



Scapeworks
AUSTRALIA

Soil Specification Information

Expertise in Soils

Scapeworks management and staff spend time, expertise and money researching and developing the best quality mixes for everyday construction use.



Scapeworks branded products have been:

- Trialled extensively
- Tested by an independent laboratory
- Are predominantly renewable and recyclable
- Installed by the trained and inducted Scapeworks staff

One of the reasons we are more stringent with our mixes than other landscape supply companies is because our products are often installed into hard to access, sensitive or highprofile sites where failure is not an option.

Please enjoy reading the following detailed information and feel free to call our soil experts if you need further explanation on the testing or performance of the products.



Experience in High Profile, Small and Large Scale Sites



These are just a few examples where our work can be observed.

- ICC Sydney Green Roof
- East Village Apartments , Zetland
- The Sanctuary, Wentworth Point
- Pavilions Apartments, Olympic Park
- The Langston, Epping
- Ed Square, Edmonson Park
- Natura Apartments, Macquarie Park
- Melrose Park Village, Melrose Park
- Concord Hospital, Concord
- Eminence Apartments, Zetland
- Park Sydney, Erskineville

Ask us for more site references...

Lightweight Planter Box Mix



The Lightweight Planter Box Mix (A Horizon) is excellent for installation into the top 300 – 400 mm of a contained environment such as planter boxes and podiums. It has been developed in conjunction with the B Horizon mix to work as the nutrient rich growing media layer of an engineered profile.

The Lightweight Planter Box Mix is tested to the Australian Standard 4419: 2018 Soils for Landscaping and Garden Use – Organic Soil Analysis. It is also tested with the 6 Point Hydraulic Conductivity Test. The mix requirements are specific and don't fit into any one Australian Standard. The mix is also tested against Specification E3 Low Density Container and Green Roof from Soil for Landscape Development. We use the standards as a tool only.

Test Results:

February 2024

Physical Properties	Unit	Target Range	Results	Comments
Texture	n/a	Gravelly loamy sand to organic sandy loam	Loamy Sand	Acceptable
Air- Filled porosity	%	≥ 13	16	Acceptable
Water-holding capacity	%	≥ 40	49.2	Acceptable
Permeability@16 Drops	mm/hr	>100	270	Acceptable
Large Particles				
<2 mm	% ww	30-70	53.2	Acceptable
2-10 mm	% ww	10-20	47.8	High
10-20 mm	% ww	5-10	8.23	Acceptable
20-50 mm	% ww	<5	0.5	Acceptable
>50 mm	% ww	0	0.5	Acceptable
Organic Matter	% ww	< 15	21	Slightly High Due to Ash Content
Dispersibility	Category	> 1 or 2	1	Acceptable
Wettability	mins	≤ 5	3.62	Acceptable
Saturated Repacked Density	Kg/L	<2.4	1.18	Acceptable
Chemical Properties	Unit	Target Range	Results	Comments
pH in water (1:5)	pH units	5.4 - 6.8	7.32	Slightly High
Electrical Conductivity (1:5)	dS/m	< 2.2	1.26	Acceptable
Chloride	mg/L	< 200	264	Slightly High
Ammonium-N (NH ₄)	mg/L	< 100	1.2	Acceptable
Ammonium-N + Nitrate-N	mg/L	> 50	5.0	Low
Nitrogen draw-down index	-	> 0.7	0.01	Low
Bioassay	mm	> 70	103	Acceptable
Phosphorus	mg/L	8 - 40	15	Acceptable
Potassium	mg/L	50 - 250	272	Slightly High
Sulphate	mg/L	> 40	20	Slightly Low
Calcium	mg/L	> 80	81	Acceptable
Magnesium	mg/L	> 15	25	Acceptable
Ca:Mg Ratio	Ratio	1.5 - 10	3.2	Acceptable
K:Mg Ratio	Ratio	1 - 7	10.9	Slightly High
Sodium	mg/L	< 130	116	Acceptable
Iron	mg/L	> 35	17.7	Low
Copper	mg/L	0.4 - 15	0.519	Acceptable
Zinc	mg/L	0.3 - 10	3.2	Acceptable
Manganese	mg/L	1 - 15	4.07	Acceptable
Boron	mg/L	0.02 - 0.65	0.211	Acceptable



