

CIVIL

WATER

STRUCTURAL

INFRASTRUCTURE

PROJECT DELIVERY

URBAN DEVELOPMENT



YEATS
CONSULTING ENGINEERS

WATERWAYS



“Yeats culture and ethos is based on the principles of care, value and integrity to build and maintain a partnership with our clients.”

Yeats Consulting aims to produce high quality engineering design in concept, in detail and in execution, on time, to program and deliver excellent value for money.

Our engineering approach is holistic, working closely with the various disciplines involved in a project team. Our reputation for excellence has grown from the basis that engineering is always viewed as one important component of a project's overall design solution.

We strive for innovation. Our appreciation of a client's social, political and economic issues and of architectural and aesthetic qualities makes Yeats Consulting an ideal partner, assisting our range of clients to shape great solutions. We understand the need to be adaptable and willing to change, in response to our own growth and to the changing needs of time and the industry. We continually investigate new methods of construction, new materials and new thinking to deliver practical solutions appropriate for the times and the project.

Through the integration of planning and engineering considerations Yeats is able to assist clients with the management of water resources and protection of waterways:

- Determination of environmental flows;
- Impacts of land-use change;
- Forecasting of stream flows and climate;
- Assessment of inundation risks in floodplains; and
- Water quality and waterway management.

Yeats view hydrological studies as an analysis of natural water source and flow processes. Whilst the outputs of any study are based on formula and a code of engineering practice the analysis requires creative thinking and extensive experience.

We utilise many tools, ranging from traditional methods such as plans overlaid on aerial photographs or cadastral data, to the preparation of animations demonstrating the results of mathematical modeling to demonstrate our expertise.

Yeats provide extensive experience in the design of stormwater management systems to meet the codes and policies of government agencies and to provide an optimum outcome for our clients.

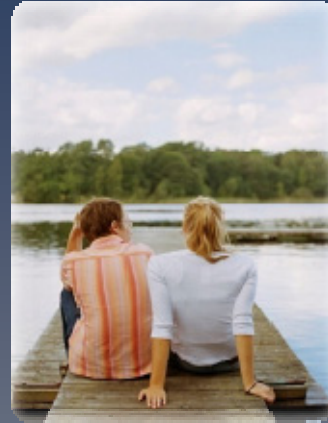
Our water team are skilled in:

- The study of hydrological processes;
- Catchment yield and waterways assessment;
- Hydraulics and drainage;
- Drainage structures to determine optimum inlet and outlet design, scour protection, energy dissipation and flow control;
- Flood analysis and floodplain management;
- Flood studies, using 1-, 2- and 3D hydraulic models for prediction of river flood levels, velocities and capacities; and the impact of development within the flood affected zone;
- Flood mitigation, including planning and design of flood attenuation devices and channel diversion;
- Sustainable water use and water sensitive design;
- Water quality management;
- Sediment and erosion control; and
- Many popular hydrological and drainage software packages.

Yeats has played a significant role in regional level modeling and obtaining approvals for some major developments which have been constructed in flood affected areas, including:

- Condamine River – Warwick, QLD
- Bulimba Creek – Brisbane, QLD
- Coomera River – Gold Coast, QLD
- Winding Creek – Newcastle, NSW
- Dumaresq Creek – Armidale, NSW

We have also completed local area flood studies in many sub-catchments of the above catchments and other river systems in Queensland and New South Wales.



RECENT PROJECTS

Regional Two Dimensional Flood Modeling – Condamine River, Warwick

Yeats was commissioned to develop a two dimensional flood model of approximately 9 kilometres of the Condamine River, in the vicinity of the township of Warwick. The two dimensional flood modeling was performed using the latest version of Mike Flood (a couple of Mike 21 and Mike 11), and was based on previous models developed by the Department of Natural Resources using Rubicon software. Various floods were simulated from a 1 year flood, through to the Probable Maximum Precipitation event.

The model has been used to assess the impacts of development along the Condamine River, and to ensure there are no adverse effects on important flow regimes in the vicinity of these developments.



Local One Dimensional Flood Modeling and Drainage Design – Gateway Motorway Upgrade

The project entails the construction and upgrade of approximately 20 kilometres of the existing Gateway Motorway including the iconic Gateway Motorway Bridge.

Yeats worked under a sub consultancy agreement with the Design Joint Venture, providing specialist advise on various drainage aspects on the project including, hydrologic (XP-Rafts and RORB) and hydraulic design (Hec-Ras) of approximately 50 cross drainage structures ranging from 0.60 metre diameter reinforced concrete pipes to multiple cell 3 metre by 3 metre box culverts, design of the longitudinal road drainage using DRAINS, design of the gateway bridge drainage including scupper design and detailed analysis and modeling of the abutment drainage structures, design of various open channels, design of water quality treatment devices including basins, wetlands and gross pollutant traps.

Local Flood Modeling - Hemmant Drain, Wynnum

Yeats was commissioned to assess the impacts of filling within the Hemmant-Wynnum West Flood Plain. The project involved one dimensional unsteady modeling of approximately 1km of Hemmant Drain and its associated tributaries to determine the effects of proposed fill pads being constructed within the existing flood plain.

To complete the study Yeats used various software to produce a three dimensional model of the proposed development terrain and existing flood plain. The three dimensional model was then coupled with Mike 11 to determine the effects of filling on the conveyance, afflux and velocity of the flow within the existing Hemmant-Wynnum West Flood Plain.

The project also involved the complete rebuild of the existing Brisbane City Council Hemmant Drain flood model into the latest version of Mike 11 software. The model has subsequently been adopted by Council for use in future projects.



Local Flood Modeling – Karingal Drive & Dixon Drive, Pimpama

The project entails the development of a 1200 lot residential estate on a series of vacant properties located at Karingal Drive and Dixon Drive, Pimpama. The scale and complexity of the development required detailed hydrologic and hydraulic modeling to be undertaken.

Low-lying areas of the site are subject to 1 in 100 year regional flooding, while other areas of open space/park are identified in the planning scheme as wetlands and waterway corridors thus further complicating stormwater management requirements.

An existing tributary was reconfigured into tiered detention basins, with on-line attenuation techniques utilized in order to minimise the space required for the stormwater management devices. XP-Rafts and Hec-Ras were coupled to complete a full unsteady analysis of the tiered system, which was presented to, and subsequently approved by Gold Coast City Council.

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