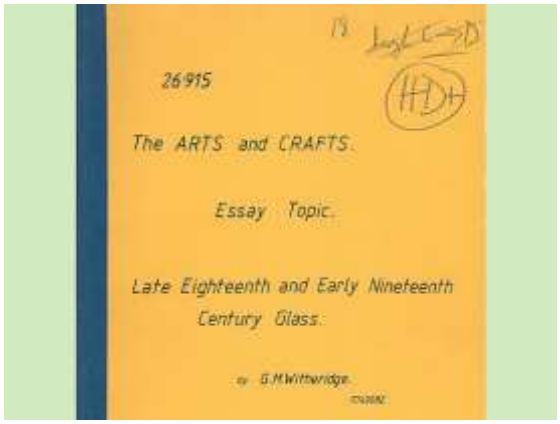
Western bridge abutment

1978 (student engineer)

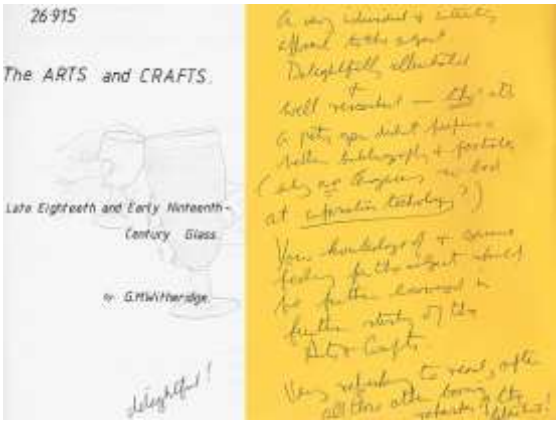
University lecture (27/4/78)

University of NSW

- Second year civil engineering.
  - **D** – Mechanics of Solids 2, Advanced Engineering Geology, Surveying for Engineers, Structural Design 1, Systems Engineering, Engineering Mathematics 2
  - **C** – Hydraulics 1, Survey Camp, Civil Engineering Materials 1
  - **P** – Engineering Construction, The Arts and Crafts.



Arts and Crafts report on glassware



Arts and Crafts report feedback

Office desk at Kurnell weight bridge

Pioneer Ltd.

- Christmas vacation work as weighbridge operator, Pioneer's Sand Quarry, Kurnell Sydney.
- 11/12/78 to 19/2/79
- $4.31/hr
- Started work before sunrise, but got to watch the sun rise each morning.
- I came to the conclusion that the morning is the best part of the day, and as such, it should be spent in bed, asleep!

Pioneer Sand Quarry, Kurnell (2013)

1979 (student engineer)

University of New South Wales

University of NSW

- Third year civil engineering
  - **HD** – Structural Analysis 1
  - **D** – Eng. Mathematics, Hydraulics 2
  - **C** – Environmental Aspects of Civil Engineering, Water Resources 1, Water Resources 2
  - **P** – Structural Analysis 2, Hydraulics 3, Civil Engineering Materials 2, Man and the Environment
  - F – Planning and Management, and Structural Design 2.

Wallerawang Power Station

Thiess Brothers Pty Ltd

- Christmas vacation work as student engineer at Wallerawang Power Station, (west of Lithgow) NSW.
- 3/12/79 to 15/2/80
- $21.67/day or $2.41/hr
- My first experience staying in a construction camp. Just one step up from a prison camp. Wire-mesh bed frame (the worst), communal showers with no doors, and toilet doors with no locks—a difficult time.

Cooling tower

Road construction

My mighty Datsun 1200 with front air dam

Accommodation camp, Wallerawang

1980s

1980 (student engineer)

University of New South Wales

On-site wastewater treatment plant

University of NSW

- Fourth year civil engineering. President of CivSoc (Civil Engineering Society).
  - **D** – Water Resources 3, Road Engineering, Structural Design 2
  - **C** – Structural Engineering, Planning and Management 1, History of Civil Engineering, Design Projects (Materials, Structure & Water Engineering), Planning and Management 2
  - **P** – Transportation Engineering, Design Project Construction, Economics.

G. Abignano Pty Ltd

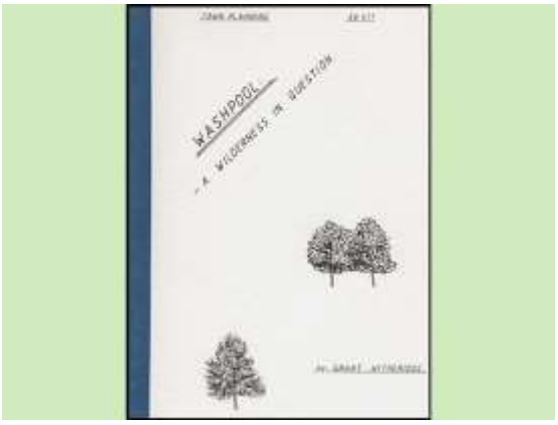
- Christmas vacation work as student engineer at Baywater Power Station, at the interchange road construction office.
- Salary based on $10,000/yr
- Shared accommodation with three Croatian machinery operators (see below), really great, funny guys that cooked an entire meal in just one pot.
- Made the mistake of asking to witness a rock blast, so the workers arranged for me to be standing near the base of the rock face when it blasted (their idea of fun)!!!

Elevator scraper (1980)

Grader (1980)

1981 (under-graduate engineer)

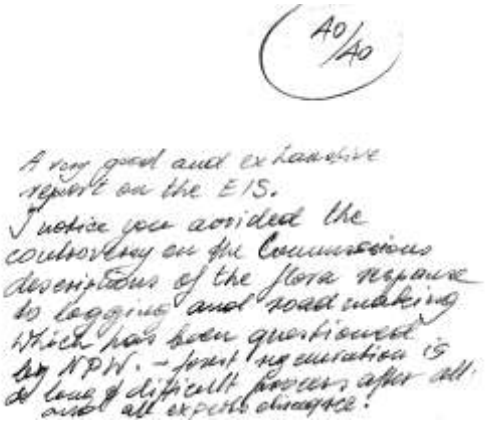
Bachelor of Engineering (Civil)



Town Planning report on wilderness

University of NSW

- Finished fourth year civil engineering (part-time).
  - **D** – Town Planning, Metals Engineering
  - **C** – Ritual, Religion and Myth, Ethnic Minorities and U.S. Society
  - **P** – Concrete Technology
  - Pass Conceded – Planning and Management 3.
- Graduated as a civil engineer from the University of NSW on 30/4/82, Bachelor of Eng (civil) Hon. Class 2, Division 2.



Town Planning report feedback

Chittagong catchment map

B.J. LePlastrier & Assoc Pty Ltd

- UNSW Water Research Laboratory (WRL)
- Under-graduate engineer
- 2/3/81 to February 1982
- $6.50/hr (started) later increased to $8.00/hr
- Data entry for the Chittagong River numerical flood model. The model suffered from terminal instability issues associated with jumping into, and out of, supercritical flow conditions.

Water Research Laboratory (bottom-right), below Manly Dam, Manly Vale, Sydney

1982 (Graduate engineer)

Water Research Laboratory (1986)

B.J. LePlastrier & Assoc Pty Ltd

- UNSW Water Research Laboratory (WRL)
- 2/3/81 to February 1982
- $8.00/hr

Breakwater construction, Nazare Portugal

Electrician assistant

- Worked with John Toth as labour electrician Feb-82 to Mar-82 $200/w net
- Travelled overseas during the period 4/3/82 to 6/8/82.

Water Research Laboratory

B.J. LePlastrier & Assoc Pty Ltd

- UNSW Water Research Laboratory (WRL)
- 30/8/82 to 1/10/82
- $12.33/hr (casual)

Future director of WRL, Bill Peirson

Unisearch Ltd.

- Water Research Laboratory (WRL)
- 27/10/82 start back at WRL ($12.33/hr)

1983

Jenolan Caves WWTP

Unisearch Ltd.

- Water Research Laboratory (WRL)
- 1/1/83 to March 1983
- $12.33/hr (casual)

Bathurst Box B4000

NSW Department of Public Works

- State Office Block, Sydney, 11th floor
- Sewerage Branch, Treatment and Trade Waste
- 14/3/83 commenced work
- $17,156/yr

B4000 testing, Bathurst

Site inspections

- 14/6/83, work trip to Jenolan Caves
- 6-7/7/83, work trip to Forster WWTP

Flow measuring flumes

Projects

- Investigations into the design of wastewater treatment plant inlet works, including debris screens, grit arresters and flow measuring flumes.

1984

Bathurst Box B4000

NSW Department of Public Works

- State Office Block, Sydney, 11th floor
- Sewerage Branch, Treatment and Trade Waste
- $17,156/yr

Port Macquarie WWTP

Projects

- Water quality and decant testing at Port Macquarie WWTP.

Sawtell B4000 WWTP

Site inspections

- February, Bathurst WWTP with PWD.
- 22/5/84 Sawtell WWTP with PWD.
- Was involved in a traffic accident (as a passenger!) while travelling to a Waste Water Treatment Plant.
- Decant test on the Port Macquarie tank late 1984 (prior to commencing Masters Project).

PWD Research Bulletin No. 5

Publication

- My first technical publication.
- *'A Guide to the Design of Flow measuring Flumes'*, Sewerage Branch, Research Bulletin No. 5, September, NSW Public Works Department, Sydney.

1985

Georges River physical flood model

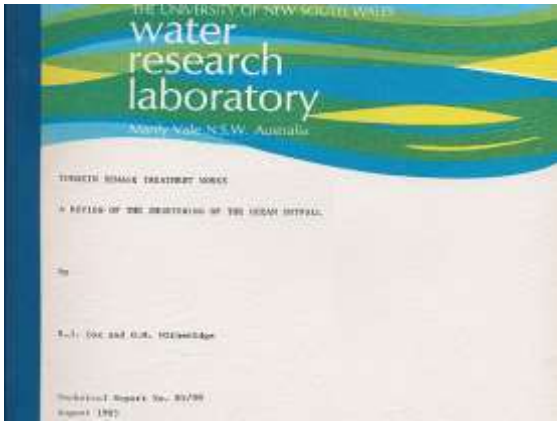
NSW Department of Public Works

- State Office Block, 11th floor
- Sewerage Branch, Treatment and Trade Waste
- $17,156/yr

Georges River physical flood model

Unisearch Ltd

- UNSW Water Research Laboratory (WRL)
- King St, Manly Vale
- Commenced on 4/2/85 at $22,225 pa
- 19-23 August, attended International Association for Hydraulic Research Conference, University of Melbourne.



Tomakin WWTP Outfall report

Project

- February, Georges River physical model.
- November, work on Mt Druitt Water Works whitewater slide.

Publications

- *'Tomakin Sewage Treatment Works – A Review of the Shortening of the Ocean Outfall'*, R.J. Cox and G.M. Witheridge, Technical Report 85/08, Water Research Laboratory, Many Vale, NSW.

Mt Druitt Water Works

Education

- Started post graduate Masters of Engineering Science at the University of NSW.
- Student number 7749082
- HD – Coastal Engineering 2, Fluvial Hydraulics
- D – Coastal Engineering 1
- P – Closed Conduit Flow

1986

1986 flood, Georges River, Milperra

Employer

- Unisearch Ltd.
- Water Research Laboratory
- King St, Many Vale

Toongabbie 3 detention basin outlet

Projects

- 5-6/8/86 Georges River flooded.
- 6/8/86 Georges River flood (Georges River demo flood for Action Group cancelled due to river flooding).
- Flood height monitoring of 1986 flood in Georges River.
- Oct-Nov, Toongabbie detention basin testing.

Port Macquarie decant testing

Projects

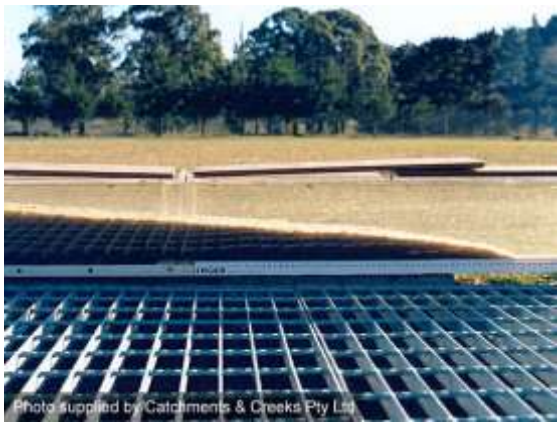
- March, Kiama WWTP aerator vibration.
- 16/6/86, Port Macquarie WWTP visit.
- 6-14/9/86, Port Macquarie decant testing, which eventually became part of university Masters Project.
- 18-22/8/86 North Richmond decant testing
- Sept, Bundanoon WWTP testing.
- Loch exchange fluid density testing.

