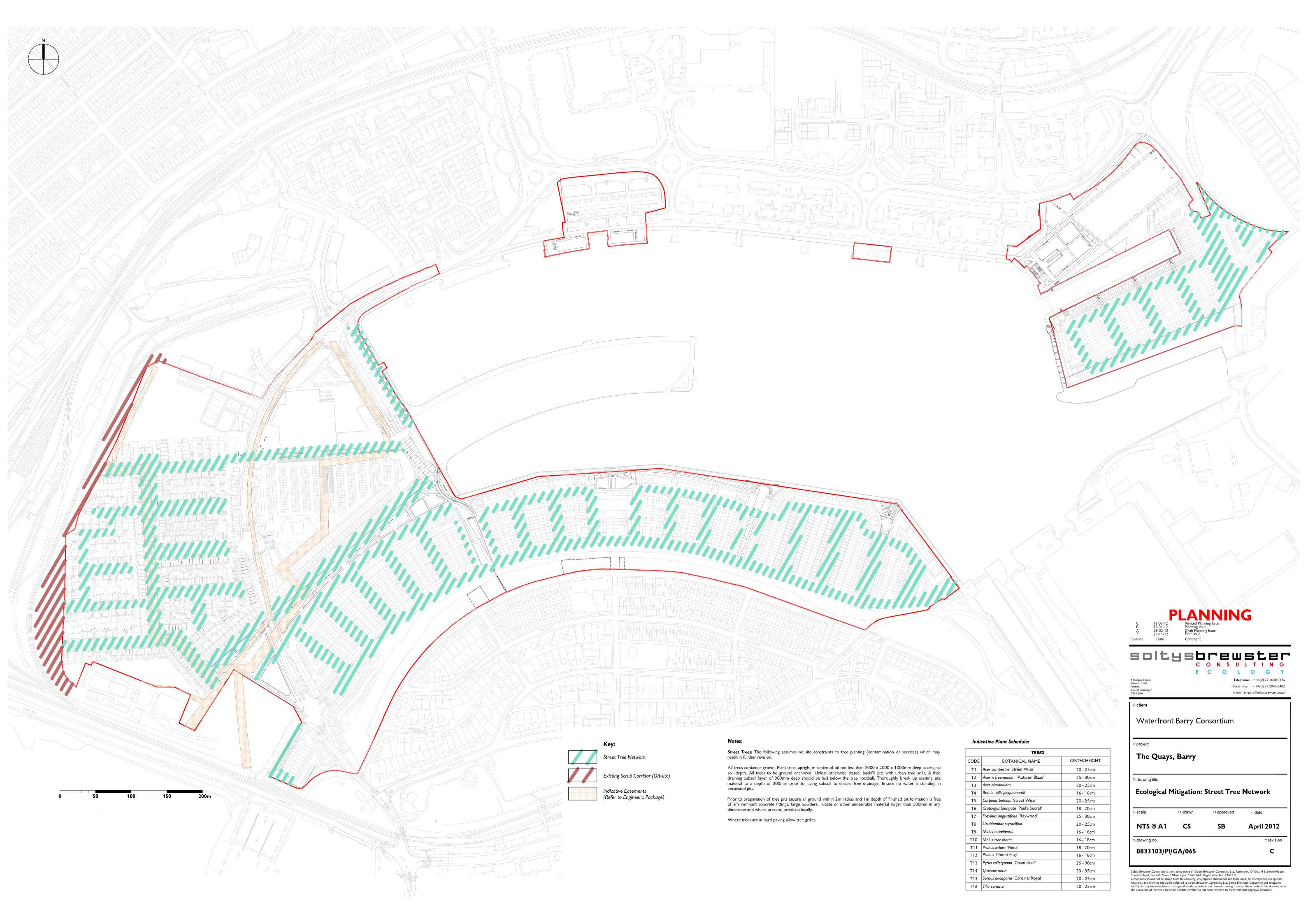
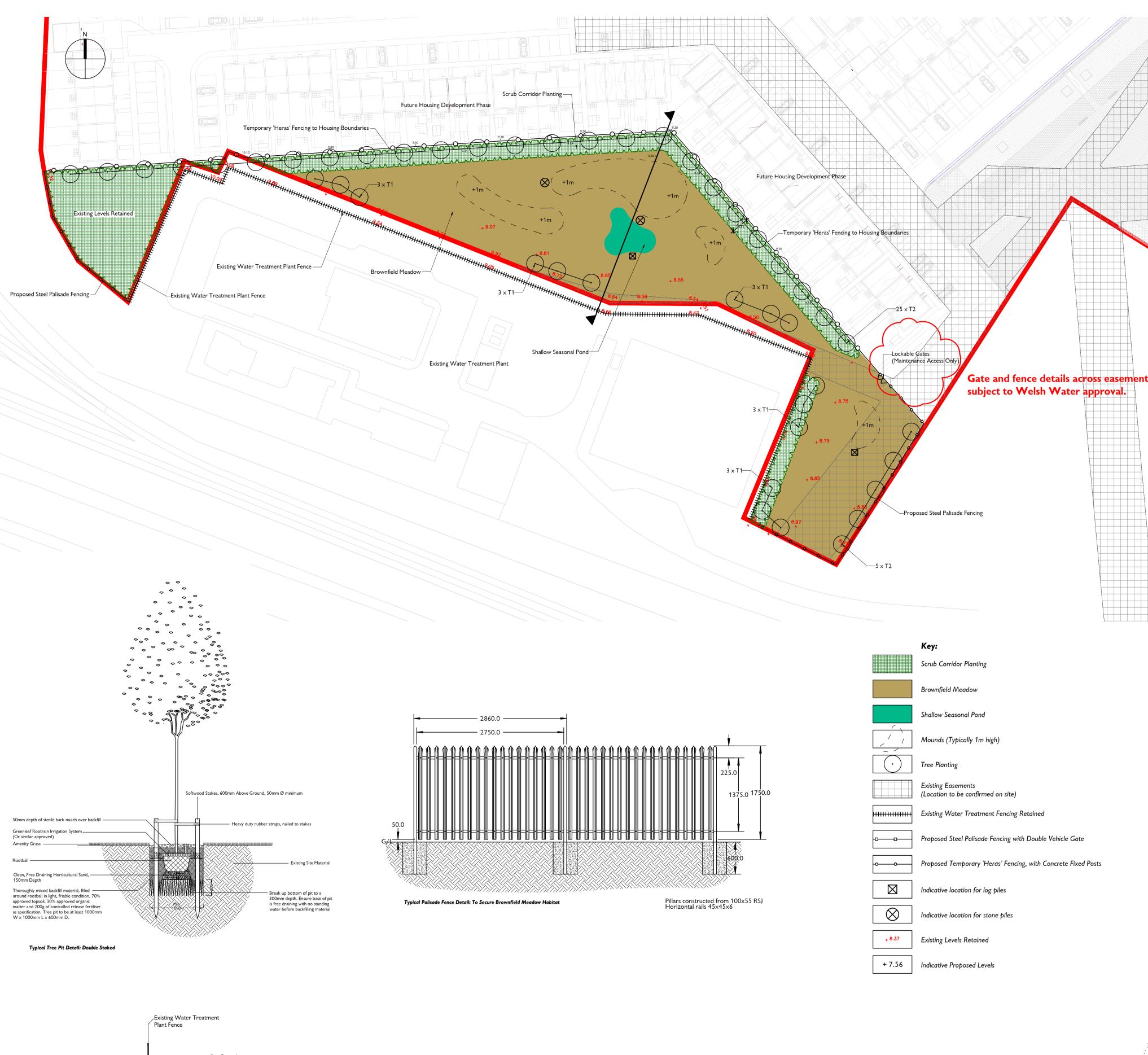
Appendix 6.7 Drawings





