AQUALOGICAL
Plumbing Design Solutions

Capability Statement




Contents

Aqualogical is an award winning, boutique consultancy specialising in the design of Hydraulic (Plumbing) and Wet Fire Services to the building industry. We are a privately owned company formed in 2006, based in Underwood, Queensland in easy reach of Brisbane, Gold Coast and Ipswich.

Aqualogical undertakes consultancy work in Australia, NZ and the South Pacific.

ISO 9001 www.intlcert.com

AHSCA The Association of Hydraulic Services Consultants Australia

BUSINESS AWARDS 2010 QUEENSLAND FINALIST

smart company smart 50 2010 awards

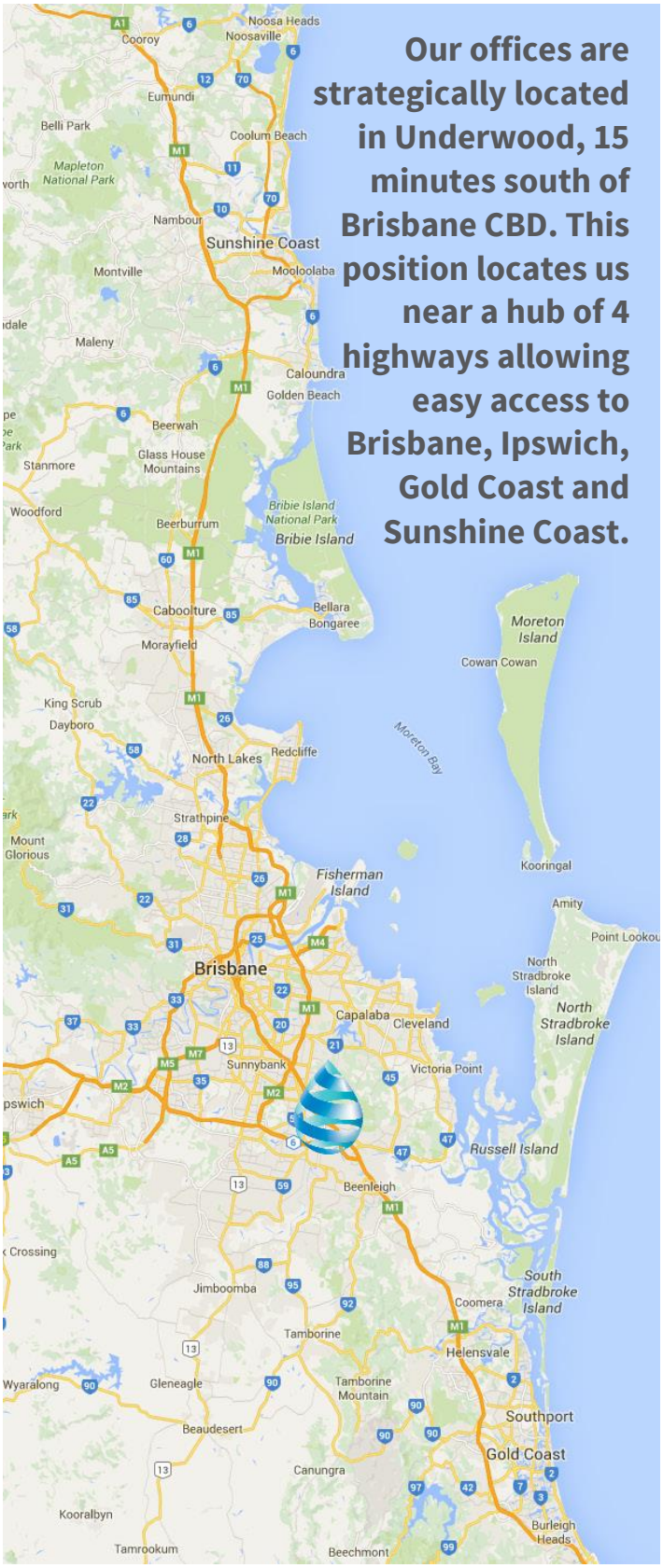
Overview

Aqualogicals' dedicated team of Hydraulic and Wet Fire Services specialists provide consultancy and documentation services for projects ranging from single dwelling residential houses and retail tenancies to large industrial installations and high rise buildings.