Settled sludge shear test, Nth Richmond

Education

- Masters of Engineering Science at the University of NSW
- Student number 7749082
- HD – Pipe Networks and Transients
- C – Hydromechanics, Aerodynamics 1

1987



Loch exchange density testing, Bowral

Employer

- Unisearch Ltd.
- Water Research Laboratory
- King St, Many Vale

Georges River physical flood model

Projects

- Continued work on Georges River flood mapping.
- 15/5/87, demo flood for Milperra Group.
- 12/6/87, site visit Bowral.
- July, start work on Penrith Lakes model.
- July, Loch exchange testing at Bowral WWTP.
- 15/7/87, Bowral WWTP loch exchange testing with David Wilkinson.
- July, start work on Penrith Lakes model.

David Wilkinson with loch exchange test

Further education

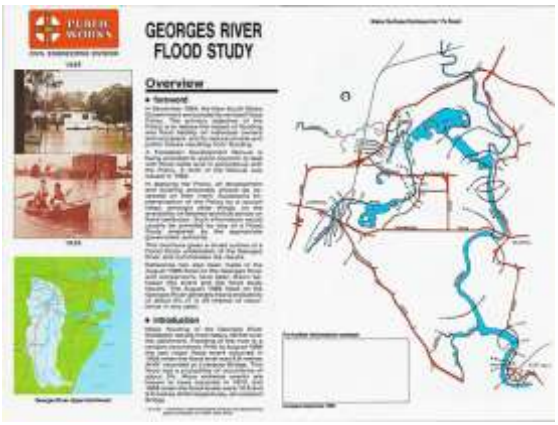
- 31/8-4/9/87 ‘Introduction to Capital and Maintenance Dredging’ Uni of Queensland, Brisbane.

Dredging Short Course field day

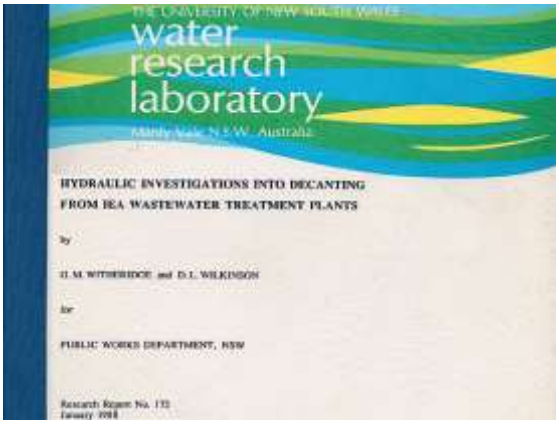
Education

- Masters of Engineering Science at the University of NSW.
- Student number 7749082.
- Attended ‘Free Surface Flow’ lectures, but accepted an ‘Absent Fail’ grade. My logic for doing this was that since the courses back then were ‘free’, up until the time you graduated, I could complete additional course for free so long as I delayed my Masters degree graduation.

1988

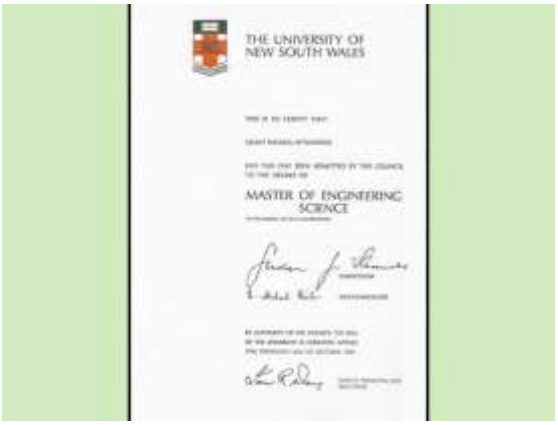


Georges River flood mapping



Hydraulic Investigations into Decanting

Penrith Lakes - 1988 land conditions



Master of Engineering Science

Employer

- Unisearch Ltd.
- Water Research Laboratory
- King St, Many Vale

Projects

- Still working on Georges River model.
- Set-up of Penrith Lakes model.

Publications

- *'Hydraulic Investigations into Decanting from IEA Wastewater Treatment Plants'* G.M. Witheridge and D.L. Wilkinson, Research Report No. 172, Water Research Laboratory, Manly Vale, NSW.

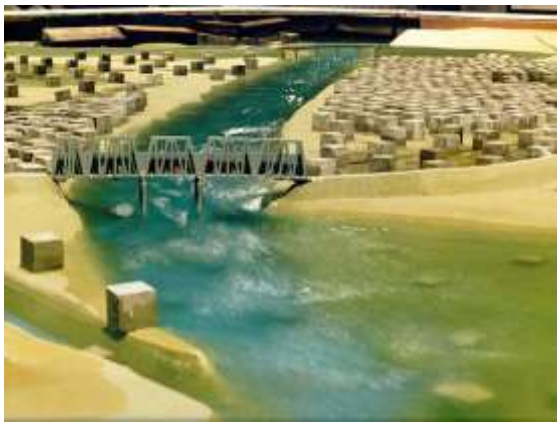
Further education

- 17-19/5/88, 'Australian Rainfall and Runoff Workshop', UNSW, Sydney

Education

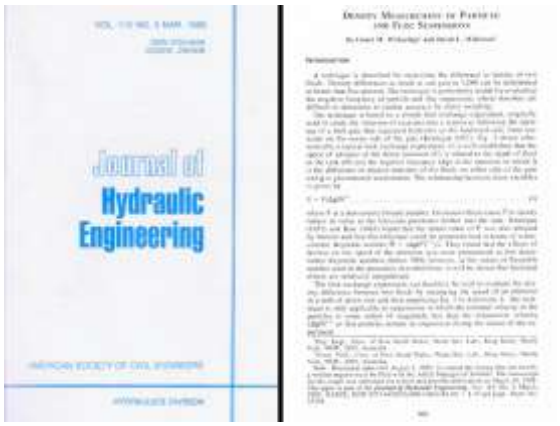
- Masters of Engineering Science at the University of NSW.
- Student number 7749082
- HD – Free Surface Flow, Flood Design 1
- C – Project
- 13/10/89, admitted to the degree of Masters of Engineering Science in the School of Civil Engineering (M.Eng.Sc.).

1989

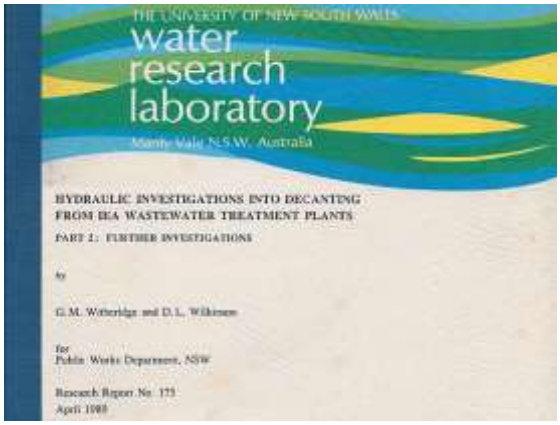


Penrith Lakes physical flood model

Penrith Lakes physical flood model



Journal of Hydraulic Engineering



Hydraulic Investigations into Decanting

University and employment

- Unisearch Ltd, Water Research Laboratory, Manly Vale.
- Worked on-site at Penrith Lakes model, Penrith (western Sydney).
- Lived at Emu Plains.

Project

- Penrith Lakes model construction and testing

Published papers and reports

- Witheridge, G.M. and Wilkinson, D.L. 1989, *'Density Measurement of Particle and Floc Suspensions'*, Journal of Hydraulic Engineering, Vol. 115, No. 3, March 1989, American Society of Civil Engineers, pp. 403–408.
- *'Hydraulic Investigations into Decanting from IEA Wastewater Treatment Plants, Part 2: Further Investigations'* G.M. Witheridge and D.L. Wilkinson, Research Report No. 175, Water Research Laboratory, Manly Vale, NSW.

Personal interest

- 18/4/89, appeared in a news paper article in 'The Penrith Press' on the Penrith Lakes model.

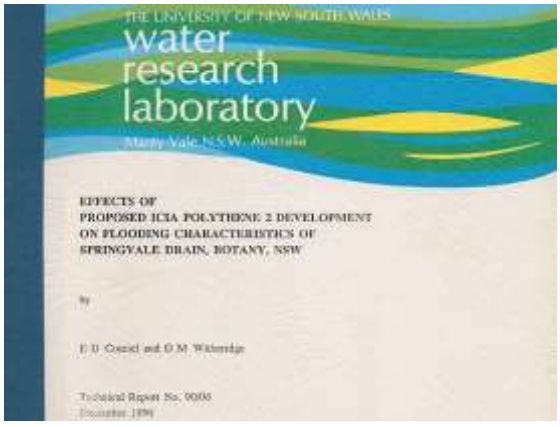
1990s

1990

Smeaton Grange drop structure report

Smeaton Grange drop structure model

Smeaton Grange drop structure



Botany Bay WRL Report 90/06

Employer

- Unisearch Ltd., Water Research Laboratory.
- Working at both Manly Vale and Penrith.

Projects

- July, Smeaton Grange drop structure testing.
- Penrith Lakes model analysis.
- Georges River Flood Model report.

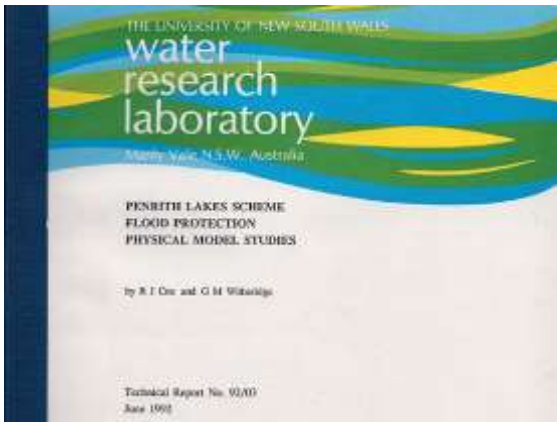
Publications

- *'Smeaton Grange Industrial Development – Hydraulic Model Testing of drop Structure',* Report 90/15, Australian Water and Coastal Studies, WRL, Manly Vale.
- *'Effects of Proposed ICIA Polythene 2 Development on Flooding Characteristics of Springvale Drain, Botany, NSW'*, E.D. Couriel and G.M. Witheridge, Tech Report 90/06, WRL, Manly Vale.

Further education

- 21-22/2/90, 'Ocean Outfall Design' short course, UNSW, Sydney.
- 2-5/7/90, 'Management of Water Quality in Municipal Supplies', UNSW, Sydney.

1991



Penrith Lakes Model Study report

Downfall Creek Bushland Centre

Perrin Creek, Cannon Hill

Board of Prof Engineers, Qld

Unisearch Ltd.

- Employed by Unisearch at the Water Research Laboratory, Manly Vale—working part time at Manly Vale and Penrith.
- 26/4/91 last day at WRL.

Projects

- Finalisation of Georges River flood study and report.
- Finalisation of Penrith Lakes flood study and report.

Brisbane City Council

- 1/5/91 Start at Brisbane City Council
- Worked on 11 floor of BAC, 69 Ann Street, Brisbane.
- 2/3/92, Start as assistant Supervising Engineer Hydraulics (A/SEH).

Projects

- Assessment of stormwater aspects of development applications (DAs).
- Downfall Creek Bushland Centre erosion control (demonstration of jute blankets).
- Design of channel inflow structure, Stable Swamp Ck, Chilton St, Sunnybank.
- December, design of erosion control at Johnson Road bridge, Oxley Creek.
- Perrin Creek flood study.
- March, Mt Gravatt Bus Depot stormwater outlet.
- Sandgate seawall investigations.
- August, Oxley Creek WWTP hydraulics.
- 30/11/92, Perrin Creek public meeting

Professional affiliations

- 13 June 1991, registered as Registered Professional Engineer of Queensland (RPEQ) in civil engineering, Reg. No. 3591
- IEAust Water Panel member.

Further education

- 11-13/12/91, ‘The ILSAX Program for Urban Stormwater Drainage Systems’, UTS, Sydney.

1992

Johnson Road bridge, Oxley Creek

Construction of Chilton St drain

Mt Gravatt stormwater outlet

Brighton Beach

Employer

- Brisbane City Council
- Hydraulics Section, Design Branch
- Supervising Engineer, North
- 12th floor of the Brisbane Administration Centre.

Projects

- Assessment of the stormwater aspects of development applications (DAs).
- January, Johnson Road, Oxley Creek design of erosion control measures.
- June, Construction of Chilton St drain.
- August, Worked on Oxley Creek WWTP hydraulics for Brisbane Water (through the Hydraulics Section of BCC).
- Nov-Dec, Worked on the BCC Brighton Beach project.
- Design of Mt Gravatt Bus Depot stormwater outlet energy dissipater.

