



Civil Certification Pty Ltd

Accredited Certifiers
Civil Engineering

ABN 56 607 721 595
0412 264 237



Michael J Shaw
BE MIEAust CPEng NPER

Director
Civil Certification Pty Ltd

Resume

1. SUMMARY

Michael is a senior civil engineer with over 22 years' experience in the fields of civil engineering, road design, drainage, hydrology, stormwater management and urban infrastructure design. He operates his own business specialising in private certification and stormwater management. Michael has worked on many civil design projects ranging from development of large scale strategic masterplans to detailed design of stormwater management facilities and urban infrastructure for residential subdivisions. His expertise lies in solving complicated drainage problems, water sensitive urban design (*WSUD*), erosion & sediment control, flooding, detailed civil design, understanding the local government approvals process and managing multidisciplinary teams. Michael's experience covers all facets of civil engineering for urban development from due diligence through to approvals, detailed design, superintendency and certification. He has also provided expert advice to the Land and Environment Court with relation to drainage, detention and stormwater quality issues.

2. EXPERIENCE

Positions Held -& Location

- Oct 2010 – Present
 - ▶ Principal, Civil Certification, Sydney, NSW, Australia
- April 2008- Sept 2010
 - ▶ Manager, Urban Infrastructure, Environment Group - Worley Parsons, Sydney, NSW, Australia.
- Aug. 2007- March 2008
 - ▶ Principal Engineer – Urban Infrastructure - Worley Parsons incorporating Patterson Britton & Partners, Sydney, NSW, Australia;
- Nov. 1997- Jul. 2007
 - ▶ Senior Associate – Urban Infrastructure - Patterson Britton & Partners, Sydney, NSW, Australia;
- Aug. 1996- Oct 1997
 - ▶ Water Resources Engineer – Willing & Partners, Sydney, NSW, Australia;
- Feb. 1991- Aug. 1994
 - ▶ Design Engineer, Development Engineer, Investigation Engineer & Survey Assistant – Ryde City Council, Sydney, NSW, Australia.

Standout Projects

- ▶ **Stormwater Management Strategies(SMS)**
 - Port Jackson South Stormwater Management Plan (2,870ha catchment);
 - Drummoyne Council Stormwater Quality Strategy (830ha catchment);
 - Lake Illawarra South Stormwater Quality Strategy (1,548ha catchment);
 - Elliot Lake Stormwater Quality Strategy (1,220ha catchment);
 - Scotland Island SMS (53ha catchment);
 - Corks Lane Milton, DA Stage SMS (150 lot residential subdivision);
 - Pasadena, Church Point, DA Stage Stormwater Management and Reuse Strategy (mixed use dev.);



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- Yallambee Ave West Gosford, DA Stage SMS (*100 lot residential subdivision*);
- CSIRO Greystanes, Employment Lands SMS (*60ha industrial site*);
- Warriewood Valley, Sector 3, Rezoning Stage SMS (*130 lot residential subdivision*);
- Warriewood Valley, Sector 8, Rezoning to Subdivision Certificate Stage SMS (*140 lot residential subdivision*);
- Warriewood Valley, Buffer Areas 1 and 2, Rezoning and DA Stage SMS (*300 lot residential subdivision*);
- Warriewood Valley, Buffer Area 3, Rezoning and DA Stage SMS (*250 townhouse subdivision*);
- Macarthur Square Regional Centre Masterplan DA Stage WSUD Strategy (*61ha residential subdivision*);
- Department of Defence Site, Ermington ("*Ermington Riverfront*") DA Stage SMS (*20ha residential subdivision*);
- West Kembla Grange, Wollongong, Aquatic Issues Assessment (*858ha catchment*);
- Eastwood Quarry, Masterplan/Rezoning Stage SMS (*20ha residential subdivision*);
- Perentie and Dawes Road Masterplan, Belrose, Stormwater Quality Strategy (*30ha residential subdivision*);
- Walter Road, Ingleside DA Stage SMS (*15ha rural residential subdivision*);
- Domayne, Austlink Park Belrose SMS (*large commercial use development*);
- Grassmere LES, Camden SMS (*50ha rural residential subdivision*);
- Warriewood Valley (*Sectors C, D, & 12*) Rezoning Stage SMS (*100 lot residential subdivision*);
- Summer Hill Flour Mill Concept Plan Application Stormwater Management Plan and Flood Study (*250 dwelling high density residential subdivision*);
- Mt Penang Stormwater Management Strategy;
- Ashlar Golf Course Redevelopment – Flood and WSUD Strategy for 100 dwelling Residential Subdivision;
- ▶ **Water Sensitive Urban Design (WSUD)**
 - Sand Filtration Unit, Drummoyne Park (*ie Stormwater Treatment*);
 - Barnwell Park Golf Course Stormwater Treatment and Reuse;
 - Powell Creek Reserve Eco Carpark;
 - Warriewood Valley, Sector 10, Detailed Design of WSUD elements (*bio-retention systems and wetland for 170 lot residential subdivision*);
 - Warriewood Valley, Sector 12, Detailed Design of WSUD elements (*bio-retention systems and wetland for 180 lot residential subdivision*);
 - Rouse Hill Regional Centre – Detailed design and performance analysis of bio retention systems, raingardens and constructed wetland;



