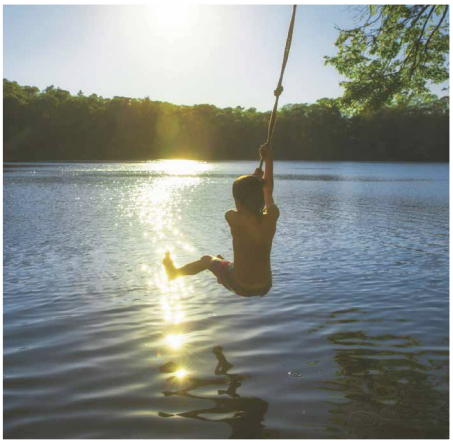
spelstormwater
joy in water









Corporate Profile

spel.com.au

Spel Ecoceptor

Rozelle Interchange, NSW - 2021

Contents

Since 1975 we have designed, tested and manufactured water treatment systems that are utilised in over 40 countries.

Joy in water

Clean water is a right, not a privilege.

Our Products

Spel Chamber - 1.6ML

Balmoral Park Stormwater Harvesting, VIC - 2020

Introduction & Overview

Spel Stormwater

Working Together

Removing pollutants from water is an ongoing challenge for communities worldwide. As environmental regulations increase, cost-effective and high-performing solutions to remove contaminants become integral.

At SPEL Stormwater, we draw on more than 45 years' experience in the design, testing and manufacture of water treatment systems that are utilised in over 45 countries.

International Experience

SPEL manufactures solutions in Australia, New Zealand, the United Kingdom and USA, and licenses several international technologies. All products are designed and manufactured to comply with relevant industry standards. SPEL Stormwater and its international partners are involved in ongoing field and laboratory testing of the products to independently verify performance.

The products have been designed for and installed in the following applications:

- Mining
- Petroleum industry
- Energy
- Defence
- Air, sea and land transport infrastructure
- Commercial and residential developments.

Efficient products, Tailored service

Our focus is on providing highly efficient treatment products for stormwater and wastewater applications. Our unique combination of technical experience and product design provides to our customers an organisation that includes:

- Engineering Design
- Manufacturing
- Installation
- On site Supervision
- Commissioning
- Operational monitoring
- Maintenance

SPEL Stormwater treatment solutions vary from systems based on proven engineering principles through to flexible biological processes. Our diverse range of products provides our customers with various options to achieve their water quality objectives to suit their budget and site constraints.

SPELBasin

Sippydowns, QLD - 2020

Accreditation

At SPEL Stormwater, we do not just speak about our commitment to the environment, we take action to ensure a better future for our families, friends and everyone.

We are constantly looking to improve our products and services to bring more value to our clients and their projects. We also engage with reputable industry partners to ensure better industry standards and organise frequent conferences.

Remember at SPEL Stormwater, we are the water specialists.

Quality Products & Systems

Our commitment is unmatched in the industry and is constantly improving our products and services as demonstrated by our ongoing accreditation for Quality and Environmental Management.

IS09001:2015
CERTIFIED COMPANY
Quality

IS014001:2015
CERTIFIED COMPANY
Environmental

HEALTH
& SAFETY
SYSTEM
CERTIFIED TO
AS/NZS 4801

Stormwater Quality Improvement Device Evaluation Protocol (SQIDEP) Process

Stormwater Australia is the custodian of an industry-formulated, independent evaluation process for verifying performance of technologies for improving stormwater quality.

SQIDEP provides a uniform set of criteria to which stormwater treatment measures can be field-tested and reported. These criteria should guide and inform field monitoring programs seeking to demonstrate pollutant removals for stormwater treatment measures included in pollutant export modelling software. Future revisions of the protocol are anticipated to also include laboratory testing.

Academic & Industry Partners

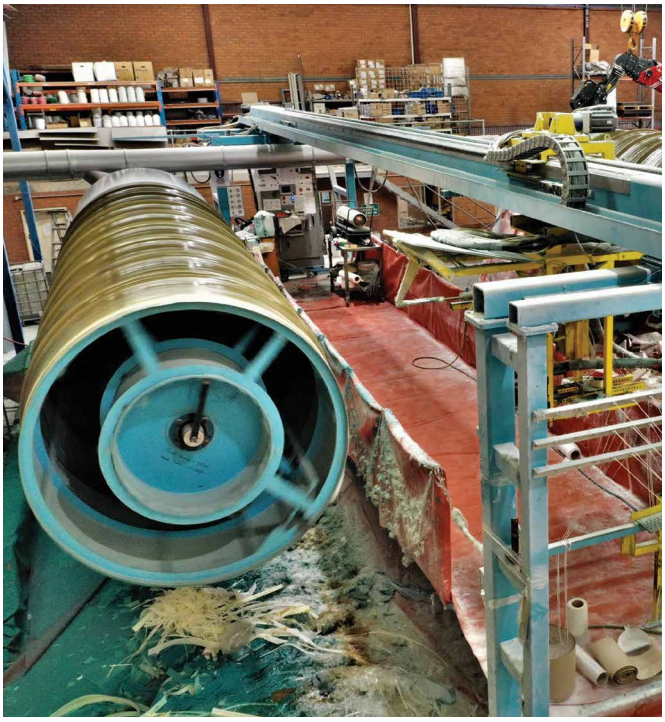
Our industry experience and expertise in providing high-quality water solutions has enabled us to obtain preferred-supplier status with many councils and government authorities around Australia, New Zealand, UK and other countries.

Stormwater Quality Improvement Device Evaluation Protocol (SQIDEP) Process

SPEL Vortceptor

Tuckers Road Subdivision Clyde North, VIC - 2021

Manufacturing Capabilities



SPEL Stormwater specialises in the design and manufacture of water quality improvement solutions for stormwater and wastewater. Solutions are tailored to effectively remove gross pollutants, suspended solids, nutrients and petroleum hydrocarbons.

Our extensive range of products provide treatment for:

- High risk sites (fuel storage/refuelling)
- High load industrial sites, wash bays, stockpile hardstands
- Shopping precincts and commercial premises
- Residential developments (WSUD)

As a part of a treatment train, our products will assist designers to comply with Water Sensitive Urban Design (WSUD) objectives and achieve optimum yields from the site.

Our selection guide will help determine the risk applicable to your site and assist in choosing the appropriate class of SPEL treatment device.

SPEL fibreglass tanks are wound by an advanced, patented, chop hoop filament winding process. This process produces not only circumferential strength as found in helical wound tanks, but also high longitudinal strength. The interlaminar shear strength permits manholes and pipe work to be fabricated to suit the site conditions without any undue loss in strength.

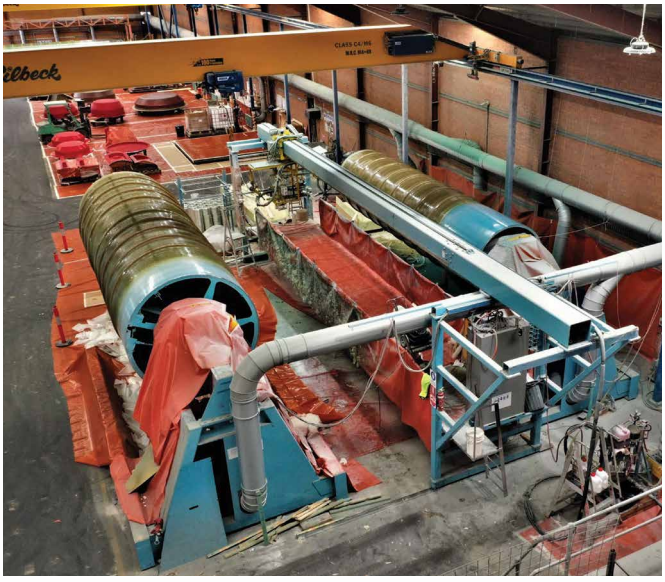
Manufacturing Capabilities

Composites are at the forefront of breakthrough solutions due to their pioneering technology.

Spel use Fibre Reinforced Plastics (FRP) across many of our product ranges including Puraceptor, Stormceptor, Triceptor, Ecoceptor, Vortceptor, Hydrosystem, SPEL Basin and Tankstor.

The benefits of composites for commercial and manufacturing industries have a growing track record in creating proven material solutions that perform robustly in the most demanding environments.

Composite materials are used extensively in the space shuttle, military defences, civil structures (including bridges) and aircrafts.



Manufacturing Capabilities

Rotomoulding

Facility and Experience

- Over 8000m^2 of manufacturing facility
- Based in Sydney metro
- Using 3 x USA Engineered & manufactured filament winding machine
- Over 20 skilled & dedicated full time staff 55+ years of trusted manufacturing experience
- Tank diameter capacity up to 4 metres
- Products engineered to AS2634, BS4994 & ASME RTP1
- WSAA Approved
- Strategically positioned within national delivery hub

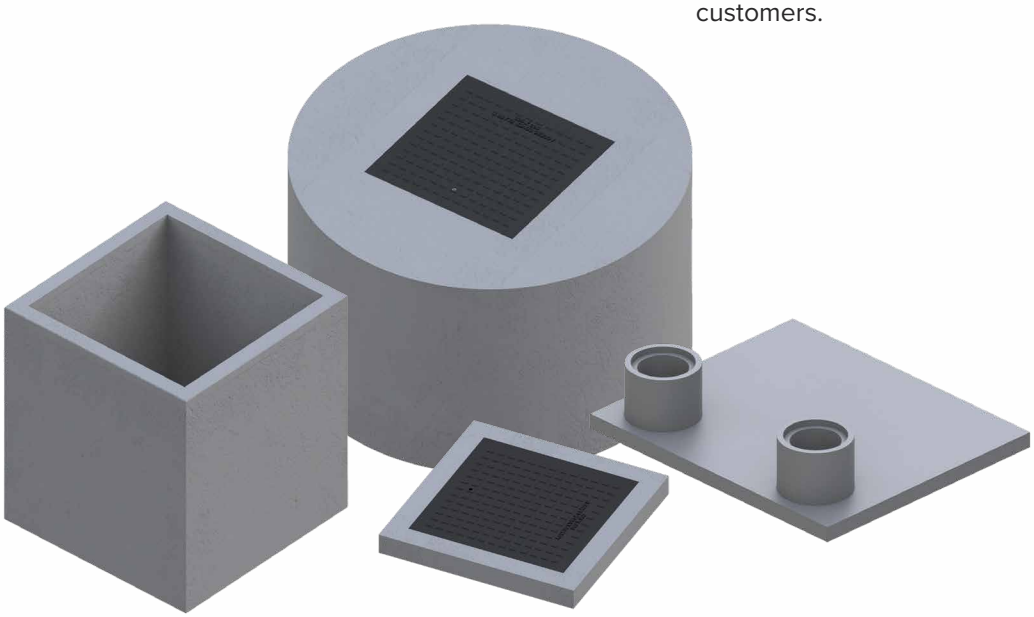
Concrete Tanks

SPEL is proud to launch our second production facility in Queensland, a dedicated space for manufacturing our own concrete tanks, diversion chambers, and baffle boxes.

What does this mean for SPEL Customers?

Design Flexibility – SPEL's modular precast system can be customised to suit site and installation requirements. Our team is always ready to help customers determine the most optimised design to achieve capacity requirements.

Fast And Reliable Lead Time – Having direct control over the fabrication of our concrete tanks allows us to continue delivering to customers with minimum lead times. Time is too precious, and we understand the value of quick and seamless installation for our customers.



Field Testing & Design

Brisbane, QLD - SPEL Hydrosystem Field Testing

Field testing carpark runoff through a SPEL Hydrosystem for TSS, Nutrients, Hydrocarbons and Heavy Metals.

Bribie Island, QLD - Floating Wetlands Field Testing

Field testing 100m² of SPEL Floating Wetlands receiving runoff from a 7.46ha residential catchment for the reduction of Suspended Solids, Nitrogen and Phosphorous.

Redlands, QLD - Stormsack & SPELFilter Treatment Train Field Testing

Field testing of the StormSack and SPELFilter on a 2,028m² medium density townhouse catchment for reduction of Suspended Solids, Nitrogen and Phosphorous.

Gold Coast, QLD - Puraceptor Class 1 Field Testing at a Service Station

Capturing the under canopy area and fill box and flow weight field testing for hydrocarbon removal in operational service station.

Sunshine Coast, QLD - SPELBasin Modular Bioretention System

Field testing the SPELBasin treating road runoff for reduction of TSS, Nutrients and Heavy Metals.

Nambour, QLD - Stormceptor Class 1 Field Testing on Commercial development

Field Testing & Design

Testing

SPEL Stormwater and our International technology partners test our products in a range of environments and conditions to meet local regulatory requirements. Testing includes laboratory and field research.

SPEL Stormwater conducts regular grab sample testing for our customers, and have engaged with independent research bodies across Australia to monitor systems under both laboratory and field conditions.

Independent Testing in Australia

Demonstrating our commitment to continuous improvement, we have invested in many flow weighted, automated water sample lab and field testing with respected partners such as Manly Hydraulic Labs, the Universities of Sunshine Coast and South Australia, Griffith University and the Queensland University of Technology.

Our SPEL Stormwater treatment devices have undergone rigorous and comprehensive tests in full scale flow conditions, both in the field and at independent hydraulics research facilities — in particular for suspended solids (TSS), nutrients and hydrocarbons.

University of the Sunshine Coast

University of South Australia

Griffith UNIVERSITY

QUT

Field-testing for improved water quality

We aim to achieve high pollutant removal performance whilst maintaining hydraulic efficiency of all the stormwater quality improvement devices. While some of the research work is done in the laboratory, our main emphasis is on field-testing products to ensure they will deliver in real world applications.

Universities are conducting field testing on SPEL water quality improvement devices for a wide range of problems, including:

- Nutrients in both soluble and particulate form
- Suspended solids
- Hydrocarbon runoff

Design

The SPEL Stormwater design team is committed to continual improvements of both structure and water quality across the diverse range of products used in the storm water industries.

We are continuing the standard of excellence with the latest and most up-to-date equipment to ensure the development of high quality, efficient, environmentally sensitive products. The use of AutoCAD, Solid Works, 3D Modelling, FEA Analysis are only a part of the detail used to enhance our products.

Maintenance Capabilities

SPEL Stormwater has a national maintenance team who ensure that your stormwater treatment systems keep running at the optimum level, achieving desired stormwater quality standards.

We are constantly looking to improve our products and services to bring more values to our clients and their projects. We also engage with reputable industry partners to ensure better industry standards and organise frequent conferences.

Why Maintenance Is Essential

Stormwater treatment systems are an investment. Our maintenance team is here to make sure that clients receives the maximum benefits of their investment in stormwater assets. Specifically, our maintenance packages enable you to:

- **Have peace of mind** that your site and surrounding waterways are protected from the detrimental impacts of untreated stormwater.
- **Comply with municipal and council stormwater regulations.** Ensuring that your stormwater assets are in tip-top condition is key to ensuring that your site is ready for council inspections. You can avoid hefty fines later by investing in professional stormwater maintenance today.
- **Maximise your device's lifespan.** Stormwater treatment devices may need to be replaced before end of life due to unforeseen loads on the system. Regular maintenance and upkeep reduce the likelihood of premature replacements.
- **Ensure safety protocols are maintained.** It is important that stormwater maintenance checks are conducted by trained professionals to avoid accidents.

Our Qualified Maintenance Technicians

Maintaining stormwater treatment devices is specialised work performed by qualified technicians. Our technicians are certified to work in confined spaces, detect hazardous gases, and handle contaminated sediments and pollutants. Our customers save time and resources by choosing our services.

Maintenance Capabilities

Commissioning

Commissioning is intended to ensure that all SPEL products are installed correctly and that they are in operable condition at the time of handover. During the Commissioning process, a SPEL representative will attend site for inspection and provide a report of approval afterwards. This report can be provided to any involved parties for their records, showing that the devices were installed as per manufacturer's specifications and requirements.

Service & Inspection

Left undetected, modular wear and tear due to frequent rain and increased runoff pollution can compromise the correct functionality of your entire stormwater treatment device. It is vital to mitigate issues before they become serious problems that could result in your device's premature decommissioning.

To avoid this and be able to maximise your stormwater treatment system's design life, we carry out scheduled maintenance checks depending on the device and load it is subjected to. Our technicians carry out clean-outs, part replacements, and repairs of all SPEL products as well as other proprietary devices. We provide a report of maintenance activities undertaken and give customers guidance on how they can increase operational efficiency.

Accreditation

SPEL Maintenance is accredited by the following organisations:

We believe clean water is a right, not a privilege.

A principle that governs everything we do here at SPEL Stormwater – from the solutions we manufacture to the advice we provide.

A family owned business of over 55 years, we are Australia's leading Stormwater specialist. Working with councils, engineers and contractors we build risk-free, clean water solutions for the future. Our products and services cater for every project, and our experienced team provide advice and support in sales, delivery, installation and maintenance.

We are the innovators and problem solvers of the industry, with an investment in collaborative research and development that sets the standards for others to follow. Removing contaminants and gross pollutants from water is an ongoing challenge, and finding a cost-effective, high performing solution is our goal.

Building a happy, healthy future for you and your family is our purpose.

Our Company Philosophy

What is Joy in Water?

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

12 million tonnes of plastic enter our water system each year, killing marine life, impacting our climate and ecosystem, and finding its way into our food and drinking water. Without drastic change, these numbers will continue to rise.

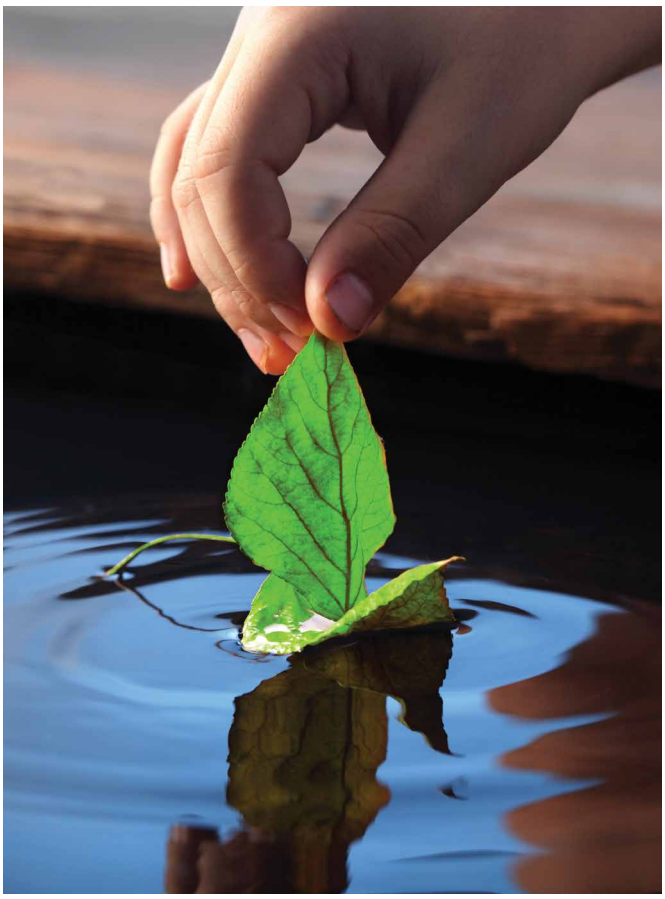
Clean water is our right, but we must act now to ensure its future. The joy, laughter and calm we experience depends on it.

Our mission

Engender and maintain a culture of ingenuity that continuously contributes to the improvement of the world's stormwater quality and compliance standards.

Our vision

To be the leader in the stormwater that provides the gateway to best practice, competitive solutions.



Our corporate values

At SPEL Stormwater, our clients are served by professional, knowledgeable and efficient people. We build relationships based on:

Objectivity

We critically examine our solutions to ensure they align with our clients' objectives and desired outcomes.

Integrity

We always act with the utmost integrity, and choose what is ethical and right for our clients and the environment.

Respect

We treat our work colleagues, our clients, our suppliers and the community with respect.

Innovation

We encourage innovation, continuous improvement and learning.

STORMWATER
SHEPHERDS

ZERO POLLUTION AMBASSADORS

stormwatershepherds.org

About 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.

Stormwater Shepherds is the inspiration and passion of Andy Hornbuckle, founder of Stormwater Shepherds and SPEL's CEO, who said "we believe that clean water is a right not a privilege" for a future where clean water transpires across our planet.

Andy Hornbuckle

CEO at SPEL Stormwater &
Stormwater Shepherds Founder

Discover our zero pollution ambassador shop

Proudly working with Australian owned companies selling Australian-made products when available.

Your kind purchase contributes to supporting:

- **Positive Action** – purchasing clean-up equipment for community clean-ups
- **Sharing Knowledge** – researching the latest pollution facts and its effects on all lifeforms, positive initiatives
- **Advocacy** – working with councils and governments nationwide on the importance of well-managed stormwater and, of course, our vision – for the world's water to be clean water

Each product is of the highest quality, plastic-free, and goes through our Zero Pollution Ambassadors check. You can make a difference by reducing your plastic consumption today!

Mary Rayner

Director of Operations, Australia & NZ
+61 414 634 094
mary.rayner@stormwatershepherds.org

Stormwater Shepherds Aust & NZ is steered by Mary Rayner, 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 '90s, and run through primary schools. The group received many awards and grants, including the National Banksia Foundation award for community groups.

To learn more about Stormwater Shepherds reach out to Mary.

SPEL Stormsack

At Source Gross Pollutant Trap

The SPEL Stormsack is specifically designed for the capture of gross pollutants: sediment, litter, and oil and grease. Ideally suited for storm drain retrofits, the SPEL Stormsack's unique design allows maintenance to be performed using conventional vacuum suction equipment.

Benefits

- Can be modelled in MUSIC in conjunction with bio-retention
- Low cost gross pollutant capture
- Quick & easy installation
- Simple maintenance
- At source capture
- Adjusts to custom pit sizes

APPLICATIONS

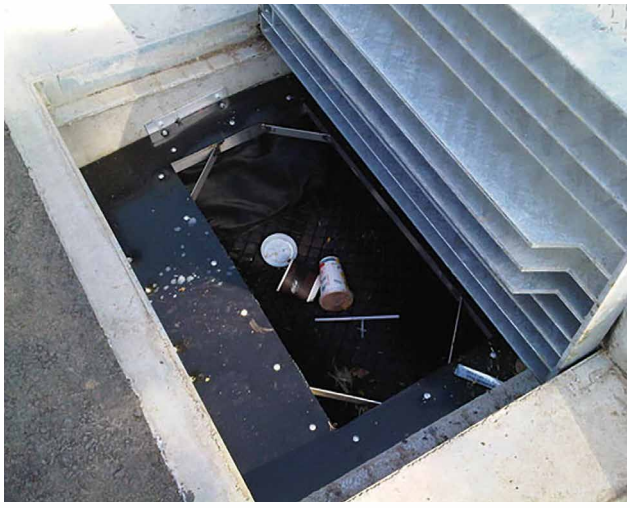
- Council Storm Drain Retrofits
- Commercial/Retail/Residential
- Litter Prone Urban Areas
- Scrap Metal/Solid Waste/Oil Storage/Etc
- Part of Treatment Train
- Construction Sediment/Erosion
- <200 micron capture

Tested Treatment Efficiencies*

Pollutant	Efficiency
Gross Pollutants (GP)	100%
Total Suspended Solids (TSS)	61%
Total Phosphorus (TP)	28%
Total Nitrogen (TN)	45%

*Contact Spel to confirm approved performance for the project LGA

Light duty frame

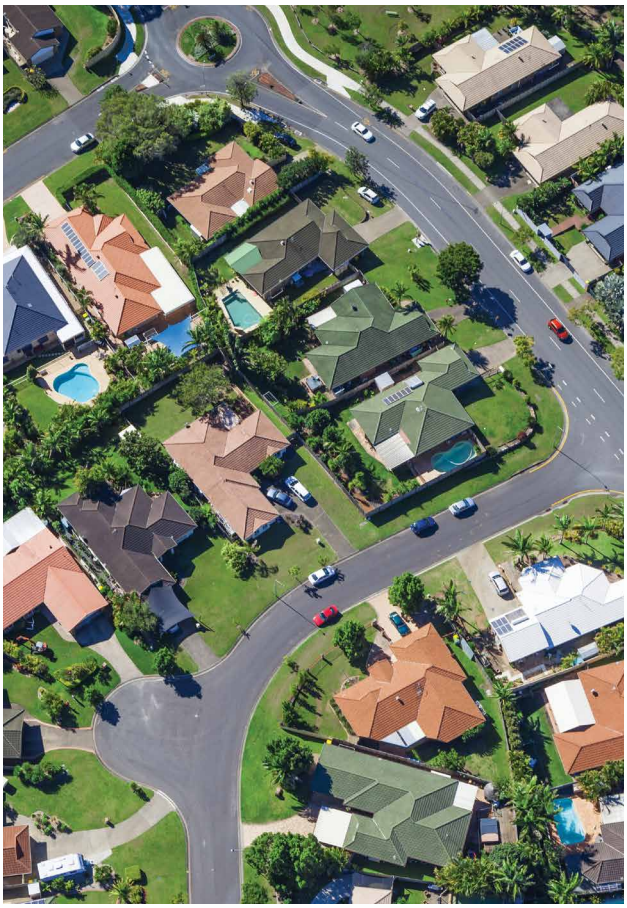


SPEL Stormsack

At Source Gross Pollutant Trap

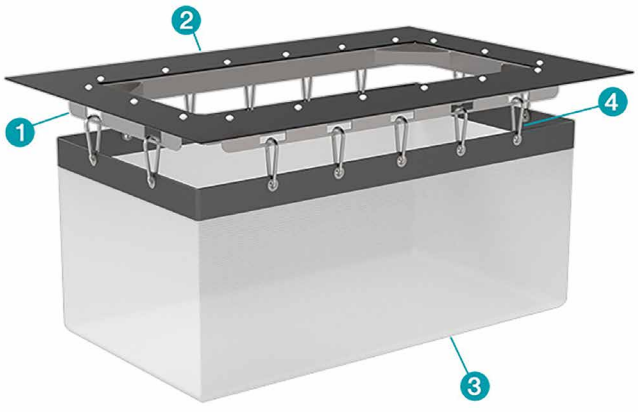
SPEL Stormsack filtration solutions are highly engineered water quality devices that are deployed directly in the stormwater system to capture contaminants close the surface for ease of maintenance. Easily retrofitted into new or existing structures, SPEL Stormsack filtration technology is a decentralized approach to stormwater treatment that essentially repurposes traditional site infrastructure and customizes it to meet specific site water quality goals. In this way, it satisfies important objectives of today's LID (Low Impact Development) criteria.

From an operations perspective, catch basins with SPEL Stormsack filters are also easier and quicker to clean out because pollutants are trapped just under the grate.



Application	Regulatory Issue	Target Pollutants
Council Storm Drain Retrofits	At-source litter capture	Sediment, Litter, O&G
Commercial/Retail/Residential	Stormwater Compliance	Sediment, Litter, O&G
Litter Prone Urban Areas	Cost effective litter control	Litter ≥ 5 mm
Scrap Metal/Solid Waste/Oil Storage/Etc	Industrial Multi-Sector General Permit	Gross Pollutants, O&G
Part of Treatment Train	Council Stormwater Quality Improvement Targets	Sediment, Litter, O&G
Construction Sediment/Erosion	Sediment Control Plan	Sediment/Erosion Control

Features	
1.	1. Ultra-Durable Aluminium Frame • Available in 450x450mm, 600x600mm, 600x900mm and 900x900mm sizes • Custom pit arrangements upon request
2.	Black Poly Surround riveted to Frame • Can be cut to suit on site
3.	Reinforced Stormsack Bag • Bag has sewed eyelets • Square bottom design for even distribution
4.	Karabiners attach Bag to Frame for easy service & replacement
5.	5. Aluminium Support Angles & Fixings



Standard SPEL Stormsack to suit Pit Sizes
450x450mm
600x600mm
900x600mm
900x900mm

Custom sizes (i.e. 1200x900mm) can be manufactured on short lead times

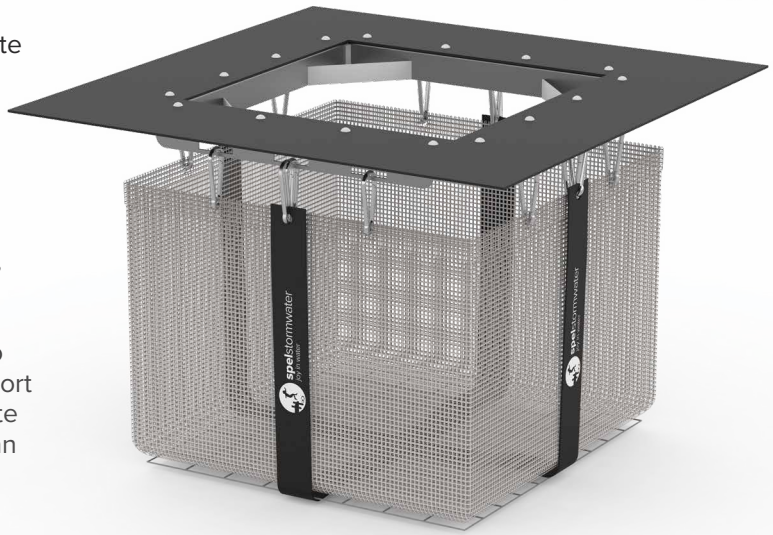
SPEL Stormsack

At Source Gross Pollutant Trap

Specifications & Details

General Description

This technology is a post developed stormwater treatment system. The SPEL Stormsack provides effective filtration of solid pollutants and debris typical of urban runoff, while utilising the existing or new storm drain infrastructure. The Stormsack is designed to rest on the flanges of conventional catch basin frames and is engineered for most hydraulic and cold climate conditions.



Installation And Maintenance

Installation procedures shall include removing the storm grate, cleaning the ledge of debris and solids, measuring catch basin clear opening and adjusting flanges to rest on grate support ledge. Install SPEL Stormsack with splash guard under curb opening so the adjustable flanges are resting on the grate support ledge. Install corner filler pieces. Reinstall storm grate directly on support flanges rise shall be no more than 3mm.

Maintenance: Typically the SPEL Stormsack is serviceable from the street level, and therefore maintenance does not require confined space entry into the catch basin structure. The unit is designed to be maintained in place with a vacuum hose attached to a sweeper or a vactor truck. Use only SPEL replaceable parts.

Benefits

- Low cost gross pollutant capture
- Quick & easy installation
- Simple maintenance
- At source capture
- Adjusts to custom pit sizes

Field Performance

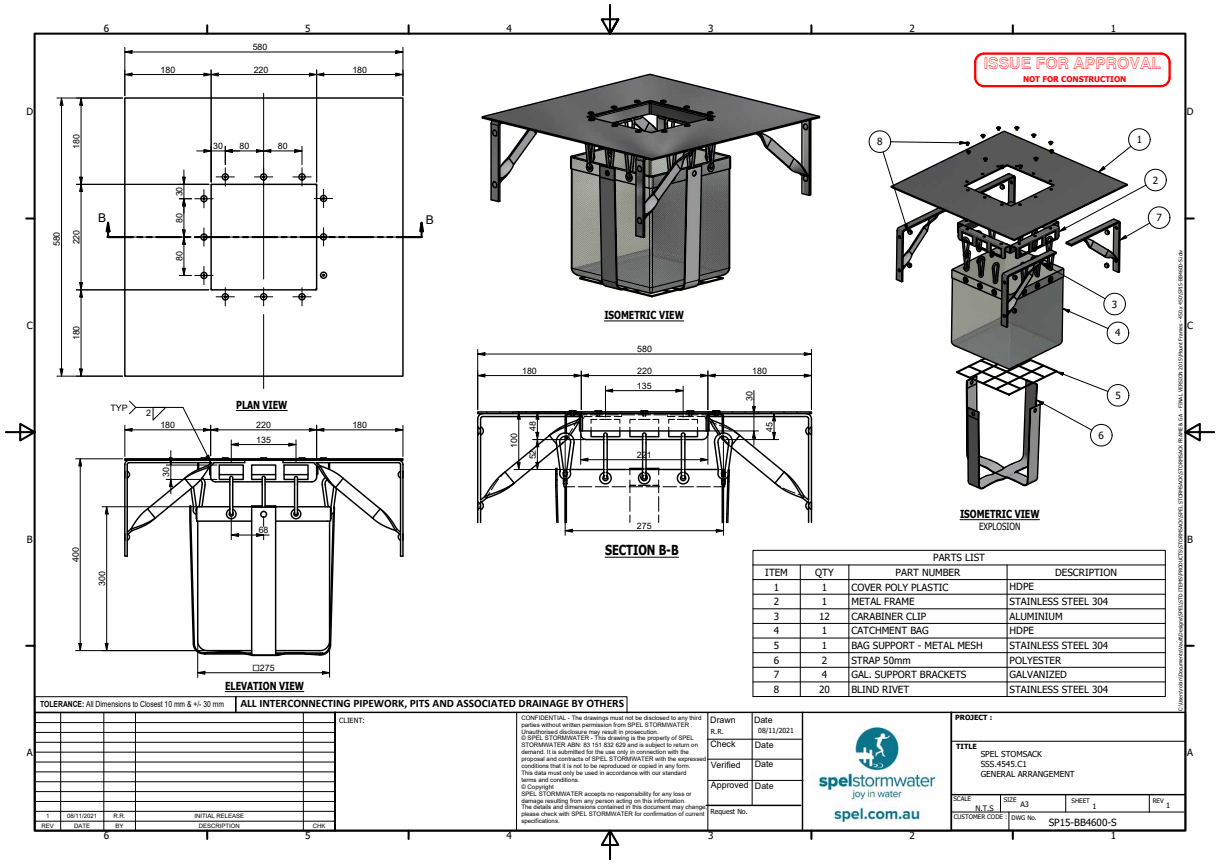
The SPEL Stormsack was introduced to the Australian market in 2012 and field testing is underway at several locations in South-east Queensland. Laboratory testing has shown capture of 99.99% of gross pollutants up to the bypass flow rate.* Further results will be provided as they become available.

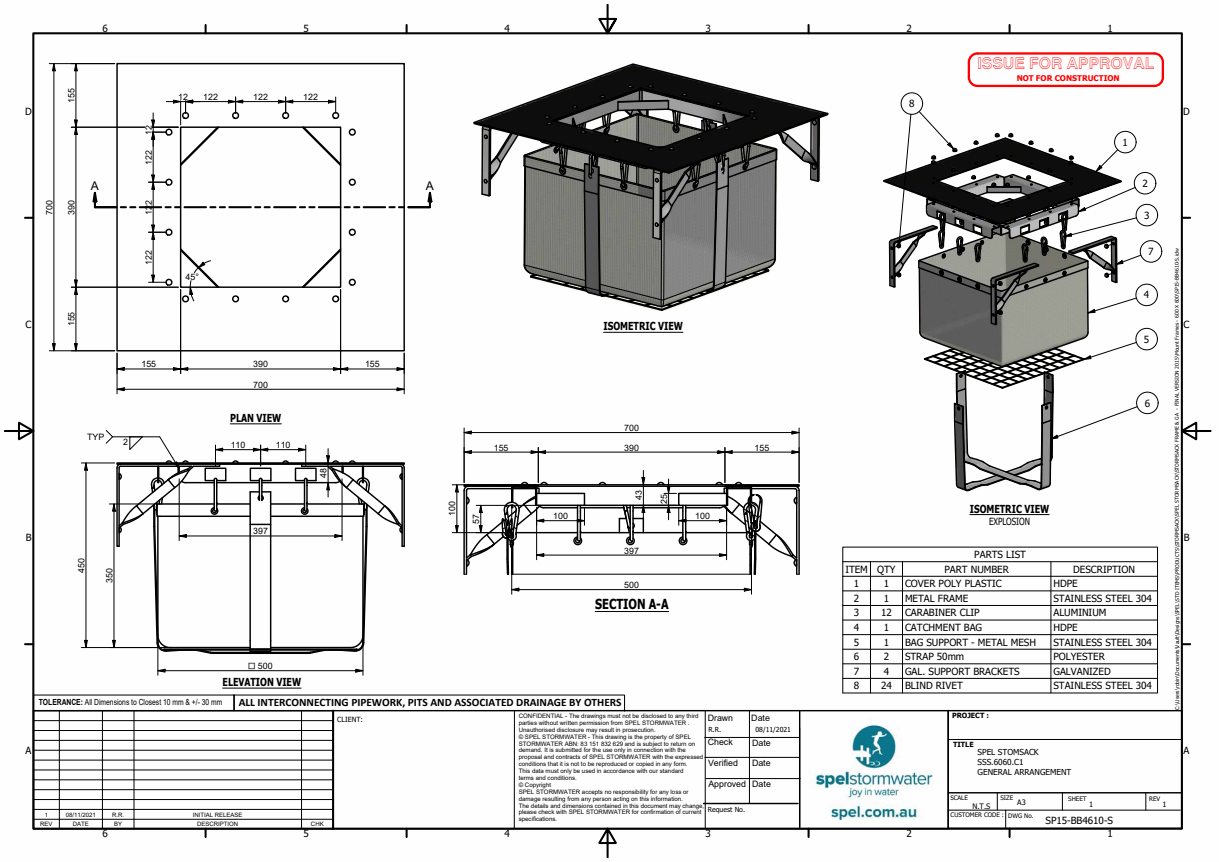
Recommended minimum clearance from bottom of SPEL Stormsack to inside bottom of vault is 50mm. Typical frame adjustability range of 127mm in each direction.