Bulk Density = 0.56 kg/L. Saturated Bulk Density = 1.18 kg/L

Scapeworks staff add a further Nitrogen source, Dolomite, Gypsum, and other nutrition where needed. Further organic fertilisers and water holding products can be added upon request.





The B Horizon Mix performs well as a lower profile substrate in contained environments, below the Lightweight Planter Box Mix. It has been developed to work as the stable drainage media layer of an engineered profile. It provides enough nutrition for continued root growth while creating a stable substrate for long term volume.

The B Horizon Mix is tested to the Australian Standard 4419: 2018 Soils for Landscaping and Garden Use – Organic Soil Analysis. It is also tested with the 6 Point Hydraulic Conductivity Test. We use the standards as a tool and request extra Bulk density and environmental compliant testing.

Test Results:

February 2024

Physical Properties	Unit	Target Range	Results	Comments
Texture	-	Loamy Sand - Sandy Loam	Loamy Sand	Acceptable
Air-Filled Porosity	%	≥ 10	17	Acceptable
Water-Holding Capacity	%	≥ 40	40.7	Acceptable
Permeability (@16 Drops)	mm/hr	> 100	567	Acceptable
Organic Matter	% w/w	< 5	23	High - Due to Ash
Wettability (AS4419)	min	≤ 5	2.48	Acceptable
Dispersibility	Category	1 or 2	1	Acceptable
Large Particles				
< 2 mm	% ww	30 - 70	43.3	Acceptable
2 -10 mm	% ww	10 - 20	26	High
10 - 20 mm	% ww	5 - 10	23.4	High
20 - 50 mm	% ww	< 5	7.3	High
> 50 mm	% ww	0	0.5	Acceptable
Saturated Density	kg/L	< 2.4	1.21	Acceptable
Chemical Properties	Unit	Target Range	Results	Comments
pH in water (1:1:5)	pH units	5.4 - 6.8	7.09	Slightly High
Electrical Conductivity	dS/m	< 2.2	.99	Acceptable
Chloride	mg/ L	≤ 200	169	Acceptable
Ammonium-N (NH ₄)	mg/ L	≤ 100	0.6	Acceptable
Ammonium-N + Nitrate-N (NH ₄ + NO ₃)	mg/ L	≥ 50	5.0	Low
Nitrogen Draw-Down Index	-	≥ 0.7	.01	Low
Bioassay	mg/ L	≥ 70	112	Acceptable
Phosphorus	mg/ L	8 - 40	8.1	Acceptable
Low Phosphorus - P-Sensitive plant	mg/ L	< 3	8.1	high
Potassium	mg/ L	5 - 250	156	Acceptable
Sulphate (SO ₄)	mg/ L	> 40	58	Acceptable
Calcium (Ca)	mg/ L	≥ 80	101	Acceptable
Magnesium (Mg)	mg/ L	≥ 15	29.8	Acceptable
Ca:Mg Ratio	Ratio	1.5 - 10	3.4	Acceptable
K:Mg Ratio	Ratio	1 - 7	5.2	Acceptable
Sodium (Na)	mg/ L	≤ 130	87	Acceptable
Iron (Fe)	mg/ L	≥ 35	25.2	Low
Copper (Cu)	mg/ L	0.4 - 15	0.53	Acceptable
Zinc (Zn)	mg/ L	0.3 - 10	2.2	Acceptable
Manganese (Mn)	mg/ L	1 - 15	2.57	Acceptable
Boron (B)	mg/ L	0.02 - 0.65	0.168	Acceptable



Saturated bulk density = 1.1kg/L. Dry bulk density = 0.67kg/L

Laboratory recommendations are implemented when the B Horizon is the predominant growing media in the podium and where corrections need to be made. Scapeworks staff add important nitrogen sources plenty of calcium, micro and macro nutrients and pH adjusters if needed.