Professional affiliations

- Member of the Water Panel, IEAust (Qld).

Publications

- *'Penrith Lakes Scheme Flood Protection Physical Model Studies'* R.J. Cox and G.M. Witheridge, Tec Report 92/03, Water Research Laboratory, Manly Vale, NSW.

Further education

- 4-7/2/92 International Symposium on Urban Stormwater Management, The University of Technology, Sydney.

1993

Boss Creek erosion control, Inala

Bancroft Park, Enoggera Ck

Stormwater message on kerb inlet

Sydney/Gosford ESC study tour

Employer

- Brisbane City Council, Design Branch.
- 12th floor of BAC.

Projects

- NCD, Downfall Ck diversion, Chermside.
- January, Rainbow Park, Cubberla Ck erosion investigations.
- March, Bancroft Park creek bank erosion.
- 14/5/93 Brighton Beach public meeting at Sandgate Town Hall.
- June, 'Dump no Waste – Flows to Creek' message imprinted into concrete lintels.
- IEAust/BCC/DEH Stormwater awareness DL-brochure released.
- September, North Pine River erosion.
- September, Started the Catchment Management Program at BCC.
- November, Boss Ck erosion, Inala.

Professional affiliations

- Member of the Water Panel, IEAust (Qld).
- 17/3/93 Agree to chair the steering committee for the IEAust ESC Guidelines.
- 22/11/93 Meeting in ACT on IEAust Soil Erosion Guidelines.
- 8/12/93 Meeting with Rick Morse et al. on Blue Book at Landcom, Liverpool, NSW.
- 9/12/93 Meeting with David Green of CaLM at Gosford, NSW.
- 17-24/12/93 Work at Toowoomba with Bob Walker on ESC Guidelines (sponsored by BCC).
- 20/12/93 Meeting with Rob Loch re Soil Erosion Guidelines.

Publications

- *'Black Rock Sewage Treatment Plant Assessment of Sludge Blanket Performance', G.M. Witheridge and R. Nittim, Tech Report 93/05, Water Research Laboratory, Manly Vale, NSW.*

Talks

- 21/4/93 Presented my first professional seminar, 'Drop Structure Design Problems', IEAust Water Panel, Brisbane.

Further education

- 9-10/2/93 IEAust (Qld) Water Panel, 7th Queensland Hydrology Symposium, UQ Brisbane.
- 27-28/10/93 Soil and Water Management for Urban Development Conference, Castle Hill, NSW.
- 29/10/93 IECA-ESC course, Castle Hill.

1994

TV interview by Channel 10's 'Totally Wild'

Sediment deposit, upper Kedron Brook

IEAust/BCC/DEH Stormwater Awareness

Qld DPI Integrated Catchment Management

Employer

- Brisbane City Council, Design Branch, Catchment Management Unit.

Projects

- 10/2/94 Stormwater Awareness Campaign Release (BCC, EPA, IEAust).
- 15/2/94 Filmed Channel Ten Totally Wild talking about stormwater pollution.
- March, Investigations into sediment deposit, Kedron Brook, Lanita Rd.
- QDPI's ICM survey, *The Source*.
- 26/8/94 Last day at Brisbane City Council.
- Post 26/8/94 unpaid work on IEAust ESC guidelines.
- 10/9/94 Tour of Gosford ESC.
- 19/11/94 Release of the draft IEAust (Qld) ESC guidelines.

Professional affiliations

- Member of the Water Panel, IEAust (Qld).
- Member IEAust, SIAQ & IECA.

Publications

- 19/11/94 Release of draft IEAust ESC Guidelines.

Papers and articles

- Drop Structure Design Problems: Engineering Update, IEAust. (Qld) Technical Papers, March, 1994.

Talks

- 18/5/94 Water Panel technical session on the IEAust-ESC guidelines.
- 21/9/94 IEAust Water Panel talk on *Aspects of Culvert Design.*

Further education

- 15-17/2/94 1994 International Conf. on Hydraulics in Civil Engineering, UQ Brisbane.
- 'Queensland Urban Drainage Manual', Neville Jones & Assoc, Brisbane.
- 29-30/6/94 IEAust (Qld) Water Panel, 8th Queensland Hydrology Symposium, Brisbane.
- 6-7/9/94 2nd Annual Conf. Soil and Water Management for Urban Development, Creative Stormwater Management, Sydney, NSW.
- 8/9/94 'The Practical Application of Soil and Water Management Plans', IECA, Sydney.
- 8/9/94 'Wetland Stormwater management Systems, IECA, Sydney.

1995

Inspection of treatment lake, Orlando, Fl

McMillan Road drop structure, Brisbane

Debris deflection walls, Ithaca Creek

IECA-ESC Field Day, Sydney

Employment

- 1/1/95 to 21/5/95 Unpaid work on IEAust ESC guidelines.
- 22/5/95 Start at Brisbane City Council as a consultant for Griffith University's Waste Management Unit, No. 907231.

Projects

- Drafting of IEAust ESC guidelines.
- 16/2/95 Conducted first ESC training with Mary Maher & Associates.
- 17/7/95 First university lecture, Coastal Environmental Systems, also lectured Water Resources Management.
- October, Construction of debris deflection walls, Ithaca Ck, Red Hill.
- 11/10 to 1/12/95 ESC courses in Brisbane, Gold Coast, Sunshine Coast and Toowoomba for Griffith Uni.
- December, Investigation into the McMillan Road drop structure failure.
- Presented 6 training courses during year.

Professional affiliations

- Member of the Water Panel, IEAust (Qld).
- Member IEAust, SIAQ & IECA.

Papers and articles

- *'Water Under the Bridge'*, Engineering Update, IEAust. (Qld) Technical Papers, March, April, May-August, and September-October 1995, in partnership with R.B. Tomlinson.

Talks

- *'Don't shoot me! – I'm just a water engineer'*, talk at Geography Support Group, Brisbane, September 1995.
- *'Local Government Responsibilities – Stormwater and Erosion & Sediment Control'*, talk at Logov, Brisbane.

Further education

- 25 Feb to 27 April travelled 10,000 km; 15 states of USA plus Canada; study tour of stormwater and ESC practices.
- 25/2-3/3/95 26th IECA Conference, Carrying the Torch for Erosion Control – An Olympic Task, IECA, Atlanta, Georgia, USA.
- 28/2/95 'Practical Approaches for Effective Erosion and Sediment Control', IECA, Atlanta, Georgia, USA.
- 4-5/7/95 IEAust (Qld) Water Panel, 9th Queensland Hydrology Symposium.
- 12-15/9/95 Soil and Water Management for Urban Development, 3rd Annual Conf., Sydney & ESC demo western Sydney.

1996

McMillan Road drop structure

Upper Brookfield Road causeway

Brookbent Road, Oxley Creek

Sandy Creek, Enoggera

Employer

- Griffith University Waste Management Unit
- Consultant to Brisbane City Council.

Projects

- Lecture Coastal Engineering, Griffith Uni.
- Throughout 1996, Work on creek erosion guidelines while consulting at BCC.
- Continued to work on IEAust ESC doc.
- McMillan Rd drop structure re-design.
- April, Peter Lightfoot Oval, Middle Park erosion.
- April, Causeway erosion control, Upper Brookfield Road.
- May, Brookbent Road, Oxley Ck pipe relocation.
- May, NCD Sandy Ck, Enoggera.
- May, Design of scour control, Moggill Rd, The Gap.
- 17/5/96 1-Day ESC training in Cairns.
- September, Scrub Road, ESCP.
- 9-10/10/96 Logov ESC demonstration.
- 2/10/96 Official launch of IEAust *Soil Erosion and Sediment Control Guidelines.*
- 2/11/96 Griffith University Golden Goose Award: *'Favourite Lecturer'.*
- Presented 6 training courses during year.

Professional affiliations

- Member IEAust, SIAQ & IECA.
- 15/3/96 KSAG wastewater study group.

Publications

- *'Soil Erosion and Sediment Control – Engineering Guidelines for Queensland Construction Sites'*, prepared by G. Witheridge and R. Walker, The Institution of Engineers Australia, Queensland Branch, June 1996.

Papers and articles

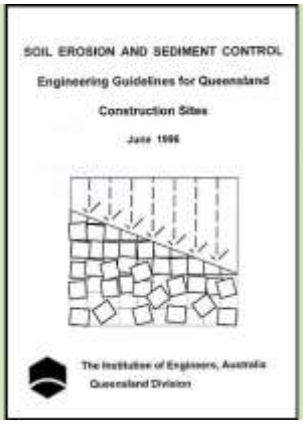
- *'Urban Erosion and Sediment Control'*, ASSSI (Qld) Land Management for Urban Development, Brisbane 22-24 April 1996, in partnership with P.N. Truong.
- *'Erosion and Sediment Control Guidelines'*, CCF 1996 National Conference, Gold Coast, The Earthmover and Civil Contractor, May 1996.
- 9/9/96 *'17 Steps to On-Site Erosion and Sediment Control'*, Stormwater 96 Conference, Brisbane.

1996 continued

Channel works, Moggill Rd, The Gap

Scrub Rd, Carindale ESCP

Logov ESC demonstration



IEAust. ESC Guidelines, 1996

Papers and articles (cont.)

- *'Soil Erosion and Sediment Control'*, Southern Engineering Conference, Toowoomba, 18-19 October 1996.
- *'Urban Corridors: A balance between environmental needs and wants, and the community's needs and wants'*, The Growing Idea, Greening Aust., Summer 1996.

Talks

- 8/2/96 *'Future changes in stormwater practice and on-site erosion and sediment control'* UDIA seminar, Brisbane.
- 20/3/96 *'Erosion Control in Rural Residential Developments'* Caboolture.
- 4/5/96 *'Erosion and Sediment Control Guidelines'*, CCF National Conference.
- 25/6/96 *'Urban Corridors: A balance between environmental needs and wants, and the community's needs and wants'*, Greening Australia, Brisbane.
- 11/7/96 *'Changing Attitudes to the Use of Detention Basins'*, the first SIAQ seminar, South Bank, Brisbane.
- 9/9/96 17 Steps to On-Site Erosion and Sediment Control: Stormwater 96 Conf.
- 27/11/96 *'Reintroducing a Storage Coefficient to the Rational Method'*, IEAust 10th Hydrology Symposium, Brisbane.
- 28-29/11/96 Emerald and Barcaldine IEAust talks on ESC Guidelines.

Further education

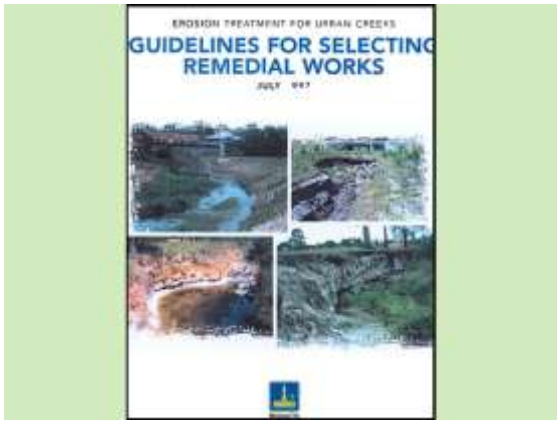
- 2/4/96 Greening Australia, creek rehab field day, Gold Coast.
- 22-24/4/96 Land Management for Urban Development Conference, ASSSI (Qld) Brisbane.
- 1-4/7/96 'Constructed Wetlands: Principles, Design and Management, UQ.
- 9/9/96 Stormwater 96 – Future Directions for Qld Stormwater Management, IECA & SIA, Brisbane.
- 18-19/10/96 IEAust (Qld) Southern Eng Conference, Toowoomba, Qld.
- 26-27/11/96 IEAust 10th Queensland Hydrology Symposium, Brisbane.
- 4/12/96 'Engineering on the Internet WWW', IEAust, Brisbane.
- 5-6/12/96 'XP-RAFTS Workshop, BCC.

1997

Griffith University Golden Goose Award

HIA Building Site ESC demonstration

Karawatha Forest



BCC's creek erosion guidelines, 1997

Employment

- Griffith University Waste Management Unit
- 31/8/97 end of BCC/Griffith contract—continued working at BCC through C&C.
- 10/4/97 Registered Catchments & Creeks Pty Ltd (ACN 078 164 119).

Projects

- Lecture Fluid Mechanics and Hydraulics; developed & lectured ESC at Griffith Uni.
- 11-28/2/97 ESC courses in Brisbane, Gold Coast, Sunshine Coast and Toowoomba for Griffith Uni.
- February, Sheep Station Gully NCD.
- 11-15/8/97 ESC Gosford, Penrith, ACT.
- August, HIA Building Site ESC demo.
- November, Karawatha Forest erosion.
- 27/11/97 Townsville City Council ESC.

