



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...

Light Weight Planter Box Mix



The A horizon or lightweight planter box mix is the top layer of the mineral soil horizons, above the B Horizon Planter Box Mix. The Lightweight Planter Mix is excellent for installation into the top 300 – 400 mm of a contained environment such as planter boxes and podiums. It provides great nutrition for continued root growth.

The A Horizon Mix is compared to Leake and Haege (2014) Specification E1: On-Slab Soil Media A-Horizon. We use the standards as a tool and environmental compliant testing. Scapeworks Australia engages 'The Urban Soil Doctor' to undertake in-situ sample collection at the Scapeworks site.

Test Results:

November 2024

Physical Properties		Unit	Target Range	Results
Texture		n/a	Loamy Sand - Sandy Loam	Loamy Sand
Air-Filled Porosity		%	≥ 10	13.6
Water-Holding Capacity		%	≥ 40	54.7
Permeability (@16 Drops)		mm/hr	> 100	3,961
Organic Matter		% w/w	< 15	19.2
Wettability (AS4419)		min	≤ 5	2m 46s
Dispersibility		Category	1 or 2	3
Large Particles	< 2 mm	% ww	30 - 70	-
	2 - 10 mm		10 - 20	38.9
	10 - 20 mm		5 - 10	
	20 - 50 mm		< 5	
	> 50 mm		0	0
Chemical Properties		Unit	Target Range	Results
pH in water (1:1:5)		pH units	5.4 - 6.8	7.4
Electrical Conductivity		dS/m	< 2.2	1.6
Chloride		mg/ L	≤ 200	270
Ammonium-N (NH ₄)		mg/ L	≤ 100	0.6
Ammonium-N + Nitrate-N (NH ₄ + NO ₃)		mg/ L	≥ 50	2.2
Nitrogen Draw-Down Index		-	≥ 0.7	.01
Bioassay		mg/ L	≥ 70	90.3
Phosphorus		mg/ L	8 - 40	18.2
Low Phosphorus - P-Sensitive plant		mg/ L	< 3	18.2
Potassium		mg/ L	50 - 250	351
Sulphate (SO ₄)		mg/ L	> 40	47.6
Calcium (Ca)		mg/ L	≥ 80	127
Magnesium (Mg)		mg/ L	≥ 15	29.9
Ca:Mg Ratio		Ratio	1.5 - 10	4.3
K:Mg Ratio		Ratio	1 - 7	11.7
Sodium (Na)		mg/ L	≤ 130	130
Iron (Fe)		mg/ L	≥ 35	28
Copper (Cu)		mg/ L	0.4 - 15	0.5
Zinc (Zn)		mg/ L	0.3 - 10	4.6
Manganese (Mn)		mg/ L	1 - 15	3.9
Boron (B)		mg/ L	0.02 - 0.65	0.3
Additional Testing		Units	Target Range	Results
Saturated Density		kg/L	< 2.4	1.2
Dry Bulk Density		Kg/L	No Requirement	0.5
Asbestos			None Detected	None Detected

Polarized Light Microscope and dispersion staining method.



Scapeworks Light Weight Planter Box Mix - A Horizon tests as Grade A soil for unrestricted use. The Urban Soil Doctor (TUSD) was requested by Scapeworks Australia to conduct in-situ sample collection at Scapeworks Australia's yard, also oversees, analyses and reports on products collected.
[Chantal Milner](#), CPSS Principal Soil Scientist
 BSc Env Sci, PGCert Green Infrastructure, CPSS



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 compared to Leake and Haege (2014) Specification E2: On-Slab Soil Media B - Horizon. We use the standards as a tool and environmental compliant testing. Scapeworks Australia engages 'The Urban Soil Doctor' to undertake in-situ sample collection at the Scapeworks site.