Plant Schedule:

	SPECIMEN TREES					
CODE	BOTANICAL NAME	GIRTH/HEIGHT	SPECIFICATION	ADDITIONAL INFORMATION		
T1	Pinus sylvestris	60 - 80	15 Litre Container Grown	From Hillier Nurseries, Single Staked		
T2	Acer x freemanii 'Autumn Blaze'	18 - 20cm	Container Grown	From Hillier Nurseries, Double Staked		

SCRUB CORRIDOR PLANTING MIX (1 per 1m²)				
%	BOTANICAL NAME	GIRTH/HEIGHT	SPECIFICATION	ADDITIONAL INFORMATION
5	Cornus sanguinea	40 - 60	3 Litre Container Grown	-
5	Corylus avellana	60 - 80	3 Litre Container Grown	-
40	Crataegus monogyna	60 - 80	3 Litre Container Grown	-
5	llex aquifolium	60 - 80	3 Litre Container Grown	-
5	Ligustrum vulgare	60 - 80	3 Litre Container Grown	-
2.5	Lonicera periclymenum	60 - 80	3 Litre Container Grown	-
25	Prunus spinosa	60 - 80	3 Litre Container Grown	-
5	Rosa canina	60 - 80	3 Litre Container Grown	-
5	Sambucus nigra	60 - 80	3 Litre Container Grown	-
2.5	Viburnum lantana	40 - 60	3 Litre Container Grown	-