SPEL Stormsack

At Source Gross Pollutant Trap

Technical Drawings

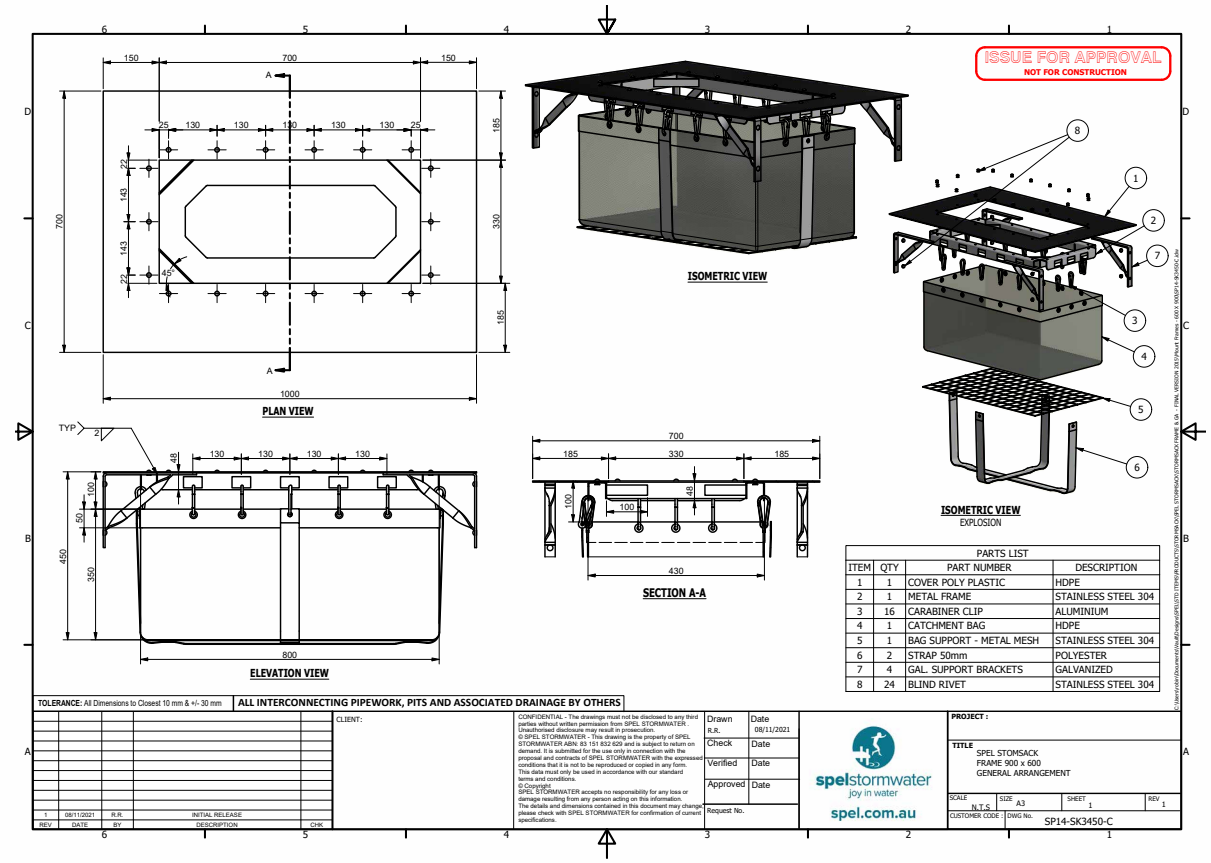


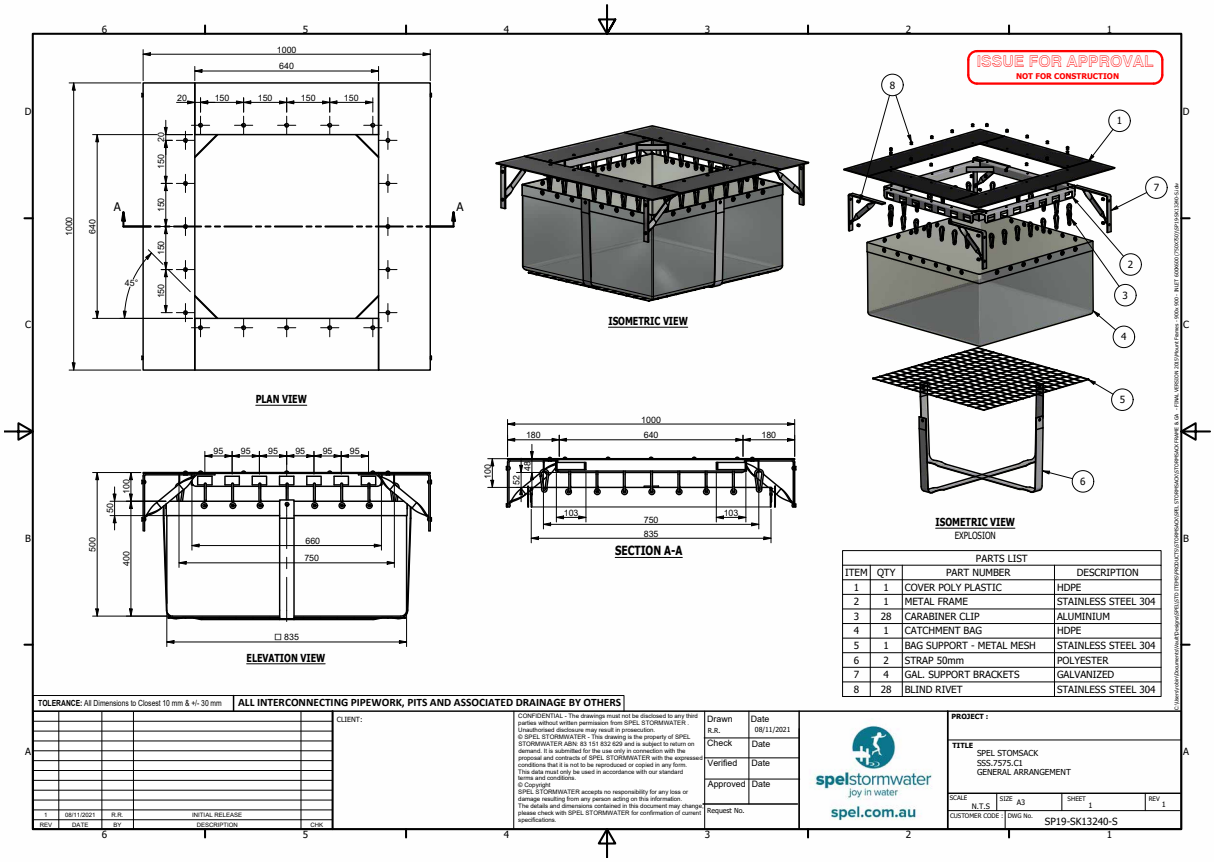


SPEL Stormsack

At Source Gross Pollutant Trap

Technical Drawings

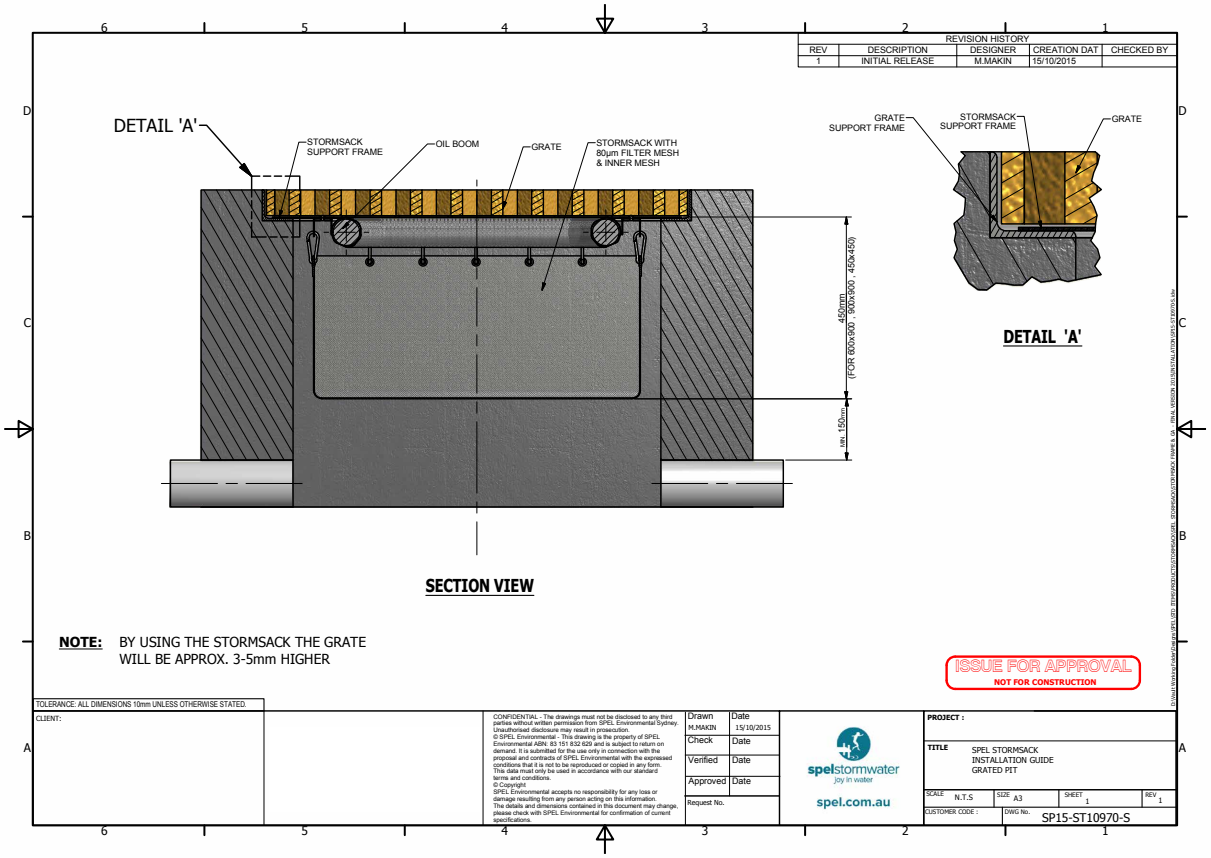


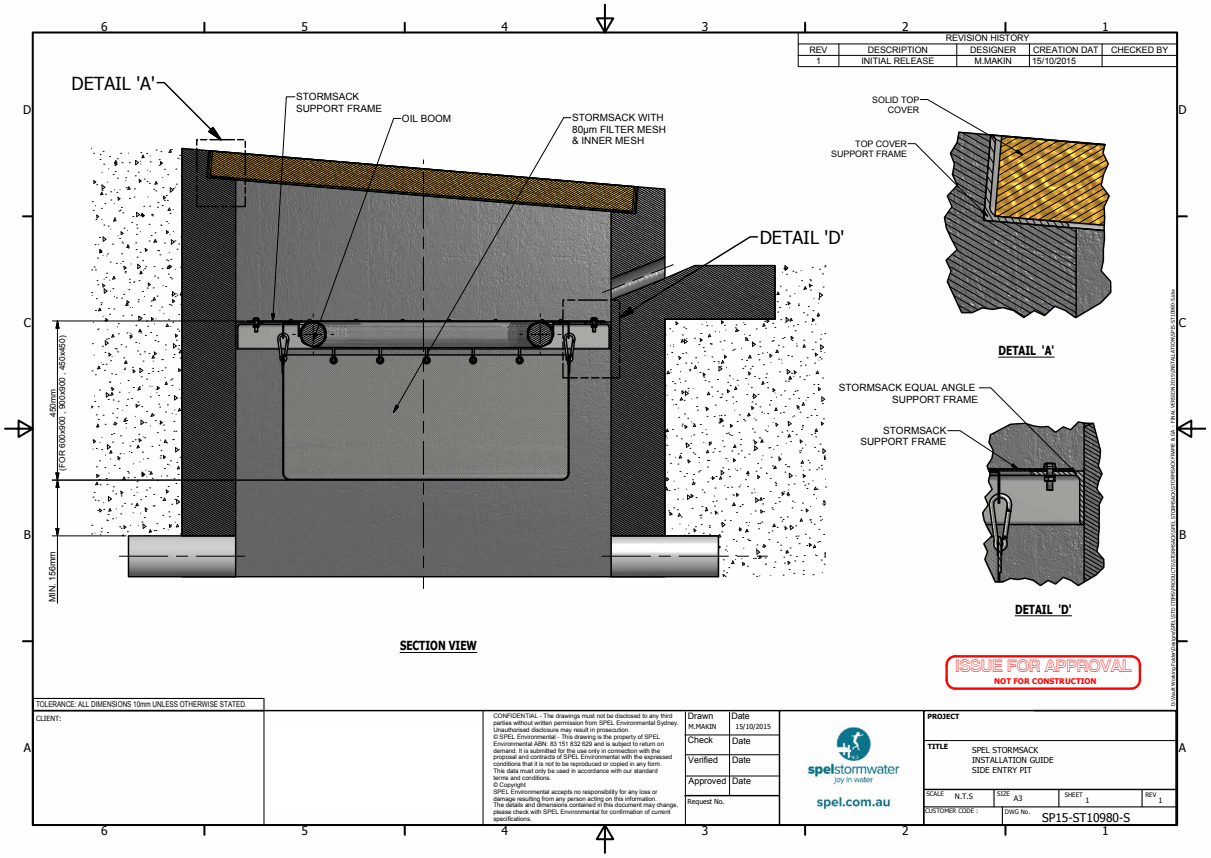


SPEL Stormsack

At Source Gross Pollutant Trap

Installation Details





SPEL Ecoceptor

In-line Gross Pollutant Trap (GPT)

Overview

The SPEL Ecoceptor is a hydrodynamic in-line Gross Pollutant Trap (GPT) that has a unique treatment action producing low velocity conditions (and extended dwell times to separate pollutants), resulting in discharge water quality outcomes complying to statutory guidelines across Australia.

It separates and captures sediments, silt, total suspended solids, and oil and grease. Oil & grease rise to the "oil-capture" zone of the treatment chamber and are contained in all flow events.

Areas with a high fraction of impervious surfaces,including car parks, ports, streetscapes, roads, subdivisions and industrial estates that require stormwater treatment are ideal for the SPEL Ecoceptor. MUSIC node is available on request.

The one-piece, self-contained fibreglass construction, is lightweight and yet robust in strength making it simple and cost-effective when performing installations.

Tested Treatment Efficiencies*

Pollutant	Efficiency
Gross Pollutants (GP)	95%
Total Suspended Solids (TSS)	71%
Total Phosphorus (TP)	69%
Total Nitrogen (TN)	47%
Petroleum Hydrocarbon	93%

*Contact Spel to confirm approved performance for the project LGA

SPEL Ecoceptor

In-line Gross Pollutant Trap (GPT)

The SPEL Ecoceptor is delivered to site fully assembled saving on installation time and crane costs. The SPEL Ecoceptor fibreglass GPT can be installed in all types of trafficable zones, including vehicular truck (Class D). (Subject to the installation of an engineered cast in situ concrete slab.)

The cylindrical shape of the SPEL Ecoceptor with its sloped cone-configured base ensures sediment accretes at the centre of the Ecoceptor's base facilitating easy and simple cleaning.

The poly/fibreglass construction ensures that oil and grease are removed without sticking to the sides of the internal walls.

Flow rates on standard units of up to 2800 LPS and can fit pipe sizes from 150mm to 1800mm (other sizes available on request).

APPLICATIONS

- Shopping Precincts
- Commercial Zones
- Recreational Grounds
- Light Industrial Areas
- Beaches & Parks

SPEL Ecoceptor Class 3

In-line Gross Pollutant Trap (GPT)

Class 3 Ecoceptor

"Class 3 Ecoceptor" act as gross pollutant traps and at the same time improves stormwater quality.

They separate and capture gross pollutants, sediments and silt. Light liquids (petroleum hydrocarbons) rise to the top of the lower chamber while sludge settles on the bottom.

Features

- Unique stainless steel V screen collects gross pollutants
- Easy access to all parts for desludging and oil removal
- Can handle high flows
- By-pass operation when very heavy rain persists, preventing "back up'
- Units are factory-made to suit any application
- Fibreglass construction
- Minimum on-site labour costs
- Flow rates up to 2800 LPS

Options:

- Trafficable lid types
- Different pipe configurations and sizes
- Manhole risers
- Larger tanks

APPLICATIONS

Car Parks

Industrial Estates

Town Houses

Tested Treatment Efficiencies*

Pollutant	Efficiency
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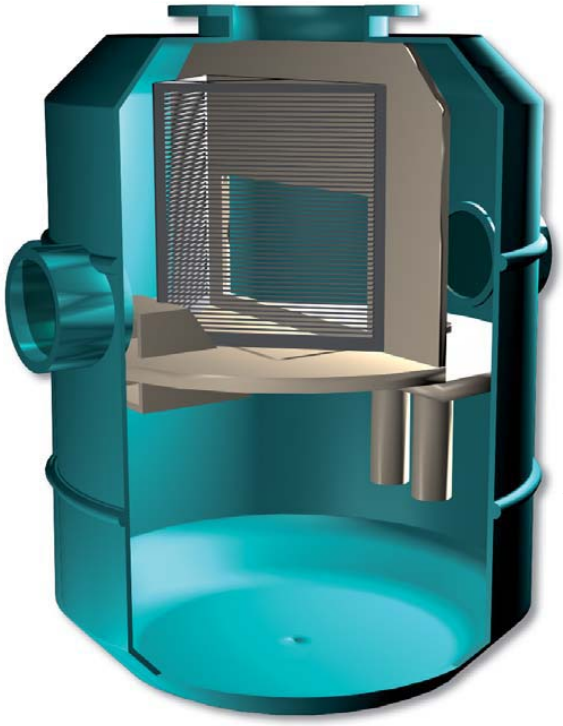
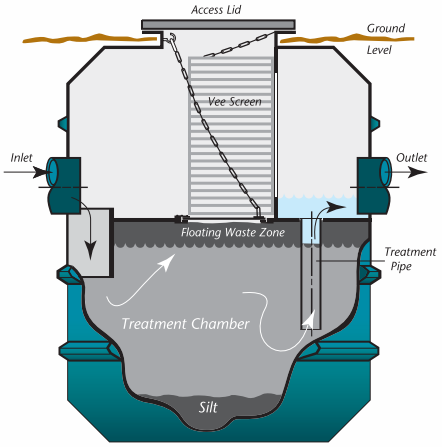
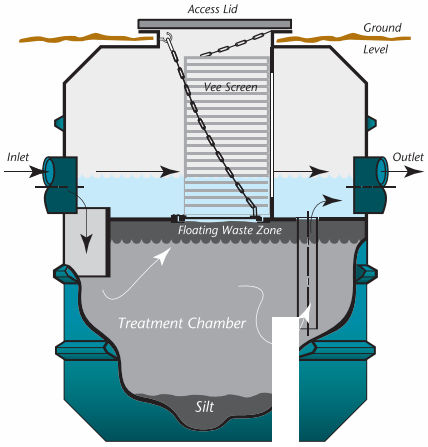


DIFFERENT SIZES & TYPES AVAILABLE ON REQUEST

CLASS 3 ECOCEPTOR



FIRST FLUSH FLOW



FULL TREATMENT FLOW

VIEW OF V-SCREEN THROUGH MANHOLE

spelstormwater joy in water

SPEL Ecoceptor Class 3

In-line Gross Pollutant Trap (GPT)

Maintenance

Inspection and Cleaning

The regularity of inspections of the SPEL Ecoceptor is contingent on the features and properties of the catchment area.

SPEL recommends inspection of the Ecoceptor one month after installation to determine the volume of trapped silt and pollutants.

Information sourced can be useful in factoring the frequency of on-going inspections or cleaning operations.

In the event of excessive rain or an oil spill, an inspection is recommended immediately.

Ascertain silt depth and if build-up is evident, then a vacuum-loader truck should be engaged for the cleaning of the tank.

SPEL Ecoceptor cleaning procedure is simple, by lifting the external lid (two persons may be required), resting it securely in a safe manner and then inserting suction hose into the chamber.

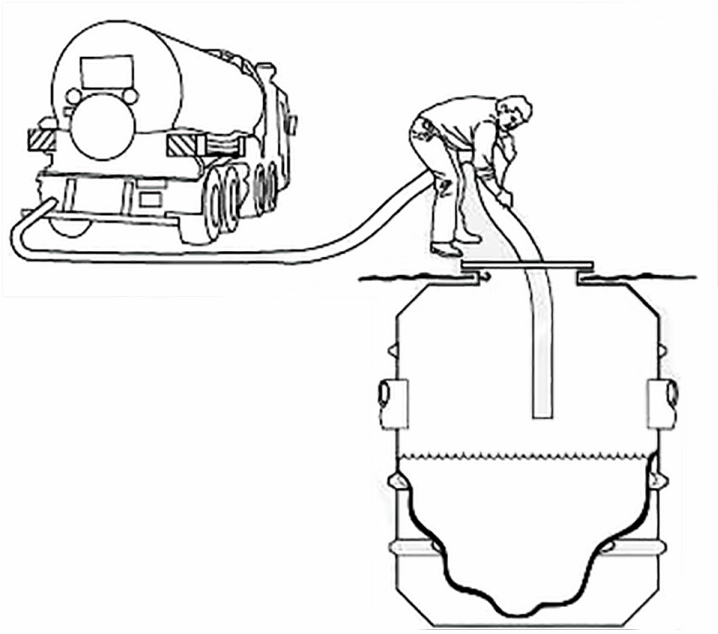
Ensure that the chamber is thoroughly cleaned of all refuse and debris before accessing the chamber - if required.

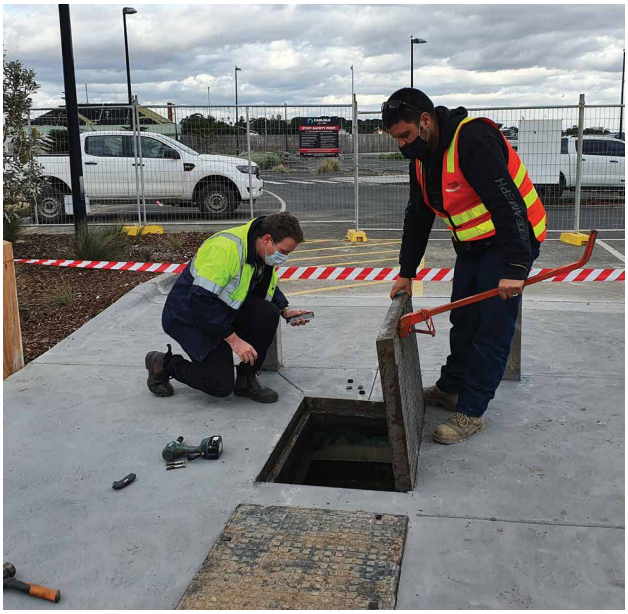
The chamber is cleaned by inserting the suction hose through the manhole at ground level.

Always commence cleaning from the inlet side of the chamber and ensure on completion of the cleaning operation that the lid is secured to its normal position (and locked if necessary) before departing the site.

Important

SPEL Stormwater takes safety seriously and recommends that prior to the entry of any of its devices, that maintenance personnel undertake relevant safety checks and use appropriate safety equipment. SPEL devices are considered confined spaces and should only be entered by appropriately trained and certified personnel with the necessary safety equipment.





SPEL Ecoceptor

In-line Gross Pollutant Trap (GPT)

Project profiles

Oakdale West, NSW - Nine Ecoceptors supplied

Rozelle Interchange, NSW - Five Ecoceptors supplied

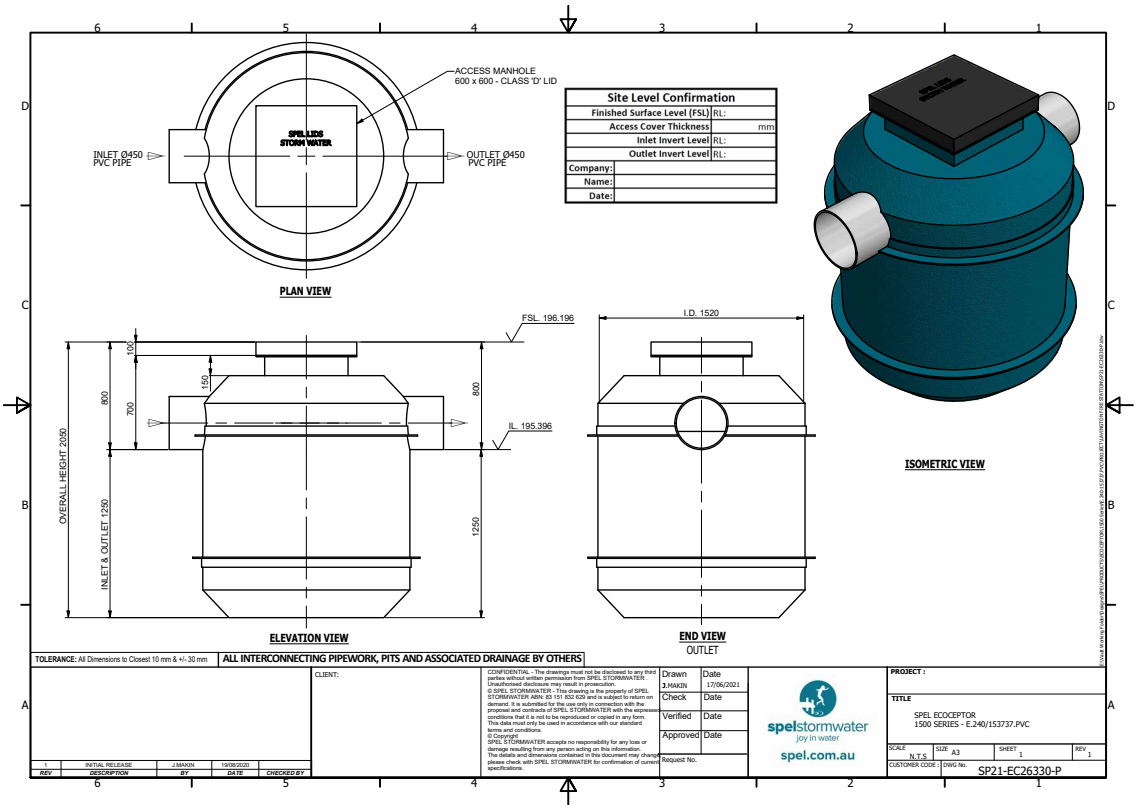
spelstormwater joy in water

SPEL Ecoceptor

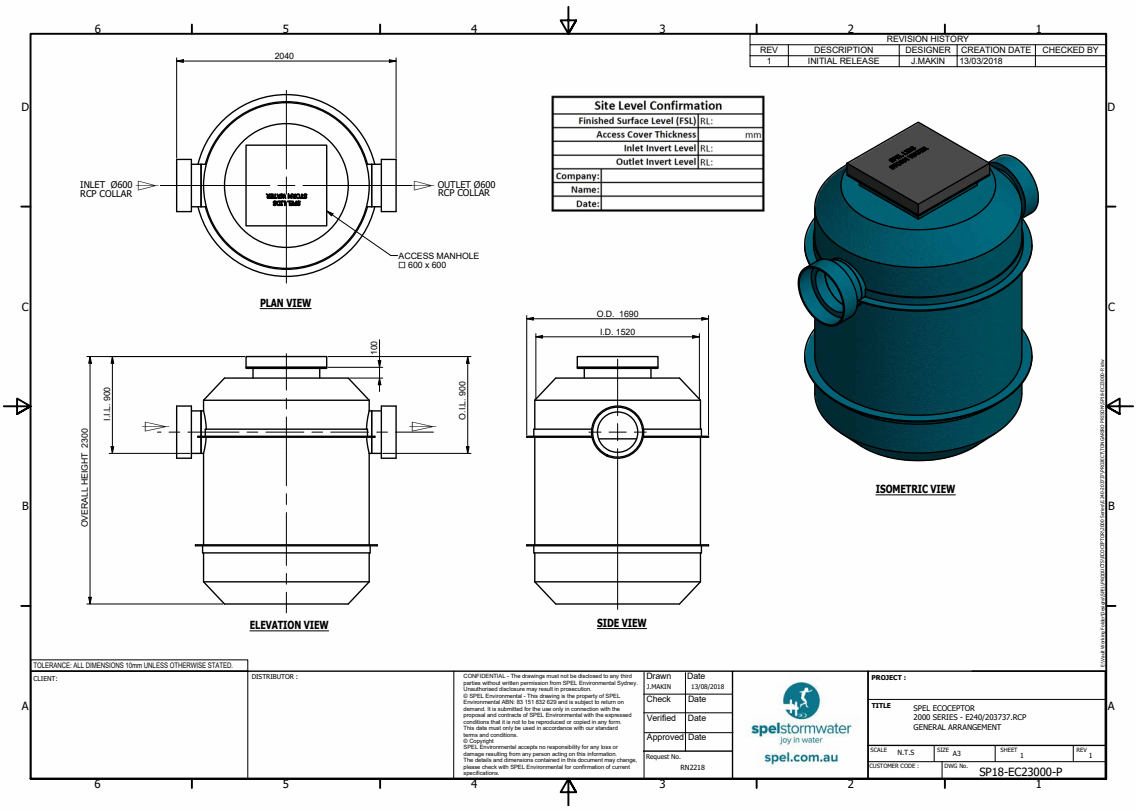
In-line Gross Pollutant Trap (GPT)

Technical Drawings

1500 Series



2000 Series

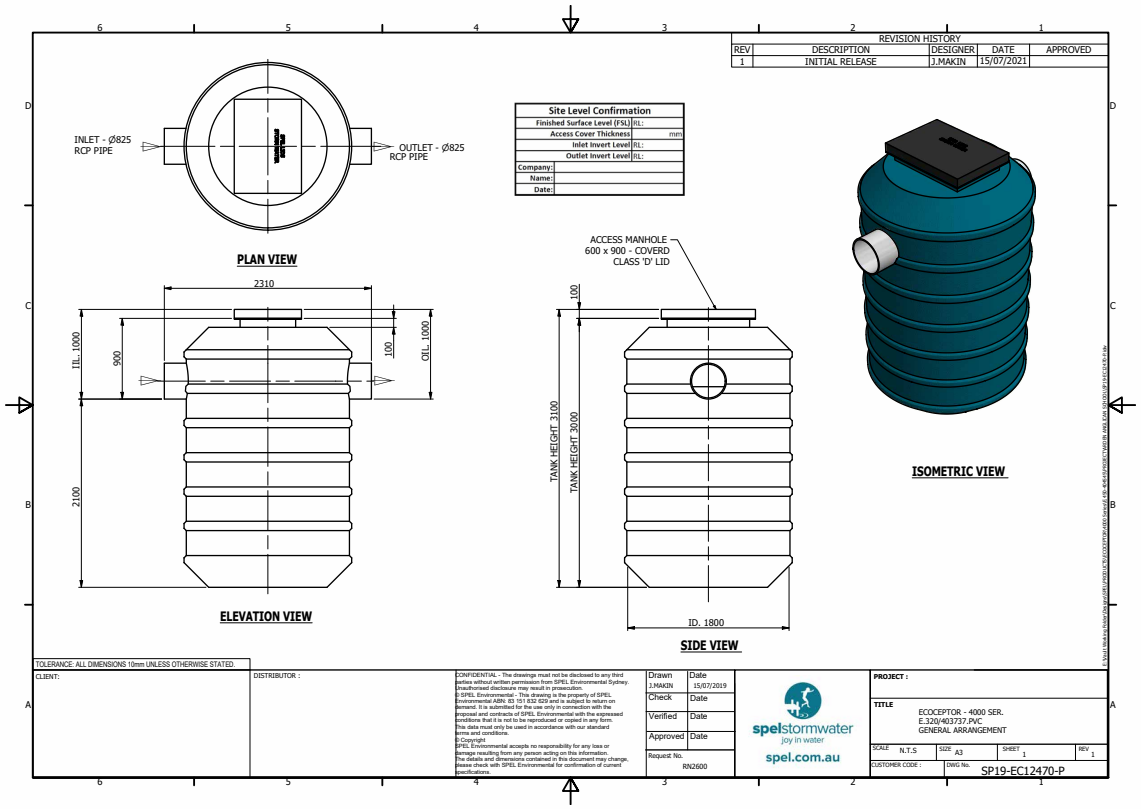


SPEL Ecoceptor

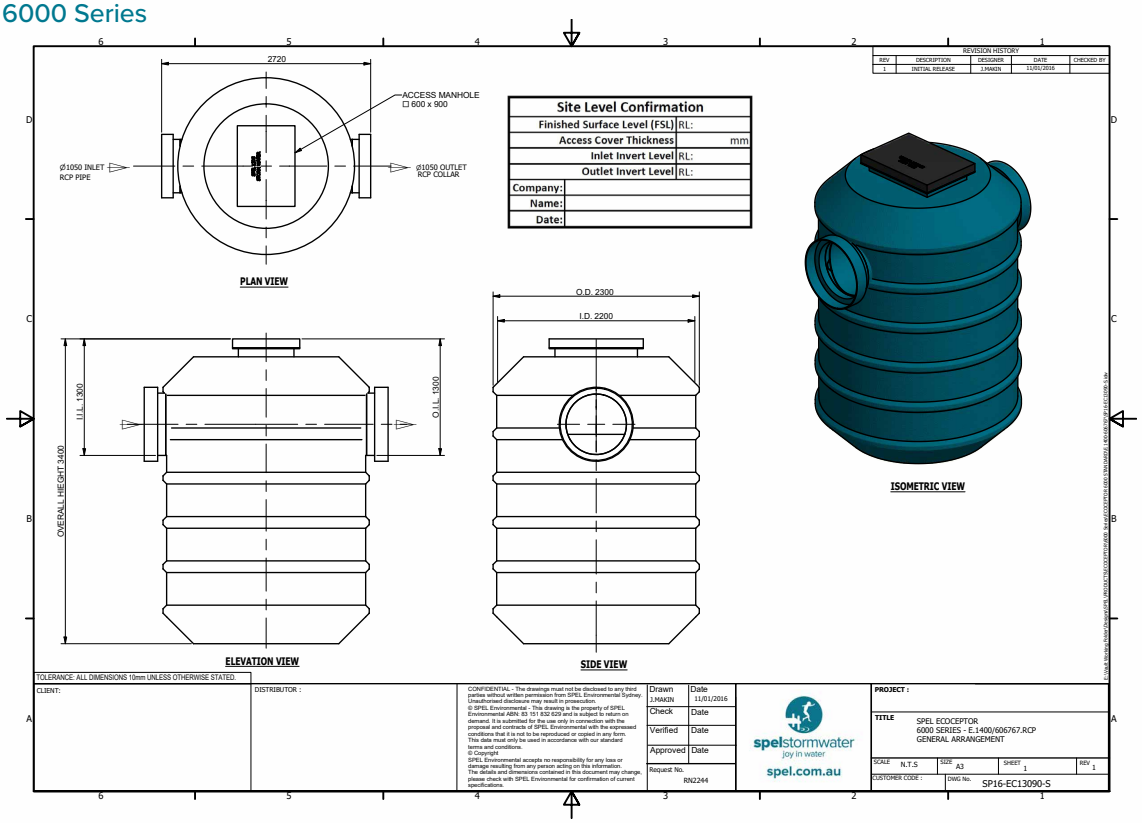
In-line Gross Pollutant Trap (GPT)

Technical Drawings

4000 Series



6000 Series



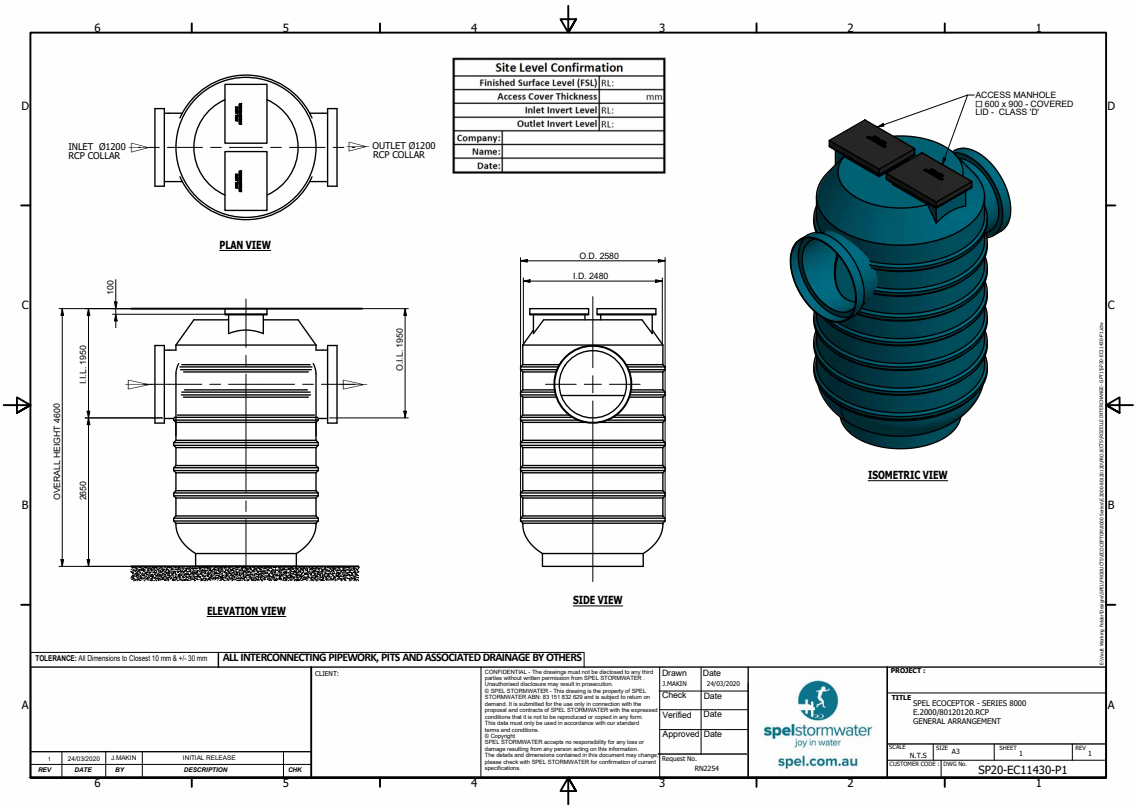
spelstormwater joy in water

SPEL Ecoceptor

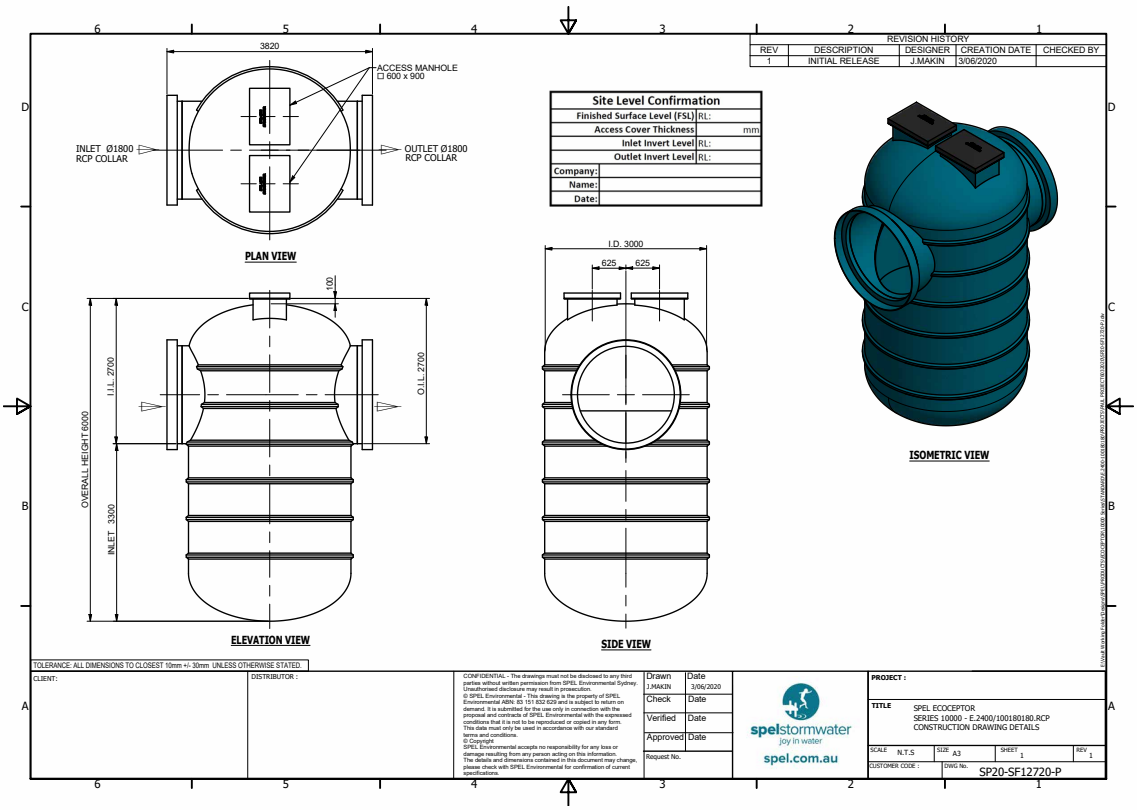
In-line Gross Pollutant Trap (GPT)

Technical Drawings

8000 Series



10000 Series



SPEL Vortceptor

Vortex Type GPT

Overview

The SPEL VORTCEPTOR GPT is a non-blocking vortex type 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.

It separates and captures gross pollutants, sediments, silt, total suspended solids, some nutrients and oil and grease.

The one piece VORTCEPTOR GPT is delivered to site fully assembled saving on installation time and crane costs. The fibreglass GPT can be installed in all types of trafficable zones, including vehicular truck (Class D). (Subject to the installation of an engineered cast in situ concrete slab.)

APPLICATIONS

- Shopping Precinct
- Commercial Zones
- Recreational Grounds
- Light Industrial Areas
- Beaches & Parks

Tested Treatment Efficiencies*

Pollutant	Efficiency
Gross Pollutants (GP)	99%
Total Suspended Solids (TSS)	70%
Total Phosphorus (TP)	30%
Total Nitrogen (TN)*	0%
Petroleum Hydrocarbon*	94%

*Contact Spel to confirm approved performance for the project LGA

In-Line Model

Off-Line Model

SPEL Vortceptor

Hydrodynamic GPT

The Inline and Offline series is manufactured from the standard single tank dia below.