The Premium Garden Mix is a superior growing media- designed to support a range of plant species from exotics to most Australian Natives. It supports young plants and has the substance to remain an excellent mix long term. The Premium Garden Mix has a structure that supports stable volume and a good organic content to encourage a healthy microbial ecosystem.

The Premium Garden Mix is tested to the Australian Standard 4419: 2018 Soils for Landscaping and Garden Use – Organic Soil Analysis. It is also tested against Specification D3 Display Bed Soil from the text Soil for Landscape Development by Leake and Haege. We also test Bulk Density and Environmental Compliance as special requests as they are not included in the general standard testing suite.

Test Results:

February 2024

Physical Properties	Unit	Target Range	Results	Comments
Texture	n/a	Sandy Loam to Clay Loam	Loamy Sand	Acceptable
Organic Matter	% dwb	3 - 6	13	High Due to Ash
Organic Matter (Organic Soil Variant)	% dwb	15 - 25	13	Acceptable
Permeability (@16 Drops)	mm/hr	> 50	1132	Acceptable
Wettability	mm/hr	> 5	35	Acceptable
Dispersibility in water	Category	1 or 2 (AS 4419) category	1	Acceptable
Large Particles				
2 - 20 mm	% ww	< 20	23.8	Slightly High
> 20 mm	% ww	< 10	0.01	Acceptable
Visible Contaminants >2 mm (Glass, Plastic and Metal)	% w/w	< 25	< 0.01	Acceptable
Chemical Properties	Unit	Target Range	Results	Comments
pH in water (1:5) Standard Range	pH units	5.4 - 6.8	6.3	Acceptable
pH in CaCl ₂ (1:5) Standard Range	pH units	5.2 - 6.5	5.7	Acceptable
pH in water (1:5) Alkaline Range	pH units	6.8 - 8	6.3	Slightly low
pH in CaCl ₂ (1:5) Alkaline Range	pH units	6.5 - 7.5	5.7	Slightly Low
Electrical Conductivity (1:5)	dS/m	< 0.75	0.5	Acceptable
Phosphorus - P-tolerant or standard plants acids soils method 18F1	mg/kg	50 - 150	0	
Phosphorus - P-tolerant plants alkaline soils method 9B1 or 9C1	mg/kg	30 - 60	19.2	Slightly Low
Phosphorus - P-sensitive plants, acid soils method 18F1	mg/kg	<30		
Phosphorus - P-sensitive plants, alkaline soils method 9B1 or 9C1	mg/kg	<20	19.2	Acceptable
Exchangeable Sodium (Na)	% ECEC	< 7	12.6	Normal
Exchangeable Sodium (K)	% ECEC	5 - 10	6.5	Normal
Exchangeable Calcium (Ca) Method 18F1 or 15A1 in alkaline soils	% ECEC	60 - 80	56.2	Normal
Exchangeable Magnesium (Mg)	% ECEC	15 - 25	25.1	Normal
Exchangeable Aluminium (Al)	% ECEC	< 2	-	-
Exchangeable Ca:Mg ratio	Ratio	3 - 9	2.2	Slightly Low
Available Iron (Fe)	mg/kg	100 - 400	350	Acceptable
Available Manganese (Mn)	mg/kg	25 - 100	25	Acceptable
Available Zinc (Zn)	mg/kg	5 - 30	3.6	Slightly Low
Available Copper (Cu)	mg/kg	1 - 15	3.6	Acceptable
Available Boron (B)	mg/kg	0.5 - 5	0.43	Acceptable
Available N (N as Nitrate)	mg/kg	> 30	0.05	Low



Scapeworks Premium Garden Mix tests as Grade A soil for Unrestricted Use. Bulk Density 0.86kg/L
Saturated Bulk Density 1.4kg/L





The Turf Underlay is a superior mix that creates a thriving lawn environment. It is specially developed for the use in both residential and amenity turf areas. The mix contains minerals and inorganic components, as well as a percentage of organic product for better structure and nutrition. The Turf Underlay has high permeability which creates a free draining environment to decrease the chance of fungal growth.