Publications

- *'Erosion Treatment for urban Creeks – Guidelines for Selecting Remedial Works'* prepared with Griffith University and RUST PPK for Brisbane City Council, July 97.

Papers and articles

- 3/3/97 *'Erosion and Sediment Control EBMP'*, Landscape Design Forum #3, Australian Institute of Landscape Architects, Brisbane.
- 29/4/97 *'Development of the Queensland Soil Erosion and Sediment Control Guidelines'*, SIA Regional Conference, Coffs Harbour.
- *'Design of Energy Dissipators'*, Engineering Update Vol. 5 No. 2 July 1997, Institution of Engineers, Australia, Brisbane 1997.
- 27-28/11/97 *'Erosion & Sediment Control in Road Design and Construction',* Main Roads Northern Region Symposium.
- 10-12/9/97 *'Erosion and Sediment Control on Building Sites'*, Stormwater and Soil Erosion 97, SIA & IECA Conf. Brisbane.

Talks

- 6/3/97 *'Erosion and Sediment Control – EBMP'*, Landscape Design Forum No.3, South Brisbane.
- 19/3/97 *'Design of Energy Dissipators'*, talk at IEAust, Water Panel seminar.
- 6/7/97 *'Overview of Stormwater Management Practices in the USA'*, BCC Stormwater Workshop, Bardon.

Further education

- 28-29/4/97 SIA-NSW Regional Conference, Clear Water – A Technical Response, Coffs Harbour, NSW.
- 18/9/97 fauna passage workshop.
- 9-12/9/97 Stormwater and Soil Erosion Conference, SIA & IECA, Brisbane.

1998

Gully erosion, Mansfield

Brisbane River bank erosion

Site inspection, Grafton

GCCC & BCC Building Site ESC

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $81K turnover during 1997–98 yr.

Projects

- Lecture Fluid Mechanics and Hydraulics; Municipal Engineering & Management; Soil Erosion and Sediment Control.
- Development of ESC CD-ROM.
- Analysis of pool-riffle systems, Northbrook
- 12-13/3/98 Rockhampton DMR ESC training and tour of work sites.
- 7/5/98, Gold Coast City Council seminar on Stormwater and Waterway Strategy.
- 29/5/98 Last day working as a consultant at Brisbane City Council.
- Gully erosion, Christian Outreach Centre.
- 15-18/7/98 Mackay ESC training.
- Brisbane River erosion, CityCats.
- 9/9/98 QRail Newlands Line gully erosion.
- 28/9/98 Hervey Bay (Brian Peebles).
- 16-17/11/98 Grafton with Rodger Tomlinson and Margaret Greenway.
- 23/11/98 employed Yolanda Burt at C&C.
- December, NCD Bowman Park.
- Presented 17 training courses during year.

Publications

- *'Best Practice Guidelines for the Control of Stormwater Pollution from Building Sites'* GCCC and BCC, 1998.

Professional affiliations

- SIA-Qld Committee member.
- Member IEAust, SIAQ & IECA.

Talks

- 16/6/98 *'Erosion and Sediment Control'* talk for BCC DA teams, Brisbane.
- 17/6/98 *'Selective Withdrawal Decanting from Intermittent Extended Aeration Wastewater Treatment Tanks'*, talk at IEAust, Water Panel.
- 2/7/98 four talks at Urban Creek Management seminar, SIA-NSW, Sydney.
- 16/9/98 *'Natural Channel Design'*, Recent Developments in Stormwater Management Techniques, SIAQ seminar, Customs House, Brisbane.
- 3/10/98 talk at Riparian Veg and Erosion Management, BCC & Greening Aust.

Further education

- 2-4/2/98 'Catchment Management Course', CRCFE-AWWA, Canberra.

1999

Sheep Station Gully NCD

Boblynne St creek rehabilitation

ESC Training CD-ROM

Conservation Earthworks (TAFE)

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $97K turnover during 1998–99 yr.

Projects

- Lecture Soil Erosion and Sediment Control, and Municipal Engineering.
- Lecture Design 2, Griffith Uni, assignment was Norman Ck NCD.
- February, Prep EPA court case against CSR/Pioneer as expert witness.
- February, Sheep Station Gully NCD.
- 23-24/3/99 EPA v CSR court case.
- Creek erosion adjacent Creek Road.
- 6-12/6/99 Townsville ESC training.
- June, DMR Drainage Manual with GHD.
- 15/6 to 13/7/99 On-Site Erosion and Sediment Control training for SIAQ in Brisbane, Gold Coast, Sunshine Coast and Toowoomba.
- 25/6/99 Creek Erosion and Treatment, and Natural Channel Design training for SIAQ in Brisbane.
- August, NCD Boblynne St, Chapel Hill.
- 20/10/99 Finished ESC CD-ROM.
- 26-27/10/99 Townsville ESC training.
- December, DMR Road Design Manual.
- Presented 25 training courses during year.

Professional affiliations

- SIA-Qld Committee member.
- Member IEAust, SIAQ & IECA.

Publications

- *'Erosion and Sediment Control Training CD-ROM'* Catchments & Creeks Pty Ltd 1999, Brisbane, Queensland.

Papers and articles

- 8-11/8/99 *'Review of Regime Equations used in the Rehabilitation of Urban Creek Systems within Brisbane City'*, with Khondker Rahman, 2nd Australian Stream Management Conference, Adelaide.

Talks

- 3/8/99 *'Getting things done with Local Governments'*, Vegetation Management – The BIG Picture forum, UQ Gatton.
- 22-25 November, *'Soil and Sediment Control on Building Sites',* HIA talks at Rockhampton, Mackay, Townsville and Cairns.

Further education

- 9-13/9/99 3-day ESC course by Tony King at Main Roads, including field trip to Gold Coast Highway, TAFE 'Construction Site Erosion and Sediment Control – Level 3'

2000s

2000

Ewingar causeway (pre-works), NSW

Manning's roughness in shallow water

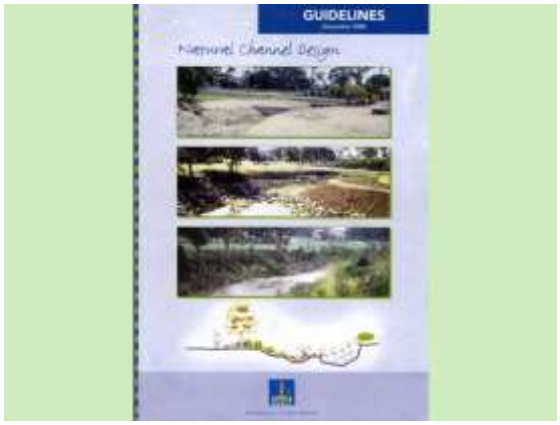
- The Manning's roughness (n) of rock-lined surfaces in both shallow-water and deep-water flow conditions is provided below.

$$n = \frac{d_{90}^{1/6}}{26(1 - 0.3593^{m})}$$

  - $m = [(R/d_{90})(d_{50}/d_{90})]^{0.7}$
  - R = hydraulic radius of flow [m]
- The relative roughness (d_{50}/d_{90}) of rock extracted from streambeds is typically in the range 0.2 to 0.5; while quarried rock is commonly in the range 0.5 to 0.8.

Rock roughness equation

Sediment Basin Design, BCC



Natural Channel Design Guidelines, BCC

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $131K turnover during 1999–2000 yr.

Projects

- Lecture Soil Erosion and Sediment Control, EVE7615 at Griffith Uni.
- 14-18/2/00 First 5-day ESC course in Townsville.
- 17/2/00 Travelled to Cairns for meeting with Cairns Council and EPA.
- 23/2–7/4/00 LGAQ ESC training: Bundaberg, Rockhampton, Emerald, Mackay, Townsville, Cairns, Normanton, Cloncurry, Longreach, Charleville.
- 25/5/00 First meeting with JWP for NSW Fisheries job.
- June, Site inspections at Tenterfield, Guyra and Ewingar causeways for fish passage study.
- July, Developed rock Manning's 'n' formula
- Worked on Building Site 'Mud Code' and 'Instream Sediment Control' guidelines.
- 12/9/00 Tour of Brisbane Water sites.
- 18-22/9/00 2nd Townsville 5-Day course.
- Oct-Nov, S/W and ESC training for SIA.
- Presented 30 training courses during year.

Professional affiliations

- Member IEAust, SIAQ & IECA.

Publications

- *'Sediment Basin Design, Construction and Maintenance'* February 2000, Brisbane City Council.
- *'Instream Sediment Control – Guidelines for Desilting and Minor Works'* Version 2.0, June 2000, Brisbane City Council.
- *'Natural Channel Design'* December 2000, Brisbane City Council.

Talks

- 3/2/00 ESC talk PRSC Strathpine
- 7/6/00 *'Natural Channel Design'* & *'Instream Sediment Control'* part of ½-day workshop 'Progressive innovations in planning, construction & maintaining creeks/drainage channels', Gold Coast.

Further education

- 'Urban Drainage Planning and Design using Hydrologic and Hydraulic Investigation and Ecologically Sensitive Solutions' 6-7 Dec. 2000, QUT Brisbane.

2001

Inspection of fishway construction

Lavender Creek site inspection

Instream ESC testing, Brisbane

BCC Erosion Hazard Assessment Form

Employer

- Director, Catchments and Creeks Pty. Ltd.

Projects

- Lecture ESC, EVE7615 at Griffith Uni.
- Continued development of ESC chapters for CD-ROM expansion and BCC's Instream Sediment Control.
- Development of Manning's roughness equation for rock (all year).
- January, ACMER mine site ESC training.
- January, Analysis of NSW rainfall data to develop the 5-day rainfall equations.
- Develop BCC's ESC Hazard Ass. Form.
- 7/2/01 North Lakes ESC site inspection.
- 16/2/02 Penrith Lakes ACMER course.
- 14/3/01 ESC Awoonga Dam, Gladstone.
- March, Development of C&C web site.
- 19/3/01 Lavender Creek, Tweed, NSW.
- 25/7/01 ACMER course in Perth.
- ESC Mine site training for ACMER.
- Work on Fish Passage CD-ROM and National Guidelines with Sarah Fairfull.
- BCC Waterway Rehab Ranking System.
- 21/8/01 Main Roads ESC site inspection, Springfield with PPK officers.
- 15-19/10/01 3rd Townsville 5-Day course
- 6/11/01 Inspection of stormwater treatment systems in Pine Rivers Shire.
- 8/11/01 Site inspection of fish passage.
- 4-6/12/01 ACMER course in Charters Towers, Qld.
- Presented 20 training courses during year.

Professional affiliations

- SIA-Qld Committee member.
- Member IEAust, SIAQ & IECA.

Papers and articles

- 22/11/01 *'Strategies and Techniques for Storm Water Quality Management'*, paper presented at the 9th Annual Conference on Soil and Water Management – Turning Hindsight into Insight, Gold Coast.

Talks

- 22/7/01 *'How to Care for Creeks'*, talk at Mountains to Mangroves Festival, Downfall Creek Bushland Centre.

Further education

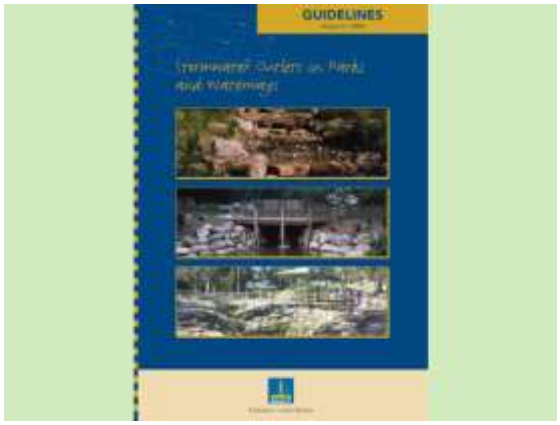
- 20-23/11/01 9th Annual Conference on Soil and Water Management – Turning Hindsight into Insight, Gold Coast.

2002

Estuary erosion investigation, Caloundra

Geotextile flow measuring test rig

Caboolture Soils video



Stormwater Outlets in Parks & Waterways

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $55K turnover during 2001–02 yr.

Projects

- Lecture Env. Eng. Design 2 (ESC) Griffith Uni, assignment was a subdivision ESCP.
- January, Taught myself how to use Adobe Illustrator 8.
- April, Prepare SIAQ ESC Training Policy.
- 22/5/02 Testing flow rates through geotextile fabric in home-built test rig.
- 10/4/02 Site visit of Caloundra stormwater and creeks with Michael Erpf.
- 15-19/7/02 Caboolture ESC video.
- July, Griffith University lecture Design 2.
- 9-15/8/02 Drive to Sydney and visit WRL library and photo Tenterfield culvert.
- 20-28/9/02 Drive to Townsville for 5-day ESC course.
- October, Study of table drain erosion, Redland Bay Shire.
- December, Gold Coast Council ESC Field Guide (Version 1).
- Presented 22 training courses during year.