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- Hezlett Road, North Kellyville – Generic lot based raingarden design, road bio-retention swale design and detention offset analysis;
- Voyager Point (DHA) – Detailed Design of Detention/Bio-Retention Basins for 200 lot residential subdivision;
- ▶ **Riparian/Creek Design/Investigation**
- Wollondilly Shire Riparian Corridor Definition Study;
- Parsley Bay, Woollahra, Creekline Rehabilitation;
- Embankment Stabilisation Design, Koloona Ave, Byarong Creek ,Wollongong;
- Embankment Stabilisation Design, 5 sites along Cabbage Tree Creek, Towradgi Creek and Byarong Creek, Wollongong;
- Prospect Creek, Fairfield – Design of confluence stabilisation and creek rehabilitation measures;
- Narrabeen Creek, Pittwater – Detailed design of creek rehabilitation and embankment stabilisation measures from Graf Ave to Ponderosa Parade;
- Little Bay Central Drainage Corridor – Controlled Activity Approval and detailed design of Central Corridor Drainage Features (*ie wetlands, bio-retention basins, weirs, elevated walkways, bridges, pool/riffle creekline*);
- Sector 8 Warriewood – Controlled Activity Approval for residential development adjoining Fern Creek;
- Nolan's Reserve Footbridge - Abutment Armour and bridge repair design;
- Middle Creek Footbridge Armour design (*Narrabeen Lakes for Warringah Council*);
- ▶ **Civil Subdivision Design**
- Potts Hill, Eastern Precinct – Lead design team for 13ha Industrial development of Sydney Water Surplus Lands. Engaged by Landcom to provide approval documentation for Part 3 Major Project and to deliver detailed design of all subdivision infrastructure (*ie civil, roads, E&S control, RE walls, stormwater, power, sewer, water, recycled water and utility services*);
- Tweed Road, Lithgow, Detailed Design of Civil Infrastructure (*roads, drainage, E&S control, water, sewer and all other utility services*) for a 38 lot residential subdivision;
- Sector 20, Warriewood, Detailed Design of Civil Infrastructure (*roads, drainage, E&S control, water, sewer and all other utility services*) for a 63 lot residential subdivision;
- 7 Orchard Road, Warriewood, Detailed Design of Lot Based Stormwater Management Facilities and Access Road for a 10 lot residential subdivision;
- Heritage Estates, Shoalhaven, Conceptual Design of Civil Infrastructure. (*water, sewage, utility services, roads and drainage*) for 20ha residential subdivision;
- Randwick Defence Site (Stage 1A), Detailed Design of Civil Infrastructure (*roads, drainage, water, sewer and all other utility services*) for a 80 lot residential subdivision;



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- Cooks Cove Development, Upgrade to Scarborough and Bicentennial Parks – Lead design team for approvals and detailed design of upgrade to park facilities, including carparks, creekline, stormwater drainage, bulk earthworks, access roads, services, *E&S control* etc to accommodate future relocation of facilities from Cooks Cove development site (*Part 3A Major Project*);

