

Joshua Coates



Principal Hydraulics Engineer

Hydrology and Hydraulics Leader



Contact

Email: [REDACTED]

Phone: [REDACTED]

Qualifications & professional affiliations

- Bachelor of Engineering (Civil), University of Tasmania, Hobart
- Chartered Professional Engineer (CPEng NER)
- Registered Professional Engineer Victoria (RPEV)
- Registered Professional Engineer Victoria (RPEQ)
- Member, Institution of Engineers, Australia
- Member, Institute of Public Works Engineering Australasia
- RIW No. 20-00284903

Joshua is a Civil engineer with 14 years' experience as a hydraulics / water engineer. He has experience in project management, floodplain management, flood impact assessments, flood emergency planning, water cycle management and drainage design in both the public and private sector within Australia. He is a user of TUFLOW, DRAINS, RORB and XPRAFTS. Experience using GIS software packages including ArcGIS, MapInfo and QGIS

Joshua has worked for local government authorities and engineering consultancy firms in NSW and Tasmania where he was responsible for the delivery of flood studies and stormwater system management plans. He was responsible for the assessment of development applications relating to flooding and drainage, liaising with the community on flooding related issues including flooding complaints and consultation on future drainage and flood-related projects.

Relevant Experience

Hobart Airport Interchange – Expert Witness, TAS (2020) (DSG)

- The development application for the Hobart Airport Interchange was approved but appealed. Joshua acted for the Department of State Growth providing stormwater and water quality advice.

Princes Highway East – Kilmany East – Drainage Lead, VIC (2021) (MRPV)

- This project formed part of the suburban roads upgrade delivered by Major Road Project Victoria (MRPV). Pitt&sherry were engaged to design the duplication for part of the princes Highway. The site is very flat which proved challenging to meet minimum velocity requirements for drainage infrastructure.

Parkland Parade Detention Basins Performance Review, TAS (2023) (City of Launceston)

- In response to proposed development upstream of an existing detention structure, a flood assessment was carried out to determine the existing level of service of the basin and if it was able to service future development. Several performance issues were identified and advice provided to the Council.

Humes/Holcim Echuca Stormwater Management Plan, VIC (2023) (Humes/Holcim)

- A stormwater management plan was required to satisfy the requirements of the Campaspe Shire Council and the Infrastructure Design Manual (IDM). An analysis was carried out in DRAINS and MUSIC to recommend an appropriate stormwater management solution in the form of a stormwater management plan.

Southern Waste Solutions Stormwater Management Plan, TAS (2023) (Southern Waste Solutions)

- A stormwater management plan was required to satisfy the requirements of the Glenorchy City Council. The project included a hydrologic assessment to determine if stormwater attenuation is required, and what size and arrangement would be appropriate. The assessment also included a water quality assessment to ensure best practice water quality management can be achieved. The assessment was documented in a stormwater management plan.

St Leonards Master planning - Stormwater and Flooding Advice, TAS (2023) (City of Launceston)

- In response to large scale proposed development within St Leonards, pitt&sherry were engaged to provide advice on best practice and optimal stormwater management solutions. This work included hydraulic analysis, options assessment, cost estimating and liaising with land developers.

Illabo to Stockinbingal Rail Tender Design, NSW (2023) (Confidential)

- Pitt&sherry were engaged to provide tender design service for a section of the ARTC inland rail line (Illabo to Stockinbingal). Josh acted in the role of a flooding and drainage lead. This project contained several unique flood related design criteria that proved to be challenging to resolve.

Penguin Creek Flood Study and Mitigation Assessment, TAS (2022 - 2023) (Central Coast Council)

- Pitt&sherry were engaged to prepare a flood study on Penguin Creek in Penguin, Tasmania. The aim of the assessment was to identify flooding issues, recommend flood mitigation measures and quantify their benefit in terms of water level reduction, hazard reduction and change in estimated flood damage costs.

Cranbourne Road Upgrade - Flood Modelling Sub Consulting, VIC (2022) (Arcadis)

- pitt&sherry were engaged by Arcadis to provide flood modelling support for the detailed Design, Final Design and IFC packages of the Cranbourne Road Project. pitt&sherry took over the project part way through, provided a design that achieved all specifications and ultimately gained approval from Melbourne Water. The works were carried out in TUFLOW.

Level Crossing Removals - Union - Mont Albert - Temporary Works Flood Design, VIC (2022) (SEPA)

- Pitt&sherry were engaged to prepare to assess and design flood mitigation measures as part of temporary design works for a level crossing removal project in Melbourne. The work included adapting a previous developed flood model by others and assessing the impact construction pads have on flood behaviour. Several management options were provided which included pits, pipes, channels and bunds.