Specifications

Models	Dimensions (mm)				Capacities		
	Internal Diameter	Overall Width	Depth below invert	Manhole Size	Sump Capacity (m^3)	Floatables Volume (m^3)	Treatable Flow rate (L/s)
IN-LINE SERIES							
SVI.025(L/R)	1200	1370	1400	600x600	1.2	0.06	26
SVI.055(L/R)	1800	1970	1650	900x900	2.7	0.22	55
SVI.055.M(L/R)	2200	2370	1585		3.2	0.22	55
OFFLINE SERIES							
SVO.096(L/R)	1500	1670	1725	1000mm DIA Internal 600x600mm	2.0	0.35	96
SVO.140(L/R)	1500	1670	2025		2.3	0.35	140
SVO.180(L/R)	1500	1670	2325		3.0	0.35	180
SVO.220(L/R)	2200	2350	2800		4.5	1.1	220
SVO.360(L/R)	2200	2350	3080		6.0	1.1	360
SVO.530(L/R)	3000	3150	3200		8.5	2.8	530
SVO.800(L/R)	3000	3150	4200		8.5	2.8	800
SVO.810(L/R)	4000	4150	3400		19.3	5.65	800
SVO.1200(L/R)	4000	4150	4000		19.3	5.65	1200
SVO.1600(L/R)	4000	4150	4600		19.3	5.65	1600

SPEL Vortceptor

Hydrodynamic GPT

Project profiles

Marigold Estate, VIC

Tuckers Road, Clyde, VIC

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SPEL Vortceptor

Hydrodynamic GPT

Project profiles

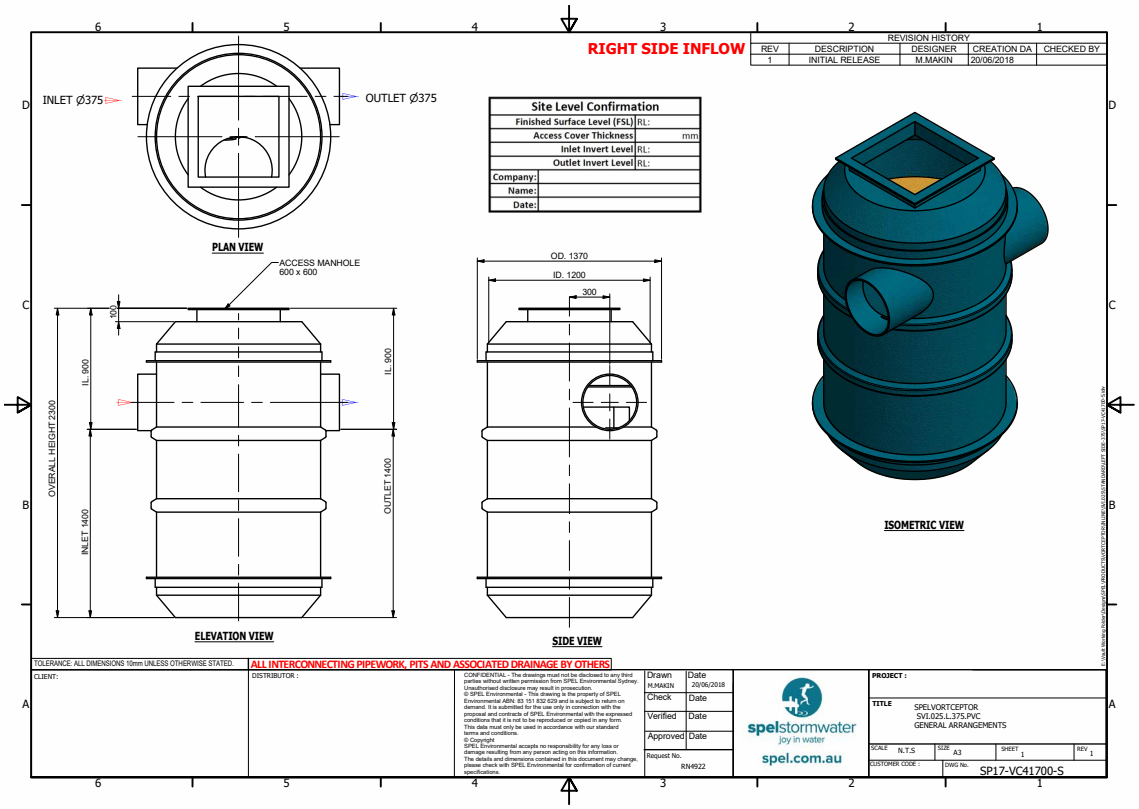
Redbank Plains, QLD

Marsden Park, NSW

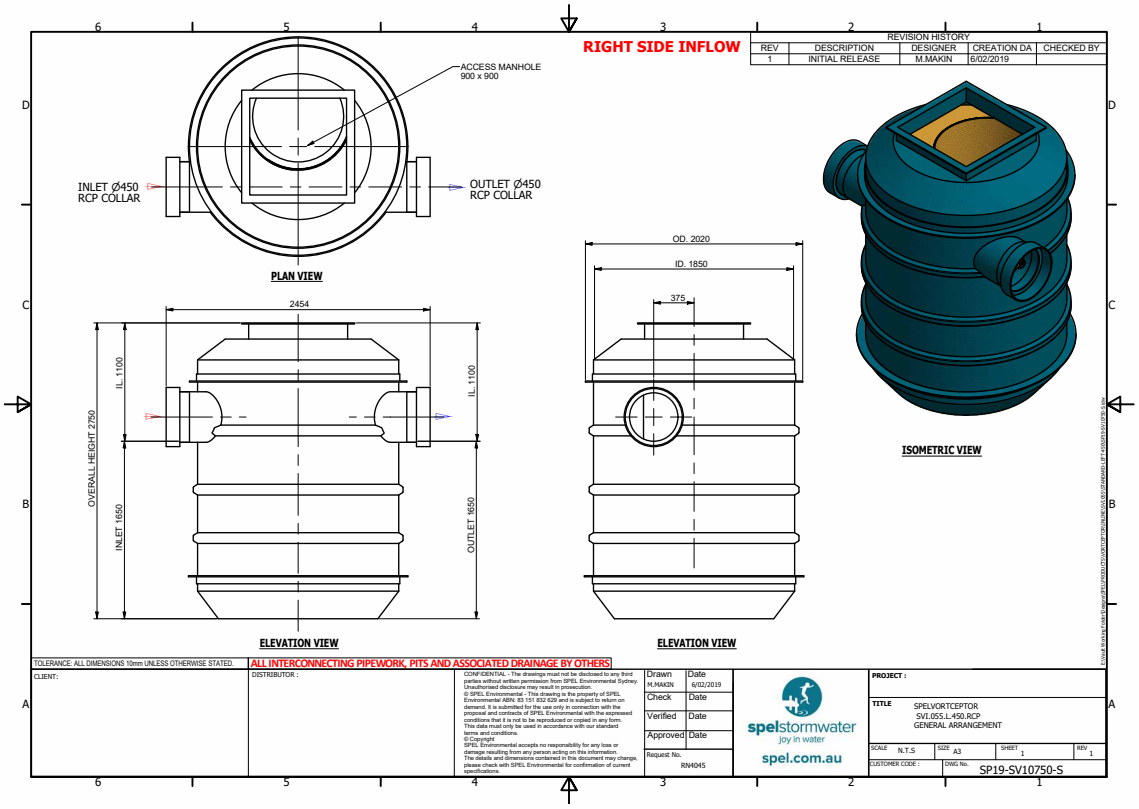
SPEL Vortceptor

Hydrodynamic GPT

Off-Line Model SVI.025



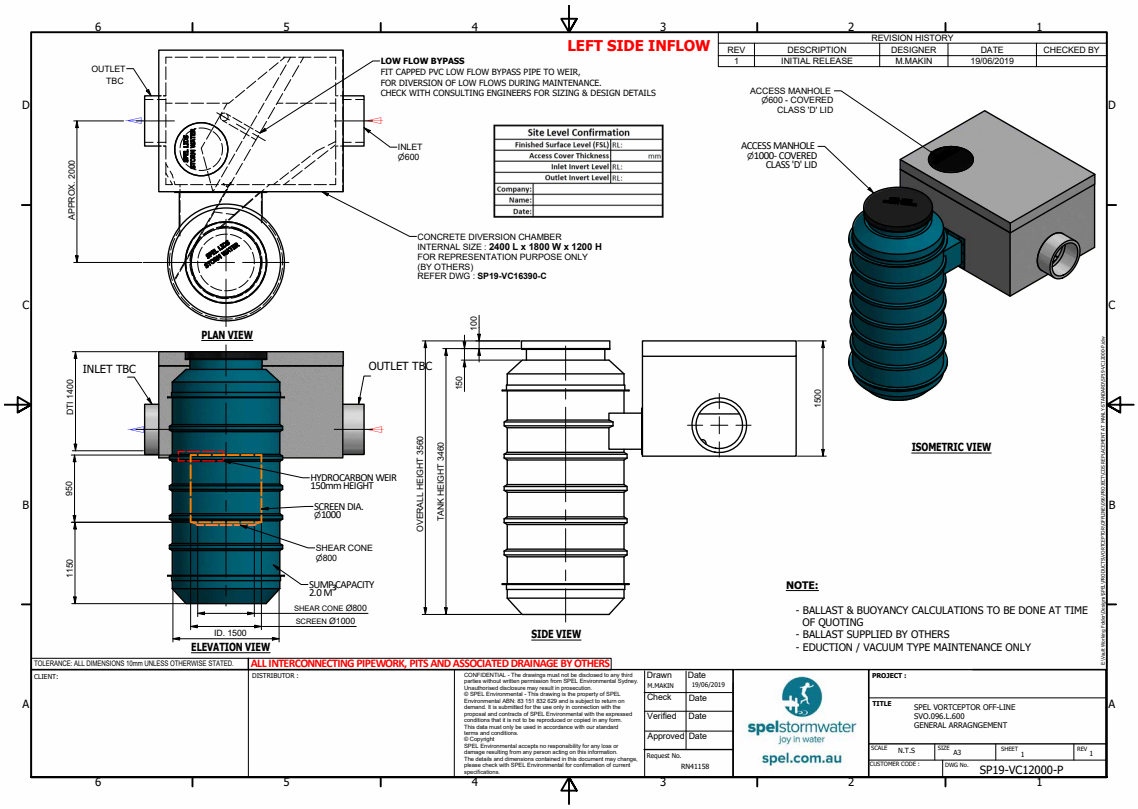
Off-Line Model SVI.055



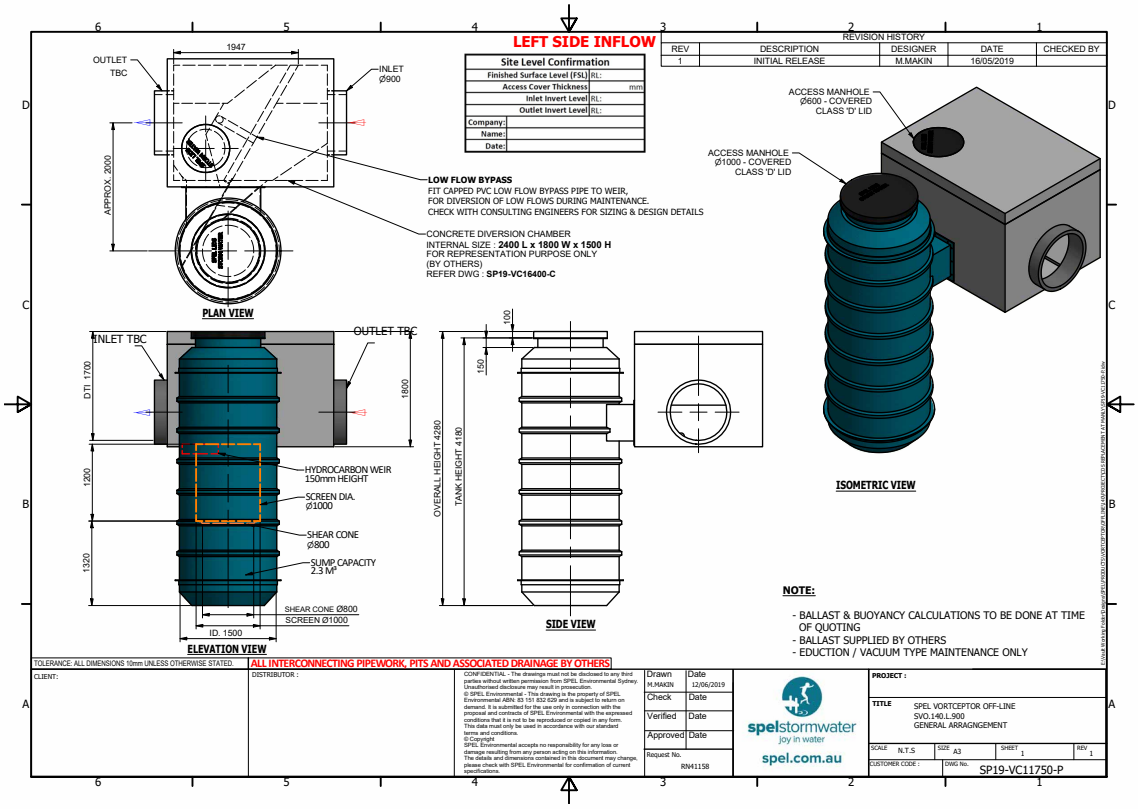
SPEL Vortceptor

Hydrodynamic GPT

Off-Line Model SVO.096



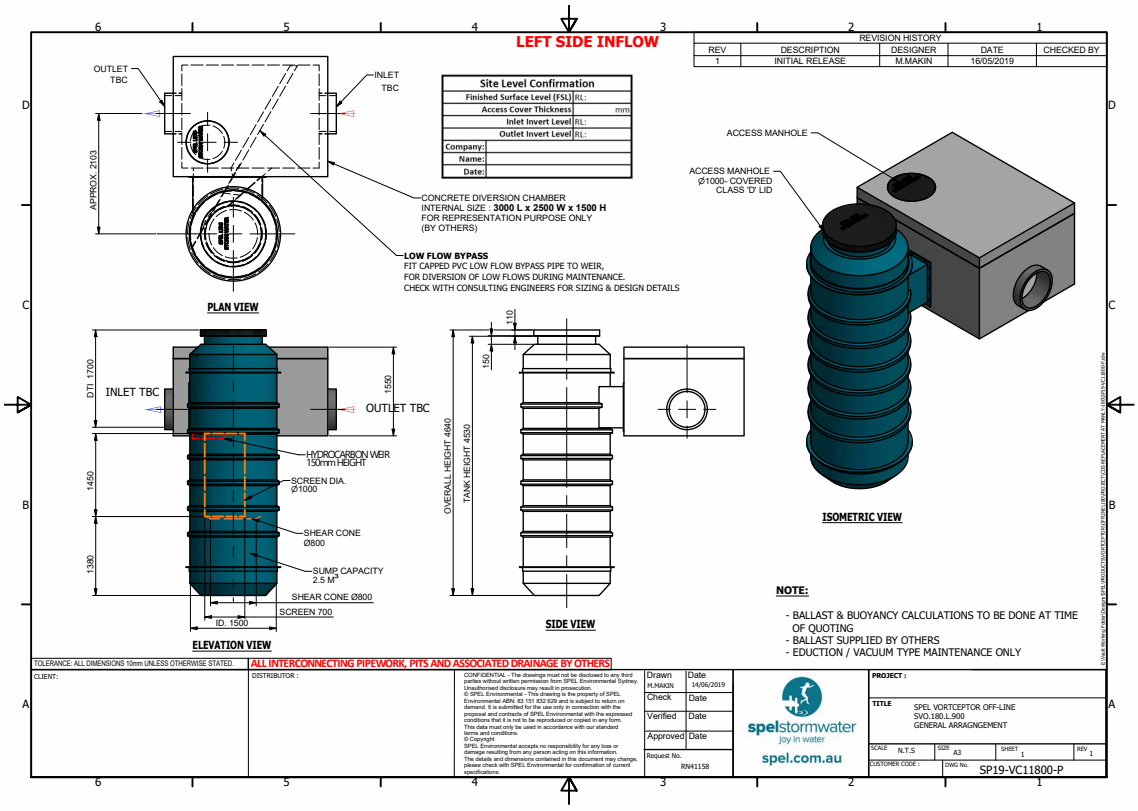
Off-Line Model SVO.140



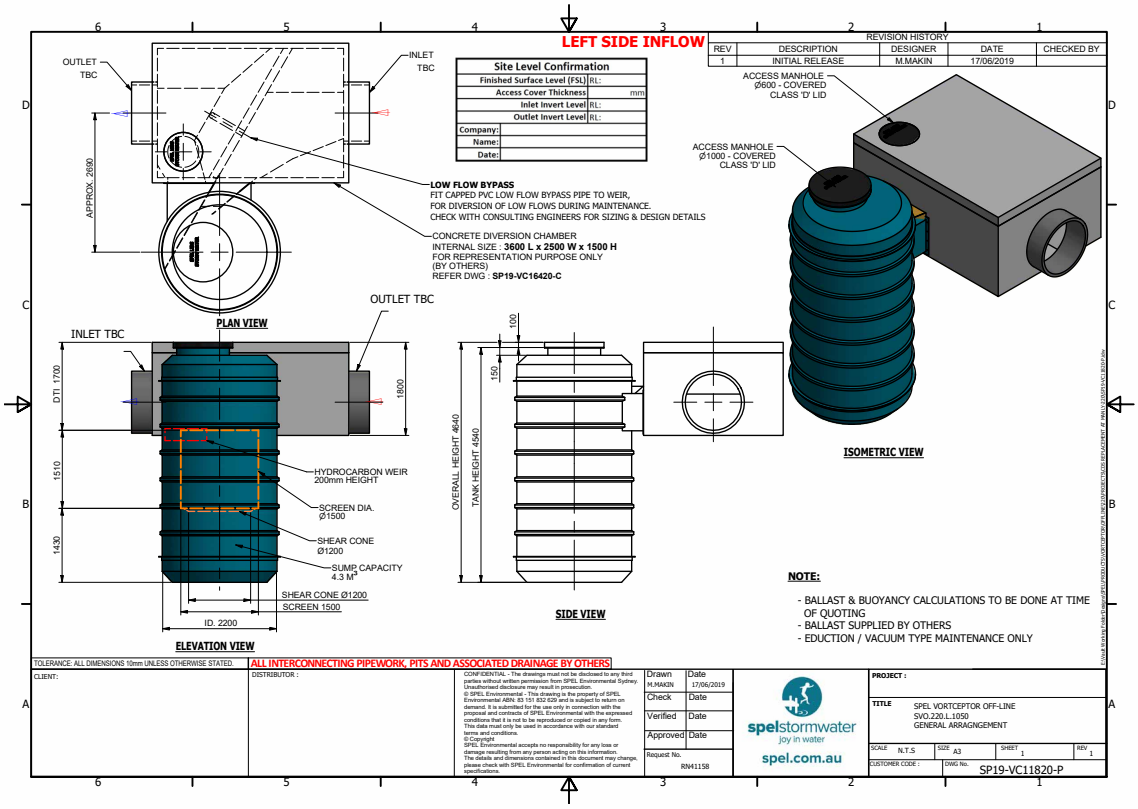
SPEL Vortceptor

Hydrodynamic GPT

Off-Line Model SVO.180



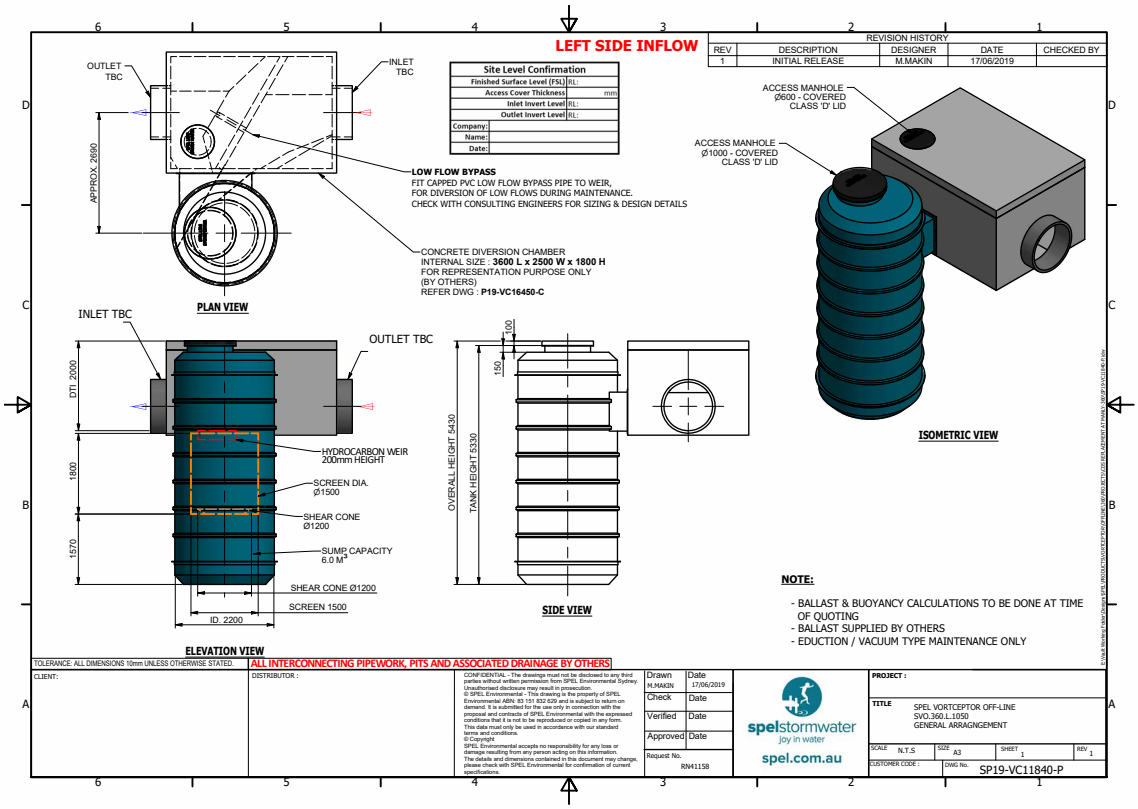
Off-Line Model SVO.220



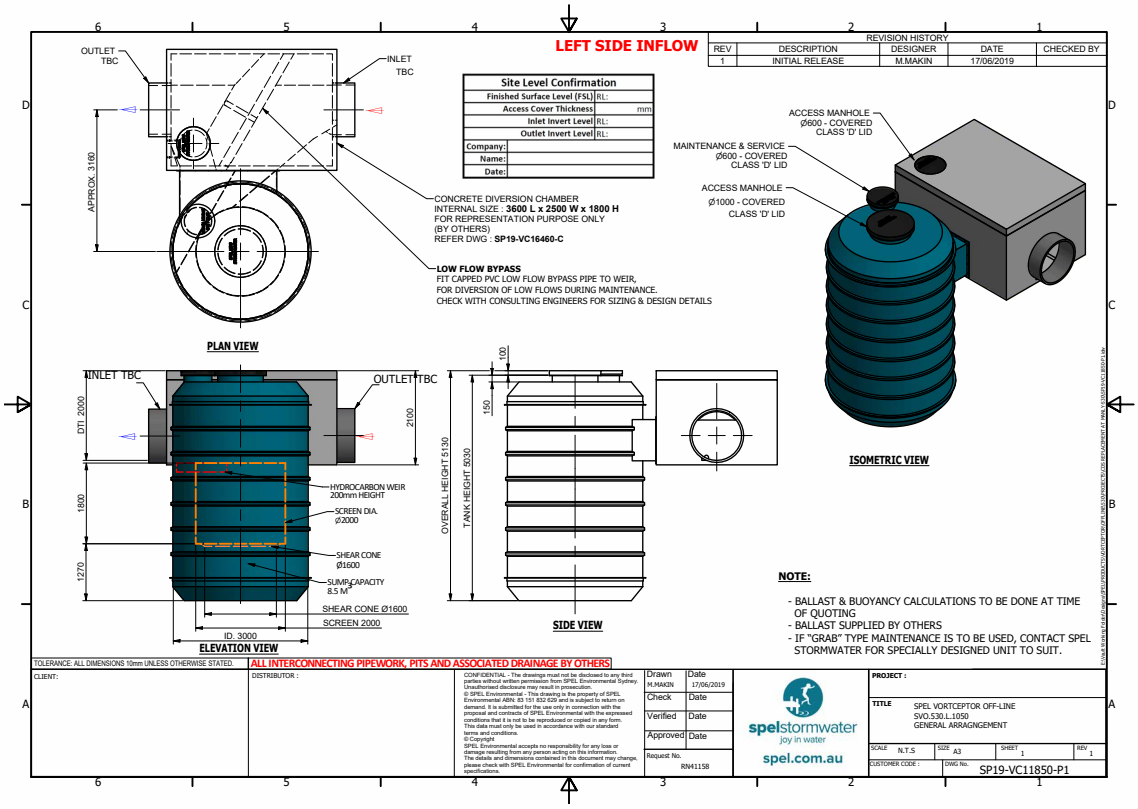
SPEL Vortceptor

Hydrodynamic GPT

Off-Line Model SVO.360



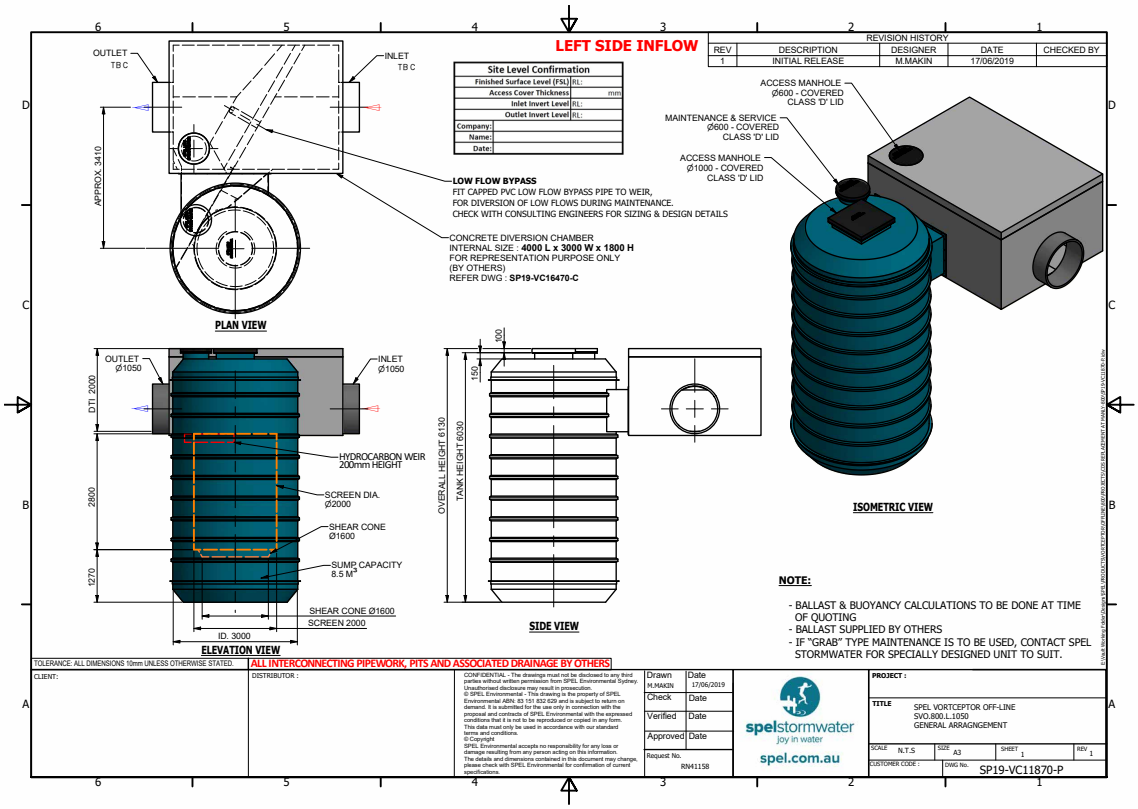
Off-Line Model SVO.530



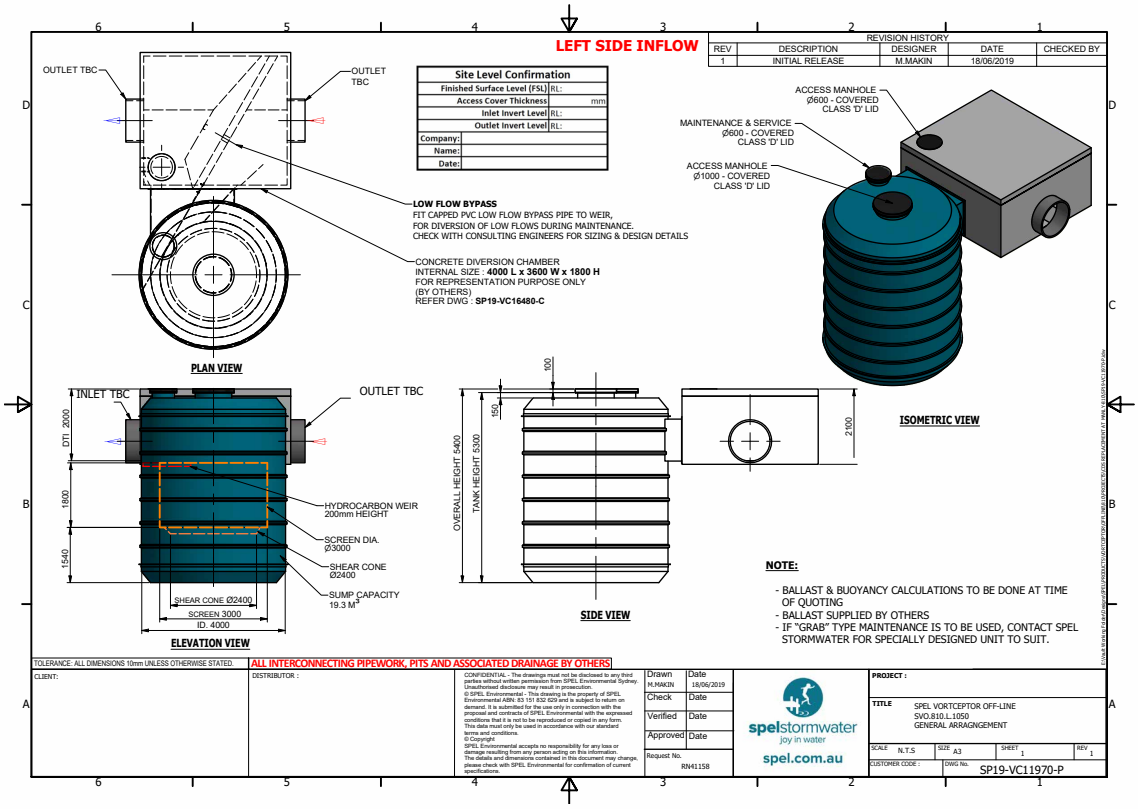
SPEL Vortceptor

Hydrodynamic GPT

Off-Line Model SVO.800



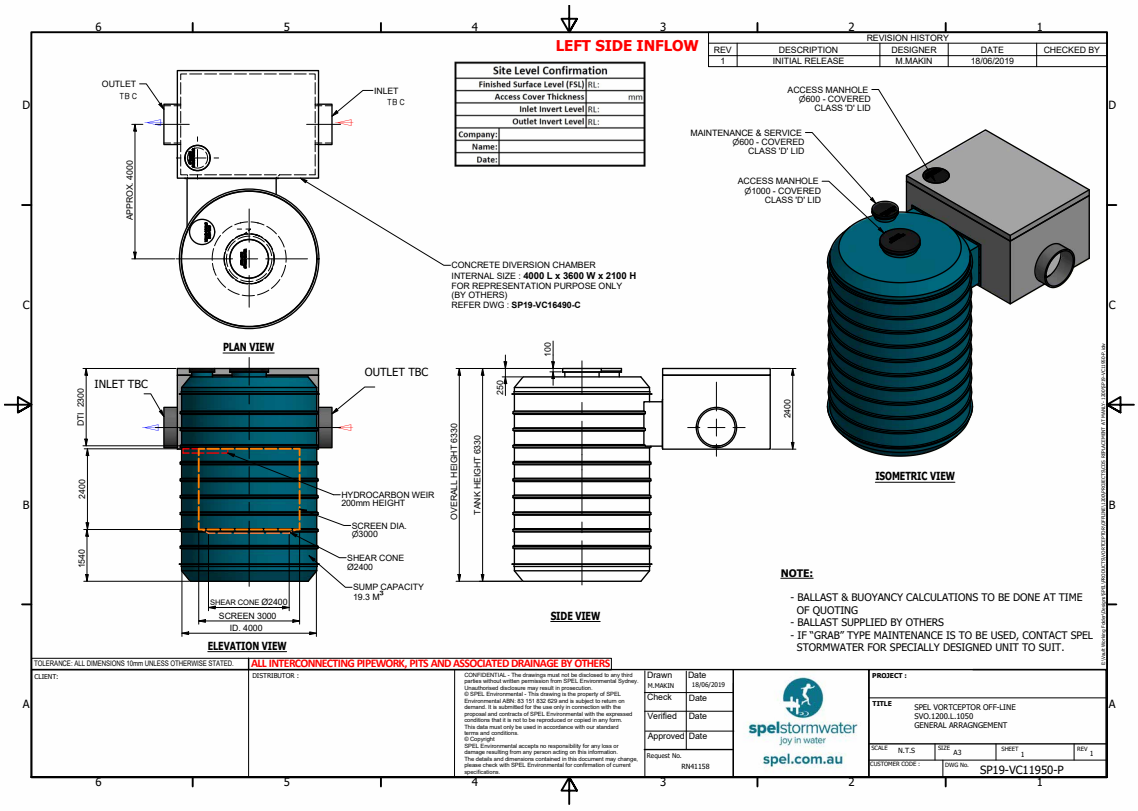
Off-Line Model SVO.810



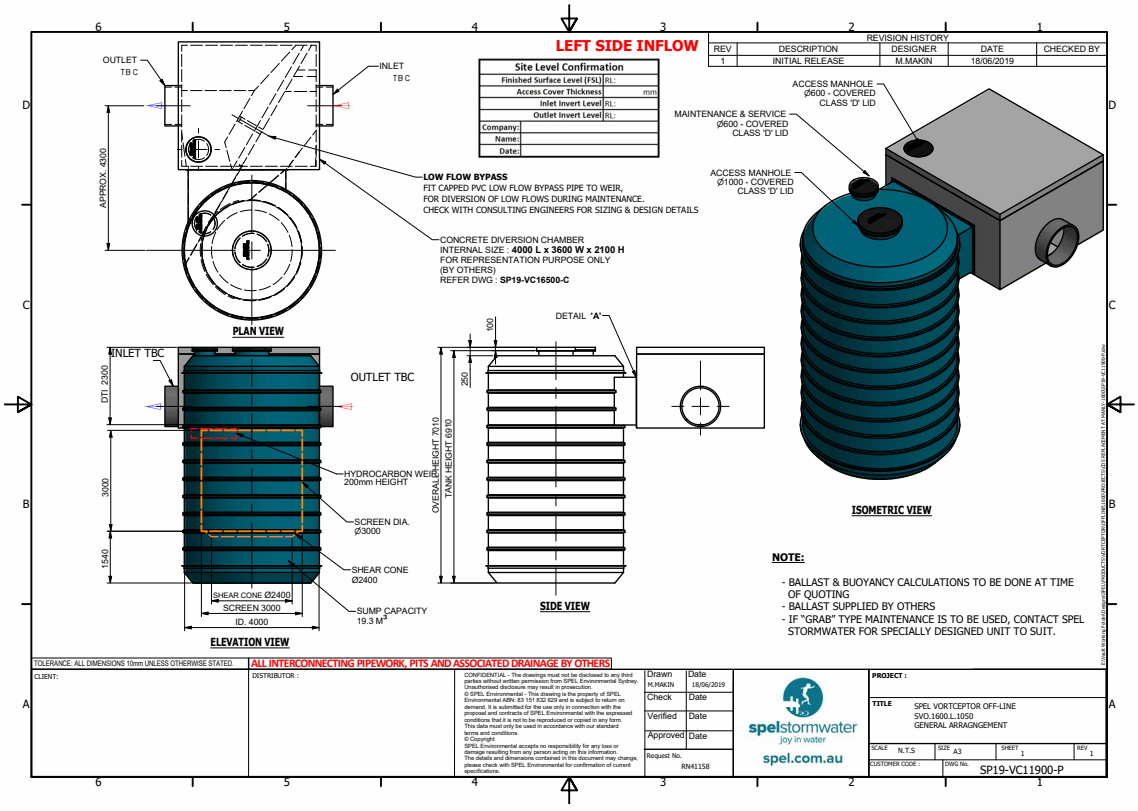
SPEL Vortceptor

Hydrodynamic GPT

Off-Line Model SVO.1200

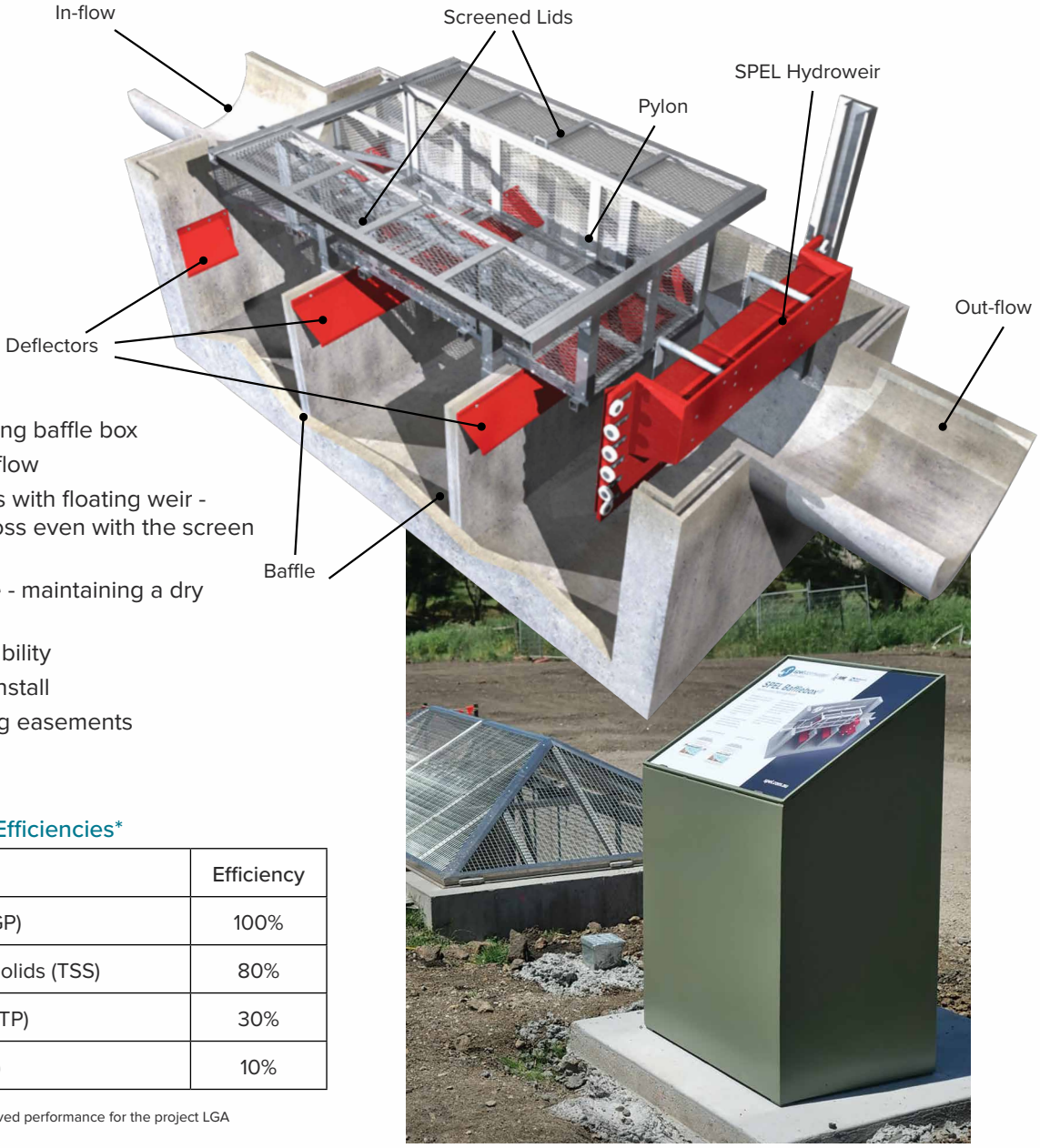


Off-Line Model SVO.1600



SPEL BaffleBox

Gross Pollutant Trap for tailwater conditions, and dry storage



Features

- Pollutant separating baffle box
- Treats the entire flow
- Minimal head loss with floating weir - 350mm of headloss even with the screen entirely blocked
- Separates foliage - maintaining a dry storage
- Ideal retrofit capability
- Quick & easy to install
- Fits within existing easements
- Multiple inflows

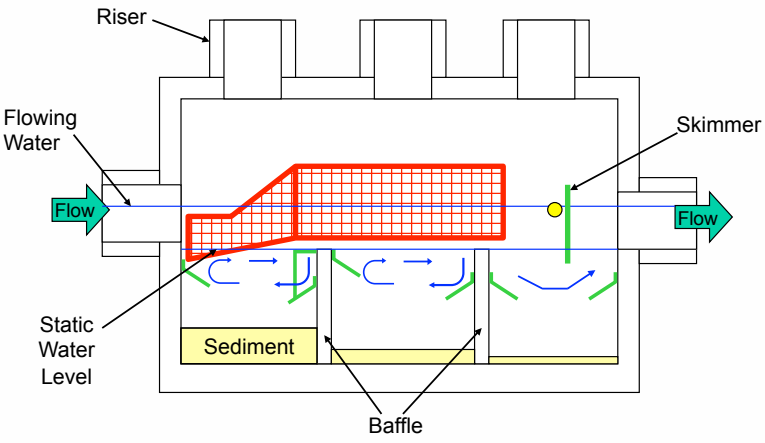
Tested Treatment Efficiencies*

Pollutant	Efficiency
Gross Pollutants (GP)	100%
Total Suspended Solids (TSS)	80%
Total Phosphorus (TP)	30%
Total Nitrogen (TN)	10%

*Contact Spel to confirm approved performance for the project LGA

APPLICATIONS

- Council Storm Drain Retrofits
- Commercial/Retail/Residential
- Litter Prone Urban Areas
- Scrap Metal/Solid Waste/Oil Storage/Etc
- Part Of Treatment Train
- Construction Sediment/Erosion



spelstormwater joy in water

SPEL BaffleBox

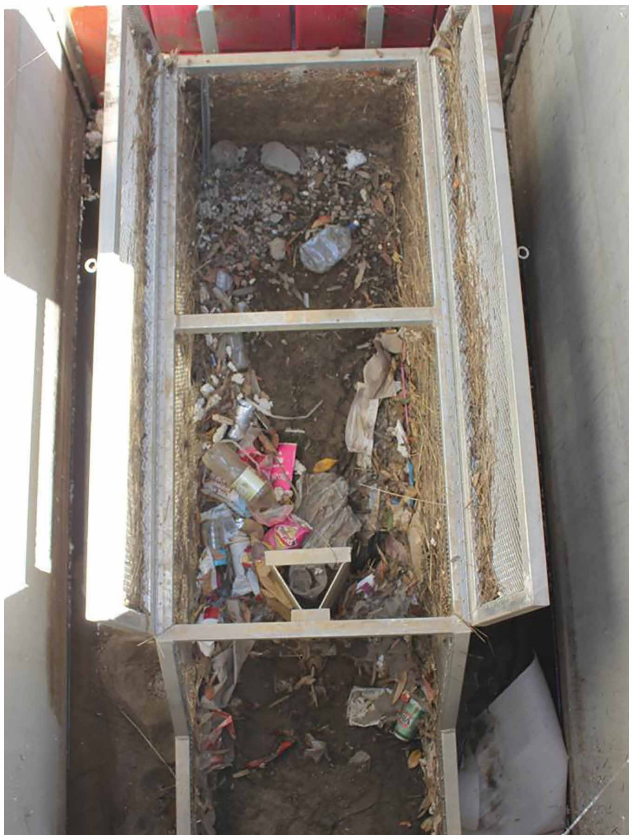
Gross Pollutant Trap for tailwater conditions, and dry storage

SPEL View Observation Cover

The SPELView Observation Cover is the perfect addition for your Outreach or Educational projects. Constructed of aluminium reinforced fibreglass panels, the SPELView Observation Cover is built to last.

Available in custom colours it is sure to blend into the surrounding landscape yet draw the attention it deserves. When compared to other viewing products on the market, the SPELView Observation Cover is the “clear choice”. Educational signage is included with every SPELView Observation Cover illustrating to the public how the treatment system works and the benefits the Pollutant Separating Baffle Box provides.