We have successfully delivered projects across all market sectors of construction, in particular;

- Tenancies
  - We provide the client with a three day turnaround from receipt of information to submission for Plumbing and Drainage Compliance permit from the local authority
- Industrial
- Residential
  - from single dwellings to large high rise multi dwelling developments
- Education
- Defence
- Food Processing, manufacturing and warehousing
- Retail
- Health & Aged Care
- Commercial

visit our website at www.aqualogical.com.au to see a selection of projects delivered in each of these sectors and more



Why Aqualogical?

Experience

Although we are a small boutique consultancy, we can still boast in excess of 100 years experience in the plumbing and fire services industries. In addition to this, the breadth of knowledge is truly extensive over a wide range of services. Aqualogical prides itself on undertaking the more difficult projects that most other consultancies avoid.

Industry Involvement

All of our staff are members of the AHSCA of which 2 of our staff have been members for in excess of 20 years. We have staff on the board of the AHSCA, a Member of the QBCC Plumbing Industry Consultative Group and a Seasonal Guest Lecturer on Hydraulics at QUT for Architectural Students.

Fully Engineered Documentation

All of our documentation is prepared using Revit MEP software to a minimum Level of Design (LoD) of 300. This ensures accurate modelling of services with specific assemblies and quantities. The size, shape, position and orientation of each element of the design is precise. We have also produced Dynamo scripts to create novel data input methods.

Gold Coast University Hospital

In addition to the above, Aqualogical has access to and can use any version of Revit as well as Revizto and BIM360.

Material Bills

Material components are clearly identified and quantified within the documentation to a level that enables accurate and easy tendering of projects.

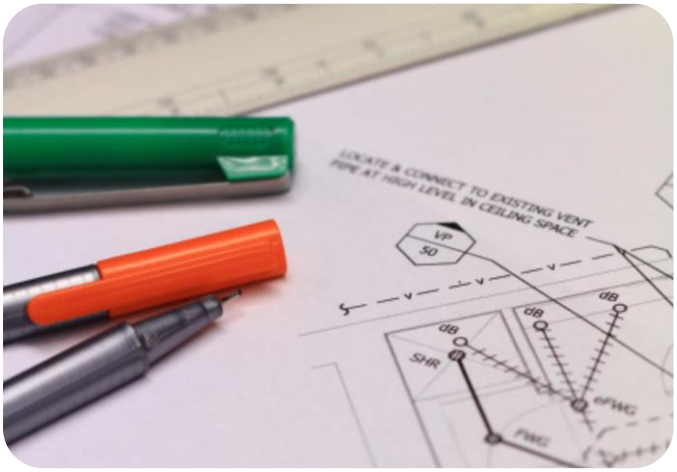
State of the art equipment

Aqualogical has recently undertaken the inclusion of a Trimble X7 3D scanning system to our stable of equipment. This scanner is great for existing sites where accuracy of documentation is paramount to the success of the project. We can scan existing structures and services and provide our client with a dot point cloud for preparation of a project model.

Scope Of Services

Aqualogical provide the following range of services;

- Hydraulic and fire system design & documentation.
- Council applications, negotiations & liaisons.
- Investigation of existing services.
- Budget analysis.
- Design & construct documentation.
- Operation & maintenance manuals.
- As recorded documentation.
- Compliance assessment.
- Design review
- Post occupancy evaluation
- 3D modelling and co-ordination



Fire Services

Aqualogical offers a full range of wet fire services design solution, as follows;

- Fire hydrant systems including storage, pumps, boosters and pressure controls.
- Fire hose reel systems, fire extinguishers.
- Gas suppression systems.
- Fire sprinkler systems including FM approved systems.
- Deluge fire suppression systems.
- Wall drenching systems.
- Special hazard suppression systems.
- Tailored solutions for any hazard.

