

ISSUE# 3
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DECEMBER

the Flow

Seeking
Joy In Water

Consulting Engineers

Bridging Two Worlds

Let's Talk

Gross Pollutant Traps.

REBRAND
EDITION

CAN WE ENSURE A
**CLEAN WATER
FUTURE?**

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Joy In Water...

Andy Hornbuckle

General Manager at SPEL Stormwater



It's subjective right?

For me, it's spending time, somewhere on a Queensland beach, with my family - but every one of our 72 staff had a different take, from swimming in Sydney Harbour, to spending a day at the beach with their kids. Yet one thing was recurring, irrespective of job role or location - a vision of safe, clean water, free of pollutants and toxins.

How we found 'Joy'

Our rebrand journey started in early 2020, connecting with a group of our customers to find out, as they say, 'the good, the bad and the ugly' about SPEL.

We heard what was important commercially, but delved deeper to find the real link between our products and the 'better world' SPEL is striving to create - and there it was. The the 'joy' we feel when we reflect on moments of clean water happiness - at the beach with our family, fishing with our mates, or kayaking alone and at one with the environment.

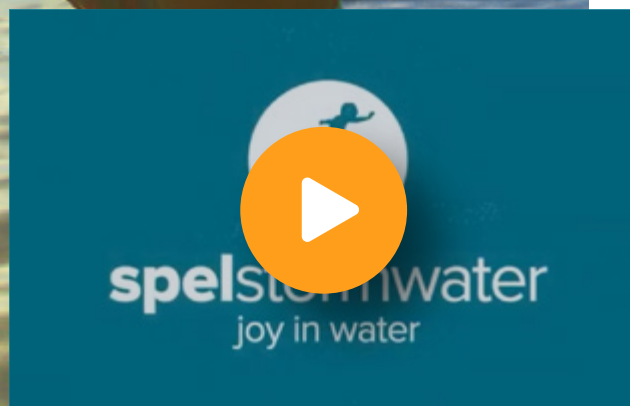
We'd found our vision.

Where from here?

Like you, I hope there is a clean water future for all of us, but achieving this means considerable change in our infrastructure and government policy. With over 800,000 people estimated to die this year as a result of unsafe water, our commitment to this cause is unwavering.

Clean water is life, it is joy, and it is our future, and the future of our children.

What Joy in water means to us





Feature

Project:

Brompton Lodge

Take a left turn at the MCG and you'll find yourself - an hour or so later, right in the heart of Cranbourne, one of Melbourne's up and coming suburbs. Located 40km southeast of the CBD, Cranbourne was once considered a country town. Now an emerging residential hub, it has transitioned from mostly rural to predominantly urban land usage. One of the larger recent developments to the area is the [Brompton Lodge Estate](#).

A mixed residential development site, Brompton Lodge spans 107 hectares. Set to have a future population of over 4,000 people, the estate will include nearly 1,500 dwellings, roads, parks and wetlands. SPEL was contracted in 2020 to install five Vortceptors. These lightweight gross pollutant traps capture both pollutants, suspended solids and contaminants entering the stormwater system.

Brompton's Unique Site Characteristics

The Brompton Lodge Estate sits on sandy soil with a water table running under it. Because the ground is unstable, excavation and installation of any underground structures must be done as quickly as possible. This challenge made the [Vortceptor](#) the preferred GPT option.

This fiberglass tank is easy to transport and less complicated to install than concrete GPTs, which need to be lowered in segments and assembled in the excavation pit. The [Vortceptor](#) is a light weight, one-piece unit that takes less time to install, reducing the duration a potentially hazardous excavation pit remains open.



Suspended polystyrene debris inside a Vortceptor unit at Brompton Lodge

Brompton Lodges Unique Challenge



Protecting Brompton's Ecosystem

New home construction produces a lot of waste, which often detrimentally impacts the surrounding environment. Polystyrene, used for packing and insulation, is a hazard for both farm animals and wildlife. It is light and easily broken up, carried by strong winds into their habitats and drinking water. If consumed, it can lead to starvation and chemical poisoning.

Installed at the beginning of the construction phase, the [Vortceptors](#) collect and contain any polystyrene blown into the stormwater. With regular cleaning and maintenance, these GPTs will continue to remove pollutants, suspended solids and nutrients from the waterways of the Brompton Lodge estate for decades to come.

Overall, this project illustrated the effectiveness and suitability of the [Vortceptor](#) for challenging sites like Brompton Lodge. For SPEL, it aligned with our environmental values and the belief that 'clean water is a right, not a privilege'

Searching

Joy In

Water

Whether it's ice cubes cooling your drink, building sandcastles at the beach or exploring the waterways and estuaries in your kayak, the joy we experience from clean water is precious.