	SCRUB CORRIDOR TREE PLANTING MIX (1 per 20m²)					
-	BOTANICAL NAME	GIRTH/HEIGHT	SPECIFICATION	ADDITIONAL INFORMATION		
-	Acer campestre	125 - 150	Feathered	15 Litre Container Grown, Single Staked		
-	Alnus glutinosa	125 - 150	Feathered	15 Litre Container Grown, Single Staked		
-	Prunus avium	125 - 150	Feathered	15 Litre Container Grown, Single Staked		
-	Malus sylvestris	125 - 150	Feathered	15 Litre Container Grown, Single Staked		
-	Salix caprea	125 - 150	Feathered	15 Litre Container Grown, Single Staked		

	BROWNFIELL	O MEADOW MIX (Emorsgate Seeds Ref: EM1 - Basic Gener	al Purpose Meadow Mixture)
%	BOTANICAL NAME	COMMON NAME	ADDITIONAL INFORMATION
20	Wild Flowers		
0.5	Achillea millefolium	Yarrow	-
2.0	Centaurea nigra	Common Knapweed	-
1.0	Daucus carota	Wild Carrot	-
2.0	Galium verum	Lady's Bedstraw	-
2.0	Leucanthemum vulgare	Oxeye Daisy	-
3.0	Poterium sanquisorba	Salad Burnet	-
2.5	Prunella vulgaris	Selfheal	-
3.0	Ranunculus acris	Meadow Buttercup	-
0.5	Rumex acetosa	Common Sorrel	-
2.5	Silene dioica	Red Campion	-
1.0	Silene vulgaris	Bladder Campion	-
80	Grasses		
8.0	Agrostis capillaris	Common Bent	-
40.0	Cynosurus cristatus	Crested Dogstail	-
28.0	Festuca rubra	Slender-creeping Red-fescue	-
4.0	Phleum bertolonii	Smaller Cat's-tail	-

This plan is to be read in conjunction with 'The Quays Development Phase 1 Ecological Mitigation Strategy, Ref: E0811601/R05' and 'The Quays Ecological Management Plan, Ref: E0811601/R07'.

Vegetation Strip: Using a grading bucket, strip the vegetation and approximately 20mm of soil from all areas of brownfield meadow, scrub corridor and pond. Remove arisings from site.

Scrub Corridor Planting: Following vegetation strip, using a 360 excavator and toothed bucket, break-up the ground to a depth of approximately 300mm into loose material, roughly regrading, to create a free draining base subgrade. A cross-ripping effect should be achieved by two passes at an angle of 45° to the edge of the strip at 90° to one another. Remove all stones with largest dimension exceeding 150 mm. Immediately following this operation in each area, place a minimum 300mm depth of imported topsoil as BS3882:2007 and cultivate, incorporating 100mm depth of organic material into the top 200mm layer of topsoil. Ensure no water is standing in planting areas. Between October and March following brownfield meadow establishment, plant plants at a typical rate of 1 per m² in groups of 3 to 7 of a single species within the 4m wide zone. Avoid planting in straight lines or grids. Protect transplants with spiral guards. All plants to be straight and upright. Following planting all transplants to be finished with a mulch mats or mulch as appropriate. Scrub Corridor Tree species to be planted at random as 125-150cm Feathers (unless otherwise stated) at a typical rate of 1 per 20m². Plant trees upright in centre of pit at original soil depth. Unless otherwise stated, topsoil backfill in tree pits to be not less than 1000 x 1000mm and at a depth of 600mm. A free draining subsoil layer of 300mm deep should be laid below the tree. Thoroughly break up existing site material to a depth of 300mm prior to laying subsoil to ensure free drainage. Ensure no water is standing in excavated pits. Prior to preparation of tree pits ensure all ground within 2m radius and 1m depth of finished pit formation is free of any remnant concrete fittings, large boulders, rubble or other undesirable material larger than 500mm in any dimension and where present, break up locally.

