

_ for Brown Roof

	Design %	Species for Brown Roof Substrate		Ame Ame
Agrimonia eupatoria Agrostemma githago Anthyllis vulneraria Centaurea cyanus Centaurea nigra Daucus carota Echium vulgare Knautia arvensis Leontodon hispidus Leucanthemum vulgare Linaria vulgaris Lotus corniculatus Origanum vulgare Papaver rhoeas Plantago media Prunella vulgaris Ranunculus bulbosa Reseda lutea Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	ć			
Agrostemma githago Anthyllis vulneraria Centaurea cyanus Centaurea nigra Daucus carota Echium vulgare Knautia arvensis Leontodon hispidus Leucanthemum vulgare Linaria vulgaris Lotus corniculatus Origanum vulgare Papaver rhoeas Plantago media Prunella vulgaris Ranunculus bulbosa Reseda lutea Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	ĊΊ	Agrimonia eupatoria	Agrimom	יער
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Centaurea cyanus Centaurea nigra Daucus carota Echium vulgare Knautia arvensis Leontodon hispidus Leucanthemum vulgare Linaria vulgaris Lotus corniculatus Origanum vulgare Papaver rhoeas Plantago media Prunella vulgaris Ranunculus bulbosa Reseda lutea Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	Ŋ	Anthyllis vulneraria	Kidney v	etch
Centaurea nigra Daucus carota Echium vulgare Knautia arvensis Leontodon hispidus Leucanthemum vulgare Linaria vulgaris Lotus corniculatus Origanum vulgare Papaver dubinum Papaver rhoeas Plantago media Prunella vulgaris Ranunculus bulbosa Reseda lutea Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	Ŋ	Centaurea cyanus	Cornflow	/er
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Knautia arvensis Leontodon hispidus Leucanthemum vulgare Linaria vulgaris Lotus corniculatus Origanum vulgare Papaver dubinum Papaver rhoeas Plantago media Prunella vulgaris Ranunculus bulbosa Reseda lutea Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	Ŋ	Echium vulgare	Viper's-b	ougloss
Leontodon hispidus Leucanthemum vulgare Linaria vulgaris Lotus corniculatus Origanum vulgare Papaver dubinum Papaver rhoeas Plantago media Prunella vulgaris Ranunculus bulbosa Reseda lutea Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	ĊΊ	Knautia arvensis	Field sca	abious
Leucanthemum vulgare Linaria vulgaris Lotus corniculatus Origanum vulgare Papaver dubinum Papaver rhoeas Plantago media Prunella vulgaris Ranunculus bulbosa Reseda lutea Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	Ŋ	Leontodon hispidus	Rough ha	awkbit
Linaria vulgaris Lotus corniculatus Origanum vulgare Papaver dubinum Papaver rhoeas Plantago media Prunella vulgaris Ranunculus bulbosa Reseda lutea Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	ω	Leucanthemum vulgare	Oxeye da	aisy
Lotus corniculatus Origanum vulgare Papaver dubinum Papaver rhoeas Plantago media Prunella vulgaris Ranunculus bulbosa Reseda lutea Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	_	Linaria vulgaris	Commor	n toadflax
Origanum vulgare Papaver dubinum Papaver rhoeas Plantago media Prunella vulgaris Ranunculus bulbosa Reseda lutea Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	4	Lotus corniculatus	Birds foo	ot trefoil
Papaver dubinum Papaver rhoeas Plantago media Prunella vulgaris Ranunculus bulbosa Reseda lutea Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	2	Origanum vulgare	Wild mar	rjorum
Papaver rhoeas Plantago media Prunella vulgaris Ranunculus bulbosa Reseda lutea Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	2	Papaver dubinum	Long-hea	aded poppy
Plantago media Prunella vulgaris Ranunculus bulbosa Reseda lutea Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	4	Papaver rhoeas	Hoary pla	antain
Prunella vulgaris Ranunculus bulbosa Reseda lutea Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	Ŋ	Plantago media	Hoary pla	antain
Ranunculus bulbosa Reseda lutea Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	ĊΊ	Prunella vulgaris	Selfheal	
Reseda lutea Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	4	Ranunculus bulbosa	Bulbous	buttercup
Sanguisorba minor ssp minor Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	Ŋ	Reseda lutea	Wild min	onette
Sedum acre Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	Ŋ	Sanguisorba minor ssp min	·	ırnet
Silene vulgaris Trifolium arvensis Verbascum thapus Viola tricolor	Ŋ	Sedum acre	Biting sto	onecrop
hapus	Ŋ	Silene vulgaris	Bladder	campion
hapus	2	Trifolium arvensis	Hair's foc	ot clover
		Verbascum thapus	Great mu	ullein
	4	Viola tricolor	Wild pan	sey

