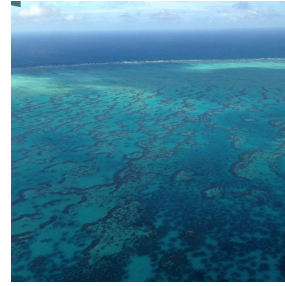


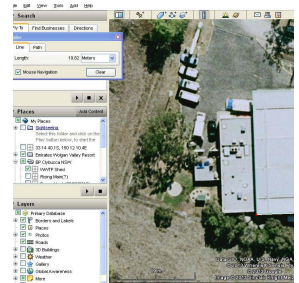
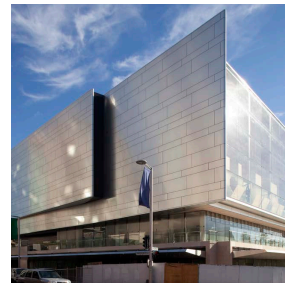


Sustainable Solutions International Pty. Ltd

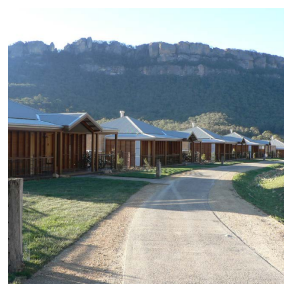
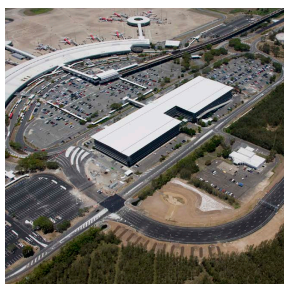
Engineering . Ethics . Environment



Water



Energy



Waste

Consulting engineers & project managers

www.SustainableSolutionsInternational.com

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WHO WE ARE

Sustainable Solutions International. The name says it all.

Sustainable: *We build for the future. That saves you money.*

We are consulting engineers, founded and tasked with providing the sustainable solutions on which the future will be founded. Well-designed solutions save money in the long term. We specialise in helping our clients find ways to afford the best solution possible.

Solutions: *We solve problems, for good.*

Every organisation has a challenge in reducing consumption and building for the future. We specialise in finding and delivering the solutions that enable you to maximise your return on investment, ethically.

International: Proudly based in Australia with a big vision.

- Our team hails from four continents and many different cultural backgrounds.
- Our partners are global companies based in Europe, the USA and Asia.
- Our vision is global – SSI has worked in Maldives, Dubai, Singapore, East Timor, PNG, Fiji and the USA.

Waste, Energy, Water – Engineering, Ethics, Environment

Sustainable Solutions International (SSI) was established in 2004 to provide environmental sustainable and innovative engineering consultancy services.

SSI has grown to become a dynamic engineering consultancy with a strong ethical charter to protect the environment and enhance humanity. ***We empower our clients to do great things.***

WHO: Those clients include: resorts and leisure, airports, mining oil and gas, manufacturing, residential, commercial and retail, all levels of government, education, and the health and retirement sectors.

WHAT: Over the past 10 years, SSI has built a strong reputation for delivering innovative, challenging, holistic and high-profile projects in the areas of water, energy and waste.

HOW: Our areas of specialisation and services include:

- ⇒ Asset & Maintenance Management
- ⇒ Design Construction Management & Commissioning
- ⇒ Efficient Audits and Cleaner Production
- ⇒ Environmental Compliance Management & Licensing
- ⇒ Master Planning
- ⇒ Plant Assessment & Optimisation
- ⇒ Design & Process Risk Assessment (HACCP & HAZOP)
- ⇒ Sustainable Resource Management



SOME OF OUR CLIENTS



OUR TEAM & HOW WE WORK

Our team drives our innovation and we work by the motto of “**The strength of the team is each individual member. The strength of each member is the team**” - *Philip Jackson American professional basketball coach*”.

The team is led by Dominic Xavier, chemical engineer and company director for 15 years. Dominic's knows that engineers will design the world of the future. His vision is that those engineers should be driven by principle and long term values. He has founded the company on that vision and inspires the team to apply those values every day.