Brownfield Meadow: Following vegetation strip, working in sections, to avoid tracking over completed areas, lay a 150mm layer of crushed aggregate using a 360 excavator and toothed bucket and thoroughly mix into the top 75mm of existing site material, roughly regrading, to create a free draining substrate. Remove all stones with largest dimension exceeding 150 mm. Subject to contamination report, all concrete and brick material to be recycled from onsite demolition works. Sow Brownfield Meadow Mix (Emorsgate Seeds EM1 Basic General Purpose Meadow Mixture or equal approved) seed onto substrate mix between September and January at a rate of $4g/m^2$ to suppliers instructions. Do not incorporate or cover the seed. Seed not to be sown onto frozen or waterlogged ground. Create 1m high landforms as illustrated with slopes gradients to a maximum of 1:3. Create 2no. randomly stacked log piles. Log piles to be approximately 1.5m L x 1m W x 1m H and to be constructed using timber and brash of varying sizes. Create 2no. stone piles. Use 5 - 7 large stones/boulders and a variety of smaller stones per pile. Stone piles to be approximately 1.5m L x 1m W x 1m H. Timber and stones/ boulders to be sourced from the site itself if appropriate resources exist, or sourced externally if required. 1no. log pile and 1no. stone pile to be located within 3m of the shallow pond edge.

Shallow Pond: Construction of the pond should replicate the existing water-filled depressions found onsite. Using 360 excavator with grading bucket, create the scrape with a scalloped perimeter as illustrated, assuming a 200mm thick clay lining layer to retain water. The maximum surface area of the pond should measure 80m² and the water level should be approximately 500mm deep at the central points. Gradually grade the edges of the pond to a shallow gradient to create marginal areas. Ensure the completed base layer beneath the clay lining is graded with no rocks, uneven surface, or surface level deviation greater than 50mm. 200mm thick clay lining to be installed over base layer. Surface of clay lining to be roughened following completion, without piercing the depth of lining. Allow pond to fill with rainwater, or fill artificially. If filled artificially (with mains water) allow water to stand for a minimum of 14 days. Transfer flora and fauna material from top 50mm of existing water-filled depressions onsite to the prepared pond using a straight edged (blade) excavator bucket to encourage colonisation. Preferential timing for transfer of material is in late summer/autumn, although transfer would need to be undertaken prior to any surcharging works in the area associated with the existing pond. Use excavated fill to create the mounds in the meadow area, as illustrated, spreading any additional surplus material evenly over brownfield meadow areas.

Fences: Scrub corridor and brownfield meadow to be enclosed with a suitable steel palisade fence and lockable gates to prevent unauthorised public access. Steel palisade and close boarded timber fence to housing boundaries to run in parallel around the brownfield meadow.

Proposed Flood Bund (To Engineer's Detail)

PLANNING



SOITHSPEWSTER CONSULTING E C O L O G Y **Telephone:-** + 44(0) 29 2040 8476 Facsimilie:- + 44(0) 29 2040 8482 e-mail:- enquiry@soltysbrewster.co.uk

○ client Waterfront Barry Consortium The Quays, Barry **Ecological Mitigation: Brownfield Meadow & Shallow Pond** approved O date ⊃ scale drawn

1:500 @ A1

0833103/PI/GA/066

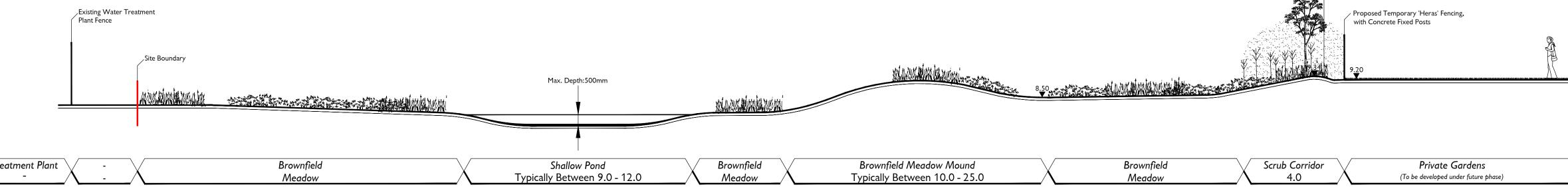
o drawing no.

