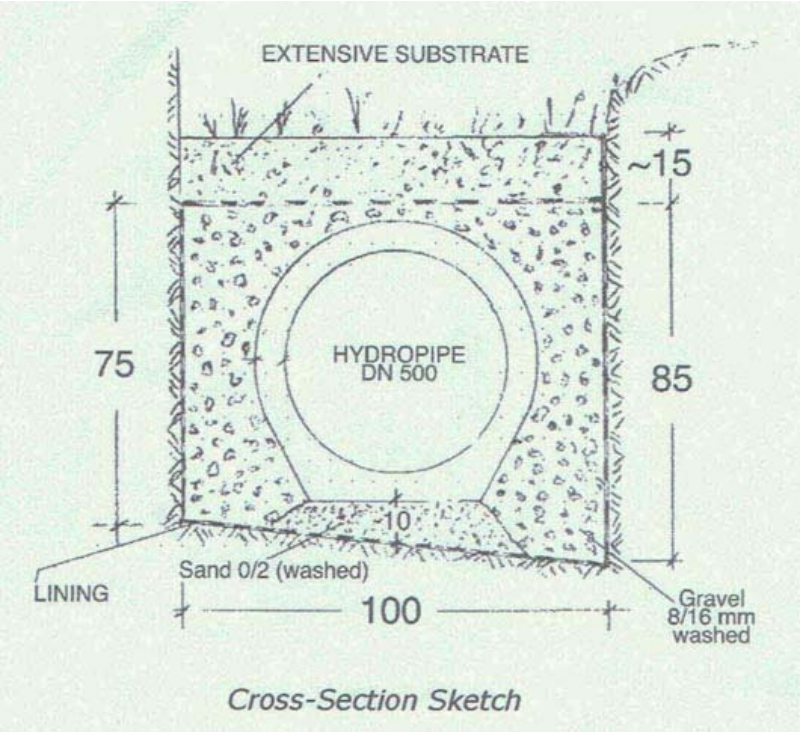
Water Storage Benefits of Installing HydroCon Pipes

Installation of HydroCon pipes in biofiltration/retention applications substantially increases underground water storage capacity. In the example below, HydroCon pipes increase capacity by almost 40%.



Cross-Section Sketch

Dimensions

Trench width	1000	mm
Trench height – side 1	750	mm
Trench height – side 2	850	mm
Sand base height	100	mm
Sand base width	500	mm
Pipe diameter (int)	500	mm
Pipe diameter (ext)	630	mm

Storage Coefficients (assumed)

Gravel fill (media)	0.35
Sand base	0.30
Pipe wall	0.20
Pipe	1.00

Cross Section Areas

1	Trench	depth x width	[(0.75 + 0.85)/2] x 1.0	0.80 m^2
2	Pipe - external	πr^2	3.142 x $(0.63/2)^2$	0.31 m^2
3	Pipe - internal	πr^2	3.142 x $(0.50/2)^2$	0.196 m^2
4	Sand base	depth x width	(0.1 x 1.0)/2	0.05 m^2

HydroCon

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Calculation of Storage Volumes

litres / linear metre of trench

Gravel Trench

Gravel media	V = cross section area of trench x assumed storage coefficient of gravel x 1000	V = [0.80 x 0.35] x 1000	**280**

Pipe Trench

Sand base	V = cross section area of sand base x assumed storage coefficient of sand x 1000	V = [0.05 x 0.3] x 1000	15
Gravel media	V = cross section area of trench – cross section area of sand base – external cross section of pipe x assumed storage coefficient of gravel x 1000	V =[(0.80 – 0.05 – 0.31) x 0.35] x 1000	154
Pipe wall	V = external cross section area of pipe – internal cross section area of pipe x assumed storage coefficient of pipe wall x 1000	V = [(0.31 – 0.196) x 0.2] x 1000	23
Pipe	V = internal cross section area of pipe x storage coefficient of pipe x 1000	V = [0.196 x 1.0] x 1000	196
Total			**388**

Increase in Storage Volume (%)

Δ V = 100 x (V gravel trench / V pipe trench) - 100	Δ V = [100 x 388 / 280] - 100	**38.57**