► **Drainage Analysis/Design**

- Canada Bay Council city wide DRAINS modelling project (*970ha catchment*);
- Canada Bay Council Detention modelling and OSD policy development;
- City of Canada Bay Council MAPINFO drainage database update;
- Old Bathurst Road, Emu Plains, Detailed Design of Stormwater Management Facilities (*24ha industrial subdivision*);
- Andrew Road, Penrith, Detailed Design of Stormwater Management Facilities (*8ha industrial subdivision*);
- St Mervyns Ave, Woollahra, Stormwater Outlet Extension;
- Grosvenor Street Stormwater Drainage Study;
- Perentie and Dawes Road Masterplan, Belrose, Stormwater Drainage Concept Plan;
- Yulong Concept Drainage Study, Dept Defence Moorebank (*25ha industrial subdivision*);
- Headland Road, Curl Curl OSD Design;
- Cooper Park Amphitheatre, Woollahra, Detailed Stormwater Drainage Design;
- Paradise Avenue, Paradise Beach, Detailed Stormwater Drainage Design;
- Georges River Sailing Club, Seawall and Beach Nourishment Design;
- St Andrew Church, Wahroonga OSD and Stormwater Drainage Design;
- North Sydney Catchment Management Studies (*in total 86ha catchment*);
- Greystanes Estate, Northern Residential Lands, Detailed Design of Water Management Facilities (*70ha residential development*);
- Barina Downs Road, Detention Basin Design (*large regional detention facility*);
- Robertson Road, Scotland Island – Detailed Stormwater Drainage Design;
- Jenkins Road, Dundas - Detention System Design;
- Lot 2 Muir Road, Chullora – Drainage and Detention System Design for Large Industrial Development;

► **Flood Studies (FS)**

- Prospect Creek Channel Enhancement FS;
- Oats Ave, Gladesville FS;
- Casa Paloma Caravan Park FS;
- Kiaora Place Development, Double Bay FS;
- Darling Park/Cross City Tunnel - Flood impact assessment;
- Mowbray Road, Nursing Home, Assessment of overland flow impacts;
- Macquarie Links Golf Course FS (*Bunburry Curran Creek, Campbelltown*);



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- Wigan Road, Dee Why FS;
- Green Road FS;
- Anzac Creek, Moorebank FS;
- Eastwood Hotel Drainage/Flooding Study;
- Mona Street, Mona Vale FS;
- Frenchs Creek FS;
- Darling Walk 2D TUFLOW Flood Assessment, Darling Harbour;
- Lynwood Ave, Dee Why Flood Assessment;
- Ashlar Golf Course Development - 2D TUFLOW Flood Study;
- Ashlar Golf Course Development – HEC RAS Flood Modelling Breakfast Creek and Western Channel;
- ▶ **Dam Hazard Assessment**
- Kellyville Ridge Dam, Second Ponds Creek, Dam Hazard Assessment;
- UWS Campbelltown Dam Hazard Assessment;
- Hume Golf Course, Albury Dam Hazard Assessment;
- CSIRO, Greystanes Dam Hazard Assessment;
- Honeysuckle Creek Dam DSC Surveillance Report (*Killara Golf Course*);
- ▶ **Water Quality Monitoring**
- Sectors 2, 8 and 11 Warriewood, Post construction (*ie residential subdivision*) stormwater quality monitoring;
- Warriewood Valley (*Various Sectors*) Approval Stage Water Quality Monitoring over an 8 year period
- Shellharbour Council Stormwater Monitoring Strategy (*entire Shellharbour LGA - 14,000ha*);
- St Marys Eastern Precinct Water Quality Monitoring Strategy (*160ha residential subdivision*);
- Rouse Hill Regional Centre – Post development Water Quality Monitoring of treatment measures and receiving waters (*Auto sampling and Grab sampling*);
- Water Quality Sampling for Metal Recycling development, Ingleburn.
- 2 Year Surface Water and Bed Sediment Monitoring Program, Ashlar Residential Development, Blacktown
- ▶ **Major Culvert Amplification Design**
- Careel Creek/Barrenjoey Road Culvert Amplification Works (*Pittwater Council and RTA*);
- Nareen Creek /Narrabeen RSL Culvert Entry Upgrade (*Pittwater Council*);
- Howell Reserve Culvert Entry Upgrade and Drainage Diversion Line (*Pittwater Council*);
- Fern Creek/Garden Street Culvert Amplification (*Pittwater Council*);
- Narrabeen Creek/Ponderosa Pde Culvert Amplification (*Pittwater Council*);
- Garie Beach Culvert Amplification (*RTA and NPWS*);
- Bridge Amplification Design, Narroy Road, Narrabeen;