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July 2012

revision



Indicative Plant Schedules

		TREES	
CODE	BOTANICAL NAME	GIRTH/HEIGHT	ADDITIONAL INFORMATION
T1	Acer campestre 'Street Wise'	20 - 25cm	-
T2	Acer x freemannii 'Autumn Blaze'	25 - 30cm	-
Т3	Acer platanoides	20 - 25cm	-
T4	Alnus incana	20 - 25cm	-
T5	Betula utilis jacquemontii	16 - 18cm	-
T6	Betula utilis jacquemontii	350-400cm High	-
T7	Carpinus betulus 'Street Wise'	20 - 25cm	-
Т8	Crataegus laevigata 'Paul's Secret'	18 - 20cm	-
T9	Fraxinus angustifolia 'Raywood'	25 - 30cm	-
T10	Liquidambar styraciflua	20 - 25cm	-
T11	Malus hupehensis	16 - 18cm	-
T12	Malus transitoria	16 - 18cm	-
T13	Pinus sylvestris	90cm High	-
T14	Populus tremula	175-200cm High	-
T15	Prunus avium 'Plena'	18 - 20cm	-
T16	Prunus 'Mount Fugi'	16 - 18cm	-
T17	Pyrus calleryanna 'Chanticleer'	25 - 30cm	-
T18	Quercus robur	30 - 35cm	-
T19	Salix caprea	80 - 100cm High	
T20	Sorbus aucuparia 'Cardinal Royal'	20 - 25cm	
T21	Tilia cordata	20 - 25cm	-

	7		
	, , , , , , , , , , , , , , , , , , , ,	SHRUBS	
CODE	BOTANICAL NAME	SIZE	DENSITY (No. Per m²)
S1	Carex comans	3 Itr Cont' Grown	4
S2	Ceanothus arboreus 'Autumnal Blue'	10 ltr Cont' Grown	4
S3	Choisya ternata	3 Itr Cont' Grown	4
S4	Choisya ternata 'Aztec Pearl'	5 Itr Cont' Grown	5
S5	Cistus × corbariensis	3 Itr Cont' Grown	5
S6	Cornus alba 'Elegantissima'	3 Itr Cont' Grown	4, Cut Back to 300mm Following Planting
S7	Cornus stolonifera 'Flaviramea'	3 Itr Cont' Grown	4, Cut Back to 300mm Following Planting
S8	Corylus avellana	80 - 100cm High, 3 ltr Cont' Grown	4
S9	Cotinus coggygria	15 ltr Cont' Grown	Specimen
S10	Crataegus monogyna	80 - 100cm High, 3 ltr Cont' Grown	1no. per 1.5m ²
S11	Escallonia 'Donard Seedling'	5 Itr Cont' Grown	4
S12	Escallonia laevis 'Gold Ellen'	5 Itr Cont' Grown	4
S13	Forsythia × intermedia	5 Itr Cont' Grown	Specimen
S14	Hebe 'Autumn Glory'	3 Itr Cont' Grown	5
S15	Hebe 'Midsummer Beauty'	3 Itr Cont' Grown	5
S16	Hebe 'Red Edge'	3 Itr Cont' Grown	5
S17	Hebe 'Sutherlandii'	3 Itr Cont' Grown	5
S18	Laurus nobilis	15 ltr Cont' Grown	Specimen
S19	Lavendula angustifolia	3 Itr Cont' Grown	5
S20	Lonicera pileata	3 Itr Cont' Grown	5
S21	Pachysandra terminalis	2 Itr Cont' Grown	6
S22	Pieris japonica 'Debutante'	5 ltr Cont' Grown	4
S23	Philadelphus 'Belle Etoile'	5 Itr Cont' Grown	4
S24	Philadelphus 'Manteau d'Hermin'	3 Itr Cont' Grown	5
S25	Photinia × fraseri 'Red Robin'	5 Itr Cont' Grown	3
S26	Potentilla fructicosa 'Day Dawn'	3 Itr Cont' Grown	4
S27	Prunus laurocerasus 'Otto Luyken'	3 Itr Cont' Grown	5
S28	Rosmarinus officinalis 'Miss Jessopp's Upright'	5 Itr Cont' Grown	3
S29	Sarcococca hookeriana	5 Itr Cont' Grown	4
S30	Senecio 'Sunshine' (Brachyglottis)	5 Itr Cont' Grown	4
S31	Skimmia japonica 'Rubella'	3 Itr Cont' Grown	5
S32	Spiraea 'Arguta'	3 Itr Cont' Grown	4
S33	Spiraea japonica 'Firelight'	3 Itr Cont' Grown	4
S34	Syringa vulgaris (White)	15 ltr Cont' Grown	Specimen
S35	Thymus vulgaris	9cm Cont' Grown	8
S36	Viburnum × bodnantense	15 ltr Cont' Grown	Specimen
S37	Viburnum opulus 'Compactum'	3 ltr Cont' Grown	4
S38	Viburnum opulus 'Nana'	3 ltr Cont' Grown	5
S39	Vinca major 'Variegata'	2 ltr Cont' Grown	6
S40	Vinca minor 'Alba'	2 ltr Cont' Grown	6
S41	Vinca minor 'Burgundy'	2 Itr Cont' Grown	6