Glenmore Park, NSW
Gross pollutants captured after first rain event



Fitzroy Riverbank, Rochampton, QLD

SPEL BaffleBox

Gross Pollutant Trap for tailwater conditions, and dry storage

Project profiles

Newgate Tarneit, VIC

Port Macquarie, NSW

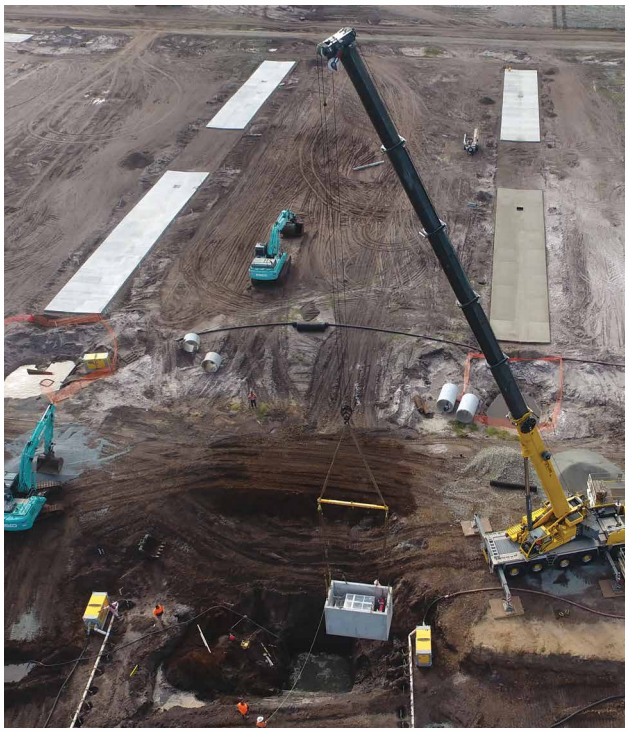
spelstormwater joy in water

SPEL BaffleBox

Hydrodynamic GPT

Project profiles

Bribie Island, QLD



Grand Central Tarneit, VIC

SPEL Puraceptor Class 1

Oil Water Separation & High Risk Hydrocarbon Capture

Guaranteed hydrocarbon spill capture in all flow and spill conditions.

SPEL Puraceptor is a full retention separator that treats all flows. It is to be sized to contain more than the anticipated maximum oil spillage — enabling it to be fully operational in treating stormwater runoff at all times.

It has two chambers, a coalescer and an automatic closure device specifically designed to contain major oil spills, thereby making it suitable for high-risk applications. It achieves a water discharge quality of less than 5ppm of oils and hydrocarbons, complying with European Standard BS EN 858.1. 2006.

Treatable flow rates range from 2LPS to 200LPS. Pipe sizes range from 100mm to 450mm (larger sizes on request).

APPLICATIONS

- Power Stations
- Substations & Switchyards
- Mining & Heavy Vehicle
- Windfarms
- Waste Transfer Depots
- Re-Fuelling Areas
- Service Stations
- Asphalt Plants

Tested Treatment Efficiencies*

Pollutant	Efficiency
Gross Pollutants (GP)	100%
Total Suspended Solids (TSS)	87%
Total Phosphorus (TP)	11%
Total Nitrogen (TN)	23%
Petroleum Hydrocarbon	99.99%
Spill capture (Site specific volume)	100%

*Contact Spel to confirm approved performance for the project LGA

spelstormwater joy in water

SPEL Puraceptor Class 1

Oil Water Separation & High Risk Hydrocarbon Capture

Stormwater Treatment

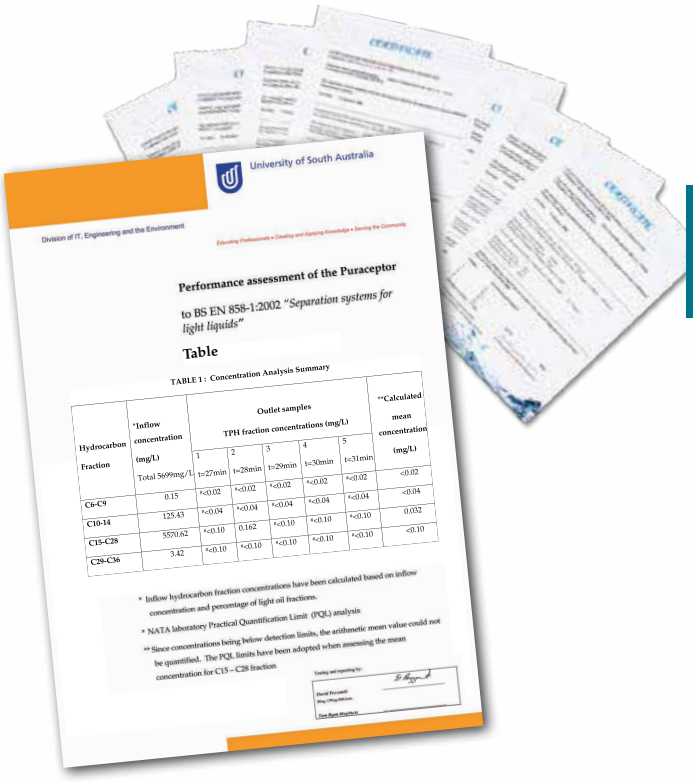
SPEL PURACEPTOR Class 1 stormwater treatment separators cater for potential hazards to the environment including sites where there is a risk of oil and fuel spills.

Oils and all petroleum hydrocarbons are treated to the highest discharge quality exceeding EPA standards ensuring it safe for stormwater discharge.

Major Oil spills from a petrol tanker or a transformer rupture are captured and contained preventing any stormwater discharge.

- Independently tested (laboratory) and certified to discharge < 1.86ppm petroleum hydrocarbons (TPH),from 5,000ppm ingress
- Independently field tested to discharge 'no detection' from >33,000.0ppm

The results obtained at HR Wallingford, U.K. are certified to European Standard EN BS858.1 (2006) and are in line with the designed performance criteria for high performance and long service life between maintenance periods, achieving results averaging between 0.1 - 1.86mg/L


University of South Australia

Division of IT, Engineering and the Environment

Performance assessment of the Puraceptor

to BS EN 858-1:2002 *"Separation systems for light liquids"*

Table

TABLE 1 : Concentration Analysis Summary

Hydrocarbon Fraction	*Inflow concentration (mg/L)	Outlet samples TPH fraction concentrations (mg/L)					**Calculated mean concentration (mg/L)
	Total 5699mg/L	1 t=27min	2 t=28min	3 t=29min	4 t=30min	5 t=31min	
C6-C9	0.15	*<0.02	*<0.02	*<0.02	*<0.02	*<0.02	<0.02
C10-14	125.43	*<0.04	*<0.04	*<0.04	*<0.04	*<0.04	<0.04
C15-C28	5570.62	*<0.10	0.162	*<0.10	*<0.10	*<0.10	0.032
C29-C36	3.42	*<0.10	*<0.10	*<0.10	*<0.10	*<0.10	<0.10

* Inflow hydrocarbon fraction concentrations have been calculated based on inflow concentration and percentage of light oil fractions.

* NATA laboratory Practical Quantification Limit (PQL) analysis

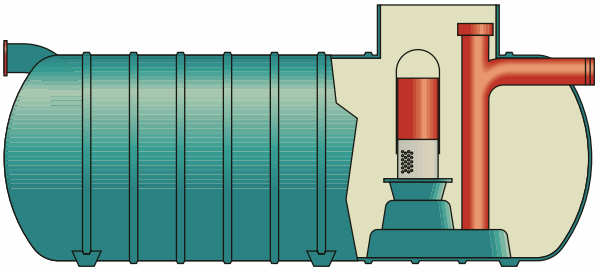
** Since concentrations being below detection limits, the arithmetic mean value could not be quantified. The PQL limits have been adopted when assessing the mean concentration for C15 – C28 fraction

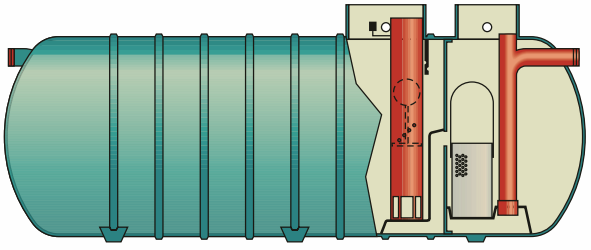
Features - Single Chamber

- Medium risk oil/fuel storage and handling areas.
- Service stations with full canopy protection.
- Commercial vehicle/plant maintenance yards and contaminated industrial areas.

Features - Two Chamber

- High risk oil/fuel storage and handling areas where maximum protection is required.
- Suitable for service stations exposed to rainfall runoff.
- Continues to treat stormwater even after the maximum designed spill has occurred.
- Heavily contaminated industrial areas, power/sub stations, fire training grounds, railway maintenance and fuelling depots.
- The second chamber provides protection to the coalescer foam inserts from silt and fuel/ oil contamination, resulting in less frequent maintenance and easier cleaning of the coalescer foam inserts.
- A large silt capacity is incorporated in the first chamber greatly reduces the frequency of tank cleaning on highly polluted sites.





SPEL Puraceptor Class 1

Oil Water Separation & High Risk Hydrocarbon Capture

How it works

SPEL Puraceptor is a FULL RETENTION separator that treats all flows and is sized to contain more than the anticipated maximum oil spillage enabling it to be fully operational at all times.

It has two chambers, a coalescer and is fitted with an automatic closure device specifically designed to contain major oil spills thereby making it suitable for high risk applications.

It achieves a water discharge quality of less than 5ppm of oils and hydrocarbons complying to European Standard BS EN 858.1. 2006. Treatable flow rates range from 2LPS to 200LPS. Pipe sizes range from 100mm to 450mm (larger sizes and flows on request).

1. AUTOMATIC CLOSURE DEVICE

The AUTOMATIC CLOSURE DEVICE (A.C.D.) is a precisely engineered device comprising a water-buoyant ball that is sensitive to any change in the water density as a consequence of light liquids build up, thereby automatically activating a process of depressing the A.C.D. to SHUT OFF the separator, preventing pollutants from discharging to drains and waterways.

2. FULL RETENTION

All liquid is treated. There is no by-pass operation.

3. COALESCER EQUIPPED

Provides a coalescing process for the separation of smaller globular of light liquid pollutants to reduce the light liquid content in the outlet to 5mg/litre or less.

4. INLET DIP PIPE - FLAME TRAP

For minimum turbulence and to prevent fire and inflammable vapours passing through to the drainage system.

5. TWO CHAMBER

A non-turbulent flow through two horizontal treatment chambers, utilising the underflow principle to retain light liquids in all flow conditions.

A. CONTAINMENT CHAMBER: Where Total Suspended Solids (TSS) silt, sediments, sludge and gross pollutants are trapped and settle on the chamber floor and where light liquids are contained.

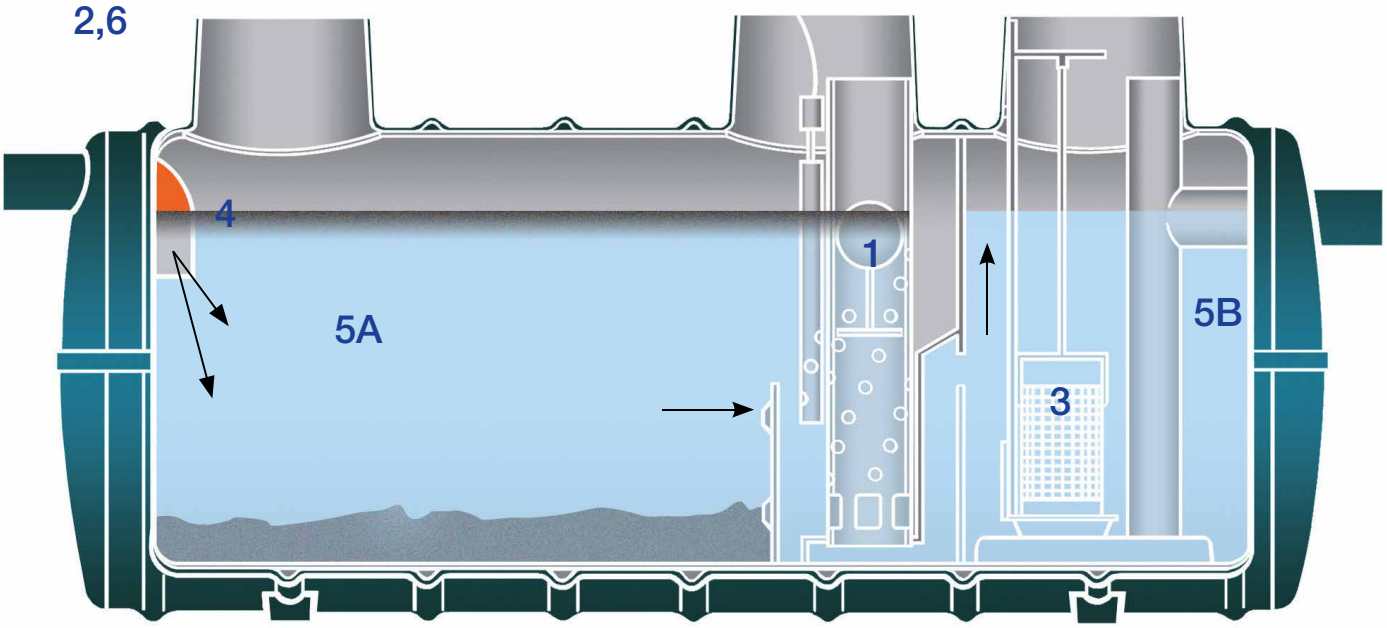
B. COALESCER CHAMBER: Where light liquids separation is enhanced reducing it to 5mg/litre or less prior to discharge.

6. GRAVITY OPERATED

Will function in the event of power failure and fits into existing pipe drainage systems or new sites.

7. MAINTENANCE

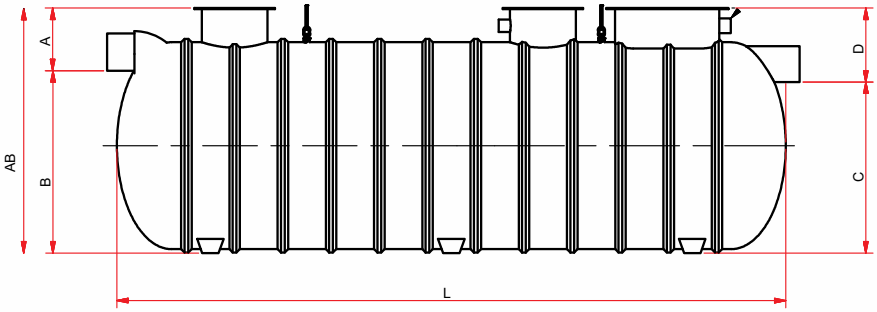
Easy and safe with no entering of the tank required.

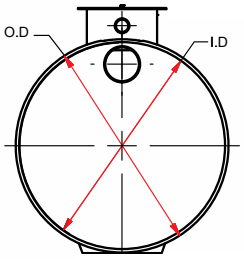


SPEL Puraceptor Class 1

Oil Water Separation & High Risk Hydrocarbon Capture

Specifications & Dimensions





Models	Treatment Flow Rate	Weight (KG)	Dimensions (mm)								Maximum Inlet & Outlet Pipe Size (mm) Configuration*	Manholes				Max. Spill at Shut Off	Max. Working Capacity
			A	B	A&B	C	D	L	OD	ID		Qty	Size	Qty	Size		
100 Series Tanks - 900 mm Internal Diameter																	
P.002.C1.2C	2 LPS	120	400	820	1220	800	420	1700	930	900	100	2	450 ID	-	-	250	800
200 Series Tanks - 1200 mm Internal Diameter																	
P.004.C1.2C	4 LPS	330	460	1100	1560	1080	480	2600	1350	1200	150	2	600 ID	-	-	1,000	2,050
P.006.C1.2C	6 LPS	400	425	1135	1560	1095	465	3035	1350	1200	150	2	600 ID	-	-	1,300	2,550
P.008.C1,2C	8 LPS	450	460	1100	1560	1060	500	3800	1350	1200	150	2	600 ID	-	-	1,900	3,200
P.010.C1.2C	10 LPS	500	450	1110	1560	1060	500	4600	1350	1200	150	2	600 ID	-	-	2,500	3,900
P.013.C1.2C	13 LPS	550	446	1114	1560	1040	520	5800	1350	1200	150	3	600 ID	-	-	3,000	4,800
P.015.L.C1.2C	15 LPS	600	425	1135	1560	1065	495	6500	1350	1200	150	3	600 ID	-	-	3,400	5,400
300 Series Tanks - 1850 mm Internal Diameter																	
P.015.S.C1.2C	15 LPS	650	620	1630	2250	1600	650	3000	1950	1850	300	1	600 ID	1	900 x 600	3,500	5,500
P.020.C1.2C	20 LPS	850	625	1625	2250	1585	665	4000	1950	1850	300	1	600 ID	1	900 x 600	3,900	7,300
P.030.C1.2C	30 LPS	1100	660	1590	2250	1575	675	4860	1950	1850	300	1	600 ID	1	900 x 600	5,500	10,800
P.040.8.C1.2C	40 LPS	1180	550	1600	2150	1500	650	5900	1950	1800	300	1	600 ID	1	900 x 600	8,000	13,400
P.040.C1.2C	40 LPS	1240	650	1600	2250	1550	700	6540	1950	1850	300	2	600 ID	1	900 x 600	9,000	14,400
P.050.L.C1.2C	50 LPS	1400	650	1600	2250	1520	730	8500	1950	1850	300	2	600 ID	1	900 x 600	10,000	18,000
P.060.L.C1.2C	60 LPS	1550	650	1600	2250	1500	750	10,000	1950	1850	300	2	600 ID	1	900 x 600	11,200	21,600
P.070.L.C1.2C.	70 LPS	1700	650	1600	2250	1500	750	11,600	1950	1850	300	2	600 ID	1	900 x 600	12,400	25,200
400 Series Tanks - 2480 mm Internal Diameter																	
P.050.S.C1.2C	50 LPS	1400	720	2230	2950	2150	800	4680	2600	2480	375	1	600 ID	1	900 x 600	9,000	18,000
P.060.S.C1.2C	60 LPS	1560	550	2400	2950	2220	730	5500	2600	2480	375	1	600 ID	1	900 x 600	10,700	21,600
P.070.S.C1.2C	70 LPS	1710	750	2200	2950	2150	800	6550	2600	2480	375	3	600 ID	1	900 x 600	12,400	25,200
P.080.C1.2C	080 LPS	2000	600	2350	2950	2250	700	7500	2600	2480	375	3	600 ID	1	900 x 600	14,900	29,600
P.090.C1.2C	090 LPS	2300	715	2235	2950	2150	800	8400	2600	2480	375	3	600 ID	1	1200 x 600	16,200	32,400
P.100.C1.2C	100 LPS	2550	710	2240	2950	2150	800	9000	2600	2480	375	3	600 ID	1	1200 x 600	17,700	35,700
P.110.C1.2C	110 LPS	2650	700	2250	2950	2150	800	9600	2600	2480	375	3	600 ID	1	1200 x 600	18,300	38,200
P.120.C1.2C	120 LPS	2750	570	2400	2970	2300	670	10,230	2600	2480	375	3	600 ID	1	1200 x 600	21,700	43,200
P.150.C1.2C	150 LPS	3360	670	2280	2950	2150	800	13,420	2600	2480	375	4	600 ID	1	1200 x 600	27,700	54,000
P.180.C1.2C	180 LPS	3580	650	2300	2950	2150	800	15,400	2600	2480	375	5	600 ID	1	1200 x 600	32,500	64,800
P.200.C1.2C	200 LPS	4150	555	2395	2950	2230	720	16,500	2600	2480	375	5	600 ID	1	1200 x 600	36,200	72,000

# Key to Main Dimensions & Notes	
A	Invert Level - Depth from top of manhole to base of inlet pipe.
B	Depth from base of inlet pipe to base of tank feet.
A&B	Overall depth of tank, from top of manhole to base of tank feet.
C	Depth from base of outlet pipe to base of tank feet.
D	Invert Level - Depth from top of manhole to base of outlet pipe.
L	Overall length tank.
OD	Overall outside diameter of tank including ribs.
ID	Internal diameter of tank.
S&L	"S" is Short Series Tank & "L" is Long Series Tank.

SPEL Stormceptor Class 1

In-line Stormwater Treatment & Medium Risk Hydrocarbon Capture

The SPEL Stormceptor Class 1 is a high rate separator that comes in both in-line and off-line configurations. The in-line system incorporates an internal bypass that allows the Stormceptor Class 1 to be installed and retrofitted within existing drainage systems.

Whilst the Stormceptor is highly efficient at removing Total Suspended Solids (TSS) the Class 1 name shows that this is also designed to treat oily water and hydrocarbon runoff from medium risk catchments.

The Stormceptor In-line is a horizontally configured two-chamber Stormwater Quality Improvement Device (SQID), equipped with a gravity enhancing coalescer unit.

This system is typically used in medium risk commercial and industrial applications as the advanced design facilitates a retention period that provides quiescent conditions within the secondary chamber. This efficiently promotes the separation of total suspended solids (TSS), light liquids and pollutants.

SPEL treatment devices can accommodate a complete range of flow rates with corresponding pipe size and types.

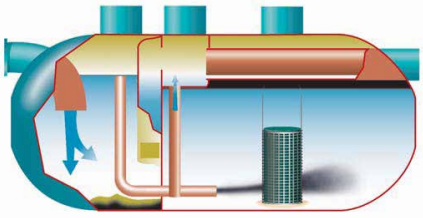


DIAGRAM A - LOW FLOW

DIAGRAM B - HIGH FLOW

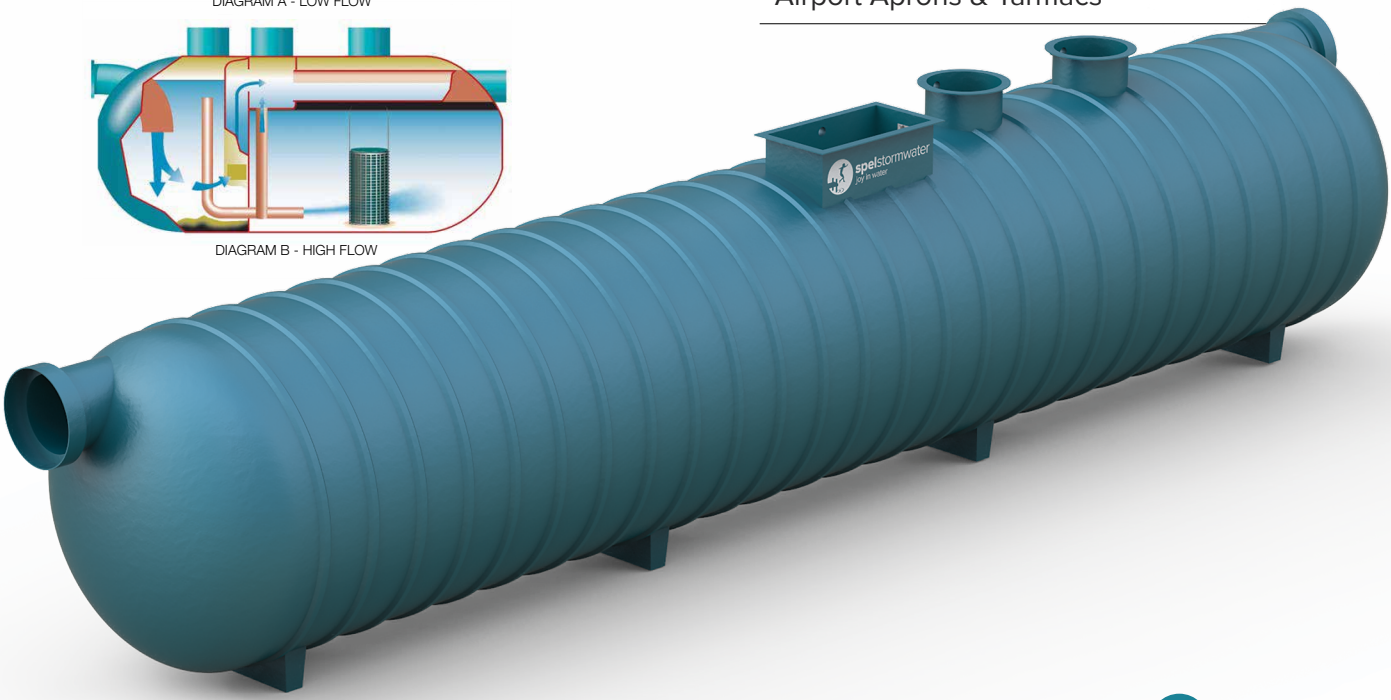
Tested Treatment Efficiencies*

Pollutant	Efficiency
Gross Pollutants (GP)	100%
Total Suspended Solids (TSS)	87%
Total Phosphorus (TP)	11%
Total Nitrogen (TN)	23%
Petroleum Hydrocarbon	99.99%
Heavy Metals	90%

*Contact Spel to confirm approved performance for the project LGA

APPLICATIONS

- Car Parks & Shopping Centres
- Council Depots
- Industrial Estates
- Heavy Vehicle Maintenance & Storage Areas
- Transport Depots & Loading Bays
- Tunnels
- Highways & Transport Corridors
- Recycling Yards
- Airport Aprons & Tarmacs

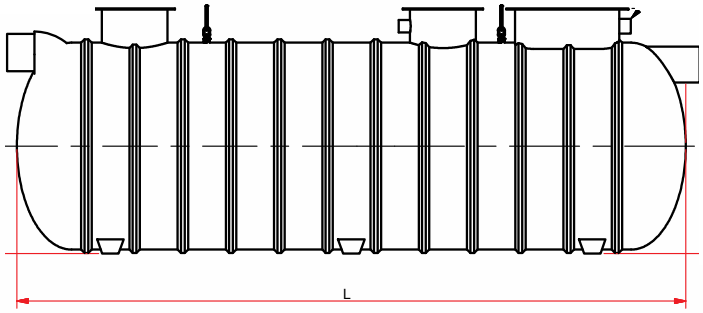


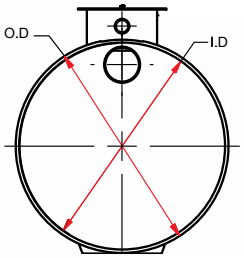
spelstormwater joy in water

SPEL Stormceptor Class 1

In-line Stormwater Treatment & Medium Risk Hydrocarbon Capture

Specifications & Dimensions





MODELS	WEIGHT (KG)	MAIN DIMENSIONS (MM)			MANHOLES	
		L	OD	ID	QTY	SIZE
S.100/15.C1.2C.	120	1700	900	950	2	450 OD
S.100/20.C1.2C.	190	1550	1200	1300	2	450 OD
S.100/25.C1.2C.	260	2300	1200	1300	2	450 OD
S.200/30.C1.2C	300	2400	1200	1300	1	600x1250
S.200/40.C1.2C	330	2700	1200	1300	1	600x1250
S.200/50.C1.2C.	380	3400	1200	1300	1	600x1250
S.200/70.C1.2C.	410	4400	1200	1300	1	600x1250
S.300/80.C1.2C.	650	3520	1850	1950	3	600 OD
S.300/100.C1.2C.	700	4000	1850	1950	3	600 OD
S.300/130.C1.2C.	800	4860	1850	1950	3	600 OD
S.300/160.C1.2C.	900	5740	1850	1950	3	600 OD
S.300/220.C1.2C.	1100	7040	1850	1950	3	600 OD
S.300/250.C1.2C.	1200	7875	1850	1950	3	600 OD
S.400/300.C1.2C.	1700	6400	2450	2600	Custom	
S.400/400.C1.2C.	2000	7300	2450	2600	Custom	
S.400/500.C1.2C.	2400	8900	2450	2600	Custom	
S.400/600.C1.2C.	2700	10100	2450	2600	Custom	
S.400/700.C1.2C.	3000	11950	2450	2600	Custom	
S.400/750.C1.2C.	3300	13190	2450	2600	Custom	
S.400/850.C1.2C.	3500	14800	2450	2600	Custom	
S.400/1000.C1.2C.	4100	16200	2450	2600	Custom	
S.400/1100.C1.2C.	4600	18380	2450	2600	Custom	
S.500/800.C1.2C.	4300	11580	3000	3120	Custom	
S.500/1000.C1.2C.	5200	14050	3000	3120	CUSTOM	
S.500/1200.C1.2C.	6200	11700	3500	3650	CUSTOM	
S.500/1500.C1.2C.	7400	13800	3500	3650	CUSTOM	
S.500/1600.C1.2C.	8740	16 300	3500	3650	CUSTOM	
S.500/1800.C1.2C.	9380	17 500	3500	3650	CUSTOM	
S.500/2000.C1.2C.	10190	19 000	3500	3650	CUSTOM	
S.500/2300.C1.2C.	319	21500	3500	3650	CUSTOM	
S.500/2700.C1.2C.	375	24050	3500	3650	CUSTOM	
S.500/2900.C1.2C.	403	25800	3500	3650	CUSTOM	

# Key to Main Dimensions & Notes	
L	Overall length tank.
OD	Overall outside diameter of tank including ribs.
ID	Internal diameter of tank.

SPEL Stormceptor Class 1

In-line Stormwater Treatment & Medium Risk Hydrocarbon Capture

Project profiles

Gold Coast Airport, QLD

Melbourne Airport, VIC

spelstormwater joy in water

SPEL Stormceptor Class 1

In-line Stormwater Treatment & Medium Risk Hydrocarbon Capture

Gold Coast Airport, QLD

Port Botany, NSW

SPEL Stormceptor Class 1

Off-line Stormwater Treatment & Medium Risk Hydrocarbon Capture

The SPEL Stormceptor Class 1 is a high rate separator that comes in both in-line and off-line configurations. The off-line system is installed on a low flow line, designed to treat a minimum of a 1 in 3 month ARI (4EY). This is the design treatment flow rate.

Flows above this design treatment flow are to be bypassed, avoid flooding, and avoid transport of previously captured pollutants.

With the ability to be installed offline, the Stormceptor is very flexible and suitable to both small and large catchments alike.

Whilst the Stormceptor is highly efficient at removing Total Suspended Solids (TSS) the Class 1 name shows that this is also designed to treat oily water and hydrocarbon runoff from medium risk catchments.

The Stormceptor off-line is a horizontally configured two-chamber Stormwater Quality Improvement Device (SQID), equipped with a gravity enhancing coalescer unit.

This system is typically used in medium risk commercial and industrial applications as the advanced design facilitates a retention period that provides quiescent conditions within the secondary chamber. This efficiently promotes the separation of total suspended solids (TSS), light liquids and pollutants.

SPEL treatment devices can accommodate a complete range of flow rates with corresponding pipe size and types.

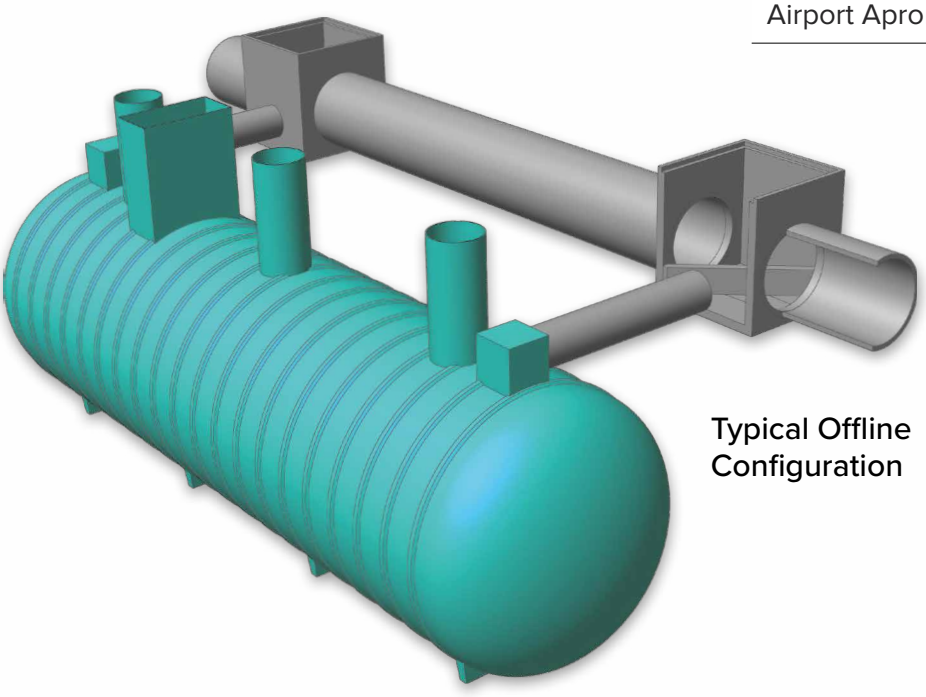
Tested Treatment Efficiencies*

Pollutant	Efficiency
Gross Pollutants (GP)	100%
Total Suspended Solids (TSS)	87%
Total Phosphorus (TP)	11%
Total Nitrogen (TN)	23%
Petroleum Hydrocarbon	99.99%
Heavy Metals	90%

*Contact Spel to confirm approved performance for the project LGA

APPLICATIONS

- Car Parks & Shopping Centres
- Council Depots
- Industrial Estates
- Heavy Vehicle Maintenance & Storage Areas
- Transport Depots & Loading Bays
- Tunnels
- Highways & Transport Corridors
- Recycling Yards
- Airport Aprons & Tarmacs

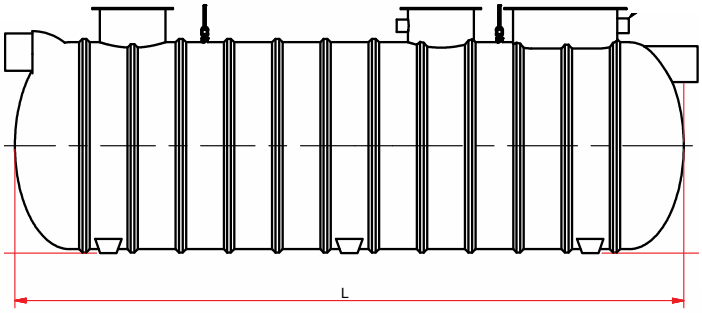


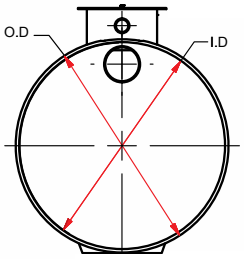
Typical Offline Configuration

SPEL Stormceptor Class 1

Off-line Stormwater Treatment & Medium Risk Hydrocarbon Capture

Specifications & Dimensions





"Off Line" Stormceptor with 4 Minutes Retention

MODELS	WEIGHT	SERIES	TFR LPS	VOLUME LTRS	TANK SIZE		
					L	ID	OL
OL.4108.C1.2C	300 KG	4100	8	2400	2400 mm	1200 mm	2400 mm
OL.4115.C1.2C	430 KG	4100	15	3600	3400 mm	1200 mm	3400 mm
OL.4130.C1.2C	610 kg	4100	30	7200	6600 mm	1200 mm	6600 mm
OL.4215.C1.2C	420kg	4200	15	4400	2800 mm	1500 mm	2800 mm
OL.4230.C1.2C	580kg	4200	30	7200	4400 mm	1500 mm	4400 mm
OL.4260.C1.2C	980kg	4200	60	14 400	8500 mm	1500 mm	8500 mm
OL.4330.C1.2C	750kg	4300	30	8800	3600 mm	1850 mm	3600 mm
OL.4360.C1.2C	1190kg	4300	60	14 400	5700 mm	1850 mm	5700 mm
OL.4380.C1.2C	1340kg	4300	80	19 200	7500 mm	1850 mm	7500 mm
OL.4480.C1.2C	1400kg	4400	80	19 200	4400 mm	2450 mm	4400 mm
OL.44110.C1.2C	1560kg	4400	110	26 400	5900 mm	2450 mm	5900 mm
OL.44140.C1.2C	2000kg	4400	140	33 600	7480 mm	2450 mm	7400 mm
OL.45140.C1.2C	2230kg	4500	140	33 600	5300 mm	3000 mm	5300 mm
OL.45180.C1.2C	2670kg	4500	180	43 200	6700 mm	3000 mm	6700 mm
OL.45220.C1.2C	3180kg	4500	220	52 800	8100 mm	3000 mm	8100 mm
OL.46220.C1.2C	3360kg	4600	220	52 800	6300 mm	3500 mm	6300 mm
OL.46260.C1.2C	3840kg	4600	260	62 400	7300 mm	3500 mm	7300 mm
OL.46300.C1.2C	4270kg	4600	300	72 000	8300 mm	3500 mm	8300 mm

# Key to Main Dimensions & Notes	
OD	Overall outside diameter of tank including ribs.
ID	Internal diameter of tank.

SPEL Stormceptor Class 1

Off-line Stormwater Treatment & Medium Risk Hydrocarbon Capture

Project profiles

Wetherill Park, NSW

Picton, NSW

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SPEL Stormceptor Class 1

Off-line Stormwater Treatment & Medium Risk Hydrocarbon Capture

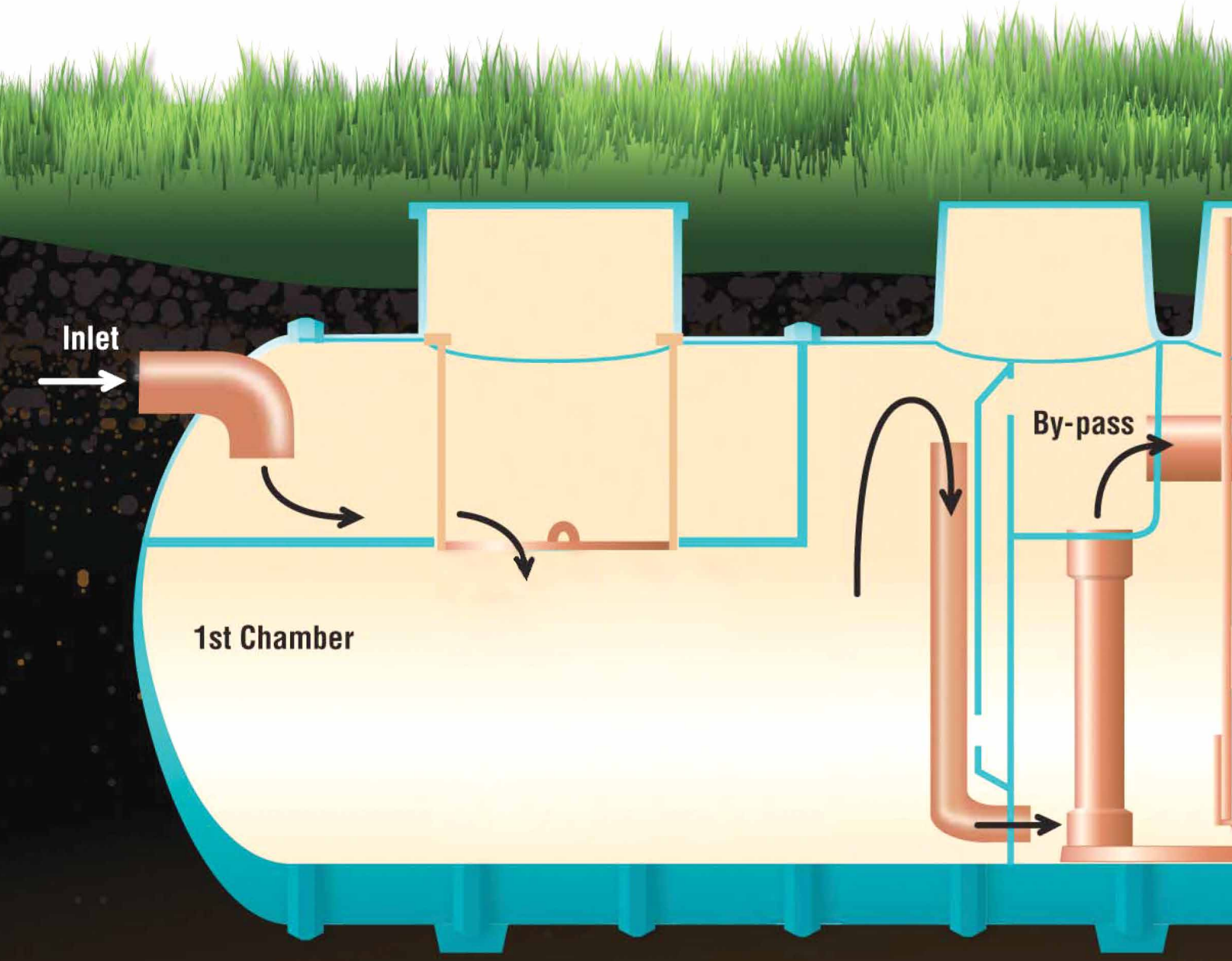
Project profiles

Maples Estate, VIC

Westgate Tunnel Project, VIC

spel Stormceptor Class 1

3 Chamber System For Harvesting & Re-Use



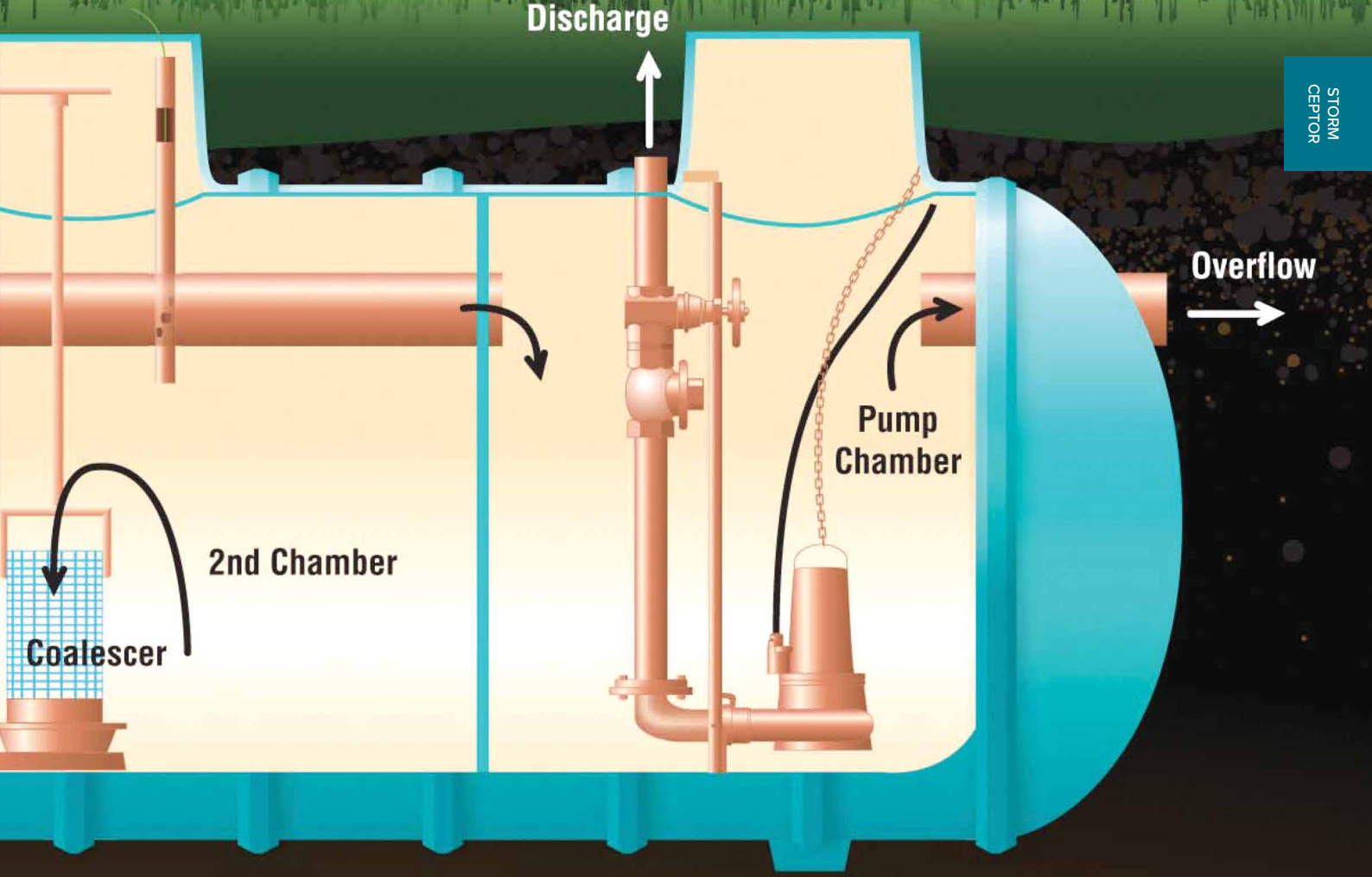
PUMP STATIONS

A third chamber can be added to the separator (excluding Class 3) to incorporate a pump station making it suitable for integration with water harvesting schemes that include irrigation and field watering.