Our team consists of multi-disciplinary engineers and scientists with qualifications in Chemical Engineering, Mechanical Engineering, Civil Engineering, Electrical Engineering, Process Engineering, Electrical and Control system design, environmental science and Human Resources and Training. All members of the team work in a collaborative environment where individuals are responsible for their own projects but the successful delivery of the project is the responsibility of all team members.

All SSI's team members are experienced in working in the coalface of engineering problem solving in the real world.

SERVICES WE OFFER

ASSET AND MAINTENANCE MANAGEMENT

Asset and management maintenance:

SSI has qualified personal and resources to offer preventative maintenance and asset management for your plant.

Our four tiered maintenance program offers you support at the budget you can afford.

1. Phone a friend
2. Right behind you
3. Onsite support
4. Let us run it for you



DESIGN CONSTRUCTION MANAGEMENT AND COMMISSIONING

Design: SSI delivers innovative technology and operational systems to provide high quality plants for drinking water, wastewater, stormwater, renewable energy and solid waste management in compliance with Australian and International standards.

Construction and Construction Management:

SSI can procure equipment and construct on the behalf of our Clients or SSI will monitor and control the scope of works and resources against time frames and budgets during the entire life of the project for our clients.



Commissioning: SSI can plan, prepare commissioning documentation, develop Testing and Commissioning Plans (TCP), coordinate and conduct the testing and commissioning or over see and manage testing and commissioning, manage and prepare process proving plans for buildings, factories, water, wastewater, energy and solid waste plants, in accordance with Australian & International Standards for our clients.

EFFICIENCY AUDITS & CLEANER PRODUCTION ASSESSMENTS



SSI audits help you identify the current cost profile, the opportunities for savings and meet the relevant regulations. We have experiences in auditing **energy, water, solid waste, cleaner production** and **waste water** and **trade waste audits**.

Energy audits: SSI assesses the energy consumption in your industry and analyses it to evaluate the impact on the environment and operating cost. The energy audit is used to develop sustainable energy management plan for your site. SSI conducts energy audits in accordance with Australian Standards AS/NZS 3598 to Level 1, 2 or 3 accuracy.



Water audits: SSI performs water audits to assess historical and current water usage to identify areas of improvement and offer solutions to reduce the water usage and prepare a water efficiency management plan.

Solid waste audits: SSI has experience in carrying out solid waste audits to identify solid waste streams and composition of the solid waste. This data is then used by SSI to develop solid waste management plans



Cleaner production audits: SSI has experience in conducting audits on manufacturing operations looking at raw materials consumption, power, gas and water consumption and waste generation from the site to develop overall manufacturing efficiencies and reduce energy and water consumption and waste generation.

Wastewater and Trade waste audit: SSI can conduct audits on your wastewater/ trade waste streams to evaluate ways to reduce the overall Council trade waste cost on your business and help you better manage your trade waste stream in a cost effective way with reduced environmental impacts.

ENVIRONMENTAL COMPLIANCE AND LICENSING

Initial planning: SSI ensures planning and liaison with government agencies and environmental authorities to obtain the necessary licences and permits. We can prepare reports for various environmental licenses including water treatment plants, wastewater treatment plants, waste management facilities etc.

Managing Compliance: SSI can also help you with noncompliance issues by negotiating with environmental agencies and preparing Transitional Environmental Plans (TEP's) for your site to enable you to avoid fines and prosecution and give you a sustainable path to compliance. We can also help with legal issues and court appearance as technical specialist.