Perhaps it's something we take for granted - a presumed clean water future, the statistics are anything but the picture is more grim than we might imagine. According to a [comprehensive study](#) up to 12.7 million tonnes of plastic waste went into the ocean in 2010. Some of it sinks, much of it floats, but one thing is for certain, the direct effect this has on our wildlife and our planet is catastrophic.

In 2019, SPEL embarked on a journey to understand the true relationship of what we did with how we wanted the future to look. We asked a lot of questions, and we listened intently to the answers. It seems we're not the only ones searching for a 'clean water future' - everyone is, for their own future - that of their children and even their children's children.

So that's how it started. As clean water custodians we have made this our mission and 'Joy in Water' has become our mantra.

PLASTIC IN OUR WATERWAYS

It's easy to be affected by images of birds choking on plastic bags and seals strangled by netting, but do we truly understand the impact? Not only are we killing over [a million marine](#) animals each year, we're also consuming the plastics ourselves.

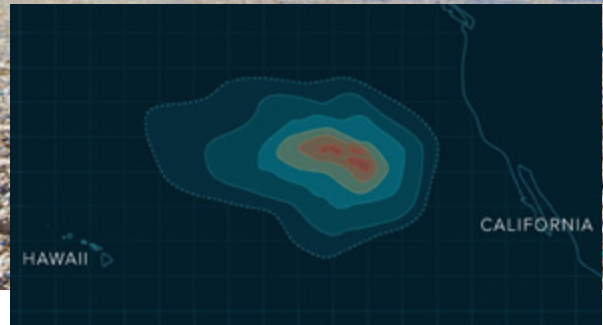


Plastic is made to be strong and durable, taking considerable time to break down in our waterways - usually by the effects of the sun, waves and marine life. Larger plastic eventually becomes microplastics. These are - fragments generally defined as smaller than can be detected by the naked eye, and it is these microplastics that marine animals often mistake for food. It is ingested along with the toxic chemicals and pesticides that often [concentrate on the surface](#), blocking their digestive tract, diminishing the urge to eat, and altering their feeding and reproductive behaviour. *We are essentially starving our marine life by feeding them a diet of plastic and chemical runoff that originates mostly from our homes.

The news however gets worse. Every bite of food, every sip of water we consume in our own diet [almost certainly contains](#) these tiny beads of plastic. While there currently isn't enough data to predict the effect this has on human health, it's hard to comfortably believe there's no consequence.

Heard of the Great Pacific Garbage patch?

Also known as the Pacific [Trash Vortex](#) or gyre, this man-made eye sore is located in the central North Pacific ocean and has a current surface area of around 1.6 million square kilometers.



To put things into perspective, that's an area around the size of Queensland - minus the peninsula - full of human produced waste.

The gyre is anticipated to weigh around the equivalent of 500 jumbo jets, and has grown steadily in size since the 1970s. Once plastic enters the catchment, it's usually imprisoned until it's slowly broken down into harmful microplastics.

HOW DO WE ENSURE A CLEAN WATER FUTURE?

The answer is clear - we stop putting plastic into our waterways. This won't be one easy 'fix all' solution, but a combined strategy to reduce, re-use and remove:

1. Reduce or eliminate your consumption of single-use plastics
2. Recycle and become an advocate for recycled and reusable products, even when they cost a little more
3. Remove the plastics and toxins from the source of our urban waterways
4. Spread the word and stay informed
5. Support organisations who are addressing the plastic pollution problem

SPEL might not be able to redirect the 150 million tonnes of single use plastic produced every year just yet, but it's in our DNA to try. Like you, we'll continue to fight for every precious 'Joy in Water' moment ahead, because without clean water - there is no future.

We encourage you to watch this powerful documentary - Drowning in Plastic that highlights the devastating effects of microplastics on our bird and marine life. —————>



Consulting Engineers: Bridging Two Worlds.

Of all the leading professions, consulting engineers are a special breed.

They combine two different attributes and bridge two different worlds. They are the professionals of our time who need both a head and a heart for business *and* engineering?

It is the skilful blend of these qualities that makes consulting engineers the driving force behind so much change and innovation in the stormwater industry. The engineering side requires exacting details and standards, with the rigorous application of both. The business side requires imagination - to explore problems, spot opportunities and find the right solution.

At SPEL Stormwater we're privileged to work with hundreds of consulting engineers, and their contribution to every project enables us to do our job. They add enormous value far beyond the design and build process, with three call-out attributes.