Test Results:

November 2024

Physical Properties		Unit	Target Range	Results
Texture		n/a	Loamy Sand - Sandy Loam	Loamy Sand
Air-Filled Porosity		%	≥ 10	11.2
Water-Holding Capacity		%	≥ 40	47.9
Permeability (@16 Drops)		mm/hr	> 100	4,330
Organic Matter		% w/w	< 5	12.3
Wettability (AS4419)		min	≤ 5	1m 8s
Dispersibility		Category	1 or 2	2
Large Particle s	< 2 mm	% ww	30 - 70	-
	2 - 10 mm		10 - 20	41.5
	10 - 20 mm		5 - 10	
	20 - 50 mm		< 5	
	> 50 mm		0	1.71
Chemical Properties		Unit	Target Range	Results
pH in water (1:1:5)		pH units	5.4 - 6.8	7.2
Electrical Conductivity		dS/m	< 2.2	1.3
Chloride		mg/ L	≤ 200	190
Ammonium-N (NH4)		mg/ L	≤ 100	.5
Ammonium-N + Nitrate-N (NH4 + NO3)		mg/ L	≥ 50	1.2
Nitrogen Draw-Down Index		-	≥ 0.7	0.0
Bioassay		mg/ L	≥ 70	105
Phosphorus		mg/ L	8 - 40	11.2
Low Phosphorus - P-Sensitive plant		mg/ L	< 3	11.2
Potassium		mg/ L	5 - 250	204
Sulphate (SO4)		mg/ L	> 40	54.7
Calcium (Ca)		mg/ L	≥ 80	138
Magnesium (Mg)		mg/ L	≥ 15	32.1
Ca:Mg Ratio		Ratio	1.5 - 10	4.3
K:Mg Ratio		Ratio	1 - 7	6.4
Sodium (Na)		mg/ L	≤ 130	95
Iron (Fe)		mg/ L	≥ 35	33.1
Copper (Cu)		mg/ L	0.4 - 15	0.4
Zinc (Zn)		mg/ L	0.3 - 10	2.97
Manganese (Mn)		mg/L	1-15	3.97
Boron (B)		mg/L	0.02-0.65	0.2
Additional Testing		Units	Target Range	Results
Saturated Density		kg/L	< 2.4	1.2
Dry Bulk Density		Kg/L	No Requirement	0.54
Asbestos			Not Detected	Not Detected

Polarized Light Microscope and dispersion staining method.



Scapeworks B Horizon tests as Grade A soil for unrestricted use. The Urban Soil Doctor (TUSD) was requested by Scapeworks Australia to conduct in-situ sample collection at Scapeworks Australia's yard, also oversees, analyses and reports on products collected. [Chantal Milner](#), CPSS Principal Soil Scientist BSc Env Sci, PGCert Green Infrastructure, CPSS



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 good organic content to encourage a healthy microbial ecosystem.

Laboratory analysis has been compared to Leake and Haege (2014) Specification D3: Display Bed Soil for Landscaping and Garden Use. Organic Soil Analysis shows a high-quality feature for bed planting of grasses, woody and herbaceous annuals and perennials that have a high nutrient requirement for sustained optimum growth, and not subject to compaction by pedestrian or other traffic. We also test Bulk Density and Environmental Compliance as special requests as they are not included in the general standard testing suite.

November 2024

Physical Properties		Units	Target Range	Results
Texture, preferred range		N/A	Sandy loam - clay loam	Gravel
Organic Matter		% w/w	3 – 6	7.4
Organic Matter (Organic Soil Variant)		% w/w	15 – 25	7.4
Permeability (@16 Drops)		mm/hr	>50	363
Wettability		mm/hr	>5	16
Dispersibility in water		Category	1 or 2	2
Large	2 - 20 mm	% w/w	<20	16.8
Particle	> 20 mm	% w/w	<10	Nil
Visible contaminants > 2 mm (glass, plastic, metal)		% w/w	<0.5	<0.01
Chemical Property		Units	Target Range	Results
pH in water (1:5) standard range		pH Units	5.4-6.8	5.8
Electrical conductivity (1:5)		dS/m	< 0.5	0.8
Phosphorus – acid soils method 18F1	P-tolerant/standard plants	Mg/kg	50-100	23.6
	P-sensitive plants	Mg/kg	< 30	23.6
Exchangeable sodium (Na)		% of CEC	< 7	8.4
Exchangeable potassium (K)		% of CEC	5 - 10	9.4
Exchangeable calcium (Ca) method 18F1		% of CEC	60 – 80	44
Exchangeable magnesium (Mg)		% of CEC	15 – 25	17
Exchangeable aluminium (Al)		% of CEC	< 2	0.1
Exchangeable Ca:Mg ratio		Ratio	3 – 9	2.6
Available iron (Fe)		mg/kg	100 – 400	75.8
Available manganese (Mn)		mg/kg	25 – 100	14.4
Available zinc (Zn)		mg/kg	5 – 30	2.2
Available copper (Cu)		mg/kg	1 – 15	0.7
Available boron (B)		mg/kg	0.5 – 5	1.0
Available N (N as nitrate)		mg/kg	>30	13.1
Additional Testing		Units	Target Range	Result
Saturated Bulk Density		Kg/L	No Requirement	1.39
Dry Bulk Density		Kg/L	No Requirement	0.72
Asbestos		Detection	No Detection	No Detection