CODE	BOTANICAL NAME	SIZE	ADDITIONAL INFORMATION
H1	Fagus sylvatica	1.0 - 1.2m high	To be supplied by Readyhedge. 1.0m long troughs
H2	Ligustrum vulgare	1.0 - 1.2m high	To be supplied by Readyhedge. 1.0m long troughs
	WILDFLOWER	MEADOW MIX (Emorsgates Seeds R	ef: EM2 Standard General Purpose Meadow Mix)
%	BOTANICAL NAME	COMMON NA	ME ADDITIONAL INFORMATION
20	Wild Flowers		
0.5	Achillea millefolium	Yarrow	-
		6 1/	

FORMAL HEDGES

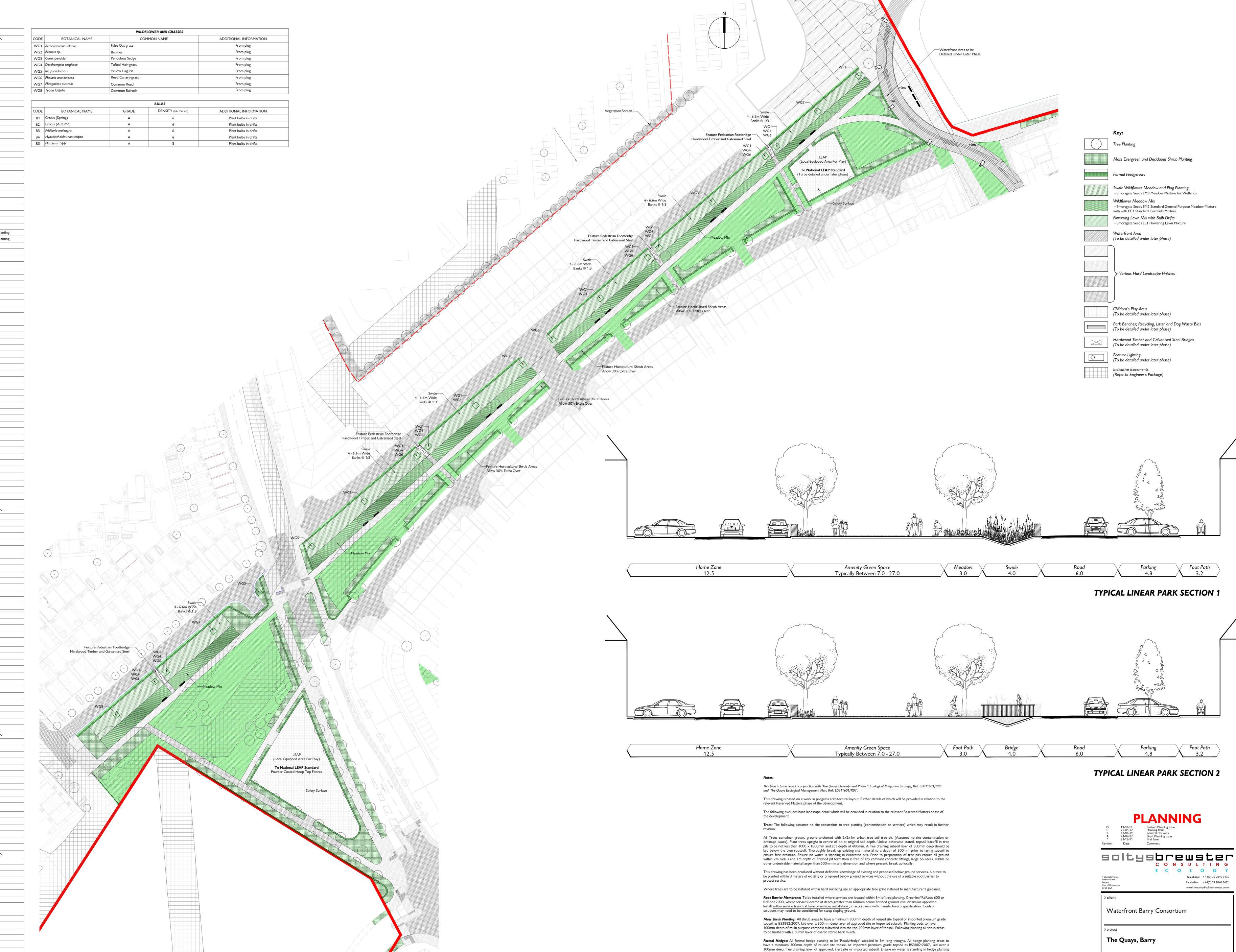
	WILDFLOWE	R MEADOW MIX (Emorsgates Seeds Ref: EM2 Standard Gen	eral Purpose Meadow Mix)
%	BOTANICAL NAME	COMMON NAME	ADDITIONAL INFORMATION
20	Wild Flowers		
0.5	Achillea millefolium	Yarrow	-
2.5	Centaurea nigra	Common Knapweed	-
0.8	Daucus carota	Wild Carrot	-
2.0	Galium verum	Lady's Bedstraw	-
1.0	Knautia arvensis	Field Scabious	-
1.5	Leucanthemum vulgare	Oxeye Daisy	-
2.0	Lotus corniculatus	Birdsfoot Trefoil	-
0.5	Plantago lanceolata	Ribwort Plantain	-
1.0	Plantago media	Hoary Plantain	-
0.7	Primula veris	Cowslip	-
2.5	Prunella vulgaris	Selfheal	-
2.5	Ranunculus acris	Meadow Buttercup	-
1.5	Rhinanthus minor	Yellow Rattle	-
1.0	Rumex acetosa	Common Sorrel	-
80	Grasses		
8.0	Agrostis capillaris	Common Bent	-
40.0	Cynosurus cristatus	Crested Dogstail	-
28.0	Festuca rubra	Slender-creeping Red-fescue	-
4.0	Phleum bertolonii	Smaller Cat's-tail	-
g/m²	Extra Over Seed		
0.2	Primula veris	Cowslip	_