Professional affiliations

- SIA-Qld Committee member.
- Member IEAust, SIAQ & IECA.

Publications

- *'Instream Sediment Control'* Version 4, Brisbane City Council.
- *'Stormwater Outlets in Parks and Waterways',* V1, Brisbane City Council.

Papers and articles

- *'Instream Sediment Control Practices'* Institution of Engineers Australia, National Urban Infrastructure Forum, Brisbane.

Talks

- *'Instream Sediment Control Practices'* Institution of Engineers Australia, National Urban Infrastructure Forum, Brisbane, 15-17 May 2002.
- *12/9/02 'Fish Passage Requirements at Waterway Crossings'*, SIAQ Conference.
- 31/10/02 *'Stormwater Outlets in Parks and Waterways'* SIA (Qld).

Further education

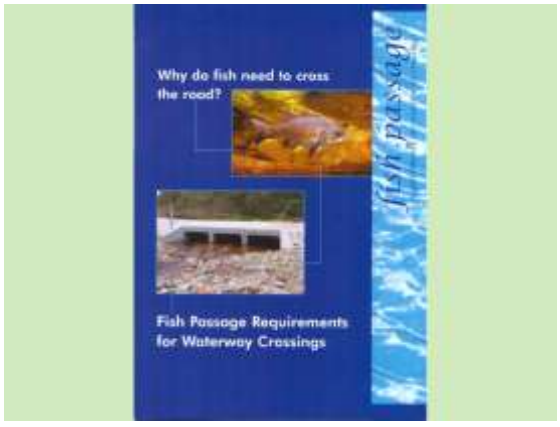
- 11-13/9/02 SIAQ Reg. Conf. Stormwater and the Environment, Hervey Bay.

2003

Redlands' table drain site inspection

Grafton to Coffs Harbour pipeline

Fish Passage at Watercourse Crossings



National culvert fish passage guidelines

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $63K turnover during 2002–03 yr

Projects

- Lecture Env Eng Design 2 at Griffith Uni, assignment of whitewater amusement ride
- Jan-Feb, GCCC ESC Field Guide.
- 25/2/03 Site inspection of Redland Bay table drains with Des Bolton.
- 30/4/03 First Vic. Roads ESC Training with Greening Australia, Victoria.
- 12/5/03 CV&CH Water Supply Pipeline site visit, Grafton to Coffs Harbour, NSW.
- 11/6/03 Greening Aust Melbourne ESC.
- 16-20/6/03 First 5-Day ESC course in Cairns.
- July, Griffith University lecture Design 2.
- 27/9/03 Start on Inlet Safety Screen report for GCCC.
- 11/12/03 Start study of Scotland Island.
- 12 Aug to 4 Dec, SIA-NSW Regional Training Program, Grafton, Newcastle, Sydney, Wollongong, Canberra, Bega.
- 2/12/2003 Tour of stormwater treatment systems in Grafton, NSW.
- Release of the *'Fish Passage Requirements at Waterway Crossings'* CD-ROM.
- Presented 79 training courses during year.

Professional affiliations

- SIA-Qld Committee member.
- Member IEAust, SIAQ & IECA.

Publications

- *'Why do fish need to cross the road? – Fish Passage Requirements for Waterway Crossings'*, NSW Fisheries, Cronulla.
- *'Fish Passage Requirements at Waterway Crossings',* Catchments & Creeks Pty Ltd.

Papers and articles

- *'Erosion and Sediment Control'*, Environmental Design Guide DES-52, The Royal Australian Institute of Architects, February 2003.

Talks

- *'Engineering Aspects of Waterway Management'*, Waterways and Water Ways – Implications for a Healthy Environment, Forum, 26 July 2003, Mt-Coot-tha, THECA Inc. and Brisbane Botanic Gardens, Mt Coot-tha.

2004

Keat St creek erosion, Sunnybank

Culvert inlet safety screen

Private access causeway, Coffs Harbour

Scotland Island, Sydney

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $138 turnover during 2003–04 year.

Projects

- Lecture Env Eng Design 2 at Griffith Uni, assignment was a rural property ESCP.
- January–March, Tor-Hogg St NCD for Toowoomba Council.
- January, Review of IEAust draft ARQ.
- 31/3/04 Melbourne ESC course for Greening Australia Victoria (GAVic).
- April, Gold Coast City Council inlet screen investigations.
- May, Scotland Island stormwater management plan.
- May, Keat St creek erosion, Stable Swamp Creek, Sunnybank.
- 24-28/5/04 5-Day ESC Course Townsville
- 15/6/04 to 14/10/04 Extensive travel by road presenting ESC and SW training along Queensland east coast for SIAQ.
- 9/8/04 Site visit to Urumbilum River causeway with Sarah Fairfull, Coffs Harbour.
- 18/11/04 Meeting with Trinity Graham of Water panel re update of ESC Guidelines.
- December, Start providing advice to Ipswich City Council.
- Presented 72 training courses during year.

Professional affiliations

- SIA-Qld Committee member.
- Member IEAust, SIAQ & IECA.

Papers and articles

- *'How do fish cross the road? – New engineering guidelines for waterway crossings'*, Public Works Engineering, Feb/Mar 2004, IPWEA, pp. 8–9.
- *'Impacts of Urbanisation on Waterways'*, The Regenerator Newsletter, Spring 2004, Brisbane City Council.

Talks

- 12/2/04 *'Fish Passage requirements at Waterway Crossings'*, IEAust. (Vic) Melbourne.

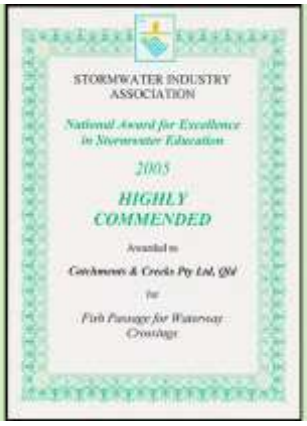
2005

Settlement Road culvert, The Gap

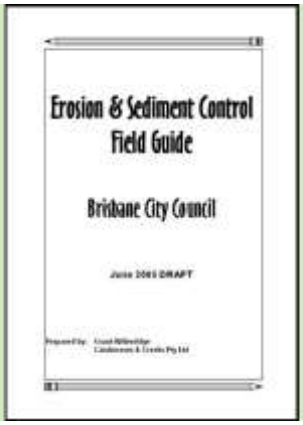
Table 4.5.4 – C_{10} values for zero fraction impervious [1]

Land description	Dense bushland			Medium density bush, or Good grass cover, or High density pasture, or Zero tillage cropping			Light cover bushland, or Poor grass cover, or Low density pasture, or Low cover bare fallows		
Intensity (mm/hr) $^1/_{Tc}$	Soil permeability			Soil permeability			Soil permeability		
	High	Med	Low	High	Med	Low	High	Med	Low
35–44	0.08	0.24	0.32	0.16	0.32	0.40	0.24	0.40	0.48
45–49	0.10	0.29	0.39	0.20	0.39	0.49	0.29	0.49	0.59
50–54	0.12	0.35	0.46	0.23	0.46	0.58	0.35	0.58	0.69
55–59	0.13	0.40	0.53	0.27	0.53	0.66	0.40	0.66	0.70
60–64	0.15	0.44	0.59	0.30	0.59	0.70	0.44	0.70	0.70
65–69	0.17	0.50	0.66	0.33	0.66	0.70	0.50	0.70	0.70
70–90	0.18	0.53	0.70	0.35	0.70	0.70	0.53	0.70	0.70

Revised QUDM C_{10} values



SIA National Award (Fish Passage)



BCC Draft ESC Field Guide

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $80K turnover during 2004–05 yr.

Projects

- Lecture Env. Eng. Design 2 at Griffith Uni, assignment was rural-res subdiv. ESCP.
- Continued development of Best Practice ESC documents and fact sheets.
- March, Review of BCC's landscape guidelines.
- March, Review of development applications for Ipswich City Council.
- 21/4/05 ESC Building Site presentation at Toowoomba TAFE.
- Drafting 'Glossary of Stormwater Terms'.
- 26/5/05 GAVic ESC course in Melbourne.
- April–June, BCC ESC Field Guide.
- 13/6/05 Start on QUDM Review.
- August, Development of new C10 discharge coefficients for QUDM.
- September, BCC Settlement Road culvert.
- 7-11/11/05 5-Day ESC Course Townsville.
- Presented 11 training courses during year.

Professional affiliations

- Director IECA Australasia.
- SIA-Qld Committee member.
- Member IEAust, SIAQ & IECA.

Awards

- Highly Commended certificate in the Stormwater Industry Association National Award for 'Stormwater Education' for the publication: *'Fish Passage for Waterway Crossings'*.

Publications

- *'Erosion and Sediment Control Field Guide'*, Brisbane City Council.

Talks

- *'An Update on the 2005 QUDM Review'* 16th Queensland Water Symposium.
- 27/10/05 *'An Update on the 2005 QUDM Review'* SIAQ, Brisbane.

Further education

- 4/10/05 Design Workshop using the DRAINS Program for Design and Analysis of Urban Stormwater Drainage Systems, by Anstad Pty Ltd, Brisbane.
- 28-29/11/05 ARQ & ARR update, Sydney.

2006

Rob Friend at Loders Ck inspection

Inspection of gully erosion, Burra, SA

Torrens Lake, Adelaide

Gold Coast City ESC Field Guide

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $90K turnover during 2005–06 yr.

Projects

- Lecture Env Eng Design 2 at Griffith Uni, assignment was a subdivision ESCP.
- January, First draft of QUDM Review.
- 23-24/1/06 Site inspections of Loders and Biggera creeks, Gold Coast.
- 15/2/06 Talk at IEAust on *'An Update on the 2006 QUDM Review'*.
- 20/2/06 Meeting at Murray Bridge, SA.
- 6/3/06 Talk at IEAust on *'An Update on the 2006 QUDM Review'*.
- 24/4 to 13/5/06, ESC and SW training along River Murray for Murray-Darling Basin Board.
- 1-19/6/06 2nd phase of SA training.
- 6/7/06 GAVic, Melbourne ESC training.
- 20/11/06 Interview by Grant Cameron ABC Radio Adelaide on stormwater management: *'This is not a city with a river problem, it is a river with a city problem'.*
- Presented 30 training courses during year.

Professional affiliations

- Director IECA Australasia.
- Director of SIA National.
- SIA-Qld Committee member.
- Member IEAust, SIAQ & IECA.

Publications

- *'Sediment and Erosion Control Field Guide',* Gold Coast City Council.

Talks

- 15/2/06 *'An Update on the 2006 QUDM Review'* IEAust, IPWEAQ, SIAQ, Brisbane
- 6/3/06 *'An Update on the 2006 QUDM Review'* IEAust, IPWEAQ, SIAQ, Brisbane
- 29/3/06 series of talks at 'Losing Ground - Erosion and Sediment Management EIANZ Forum', Sunshine Coast.
- 29/9/06 ASSSI talk on ESC issues.
- 24/11/06 talk on River Torrens in Adelaide.

Further education

- 21/4/06 ASSSI bus trip west.

2007

Inspection of western pipeline

O'Reilly's Guest House construction

Browns Creek, Lismore, NSW

Queensland Urban Drainage Manual

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $113K turnover during 2006–07 yr.

Projects

- Lecture Env. Eng. Design 2 at Griffith Uni, assignment was hillside resort ESCP.
- 12/1/07 EPA meeting re. ESC Guidelines.
- 30/1/07 Presentation to EPA on ESC doc.
- 2/3/06 Attend IECA AGM, Sydney.
- March, ESC training for QRail.
- 13/4/07, Beaudesert gully erosion inspections with Bruce Carey.
- 29/4/08 Commenced ESC inspections of Gateway Motorway construction sites.
- April, ESC training for Pipeline Alliance.
- 21-24/5/07 Townsville ESC.
- 7-8/6/07 ESC training in Cairns.
- 1/7/07 O'Reillys Guest House ESC.
- 10-11/7/07 Talk on QUDM at 16th IEAust. Qld Water Symposium.
- July to Sept NCD Browns Creek, Lismore.
- 12/8/07 Finished work on QUDM (2007).
- 23-25/10/07 ESC for Origin Energy, Roma
- 29/11/07 Presentation at joint IECA-SIAQ seminar on draft ESC Manual.
- 11-17/11/07 Townsville 5-day ESC.
- 26-28/11/07 ESC training for Westfields.
- Presented 44 training courses during year.

Professional affiliations

- Director IECA Australasia.
- Director of SIA National.
- SIA-Qld Committee member.
- Member IEAust, SIAQ & IECA.