Options

SELECTION OF COVERS

All classes of covers are available from heavy trafficable to light duty.



OIL ALERT PROBE

The probe is freely suspended in the primary chamber. When the oil layer or depth of light liquids reaches the predetermined level, the top of the probe will be immersed in the oil, breaking the circuit and activating the alarm.

COALESCER UNITS

Available complete with stainless steel holders and handles or slide rails depending on separator size. Coalescers are standard in PURACEPTOR™ & STORMCEPTOR™ CLASS 1.

SPEL The Distinct Advantage in Water Treatment

SPEL Triceptor

Stormwater Treatment & Hydrocarbon Capture High & Medium Risk

The SPEL Triceptor is a combination of the Stormceptor and Puraceptor functions and features in the one treatment device. The benefit of the Triceptor is that with one treatment device you can treat both the high and low risk areas of a catchment.

The Triceptor has the hydrocarbon spill containment function of the Puraceptor whilst also incorporating the treatment quality and high flow bypass functions of the Stormceptor.

Tested Treatment Efficiencies*

Pollutant	Efficiency
Gross Pollutants (GP)	100%
Total Suspended Solids (TSS)	87%
Total Phosphorus (TP)	11%
Total Nitrogen (TN)	23%
Petroleum Hydrocarbon	99.99%
Heavy Metals	90%

*Contact Spel to confirm approved performance for the project LGA

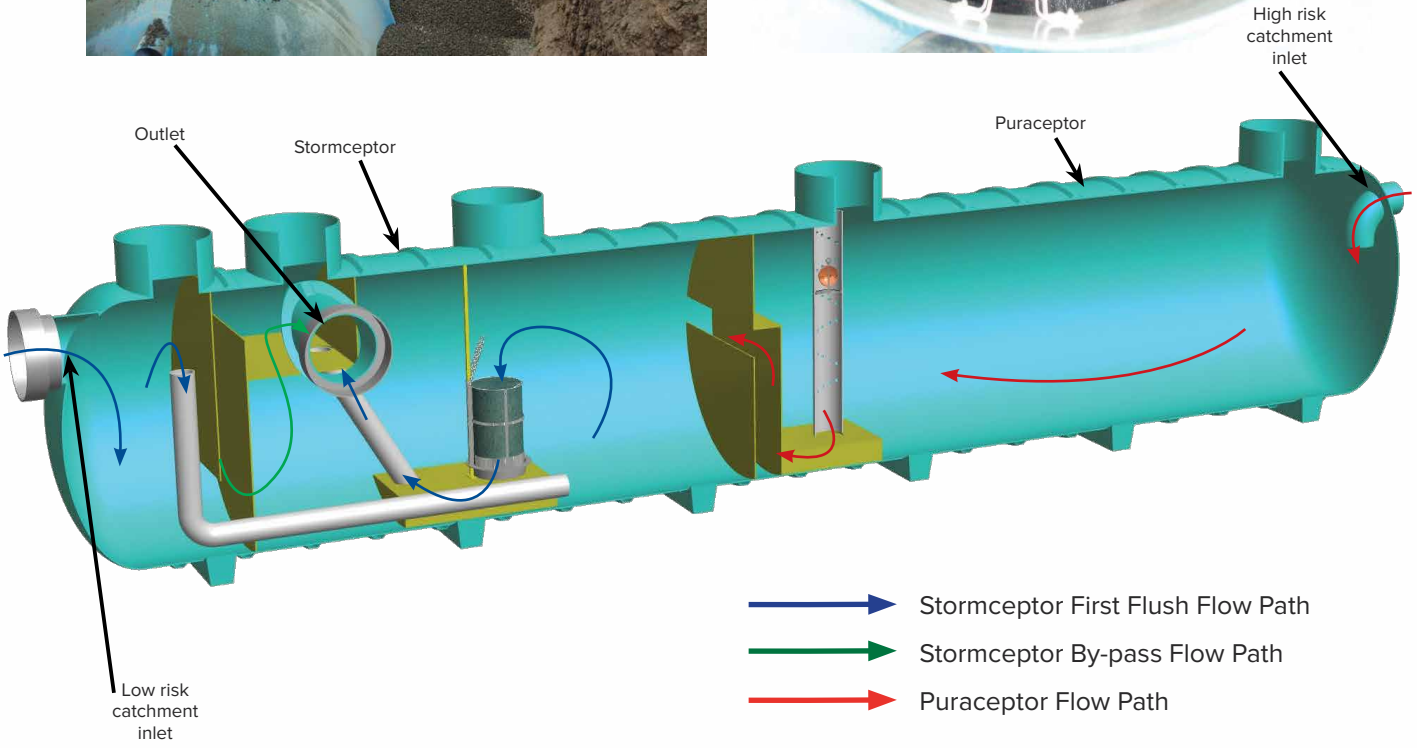
APPLICATIONS

- Car Parks & Shopping Centres
- Tunnels
- Highways & Transport Corridors
- Recycling Yards
- Airport Aprons & Tarmacs
- Service Stations
- Re-Fuelling Areas
- Substations & Switch yards
- Asphalt Plants

BP Eastlink, VIC

SPEL Triceptor

Stormwater Treatment & Hydrocarbon Capture High & Medium Risk



SPEL Filter

Cartridge Filter For Tertiary Stormwater Treatment

Overview

The SPELFilter® has a design that facilitates influent flow over its entire surface area, providing consistent pollutant removal with in a smaller footprint.

Hydraulic pressure forces water through the filter media, discharges through the center tube and out through the outlet collection manifold pipe work.

Upon completion of a treatment cycle, each cartridge backwashes and effectively dislodges particulates from the filtration layers. This reestablishes filter porosity. The dislodged particles accumulate on the vault floor for easy removal during maintenance.

SPELFilter's patented design has no moving parts and generates a true siphon effect.

Spel Filter Operation & Maintenance 3D Animation

Published results of field monitoring of a Stormsack SPELFilter stormwater treatment train has been underway between November 2013 and May 2015 at a townhouse development located at Ormiston, southeast Queensland.

The research was undertaken to evaluate the effectiveness of a 200 micron mesh pit basket in a 900 square format and an 850 mm high media filtration cartridge system for removing total suspended solids and nutrients from stormwater runoff. The monitoring protocol was developed with Queensland University of Technology (QUT), reflecting the Auckland Regional Council Proprietary Device Evaluation Protocol (PDEP) and United States Urban Stormwater BMP Performance Monitoring Manual with some minor improvements reflecting local conditions.

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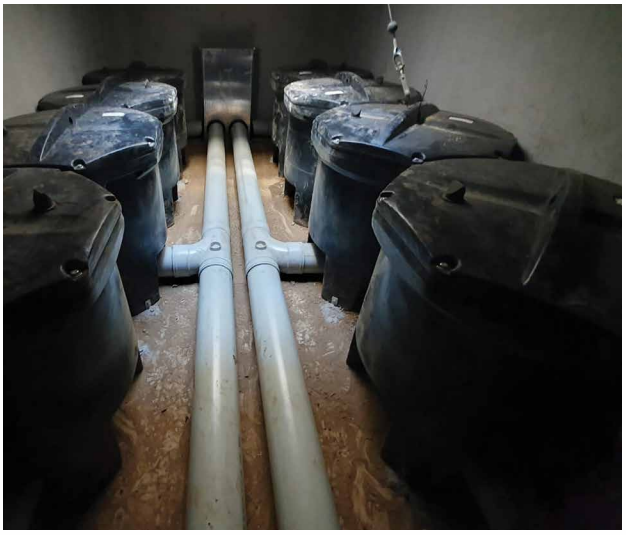
SPEL Filter

Cartridge Filter For Tertiary Stormwater Treatment

Value & Benefits



Proven Sand Filter Performance:

The uniform size silica-sand filter media provides for higher removal efficiencies than coarser types of media. SPELFilter media is inorganic – it doesn't leach nitrogen and other nutrients.

Each SPELFilter automatically backflushes under gravity. The backflush clears most sediment particles from out of the media and back into the vault floor, which allows the hydraulic conductivity from degrading throughout its service life. No moving parts are involved, which increases reliability. The SPELFilter cartridge design life is in excess of 5 years.

Greater flexibility:

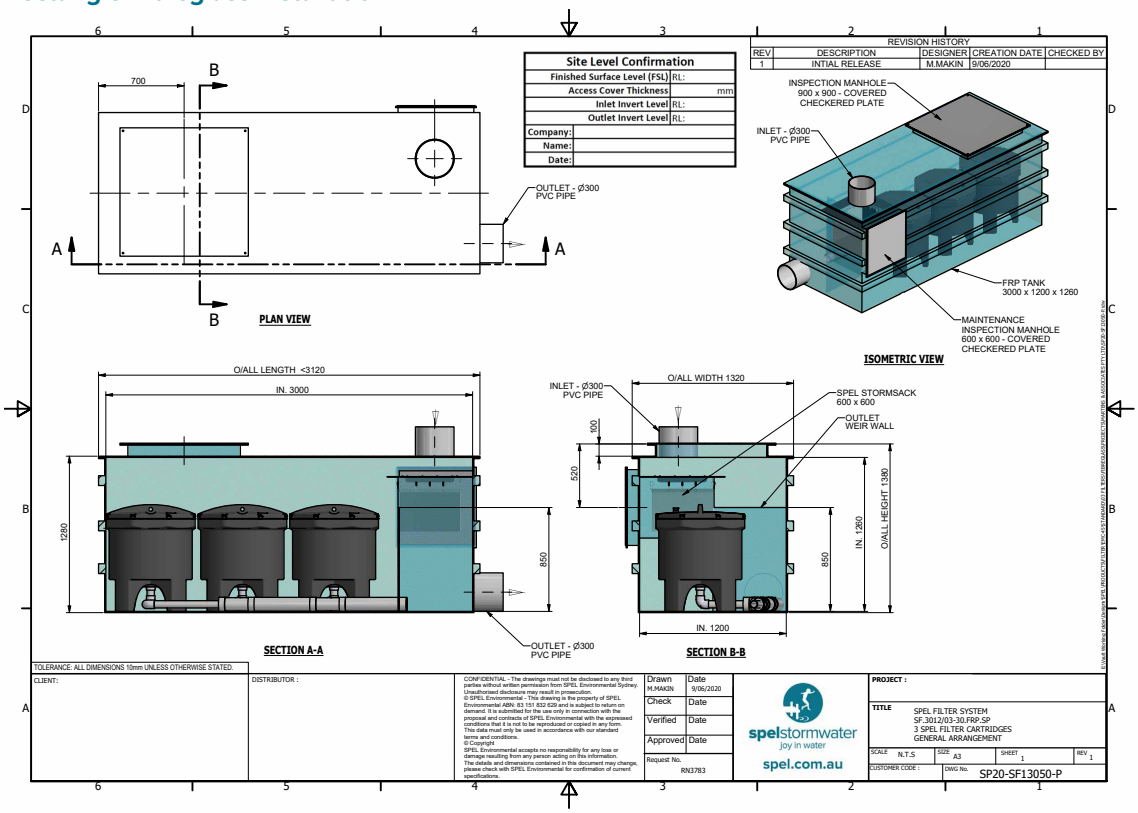
Due to the significant surface area, designated flow path and high flow capacity, combined with the modular cartridge design, the SPELFilter system can be deployed in a variety of structures including manholes, precast vaults, or cast-in-place structures.

Each system is optimised to suit your specific site and local authority requirements by qualified and experienced professionals.

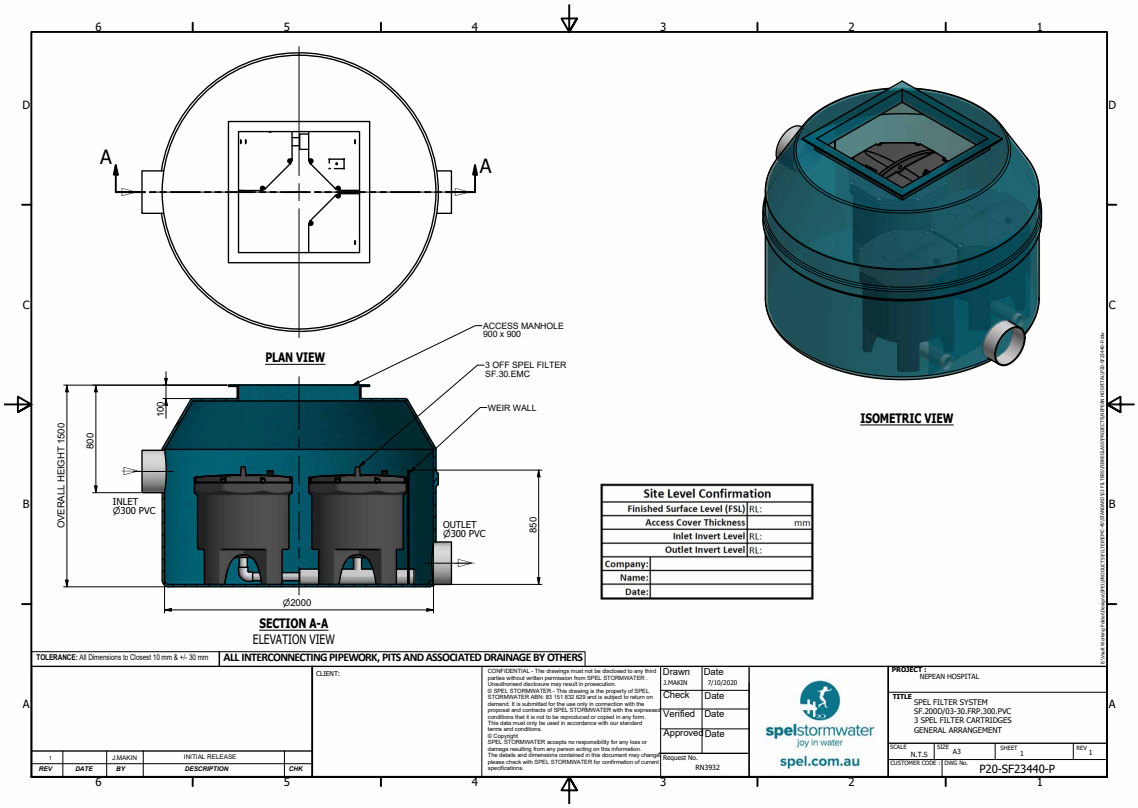
SPEL Filter

Cartridge Filter For Tertiary Stormwater Treatment

Rectangle Fibreglass Installation



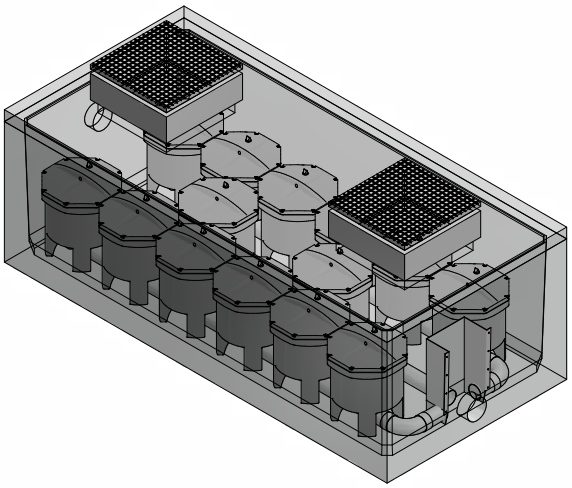
Round Fibreglass Tank Installation



SPEL Filter

Cartridge Filter For Tertiary Stormwater Treatment

Rectangle Concrete Installation



SV.5030-1464-14 FILTER - 3D VIEW

DRAWING INDEX	
DRAWING No.	DRAWING TITLE
SP21-CT27110-P	COVER SHEET AND DRAWING INDEX
SP21-CT27120-P	GENERAL NOTES PAGE
SP21-CT27130-P	GENERAL ARRANGEMENT
SP21-CT27140-P	PERMISSIBLE PENETRATIONS

TOLERANCE: All Dimensions to Closest 10 mm & +/- 30 mm | ALL INTERCONNECTING PIPEWORK, PITS AND ASSOCIATED DRAINAGE BY OTHERS

REV	DATE	BY	DESCRIPTION	CHK
1	07/2021	G.T	INITIAL RELEASE	

CLIENT:

Drawn	G.T	Date 1/07/2021
Check		Date
Verified		Date
Approved		Date
Request No.	RN211930	

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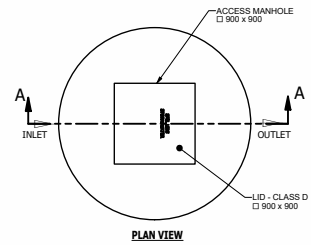
spel.com.au

PROJECT :

TITLE: COVER SHEET AND DRAWING INDEX
14.88 kL SPEL PRECAST CONCRETE TANK
SV.5023-1464-14-30

SCALE: N.T.S. | SIZE: A3 | SHEET: 1 | REV: 1
CUSTOMER CODE : | DWG No. SP21-CT27110-P

Round Concrete Tank Installation



PLAN VIEW

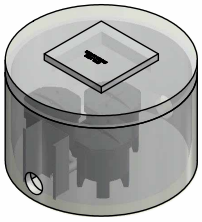
Site Level Confirmation	
Finished Surface Level (FSL):	mm
Inlet Invert Level (IIL):	mm
Outlet Invert Level (OIL):	mm
Inlet Pipe Size:	mm
Inlet Pipe Type:	mm
Outlet Pipe Size:	mm
Outlet Pipe Type:	mm
Company:	
Name:	
Date:	

TANK WEIGHTS	
TANK	LID
3.5 t	2.4 t

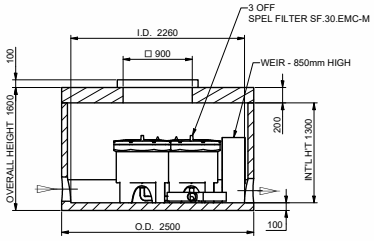
NOTE:
LIFTING WEIGHTS MAY VARY
DEPENDING ON CUSTOM DESIGN

REVISION HISTORY

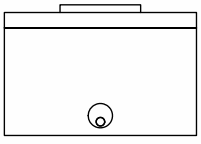
REV	DESCRIPTION	BY	DATE	CHECKED BY
1	INITIAL RELEASE	P.Z.	06/05/2020	



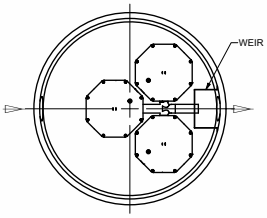
ISOMETRIC VIEW



SECTION A-A



SIDE VIEW



PLAN VIEW
COVER & LID REMOVED FOR CLARITY

TOLERANCE: ALL DIMENSIONS 10mm UNLESS OTHERWISE STATED.

CLIENT: | DISTRIBUTOR :

Drawn	P.Z.	Date 6/05/2020
Check		Date
Verified		Date
Approved		Date
Request No.		

spelstormwater joy in water
spel.com.au

PROJECT : SPEL 5.2kL ROUND TANK & FILTER FITOUT

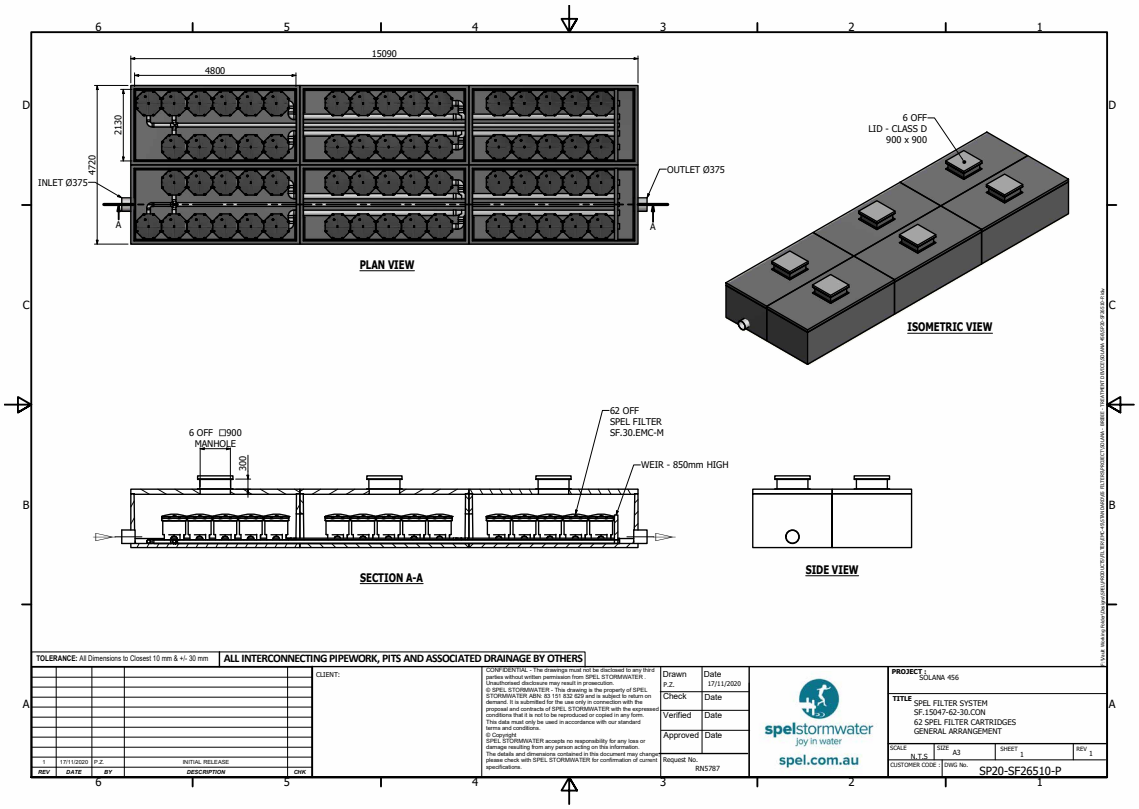
TITLE: SPEL PRECAST TANK
5.2 kL CLASS D
SF.226D/03-30.CON
3 SPEL FILTER CARTRIDGES

SCALE: N.T.S | SIZE: A3 | SHEET: 1 | REV: 1
CUSTOMER CODE : | DWG No. SP20-SF15010-P

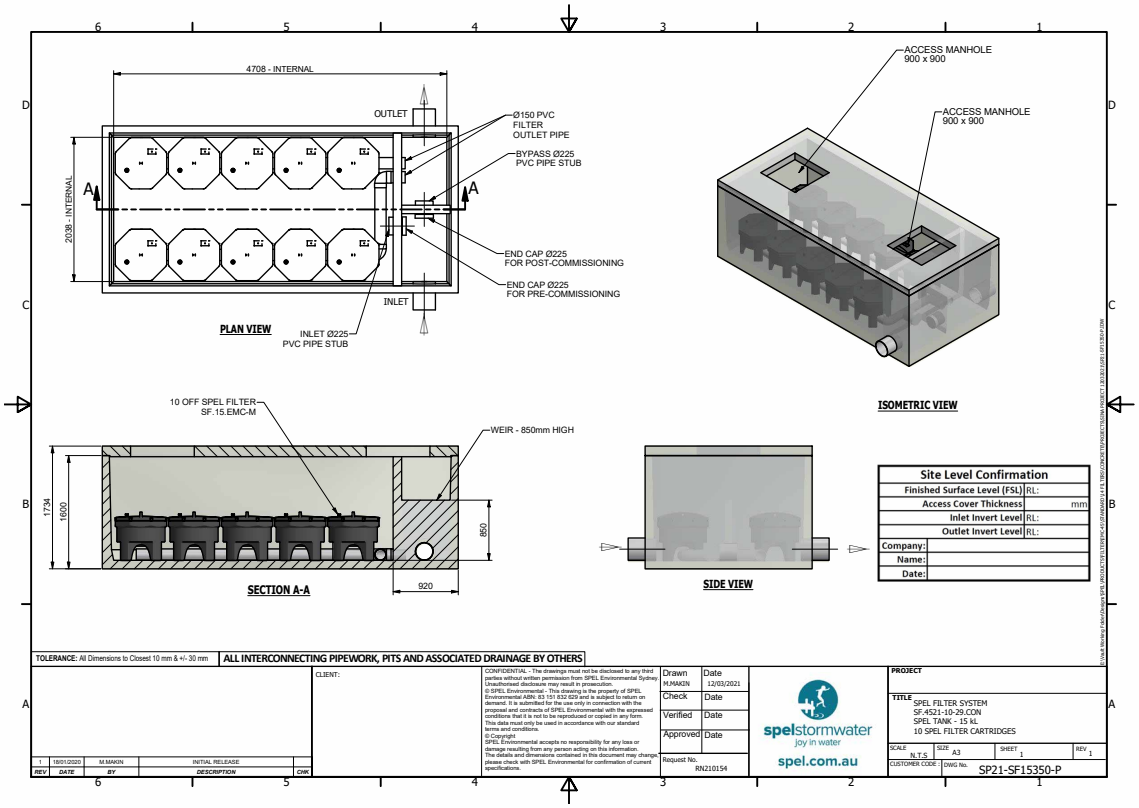
SPEL Filter

Cartridge Filter For Tertiary Stormwater Treatment

Modular Filtration Tank Installation



Internal Bypass Arrangement Tank



spelstormwater joy in water

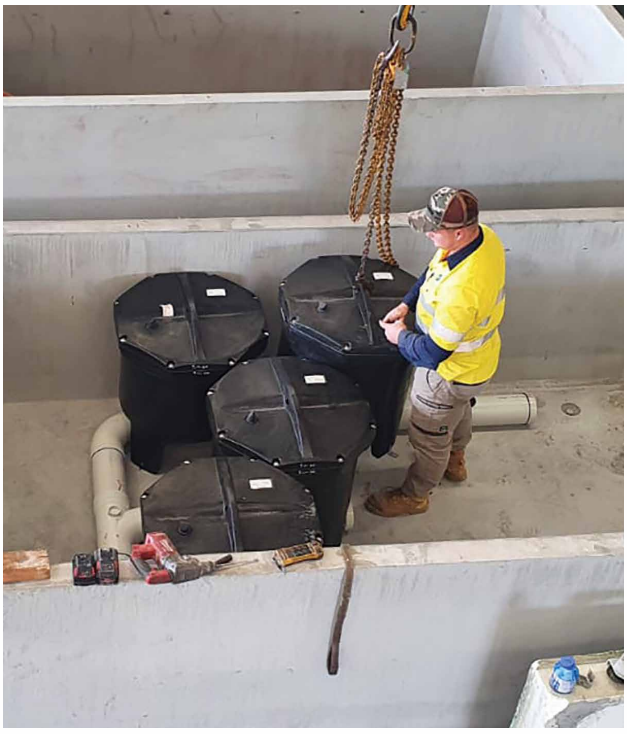
SPEL Filter

Cartridge Filter For Tertiary Stormwater Treatment

Project profiles

Bribie Island, QLD

Hope Island, QLD



SPEL Hydrosystem

Cartridge Filter For Tertiary Stormwater Treatment

SPEL Hydrosystem is a specialist stormwater filter, designed for installation within load bearing shafts and chambers of concrete or plastic construction. The pre-fitted plastic housing is safe and easy to fit on site.

The SPEL Hydrosystem uses an up-flow process. This means there is a minimal head drop between the inlet and the outlet. The stormwater is treated within the unit by the following processes: sedimentation, filtration, adsorption and precipitation. It is suitable for Heavy Metal, TSS and Nutrient reduction.

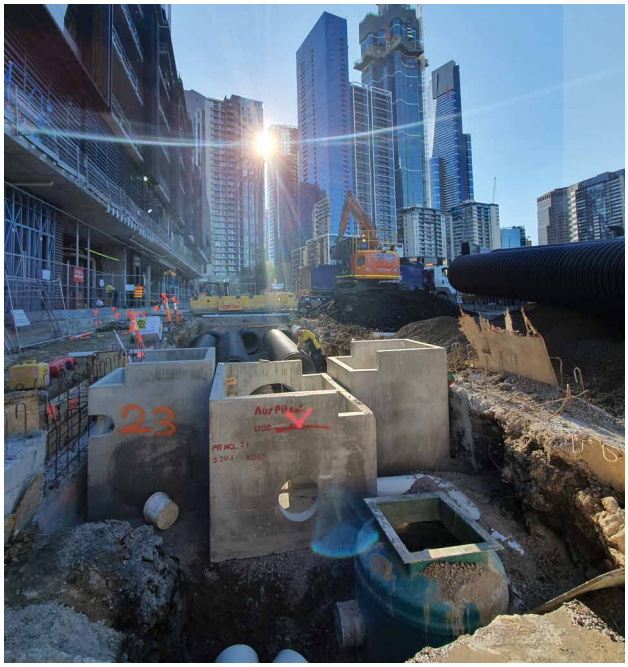
Tested Treatment Efficiencies*

Pollutant	Efficiency
Gross Pollutants (GP)	100%
Total Suspended Solids (TSS)	85%
Total Phosphorus (TP)	66%
Total Nitrogen (TN)	43%
Petroleum Hydrocarbon	82%

*Contact Spel to confirm approved performance for the project LGA

APPLICATIONS

- Car Parks & Shopping Centres
- Council Depots
- Industrial Estates
- Heavy Vehicle Maintenance
- Transport Depots & Loading Bays
- Tunnels
- Highways & Transport Corridors
- Recycling Yards
- Airport Aprons & Tarmacs



SPEL Hydrosystem

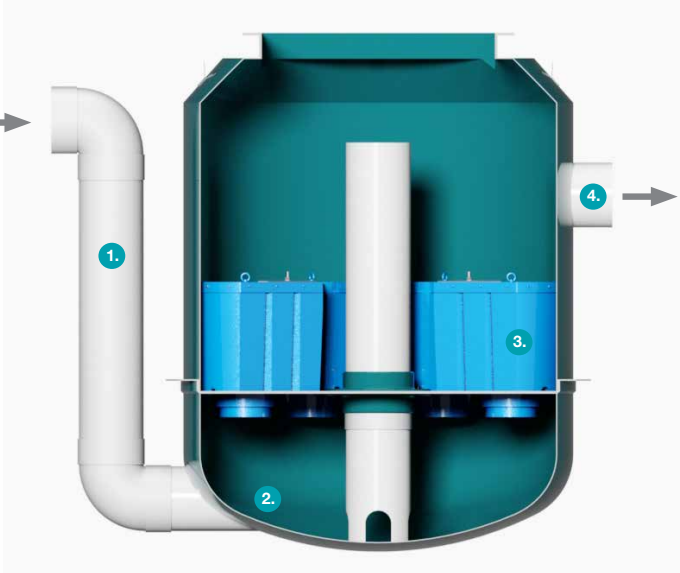
Cartridge Filter For Tertiary Stormwater Treatment

Specifications & Dimensions

Model	NO. CARTRIDGE	TFR	ID (m)	Height (m)	Inlet/ Outlet (mm)
400 SERIES					
SHS.400/1	1	2.5 LPS	1.13	1.5	100
SHS.400/2	2	5 LPS			
SHS.400/3	3	7.5 LPS			
1000 SERIES					
SHS.1000/4	4	12 LPS	1.20	2.60	225
1500 SERIES					
SHS.1500/4	4	16 LPS	1.50	2.00	225
SHS.1500/5	5	20 LPS			
SHS.1500/6	6	24 LPS			
1850 SERIES					
SHS.1850/7	7	28 LPS	1.85	2.00	225
2200 SERIES					
SHS.2200/7	7	28 LPS	2.20	2.50	225
SHS.2200/8	8	32 LPS			
SHS.2200/9	9	36 LPS			
2500 SERIES					
SHS.2500/10	10	40 LPS	2.50	2.70	300
SHS.2500/11	11	44 LPS			
SHS.2500/12	12	48 LPS			
SHS.2500/13	13	52 LPS			
SHS.2500/14	14	56 LPS			
SHS.2500/15	15	60 LPS			
SHS.2500/16	16	64 LPS			

Model	NO. CARTRIDGE	TFR	ID (m)	Height (m)	Inlet/ Outlet (mm)
3000 SERIES					
SHS.3000/17	17	68 LPS	3.00	2.85	300
SHS.3000/18	18	76 LPS			
SHS.3000/19	19	76 LPS			
SHS.3000/20	20	80 LPS			
SHS.3000/21	20	84 LPS			
3500 SERIES					
SHS.3500/22	22	88 LPS	3.50	2.95	375
SHS.3500/23	23	92 LPS			
SHS.3500/24	24	96 LPS			
SHS.3500/25	25	100 LPS			
SHS.3500/26	26	104 LPS			
SHS.3500/27	27	108 LPS			
SHS.3500/28	28	112 LPS			
SHS.3500/29	29	116 LPS			
SHS.3500/30	30	120 LPS			
SHS.3500/31	31	124 LPS			
4000 SERIES					
SHS.4000/32	32	128 LPS	4.00	3.25	375
SHS.4000/33	33	132 LPS			
SHS.4000/34	34	136 LPS			
SHS.4000/35	35	140 LPS			
SHS.4000/36	36	144 LPS			
SHS.4000/37	37	148 LPS			
SHS.4000/38	38	152 LPS			
SHS.4000/39	39	156 LPS			

Operating System



1. The Stormwater from the catchment enters the hydrosystem via PVC inlet pipe.
2. Heavy sediment is retained within the sump area.
3. Filter elements are located in the tank. With these filter elements, the fines are filtered in an upflow process and most of the dissolved pollutants are precipitated and adsorptively bound. The filter can be backflushed from above and can easily to be replaced in the event of it becoming fully contaminated.
4. The clean water is situated above the filter elements; flows out the outlet.