Scapeworks Premium Garden Mix tests as Grade A soil for unrestricted use. The Urban Soil Doctor (TUSD) was requested by Scapeworks Australia to conduct in-situ sample collection at Scapeworks Australia's yard, also oversees, analyses and reports on products collected. Chantal Milner, CPSS Principal Soil Scientist
BSc Env Sci, PGCert Green Infrastructure, CPSS



The Turf Underlay is a superior mix that creates a thriving lawn environment. It is specially developed for use in both residential and amenity turf areas. The mix contains minerals and inorganic components, as well as a percentage of organic products 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 Haege. It is also tested for Bulk Density, Saturated Bulk Density & Environmental Compliance as special requests outside the general Australian Standard suite.

Test Results:

November 2024

Physical Properties		Units	Target Range	Results
Particle Distribution	2 mm (Fine Gravel)	% Retained by Mass	< 10	8.4
	1.0 mm (Very Coarse Sand)		< 10	5.6
	0.5 mm (Coarse Sand)		10 - 30	9.0
	0.25 mm (Medium Sand)		20 - 40	53.2
	0.1 mm (Fine Sand)		10 - 30	13.0
	0.05 mm (Very Fine Sand)		5 - 15 (max 25% combined vfs, Si + Cl)	6.2
	0.002 mm (Silt)		< 12 (Si + Clay combined)	0.9
	< 0.002mm (Clay)		8-15	3.7
Large particles (naturally occurring)	2 - 20mm	% w/w by mass	<10	11.1
	>20 mm	% w/w by mass	0	Nil
Organic matter content		% w/w	2 to 8	14.2
Permeability (16 drops McIntyre Jakobsen)		mm/hr	>30	1583
Water Repellence*		S	≤ 60	17
Dispersibility in H2O		Category	1 or 2	1
Chemical Properties		Unit	Target Range	Results
pH in water (1:5)		pH units	5.4 - 8.0	7.1
Electrical Conductivity (1:5)		dS/m	< 0.5	0.9
Exchangeable Na percentage		% of ECEC	≤ 15	1.1
Exchangeable Ca:Mg ratio		Ratio	≤ 100	3.0
Available phosphorus 18E1		mg/kg	50 - 150	100
Available nitrogen (N as nitrate)		Mg/kg	20 - 60	11.8
Additional Testing		Units	Target Range	Results
Saturated Density		kg/L	No Requirement	1.4
Dry Bulk Density		Kg/L	No Requirement	0.7
Asbestos **			No Requirement	Not Detected

Polarized Light Microscope and dispersion staining method.

* Water repellence (AS4419 2018) supersedes wettability (AS4419 2003).

** Subcontracted - Polarized Light Microscope and dispersion staining method. SGS Laboratories SE269278.



Scapeworks Turf Underlay - The media comprises a loamy sand and will provide moderate resistance to compaction in public and other amenity turf areas subject to moderate levels of pedestrian traffic. The Urban Soil Doctor (TUSD) was requested by Scapeworks Australia to conduct in-situ sample collection at Scapeworks Australia's yard, and oversees the analyses and reports on products collected.
Chantal Milner, CPSS Principal Soil Scientist
 BSc Env Sci, PGCert Green Infrastructure, CPSS



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 Haeger, 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 Haeger. Scapeworks Australia staff add important nitrogen sources, plenty of calcium, micro and macro nutrients and pH adjusters if needed.