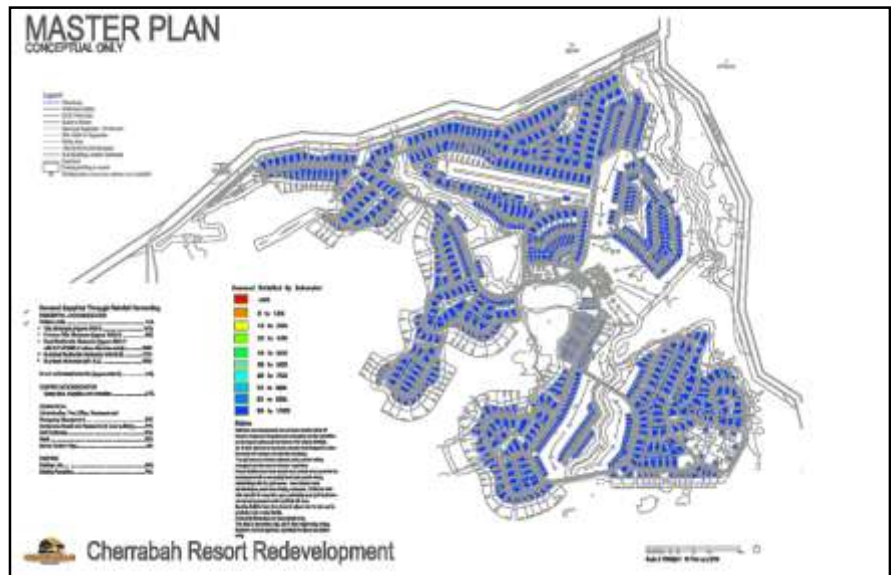


MASTER PLANNING

Master Planning: SSI can prepare water supply, wastewater management and solid waste management master planning for new developments, site expansions, and future proofing.

SSI has conducted master planning for organisations such as Brisbane Airport, Melbourne Water, Boral Australia and for resorts such as Great Keppel Island and mining camps such as MAC Coppabella.

SSI follows the process of Needs Analyses, Design and Feasibility Evaluation, Consultation with Stakeholders to develop master plans.



PLANT ASSESSMENT AND OPTIMISATION

Plant Performance Audit: SSI can assess your existing water and wastewater plants to review the overall performance of the plant, equipment and processes to optimise the performance of the plant. This service could help you prolong the life and capacity of your plant with minimal modifications or upgrades. SSI can also audit your plant and develop an upgrade plan for your plant. This could negate your need to install a new plant. The audit will involve reviewing historic performance data, a detailed audit of all equipment and plant operation by a team of SSI engineers on your plant, obtaining performance data using hand held instruments and thermal imaging equipment, sample collection and detailed testing using NATA accredited laboratories.



Feasibility studies: SSI carries out extensive investigation and research of the technical, operational and financial aspects of a project to assess the potential risks associated with it. SSI has the resources and experience to review a proposed or existing process to identify potential cost savings and reduce the impact on the environment without compromising the quality of the final product.

RISK ASSESSMENTS (HACCP & HAZOP)



HAZOP Risk Assessment: The HAZOP technique is a framework that enables a team of people with the appropriate skills to systematically examine a process or plant. SSI has developed a HAZOP software package **HAZPro®** that streamlines the HAZOP process and provides a structured risk assessment and design review process. This risk assessment process is in compliance with Australian Safety in Design legislation and International Standards IEC 61882 for HAZOP studies.

Hazard Analysis & Critical Control Points (HACCP) assessment: A HACCP provides a detailed hazard analysis and identifies Critical Control Points to manage and avoid those hazards to control product quality. SSI has developed a HACCP software package **HACCP-Pro®** that streamlines the HACCP process and provides a structured hazard analysis and critical control point analyses for food manufactures, Water Service Providers and Recycle Water Service Providers. SSI has used the HACCP framework to prepare Drinking Water Management Plans and Recycle Water Management Plans.

SUSTAINABLE RESOURCE MANAGEMENT

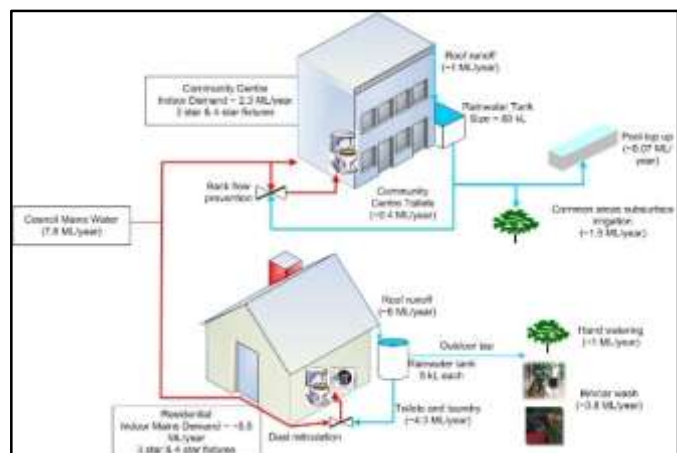
Development of Water Demand Management Plan (WDMP): WDMP offers the opportunity for developers and industry to accurately quantify the water demands of their site.