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► **Road/Carpark Design**

- Transport Infrastructure Development Corporation (*TIDC*) Commuter Car Park Program, Detailed Design of At Grade Carparks at Emu Plains Station, Woonona Station and Waterfall Station;
- Rookwood Road Potts Hill, Detailed Design of RTA signalised intersection upgrade (*Landcom*)
- Bruncker Road Potts Hill, Detailed Design of RTA signalised intersection upgrade (*Landcom*)
- Scotland Island Road Reserve Masterplan (*53ha area*);
- P&O Port Botany, Detailed Design of Staff Carparking Facilities (*50 spaces*);
- McKeown Street, Maroubra Beach, Detailed Road Design for streetscape improvement works;
- Department of Defence Site, Randwick (*Stages 1A, 1B and Community Centre*), Detailed Road Design for large residential subdivision(*5.6ha residential subdivision*);
- Greystanes Estate Northern Residential Land, Detailed Road Design for large residential subdivision (*50ha residential subdivision*);
- Sector 20 Warriewood, Detailed Road Design for large residential subdivision (*50ha residential subdivision*);
- Lidcombe Botanica, Detailed Road Design for heritage precinct of large residential subdivision;
- Heffron Park Randwick, Detailed Design of 100 space carpark and associated road improvement works;

► **Infrastructure/Servicing Strategies**

- Ermington Naval Stores (*700 lot residential development*);
- Greystanes Estate, Prospect (*250ha residential & employment development*);
- UWS Werrington (*48ha residential development*) ;
- Airs Town Centre Masterplan;
- Sector 7 (*2 Daydream Avenue*), Warriewood (*3ha mixed use commercial/light industrial development*);
- St Mary's (*ADI Site-Eastern Precinct-160ha residential development*);
- Green Square Master Plan, South Sydney (*Zetland*);
- Mt Penang, Gosford Business Park development;

► **Gross Pollutant Traps (GPT's)**

- Dee Why Beach GPT design (*special non proprietary*);
- Birkenhead Point and Brent Street GPTs (*special non proprietary*);
- St Georges Crescent Catchment Oil/Grit Separators (*multiple proprietary*);
- Stormwater Trust Application Assistance, Waterways Authority - Blackwattle Bay GPT;
- Brookvale Creek Rehabilitation – detailed design of large offline GPT/trash rack;
- Drummoyne Council - Three Ways to Improve The Bays GPT Design Project (*special non proprietary*);



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► **General Civil Engineering**

- BER Sydney South, provision of general civil engineering design for Abigroup for a number of Schools in Sydney South;
- McCarr's Creek Road/Pittwater Road Inventory and Condition Assessment;
- Design of steel pedestrian bridge, elevated walkway, stairs and reinforced concrete weirs for residential subdivision at Little Bay;
- Design of playground equipment footings, BBQ shelter footings/slab and small reinforced concrete retaining walls for playground at Sector 8, Warriewood Valley;
- Seawall design 26 Prince Alfred Parade, Newport;
- Reinforced Earth retaining wall design for Sydney Water/Landcom, Potts Hill;