Hydraulic Services

Hydraulic Services includes the range of design activities listed below. All can be provided in-house by Aqualogical;

- Sanitary drainage and sanitary plumbing.
- Vacuum drainage systems.
- Trade waste drainage and plumbing
- Trade waste treatment systems.
- Gutter designs, rainwater downpipes, rainwater drainage and car park drainage.
- Rainwater harvesting & reticulation systems.
- Cold water systems including pumps and storage systems.
- Hot water, high temperature water and warm water systems including pumps and reticulation.
- Hot water generation plants including gas, electric, solar, heat pump, waste heat recovery, steam, coal, diesel and wood fired.
- Gas reticulation including natural, LP, ethylene,
- oxygen, carbon dioxide and acetylene.
- Erosion & sediment control.
- Sanitary fixtures, tap ware and appliances.
- Compressed air systems including compressors, driers, receivers, reticulation and control.
- Specialist wash down facilities including high pressure, centralised foaming and sanitising systems.
- Steam

Industrial Warehouse, Steelforce

How We Work

A small team of senior professionals form the core of Aqualogical. This core team establishes and maintains the high technical standards that we have become known for. The key to the consistent high standard of delivery is staff retention and development.

Aqualogical has unusually high staff retention figures and by providing development opportunities and an invigorating work environment, we can be assured that the knowledge and lessons learnt from our projects stays within the company to be passed on to our clients and also our more junior staff as they develop into tomorrow's senior professionals.

Supplementing the core team are designers, drafters and administration staff who support the delivery of the project documentation.

We have a mixture of full time, part time and sub contract designers and drafters local to our office that allow us to adjust our manpower to varying project demands.

Our People

Anthony Freeman (AHSCA) Managing Director

Anthony founded Aqualogical. With over 40 years of industry experience, he brings a wealth of knowledge for every market sector.

He has spent considerable time whilst managing Aqualogical training and mentoring quite a few hydraulic consultants, with many now being competitors. Several of these have won the AHSCA Hydraulic Consultant of the year award either with Aqualogical or subsequently. Despite being competitors, many of our previous employees contact Anthony on a regular basis for advice and recommendations. Anthony freely gives his time with a view that the industry as a whole, needs to be more professional.

Anthony is pushing Aqualogical to become the industry leader. Developing and customising Revit MEP specific to hydraulic and fire services has been the recent focus. Now, he is adding to this by investing in a Trimble 3D laser scanner for use on brown field.

Anthony will continue with mentoring staff, innovation with implementation of new technology and techniques with a keen focus on overall company improvement.

Ken Crase (AHSCA) Senior Designer

Ken is 1st Vice President of the Australian Hydraulic Services Consultants Association (AHSCA) responsible for technical development.

His encyclopaedic knowledge of the standards and authority requirements is extremely valuable to his clients and colleagues.

Ken also has many years' experience providing hydraulic and wet fire designs for multi-story residential, commercial, retail and industrial projects as well as providing compliance advice and reports on fire infrastructure installations within existing developments. A snap shot of Ken's vast project experience as follows;

- Westfield and Centro Shopping Centres
- Various projects for Brisbane and Gold Coast City Council
- Queensland Prep School Program
- 400 George Street Building Construction Inspections
- Central Plaza 1 - Water Saving
- Waterfront Place, AMP, Comalco Place
- Sunnybank Private, Peninsula Private, Pine Rivers and various other Hospital projects

Tim Blinco
Fire Services Designer

Tim is a senior fire services designer who provides fire sprinkler, fire hydrant and fire hose reel services design.

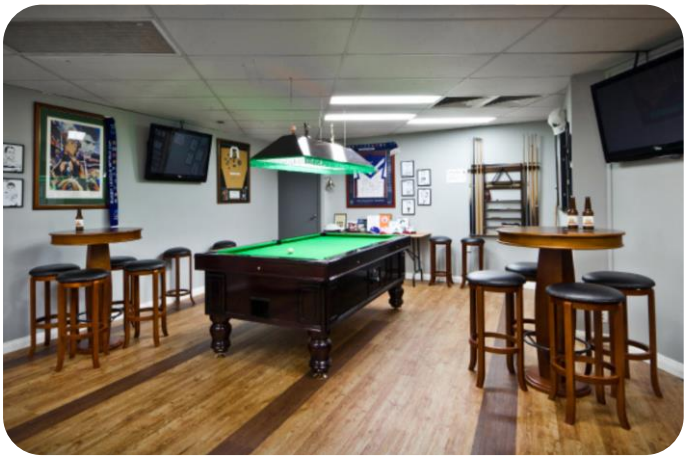
He has provided these services on many projects over the past 40 years including;

- Riparian Plaza
- Circle on Cavill
- Q1 Apartments, Gold Coast
- Oracle Apartments, Broadbeach
- Towers of Chevron Renaissance

Chris Marrinan
Systems Manager

Chris manages and develops our systems and procedures. Chris works closely with Joe and the tenancy team to ensure we continually provide the quickest turnaround for tenancy fit out projects in the industry.