Development of Water Efficiency Management plan (WEMP): WEMP will establish water conservation goals and identify water conservation opportunities.

Development of Site Based Management Plans (SBMP): SBMP will identify environmental impacts and promote compliance with standards and legislation by implementing environmental efficient action to address non-compliances.

Stormwater Management Plans (SMP): SSI will prepare, implement and review stormwater management plans to improve the management of stormwater quantity and quality to protect the ecological, social and economic values of your organization.

Data logging of water usage for leak detection: Data logging involves checking a site's water supply pipe network and water consumption to identify leaks, unusual water consumption patterns and inefficiencies in water consumption and water use trends.

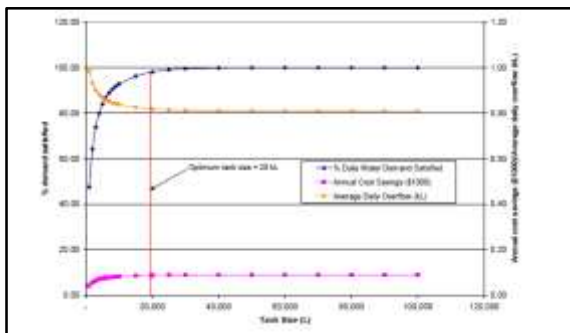


TOOLS AND RESOURCES

Rainsaver

SSI developed the **RainSaver®** Rainwater Harvesting Model to determine the optimum tank size for specific sites. The model is able to accurately quantify the supply potential of rainwater, savings in water consumption, and the reduction in stormwater discharge from the site.

The model also has an option to also consider the impact of Climate Change.



Hazard and Operability Study Software (HAZOP)



SSI has developed a HAZOP software package **HAZPro®** that streamlines the HAZOP process and provides a structured risk assessment and design review process.

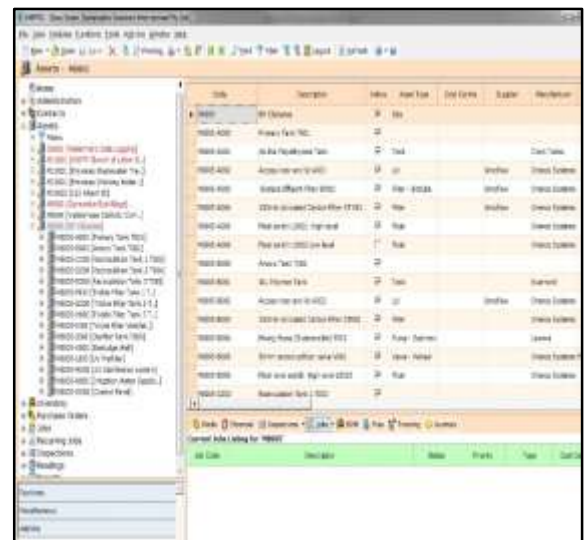
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Hazard Analysis & Critical Control Points (HACCP)

SSI has developed a HACCP software package **HACCP-Pro®** that streamlines the HACCP process and provides a structured hazard analysis and critical control point analyses for food manufactures, Water Service Providers and Recycle Water Service Providers.

AMPRO

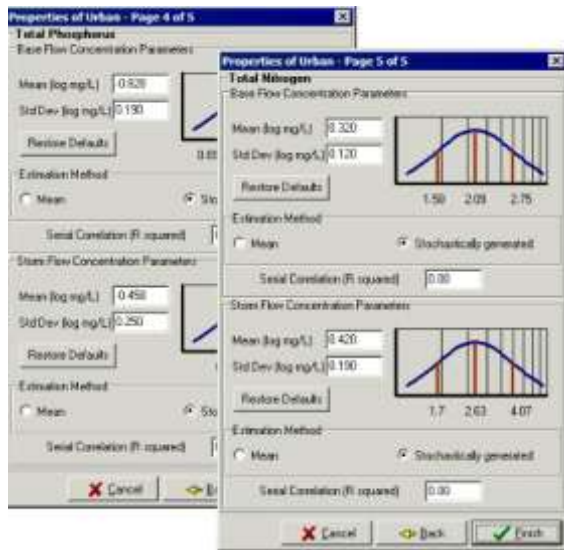
Asset management enables us to collect data from your site and support the operation and maintenance of your assets. SSI uses this software to detail your assets, equipment that make up your assets, replacement parts, consumables and help schedule maintenance works and replacement equipment on your asset.