► **Expert Advice / L&E Court**

- DA Stormwater management, West Ryde Urban Village Redevelopment for Ryde City Council (*ie acting on behalf of Council*);
- DA Stormwater management, Top Ryde Shopping Centre Redevelopment for Ryde City Council (*ie acting on behalf of Council*);
- Yulong Moorebank , review of road design for Department of Defence;
- Rushcutters Bay Flood Study Peer Review for Lindsay Bennelong Developments;
- Review of Managing Urban Stormwater Manual April 2004 on behalf of Landcom;
- Clontarf Street, Seaforth – Civil inspections for Landcom res. dev. on behalf of Manly Council;
- Sector 20, Warriewood – Superintendency for \$6 million Civil Works Contract;
- Expert witness (*water quality on industrial site*) for L&E Court Case - Phiney Place, Ingleburn (*representing private developer*);
- Expert witness (*drainage, S88K easement*) for L&E Court Case – Park Street, Mona Vale (*representing adjoining land owner*);
- Expert witness (*drainage/absorption system/easement*) for L&E Court Case – 120 Hopetoun Avenue, Vaucluse (*representing owner/developer*);
- Expert witness (*drainage/riparian corridor*) for L&E Court Case – 23B Macpherson Street, Warriewood (*representing private developer*);
- Expert witness (*riparian matters/controlled activity application/culvert creek crossing*) for Supreme Court Case – Wambo Coal Mine, Warkworth (*representing mine operator*);
- Expert Witness – Anglican Church, Commercial Rd, Rouse Hill – Drainage Matters;
- Expert Witness – Warringah Council, Development at Bantry Bay Rd, Forestville – Stormwater Management/Water Quality and Detention;
- Expert Witness – Abax Contracting, Development at Fern Creek Road Warriewood – Stormwater Drainage, Water Quality, Detention and Flooding;



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► **Certification**

- Subdivision PCA for Central Open Space Works, Cobaki (*Tweed Council LGA*) - Part 3A Major Project ;
- Subdivision PCA Lachlan's Line, Macquarie Park (*NSW Urban Growth/Ryde Council LGA*) - Part 3A Major Project;
- St Marys ADI Site – Construction Certificate and Compliance Inspections for Bulk Earthworks, S&E Control and roads;
- Construction Certificate Issue and compliance inspections for Bulk Earthworks and Civil Infrastructure (*Roads & Drainage*), Precincts 1&2 (450 lots) and 6 Cobaki (450 lots) (*Tweed Council LGA*);
- Civil compliance inspections and Part4A certificates for Putney Hill Development, Ryde (100 lots)– Part 3A Major Project (*Ryde Council LGA*);
- Civil compliance Inspections and certificates for Kiah Development (*Stage 4*), Willoughby (50 lots);
- Civil compliance inspections and Part4A certificates for DHA Riverfront Development, Ermington (500 lots)– Part 3A Major Project (*DHA/Parramatta Council LGA*);
- Civil compliance inspections and Part4A certificates for Clemton Park Development (*Australand*) – Part 3A Major Project (*Canterbury Council LGA*);
- Bunya Collector Road CC – Private certification assessment for Landcom;
- Construction Certificate issue (*Private Certification*) for small subdivision at Mount Street, Constitution Hill;
- Construction Certificate issue (*Private Certification*) for small subdivision works at 28 Crescent Rd, Mona Vale;
- Construction Certificate issue (*Private Certification*) for small subdivision works at Brush Rd, Eastwood;
- Part4A Compliance Certificate (Road and Drainage Works) for Retirement Village at Evans Road, Rooty Hill;
- Penrith Lakes Weir 3 CC assessment and compliance inspections for NSW Planning;
- Construction Certificate Drainage Works – Little Street, Lane Cove;



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3. EDUCATION & PROFESSIONAL AFFILIATIONS

- ▶ Bachelor of Engineering (*Civil*), University of Technology, Sydney, 1996;
- ▶ Member, Institution of Engineers, Australia (*MIEAust*);
- ▶ Chartered Professional Engineer (*CPEng*);
- ▶ National Professional Engineers Register (*NPER - Civil*);
- ▶ NSW Accredited Certifier (*BPAct 2005*) – Categories B1, C1, C2, C3, C4, C6, C7, C12, C15, C16 (*BPB 0816*)
- ▶ Member of BPB Disciplinary Committee (*2015*)