Publications

- *'Queensland Urban Drainage Manual'*, 2nd edition, DNR&W, IPWEAQ, BCC.

Talks

- 10/7/07 *'An Update on the 2007 QUDM Review and ESC manuals'* IEAust (Qld) Water Panel 16th Qld Water Symposium.
- 29/11/07 *'Proposed changes to Qld legislation on ESC'* talk for SIAQ, Brisbane.

Further education

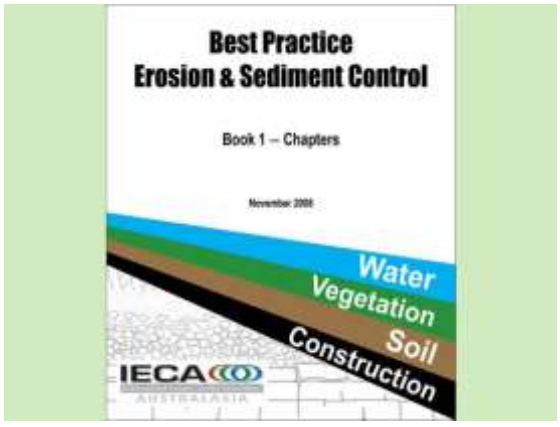
- 20-21/9/07 SIAQ State Conference, Sunshine Coast.

2008

Inspections of rural erosion, Port Lincoln

ESC inspection of Gateway Duplication

Inspection of gully erosion, Warwick



IECA ESC Best Practice (Book 1)

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $141K turnover during 2007–08 yr.

Projects

- Continued work on BP-ESC chapters, chapters 2 & 4, and Book 4 fact sheets.
- 1-7/4/08 ESC training at Mt Barker, SA and field trips at Port Lincoln, SA.
- 29/4/08 ESC inspection of Gateway Motorway construction sites.
- May, Drafting culvert assessment guidelines for Port Lincoln, SA.
- 18/6/08 Stormwater training at Port Lincoln, South Australia.
- 9/7/08 BP-ESC document meeting at Bill Haylock's company office.
- 10/9/08 Inspection of proposed drainage in an urban subdivision, Warwick, Qld.
- 22/9/08 & 16/12/08 Inspections of Bells Creek, Redcliffe.
- 28/9/08 Inspection of creek erosion, Running Creek, Rathdowney.
- 10/11/08 Delivered Books 1 to 3 of Best Practice ESC to printer.
- 24-25/11/08 ESC training at SA Transport, Adelaide.
- 11/8 to 6/12/08 QUDM (2007) Training around Queensland.
- 12/12/08 Site inspection of drainage and waterway erosion in Ipswich.
- 22/12/08 Received first 100 printed copies of IECA BP-ESC documents.
- Presented 50 training courses during year.
- No university lectures during 2008.

Professional affiliations

- SIA-Qld Committee member.
- Member IEAust, SIAQ & IECA.

Publications

- *'Best Practice Erosion and Sediment Control'*, International Erosion Control Association (Australasia).

Talks

- 29/5/08 *'Erosion and Sediment Control'* talk at SEQ Catchment Field Day, Shire Hall, Gatton, Qld.

Further education

- 11/3/08 *'Fundamentals of Swale and Sediment Basin Design'*, conducted by Healthy Waterways.

2009

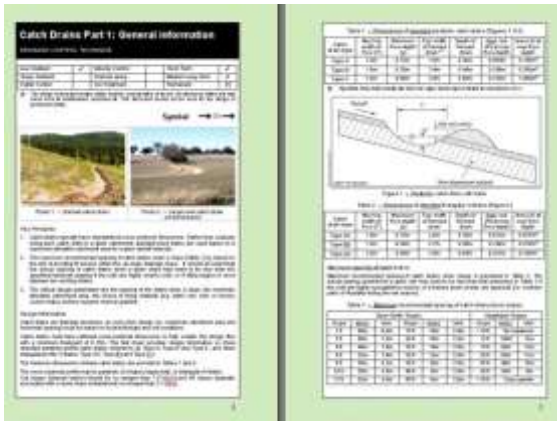
Table 1 – Recommended rock sizing equations for small dam spillways [1]

Bed slope (%)	Design equations
Preferred equation: $S_o < 50\%$	Uniform flow conditions only, $S_o = S_f$ $d_{50} = \frac{1.27.SF.K_1.K_2.S_o^{0.5}.q^{0.5}.y^{0.25}}{(s_r - 1)}$ (1)
A simplified equation independent of flow depth: $S_o < 50\%$	Uniform flow conditions only, $S_o = S_f$ $d_{50} = \frac{SF.K_1.K_2.S_o^{0.47}.q^{0.64}}{(s_r - 1)}$ (2)
A simplified, velocity-based equation: $S_o < 33\%$	Uniform flow conditions only, $S_o = S_f$ $d_{50} = \frac{SF.K_1.K_2.V^2}{(A - B.\ln(S_o)).(s_r - 1)}$ (3) For SF = 1.2: A = 3.95, B = 4.97 For SF = 1.5: A = 2.44, B = 4.60
Partially drowned chutes: $S_o < 50\%$	Steep gradient, non-uniform flow conditions, $S_o \neq S_f$ $d_{50} = \frac{1.27.SF.K_1.K_2.S_o^{0.5}.V^{2.5}.y^{0.75}}{V_s^{2.5}.(s_r - 1)}$ (4)

New rock sizing equations

Gully inspections with SEQ Catchments

SIAQ Neville Gibson Award



IECA/ESC Design Fact Sheets (Book 4)

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $88K turnover during 2008–09 yr.

Projects

- Lecture Env. Eng. Design 2 at Griffith Uni, assignment was an industrial dev. ESCP.
- Prepare IECA BP-ESC books 4, 5 and 6.
- All year, worked on the 'Urban Stormwater Quality Management Working Group'.
- Finalisation of the rock sizing equations.
- January, IECA Best Practice ESC document goes on sale.
- February, AR&R Project 11 – Blockage of hydraulic structures, Stage 1.
- 5/3/09 First meeting of Blockage sub-committee, UTS Sydney.
- 14/4/09 School Rd Redbank Plains.
- 19/4/09 New rock sizing equation.
- July & Dec, Culvert fact sheets for Port Lincoln, South Australia.
- 7/7/09 NCD training at SIA conf. Albury.
- 18/8/09 Last university lecture.
- Aug-Sept, Chum Creek Crossing – fish passage BMA Daunia mine project.
- Sept-Oct, Review DMR's Fish Passage.
- 28/10/09 Inspection of creeks and gullies in Beaudesert with SEQ Catchments.
- 26/11/09 Inspect Bremer River catchments with SEQ Catchments.
- Presented 22 training courses during year.

Professional affiliations

- Member IEAust, SIAQ & IECA.

Awards

- 24/9/09 Awarded the inaugural Neville Gibson Award from SIAQ for 'Services to the Stormwater Industry'.

Publications

- Released Books 4, 5 & 6 of the IECA (2008) Best Practice ESC suite of documents.

Talks

- 7-10/9/09 talks on IECA BP-ESC document for Healthy Waterways.
- Healthy Waterways DA Forum.

Further education

- 7-10/7/09 Stormwater '09 – Joint Conference of SIA-NSW and Stormwater Victoria, Albury-Wodonga, NSW.

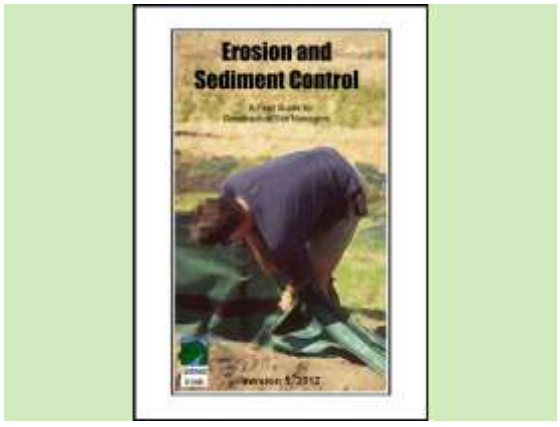
2010s

2010

AR&R Proj-11 Blockage of hyd. structures

Kedron Brook bank rehab, Ferny Hills

IECA Sustained Contributor Award



ESC Field Guide for Site Managers V2

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $94K turnover during 2009–10 yr.

Projects

- January-June, Prepare IECA/ESC Books 4, 5 and 6.
- 5/5/10 AR&R Blockage meeting at UTS
- 4/6/10 Finished PDF conversion of Book 4 of the IECA/ESC documents.
- 21/6/10 Presented fish passage courses to BCC City Design and QDPI Fisheries.
- 20/7/10 Start 2 days a week at City Design, Brisbane City Council.
- August, Rock sizing fact sheets.
- August, Report on proposed culvert fishways for BCC.
- September, AR&R Project 11 – Blockage of hydraulic structures, Stage 2.
- September, Report on proposed Ditmas Street, Wishart erosion control for BCC.
- Design bank erosion control, Ferny Way.
- 11-15/10/10 Townsville 5-day ESC.
- 8/12/10 Last day at City Design, BCC.
- December, QUDM overview field guide.
- Presented 8 training courses during year.
- Worked 48 hours on field guides.

Professional affiliations

- SIA-Qld Committee member.
- Member IEAust, SIAQ & IECA.

Awards

- 17/2/10 IECA (International) *Sustained Contributor Award for 2009*, presented at conference in Dallas, Texas.

Publications

- *'Erosion and Sediment Control – A Field Guide for Construction Site Managers'*, (V2.2) Witheridge, G., Catchments & Creeks Pty Ltd, 2010, Brisbane.

Papers and articles

- *'Weeds – Good plants that are not so good, or Bad plants that are not so bad'*, Brisbane Botanics Newsletter, Vol.13(3) November 2010.

Talks

- *'Weeds – Good Plants not so good, or Bad Plants not so bad!'*, Brisbane Botanic Gardens, Mt Coot-tha.

Further education

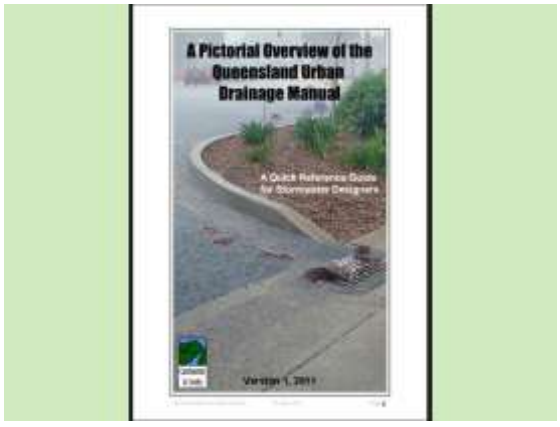
- 8-12/11/10 SIA National Conf. Sydney.

2011

Post 2011 flood erosion investigation

Pineapple farm erosion & drainage

Landslip, Highvale



Pictorial Guide to QUDM

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $67K turnover during 2010–11 yr.

Projects

- Draft a Public Guide to Living with Floods.
- 19/1/11 Inspect McConaghy St, Mitchelton bank slip with BCC.
- 17/2/11 Post flood river bank erosion inspection with SEQ Catchments.
- 25/2/11 Post flood bank erosion inspection with Ipswich Council.
- 2/3 & 14/3 & 24/3 & 1/7/11 Creek and river bank erosion with SEQ Catchments.
- Feb–June Lockyer Valley with SEQC.
- Public Guide to Flooding and Drainage.
- March, Reports on flood damage.
- April, Stormwater inlet safety for BCC.
- 27/4 & 22/6 & 18/11/11 Inspections of pineapple farms & training with DEEDI.
- May, Rock sizing fact sheets.
- 23/6/11 Inspection of flood damage to Habitat Brisbane rehab sites with BCC.
- 24-29/7/11 Mackay stormwater training.
- 8/9/11 visit Highvale landslip.
- Sept-Oct, IECA/ESC Grafton, Newcastle, Sydney, Wollongong Bega and Albury.
- 25/10/11 Miles gully erosion for Powerlink.
- Oct-Dec, Gladstone dev. approvals.
- Training in Wyong, Gladstone, Townsville.
- December, ESC Field guide for builders.
- Presented 34 training courses during year.
- Worked 364 hours on field guides.

Professional affiliations

- Member IEAust, SIAQ & IECA.

Publications

- *'A Pictorial Overview of the Queensland Urban Drainage Manual'*, (Field Guide) Witheridge, G., Catchments & Creeks Pty Ltd, 2011, Brisbane Queensland.

Talks

- 24/2/11 flood talk for EIANZ.
- 1/3/11 flood talk for BCC City Design.
- 9/5/11 flood talk for Norman Creek.
- 26/5/11 flood talk Mt Ommaney.
- 21-22/6/11 Yeppoon Pineapple Farms.
- 30/7/11 flood talk Pine Rivers Assoc.

