

Waterways and Drainage Solutions

Australasia

Overview

Halcrow is a multi-disciplinary consultancy specialising in planning, design and management services for infrastructure development. We have an experienced Waterways and Drainage team with an enviable reputation as an innovative and dedicated service provider in the areas of Water Sensitive Urban Design (WSUD), Stormwater Harvesting and Drainage System Management.

Services Provided

We have the skills and experience to undertake projects in the following areas:

- Water Sensitive Urban Design (WSUD).
- Stormwater Harvesting and Water Re-use.
- Drainage Schemes and Flood Mapping.
- Drainage Condition Assessments.
- Drainage Design and Investigation.
- Hydrologic/hydraulic Analysis.
- Mitigation Option Studies.
- Network Asset Management.
- Water Quality Modelling.
- Concept Design, Detailed Design and Project Management.

We use a range of Tools including:-

XP-Storm	Infoworks – CS	URBS
RORB	HEC-RAS	ISIS
MUSIC	TUFLOW	Vertical Mapper
MapInfo	Mike 11	

Projects and Experience

Projects we are currently engaged on or have recently completed are outlined below.

Water Sensitive Urban Design (WSUD)

Treyvaud Reserve Stormwater Diversion, 2008

Halcrow was an integral member of a project team engaged to revitalise a suburban pond suffering from low water levels during recent years. Halcrow developed a concept design to divert stormwater into a new landscape design for the pond. Halcrow is currently preparing detailed design drawings of the pond modification in conjunction with stakeholders and the Landscape Architect.

WSUD Lower Yarra Improvements – City of Boroondara, 2008

Halcrow is leading a design team preparing concept and detailed designs of localised Stormwater Quality Improvement Measures for two sites in the City of Boroondara. The scope of works include MUSIC water quality modelling, hydrologic/hydraulic design, site survey, landscape design, detailed design and preparation of plans for public consultation. The sites include a residential street and a public reserve.

Tan Track Redevelopment – City of Melbourne, 2007

This project involved modelling and a conceptual design for a grassed swale to run along the redeveloped section of the Tan Track in the Botanical Gardens. The swale was designed to stop water running over the path and reduce pollutants to best practice standards. Halcrow also project managed detailed design of the swale and Tan Track redevelopment.



Drainage Condition Assessments

Condition Assessment of Drainage Assets – City of Melbourne, 2007

Halcrow completed a condition assessment drainage assets to establish a sound basis for estimating remaining life or deterioration profile of drains. The Council's drains date back to the 1880's and include significant quantities of earthenware and brick assets. Halcrow reviewed CCTV surveys held by Council covering approximately 10% of the network, assigned condition ratings to each asset and generated deterioration profiles for each drain type category. Profiles were compared to the linear AAS27 profiles currently used for derivation of depreciated value, and determination of remaining life for each asset.

Drainage Condition Study – City of Port Phillip, 2008

Halcrow completed a drainage condition study for the City of Port Phillip in 2008. This project involved reviewing existing drainage data, managing CCTV contractors, reviewing the asset survey, providing assessment of condition, determining expected drain life and modelling deterioration of Council drainage assets.

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Stormwater Harvesting

Stormwater Harvesting/Diversion to Ponds – City of Melbourne, 2008

Halcrow completed a stormwater investigation, concept and detailed design for diversion of existing drainage networks into the City of Melbourne's ponds. This project is being used to develop potential substitutes for potable water. It required Halcrow to complete water balances, water quality risk assessments, concept designs, and the detailed design. Halcrow is also leading the investigation, concept and detailed design of implementing rain water tanks on sports pavilions in Royal Park. The project involves harvesting water from pavilion roofs for alternative uses such as toilets and showers.



Drainage Schemes and Flood Mapping

Ballan Flood Mapping – Melbourne Water, 2008

Halcrow is undertaking detailed flood mapping of several catchments in the Ballan township for Melbourne Water. This involves modelling three 2.9 sq. km rural catchments, with one catchment incorporating an underground pipe network and the other two natural watercourses. RORB is being used to produce hydrographs that are fed into HEC-Ras hydraulic models of catchments with natural watercourses. XPStorm is used to model the catchment and underground drainage network.



Hydraulic models will enable the flood behaviour of Ballan catchments to be understood. They will also simulate flood

levels for ultimate existing condition land use and the range of design flood event frequencies, for PMP, 1%, 2%, 5%, 10% and 20% probability storm events using current and climate change rainfall scenarios. Properties within the 1% flood extent will be assigned a direct/indirect/property safety and flood risk.

Ballarat West Drainage Scheme Development – City of Ballarat, 2008

The City of Ballarat engaged Halcrow to develop a drainage scheme to service a 20km² area identified for future residential and commercial growth. Hydrologic/hydraulic modelling was used to identify 100 year ARI flood extents, water quality treatment measures and the trunk drainage network required to service developable lots. The project included acquisition of LIDAR survey, field survey and quantity surveying.

Drainage Design and Investigation

Development of Gross Pollutant Trap (GPT) Program – City of Melbourne, 2007

Halcrow reviewed and assessed City of Melbourne's GPT inventory and in particular methods used by Council's contractor to inspect, clean and record pollutants. The project resulted in identification of key issues with current maintenance procedures, such as frequency of inspections for individual traps and trigger points for cleaning.

This project followed on from development of the 2006/07 PT Capital Program for City of Melbourne, during which Halcrow identified and assessed various sites in the municipality. Assessment included an estimation of expected litter load and physical constraints associated with each site. Feasible sites were prioritised and the most appropriate GPT type nominated for each site.

Stormwater Pumping Stations – City of Kingston, 2007

Halcrow undertook preliminary and detailed design of 300L/s and 1050L/s Stormwater Pumping Stations discharging into the Patterson River for City of Kingston. The project will mitigate flooding of residential areas behind existing levee banks bordering the Patterson River. Acoustic analysis, pump type assessment and hydrodynamic modelling were carried out as part of the preliminary design stage. Tender documentation including technical specification and detailed design drawings were prepared for construction.

For more information on our services, please contact:

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Halcrow – Sustaining and improving the quality of people's lives