Applying engineering solutions to solve problems.

Engineering knowledge and its application underpins our industry's power to change and improve the environment. This knowledge doesn't just ensure infrastructure works as designed, it also provides justified assurance of the final product's performance and safety.

Making collaboration and ownership a core component

Many factors contribute to successful project engagement, but what really stands out is collaboration. Few environments require such close collaboration and coordination as a stormwater construction site. At the heart of this are the consultant engineers, working with project managers, architects, builders and contractors. Their attention to detail, ownership of the outcome and recognised 'senior position' helps ensure an uninterrupted project flow.

The adage that 'your network is your net worth' is especially true for consulting engineers who build strong relationships based on their passion and central collaborative role in projects.

Managing and reducing complexity to deliver better outcomes.

Undoubtedly, some professions are better at coping with complexity than others. Engineers are clearly one of them. On any given day, a consulting engineer is juggling multiple projects while continuing to make improvements as and when they're identified - all to a strict time schedule.

As young engineer Herbert Hoover, later becoming the 31st president of the United States, wrote "It is a great profession. It elevates the standards of living and adds to the comforts of life. That is the engineer's high privilege". With one of the world's greatest water infrastructure projects named after him, Herbert accurately represents our engineer - with a head and a heart for both business and engineering.



STORMWATER SHEPHERDS

SPEL is proud to announce our investment in Stormwater Shepherds Australia - a not-for-profit organisation focused on reducing the amount of rubbish, pollutants and microplastics in our waterways through an ongoing, three-tiered approach.



Action – community clean-ups restoring our riparian environments

Education – building positive change through awareness campaigns and knowledge sharing

Advocacy – raising awareness on sustainable stormwater infrastructure management

Stormwater Shepherds Aust & NZ will be headed up by Mary Rayner, who is well-armed with not-for-profit, government and corporate expertise. Her proven success includes establishing and running the not-for-profit arm of Devil Arc Inc, and founding an environmental group focusing on plastic pollution and waste in the 90's. This group was the recipient of the many awards and grants, including the National Banksia Foundation award for community groups.

To learn more about Stormwater Shepherds reach out to Mary via [email](#).

Mary Rayner

Director of Operations,
Australia & NZ



Let's Talk –

Gross Pollutant Traps

A gross pollutant trap (GPT) - categorized as a 'primary treatment device', is the first line of defense in a stormwater treatment system and removes much of the bulky pollutants from stormwater runoff. Traditionally we find GPTs fending off litter, cigarette butts, plastic bottles, leaves and sediment. A strong, robust GPT plays a key role in ensuring 'tertiary treatment devices' like biofilters, raingardens and proprietary filters can 'polish' or clean the stormwater, removing an additional layer of particles and dissolved pollutants.

What Gross Pollutant system works best?

An interesting study was conducted by the [CSIRO in 2010](#) surveying council employees and GPT cleaning contractors on their perception of different device types. Summarised in the graph below, the continuous deflective separation unit consistently rated higher in comparison to other GPTs on the market.

Not all GPTs are the same

There are several different GPTs in the market today – all removing gross pollutants from our stormwater system in different ways. Most GPTs fall into one of the below categories:

Difference in specific gravity traps - systems which use gravity to separate pollutants that float and settle without the use of screens. Water quality is achieved by incorporating baffles/booms in a series of chambers.

Direct screening - devices which incorporate screens in various orientations to the manage the flow. These are not self-cleansing.

Vortex type devices - devices that direct flow to produce vortices/hydrodynamic separation, but do not have a screen.

Devices that combine a vortex/ hydrodynamic separation with a non-blocking screening system - these are known as 'continuous deflective separation' units. [The SPEL Vortceptor](#) is a vortex separation unit with a non-blocking screen system.



Figure 5.3 Perception of performance for each GPT group according to council employees