Mixture N for **(**) reen Roof

6 for mix 2 Species for Green Roof Substrate 6 Achillea millefolium 6 Achillea millefolium 7 Sweet Vernal Grass 5 Anthoxanthum odoratum 6 Anthoxanthum odoratum 5 Campanula rotundifolia 6 Dianthus deltoides 10 Festuca ovina 5 Geranium robertianum 5 Geranium platyphllum 5 Plantago lanceolata 5 Sanguisorba minor 5 Sanguisorba minor 6 Thymus pulegioides 14 Sedum acre 6 Thymus pulegioides Thymus serphyllums 5 Verbascum nigrum 100 Also Allow for planting in pits as directed 12No Melica ciliata 2L Pot Eyelash Pearl Grass Herow English Name Yerrow Yellow daisy Sweet Vernal Grass Breckland Thyme Breckland Thyme Breckland Thyme Dark Mullein Dark Mullein Dark Mullein Dark Pearl Grass Eyelash Pearl Grass	4No	12No	12No	Also	100	ΟΊ	Οī	တ	14	Ωı	ΟΊ	Ŋ	Οī	Οī	10	တ	ΟΊ	7	Οī	တ	တ	6 for mix
	Lonicera periclymenum	Melica ciliata	Stipa tenuissima	Allow for planting in pits a		Verbascum nigrum	Thymus serphyllums	Thymus pulegioides	Sedum acre	Saxifraga tridactylites	Sanguisorba minor	Plantago lanceolata	Limonium platyphllum	Geranium robertianum	Festuca ovina	Dianthus deltoides	Campanula rotundifolia	Briza media	Anthoxanthum odoratum	Anthemis tinctoria	Achillea millefolium	2 Species for Green Roof S
Yarrow Yellow daisy Sweet Vernal Grass Quaking Grass Blue Harebell Native Pink Sheeps Fescue Herb Robert Sea Lavander Ribwort Plantain Salad Burnet Rue Leaved Saxifrage Biting stonecrop Large Thyme Breckland Thyme Dark Mullein Feather Grass Eyelash Pearl Grass Honeysuckle	2L Pot	2L Pot	2L Pot	s directed																		Substrate
	Honeysuckle	Eyelash Pearl Grass	Feather Grass			Dark Mullein	Breckland Thyme	Large Thyme	Biting stonecrop	Rue Leaved Saxifrage	Salad Burnet	Ribwort Plantain	Sea Lavander	Herb Robert	Sheeps Fescue	Native Pink	Blue Harebell	Quaking Grass	Sweet Vernal Grass	Yellow daisy	Yarrow	English Name

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*50

200

Tel: 01553 829028 Limes Farm, Tilney All Saints, Kings Lynn, Norfolk, PE34 4RT. All seed to be certified as native and supplied by Emorsgate

mixed with dried, non sharp, horticultural sand, colour to be approved before mixing. Divide roof area into lots and allocate Seed mixture to be supplied in the proportions as listed in the specification. To be spread at 2 grams per m2. Seed to be quantity of seed per lot before mixing with sand.

Bauder **Drainage** drawings System 1050 US **-**261 and 262 for details <u></u> 120:

Vertical

Scale

1:10

1203/1

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ndscape

Proposals Roof

Plan

Imported 60mm pebble mixture to be spread 100mm deep. Not to be spread with wildflower seed mixture.

Imported graded pure crushed brick 70mm down to be spread 100mm deep unless indicated otherwise. Allow for spreading 10mm depth of sterilised loam over final surface.

To be spread with wildflower seed mixture 1.

Imported demolition aggregate comprising of 40mm to sand. To be spread 100mm deep unless indicated otherwise. Allow for spreading 10mm depth of sterilised loam over final surface.

To be spread with wildflower seed mixture 1.

Pure recycled sand (clay and silt extracted) to be placed in mounds up to 200mm high in areas indicated as agreed with structural engineer.

Imported graded pure crushed brick 40mm to 5mm, laid to form 'green' roof substrate. Allow for spreading 40mm depth of sterilised loam over final surface. To be spread with wildflower seed mixture 2.

Imported graded demolition aggragate 20mm - sand, lightly compacted with vibrating plate to be laid as an informal path.

Existing drainage outlet to remain. Do not spread loam within 500mm of drainage

Location for small hardwood logs 50mm diameter and branches grouped to form mound (as available). Additional material to be added to increase height (mm) of substrate mound, or scraped out, as indicated. Allow for spreading 10mm depth of sterilised loam over final surface of formed mounds.

New oak edging 125mm x 2500mm x 3000mm. Cut to length and secured at each butt joint with 2no 300mm x 25mm x 3mm galvanised straps position as indicated onto PLT10 board cut to width of sleeper and butt jointed with SDF Bauder drainage mat. See Ashford Dwgs 1050 US -261 / 262 for details. Sleepers to be secured with galvanised steel straps fitted to internal face of sleeper as required.

* Location of pit planted container grown grasses. Arrange in groups of 3 approximately 200mm apart.

Note: General substrate depth 100 mm rising to 150mm and dropping to 50mm as agreed with structural engineer.

All recycled aggregate available from Coleman and Company Ltd

Tel: 0121 783 2583.

Note: Composition of aggregate to be composed of a minimum 60% recycled brick.

Contact Colemans to establish source of aggregate and confirm composition prior to delivery. A higher concrete content (more than 40%) will be rejected'

Roof drainage and root barrier system provided and specified by Ashfords.

All structural advice to be provided by structural engineer. Do not concentrate stones or branches together: weight to be distributed evenly across the roof. Allow for fixing (with appropriate screws and wall plugs) 1no. Black Red-start nesting box (to be provided by others) to building wall at approx. 2m high as instructed by Supervising Officer.



WEST MIDLANDS FIRE AND RESCUE AUTHORITY

NEW **HEADQUARTERS**

Lands Green cape Proposals ו - Brown Roof Plan ζo Cross Sections

This drawing to be read with drawing No 1203/2

uns drawing is not to be used in whole or part other than for the intended burpose and project as defined on this drawing. Refer to the contract for full terms and conditions.

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