The Turf Underlay is tested to Specification C1 – Passive Amenity Turf from the text Soil for Landscape Development by Leake and Haegel. It is also tested for Bulk Density, Saturated Bulk Density & Environmental Compliance as special requests outside the general Australian Standard suite.

Test Results:

February 2024

Physical Properties	Unit	Target Range	Results	Comments
2.0 mm (fine gravel)	% retained by mass	< 10	3.61	Acceptable
1.0 mm (very coarse sand)	% retained by mass	< 10	5.81	Acceptable
0.5 mm (coarse sand)	% retained by mass	10 - 30	7.36	Acceptable
0.25 mm (medium sand)	% retained by mass	20 - 40	60	High
0.1 mm (fine sand)	% retained by mass	10 - 30	1.25	Low
0.05 mm (very fine sand)	% retained by mass	5 - 15 (max 25% combined of vfs, si + cl)	1.12 - 21.97	Acceptable
< 0.05 mm (fine particles)	% retained by mass	3 - 8	1.18	Slightly Low
Large Particles	% by mass	2 - 20 mm = < 10%	3.61	Acceptable
Organic Matter Content	% w/w	> 20mm = 0%	<0.01	Acceptable
Permeability	mm/h	> 2 to 8	8.1	Acceptable
Wettability (AS4419)	mm/min	> 30 (@ 16 Drops)	1062	Acceptable
Dispersibility in Water	Category	> 5	18	Acceptable
		1 or 2 (AS4419)	1	Acceptable
Chemical Properties	Unit	Target Range	Results	Comments
pH in Water (1:5)	pH units	5.4 - 8.0	5.87	Acceptable
pH in CaCl ₂ (1:5)	dS/m	5.2 - 7.5	5.44	Acceptable
Electrical Conductivity (1:5)	mg/ L	< 0.5	0.67	Acceptable
Exchangeable Na percentage	mg/ L	< 7	12.1	Acceptable
Exchangeable Ca:Mg ratio	mg/ L	3 - 9	2.5	Slightly High
Available Phosphorus	-	50 - 150 20 - 50	31	Slightly Low
Available Nitrogen (NO ₃)	mm	20 - 60	0.32	Low

When requesting test information, please read the comment below:

Scapeworks commissions independent testing to specifications from "Soils for Landscape Development: Selection, Specification and Validation - Leake and Haegel" as well as the relevant Australian Standards 3743 and 4419, to collect as much information as we can on the fit

for purpose performance of the mixes. All independent declaration of compliance and independent testing results are available upon request. Our focus is to provide structurally robust and environmentally responsible growing media that encourages healthy plant life.



Bulk Density 0.91kg/L. Saturated Bulk Density 1.4kg/L

"We consider the material fit for purpose as a turf underlay in all but high grade sports field situations provided the turf is fertilized once established as is normal practice" - **SESL Australia.**



The Green Roof Mix has been developed to provide a stable substrate that can sustain plant life while maintaining volume over time. Scapeworks Australia has installed large trial plots and monitored them over a 6 year period to ensure the green roof media used is the best available. It is also tested independently. Not only that, but Scapeworks Australia Green Roof mix has been given a certificate of compliance with the requirements in the soil publication by Leake and Haege, no easy feat. Available upon request.