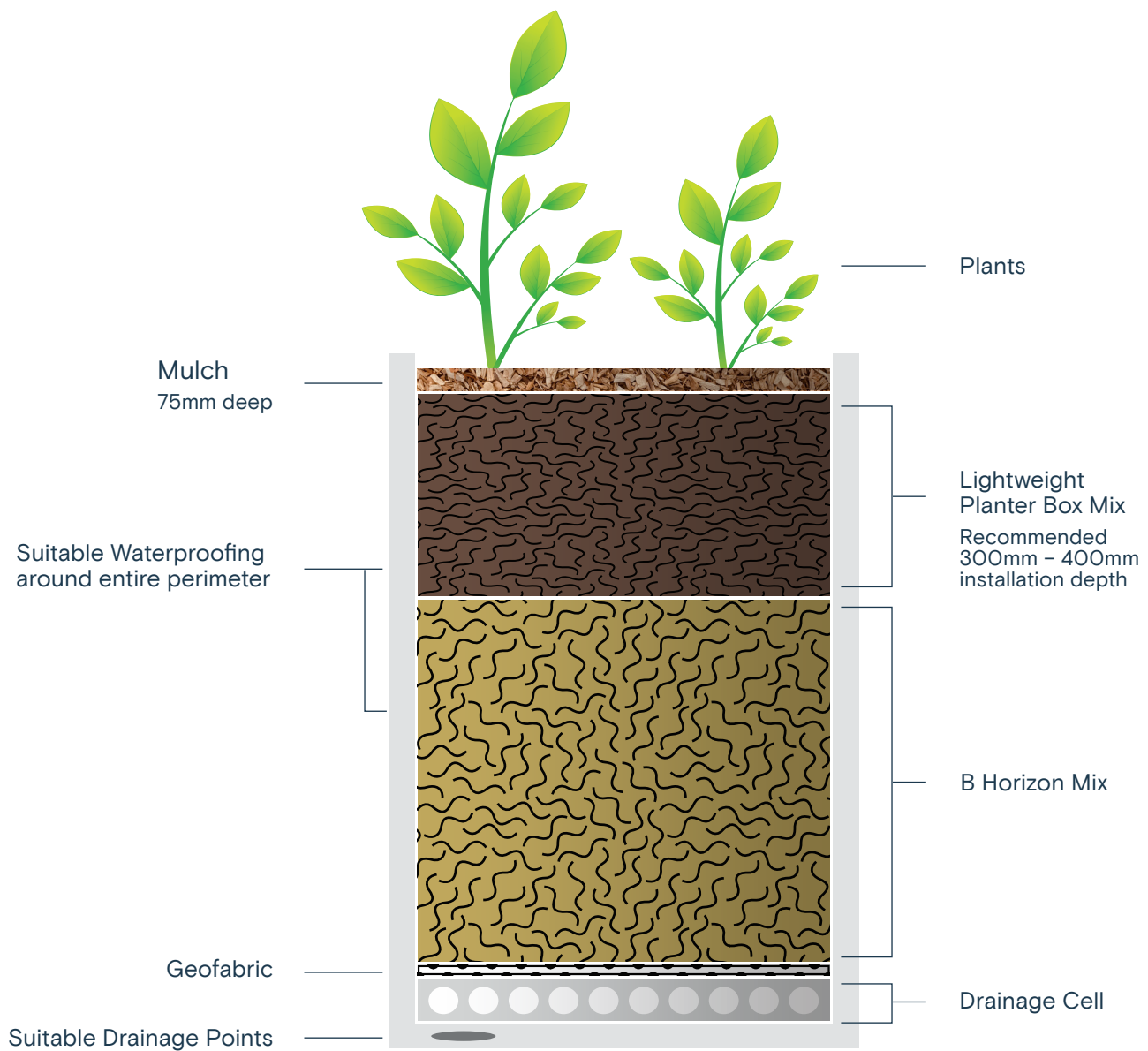
PHYSICAL PROPERTY		UNITS	TARGET RANGE	RESULT
Texture, preferred range		n/a	Gravelly loamy sand to organic sandy loam	Loamy Sand
Air-filled porosity (AFP)		%	≥ 5	5.3
Water-holding capacity (WHC)		%	≥ 45	53.5
Permeability (16 drops by McIntyre Jakobsen)		mm/h	> 100	1,205
Organic matter (OM)		% w/w	< 25	36.5
Wettability		min	< 2	2 m 11 sec
Dispersibility in H2O		Category	1 or 2	2
Large particles	< 2 mm	% w/w by mass	30 – 50	-
	2 - 10 mm	% w/w by mass	15 – 30	39.1
	10 - 20 mm	% w/w by mass	5 – 10	
	20 - 50 mm	% w/w by mass	< 5	0
	> 50 mm	% w/w by mass	0	0
CHEMICAL PROPERTY		UNITS	TARGET RANGE	RESULT
pH in water (1:5) standard range		pH units	5.4–6.8	6.6
Electrical conductivity (1:1.5)		dS/m	< 2.2	2.2
Chloride		mg/L	≤ 200	277
Ammonium-N (NH4)		mg/L	≤ 100	1.2
Ammonium-N + nitrate-N (NH4 + NO3)		mg/L	≥ 50	41.5
Nitrogen draw-down index		-	≥ 0.7	0.09
Toxicity index		mm	≥ 70	57.6
Phosphorus – P standard range		mg/L	8–40	10.6
Low phosphorus - P-sensitive plants		mg/L	< 3	10.6
Potassium (K)		mg/L	50–250	330
Sulphate (SO4)		mg/L	≥ 40	159
Calcium (Ca)		mg/L	≥ 80	189
Magnesium (Mg)		mg/L	≥ 15	60.7
Ca:Mg ratio		Ratio	1.5–10	3.1
K:Mg ratio		Ratio	1–7	5.4
Sodium (Na)		mg/L	< 130	126
Iron (Fe)		mg/L	≥ 35	40.7
Copper (Cu)		mg/L	0.4–15	0.9
Zinc (Zn)		mg/L	0.3–10	4.4
Manganese (Mn)		mg/L	1–15	6.1
Boron (B)		mg/L	0.02–0.65	0.3
ADDITIONAL TESTING		UNITS	TARGET RANGE	RESULT
Saturated Bulk Density		kg/L	< 2.4	1.21
Dry Bulk Density		kg/L	No requirement	0.5
Asbestos*			No requirement	Not Detected



