STORMWATER AUSTRALIA

Stormwater Quality Improvement Device Evaluation Protocol (SQIDEP) –

VERIFICATION CERTIFICATE

Applicant Information

Applicant Name	**SPEL Stormwater Pty Ltd**
Applicant Address	**100 Silverwater Rd, Sydney, NSW 2128**
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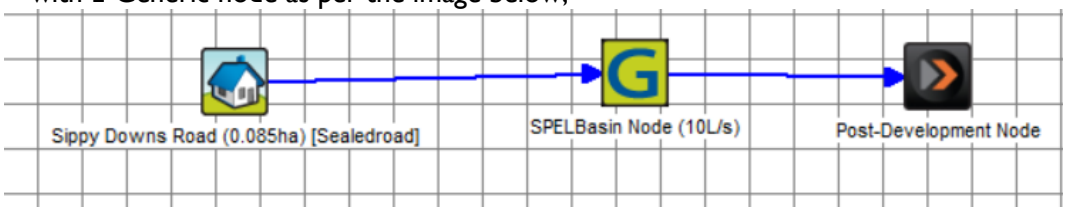
Verified Technology	**SPELBasin®**
Issue Date	25th September 2020
Reviewed Documents	• Associate Professor Terry Lucke and Ms Oriana Sanicola, Evaluation of Treatment Performance of SPEL Basin at Sippy Downs, May 2018, Stormwater Research Group, University of Sunshine Coast. • Dr Darren Drapper and R. Biggins, Field Monitoring of a SPEL Basin at University of Sunshine Coast, 90 Sippy Downs Dr, Sippy Downs QLD 4556, Issue 1, Drapper Environmental Consultants, 10 October 2019. • SPEL Basin Monitoring setup (digital video) • SPEL Basin Technical Design Guideline, revised August 2020. • Dr Darren Drapper and E. Hancock, Field Monitoring of a SPEL Basin at University of Sunshine Coast, 90 Sippy Downs Dr, Sippy Downs QLD 4556, SQIDEP Body of Evidence Application Supplementary Report, Issue 1, Drapper Environmental Consultants, 31 July 2020

Technology Information

Applicant's Verified Performance Claims	Total Suspended Solids (TSS) 86 % Total Phosphorus (TP) 65 % Total Nitrogen (TN) 50 % Total Petroleum Hydrocarbons 0 % Gross Pollutants 99 % Others, please detail:
Maintenance performed during monitoring	• The inlet chamber and StormSack was maintained once annually during monitoring; • No maintenance was performed on the planted media; • The SPELBasin® Technical Guideline recommends maintenance of the inlet chamber and Stormsack quarterly;
Verified method to model in MUSIC	• The submitted, calibrated MUSIC model provides a method of modelling the technology with 1 Generic node as per the image below;



- The input criteria for the node is;
  - Generic node

High Flow Bypass	0.01 m³/s	
Gross Pollutants	Input = 150 mg/L	Output = 1.5 mg/L
Total Suspended Solids	Input = 1000 mg/L	Output = 140 mg/L
Total Phosphorus	Input = 10 mg/L	Output = 3.5 mg/L
Total Nitrogen	Input = 50 mg/L	Output = 25 mg/L

Conditions	The limitations of the acceptance of these claims include; • The results are for a road-based catchment. The results lie within acceptable inflow limits for this type of catchment and based on the analysis are found to be acceptable. This does not necessarily relate to other catchment types, though it noted that hard stand catchments will behave similarly. Cleaner, roof catchments may not achieve the same pollutant reduction targets; • The results are for a hydraulic loading rate up to 250m/year. Should the hydraulic load rate exceed this, the results and life expectancy of the media would be expected to decline in line with excessive loading on the device; • The results are reliant on the maintenance of the device being consistent with the manufacturers guidelines and those that are contained in the report. Most importantly

	the cleaning of the Storm Sack and filter cartridge at regular intervals; • The life expectancy of the device and the media is unknown. In discussions with the manufacturer the testing is consistent to at least the 6 year mark. It is suggested that an estimated lifespan of both media and the whole device be written into any technical guidelines as the filter material will deteriorate over time; • The acceptance of these results is reliant on the installation being similar to that shown in this analysis. Alternative installations may result in different outcomes; • Designs & Installations of the SPELBasin® are in accordance with the SPEL Stormwater SPELBasin® Technical Guidelines; and • If the media is observed to not fully drain down to its lowest level within 2 hours following an event, investigate the media permeability, and if required replace media.
Independent Reviewers	Mr Chris Beardshaw, Afflux Consulting Mr Mark Liebman, Sustainability Workshop
Accepted by Governance Panel	24/9/2020
Accepted by Stormwater Australia Board	25/9/2020