As there is no appropriate Australian Standard for Green roof media yet, Green Roof Mix is tested to the Australian Standard 3743 Potting Mix non specialist (Regular Grade). We also test the Bulk Density to the Australian Standard 4419: 2003 Soils for Landscaping and Garden Use – Organic Soil Analysis. It is also tested with the 6 Point Hydraulic Conductivity Test. We use the standards as a tool only. The mix is also tested against Specification E3 Low Density Container and Green Roof from the text Soil for Landscape Development by Leake and Haege. Scapeworks Australia staff add important nitrogen sources, plenty of calcium, micro and macro nutrients and pH adjusters if needed.

Test Results:

February 2024

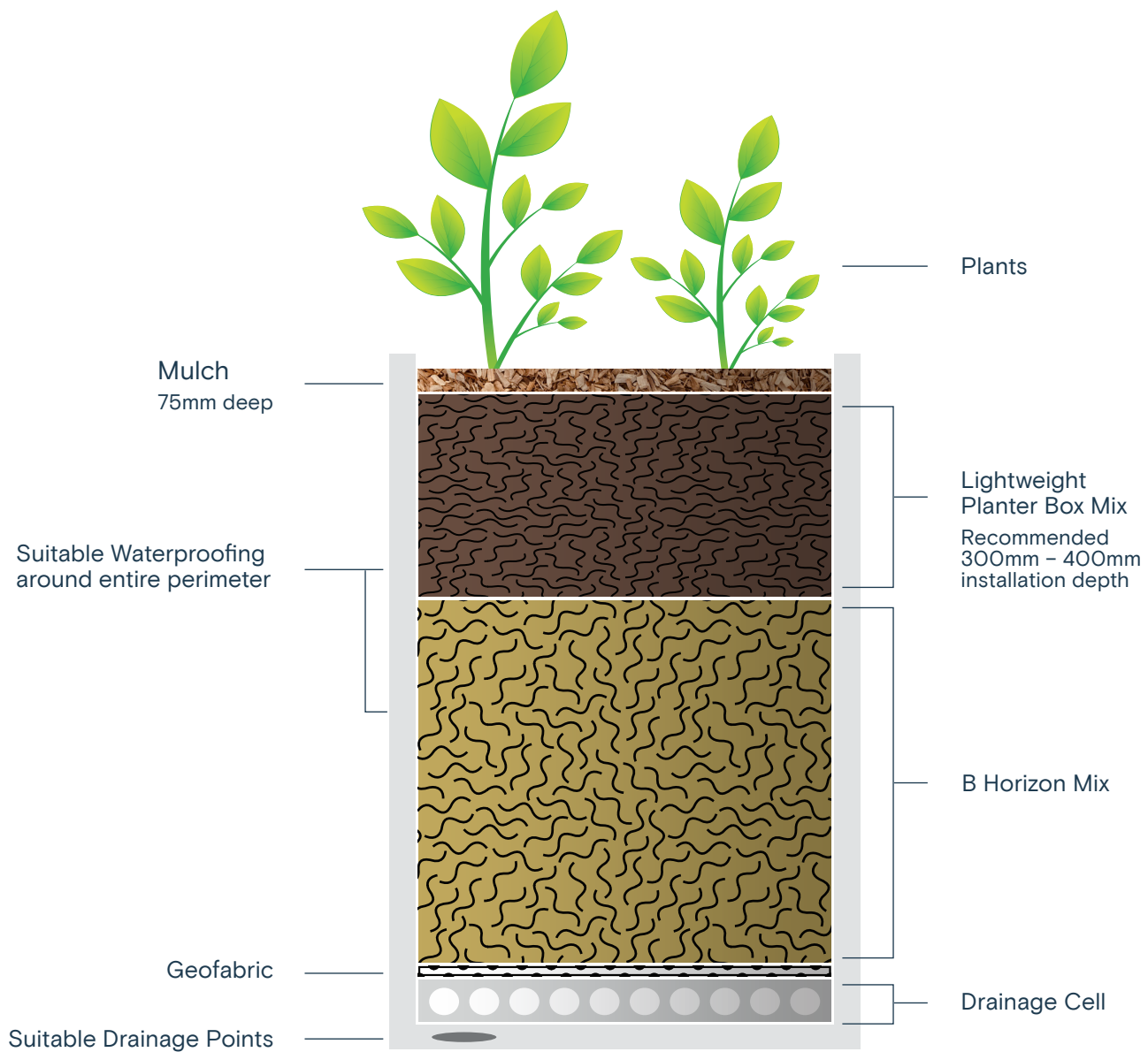
Physical Properties	Unit	Target Range	Results	Comments
Texture	-	Loamy Sand - Sandy Loam	Loamy Sand	Acceptable
Air-Filled Porosity	%	≥ 5	20	Acceptable
Water-Holding Capacity	%	≥ 45	46.7	Acceptable
Permeability (@16 Drops)	mm/hr	> 100	870	Acceptable
Organic Matter	% w/w	< 25	32	Slightly High Due to Ash
Wettability (AS4419)	min	≤ 2	3.09	Slightly High
Dispersibility	Category	1 or 2	1	Acceptable