He has been with Aqualogical since the very early days and understands every facet of how the company operates.



Einstein's at Aqualogical

Did You Know?

Archaeologists have recovered a portion of a water plumbing system from the Pyramid of Cheops in Egypt. The evidence of indoor plumbing in palaces dates back to 2500 BC

A drip from a leaky tap will waste 680 litres of water per month - or 8,160 litres per year.

In a typical home, more than 34,000 litres of water is wasted per year waiting for hot water. This can equate to approximately 15% of your annual water heating costs.

Albert Einstein was made a honorary member of the Plumbers and Steamfitters Union after he announced that he would be a plumber if he had to live his life over again.

In honour of Albert, we have named our in house bar "Einstein's". Pop in for a chat and a beer!

CAD Drafting

Our CAD drafting team prepares all our hydraulic services documentation including basic design activities, enabling our senior designers to document more efficiently. Our team consists

of Daniel Chin, Kylie Brown, Chanelle Hobson and Geoffrey Morris.

Receptionist and Accounts

Meagan Freeman undertakes all receptionist and accounts duties at Aqualogical.

Accounts

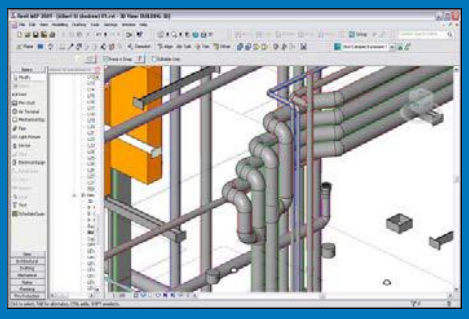
Ann-Marie Uhr has a B. Com (Accounting) and a Certificate IV in Business Administration. She maintains all company records and accounts.

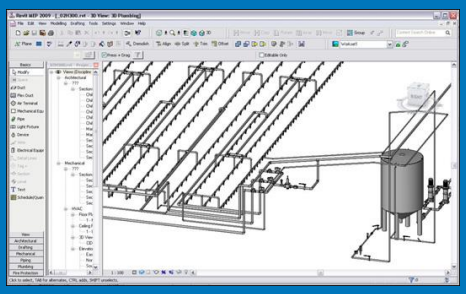
Contract Staff

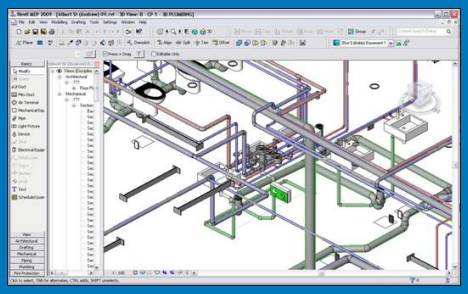
Aqualogical have available two senior hydraulic services designers, two hydraulic services designers, one senior fire services designer and three CAD drafters available at short notice for when the need arises.

Building Information Modelling (BIM)

Our Building Information Model (BIM) experienced design staff utilise the Revit MEP software to launch design documentation to new levels of accuracy. This enables detailed co-ordination to be achieved with the clash detection feature. It also provides for detailed bill of quantities to be prepared. Whether projects require building information modelling or a simplified design process, Aqualogical will cater for your project needs.







Ormeau Health Centre
Multi-Bank Rainwater Tanks

Joe Griffin (AHSCA)
Designer

Joe leads the design and documentation of our tenancy team. He is responsible for the prompt turnaround of tenancy fit outs (usually three days from receiving the information to submission to Council.)

As a licensed plumber, he understands what is required to be documented to assist the plumber to complete the installation quickly and correctly.

Christopher McInerny
Revit Modeller

Christopher is full time Revit modeller who is able to co-ordinate the Hydraulic Services with the Architects layouts and other engineering disciplines on complex projects.

He is further developing Aqualogical's standards for Revit drafting to ensure we remain the industry leader of templates and families for Hydraulic Services, making the implementation of Revit within the office time and cost effective.

As the industry moves more and more to Building Information Modelling (BIM) delivery, Aqualogical are willing and ready to embark on this exciting progression, largely because our dedication to development.

Christopher has vast experience in construction methodology including architectural, structural, mechanical, electrical and hydraulic services.