SPEL Hydrosystem

Cartridge Filter For Tertiary Stormwater Treatment

Project profiles

Sienna Estate Plumpton, VIC

Hydrosystem Samples

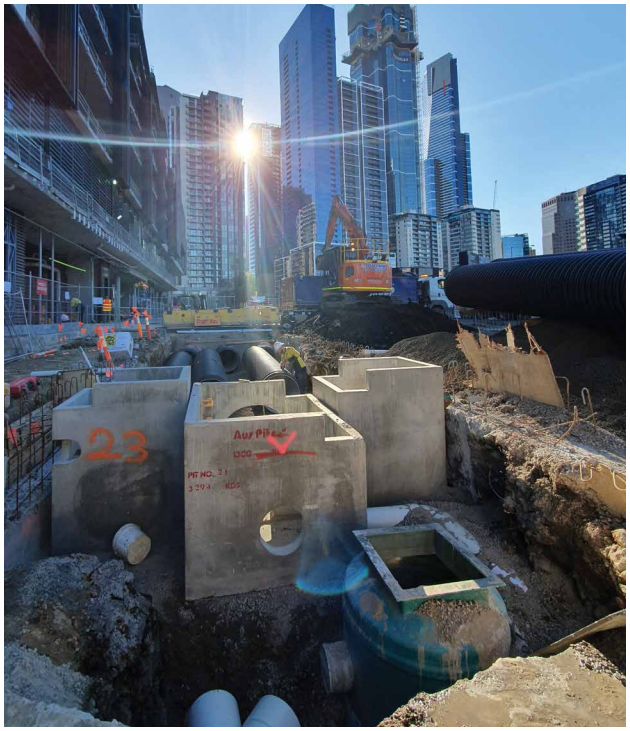
Marshall's Road, Altona North, VIC

SPEL Hydrosystem

Cartridge Filter For Tertiary Stormwater Treatment

Project profiles

Melbourne Square Apartment Towers, VIC

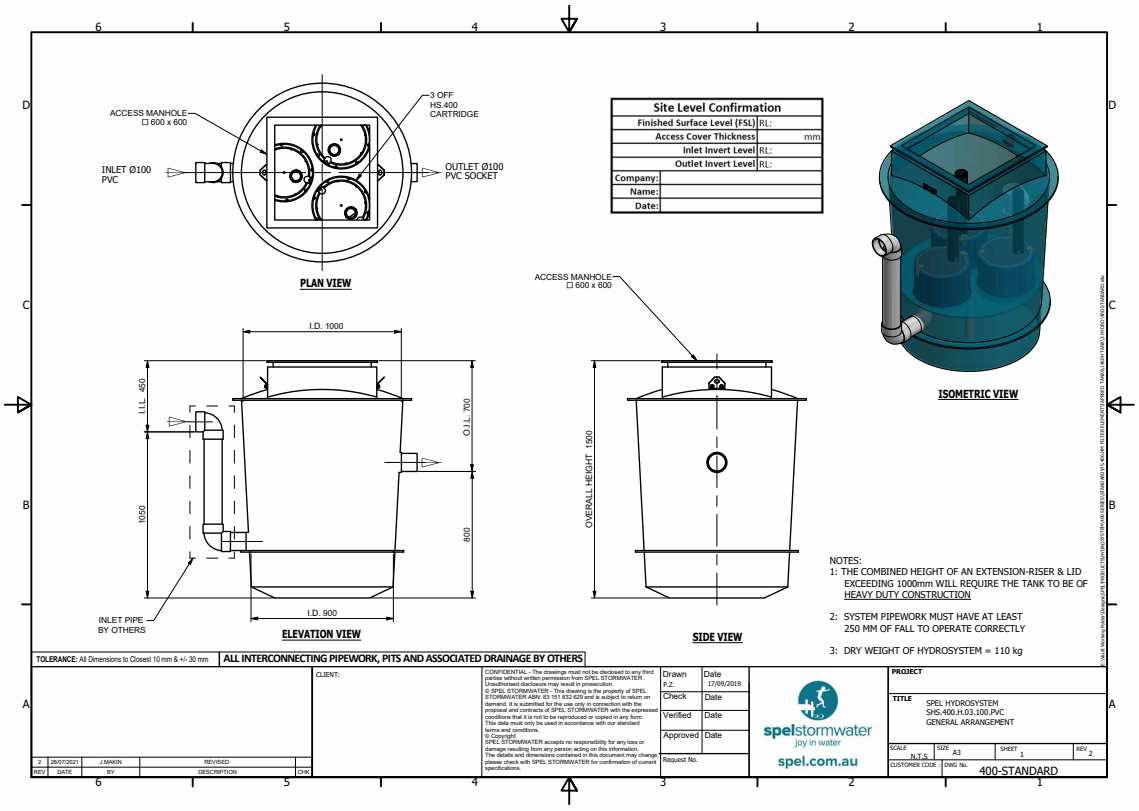


Wetherill Park, NSW

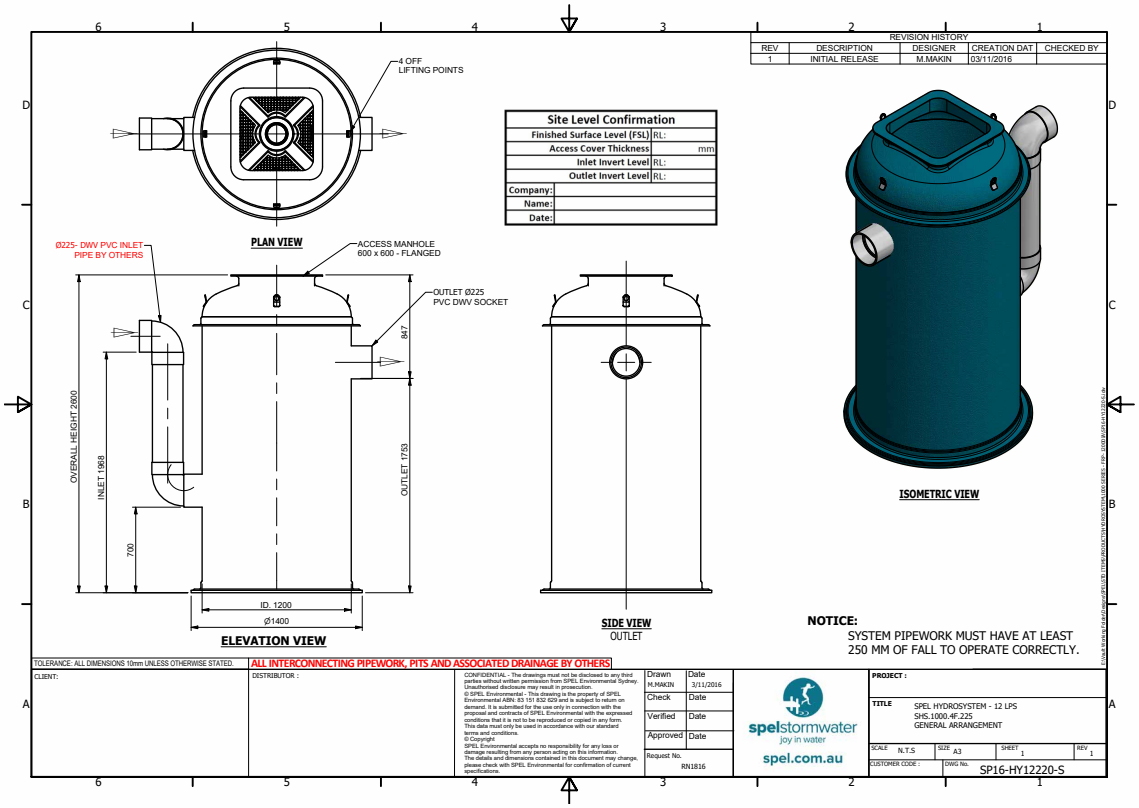
SPEL Hydrosystem

Cartridge Filter For Tertiary Stormwater Treatment

Model 400



Model 1000

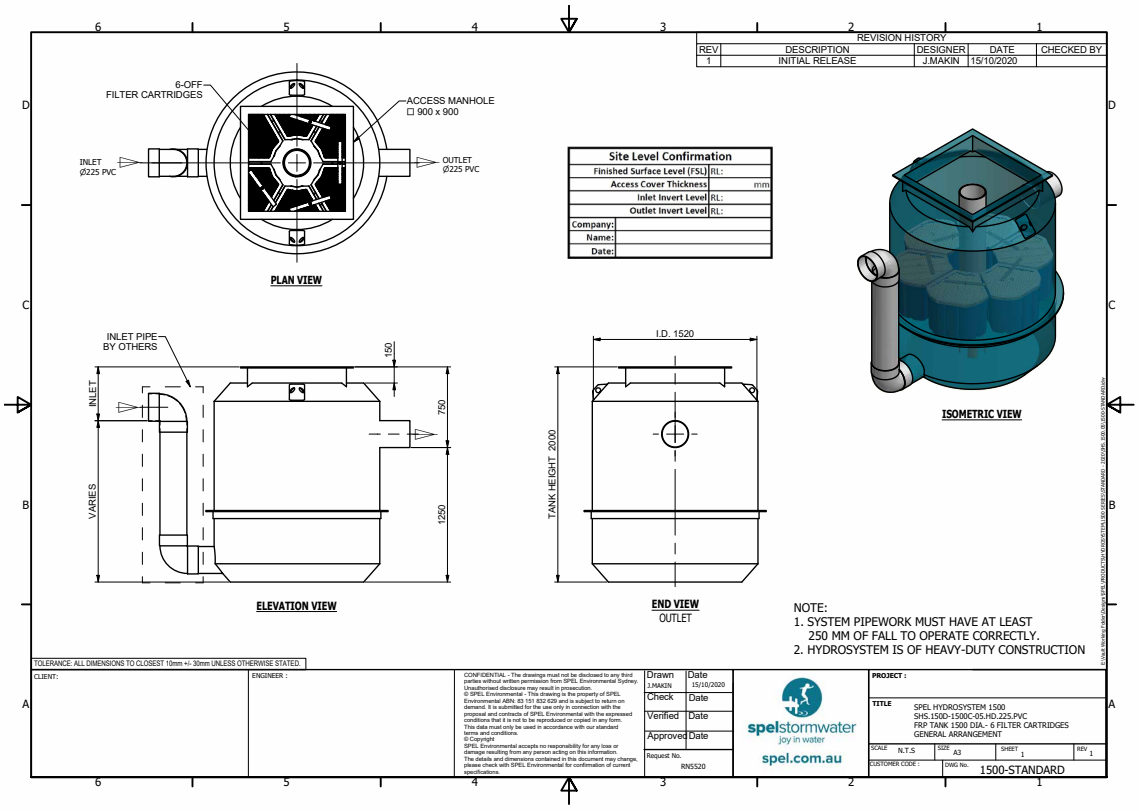


spelstormwater joy in water

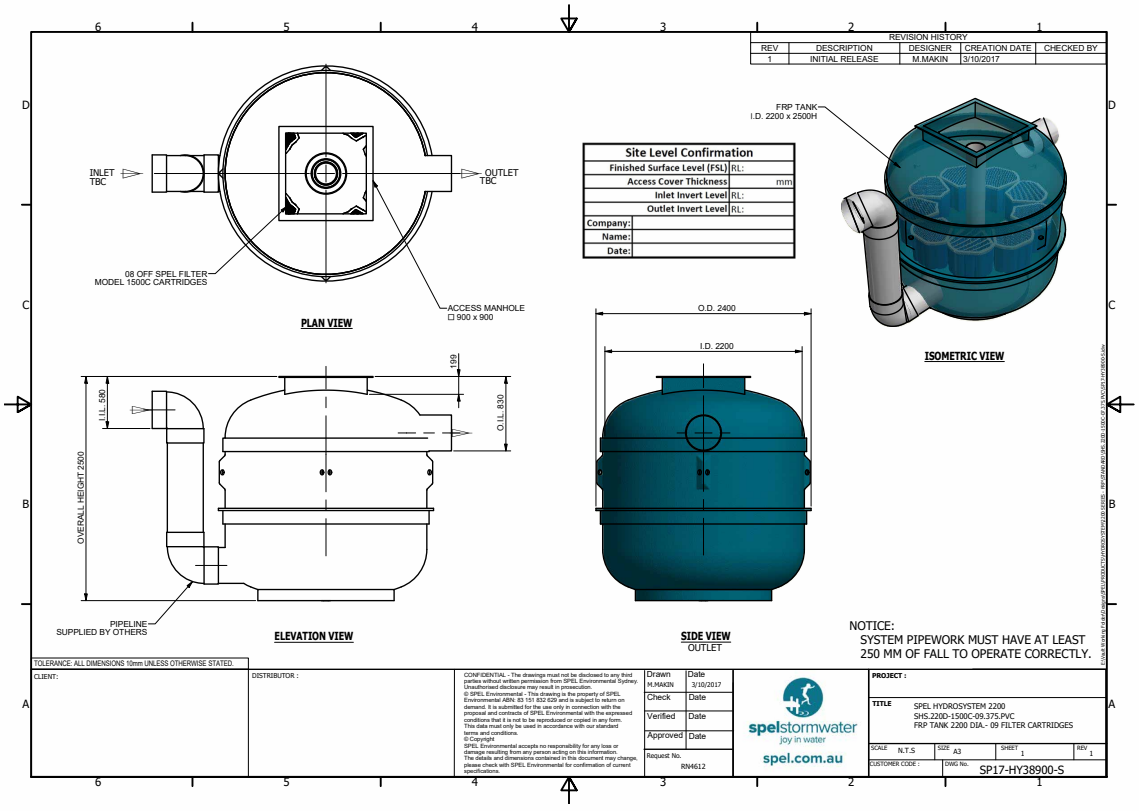
SPEL Hydrosystem

Cartridge Filter For Tertiary Stormwater Treatment

Model 1500



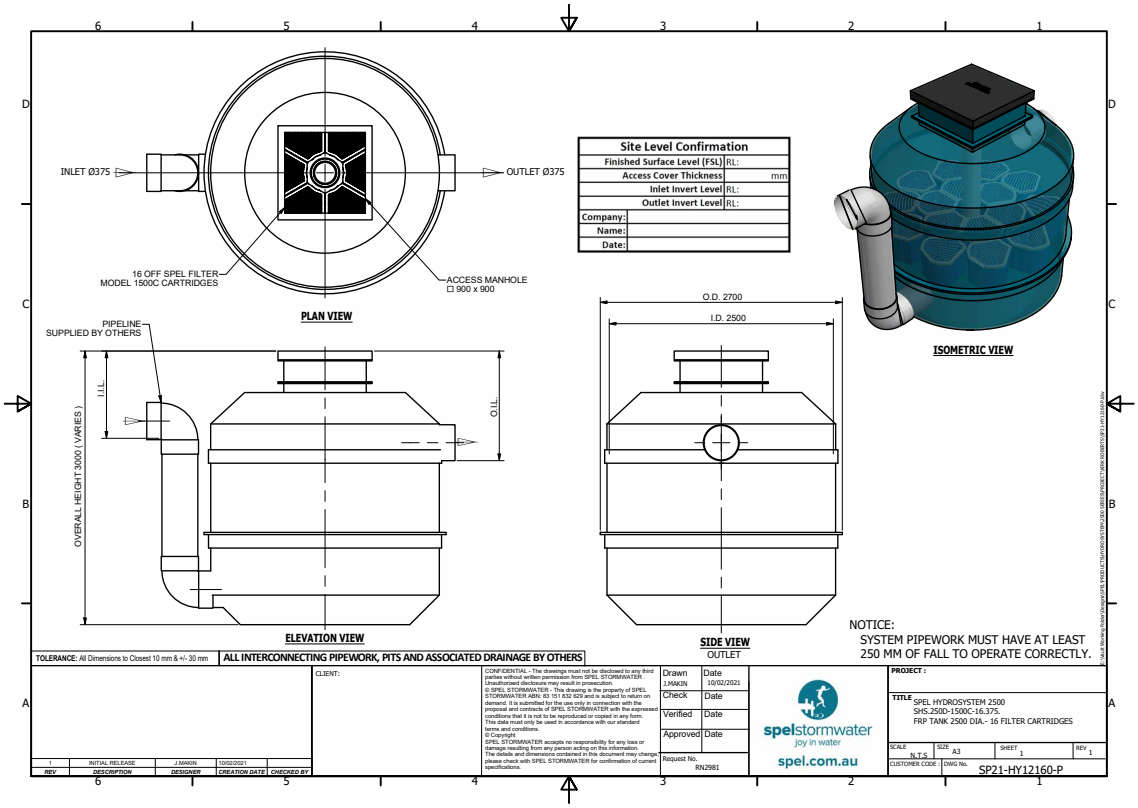
Model 2200



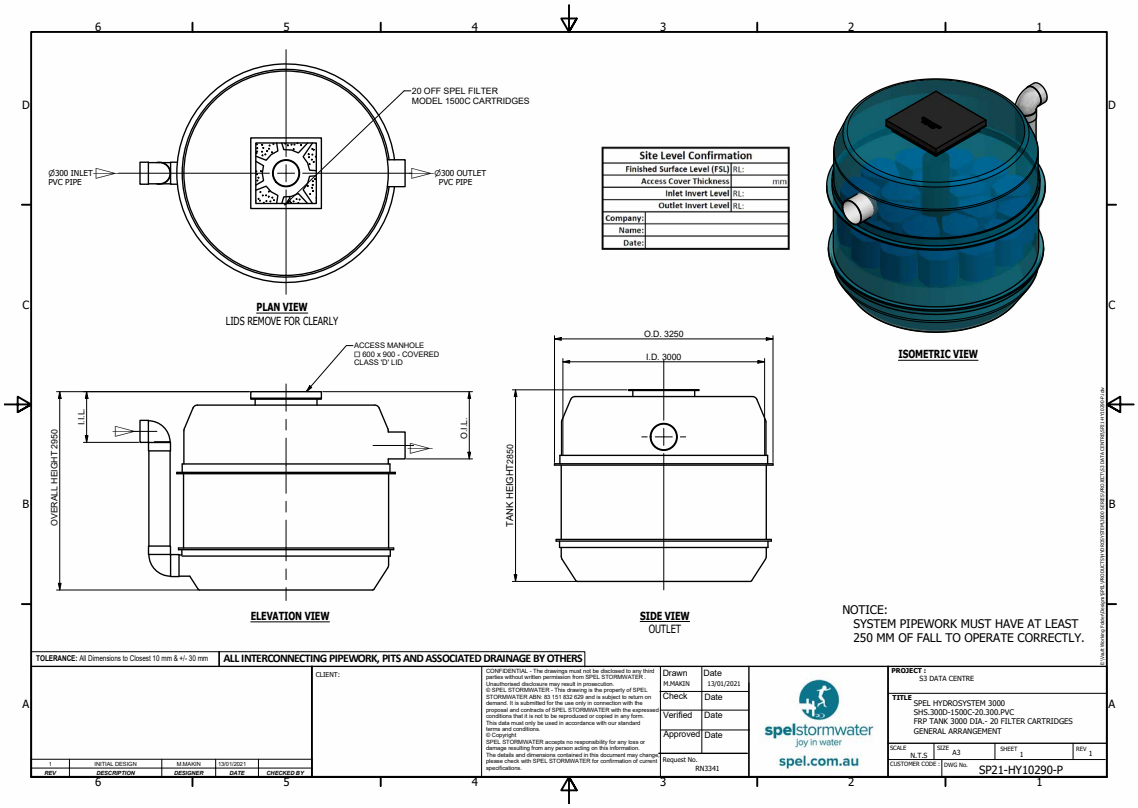
SPEL Hydrosystem

Cartridge Filter For Tertiary Stormwater Treatment

Model 2500



Model 3000

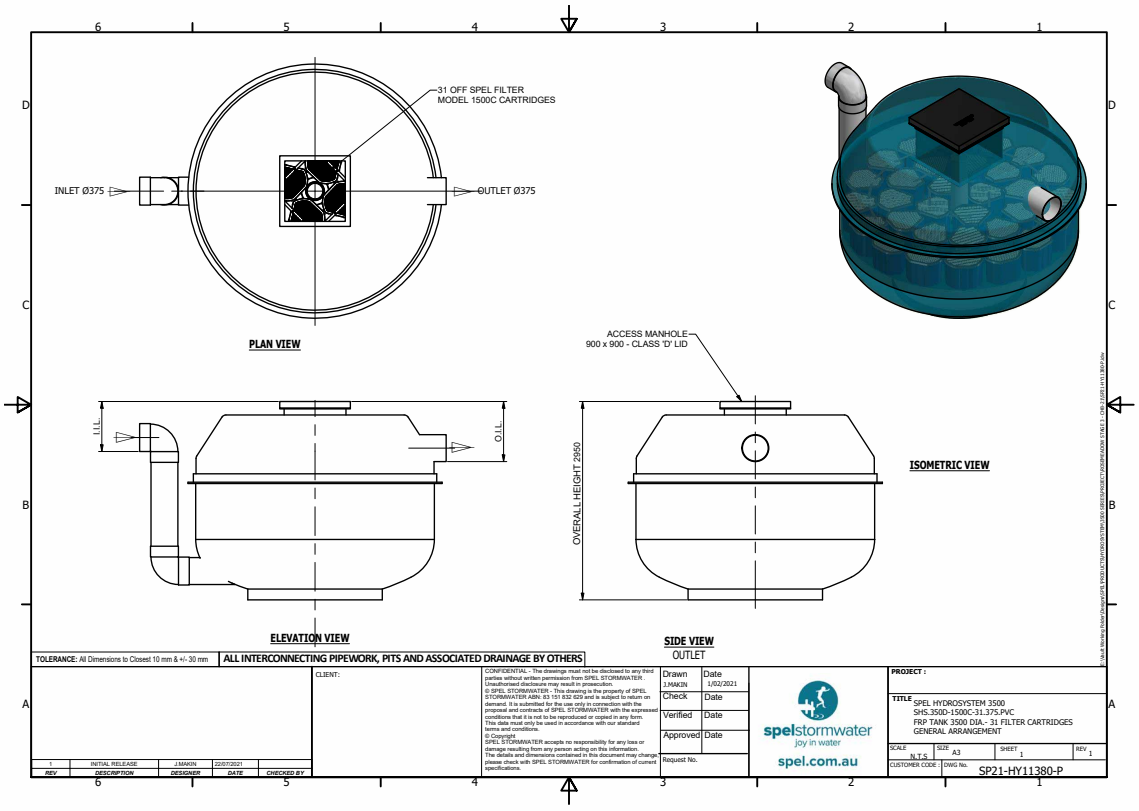


spelstormwater joy in water

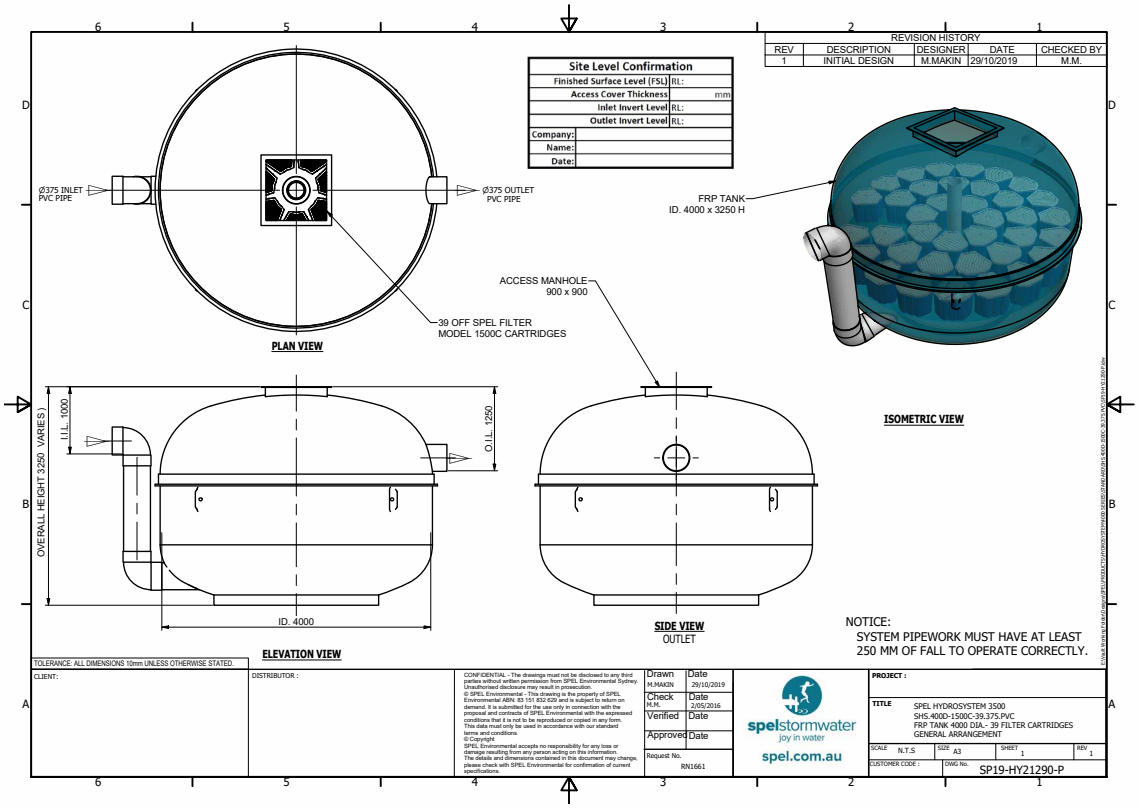
SPEL Hydrosystem

Cartridge Filter For Tertiary Stormwater Treatment

Model 3500



Model 4000



SPEL Hydrochannel

Stormwater treatment - A new path for stormwater

The Hydrochannel is an insert that can be placed inside a channel grated drain of 300mm wide, and at least 450mm deep. It is designed for areas that would benefit from at source stormwater treatment, which would otherwise be bypassed.

This allows stormwater from high traffic areas (car parks and roads), industrial areas and metal roofs to be cleaned at site level, and then discharged safely to ground or surface water bodies locally.

The SPEL HydroChannel's modular design means that the stormwater is treated in two steps:

1. Solids and particulates are settled in the first step
2. Dissolved contaminants are then absorbed in the filter matrix

Water weirs over from the sedimentation chamber and passes down to the filter bag with the filter matrix inside it. Both organic and inorganic contaminants are removed by Adsorption and precipitation. The filtered water then flows within the Channel to the collection point where it can either be re-used or discharged to infiltration.

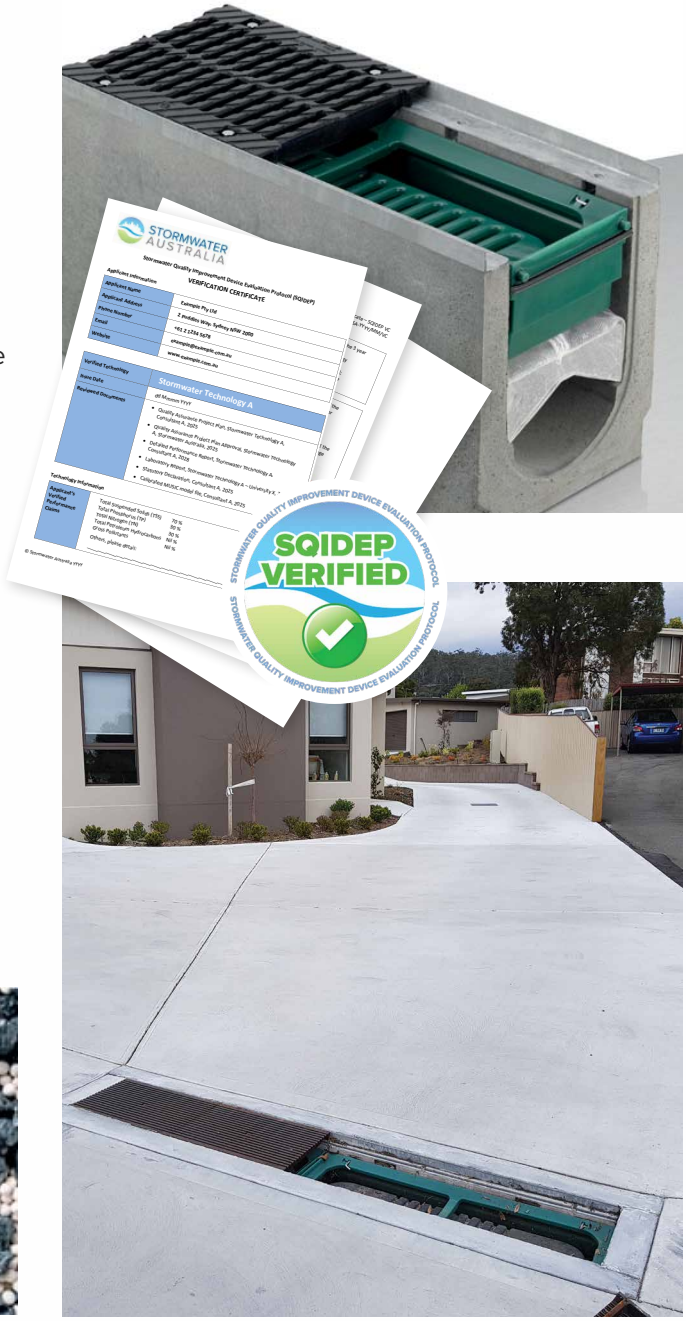
The initial sedimentation step ensures the long working life of the filter bag, and the granular filter material within it.

The filter is designed to promote an even and homogenous flow distribution within it. Separation of the material is near impossible, by proven and certified design. The pad will need be replaced at about 5 - 1 0 years, depending on site conditions.

Tested Treatment Efficiencies*

Pollutant	Efficiency
Gross Pollutants (GP)	100%
Total Suspended Solids (TSS)	88%
Total Phosphorus (TP)	69%
Total Nitrogen (TN)	67%
Petroleum Hydrocarbon	0%

*Contact Spel to confirm approved performance for the project LGA



Technical data

Module Length: 1000mm

Module Width: 300mm

Minimum Depth; 450mm

SPEL Hydrochannel

Stormwater treatment - A new path for stormwater

Modular design for ecological line drainage

The innovative modular design is based on a standard 300mm channel & trench grate width.

There is no need to make site specific or bespoke design amendments to the channel drainage runs.

The modular interior of the HydroChannel:

The Sedimentation Chamber removes coarse constituents, such as gravel, leaves and other solids. The rubber seal to the outside ensures no waters can by-pass this chamber within the channel.

The modular interior of the SPEL HydroChannel:

- The baffle is placed on the foundation the granular filter bag's where the dissolved pollutants are removed
- The sedimentation box is fixed with four locking pins so no water can pass by the box

SPEL Hydrochannel

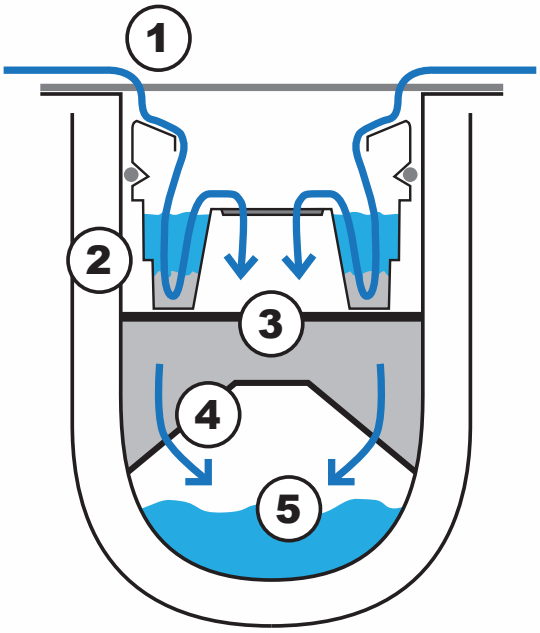
Stormwater treatment - A new path for stormwater

Section of the SPEL HydroChannel:

1) Water comes from the surface to the SPEL HydroChannel
2) The sedimentation chamber removes coarse solids, such as gravels, chippings, leaves and other solids. The rubber seal ensures a water tight seal is maintained.

3-4) The pre-treated water pass through the granular filter bag, and the organic and inorganic pollutants are removed.

5) The filtered water flows over the baffle into the free flow area of the channel. It can then be re-used, or discharged to surface or ground water via infiltration.

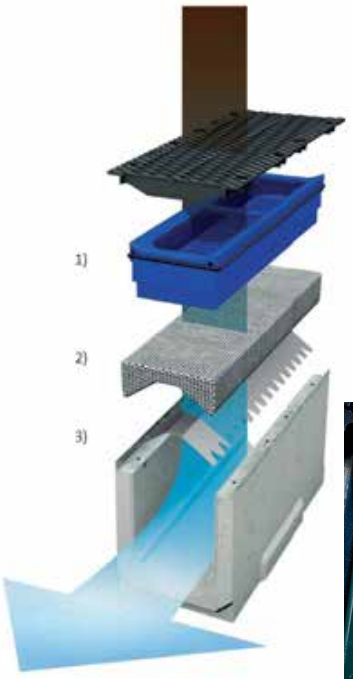


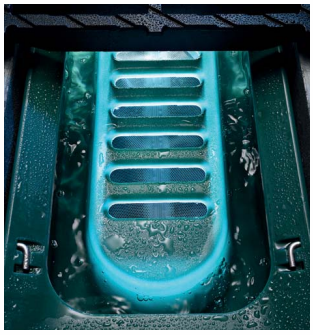
Modular Design

Based on the innovative filtration solution is the concrete nominal width of 300mm. Planners are not required to make any alternations in the drainage plan if they want to treat the water with the HydroChannel.

The modular interior of the HydroChannel:

1) The sedimentation box is primary treatment capturing solids such as stones, leaves, and suspended particles on. The rubber lip ensures sealing around the edges – for the reliable differentiation for subsequent filtration.
2) The pretreated rainwater passes through the granular-filter-pad and the organic and inorganic pollutants will be filtered from the water.
3) The filtered water flows over the baffle into the free flow area of the channel and is discharged per normal site requirements.



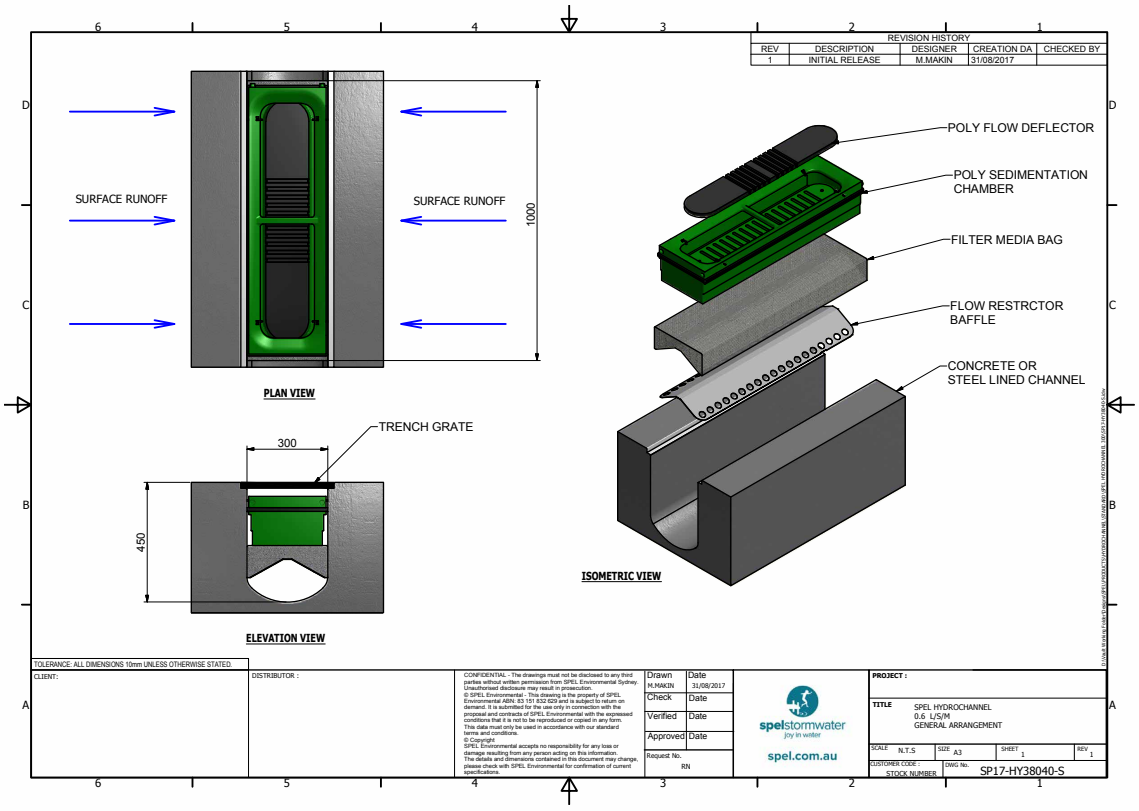


spelstormwater joy in water

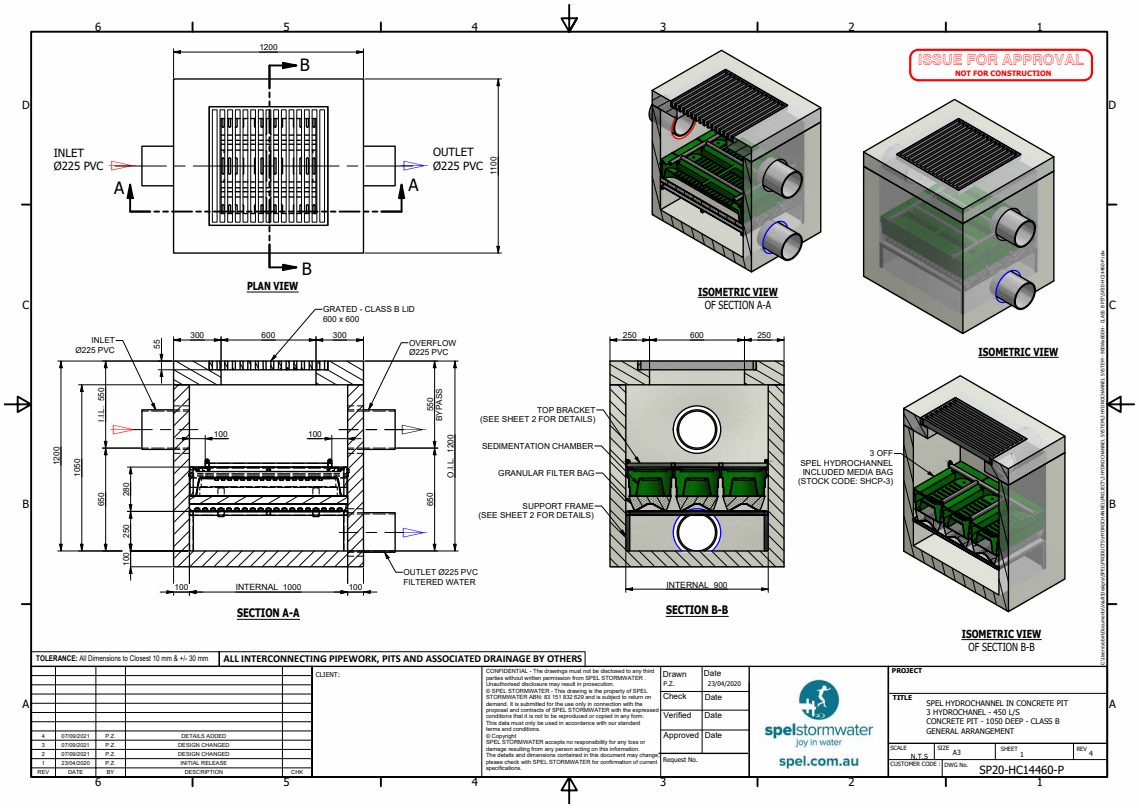
SPEL Hydrochannel

Stormwater treatment - A new path for stormwater

Hydrochannel



Hydrochannel IN A PIT



SPEL Floating Wetlands

Floating Treatment Wetlands

Lake Tuggeranong, ACT

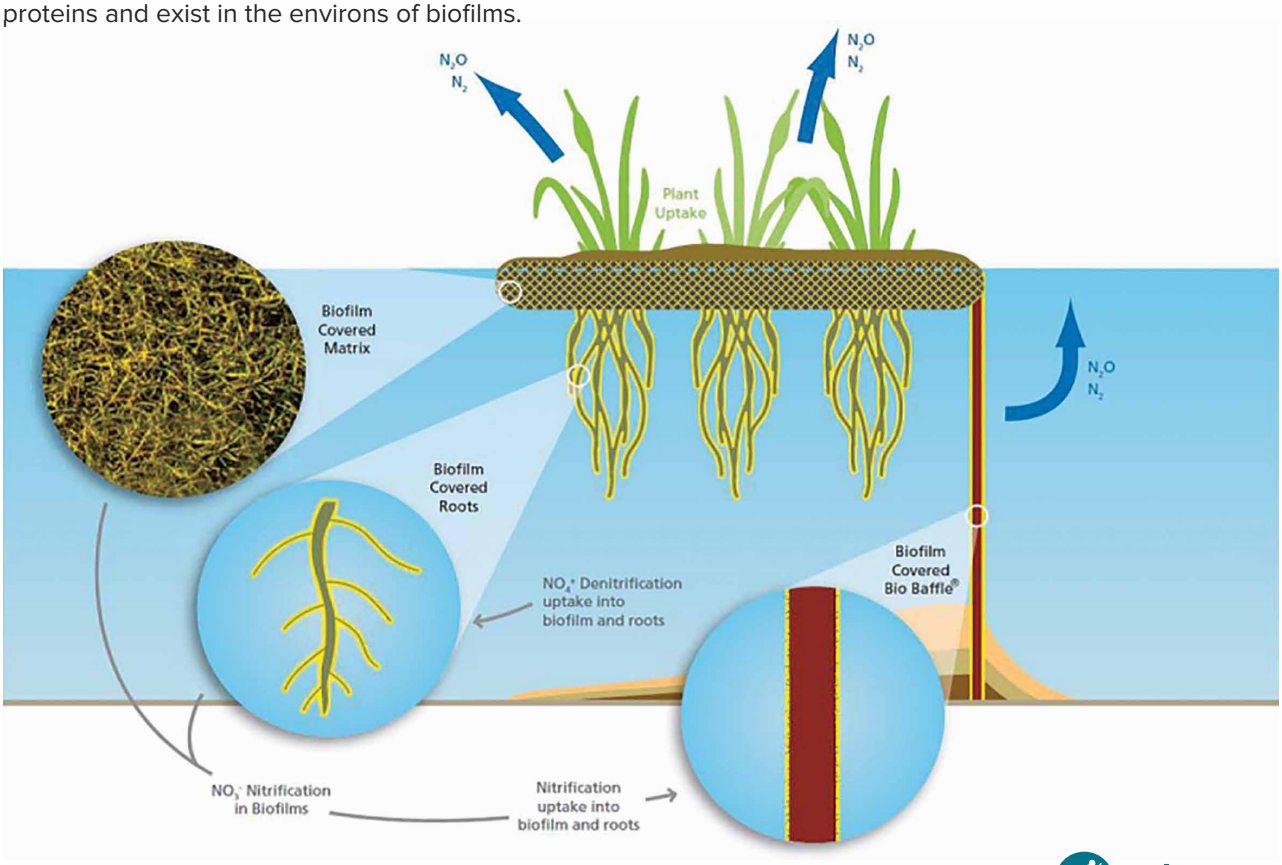
How it works?

The floating wetlands, which can be used in any water environment requiring treatment, provide a lush and fertile base for plants and vegetation to grow. As the roots spread down through the fibrous structure of the wetlands, an extraordinarily vast activated surface area is created for microbes and bacteria to take on their role of bio-remediation - the use of micro-organisms to remove pollutants.

The microbes and bacteria, are UV sensitive and adhere to the roots and microscopic root hairs of the plants, and within the fibrous structure of the wetlands themselves, secreting sticky extracellular proteins and exist in the environs of biofilms.

It is within these biofilms which microbes and bacteria trap and digest organic matter and nutrients in stormwater, including total suspended solids, biochemical oxygen demand, nitrogen and phosphorus.

What makes SPEL Stormwater's floating treatment wetlands a unique scientific innovation, that has created a revolution within the water treatment industry, is the massive activated surface area they provide for microbes and bacteria to survive.



spelstormwater joy in water

SPEL Floating Wetlands

Floating Treatment Wetlands

Overview

In wastewater applications, floating wetlands have proven efficient and low-cost enhancements to municipal wastewater treatment plants — either retrofitted to existing facilities or encompassed into the design of new constructions. Truly environmentally sound and sustainable, the SPEL Waterclean floating wetlands have a dramatic effect on:

- Anaerobic digestion
- Odour mitigation
- Nitrification processes
- De-nitrification and polishing
- Bio-chemical oxygen demand
- Removal of TSS
- Reduction in faecal coliforms
- Reduction in phosphorus

SPEL Floating Wetlands treating sewage ponds

APPLICATIONS

Stormwater Treatment
Beautification and Landscaping
Lake and Pond Restoration
Lagoon Augmentation
Fine Colloidal and Particulate Heavy Metal Removal
Algal Bloom Prevention

Erskine Park, NSW, 2021

Lake Tikitapu shoreline erosion mitigation from ski boats

In stormwater applications, the installation of floating wetlands into inlet zones or detention lagoons greatly enhances the stormwater cleaning process by removing:

- Total suspended solids
- Nutrients
- Gross pollutants
- Heavy metals
- Fine colloidal and particulates

Independently tested and validated, these systems provide high-rate performance in both average flow and storm events.

Riverstone Rise residential development, Gladstone, QLD

Erskine Park, NSW - 2021

SPEL Floating Wetlands

Floating Treatment Wetlands

Benefits

SPEL Stormwater's Floating Treatment Wetlands are floating modules that support the establishment of wetland vegetation, and thereby allows the creation of a floating wetland environment on top of a permanent waterbody. It mimics a wetland's ability to absorb nutrient loads with only around a 1/3 of the land space required by a natural or constructed wetland. Furthermore, by having a wetland float over a water body means that land space does not have to be taken up to construct a man made wetland. And finally, the Floating Treatment Wetland becomes a virtually self sustaining system with minimal maintenance required.

Minimal environmental impact

- Using a waste product to bio-remediate waste, our floating treatment wetlands have strong environmental credentials including:
- Satisfying stringent water quality consent requirements
- Eliminating the need for chemical dosing
- Eliminating the need for further high-impact 'concrete and steel' construction
- No energy used in the operation process; low energy in the manufacture process
- Zero-land use requirement
- Manufacture from recycled PET
- Using plants from eco-sourced seeds to harmonise with the natural vegetation

Lake Tikitapu shoreline erosion mitigation from ski boats

Flexible

Floating treatment wetlands are completely flexible and can:

- Fit any existing space or water body shape
- Operate effectively in all climate and environmental conditions
- Operate in fluctuating water levels
- Maximise retention times for treatment optimisation
- Concentrate on removal of particular pollutants through design adjustments

What this flexibility will mean for you is that, whatever your water treatment issue, the wetlands can be adapted to provide a benefit-loaded solution.

Beautification

Although the floating treatment wetlands are primarily a water treatment tool, they have the added bonus of being visually appealing as a floating wetland.

As a water-based feature in community facilities, they can enhance the natural environment and provide a habitat for land-based and marine wildlife. They also can be used as a landscaping feature on private residential projects.

Rotorua Lakes floating wetland installed 2014

Planting

The plant species suitable for floating wetlands are selected according to the reserve buoyancy required for the application. Generally, terrestrial species such as wetland sedges, rushes and grasses are the best option as they develop superior root structures within the water to provide for an increased surface area. However, many other planting types are also used. Recommended planting density is three to five plants per square metre.

8 weeks young Park Lakes II project Sunshine Coast, QLD during a storm event

SPEL Floating Wetlands

Floating Treatment Wetlands

Effective

The process is simple, completely natural - and highly effective. You have the assurance of an installation that has been developed to exploit the unsurpassed water cleaning properties of naturally-occurring microbes.