MUSIC - Stormwater

MUSIC (Model for Urban Stormwater Improvement Conceptualisation) is a

software modelling tool that SSI uses to simulate the behaviour of stormwater and help determine the effectiveness of stormwater quality treatment systems.



MEDLI – Irrigation

The Model for Effluent Disposal using Land Irrigation (MEDLI) was developed for Queensland Government and is widely used to design effluent disposal systems. MEDLI uses meteorological data, effluent quality data and soil chemical and physical characteristics to model the soil's chemical and hydraulic balance in the area of effluent disposal.

Environmental Monitoring System (EMS)

SSI has developed a MS Excel based environmental monitoring data management and reporting system with quick dash boarding outputs to help manage compliance with all your environmental licence requirements for water, soil, Air etc.

Accredited HSSE system

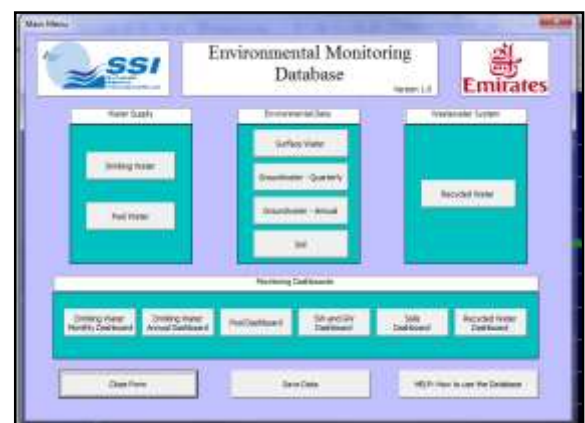
In conjunction with BP Australia and the Australian Institute of Petroleum, SSI has developed a Health, Safety, Security and Environmental management system for use in all our site investigation, construction management and commissioning works that SSI conducts. The SSI HSSE system is also independently audited by BP Australia on a annual or biannual frequency.

SSIWare

SSIware is a project management, resource management, deadline management, equipment management, accounting and financial software to manage our projects efficiently and effectively. SSI ensures proper management of customer data.

SSI Procedures, Templates & SOP

SSI has developed a very detailed set of documentation and template documents to better manage and present information. This tool improves effectiveness of decision making and streamlines the communications process within the organisation and with our clients.



SOME OF OUR PROJECTS

RESORTS AND TOURISM

Services provided

Asset and management

Design, construction and commissioning

Efficiency audits

Licensing

Master planning

Assessment and optimisation

Resource management

Emirates Wolgan Valley Resort & Spa- NSW



Background: The Wolgan Valley is less than 3 hours from Sydney, along Australia's Great Dividing Range. Bound by the Blue Mountains World Heritage Site, Emirates Wolgan Valley Resort & Spa offers a range of activities to provide guests with a wildlife retreat experience. The resort was built at a cost of \$45 million dollars. The Resort and Spa features: 40 individual villas, spa and gymnasium, meeting and business facilities, and accommodation for over 100 live-in staff.



SSI's role:

SSI was appointed by Emirates Resort and Spa to:

- Design the wastewater treatment plant;
- Design and manage the construction of the paddock irrigation scheme for disposal of treated effluent;
- Prepare an overall sustainable water and wastewater management plan for the Resort and Spa;
- Developed the drinking water quality management plan, the recycle water management plan and the environmental management plan for the resort development, and
- Provide quarterly maintenance and asset management for the wastewater treatment plant, drinking water treatment plant and irrigation system on site.