He has been involved with many projects throughout his career with the standout being Sentosa Island resort in Singapore.

1. concept

- Aqualogical commits to developing the concept design stage with considerable detail in an effort to minimise potential issues at an early stage. At the concept design stage, the design team puts together the basic design for the project. Ideas are presented and challenged by all members of the team. These options are then considered and selections suitable for the project are made based on their merit.

2. design

- During the design development stage of each project, extensive co-ordination is undertaken with the Architect. This co-ordination is essential as it becomes the back bone for the design. Once completed, this coordination is then extended to review the structural and mechanical requirements for the project. Authority requirements are also reviewed and any potential issues are discussed with the local inspectors to facilitate on site compliance.

3. quality

- On completion of the design process, and prior to issuing for tender or council approvals, an independent quality review of the design & drafting standards is conducted. The review results are discussed with the designer and any necessary alterations made.

4. construction docs

- On completion of the quality review, the documentation can be issued for tender. As part of our service, Aqualogical will undertake the preparation of all hydraulic services applications for local authority design approvals and will monitor the approval process through the local authority. This commitment will often shorten approval times and minimse information requests.

5. construction stage

- When required, regular quality inspections are undertaken during construction and reports prepared with current on site progress and defects indicated. Material samples are inspected and approved. Requests for Information (RFI's) are responded to. Attendance at specific testing and commissioning is also undertaken.

6. post construction

- After Construction is complete our input on the project continues to monitor and communicate with the project team and building occupants to ensure the installed systems are functioning as designed. We will participtae in post occupancy evaluations which provides us with valuable feedback to take to the next project as well as making sure the buildingsowners and occupants are happy with

ELF Stage 2B

Lead Designer Paul McKenna

Hydraulics Contractors
Beavis & Bartels, Nardia Plumbing, D&F Plumbing, Fairfield Plumbing, Planet Plumbing

Innovations

Deleted the need for 22 individual hydrant pumpsets – by implementing a site wide fire pump station solution to capture all current and future works. This not only provided a capital cost saving, it also provided future on-going maintenance savings

A Site wide Natural Gas ring main was introduced that services all current as well as future proofing defence requirements

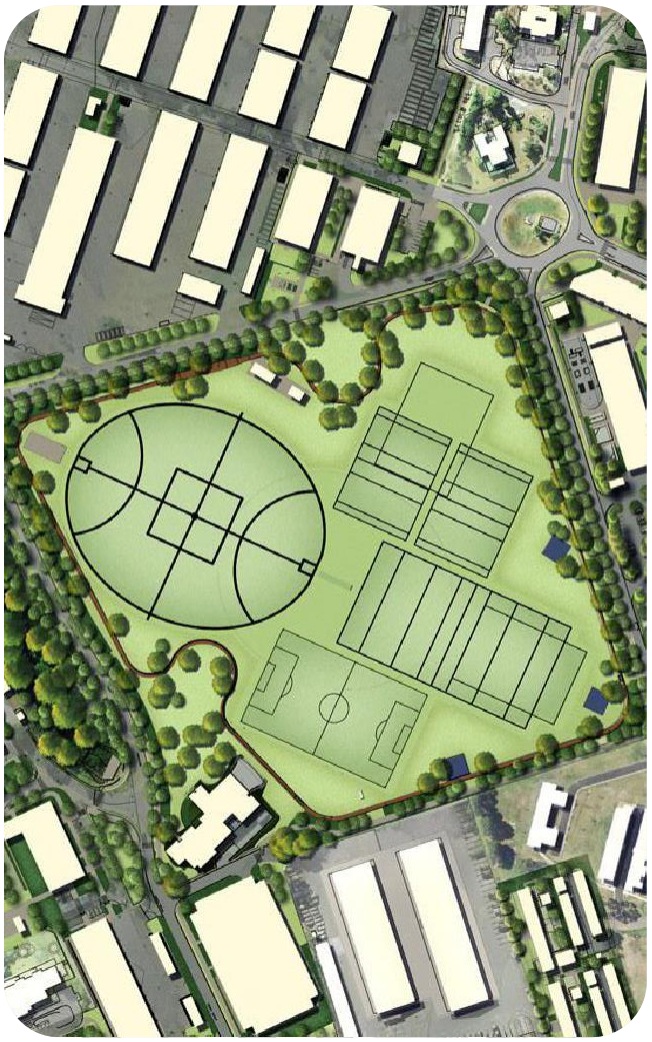
Specific Challenges

Designing site specific hydraulic services, to over 200 individual buildings, spread over brown and green field building sites within a 9 sq. Km area complete with a combined 220,000m^2 of building GFA.

