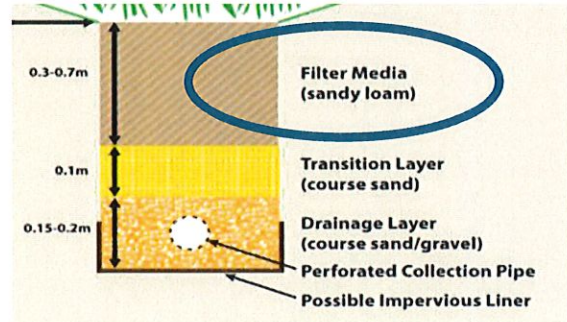


Civil Engineering Materials

MACKA'S BIORETENTION- Filter Sand

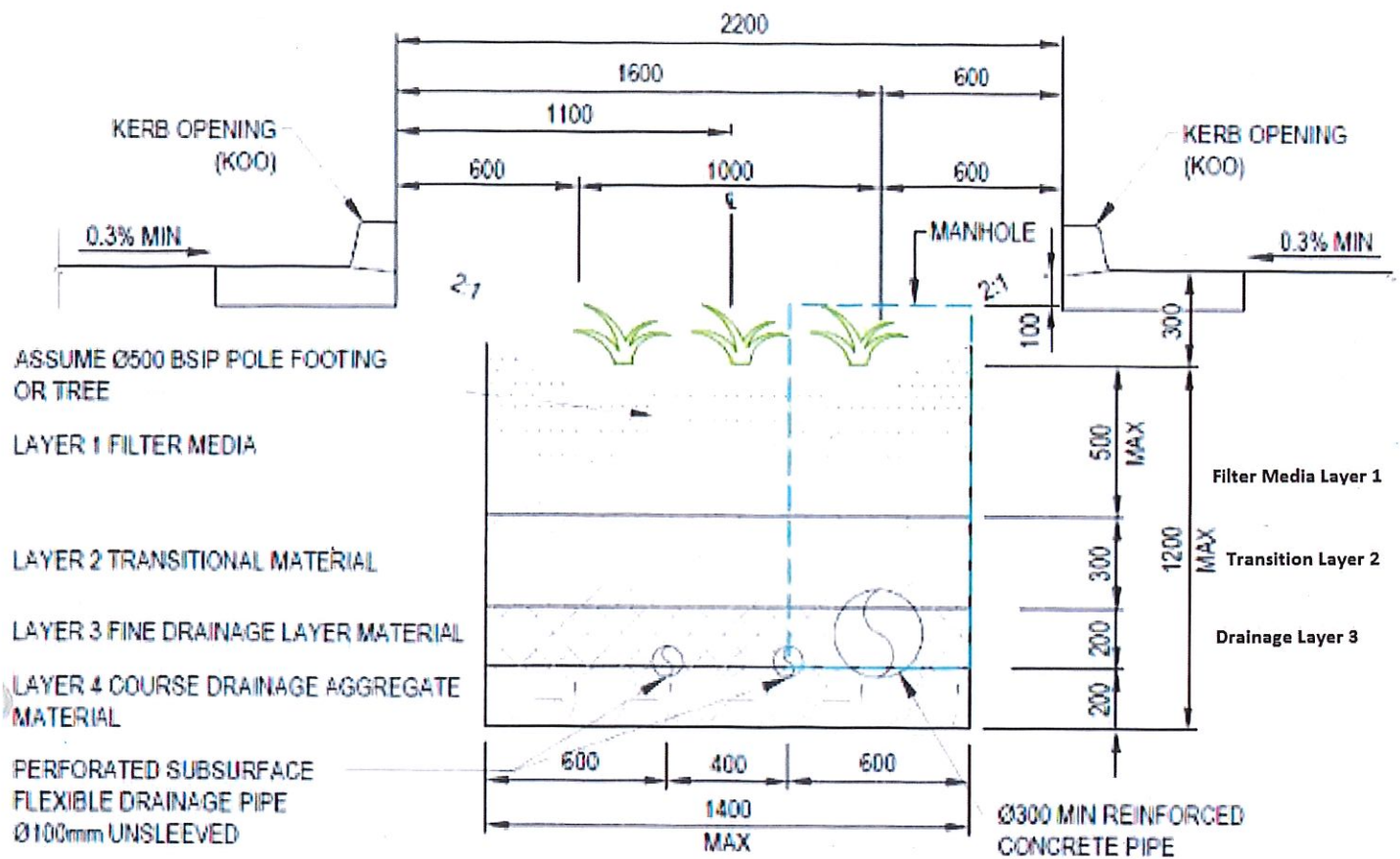


Macka's Bioretention Sand is a suitable sand component to any retention basin and can have up to 30% greenwaste added to create the whole profile necessary for filtering and managing water flow on sensitive sites. Product can be mixed at Macka's site upon request.

Bioretention and Bio Filtration Swale Trench Sand– Filter Layer			
Sieve Size (mm)	Description	% Retained by mass	Target Range*
<0.05	Clay + Silt	5.4	< 3.0%
0.05 - 0.15	Fine to Very Fine Sand	3.9	5 - 30 %
0.15 - 0.25	Fine Sand	19.5	10 - 30%
0.25 - 0.5	Medium to Coarse Sand	70.7	40 - 60%
1.0 - 2.0	Very Coarse Sand	0.3	7 - 10%
2.0 - 3.35	Fine Gravel	0.1	< 3.0%
Note while grading may be outside specified Target Range may still be acceptable in this application			
Physical Performance		Unit	Result
Hydraulic Conductivity			
Predicted based on PSA	mm/hr	648.0	Saturated 150 – 250mm/hr
Actual to ASTM F 1815-06	mm/hr	309.0	> 100 mm/hr.
Soil Properties**		Unit	Result
Organic Matter	% dry weight	0.5	>3.0%
pH in H ₂ O (1:5)	pH unit	6.3	5.5 - 7.5
Electrical Conductivity (1:5)	dS/m	0.02	< 1.2 dS/m
Orthophosphate (Olsen)	mg/kg	12.9	< 80 mg/kg
Total Nitrogen	mg/kg	200.0	< 1000 mg/kg

NB: The information provided in this product guide should be used as a guide only. For further details or for design and application support, please contact us.

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ASSUME Ø500 BSIP POLE FOOTING OR TREE

LAYER 1 FILTER MEDIA

LAYER 2 TRANSITIONAL MATERIAL

LAYER 3 FINE DRAINAGE LAYER MATERIAL

LAYER 4 COURSE DRAINAGE AGGREGATE MATERIAL

PERFORATED SUBSURFACE FLEXIBLE DRAINAGE PIPE Ø100mm UNSLEEVED

Ø300 MIN REINFORCED CONCRETE PIPE

Filter Media Layer 1

Transition Layer 2

Drainage Layer 3