2012

Fish passage workshop, Bundaberg

BMRG farm visit, Monto (22/6/12)

Post flood river erosion, Dalby

Building Site ESC Field Guide

Employment

- Queensland Department of Energy and Water Supply, 4/7/12 to 31/12/12

Employment

- Director, Catchments and Creeks Pty. Ltd.
- $161K turnover during 2011–12 yr.

Projects

- February, Building site ESC field guide.
- 22/2/12 Finish first draft of Building Site ESC Field Guide.
- 26-29/3/12 Burnett-Mary river BMRG.
- 15-18/4/12 Mackay 2-day ESC training.
- 23-24/4/12 Darwin 2-day ESC training.
- 7-10/5/12 Melbourne IECA-ESC 2-day.
- 8/6/12, Creek erosion training Bundaberg.
- 4/7/12 Start 3-days a week at Queensland Department of Energy and Water Supply on QUDM review re Queensland Flood Commission Inquiry, $52/hr.
- 23-26/7/12 Toowoomba stormwater.
- 14-18/8/12 Darwin and Alice Springs ESC training and airport inspections.
- 20-21/8/12 BMRG farm site visits.
- 25/8/12 *'Creek Erosion and Treatment' half*-day workshop for Pullen Pullen Catchments Group, Kenmore.
- September ESC training field guide.
- 22/9/12 *'Managing Creek Erosion'* ½-day workshop SEQ Catchments, Gold Coast.
- 23/11/12 QUDM presentation to Floods Inquiry, Building Implementation Group.
- 26/11/12 Flood damage inspection Dalby.
- Presented 20 training courses during year.
- Worked 181 hours on field guides.

Professional affiliations

- Life Membership of Stormwater Australia.
- Member IEAust, SIAQ & IECA.

Publications

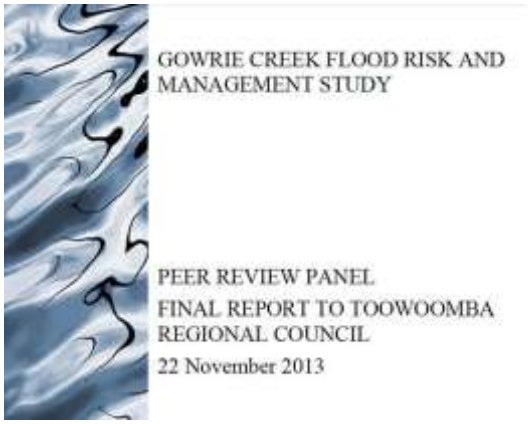
- *'Principles of Construction Site Erosion and Sediment Control – A training tool for the construction industry'* (Field Guide).
- *'Erosion and Sediment Control Field Guide for Builders',* (Field Guide).

Talks

- 6-7/6/12 Bargara fish passage workshop.
- 22/6/12 Monto talk to farmers.
- 3/10/12 *'Creek Rehab on Habitat Brisbane sites',* BCC-HB, Bushland Centre.

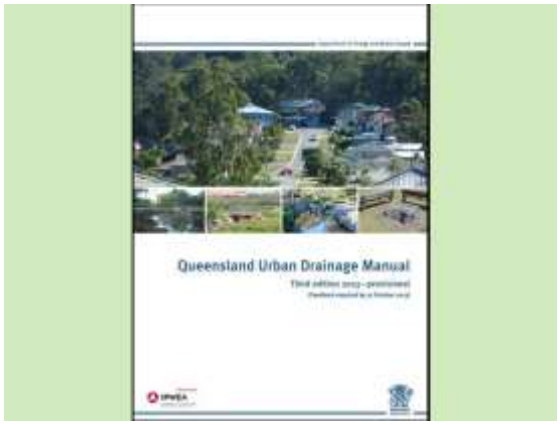
2013

CSG pipeline construction, Chinchilla



Gowrie Creek Flood Study Peer Review

Creek bank erosion, Chambers Flat



QUDM Provisional (DEWS/IPWEAQ)

Employment

- Queensland Department of Energy and Water Supply.
- 1/1/13 to 12/4/13.

Employment

- Director, Catchments and Creeks Pty. Ltd.
- $112K turnover during 2012–13 yr.

Projects

- 1/1 to 12/4/13 Work on QUDM review.
- 16/3/13 Roma ESC for Santos through O2
- 20/3/13 QUDM presentation to CEO's.
- 4-5/4/13 ESC site visit of CSG works for QGC (BG Group) Chinchilla.
- April, Report on drainage problem at 31 Sullivan Rd, Tallebudgera for GCCC.
- April-Nov, Develop Creek Rehab posters.
- April, Gowrie Creek Flood Study review.
- May, Ekibin Park, Mott Park and Norman Creek stormwater treatment for WBM.
- 9-10/5/13 2-day creek erosion training at Bundaberg for BMRG.
- 25/5/13 Talk to North Pine Dam residents re 2011 flood damage to river bank.
- 30-31/5/13 Creek & farm erosion training Mundubbera & Kingaroy for BMRG.
- 10/7/13, Site visit Logan creek erosion.
- 1-6/8/13 Cairns QUDM & ESC training.
- August, Report on Kedron Brook erosion, Chermside Shopping Centre, BCC.
- 18-23/8/13 Rocky–Bargara QUDM.
- 8-21/9/13 Darwin 5-day ESC course, and Alice Springs 1-day ESC.
- October, ESC training for QGC, Chinchilla
- Presented 26 training courses during year
- Worked 15 hours on field guides.

Publications

- *'Queensland Urban Drainage Manual'*, Provisional 3rd edition, 2013.
- *'A Pictorial Overview of the Queensland Urban Drainage Manual'*, (revised, V3).

Talks

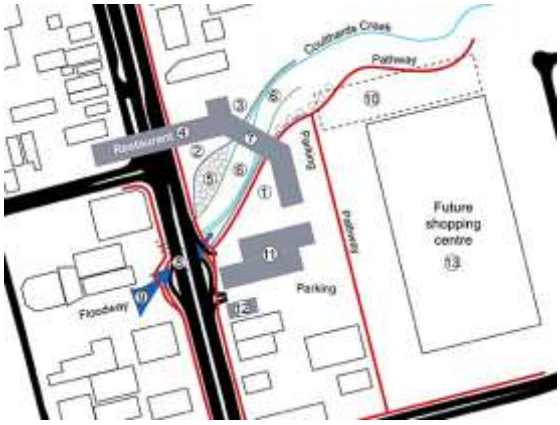
- *'QUDM Review – An Overview of the Outcomes'* SIAQ with Russell Cuerel.

Further education

- 13-17/10/14, Stormwater Australia National Conference, Adelaide.

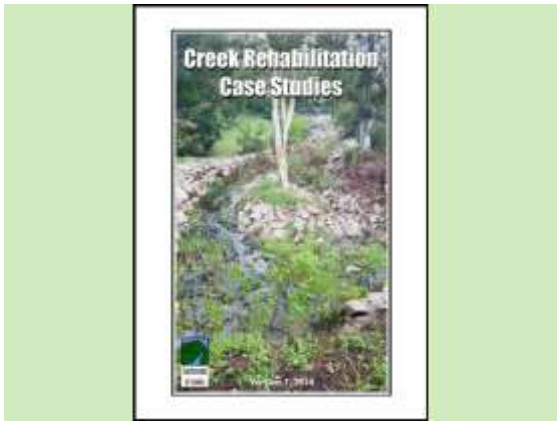
2014

10 x Creek Rehabilitation posters



Coulthards Creek rehab proposal

Cedar Creek bank erosion, Closeburn



One of seven new 'Field Guides'

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $123K turnover during 2013–14 yr.

Projects

- January, Continued work on creek rehab posters.
- February, Fish passage field guide, and glossary of fish passage terms.
- Culvert fish passage research group.
- March, Site inspections of creek downstream of Boral quarry, Narangba.
- April–May, Stormwater training in Rockhampton and Yeppoon.
- June, Coulthards Creek rehab for WBM.
- 28/6/14 Interview by ABC radio Brisbane on preparing for floods.
- 29/7–1/8/14 ESC training, Launceston.
- 31/7/14 Interview by ABC radio Launceston (rural reporter) on soil erosion.
- Sept, Creek erosion control, Closeburn.
- 2–6/9/14 Fish passage training, Barcaldine
- Oct, Review of proposed changes to the minor storm ARI by Bligh Tanner.
- 26–27/11/14 ESC training, Townsville.
- Presented 18 training courses during year
- Worked 535 hours on field guides.

Publications

- Finalise *Public Guide to Living with Floods*, *Public Guide to Storm Hydrology*, *Creek Erosion Case Studies*, *Creek Rehabilitation Case Studies*, *Use of Rock in Stormwater Engineering*, *Use of Rock in Waterway Engineering*.

Papers and articles

- 14-16/10/14 *'Applying a 'regional' focus to the 'universal' principles of erosion and sediment control'*, Simon Cavendish and Grant Witheridge, 9th International Soil Science Congress, Antalya, Turkey.

Talks

- 28/6/14, *'Living next to the Brisbane River'*, Jamboree Residents Association.

Further education

- 24/7/14, *'Bioretention Design'* by Healthy Waterways at Hope Island.
- 26/8/14 *'Construction of Bioretention Assets'* Healthy Waterways, Hope Island.
- 23/9/14, *'Maintenance of Bio-Retention'* by Healthy Waterways at Hope Island.

2015

Stormwater flooding, Coorparoo

Site inspection, Silvermine Ck, Narangba

Arrow Energy Gas Plant, Moranbah, Qld

Appendix P
Land-based pipeline construction

IECA Appendix P - Land-based Pipelines

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $61K turnover during 2014–2015 yr.

Projects

- January, Finalise seven new field guides.
- 20–21/1/15 ESC training for RoadTek, Bundaberg.
- February, Draft IECA App-P Pipeline ESC and Pipeline Field Guide.
- February, Report on stormwater flooding of Townhouse, Marian St, Coorparoo.
- February, Report Boral quarry, Narangba.
- March, Report Nardie St, Eight Mile Plains.
- April, Report Mallee Circuit, Moggill outlet.
- 9/4/15, Site visit Arrow Energy, Moranbah.
- May, Commenced work on QUDM (2015).
- June, IECA/APGA Pipeline appendix.
- 20/6/15 Pine Rivers gardens talk.
- 5-6/8/15 ESC training, Hobart.
- 31/8-4/9/15 Stormwater Winter School.
- June-Dec, QUDM 2016 finalisation.
- December, sizing of sediment basins based on Auckland system.
- Presented 10 training courses
- Worked 260 hours on field guides.

Publications

- Appendix P – *'Land-based Pipeline Construction'*, International Erosion Control Association, 2016, Picton, NSW.
  - *Appendix P was published at the beginning of 2016, but was primarily produced in 2015*.

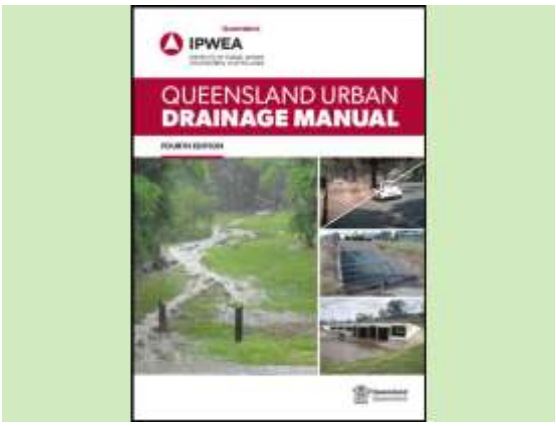
Talks

- 20/6/15, *'Creeks: Nature's Garden with the Ultimate Water Feature'* Strathpine.
- 16/7/15, Stormwater Queensland Regional Conference, Toowoomba, 3 talks: Failed Townhouse Stormwater Design, Rock Sizing Equations 20 years of NCD.
- 8/9/15, CCAA Quarry Environmental Seminar, Brisbane.

Further education

- 15-16/7/15 Stormwater Queensland Regional Conference, Toowoomba.

2016



QUDM (2016)

Hall of Fame - Stormwater Australia

Pile field, Osborne Rd, Kedron Brook

IECA Appendix B - Sediment Basins

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $136K turnover during 2015–2016 year.

Projects

- Jan–June, 2016 QUDM finalisation.
- Jan-Feb, IECA BP-ESC Appendix B review, and establishment of design parameters for Auckland Type A High Efficiency Basins.
- February, Develop new method for initial sizing detention basins using initial loss.
- April, Report on 131 Leicester St, Coorparoo for N4C.
- April, 91 Belclare St, The Gap erosion.
- May-June ESC training for BCC Works.
- 6/6/16 Stormwater Winter School, 2 x ½ day ESC training courses.
- July, Kedron Brook, Osborne Rd pile field.
- 2 November, Finish QUDM, (819 hours).
- 5 November, Finish Appendix B (256 hrs).
- Presented 12 Erosion and Sediment Control training courses during the year.
- 6 June, Last ESC training course.
- Worked 21 hours on field guides.