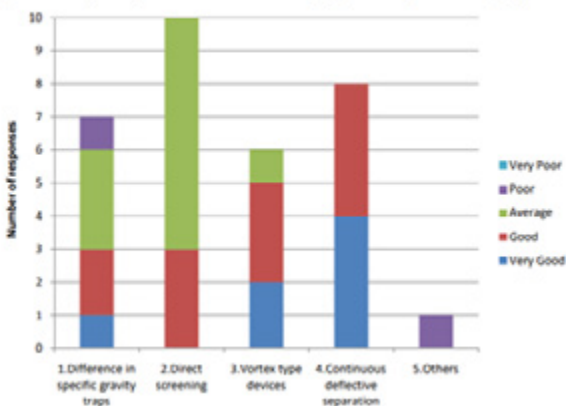
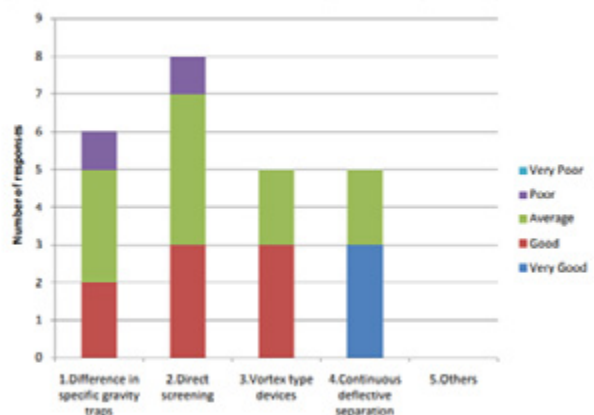


Figure 5.4 Perception of performance for each GPT group according to cleaning contractors



[*Neumann and Sharma, 2010](#)

DOWNLOAD FACT SHEET

SPEL Vortceptor®
Hydrodynamic Vortex Gross Pollutant Trap (GPT)

OVERVIEW
The SPEL Vortceptor® GPT is a non-blinding hydrodynamic separator that has a unique screen and treatment action producing low vortex conditions resulting in excellent pollution removal performance and resulting high water quality outcomes.

BENEFITS
Vortex Action

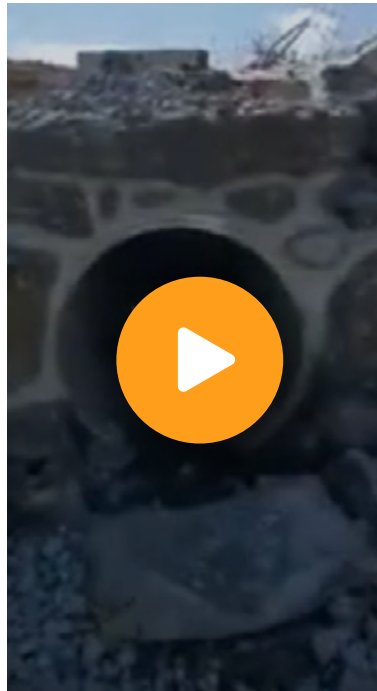
- Separates and captures gross pollutants, sediments, oil, total suspended solids, some nutrients and oil and grease.
- Non-blinding hydrodynamic separator.
- Unique screen & treatment action.

APPLICATIONS

- Shopping Precincts
- Commercial Zones
- Recreational Grounds
- Industrial Areas
- Eschets & Parks
- Residential Development

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EXPLANATION VIDEO



INSTALLATION VIDEO



THE SPEL VORTCEPTOR

Without a doubt CDS units were the way forward as an effective GPT, yet the concrete unit was often difficult and costly to install.

In 2019 SPEL released the Vortceptor - a light weight, one-piece alternative to the current concrete tanks. This exclusively designed and manufactured GPT with a hydrodynamic separator producing vortex conditions, resulted in excellent pollutant removal ratings and high-water quality outcomes.

With its non-blinding screen, the Vortceptor was cutting edge technology. As founder Stephen Hales recalls 'we knew we had a good product. This light weight, easy to install system would save our customers time and money.'

SPEL manufactures the Vortceptor as a single piece, pre-assembled fibreglass chamber. No laborious on-site assembly. No hefty installation costs. The remarkable strength to weight ratio achieved by this structure gives us a product a fraction of the weight, while still structurally robust underground. Fibreglass is also durable and resistant to chemicals, saltwater and acid sulfate soils.

Timeless Innovation – Two Decades On

The world of GPTs has changed dramatically since the mid 90's. While technology has advanced and improvements have been made, the principals of the continuous deflection technology have remained timeless. SPEL continues to innovate, looking for further improvements and field testing on the [Vortceptor](#).

As Stephen Hales would say 'it's a constant evolution' bringing us closer every day to the clean water future we all envisage.

The Launch of the 'Continuous Deflective Separation' GPT

CDS Technologies pioneered the use of the 'Continuous Deflective Separation' GPT in Australia during the mid-90s. The rights were then acquired by Rocla Pty Ltd in 2007, allowing them exclusive patents to CDS GPT technology until 2015. These units were, and still are, housed in precast concrete segments. Once installed, they are reliable and councils benefit from the merit of their proven performance and reliability.

MUSIC

Modelling

Made Easy!