	STANDARD	CORNFIELD MIX (Emorsgate Seeds Ref: E	C1 - Standard Cornfield Mixture)
%	BOTANICAL NAME	COMMON NAME	ADDITIONAL INFORMATION
100	Wild Flowers		
45.0	Agrostemma githago	Corn Cockle	-
10.0	Anthemis arvensis	Corn Chamomile	-
15.0	Centaurea cyanus	Cornflower	-
20.0	Glebionis segetum (Chrysanthemum segetum)	Corn Marigold	-
10.0	Papaver rhoeas	Common Poppy	-
	FLOWE	RING LAWN MIX (Emorsgates Seeds Ref: E	L1 Flowering Lawn Mixture)
%	BOTANICAL NAME	COMMON NAME	ADDITIONAL INFORMATION
20	Wild Flowers		,
2.0	Galium verum	Lady's Bedstraw	-
1.0	Leontodon hispidus	Rough Hawkbit	_

1.0 Leucanthemum vulgare

		, ,	
4.0	Lotus corniculatus	Birdsfoot Trefoil	-
4.0	Primula veris	Cowslip	-
3.0	Prunella vulgaris	Selfheal	-
2.0	Ranunculus acris	Meadow Buttercup	-
2.0	Rumex acetosa	Common Sorrel	-
1.0	Trifolium pratense	Wild Red Clover	-
80	Grasses		
8.0	Agrostis capillaris	Common Bent	-
40.0	Cynosurus cristatus	Crested Dogstail	-
28.0	Festuca rubra	Slender-creeping Red-fescue	-
4.0	Phleum bertolonii	Smaller Cat's-tail	-
	SWALE WILD!	FLOWER MEADOW MIX (Emorsgates Seeds Ref: EM8 Mead	ow Mixture for Wetlands)
%	BOTANICAL NAME	COMMON NAME	ADDITIONAL INFORMATION
20	Wild Flowers		
0.5	Achillea millefolium	Yarrow	-
0.5	Betonica officinalis	Betony	-
2.0	Centaurea nigra	Common Knapweed	-
1.5	Filibendula ulmaria	Meadowsweet	_