Flood Hazard Report and Flood Emergency Management Plan, TAS (2022) (Confidential)

- Pitt&sherry were engaged to prepare a flood hazard report for a proposed development adjacent to the Huon River. Given its location relative to the river, a flood emergency management was required to ensure the site could be effectively evacuated in the event of the flood.

Developer Contribution Assessment - Stormwater, TAS (2022) (City of Launceston)

- Pitt&sherry were engaged to develop a methodology to provide a developer contribution options for stormwater management as opposed to on site stormwater treatments.

Charles Street Rain Garden Design, TAS (2022) (City of Launceston)

- As part of an urban greening project, pitt&sherry provided a design solution for a retrospective raingarden to be installed within a parking bay in Charles Street Launceston. The works include a bioretention basin design suitable for the site constraints and associated civil design.

Campbell Street Development Expert Flooding Advice TAS (2022) (City of Hobart)

- Pitt&sherry were engaged to provide expert flooding advice for a proposed development in Campbell Street, Hobart. Pitt&sherry acted on the behalf of City of Hobart. This included independent flood modelling, reporting and advice to Councillors and mediation.

Northern Midlands Solar Farm - Flood Assessment TAS (2022) (Connerville Estates)

- Pitt&sherry were engaged to provide a flood report to support a proposed solar farm in Northern Tasmania. The analysis identified locations where solar panels could be installed without adversely impacting flood behaviour.

Southern Line Culvert Assessments, TAS (2022) (TasRail)

- TasRail have undertaken a review of critical drainage structures on the Southern line and have identified several culvert for replacement. A hydraulic analysis was carried out in TUFLOW to determine what size culverts should be installed to meet a minimum level of service. This project was located in areas of complex flood behaviour and highlighted several issues relating to rail hydraulic performance.

Corrugated Metal Culvert Relining, TAS (2022) (TasRail)

- TasRail have undertaken a review of critical drainage structures on the Bell Bay line and have identified several corrugated metal culvert for invert relining treatment. A hydraulic assessment was carried out to determine what hydraulic impact would be caused if the barrel diameter was reduced.

South Prospect Link Road Concept Design and Stormwater Management, TAS (2020) (City of Launceston)

- A new link road is proposed between the Bass Highway and Midland Highway to provide access to a new subdivision of approximately 1,000 residentially lots. As part of this project, a catchment wide stormwater management plan has been developed that includes regional wetlands, ponds and detention systems to manage stormwater and provide public amenity

Invermay and Launceston City Flood Assessment, TAS (2019 - 2023)

- Josh has provided flood advice for several proposed developments located in land serviced by flood levees. The assessments provide advice based on best practice flood plain management within the constraints of the Launceston Floodplain. Josh has location knowledge of the complex flood behaviour of the North and South Esk Rivers.

Guy Street Flood Mitigation Options Assessment, TAS (2020) (City of Launceston)

- The City of Launceston Stormwater System Management Plan has identified several sub catchments that are subject to substantial flood damage. This project investigated flood mitigation options to address flood damage and flood hazard related issues. It included an economic assessment of options provided council with evidence based data to plan for future stormwater improvement works.

Launceston Eastern Bypass Feasibility Assessment – Flooding, TAS (2021) (DSG)

- A hydraulic assessment was undertaken to determine what likely impact a proposed eastern bypass would have upon flood behavior. A previously developed TUFLOW model was updated to include the proposed bypass and the flood impact was mapped

Newnham Creek Remediation, TAS (2020) (City of Launceston)

- Recent development adjacent to a major watercourse had become threatened by creek bank erosion. This project includes a hydraulic assessment of Newnham Creek and design of a remediated waterway, maintain natural features where possible. Following completion of the works feedback was provided that the health of the creek has improved.

TEMCO Fume Dam No.3 Dam Break Assessment, TAS (2020) (South32)

- As part of the comprehensive report, a review of the consequence category for the TEMCO Fume Dam No.3 was undertaken. The assessment included a dam break assessment to inform the Population at Risk (PAR) and Potential Loss of Life (PLL)

West Coast Council Stormwater System Management Plan (2019 - 2020) (West Coast Council)

- To inform West Coast Council's stormwater system management plan, a flood study was undertaken for urban areas with the municipality. This included flood assessment for Strahan, Zeehan, Queenstown, Tullah and Rosebery. The information has been developed to enable council to formulate capital works programs for stormwater improvements

Styx River Bridges Hydraulic Assessment (2022) (DSG)

- As part of the engineering and design of two bridges on the Styx river, a hydraulic assessment was required to be carried out to provide design inputs for bridges and to also determine if the works would change flood behaviour.