Awards

- Entered into the Stormwater Hall of Fame by Stormwater Australia for outstanding contribution to Stormwater Management in Australia.

Professional affiliations

- Member IEAust, SIAQ & IECA.

Publications

- *Appendix B – Sediment Basin Design and Operation*, International Erosion Control Association, 2017, Picton, NSW.
- *Queensland Urban Drainage Manual*. 4th edition, Institute of Public Works Engineering Australia, Queensland Division Ltd., 2017, Brisbane, Australia.
  - *Both documents were published at the beginning of 2017, but were primarily produced in 2016*.

Further education

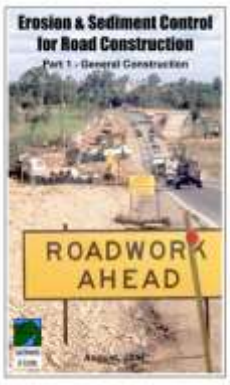
- 18 February, River Morphology, River Styles short course, Brisbane.
- 30 November, field trip to upper Warrell Ck with SEQ Catchments.

2017

Kangaroo Gully Road (20/5/17)

Centenary Creek, Logan (6/6/17)

Habitat Brisbane talk (21/5/17)



ESC for Roads and Pipelines

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $63K turnover during 2016–2017 year.

Projects

- Finalise the Erosion and Sediment Control Field Guide for Pipeline Construction.
- Updates to the revised IECA Appendix B for Sediment Basin design.
- Prepare the Erosion and Sediment Control Field Guide for Road Construction.
- July, Revision to *Use of Rock in Stormwater Engineering* for rock sizing downstream of detention basin outlets.
- Site inspection, Kangaroo Gully Road, Logan (20/5/17).
- Site inspection of Centenary Creek, Logan (6/6/17).
- Creek inspection, Oxley Creek tributary, Benarrawa Park (15/6/17).
- Creek inspections at Moggill Creek, 581 Upper Brookfield Rd (25/7/17).
- Creek inspection, Oxley Creek tributary, Rocklea (9/10/17).
- Creek inspection, Kedron Brook pile field (19/10/17).
- Presented 2 stormwater training courses.
- Worked 407 hours on field guides.

Professional affiliations

- Stormwater Queensland.

Publications

- *Erosion and Sediment Control Field Guide for Pipeline Construction.*
- *Erosion and Sediment Control Field Guide for Road Construction.*
- *Settling Tank and Sediment Basin Decant Systems.*
- *The Mechanics Of Sediment Basin Operation.*

Talks

- Assessing site resilience (Habitat Brisbane Group).
- Nutrients and waterways.
- Overview of changes in the 2017 QUDM.
- Construction Phase ESC re draft State Planning Policy.

2018

Yeppoon (12/04/2018)

Kedron Brook (26/8/2018)

Version-2 of IECA Appendix-B

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $44K turnover during 2017–2018 year.

Projects

- 16 January, QUDM training, Gatton.
- 10 & 12 April, Livingstone Council training.
- 28 July, Site visit to 27 Allard Close, Bellbowrie to inspect overland flow path.
- 26 Aug, Creek inspection, Kedron Brook.
- 21 October, Site visit to Carole Brislow's place, stormwater issue, 38 Jolimont Street, Sherwood.
- Presented 4 stormwater training courses.
- Last training course was 18 May 2018, a culvert and s/w outlet course at GCCC at Nerang—Gold Coast City Council has been a good council to work with, and has been a strong supporter of staff training.
- Worked 17 hours on field guides.

Professional affiliations

- Stormwater Queensland Life Member.

Publications

- Version 2 of IECA Appendix B.

Talks

- Working with Waterways (Habitat Brisbane Group).
- Changes to QUDM and ARR-QUDM Workshop (Stormwater Queensland).

Last training course, Gold Coast City Council, Nerang, 18 May 2018

2019

Greenwattle Street, Toowoomba

Moreton Bay Council creek inspection

Bundaberg Airport storm drain

Mentone Pony Club, Melbourne, Vic.

Employer

- Director, Catchments and Creeks Pty. Ltd.
- $14K turnover during 2018–2019 year.

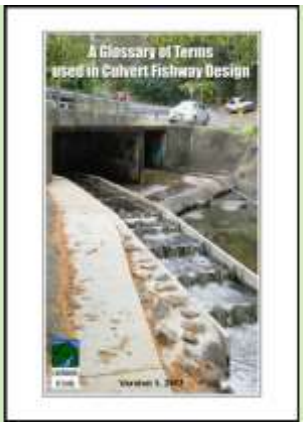
Projects

- January: Conversion of ESC PowerPoint courses from 4:3 to 16:9 format.
- 7 June, Site visit 102 Greenwattle St Toowoomba re overland flow.
- 10-13 June, Review Moreton Bay Regional Council platypus guide.
- 29 October, Inspection of Cabbage Tree Creek with Moreton Bay Regional Council.
- 30 October, Inspection of Cabbage Tree, Little Cabbage Tree and Kedron Brook with BCC-Habitat Brisbane.
- 15/11 – 7/12/19, Prepare a report on the rehabilitation of stormwater drains in Bundaberg for Bundaberg Council.
- 6/11 – 6/12/19, Prepare a report on rock protection under a proposed footbridge, Mentone Pony Club, Melbourne.
- 12 December, Qld Main Roads fish passage research.
- Worked 660 hours on the development of field guides, mostly on *An Introduction to Race Car Aerodynamics* (552 hours).

2025 Update:

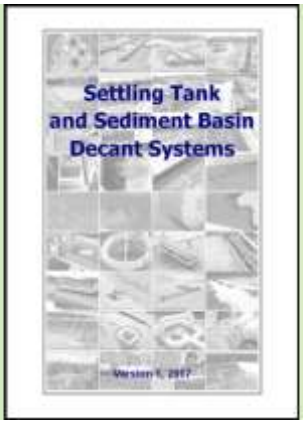
- ASIC officially closed the company *Catchments and Creeks Pty Ltd* in 2025.
- Continued to work on the conversion of my various PowerPoint-based training courses into picture-based PDF field guides during 2017 through 2025.
- The *Catchments and Creeks* website currently (2025) has over 4000 individual documents, including 40 field guides.
- As of 2025, the website has had over 150,000 downloads, with 40,000 downloads of field guides, including over 9000 downloads of one particular publication: *A Public Guide to Managing Stormwater on Residential Properties*.

Catchments and Creeks field guides, 2017–22

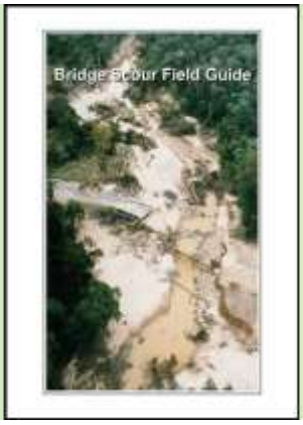


Fish Passage Glossary (2017)

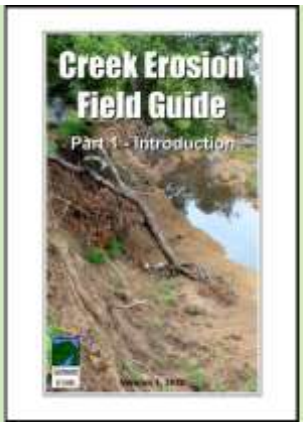
Public Guide to Stormwater (2017)



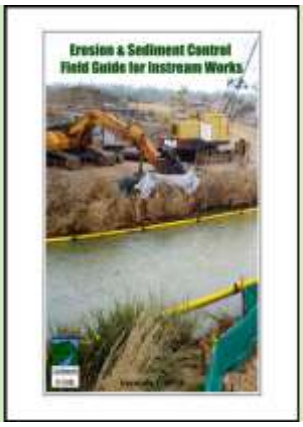
Settling Tanks (2017)



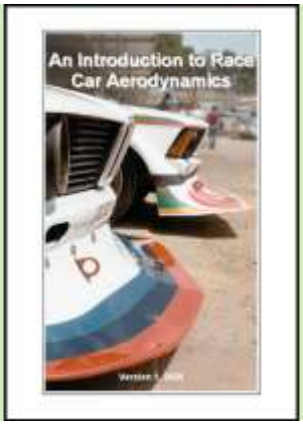
Bridge Scour (2020)



Creek Erosion (2020)



Instream Works (2020)



Race Car Aerodynamics (2020)

Construction Site Sediment Basins, 2022

Catchments and Creeks field guides, 2022–25

Gully Erosion (2022)

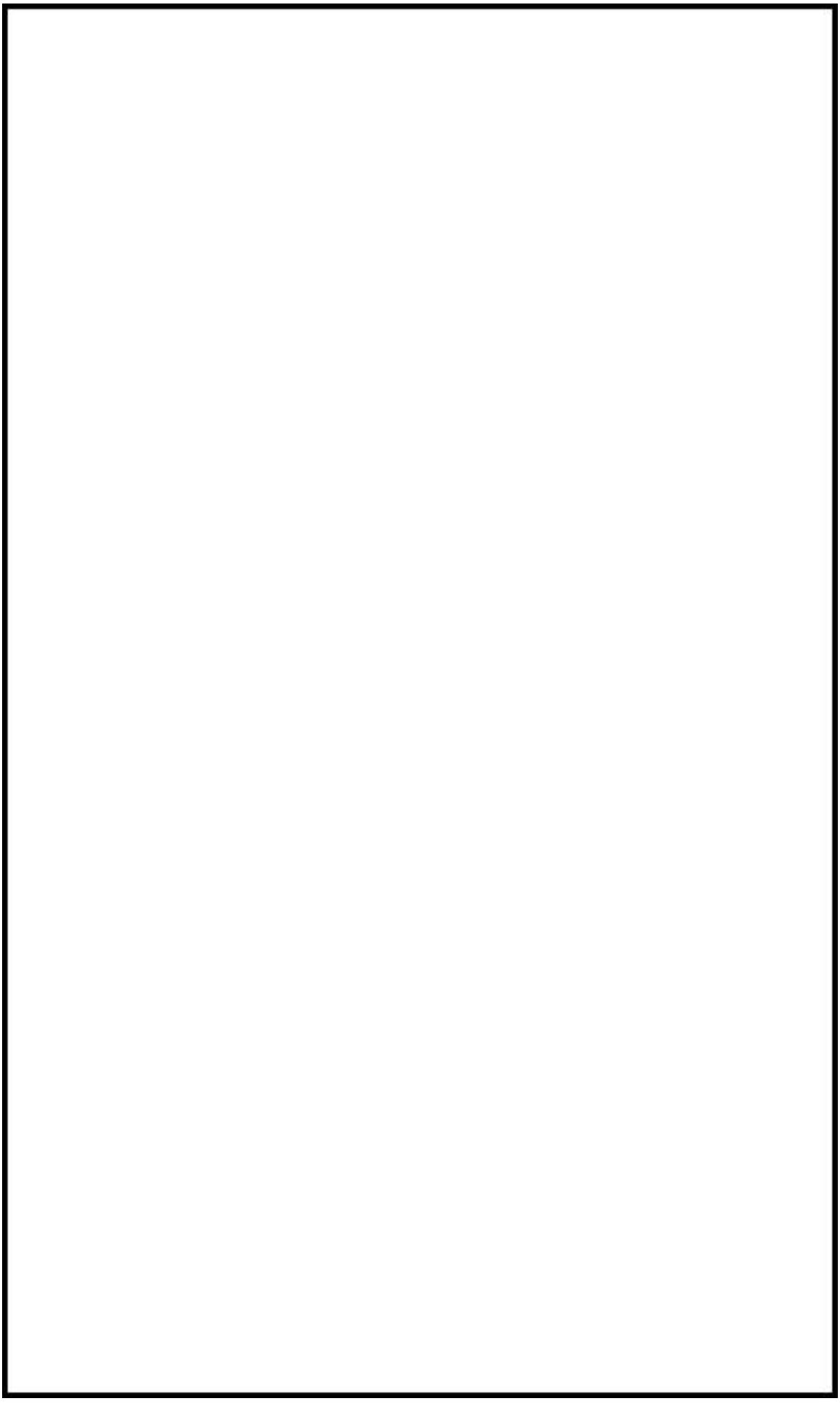
Background to Rock Sizing (2023)

Rational Method (2023)

Storm and Flood Hydrology (2023)

Guide to Qld State Code 18 (2023)

The Double Slit Experiment (2023)

ESC Plans (2024)

Fish Passage Culvert Design (2025)