Working within 4 individual design teams, comprising multiple architects, engineers and builders at once, whilst also controlling external specialist sub-contractors (eg swimming pool specialist)

And then following the project through to construction, inspection and handover while dealing with 5 different construction teams.

Client/Builder	John Holland Group
Architect	BVN & Conrad Gargett
Value (Build Cost)	$ 800 Million
Project Duration	March 2009 – May 2015



Services Documented

cold water
hot water
lpg
natural gas
sanitary drainage
sanitary plumbing
trade waste drainage
stormwater drainage
stormwater harvesting,
wet fire services

123 Albert Street

Lead Designer	Anthony Freeman
Hydraulics Contractor	Planet Plumbing

Client	Planet Plumbing
Architect	Hassell Architects
Value (Build Cost)	$ 359 Million
Documentation Period	August 2008 – January 2009
Project Completion	July 2011

Innovations

The first premium grade tower in Brisbane to achieve 6 star Green Star As Built

Grey water from waste fixtures was treated and re-cycled for irrigation

Rain water was harvested for WC flushing, wash down and irrigation

The gas supply was designed to power a tri-generation energy system

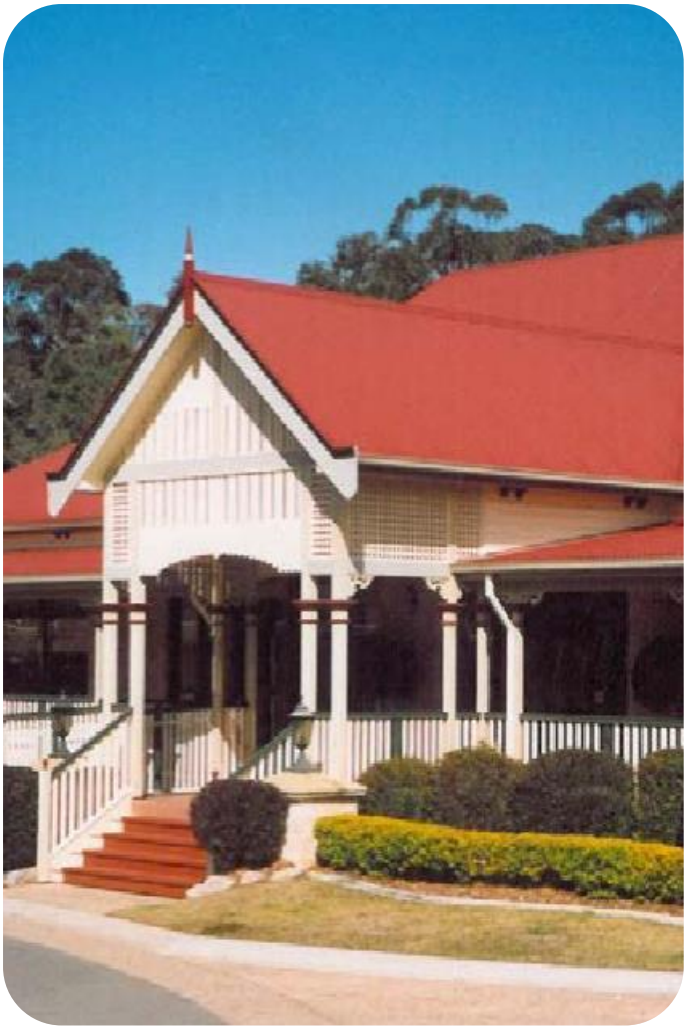
Specific Challenges

This project was the first to be documented in Revit by Aqualogical

Extensive water and energy usage reporting, calculations and strategies to assist with achieving the 6 star Green Star accreditation

Services Documented

sanitary plumbing, sanitary drainage, downpipes and gutters, rain water drainage, gas, cold water, hot water, fire hydrant service, fire hose reel service



Sunnymeade Nursing Home

Lead Designer	Anthony Freeman
Hydraulics Contractor	Redbank Plains Plumbing

Innovations

The final design and documentation was detailed to the extent that it provided the plumbing contractor with a clear and concise method and sequence of new works in order to maintain operations to the remainder of the facility. This resulted in improving the efficiency and costs during construction whilst minimising disruption to the existing building habitants.