Scapeworks Light Weight Planter Box Mix - A Horizon tests as Grade A soil for unrestricted use.

The Urban Soil Doctor (TUSD) was requested by Scapeworks Australia to conduct in-situ sample collection at Scapeworks Australia's yard, also oversees, analyses and reports on products collected. Chantal Milner, CPSS Principal Soil Scientist BSc Env Sci, PGCert Green Infrastructure, CPSS

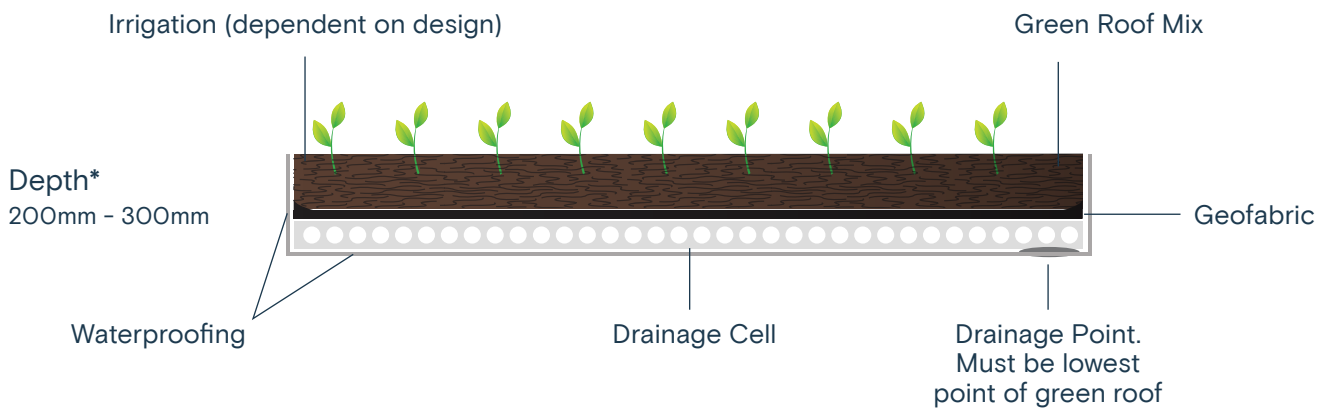
Planter Box and Podium Garden Profile



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



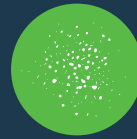
Mulches

- 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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