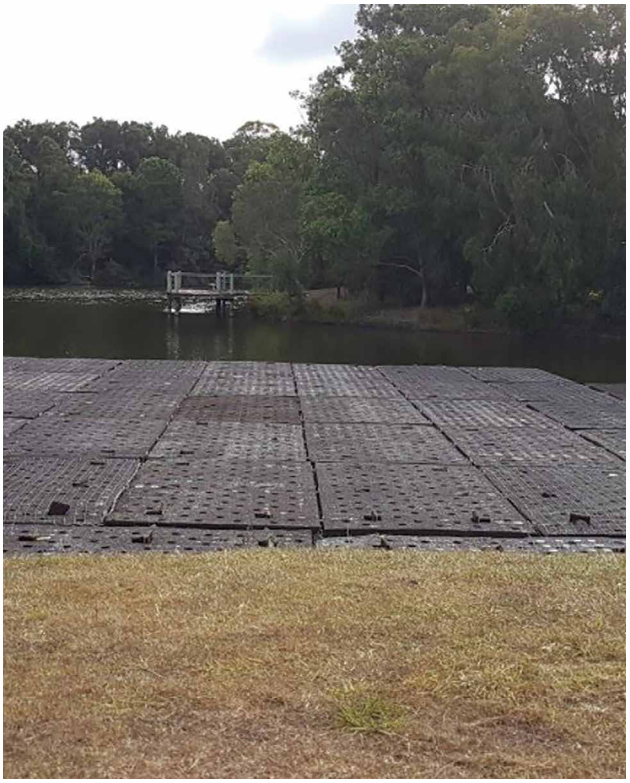
Zero land use

In situations where water treatment demands have outgrown existing assets, the wetlands can be retrofitted as a low-cost, zero land use alternative to building additional ponds or constructed wetlands.

This eliminates the need for costly land purchase and contributes to the minimal environmental impact of the wetlands – saving you money and time-consuming confrontations over land use.

For example, local authority saved $500,000.00 when we retro-fitted floating treatment wetlands on an existing pond instead of purchasing land and constructing an alternative constructed wetland system.

In areas where irrigation schemes are used to dispose of treated water, the efficiency of our wetlands in reducing the nutrients in treated water means less land is required for the disposal fields. Again, money is saved and environmental needs met.



Modular biological system

The Floating treatment wetlands is a modular system therefore can be installed in stages. This proves beneficial where monetary budget constraints restrict the ability to install full systems in one financial year.

Each floating module measures approximately 4m x 2.3m each, and are joined together with nylon bolts, to create virtually any size of area.

Staging also proves beneficial where discharge consents may change in the future while a smaller system meets current demands. A simple additional modular upgrade can be retrofitted at a later stage to future proof the wastewater plant.

Anchoring and tethering

The floating treatment wetlands can be secured into position by anchoring or tethering, depending on local climate and water conditions.

The technique we use is to secure to the embankment above the maximum water level.

The floating treatment covers are partially submerged which provides a “suction” effect to occur that creates a powerful anchoring mechanism, imparting the greater part of the forces needed for anchoring these systems in place.

Cost savings

Floating treatment wetlands require low capital investment with minimal operating and maintenance costs, and, there are no operational energy costs. (1) NH4N requires an input of O2 to nitrify. This is often via mechanical aeration

SPEL Floating Wetlands

Floating Treatment Wetlands - Stormwater

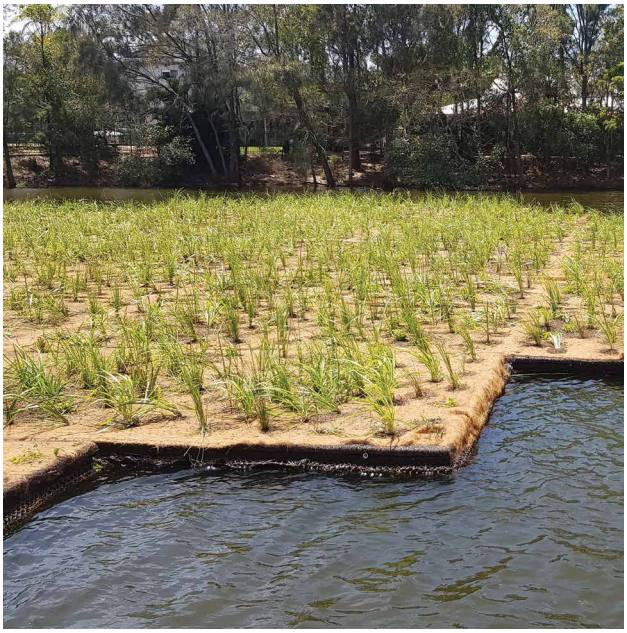
Stormwater

SPEL Stormwater's floating treatment media - complete pond cover

The floating wetlands, which can be used in any water environment requiring treatment, provide a lush and fertile base for plants and vegetation to grow. As the roots spread down through the fibrous structure of the media, an extraordinarily vast activated surface area is created for microbes and bacteria to take on their role of bio-remediation - the use of micro-organisms to remove pollutants.

The microbes and bacteria, which do not swim, and are UV sensitive, adhere to the roots and microscopic root hairs of the plants, and within the fibrous structure of the media themselves, secreting sticky extracellular proteins and exist in the environs of biofilms. It is within these biofilms which microbes and bacteria trap and digest odours and nutrients in wastewater.

What makes SPEL Stormwater's floating treatment media a unique scientific innovation, with the potential to create a revolution within the water treatment industry, is the massive activated surface area they provide for microbes and bacteria to survive.



Construction

SPEL Stormwater floating treatment wetlands are made from 100 per cent recycled polyethylene terephthalate, commonly known as PET and used in plastic drink bottles. The recycled plastic is made into a non-woven, non-toxic durable matrix of fibres.

Dense and porous, it is extremely inert and has been coated in a UV resistant resin to US Environmental Protection Agency irradiation accelerated degradation standards.

Sheets of fibre matrix are bonded together with foam which provides the buoyancy needed for each specific application. Plants are inserted into the material and grow down into the water hydroponically.

Cleaning water of pollutants is an on-going challenge for communities across the globe as the demand for environmental improvements grows in line with the need to find cost-effective and sustainable methods to remove ever-increasing amounts of contaminants from diverse bodies of water.

SPEL Stormwater's revolutionary low cost, highly flexible system of floating treatment media is meeting this need. This innovative system has strong scientific credentials based on the outcomes of independent trials, is an environmentally-sound process, and meets business requirements for sustainable solutions.

SPEL Floating Wetlands

Floating Treatment Wetlands - Stormwater

Developed alongside leading international scientists, Waterclean Technologies™ floating treatment media represent a highly technical development that uses, and improves on, a naturally occurring phenomenon.

In short, SPEL Stormwater's, modular biological technology, being active suspended media provide a colossal environment of active surface area for pollutant-digesting microbes and bacteria to bioremediate water laden with nutrients, heavy metals or suspended solids. They represent an industry breakthrough with scores of benefits that include:

- Cost savings
- Proven effective performance
- Self-cleaning
- Minimal environmental impact
- Flexibility
- Zero land use
- Fluctuating water levels

Pelican Waters, Caloundra, QLD - Installed 2017
Photo taken 1 July 2020

SPEL Bio

Bioretention Filter Media

SPELBio media is a highly advanced stormwater filtration system and growing media.

SPELBio Bioretention Filter Media helps plants establish quickly.

It can be used in standard catch basin structures, rain gardens, bioretention cells and pre-fabricated structures such as SPELVault concrete tanks.

- Removal of excess nutrients i.e. NPK
- Growing media supports plant establishment
- Low nitrogren and phosphorus content

Features

- Organic matter source includes mature compost made in general accordance with MRTS Form G Standard
- Optimal Total Dissolved Salts (EC) for establishing plants and supporting growth
- Made in general accordance with CRC for Water Sensitive Cities Appendix C: Guidelines for filter media in stormwater biofiltration systems (Version 4.01) - July 2015

APPLICATIONS

Commercial
Industrial
Residential

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SPEL Bio

Bioretention Filter Media

CHEMICAL PROPERTIES	TEST METHOD	INDICATIVE SPEL RANGE	FAWB RECOMMENDATIONS
Organic Matter (%)	**Calculation - Total Carbon x 1.7	2.0 – 2.6	<5
pH in H2O (1:5) (pH unit)	AS4419 – 2003	7.46 - 7.59	5.5-7.5
Electrical Conductivity in H2O (1:5) (dS/m)	AS4419 – 2003	0.23 – 0.26	<1.2
Total Nitrogen (mg/kg)	Inhouse S4a (LECO Trumac Analyser)	430 - 815	<1000
Available Phosphate (mg/kg)	** Rayment & Lyons 2011 - 9B2 (Colwell)	72.2 – 85.3	<80
PARTICLE SIZE DISTRIBUTION (PSD)			
Gravel (> 5.0 mm) (%)		2.21	
Gravel (3.5-5.0 mm) (%)		4.17	
Fine Gravel (2.0-3.4 mm) (%)	ASTM		
F1632-03 (2010)	15.67	<3	
Very Coarse Sand (1.0-2.0 mm) (%)		27.43	0-10
Coarse Sand (0.5-1.0 mm) (%)		31.88	< 25
Medium Sand (0.25-0.5 mm) (%)		12.82	40-60
Fine Sand (0.15-0.25 mm) (%)		3.35	10-30
Very Fine Sand (0.05-0.15 mm) (%)		1.82	5-30
Clay & Silt (<0.05 mm) (%)		0.66	< 3
PHYSICAL CHARACTERISTICS			
Saturated Hydraulic Conductivity (Ksat) (mm/hr)	ASTM F1815-11	308 - 329	100-300
D Values			
D15		0.43	
D85		2.63	

SPEL Basin

Modular Bio-retention Basin

Available Configuration

The SPELBasin is an advanced stormwater treatment system that works with natural forces to provide superior pollutant removal. Delivered as a pre-fabricated, compact and self-contained treatment system, the SPELBasin utilizes HORIZONTAL FLOW bioretention technology and multistage pre-treatment. Easy to size, install and maintain, the SPELBasin is ideally suited for the urban environment – treating runoff from parking lots, roadways, residential and commercial developments and/or retrofit applications. Available in numerous sizes and various inlet configurations, including internal high flow bypass, the SPELBasin is clearly the most versatile and innovative stormwater treatment system.

Benefits

- Built-In Bypass Available with All Configurations
- All Configurations Utilise a Pre-Treatment Chamber Which Contains:
- Litter Capture, Sediment Chamber & Pre-Filter Cartridges

To combat this catastrophe, we turned to the expert in this field: Nature. By developing technology that imitates the processes found in nature, we've created the most advanced stormwater filtration system available. Years ahead of current EPA requirements, our clients understand that when they invest in our new technology, they are investing in the future. For all of us.

Tested Treatment Efficiencies*

Pollutant	Efficiency
Gross Pollutants (GP)	99%
Total Suspended Solids (TSS)	86%
Total Phosphorus (TP)	65%
Total Nitrogen (TN)	50%

*Contact Spel to confirm approved performance for the project LGA

APPLICATIONS

- Car Parks & Shopping Centers
- Council Depots
- Industrial Estates
- Heavy Vehicle Maintenance
- Transport Depots & Loading Bays
- Tunnels
- Highways & Transport Corridors
- Recycling Yards
- Airport Aprons & Tarmacs

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SPEL Basin

Modular Bio-retention Basin

Features

1 Pre-treatment chamber
Captures incoming runoff and contains the first three stages of treatment.

2 Grate type catch basin inlet
A standard grate type traffic rated catch basin opening directs stormwater into the system.

3 Catch basin insert filter
Provides the first stage of treatment by capturing trash & litter, gross solids, and sediment.

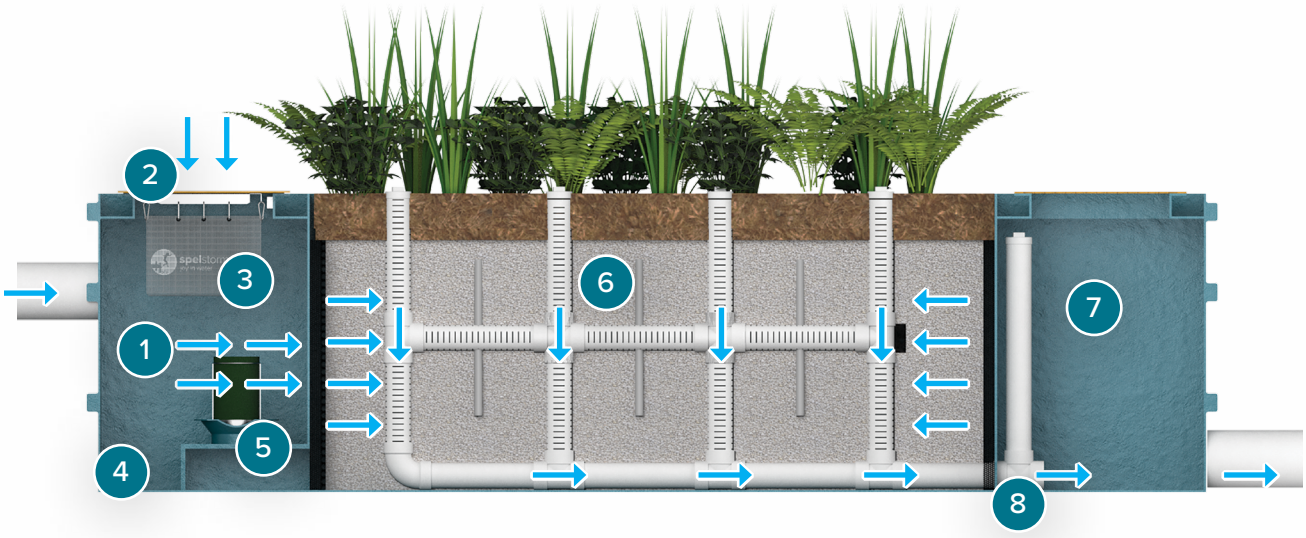
4 Settling chamber
Provides the second stage of treatment by separating out larger suspended solids.

5 Pre-filter cartridge
Provides the third stage of treatment by physically and chemically capturing fine TSS, metals, nutrients, and bacteria.

6 Wetland chamber
Provides the final stage of treatment through a combination of physical, chemical and biological processes.

7 Discharge chamber
Contains flow control, high flow bypass and optional drain down filter.

8 Multi-level flow control
Orifice plates and/or valves are used to control the flow through the treatment stages.



Volume Sizing

The SPEL Basin Modular Wetlands system can be designed to treat flows from detention systems or directly off hardstand surfaces. Contact SPEL for more information.

MUSIC Modelling

The SPELBasin Modular Bioretention System is modeled [typically in MUSIC] for each project based on the site specific requirements.

SPEL Basin

Modular Bio-retention Basin

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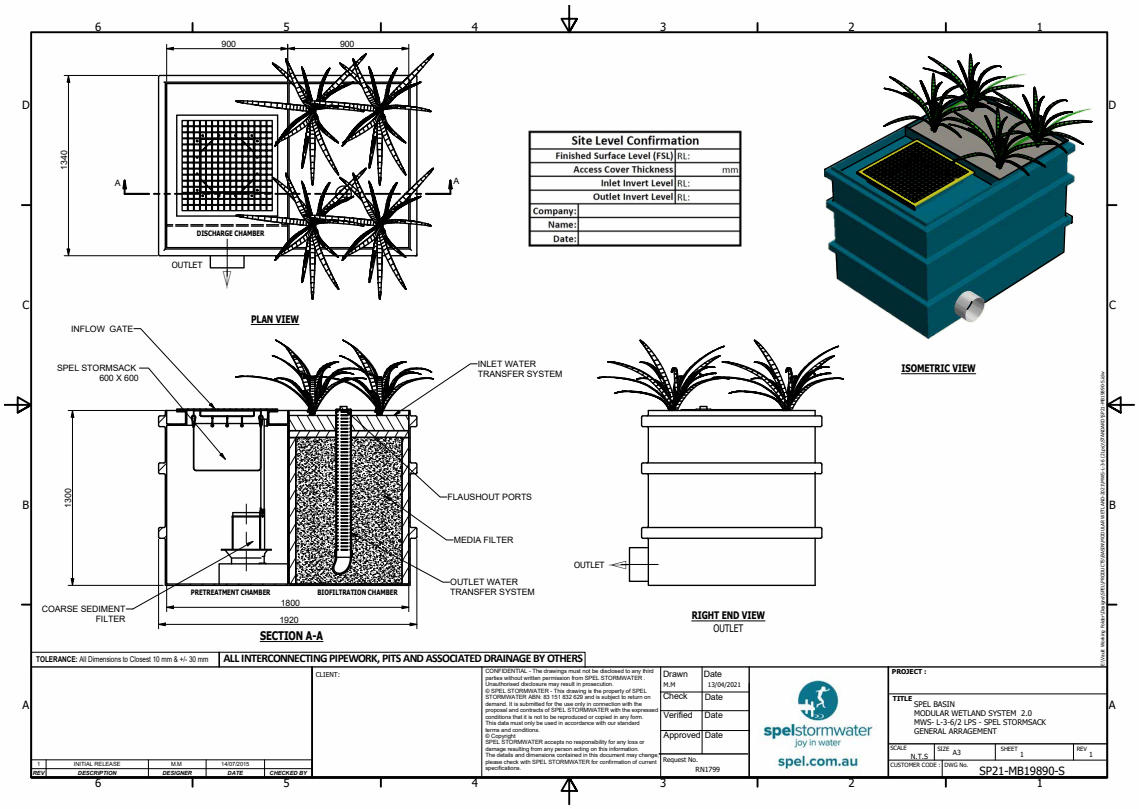
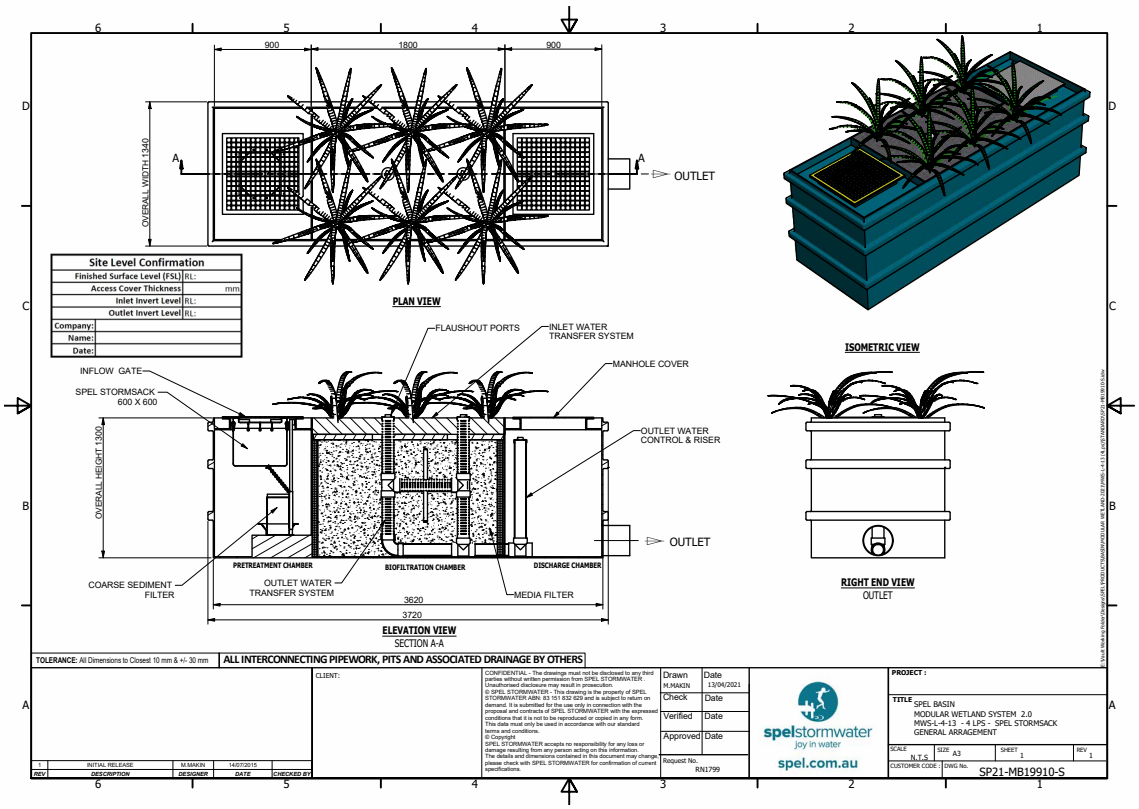
SPEL Basin

Modular Bio-retention Basin

Drawing 2LPS



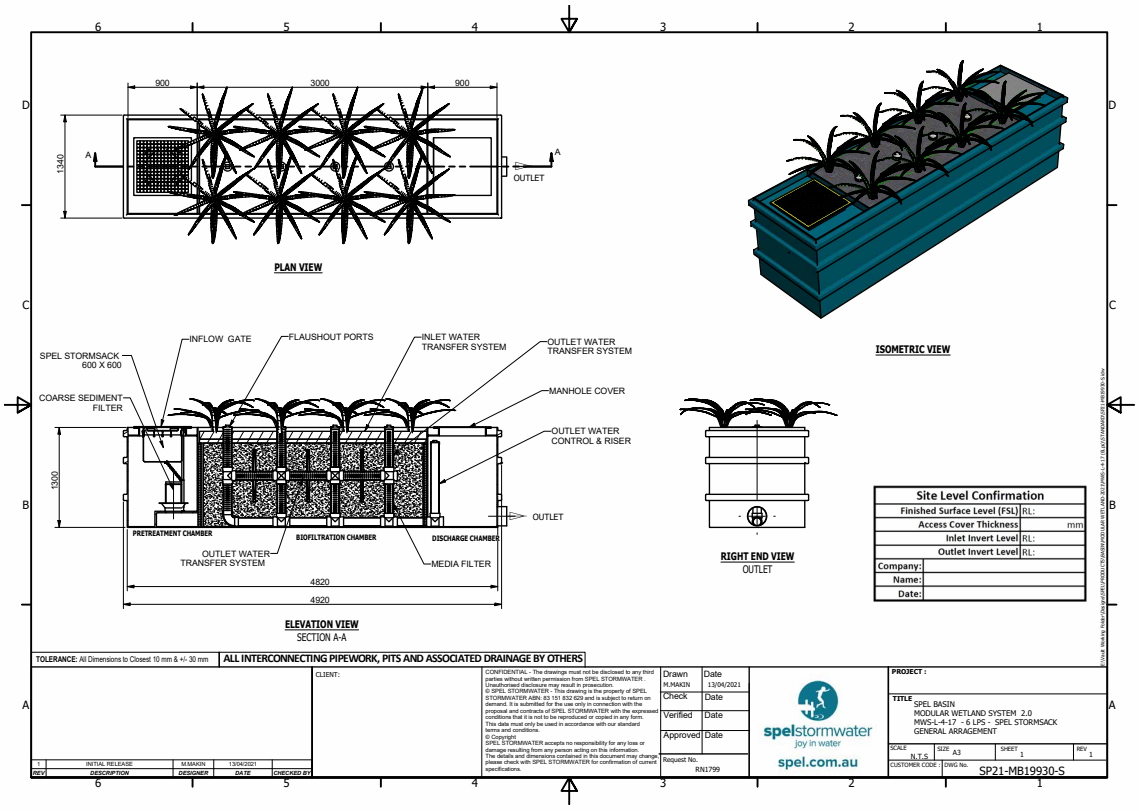
Drawing 4LPS



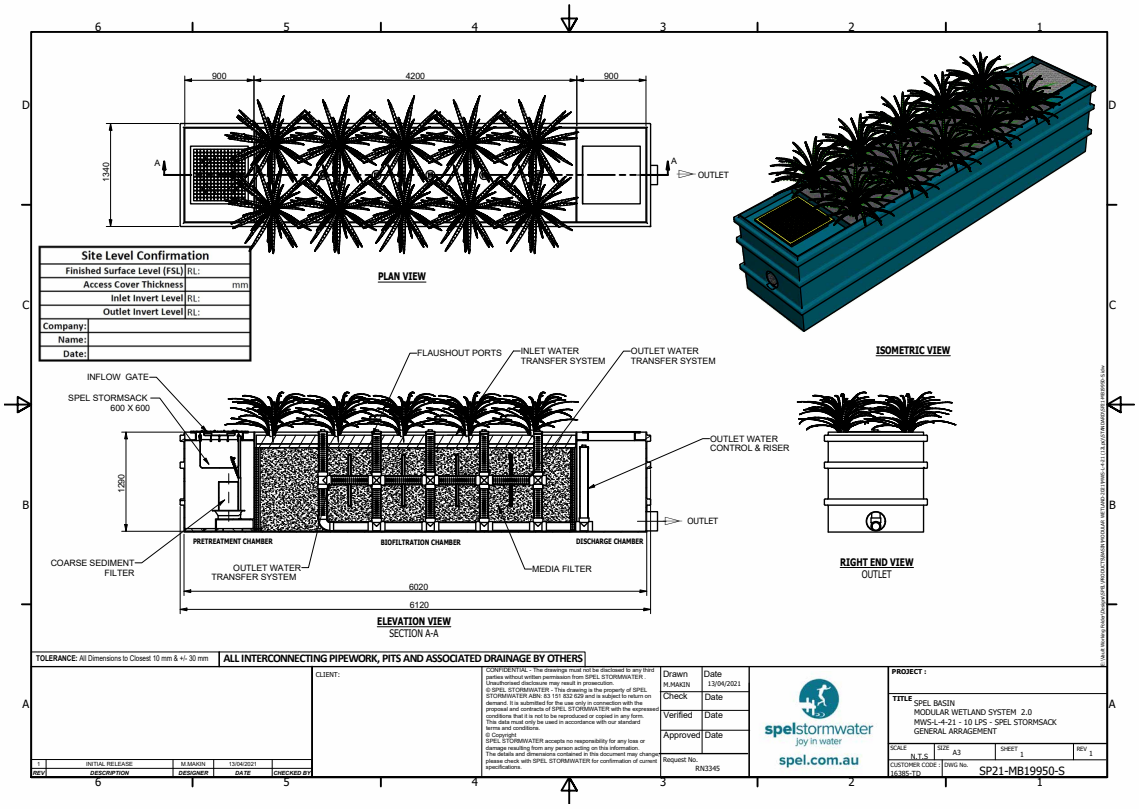
SPEL Basin

Modular Bio-retention Basin

Drawing 6LPS



Drawing 10LPS



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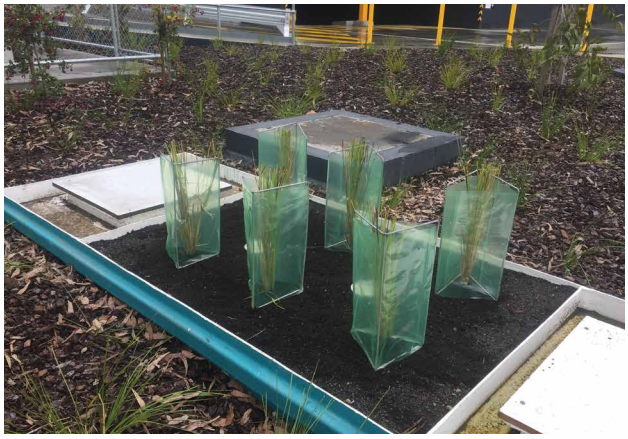
SPEL Basin

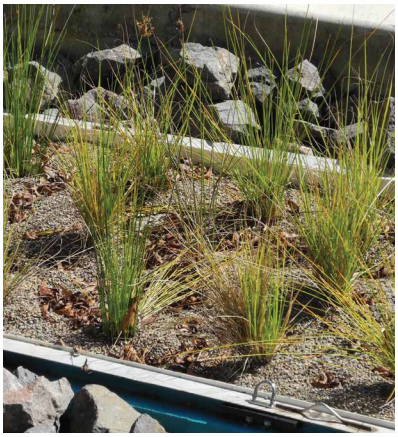
Modular Bio-retention Basin

Project profiles

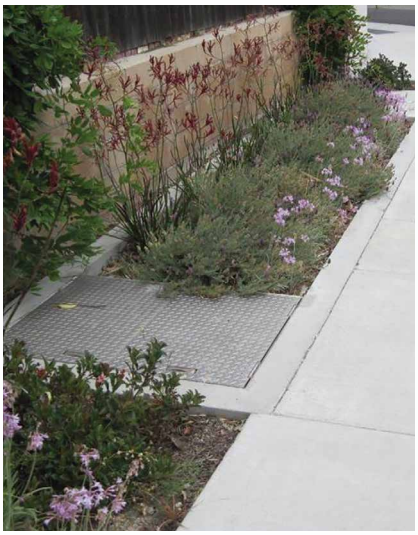
Parc Vue Apartments Bundora, VIC



Sunshine Coast University, QLD



Established Spel Basin



SPEL Chamber

Modular Stormwater Retention & Detention

Overview

SPEL CHAMBER is an inground modular arch system which is used for onsite detention, retention & infiltration applications.

The system is encased by an impermeable LLDPE liner which is sealed and watertight. The open-bottom arches allow the stormwater runoff to balance across the tank through the clean aggregate stone (20-50mm ballast) which surround the arches.

Benefits

DESIGN FLEXIBILTY

SPEL's extensive range of 4 different arch heights & the ability to increase the size of the tank to suit whatever volume is required in the available footprint; provides freedom in design.

TRAFFICABILITY

Not only can it be implemented in landscape areas, but the structural design of the arch also allows for superior load ratings which comply with AS5100 & W80 wheel loads. This allows the system to be installed in areas such as carparks & driveways.

FAST INSTALLATION

The arches are lightweight & are easily manhandled. The system requires less components than other like-systems & can save contractors days in install time.

EASY MAINTENANCE

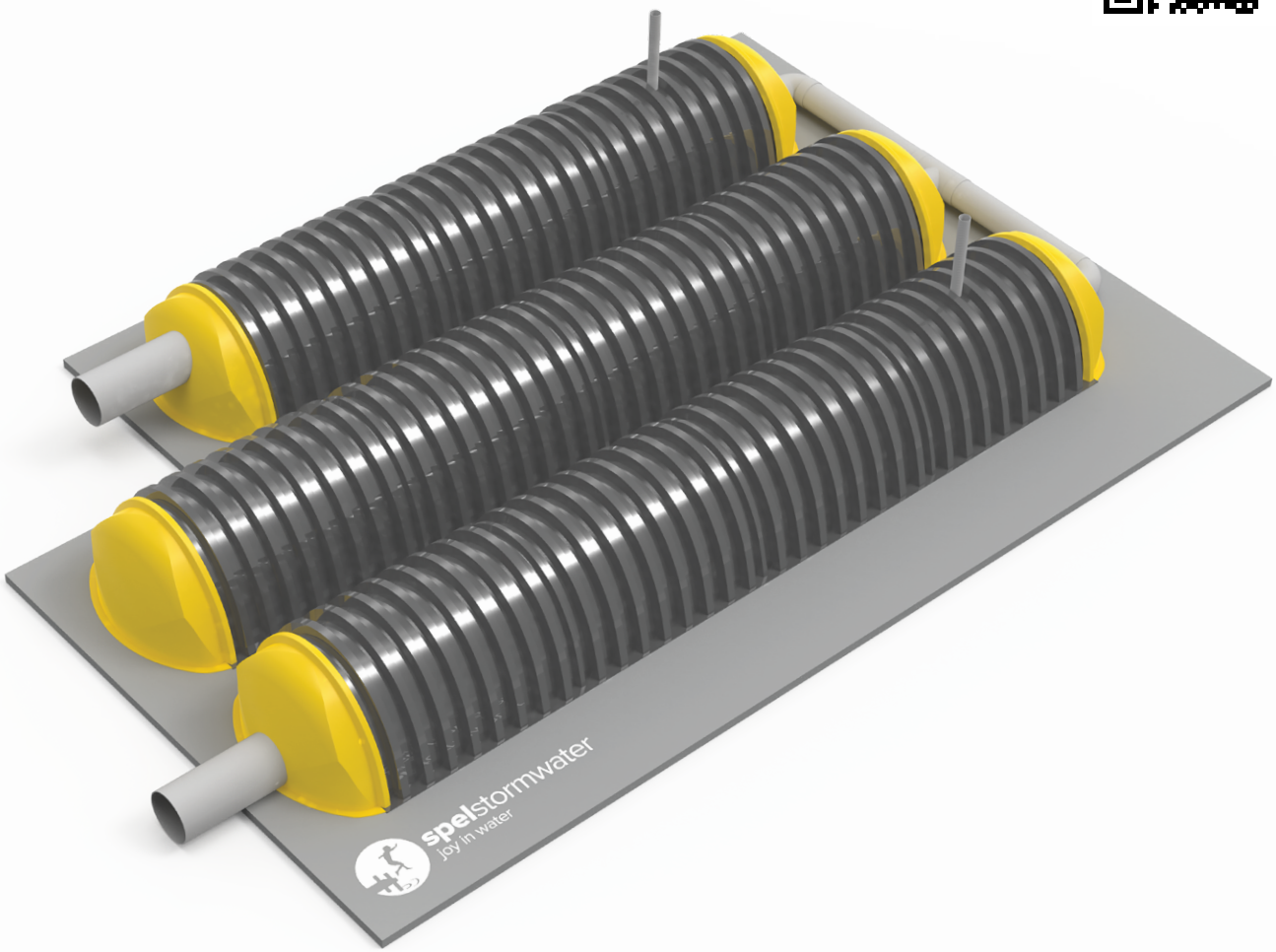
Our patented Isolator Row allows this system to be easily maintained due to the pollutants being captured upon entering the tank and are prevented from spreading through the tank.

SPECIFICATION

The SPEL Chamber is very easy to specify using our 'Ready-Reckoner' tables (See following pages.) These allow for multiple applications.

SPEL Chamber

Modular Stormwater Retention & Detention



APPLICATIONS

- Shopping centre OSD in car parks
- Commercial and industrial OSD
- Recreational Grounds & Sportsfields
- Stormwater Harvesting
- Bioretention and Infiltration

Materials

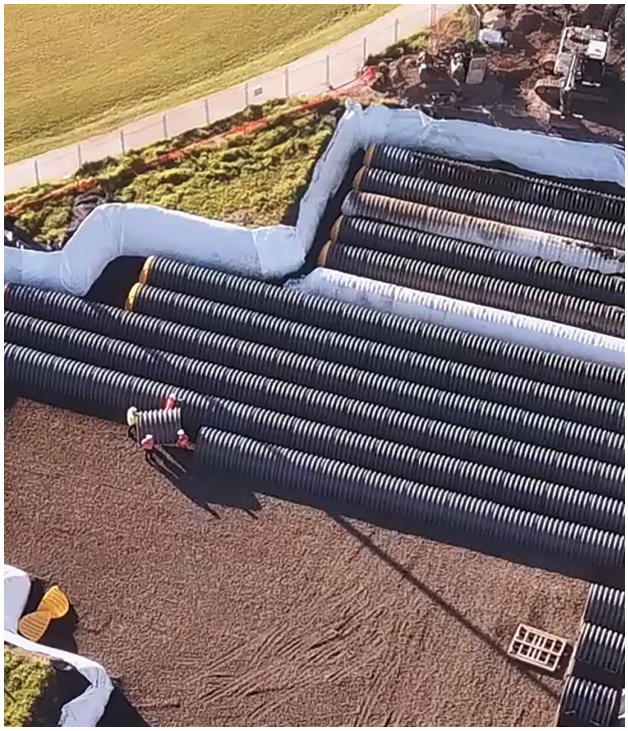
- Injection moulded PP chambers
- Ribbed for structural strength
- End caps and chambers
- Handles for ease of handling

SPEL Chamber

Modular Stormwater Retention & Detention

Project profiles

Barmoral Park Stormwater Harvesting, VIC - 1.6ML



Warwick Road Yamanto, QLD - 1.4ML

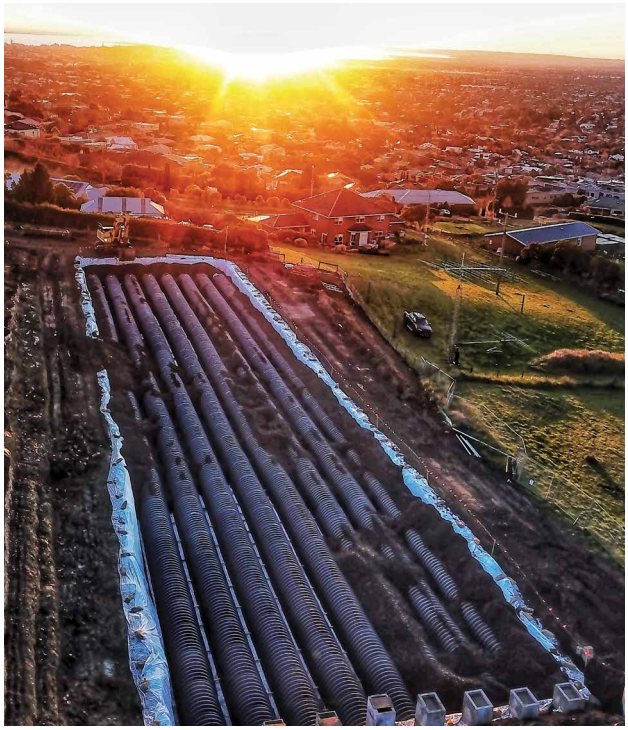
SPEL Chamber

Modular Stormwater Retention & Detention

Project profiles

Parkside Lucas, VIC - 40ML

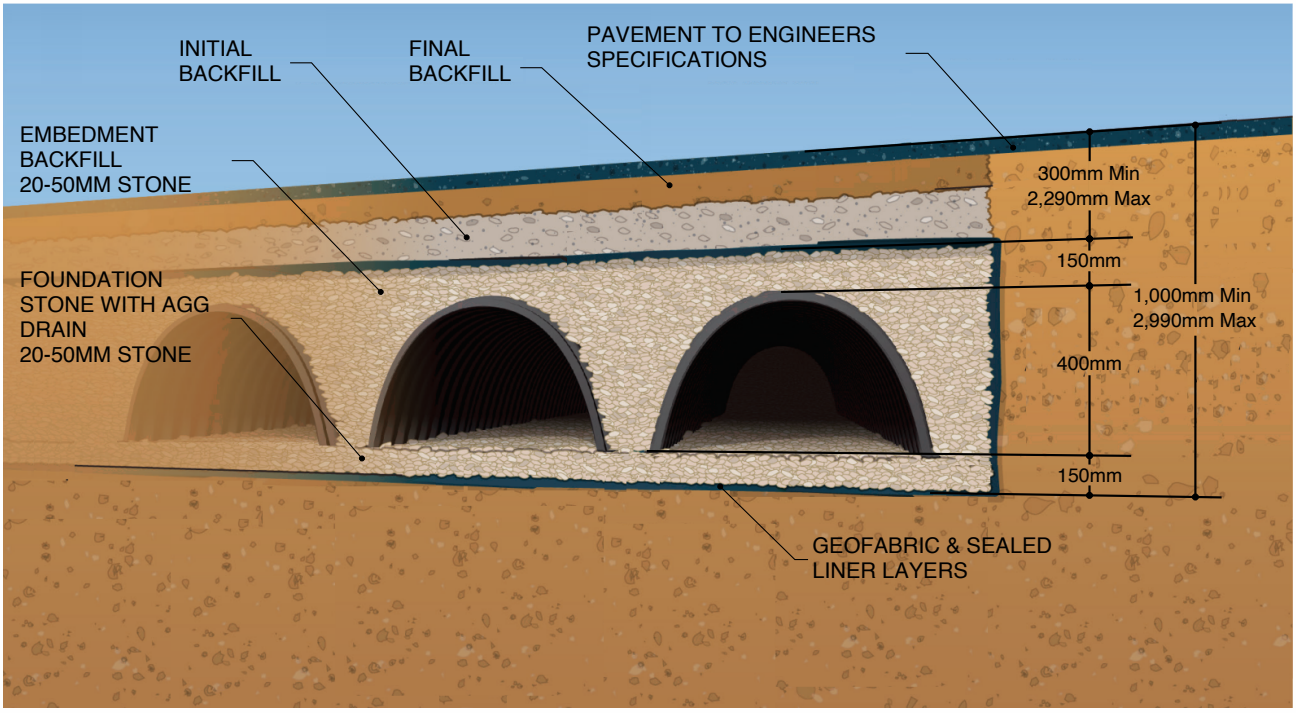
Wandana Estate, VIC - 170ML



SPEL Chamber

Modular Stormwater Retention & Detention

SC400



SPELCHAMBER SC400 (400mm HIGH - MIN 1,000mm INSTALLED DEPTH)