Large Particles				
< 2 mm	% ww	30 - 70	44.2	Acceptable
2 -10 mm	% ww	15 - 30	36	Slightly High
10 - 20 mm	% ww	5 - 10	14.1	Acceptable
20 - 50 mm	% ww	< 5	5.58	Acceptable
> 50 mm	% ww	0	0	Acceptable
Saturated repacked Density	kg/L	< 2.4	1.16	Acceptable
Chemical Properties	Unit	Target Range	Results	Comments
pH in water (1:1:5)	pH units	5.4 - 6.8	6.77	Acceptable
Electrical Conductivity	dS/m	< 2.2	1.16	Acceptable
Chloride	mg/ L	≤ 200	200	Acceptable
Ammonium-N (NH ₄)	mg/ L	≤ 100	0.3	Acceptable
Ammonium-N + Nitrate-N (NH ₄ + NO ₃)	mg/ L	≥ 50	5.0	Low
Nitrogen Draw-Down Index	-	≥ 0.7	0.01	Low
Bioassay	mg/ L	≥ 70	158	Acceptable
Phosphorus	mg/ L	3/8 - 40	4.2	Acceptable
Potassium	mg/ L	50 - 250	206	Acceptable
Sulphate (SO ₄)	mg/ L	> 40	60	Acceptable
Calcium (Ca)	mg/ L	≥ 80	73	Slightly Low
Magnesium (Mg)	mg/ L	≥ 15	30	Acceptable
Ca:Mg Ratio	Ratio	1.5 - 10	2.4	Acceptable
K:Mg Ratio	Ratio	1 - 7	6.9	Acceptable
Sodium (Na)	mg/ L	≤ 130	100	Acceptable
Iron (Fe)	mg/ L	≥ 35	30.6	Slightly Low
Copper (Cu)	mg/ L	0.4 - 15	0.7	Acceptable
Zinc (Zn)	mg/ L	0.3 - 10	1.7	Acceptable
Manganese (Mn)	mg/ L	1 - 15	5.29	Acceptable
Boron (B)	mg/ L	0.02 - 0.65	0.179	Acceptable