Specific Challenges

The Hydraulic services design was required to allow for the nursing home to continue operation whilst the new building was being built with no interruptions to water and drainage services.

The redeveloped building doubled in bed size. The hydraulic design was able to incorporate the existing water and drainage services with no infrastructure upgrades.

Client	Lambert & Smith Architects
Architect	Lambert & Smith Architects
Builder	McNab
Documentation Period	November 2014 - April 2015
Project Completion	December 2015

Services Documented

sanitary plumbing, sanitary drainage,
downpipes and gutters
cold water, hot water, backflow prevention

Urbanest Student Village

Lead Designer	Anthony Freeman
Hydraulics Contractor	Nardia Plumbing

Client	Planet Plumbing
Architect	Hassell Architects
Value (Build Cost)	$ 359 Million
Documentation Period	August 2008 – January 2009
Project Completion	July 2011

Innovations

Pre-fabricated bathroom pods were built off site

A heat trace system was used to maintain the heat within the hot water services in lieu of a secondary piped circulating system

Grey water from waste fixtures was treated and re-cycled for irrigation

Specific Challenges

The pre-fabricated bathroom pods where manufactured in Italy and did not comply with Australian plumbing standards. Alterations were required to be made to each pod to achieve plumbing approval

Services Documented

sanitary plumbing, sanitary drainage,

downpipes and gutters, rain water drainage,

gas, cold water, hot water,

fire hydrant service, fire hose reel service

Marsden Shopping Centre

Lead Designer	Ken Crase
Hydraulics Contractor	Accurate Plumbing

Estimated Cost Savings

Fire Hydrant Pump - $125, 000.00

Innovations

Fire Hydrant flow and pressure testing at the start of the project indicated marginal compliance in regards to required pressure. However, instead of installing fire hydrant pumps, Aqualogical carefully designed the system to minimise system head losses. In the event that in the future mains pressure is reduced, we designed in space and pipework provision to install a hydrant pump with minimal expenditure or disruption.

Specific Challenges

Contaminated soil due to a Petrol Station being located on the site previously.

Maximising lettable area – the use of syphonic rainwater drainage reduced the number of downpipes in lettable space.

Client	Cousins Hedeman Property
Architect	Thomson Adsett
Value (Build Cost)	$ 12 Million
Documentation Period	July 2013 – April 2014
Project Completion	August 2015

Services Documented

sanitary plumbing, sanitary drainage, trade waste drainage, rain water drainage, rain water harvesting, rain water reticulation, downpipes and gutters, gas service, cold water, hot water, fire hydrant service, fire hose reel service, fire sprinkler system, fire detection and alarm system

363 Adelaide Street

Lead Designer	Paul McKenna
Hydraulics Contractor	Beavise & Bartels

Innovations

Transforming an existing 18 storey 'class 5' office building, built in 1985 – into a modern 700 bed and bath Student Accommodation Building, complete with trade waste and natural gas provision for 3 x retail and 1 x restaurant .

Specific Challenges

Dealing with and retaining the existing building structure – that had little to no, existing information. Detailed site visits were required, to gain an understanding of the existing site constants.

Attempting to understand the complete existing hydraulic systems, with little to no existing information.

Attempting and successfully reusing some existing hydraulic elements, to provide cost savings for the contractor.

Client	Beavis & Bartels (D&C)
Owner	Valparaiso Capital / StudentOne
Architect	Arkhefield
Builder	Hutchinson Builders
Value (Build Cost)	$ 110 Million $ 45 Million refurbishment
Documentation Period	May 2015 – December 2015
Project Completion	June 2016

Services Documented

sanitary plumbing, sanitary drainage,

stormwater drainage,

natural gas, cold water, hot water,

fire hydrant service, fire hose reel service

combined sprinkler / hydrant booster assembly

For more information contact us by:

T: (07) 3208 5233

E: admin@aqualogical.com.au W: www.aqualogical.com.au

Unit B5 Commercial Court 130 Kingston Road

Underwood QLD 4119

PO Box 220 Rochedale South QLD 4120

ABN: 24 116 871 544 | QBCC: 1099 893