SSI's achievements: SSI designed a wastewater treatment recycling plant using innovative packed bed reactor technology that produced recycled water with 80% less energy consumption compared to conventional activated sludge processes. The recycled water scheme at Emirates was the first Private Recycled Water Scheme approved by NSW Health under the new recycled water guidelines. Under a tight deadline the SSI team worked tirelessly to insure that the Resort opened its doors as scheduled.

RESIDENTIAL & RESORTS

The Ecovillage at Currumbin- QLD

Services Provided
Asset and management
Design, construction and commissioning
Licensing
Master planning
Resource management



Background: The Ecovillage at Currumbin is located 7km away from Currumbin Beach on Queensland's Gold Coast. The objective for the Ecovillage at Currumbin was to inspire sustainable living, development practice and awareness by creating The World's Best Ecologically Sustainable Village. Situated on a 110ha site on the Gold Coast, the Ecovillage provides for 144 eco-homes, together with community oriented facilities, a plant nursery, a recycling centre, schools and comprehensive community recreational and services facilities.



SSI's role: As the sustainable wastewater consultants for the Ecovillage SSI was initially involved with the review of the proposed integrated water and wastewater management plan which then prompted an investigation into sustainable wastewater treatment options for the development. SSI designed a treatment plant using a new passive treatment technology which was more inline with the ideals and objectives of the Ecovillage, having significantly lower energy inputs while still delivering Class A+ recycled water quality for reuse in irrigation, laundry and toilets.

Until recently SSI had a continued relationship with the EcoVillage conducting the ongoing maintenance management, asset management and Environmental Protection Authority (EPA) annual returns for the wastewater treatment plant.

SSI's achievements: The Ecovillage at Currumbin has received over 20 state and national awards in recognition of their sustainable development achievements and in 2008 was awarded the **World's Best Environmental Development** at the FIABCI Prix D'Excellence Awards in Amsterdam.



COMMERCIAL AND RETAIL

Services provided

Asset and management

Design, construction and commissioning

Efficiency audits

Licensing

Master planning

Assessment and optimisation

Risk assessment

Resource management

The Concourse Chatswood – Flood Mitigation & CBD Stormwater Recycling Scheme - NSW



Background: Willoughby City Council (Council) developed the Civic Place in Chatswood, that has been renamed The Concourse.

As part of this development, the Council incorporated a flood mitigation scheme and a stormwater harvesting and reuse scheme to produce non-potable water of a suitable quality for use within the development for supplying irrigation, toilet flushing and cooling tower make up water.



The project developed a 12,500sqm site in the centre of the Chatswood CBD, in accordance with the Master Plan adopted by Council in 2004.

SSI's role: SSI was engaged by Willoughby City Council to provide construction management and oversee the commissioning of the water recycling plant. SSI conducted the following works:

- Conducted an initial feasibility investigation for the scheme;
- Conducted a HACCP risk assessment on the scheme to provide minimum design requirements to comply with the NSW IPART legislation;
- Gaining approval for the scheme from NSW Health and through the IPART process;
- Conducted 6 months of stormwater and base flow investigations including stormwater quality and quantity of flows from the catchment;
- Prepared Expression of Interest (EOI) documentation and assisted Council and the Project Managers (Savills Project Management) with the EOI process and EOI assessment;
- Detailed design of the flood mitigation and stormwater recycling plant;
- Conducting and carrying out HAZOP (Detailed Design Risk Assessment) risk assessment on the plant design;
- Preparing technical specifications and tender documentations ;
- Managing and assisting with the tender process from a technical point of view;
- Conducting tender negotiations ;
- Construction management of the plant;
- Preparing the plant commissioning plan and overseeing plant commissioning;
- Reviewing plant operation and maintenance manuals and standard operating procedures.

SSI's achievements: The Chatswood integrated flood mitigation and stormwater reuse scheme was granted the Environmental Excellence Awards in 2012.

AIRPORTS

Brisbane Airport Corporation, Brisbane, QLD

Services provided

Design, construction and commissioning

Efficiency audits

Licensing

Master planning

Assessment and optimisation

Resource management



Background: The Brisbane Airport Sustainable Water Management Strategy started as a partnership project between SSI, Brisbane Water and Brisbane Airport Corporation.