SETS - Airport to Causeway 1 (2021) (DSG)

- In response to planning and environment issues during the design development of the South Eastern Transportation Strategy (SETS), airport to Causeway 1, a water quality assessment was required to be carried out to EPA requirements and to ensure no adverse impact upon an orchid habitat.

DSG T8 Drainage Specification Review (2021) (DSG)

- Pitt&sherry were engaged to carry out a review of the T8 drainage specification. The review benchmarked the current specification against other state road authorities and the Austroads Guides to Road Design. Several changes were recommended for which DSG accepted a number of.

Beaconsfield Mine TSF Audit and Dam Break Assessment (2020) (Beaconsfield Mine)

- An audit inspection and associated surveillance reporting was undertaken for the Beaconsfield Mine TSF2. This assessment required a review of the dam consequence category which was informed by a detailed dam break assessment. The dam break assessment was undertaken in the flood modelling package TUFLOW.

West Barrack Street Dam Intermediate Assessment, TAS (2019) (Meander Valley Council)

- Annual inspection of an existing dam being considered for adoption as a detention basin for flood mitigation purposes. Works included a site inspection and preparation of an intermediate dam safety assessment report

Clayton Drive Dam Surveillance, TAS (2020) (Devonport City Council)

- Surveillance of 5 small earthen dams within the Spreyton Area. The assessment included detailed inspections and recommendation remediation and repair works. Some dams presented spillway failure and required immediate intervention.

Tassal Dam Surveillance, TAS (2018 - 2019) (Tassal)

- Undertaking 5-yearly dam inspections for approximately 20 water supply dams across eastern and southern Tasmania. Assessments included dam break screening, population at risk and potential loss of life assessments.

Stormwater System Management Plan for the City of Launceston, TAS (2019) (City of Launceston)

- Development of frameworks to establish how the Council is to establish stormwater system management plans in response to the requirements of the Urban Drains Act 2013. Includes review of flood models, development of risk management documents which identify methods of managing flooding in urban areas through planning, emergency response and structural flood modification measures.

City of Ballarat Asset Revaluation, VIC (2018 - 2022) (City of Ballarat)

- Each year City of Ballarat undertake a detailed review of a portion of their asset class. A review of asset valuation for drainage and transport assets was undertaken for the 2017/2018 FY. This included a detailed review of current day construction costs for drainage culverts, stormwater system components, roads and signalised intersections

Strathroy Water Cycle Management Plan, TAS (2018) (City of Launceston)

- To inform a planning proposal for proposed development in the headwaters of Kings Meadows Rivulet, a Water Cycle Management Plan was developed to ensure water quantity, quality and flood management will be effectively managed. Kings Meadows has historically been affected by flooding, as such, this assessment considered the likely impact it may have on downstream communities.

Cradle Mountain Proposed Accommodation Servicing Assessment, TAS (2018)

- An assessment of the servicing requirements for a proposed development adjacent to the Cradle Mountain Visit Centre. The assessment provided a review of the capacity of existing water, sewer and electrical services. The demand generated from the proposed development was estimated and a concept servicing plan provided including a cost estimate.

Peach Tree and Lower Surveyors Creeks Flood Study, NSW (2017)

- Development of tender document and a technical specification for the Peachtree and Lower Surveyors Creeks Flood Study in accordance with the NSW Office of Environment and Heritage requirements. Tasks included the assessment of quotations, engagement of a suitable consultant to undertake the flood study, community consultation and review of flood model outputs.

Flood Emergency Response Plans for Urban High-rises, NSW (2017) (Various)

- Analysis of flood risk and development of flood emergency response plans for urban high rise developments. For example, required when basement carpark entrances are positioned below the flood planning level. Tasks included a detailed assessment of the flood behaviour and quantification of the flood risk, an assessment of persons at risk, identification of time available for vertical evacuation, identification of evacuation routes, development of SES flood safe plan and positioning of signage. Developments located in Darling Harbour, Sydney CBD and Parramatta.

City of Launceston Flood Emergency Management Plan Review, TAS (2016) (City of Launceston)

- A review of City of Launceston's flood emergency planning and management documentation following flood events in June 2016. This included facilitating a debrief with key staff who managed the flood event and a gap analysis to determine what City of Launceston require to better manage riverine flooding within the LGA.

South Dural Water Cycle Management Plan, NSW (2016)

- Development of a water cycle management plan to inform a planning proposal for the South Dural Precinct within the Hornsby LGA. Planning proposal aiming to rezone land for the development of some 4000 residential lots.,

Publications

- Coates, J and Newby, M 2017, 'Managing the 2016 Flood in Launceston – The Plan vs Reality', Floodplain Management Conference, Newcastle, 2017.

References

- [REDACTED]
[REDACTED]
[REDACTED]
- [REDACTED]
[REDACTED]
[REDACTED]