With our constantly changing urban landscape detrimentally affecting the volume and quality of water flow, MUSIC has always been the 'go to' software for producing best design and efficiency practices in WSUD modelling.

Yet there are often errors caused by the manual process of location mapping and loading meteorological templates.

This year SPEL introduced their own MUSIC interface. Designed and engineered by senior technical consultant Mircea Stancu, [SPEL-Mi](#) simplifies the process by integrating both Google maps and meteorological templates into the platform. These advancements make modelling quick and easy, and reduce many of these common errors:

- Selecting the incorrect meteorological template
- Selecting the incorrect MUSIC source nodes
- Setting the incorrect area for source nodes
- Creating inappropriate treatment nodes (swales too short, bios with very shallow media, etc)
- Rainwater tanks set with no demands
- Missing the treatment of some pollutants (GPs, TSS or Dissolved pollutants)

The other key benefit of [SPEL-Mi](#) is the time saved in producing finished models. Modelers no longer need to review council design guidelines, and with the platform's ability to create multiple options in a single batch, the drudgery of optimisation is removed. [SPEL-Mi](#) is also faster in identifying and building source nodes from a catchment plan, and building construction nodes (bioretention, swale and rainwater tanks).

Finally, the access to information is far easier. The project owner can simply save a copy of the spreadsheet or send the MSF file to the modeler.

SPEL-Mi - it truly is MUSIC modelling made easy.

Test SPEL-Mi platform

SPEL-Mi webinar

Our Webinars

Webinars from the worlds leading professionals in stormwater treatment.

[VIEW OUR LIBRARY](#)



Mircea Stanu

Senior Technical Consultant
(BCivEng, BInfoTech, MPubPolMgt)



Universal Stormwater Treatment Modelling Approach.



Prof. Michele Burford

Researcher at the Australian Rivers Institute, Griffith University



Nitrogen Offsetting: Challenges & Opportunities



Dr. Peter Schwammberger

Research scientist at the University of the Sunshine Coast



Constructed Floating Wetlands

The Role of plants in pollutant removal from urban stormwater runoff.



Ian Adams

Director of Organica Engineering



Stormwater In Planning And Building Approvals



Water News



SPELBasin achieves Australia's first SQIDEP Approval.

This year the very first SQUIDEP approval was awarded to SPEL's modular bioretention system, SPELBasin. A rigorous and impartial evaluation process, SQIDEP provides the [uniform set of criteria](#) to which stormwater treatment measures can be field tested and evaluated in Australia.

The [acronym for Stormwater Quality Improvement Device Evaluation Protocol](#), SQIDEP was formed in 2014 to establish an industry benchmark for assessing SQID proprietary devices. Custodianship by Stormwater Australia, it provides evidenced and data-based decision-making criteria.

Dr Darren Drapper of Drapper Environmental Consulting led the testing and evaluation team for SPEL. Describing the thorough and meticulous process, he walks through the application in detail during his recent webinar.

SPELBasin's certification is a win for both SPEL and the stormwater industry.



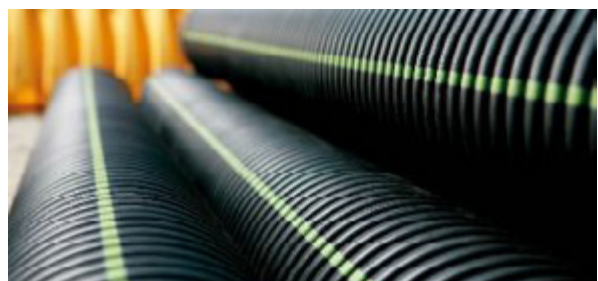
[VIEW WEBINAR](#)

SPEL acquires CubicM3 - providing an end-to-end stormwater solution

In October this year SPEL moved a step closer to an end-to-end stormwater solution with its acquisition of CubicM3.

With specialist pipe and chamber products, CubicM3 serviced the construction, mining, rail, stormwater and agricultural industries. The acquisition by SPEL will significantly expand its sales and distribution capabilities.

The unique feature of its key product – the ADS dual wall corrugated pipe, is longevity. Business Manager Trevor Loffel explains 'these products are made from polymer, designed and tested to outperform the traditional concrete pipes currently used for much of Australia's stormwater infrastructure.'



Trevor discusses the 100-year design life requirements of Austroads in his upcoming webinar.

[REGISTER NOW](#)

**CHANGE THEIR DIET,
AND YOURS...**



**CLICK HERE TO TAKE THE
PLASTIC POLLUTION SURVEY**



**STORMWATER
SHEPHERDS**

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