



12d[®] Model Case Study

Ormeau Ridge Development

Designer: Roger Brisbane
Contractor: Morton Urban Solutions
Client: Stockland Development Pty Ltd
Location: Ormeau, Gold Coast City, Queensland, Australia
Completion Date: 2013

“This project was a success due to the perseverance of our design team and the willingness of 12d to advance their product...”

Outline:

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.

Background:

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.

Methodology:

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.

Issues:

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



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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; Rob Graham and Geoff Thompson of 12d Solutions 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.

Evidence of Success:

The development has obtained preliminary approval with the initial stages granted subdivisional approval. Site works commenced in July 2010.

Reflections:

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.

Testimonials:

"Mortons Urban Solutions have consistently delivered proactive and innovative solutions to challenging sites to achieve sustainable outcomes for the Stockland product. In the design phase of Ormeau Ridge they have use the latest software to deliver efficiencies in stormwater management that have maximised developable land and reduced infrastructure costs."

Col Dutton
Regional Manager (Stockland Development)
Residential Development QLD

Accreditation:

Created by: Roger Brisbane
Position: Senior Civil designer
Company name: Morton Urban Solutions
Company website: www.urbansolutions.net.au

Project Participants:

Gilbert and Sutherland - water quality
Cardno Lawson & Treloar - floodplain modelling
RPS - survey, town planning and urban design
Conix - Landscape architects
South East Excavations - Construction