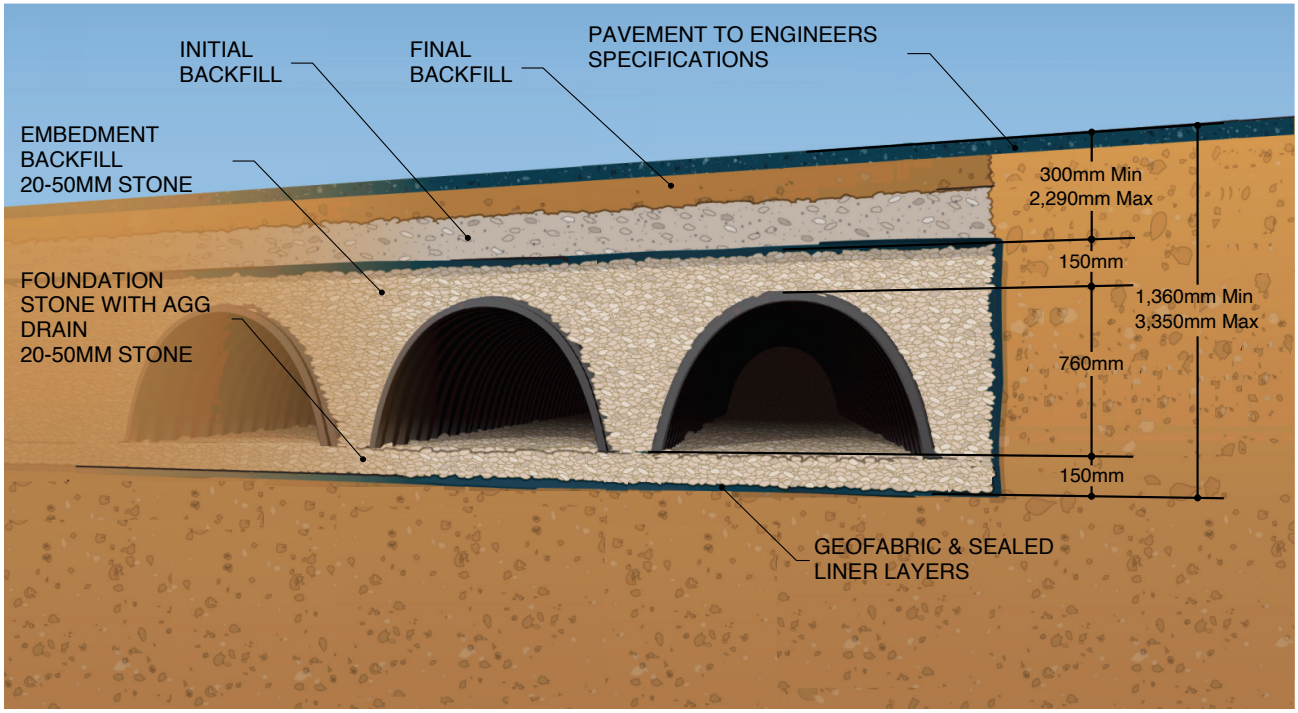
CHAMBERS LONG QUANTITY (LENGTH)	CHAMBERS WIDE QUANTITY (WIDTH)									
QTY	1 (1.5M)	2 (2.5m)	3 (3.5m)	4 (4.5m)	5 (5.5m)	6 (6.6m)	7 (7.6m)	8 (8.6m)	9 (9.6m)	10 (10.6M)
1 (4.40m)	2m³	3m³	5m³	6m³	8m³	9m³	11m³	12m³	14m³	15m³
2 (6.60m)	3m³	6m³	8m³	10m³	13m³	15m³	17m³	20m³	22m³	24m³
3 (8.80m)	4m³	8m³	11m³	14m³	17m³	20m³	24m³	27m³	30m³	33m³
4 (10.90m)	6m³	10m³	14m³	18m³	22m³	26m³	30m³	34m³	38m³	42m³
5 (13.10m)	7m³	12m³	17m³	22m³	27m³	32m³	36m³	41m³	46m³	51m³
6 (15.30m)	8m³	14m³	20m³	25m³	31m³	37m³	43m³	49m³	55m³	60m³
7 (17.50m)	9m³	16m³	22m³	29m³	36m³	43m³	49m³	56m³	63m³	70m³
8 (19.60m)	10m³	18m³	25m³	33m³	41m³	48m³	56m³	63m³	71m³	79m³
9 (21.80m)	11m³	20m³	28m³	37m³	45m³	54m³	62m³	71m³	79m³	88m³
10 (24.0m)	12m³	22m³	31m³	41m³	50m³	59m³	69m³	78m³	87m³	97m³
11 (26.10m)	14m³	24m³	34m³	44m³	55m³	65m³	75m³	85m³	96m³	106m³
12 (28.3m)	15m³	26m³	37m³	48m³	59m³	70m³	82m³	93m³	104m³	115m³
13 (30.5m)	16m³	28m³	40m³	52m³	64m³	76m³	88m³	100m³	112m³	124m³
14 (32.6m)	17m³	30m³	43m³	56m³	69m³	82m³	94m³	107m³	120m³	133m³
15 (34.8m)	18m³	32m³	46m³	60m³	73m³	87m³	101m³	115m³	128m³	142m³
16 (37.0m)	19m³	34m³	49m³	63m³	78m³	93m³	107m³	122m³	137m³	151m³
17 (39.2m)	21m³	36m³	52m³	67m³	83m³	98m³	114m³	129m³	145m³	160m³
18 (41.30m)	22m³	38m³	55m³	71m³	87m³	104m³	120m³	137m³	153m³	169m³
19 (43.5m)	23m³	40m³	57m³	75m³	92m³	109m³	127m³	144m³	161m³	178m³
20 (45.7m)	24m³	42m³	60m³	79m³	97m³	115m³	133m³	151m³	169m³	188m³
21 (47.8m)	25m³	44m³	63m³	82m³	101m³	120m³	139m³	159m³	178m³	197m³

spelstormwater joy in water

SPEL Chamber

Modular Stormwater Retention & Detention

SC750 *ALSO, IN SC-750-D (DEEP BURIAL)



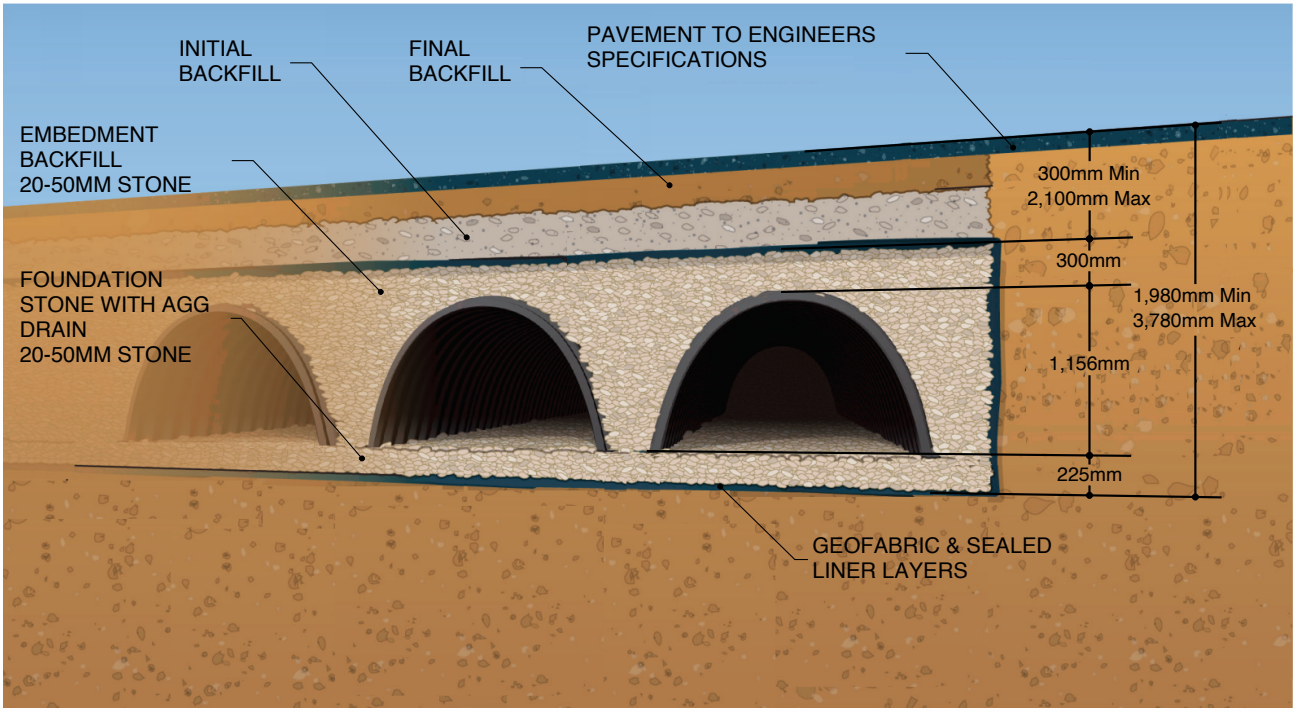
SPELCHAMBER SC750 (750mm HIGH - MIN 1,355mm INSTALLED DEPTH)

CHAMBERS LONG QUANTITY (LENGTH)	CHAMBERS WIDE QUANTITY (WIDTH)									
QTY	1 (1.9M)	2 (3.4m)	3 (4.8m)	4 (6.2m)	5 (7.7m)	6 (9.1m)	7 (10.6m)	8 (12m)	9 (13.5m)	10 (14.9M)
1 (4.50m)	5m³	8m³	12m³	16m³	20m³	24m³	28m³	31m³	35m³	39m³
2 (6.60m)	7m³	13m³	19m³	25m³	31m³	37m³	43m³	49m³	55m³	61m³
3 (8.80m)	10m³	18m³	26m³	34m³	42m³	50m³	58m³	66m³	74m³	82m³
4 (10.90m)	12m³	22m³	33m³	43m³	53m³	63m³	73m³	83m³	94m³	104m³
5 (13.10m)	15m³	27m³	39m³	52m³	64m³	76m³	89m³	101m³	113m³	125m³
6 (15.20m)	17m³	32m³	46m³	61m³	75m³	89m³	104m³	118m³	133m³	147m³
7 (17.40m)	20m³	36m³	53m³	69m³	86m³	103m³	119m³	136m³	152m³	169m³
8 (19.60m)	22m³	41m³	60m³	78m³	97m³	116m³	134m³	153m³	172m³	190m³
9 (21.70m)	25m³	46m³	67m³	87m³	108m³	129m³	150m³	170m³	191m³	212m³
10 (23.9m)	28m³	50m³	73m³	96m³	119m³	142m³	165m³	188m³	211m³	234m³
11 (26.0m)	30m³	55m³	80m³	105m³	130m³	155m³	180m³	205m³	230m³	255m³
12 (28.2m)	33m³	60m³	87m³	114m³	141m³	168m³	195m³	222m³	250m³	277m³
13 (30.3m)	35m³	64m³	94m³	123m³	152m³	181m³	211m³	240m³	269m³	298m³
14 (32.5m)	38m³	69m³	100m³	132m³	163m³	195m³	226m³	257m³	289m³	320m³
15 (34.6m)	40m³	74m³	107m³	141m³	174m³	208m³	241m³	275m³	308m³	342m³
16 (36.8m)	43m³	78m³	114m³	150m³	185m³	221m³	256m³	292m³	328m³	363m³
17 (39.0m)	45m³	83m³	121m³	158m³	196m³	234m³	272m³	309m³	347m³	385m³
18 (41.10m)	48m³	88m³	128m³	167m³	207m³	247m³	287m³	327m³	367m³	406m³
19 (43.3m)	50m³	92m³	134m³	176m³	218m³	260m³	302m³	344m³	386m³	428m³
20 (45.4m)	53m³	97m³	141m³	185m³	229m³	273m³	317m³	362m³	406m³	450m³
21 (47.6m)	55m³	102m³	148m³	194m³	240m³	286m³	333m³	379m³	425m³	471m³

SPEL Chamber

Modular Stormwater Retention & Detention

SC1200



SPELCHAMBER (1,200mm HIGH - MIN 2,000mm INSTALLED DEPTH)

	CHAMBERS WIDE QUANTITY (WIDTH)									
CHAMBERS LONG QUANTITY (LENGTH)	QTY	1 (2.60M)	2 (4.80m)	3 (6.90m)	4 (9.10m)	5 (11.30m)	6 (13.50m)	7 (15.70m)	8 (17.80m)	9 (20.0m)	10 (22.2M)
	1 (4.60m)	10m³	20m³	29m³	38m³	47m³	57m³	66m³	75m³	84m³	94m³
	2 (6.70m)	16m³	31m³	45m³	59m³	74m³	88m³	102m³	117m³	131m³	145m³
	3 (8.90m)	22m³	41m³	61m³	80m³	100m³	119m³	139m³	158m³	178m³	197m³
	4 (11.10m)	28m³	52m³	77m³	101m³	126m³	151m³	175m³	200m³	224m³	249m³
	5 (13.20m)	33m³	63m³	93m³	122m³	152m³	182m³	212m³	241m³	271m³	301m³
	6 (15.40m)	39m³	74m³	109m³	144m³	178m³	213m³	248m³	283m³	318m³	352m³
	7 (17.60m)	45m³	85m³	125m³	165m³	205m³	244m³	284m³	324m³	364m³	404m³
	8 (19.70m)	50m³	96m³	141m³	186m³	251m³	276m³	321m³	366m³	411m³	456m³
	9 (21.90m)	56m³	106m³	157m³	207m³	257m³	307m³	357m³	407m³	458m³	508m³
	10 (24.10m)	62m³	117m³	172m³	228m³	283m³	338m³	3941m³	449m³	504m³	560m³
	11 (26.30m)	68m³	128m³	188m³	249m³	309m³	370m³	430m³	491m³	551m³	611m³
	12 (28.40m)	73m³	139m³	204m³	270m³	335m³	401m³	467m³	532m³	598m³	653m³
	13 (30.60m)	79m³	150m³	220m³	291m³	362m³	432m³	503m³	574m³	644m³	715m³
	14 (32.80m)	85m³	161m³	236m³	312m³	388m³	464m³	539m³	615m³	691m³	767m³
	15 (34.90m)	90m³	171m³	252m³	333m³	414m³	495m³	576m³	657m³	738m³	818m³
	16 (37.10m)	96m³	182m³	268m³	354m³	440m³	526m³	612m³	698m³	784m³	870m³
	17 (39.30m)	102m³	193m³	284m³	375m³	466m³	558m³	649m³	740m³	831m³	922m³
	18 (41.40m)	108m³	204m³	300m³	396m³	493m³	589m³	685m³	781m³	878m³	974m³
	19 (43.60m)	113m³	215m³	316m³	417m³	519m³	620m³	722m³	823m³	924m³	1026m³
	20 (45.80m)	119m³	226m³	332m³	438m³	545m³	651m³	758m³	864m³	971m³	1077m³
	21 (47.90m)	125m³	236m³	348m³	460m³	571m³	683m³	794m³	906m³	1018m³	1129m³

NOTE: Standard sizing has been used to calculate this table, the chamber systems have been sized with one manifold. This table should be used as a sizing guide, SPEL will confirm sizing for your project on a site-specific basis.

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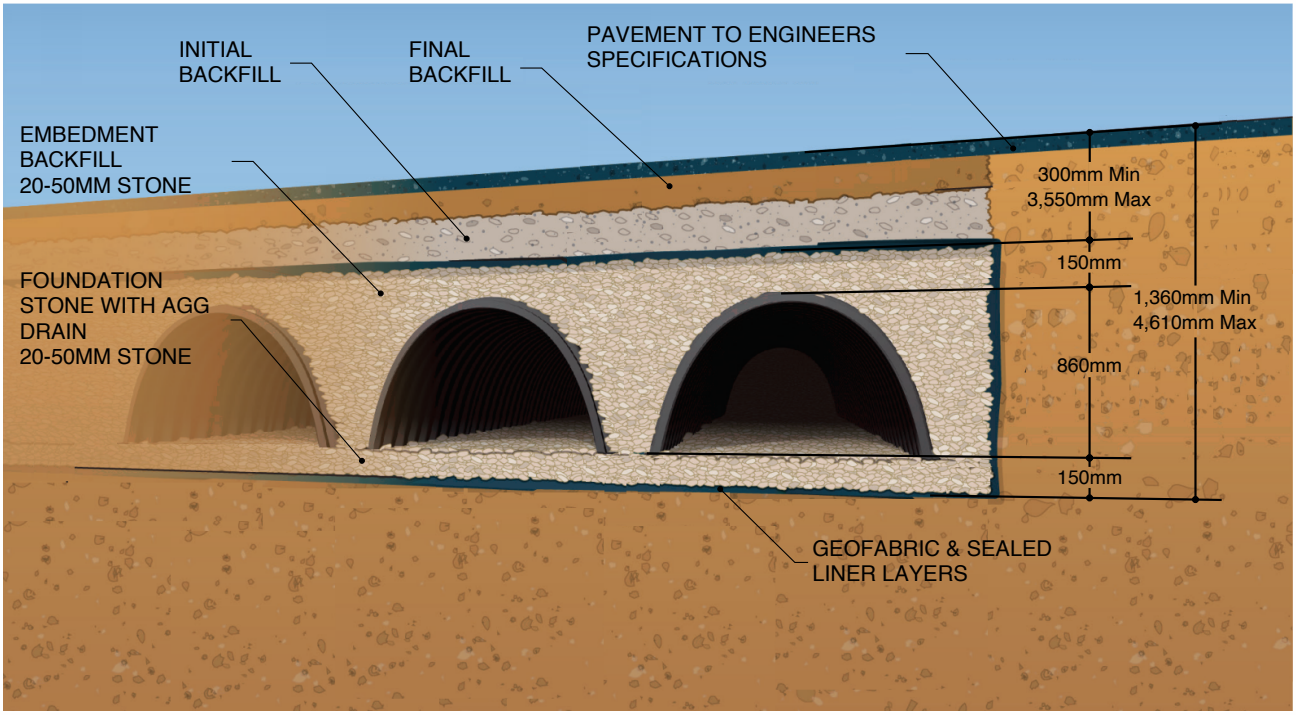
SPEL Chamber

Modular Stormwater Retention & Detention

SPELCHAMBER



SPELCHAMBER (860mm HIGH - MIN 1,450mm INSTALLED DEPTH)

CHAMBERS LONG QUANTITY (LENGTH)	CHAMBERS WIDE QUANTITY (WIDTH)									
	QTY	1 (2.2M)	2 (3.89m)	3 (5.64m)	4 (7.39m)	5 (9.14m)	6 (10.9m)	7 (12.65m)	8 (14.4m)	9 (16.5m)	10 (17.91M)
	1 (3.20m)	3.3m³	7m³	9m³	12m³	15m³	19m³	22m³	25m³	29m³	32m³
	2 (5.54m)	7m³	12m³	19m³	25m³	32m³	39m³	45m³	52m³	59m³	65m³
	3 (7.85m)	9m³	19m³	29m³	39m³	48m³	58m³	68m³	78m³	88m³	98m³
	4 (10.16m)	12m³	25m³	39m³	52m³	65m³	78m³	92m³	105m³	118m³	131m³
	5 (12.47m)	15m³	32m³	48m³	65m³	82m³	98m³	115m³	131m³	148m³	165m³
	6 (14.78m)	19m³	39m³	58m³	78m³	98m³	118m³	138m³	158m³	178m³	196m³
	7 (17.09m)	22m³	45m³	68m³	92m³	115m³	138m³	161m³	184m³	207m³	231m³
	8 (19.40m)	25m³	52m³	78m³	105m³	131m³	158m³	184m³	211m³	237m³	264m³
	9 (21.71m)	29m³	59m³	88m³	119m³	148m³	178m³	207m³	237m³	267m³	297m³
	10 (24.02m)	32m³	65m³	98m³	132m³	165m³	198m³	231m³	264m³	297m³	330m³
	11 (26.33m)	35m³	72m³	108m³	145m³	181m³	217m³	254m³	290m³	327m³	363m³
	12 (28.64m)	39m³	79m³	118m³	158m³	198m³	237m³	277m³	317m³	356m³	396m³
	13 (30.95m)	42m³	85m³	128m³	171m³	214m³	257m³	300m³	343m³	386m³	429m³
	14 (33.26m)	45m³	92m³	138m³	184m³	231m³	277m³	323m³	370m³	416m³	462m³
	15 (35.57m)	49m³	99m³	148m³	197m³	248m³	297m³	346m³	396m³	446m³	495m³
	16 (37.88m)	52m³	105m³	158m³	211m³	264m³	317m³	370m³	423m³	476m³	528m³
	17 (40.19m)	55m³	112m³	168m³	224m³	280m³	337m³	393m³	449m³	505m³	561m³
	18 (42.50m)	59m³	119m³	178m³	237m³	297m³	356m³	416m³	476m³	535m³	594m³
	19 (44.81m)	62m³	125m³	188m³	251m³	313m³	376m³	439m³	502m³	565m³	627m³
	20 (47.12m)	65m³	132m³	198m³	264m³	330m³	396m³	462m³	529m³	595m³	660m³
	21 (49.43m)	69m³	139m³	207m³	277m³	346m³	416m³	486m³	555m³	625m³	693m³

SPEL Chamber

Modular Stormwater Retention & Detention

Isolator Row

Our patanted Isolator Row is a row of SPEL Chambers (Inlet row) wrapped in a woven geo-textile fabric. The fabric provides an effective pollutant removal mechanism which targets gross pollutants and suspended solids.

Whilst we recommend a Gross Pollutant Trap prior to the SPEL Chambers, the Isolator Row will serve as a Gross pollutant trap where pollutants will be separated to that row, which allows for ease of maintenance.

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SPEL Chamber

Modular Stormwater Retention & Detention

Easy Maintenance

The Isolator Row was designed to reduce the cost of periodic maintenance. By “isolating” sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OHS rules for a confined space entries.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming.

Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 1200mm are best. Most JetVac reels have over 100m of hose allowing maintenance of an Isolator Row up to 50 chambers long. The JetVac process shall only be performed on SpelChamber that have woven geotextile (as specified by Spel) over their angular base stone.

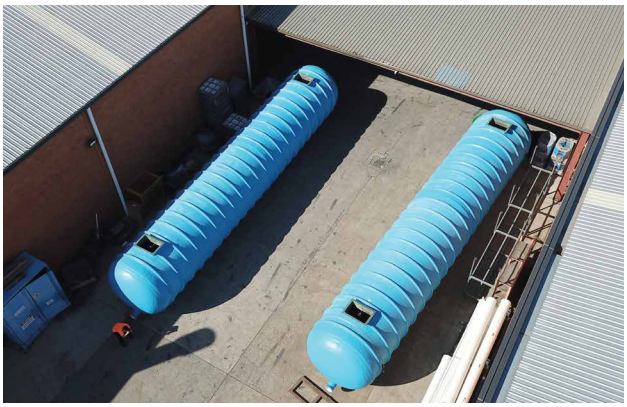
SPEL Tankstor

Underground Water Storage

SPEL Tankstor tanks are manufactured for many applications and in a wide range of specifications to handle such substances as water, sewage, farm effluent, petroleum products and chemicals.

Our modern plant, equipment and quality assurance procedures ensure both quality and competitive pricing.

Being manufactured in glass reinforced plastics, SPEL tanks are light, easy to handle and install. They are not susceptible to rust, exhibit excellent corrosion resistant properties and have a life expectancy in excess of 50 years.



APPLICATIONS

- Stormwater attenuation
- Fire fighting sprinkler reservoirs
- Potable water storage
- Septic/settlement tanks
- Cesspools & silage effluent holding tanks
- SPEL RainSave rainwater reservoirs
- Accidental spillage containment
- Transformer oil dump tanks
- package pumping chambers
- Above ground storage

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SPEL Tankstor

Underground Water Storage

Tank Sizes

Diameter (mm)	Capacity (l)	Overall Length (mm)
1200	5000	4700
1200	10000	9100
1200	15000	13500
1500	5000	3100
1500	10000	5900
1500	15000	8700
1500	20000	11600
1500	25000	14400
1500	30000	17200
1850	10000	4200
1850	15000	6000
1850	20000	7900
1850	25000	9700
1850	30000	11600
1850	35000	13500
1850	40000	15300
2200	10000	3100
2200	15000	4400
2200	20000	5700
2200	25000	7000
2200	30000	8400
2200	35000	9700
2200	40000	11000
2200	45000	12300
2470	15000	3700
2470	20000	4700
2470	25000	5800
2470	30000	6800
2470	35000	7900
2470	40000	8900
2470	45000	10000
2470	50000	11000
2470	55000	12000
2470	60000	13100
2470	65000	14100
2470	70000	15200
2470	75000	16200
2470	80000	17300
2470	85000	18300

Diameter (mm)	Capacity (l)	Overall Length (mm)
3000	40000	6300
3000	45000	7000
3000	50000	7700
3000	55000	8400
3000	60000	9100
3000	65000	9900
3000	70000	10600
3000	75000	11300
3000	80000	12000
3000	85000	12700
3000	90000	13400
3000	95000	14100
3000	100000	14800
3000	105000	15500
3000	110000	16200
3500	100000	11100
3500	105000	11600
3500	110000	12100
3500	115000	12600
3500	120000	13200
3500	125000	13700
3500	130000	14200
3500	135000	14700
3500	140000	15200
3500	145000	15800
3500	150000	16300
3500	155000	16800
3500	160000	17300
3500	165000	17800
3500	170000	18400

Range

- Series 200 (1.2m inside diameter): 1,000 – 10,000 litres capacity
- Series 300 (1.8m inside diameter): 4,000 – 40,000 litres capacity
- Series 400 (2.6m inside diameter): 13,650 – 100,000 litres capacity
- Series 500 (3.5m inside diameter): 60,000 – 200,000 litres capacity
- Series 600 (4.0m inside diameter): 100,000 – 300,000 litres capacity

SPEL Tankstor

Underground Water Storage

Project profiles

Sterequip Epping, VIC

Brisbane, QLD

spelstormwater joy in water

SPEL Tankstor

Underground Water Storage

Project profiles

Eastern Creek, NSW

Wyndham Vale Stabling Yard, VIC

SPEL Vault

Modular Precast Detention System

A modular precast detention system that has the proven strength & durability of concrete, is simple & fast to install, and easily accessible for maintenance.

The SPEL Vault can be arranged in a modular configuration to achieve small to very large onsite detention (OSD) requirements with flexibility in footprint design.

It is a robust solution for SW detention typically installed under carparks in commercial premises, or the common driveways in multi-unit developments.

The SPEL Vault is selected for its easy access for maintenance, strong traffic rating, simple installation protocol and ability for large volumes to be installed in a single day and truck trafficable immediately.

SPEL Vault

Modular Precast Detention System

Features

- Flexibility in footprint design for optimum layouts
- Flexible heights to suit site levels
- Truck trafficable. Delivered to site cured to 50MPa. The tanks can be installed, backfilled and trafficable immediately, maintaining sites accessibility.
- Modules do not rely on stone backfill for stormwater storage or support, so there are smaller excavations and less spoil to dispose of compared to other systems.
- Units are delivered to site to meet clients cranes and are generally installed immediately. This is no onsite storage of modules required so on-site space is optimised.
- SPEL Filter cartridges can be design into this system so water quality outcomes can be achieved without additional separate tanks.

SPEL Vault

Modular Precast Detention System

Project profiles

Settlement Rd, The Gap, QLD
90kL SPEL Vault Modular Precast Detention System

Myrtle Creek, NSW - 221,000 Litres

John Street, Maryborough, QLD
85,000 Litres SPEL Vault Modular Precast Detention System

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SPEL Vault

Modular Precast Detention System

Stormwater Detention Tanks Comparison: SPEL Vault/Megavault Vs Block & Slab

OSD SYSTEMS	SPEL VAULT / MEGAVAULT	BLOCK & SLAB
STRUCTURALLY SOUND	Yes. Engineer Certified. Truck trafficable. Form 15 provided at no cost.	Yes. Engineering design may still have to be completed and may be an additional cost with time implications.
SPEED OF INSTALL FOR THE BUILDER & DEVELOPER	Quick. 100-150kL achievable in a day. Only really needs 1-2 persons to install not including the crane operator and dogman.	Slower. As the build involves more trades (base concreter, blockworker, bondek installation, tanking, FSL pour) there is a greater chance of blow-outs on the build schedule. The increased construction time compared to a fast precast install also increases the exposure to delays from poor weather.
ONSITE EFFICIENCY GAINS	As the tank is manufactured off-site in a quick to install modular system, onsite efficiencies are gained as there is not an open excavation for extended periods and project management of multiple trades over an extended period is not required.	No benefit. Project management of multiple trades over an extended period is required. Increased safety risk management and increased risk to delays to construction. Spacial impacts of a large excavation also impeded productivity negatively especially critical on tight sites.
SAFETY	Less trades, less people involved onsite with the build and less time with an open excavation. Capacities up to 240kL have the potential to be achieved in a day = increased safety benefits.	Increased time with an open excavation with more sub-contractors involved, more time on safety plans and inductions and increased project manager involvement and supervision required. Reo bars sticking up. Increased construction waste to deal with. Greater risk exposure and increased cost to manage.
ENVIRONMENTAL IMPACT	Minimal construction waste onsite. Decreased open excavation time, decreased risk of silt release.	Increased construction waste onsite to deal with. Pallets from blocks. Pallets from steel. Increased risk of silt release with extended open excavation times. Concrete truck wash-outs.
QUALITY	Tanks constructed in a factory. Quality assured practices ensure tanks delivered to site meet rigorous quality standards.	Tanks constructed onsite = increased risk of defects and quality issues.

SPEL Megavault

Onsite Stormwater Detention System

The SPEL Megavault delivers an industry-leading answer for medium to large stormwater detention scenarios.

The inspiration of the SPEL Megavault is based on ancient architecture and fundamental principles of cost-effective and efficient stormwater management. These systems have been improved and optimised with the assistance of modern pre-cast concrete technology.

This system allows for maximised use of available land by allowing the detention to be located underneath development sites, carparks, roads or parklands.

APPLICATIONS

- Residential
- Commercial
- Industrial
- Retail Sites
- Subdivisions
- Urban Infrastructure

The SPEL Megavault Onsite Stormwater Detention (OSD) System meets legislative requirements for onsite detention, and its condensed footprint guarantees the delivery of high-yield usable land area.

This system has been designed and engineered to maximize the desired outcomes of safety-in-design with respect to manufacture, installation and life-cycle maintenance applicable to larger OSD requirements.

Benefits

- Cost efficient construction
- Fast fabrication and installation
- Superior structural outcomes
- Improved site efficiencies & safe work practices
- Condensed OSD footprint
- Versatile depth capability
- Superior product quality

Just like the SPELVault, the SPEL Megavault works hand in hand with SPEL filtration devices to achieve the requirements of Stormwater Quality and Quantity Management Plans to satisfy site design needs for SPP (State Planning Policy), local government and council requirements.

SPEL Megavault

Onsite Stormwater Detention System

SYSTEM INTERNAL HEIGHT (m)	VOLUME PER UNIT(kL)
0.5	4.1
1.0	8.2
1.5	12.4
2.5	20.6
3.0	24.7

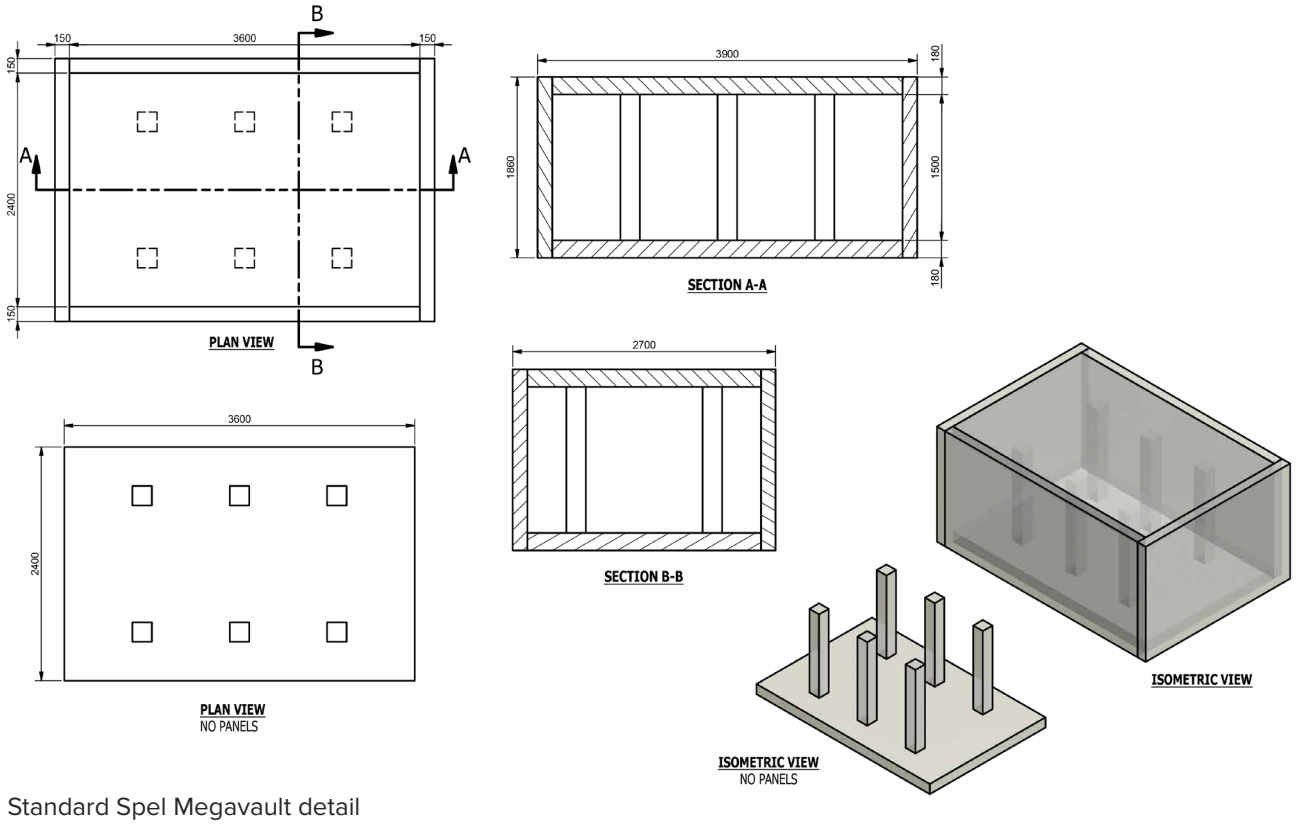
* System height can be further tailored to suit site requirements in increments of 100mm up to 3000mm.

Internal Height	500mm to 3000mm
Load Criteria	T44 to 600mm fill SM1600 to 2000mm fill
Cover	200mm to 2000mm
Min Cover	200mm min.
Bearing	150kPa min. under tank

The SPEL Megavault is engineered to meet Australian Standards and can meet the SM1600 load case as detailed in AS5100-2004 with up to 2m of fill. If higher loadings need to be achieved for special projects, it is recommended to collaborate with the team at SPEL Stormwater.

The Megavault system provides unparalleled versatility in overcoming footprint, configuration and depth constraints which leads this system to be one of the most sought after solutions for storing/ retaining water on developments by both civil, hydraulic and consulting engineers alike.

The standard internal heights range from 500mm to 3000mm. The size of each component is designed to maximize freight and installation efficiencies.



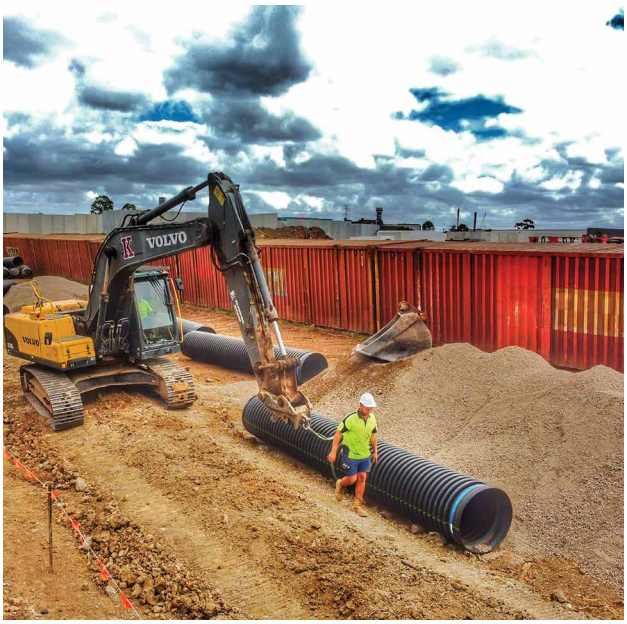
Standard Spel Megavault detail

SPEL Flow

N12 ADS HDPE Water Tight & Perforated Drainage Pipe

ADS N12 HDPE corrugated pipe is dual wall (corrugated outer wall and smooth inner wall) pipe engineered from high density polyethylene (HDPE).

Light, strong and durable, it requires low cover and is hydraulically efficient with superior performance in gravity-flow drainage applications.



Features

- Supports AS5100.2 highway and railway loads
- Installation and design in accordance with AS2566
- Low Manning's due to smooth polyethylene interior
- Excellent abrasion and chemical resistance
- Light weight and robust
- No bell hole dig required due to constant outside diameter along the joint

Standard Water Tight Pipe

- 100 – 1500mm diameters
- 5.6m effective lengths
- Integrated bell and factory installed gasket
- Joint meets or exceeds ASTM D3212 lab test as well as ASTM F2487 and ASTM F1417 watertight field test (70kPa)

Sub Soil Slotted/Perforated Pipe

- 100 – 600mm diameters
- 5.6m effective length
- Other lengths on request
- Plain ended pipe with couplers

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SPEL Flow

N12 ADS HDPE Water Tight & Perforated Drainage Pipe

PART CODE	NOMINAL I.D. (mm)	ACTUAL I.D. (mm)	O.D. (mm)	LENGTHS (m)	WEIGHTS (kg)
100mm ADS N12 Pipe	100	104	120	5.6	4.1
150mm ADS N12 Pipe	150	152	176	5.6	7.7
200mm ADS N12 Pipe	200	200	233	5.6	14
250mm ADS N12 Pipe	250	251	287	5.6	21
300mm ADS N12 Pipe	300	308	367	5.6	29
375mm ADS N12 Pipe	375	380	448	5.6	42
450mm ADS N12 Pipe	450	459	536	5.6	58
600mm ADS N12 Pipe	600	612	719	5.6	100
750mm ADS N12 Pipe	750	762	892	5.6	146
900mm ADS N12 Pipe	900	914	1059	5.6	192
1050mm ADS N12 Pipe	1050	1054	1212	5.6	240
1200mm ADS N12 Pipe	1200	1209	1361	5.6	284
1500mm ADS N12 Pipe	1500	1514	1664	5.3	424

SPEL Flow

N12 ADS HDPE Water Tight & Perforated Drainage Pipe

ADS N12 HDPE pipe is a dual wall (outer corrugated wall and smooth inner wall) pipe.

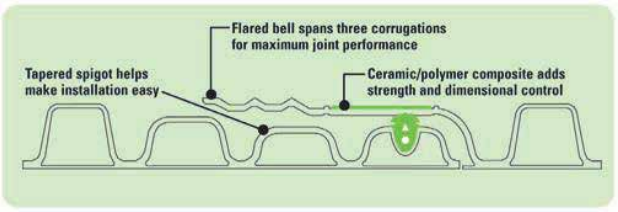
The pipe is engineered with a compound of high density virgin polyethylene resin to provide high strength material properties.

A patented gasket held in place by a ceramic band increases its sealing effectiveness as internal or external hydrostatic pressure increases.

The in-line bell and spigot joint, factory fitted gasket and light weight provides for quick installation.

ADS pipe has been extensively tested and certified against Australian and international standards, including AASHTO, IAB, AS2566.1 and AS5100.2.

- Supports AS5100.2 Highway and Railway loads
- Installation and design in accordance with AS2566
- Low maintenance due to smooth polyethylene interior
- Excellent abrasion and chemical resistance
- Light weight and robust
- No bell hole dig required due to constant outside diameter along the joint



APPLICATIONS

- Railways
- Mine sites
- Civil stormwater
- Conveyance
- Detention
- Irrigation

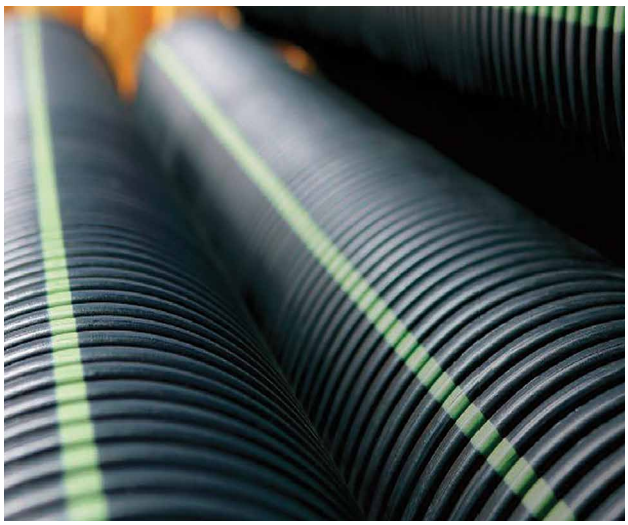
Honey Farm Sport & Recreation Precinct - Sunshine Coast, 2021

SPEL Flow

N12 ADS HDPE Water Tight & Perforated Drainage Pipe

Benefits

- Structural – low cover (300mm min) and deep burial installations. The HDPE grade used has a 50% higher long term modulus than PE 100. Better polymer allows less material to be used to carry AS5100.2 live loads safely long term. Our 435400C HDPE and pipe design values are ndependently audited by expert government employed material and structural engineers.
- Low risk – light weight, fewer joints, reduced OHS issues for installation. Pipe requires no extra couplers, grout or other sealants for installation due to built-in bell and factory-installed gasket. This means fewer components to risk performance.
- Cost – installation cost savings with light weight pipes. Less heavy equipment required and the pipes can easily be cut to the required lengths on site.
- Reduced wastage – not susceptible to bell chipping and cracking common to concrete pipes. Cut lengths can be used to begin the next pipe run.
- Low CO2 – significantly lower embodied energy compared to concrete, PVC and polypropylene pipes.
- Hydraulic efficiency – low Manning's n due to smooth polyethylene interior.
- Durability – 435400C Cell Class HDPE with 2% carbon black has a design life of 100 years and is recyclable.
- Chemical – abrasion resistant and suitable for acid sulfate soils and highly abrasive flows.



Durability

HDPE is an extremely tough material that can withstand the normal impacts involved in installation. It is highly resistant to chemical attack and is unaffected by soils or effluents with pH ranges from 1.5 to 14.

HDPE's ductility and molecular structure result in excellent resistance to abrasion. Polyethylene pipe shows less than 20% of the material loss compared to concrete pipe in abrasive environments. It is often specified for harsh mine slurries and is used to line corroded concrete pipes and culverts.

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We believe clean water is a right not a privilege and we work to ensure a joy in water experience for you with your children and grandchildren.

spelstormwater
joy in water

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