



12d® International Innovation Awards

Executive Summary

Name: Roger Brisbane
Company: Mortons Urban Solutions
Name of Project: Ormeau Ridge
Awards Result: Highly Commended

Ormeau Ridge is an 890-lot residential subdivision located adjacent to an existing flood plain and within the Gold Coast/Brisbane "Green Belt". Compensatory earthworks for flood mitigation and requirements to place bio-retention basins above major storm levels presented technical challenges for piped stormwater conveyance systems.

Restrictive floodplain dynamics presented opportunities to utilise the full potential of 12d Dynamic Drainage Analysis (DDA), and permitted calculations, iterations and interrelations that would be almost impossible in any other drainage analysis package. 12d Model was able to analyse bio-filtration basins, piped drainage, multi-bidirectional pits and overland flow all within the one model. The result was a highly functional and cost efficient stormwater system solution that satisfied all the stakeholders.





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Entry Form

NameRoger Brisbane.....
PositionSenior Civil Designer.....
CompanyMortons Urban Solutions.....
Name of ProjectOrmeau Ridge.....
ClientStockland Development Pty Ltd.....

Relevant 12d screenshots and/or data attached.

Description of Project

Ormeau Ridge is an 890 lot residential subdivision located adjacent to an existing flood plain and within the Gold Coast / Brisbane "Green Belt". Compensatory earthworks for flood mitigation and requirements to place bio-retention basins above major storm levels presented technical challenges for piped stormwater conveyance systems.

Description of problem faced / task undertaken

Mortons Urban Solutions was commissioned to undertake design, project management and construction supervision of the project to fulfil part of the regions demand for residential lots in the fastest growth corridor in Australia.

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Restrictive floodplain dynamics presented opportunities to utilise the full potential of 12d Dynamic Drainage Analysis (DDA), and permitted calculations, iterations and interrelations that would be unthinkable in any other drainage analysis package.

How the problem was solved

In order to fully utilise the site's potential an end of line bio-filtration approach was adopted, however this presented additional problems with conveyance of large quantities of piped stormwater. 12d's DDA facilitated a highly interrelated system incorporating bio-filtration basins, piped drainage, multiple bi-directional pits and overland flow components, with each component affecting the functioning of the other.

A series of 16 bi-directional pits within the estate permitted low flows (Q3 month) to be directed towards bio-filtration basins, whilst larger flows were discharged directly into the floodplain, thus allowing pipe and pit sizes to be minimised over many kilometres of pipe. The result was a highly functional and cost efficient stormwater system.

Liaison between Mortons Urban Solutions and Rob Graham and Geoff Thompson of 12d led to further expanded capabilities of the DDA and Dynamic Network Editor (DNE) to enable accurate and stable analysis that we continue to use on various projects throughout Queensland and Northern New South Wales.

This project was a success due to the perseverance of our design team and the willingness of 12d to advance their product. The stability and ability of the DNE / DDA product is currently permitting rapid and cost effective design solutions on many residential, commercial and industrial developments up to 4,500 lots.

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