Brisbane Airport Corporation (BAC) was one of the top water users in Brisbane, having an average water consumption of 1,620 ML/ year in the financial year 2004-2005. Their current water consumption of 385ML/ year is a 76% decrease in water use since SSI's relationship with BAC started. BAC has over 190 buildings and includes passenger facilities, hangars, maintenance, retail, car wash and process facilities. Over five (5) years SSI has successfully completed over 20 projects at BAC aimed at reducing the site's water consumption.



SSI's role: SSI helped BAC to reduce its mains water demand through the implementation of a water recycling scheme for the supply of stormwater and Brisbane Water's recycled water for cooling tower make-up water for the international terminal building (ITB) and the domestic terminal building (DTB). The project involved taking Class A or Class B reticulated recycled water supply from Brisbane Water and/or stormwater from the onsite lake, treating it to a Class A+ standard as well as reducing scaling compounds in the recycled water to provide water suitable for cooling tower make-up water supply.

SSI's achievements: SSI identified opportunities for water savings through water efficient fixtures, rainwater harvesting, use of recycled water and water efficient practices which have led to overall water saving of nearly 76%. Brisbane Airport was awarded ***"The best water management in the world"*** at the 2008 International Water Association (IWA) Awards in Vienna. ***With the assistance of SSI, the recycled water management plan at BAC is the first successful application in Queensland for use of recycled water in building comfort cooling towers.***



EDUCATION

Bond University Sustainability Education Centre Water and Wastewater Master Plan

Services provided
Design, construction and commissioning
Efficiency audits
Licensing
Resource management



Background: The sustainable building for the Business, Technology and Sustainable Development Faculty features a 3 level building to service a population of 400 students and 60 staff members. The aim of the building was to achieve a 6 star green star rating under version 2.0 of the Green Star Office Design tool.

SSI's role: SSI was commissioned by Bond University to conduct a feasibility study for water, wastewater and solid waste management to identify potential options to assist Bond University in achieving a 6 star rating by:

- Reducing the overall water demand of the building;
- Implement a rainwater harvesting system;
- Minimise the water demand from Council mains water systems;
- Minimise the wastewater discharge to the Council sewer system;
- Beneficially reuse recycled water on-site, and;
- Reduce the amount of solid waste sent to landfill



SSI's achievements: By implementing the results provided by SSI, Bond University was able to reduce the total water demand on site, reduce the wastewater and solid waste generation and improve its solid waste management system.

PROJECT AWARDS

The Concourse Chatswood, NSW

The Chatswood integrated flood mitigation and stormwater reuse scheme was granted the Environmental Excellence Awards in 2012.

Developed at Willoughby City Council's new \$160m performing arts centre "The Concourse" in Chatswood, NSW has set a new benchmark in flood mitigation and storm water reuse in Australia.

What makes this project unique is the reuse of urban run-off to feed "The Concourse" cooling towers. Additionally, the scheme acts as a flood mitigation scheme and will reduce the severity of downstream flooding during heavy rain events.



Brisbane Airport Water Management

Brisbane Airport was awarded "**The best water management in the world**" at the 2008 International Water Association (IWA) Awards in Vienna. SSI had worked with Brisbane Airport for over 5 years and delivered over 20 projects to help Brisbane Airport develop its sustainable water management strategy.

The Currumbin Ecovillage

The Currumbin Ecovillage won the Prix d'Excellence award (**The World's Best Ecovillage Award**). This unique award is given to outstanding projects that show excellence at every stage of their creation. The Prix d'Excellence strives to embody the FIABCI ideal of providing society with the optimum solution to its property needs.



Bond University- Mirvac School of Sustainability

Bond University's Mirvac School of Sustainable Development building, which has innovatively reduced carbon emissions by 80 percent and is Australia's first higher education building to receive a 6 Star Green Star Design Rating, received the Royal Institution of Chartered Surveyors (RICS) award for the **world's best example of carbon-friendly and sustainable design- 2009**.

The Emirates Resort Wolgan Valley, NSW

Wolgan Valley Resort & Spa is the world's first carboNZero[™] certified resort in the world, and also the first carbon neutral resort in the world to be certified through an internationally accredited greenhouse gas programme, having measured its greenhouse gas emissions in compliance with ISO 14064-1: 2006.