Hydraulic Conductivity – 32 drops (heavy compaction) – 870mm/hr
Saturated bulk density = 1.16kg/L. Dry bulk density = 0.52kg/L

Laboratory recommendations are implemented when the Green Roof Mix is the predominant growing media in the podium and where corrections need to be made. Scapeworks staff add important nitrogen sources plenty of calcium, micro and macro nutrients and pH adjusters if needed.

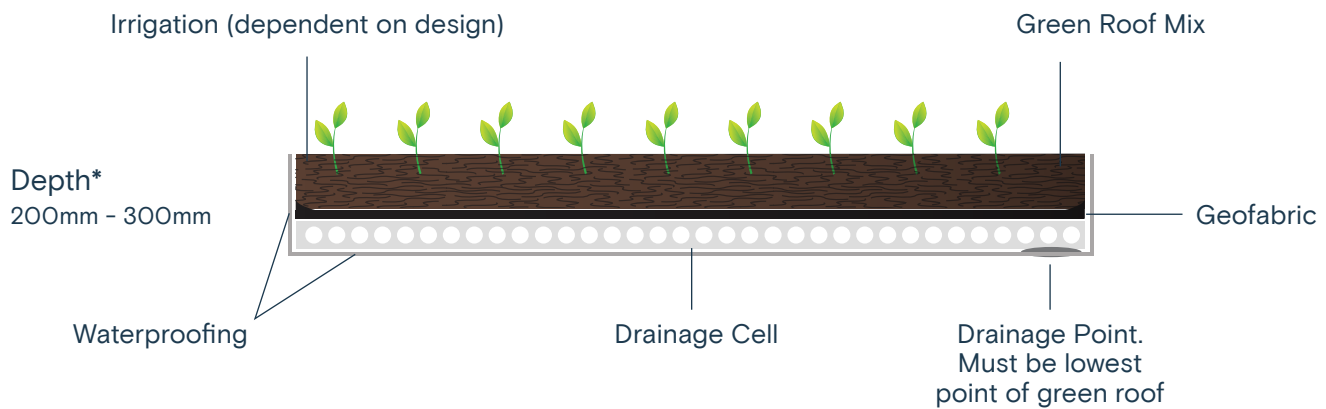
Planter Box and Podium Garden Profile



Irrigation may be installed. Weight calculations are helpful when on slab.
Depth of B Horizon varies with planter depth.



Roof Mix Diagram



*Know the weight the roof/slab can hold to calculate the kg/m^2 . The depth of media can be calculated using Saturated Bulk Density value. Optimum depth is 300mm.

Green Roof Ingredients... The Essentials

Green roof mix has essential ingredients to create a premium mix. We include our horticultural grade ash products and a small amount of composted, aged organic fines to ensure a buffer for fungal control and nutrient retention. The mix of minerals and organics creates a good structure. It will not slump and has excellent drainage and water holding capacity.

Scapeworks Green Roof Mix contains Horticultural Grade Ash in place of Scoria as it has superior characteristics. Ash is lighter than Scoria. It is a by-product and therefore is not a product of quarrying. Ash provides excellent porosity, water holding capacity and long-term volume stability.

Scoria can be added to our Green Roof Mix upon request. Please note however that it is sourced interstate from quarries. This adds to the costs both financially and to the environment when included as a component. Scoria also adds extra weight to our Green Roof Mix without contributing any extra benefits.



A Horticultural Grade Ash

B 7-10mm Scoria

Please contact us for more information on specific components.



Product List

Products available from Scapeworks



Soil Mixes

- Lightweight Planter Box Mix
- B Horizon Mix
- Green Roof Mix
- Turf Underlay Mix
- Premium Garden Mix
- Special Orders



Mulches

- Pine Bark Mulch
- Playbark – certified soft fall
- Premium Forest Mulch
- Enviro Fines
- Hardwood Chip



Pebbles & Aggregates

- 10mm Blue Metal
- 20mm Blue Metal
- 20mm Nepean River Pebble
- 20mm Cowra White
- 10mm Recycled Aggregate
- 20mm Recycled Aggregate



Sand

- Drainage Sand
- Sydney Sand
- Playground Sand – certified softfall
- Filter Sand

Extra Products available through the Rockslinger Machine

- Crushed Concrete
- Recycled Road Base
- Crushed Sandstone
- Deco Granite
- Any Pebbles up to 75 mm

The Scapeworks Rockslinger installs a wider range of products including site soil upon arrival.

We can pick up from your preferred supplier, install your site product, or provide product from our own yard.



Scapeworks

AUSTRALIA



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