4.0	Phleum bertolonii	Smaller Cat's-tail	-
	SWALE WILD	FLOWER MEADOW MIX (Emorsgates Seeds Ref: EM8 Meadow	Mixture for Wetlands)
%	BOTANICAL NAME	COMMON NAME	ADDITIONAL INFORMATION
20	Wild Flowers		
0.5	Achillea millefolium	Yarrow	-
0.5	Betonica officinalis	Betony	-
2.0	Centaurea nigra	Common Knapweed	-
1.5	Filipendula ulmaria	Meadowsweet	-
1.0	Galium verum	Lady's Bedstraw	-
1.5	Leucanthemum vulgare	Oxeye Daisy	-
0.5	Lotus pendunculatus	Greater Birdsfoot Trefoil	-
1.0	Plantago lanceolata	Ribwort Plantain	-
1.0	Primula veris	Cowslip	-
2.0	Prunella vulgaris	Selfheal	-
2.5	Ranunculus acris	Meadow Buttercup	-
1.3	Rhinanthus minor	Yellow Rattle	-
1.0	Rumex acetosa	Common Sorrel	-
0.5	Sanquisorba officinalis	Greater Burnet	-
1.5	Silaum silaus	Pepper Saxifrage	-
0.2	Silene flos-cuculi	Ragged Robin	-
0.5	Succisa pratensis	Devil's-bit Scabious	-
1.0	Vicia cracca	Tufted Vetch	-
80	Grasses		
12.0	Agrostis capillaris	Common Bent	<u>-</u>
4.0	Alopecurus pratensis	Meadow Foxtail	-
2.0	Anthoxanthum odoratum	Sweet Vernal-grass	-
36.0	Cynosurus cristatus	Crested Dogstail	-
1.0	Deschampia cespitosa	Tufted Hair-grass	-
25.0	Festuca rubra	Slender-creeping Red-fescue	



areas. Hedge planting areas to have 100mm depth of multi-purpose compost cultivated into the top 200mm layer of topsoil. Following planting all hedge areas to be finished with a 50mm layer of coarse sterile bark mulch as appropriate. Wildflower Meadow: Sow seed (Emorsgate Seeds EM2 Standard General Purpose Meadow Mixture with EC1 Standard

Cornfield Mixture as a nurse mix) on 150mm depth free draining layer of approved, inert site or imported subsoil. Seed is to be sown between September and January at a rate of 4g/m² to suppliers instructions. Seed not to be sown onto frozen or waterlogged ground. Do not incorporate or cover the seed but firm in with a roller, to give good soil/seed contact. Growth and development: Healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease. Appearance: A closely knit, continuous ground cover of even density, height and colour. Level of grass areas are to abut

Flowering Amenity Grass: Sow seed (Emorsgate Seeds EL1 Flowering Lawn Mixture) on 150mm depth free draining layer of approved, inert site or imported subsoil. Seed is to be sown between September and January at a rate of 4g/m² to suppliers instructions. Seed not to be sown onto frozen or waterlogged ground. Do not incorporate or cover the seed but firm in with a roller, to give good soil/seed contact. Growth and development: Healthy, vigorous grass sward, free from

the visible effects of pests, weeds and disease. Appearance: A closely knit, continuous ground cover. Level of grass areas are to abut existing hard surfaces and planting. Clearly define edges adjacent to planting areas. With 10 bulbs per m².

Swale: Sow seed (Emorsgate Seeds EM8 Meadow Mixture For Wetlands) on 150mm depth free draining layer of

approved, inert site or imported subsoil. Seed is to be sown between September and January at a rate of 4g/m² to suppliers instructions. Seed not to be sown onto frozen or waterlogged ground. Do not incorporate or cover the seed but firm in with a roller, to give good soil/seed contact. Growth and development: Healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease. Appearance: A closely knit, continuous ground cover. Swales to be fitted with overflow connections. Plant Wildflowers and Grasses in the $2 \times 2m$ areas illustrated at a typical rate of 6 plugs per m^2 .

existing hard surfaces and planting. Clearly define edges adjacent to planting areas.

Ecological Mitigation: Linear Park & Swale

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0833103/PI/GA/067

July 2012



80 Grasses 8.0 Agrostis capillaris Common Bent 40.0 Cynosurus cristatus Crested Dogstail 28.0 Festuca rubra Slender-creeping Red-fescue 4.0 Phleum bertolonii Smaller Cat's-tail

Plant Schedule:

INDICATIVE TREES				
CODE	BOTANICAL NAME	GIRTH/HEIGHT		
T1	Acer campestre 'Street Wise'	20 - 25cm		
T2	Acer x freemannii 'Autumn Blaze'	25 - 30cm		
Т3	Betula utilis jacquemontii	16 - 18cm		
T4	Carpinus betulus 'Street Wise'	20 - 25cm		
T5	Crataegus laevigata 'Paul's Secret'	18 - 20cm		
T6	Fraxinus angustifolia 'Raywood'	25 - 30cm		
T7	Liquidambar styraciflua	20 - 25cm		
Т8	Malus hupehensis	16 - 18cm		
Т9	Malus transitoria	16 - 18cm		
T10	Pinus sylvestris	90cm High		
T11	Populus tremula	175-200cm High		
T12	Prunus avium 'Plena'	18 - 20cm		
T13	Prunus 'Mount Fugi'	16 - 18cm		
T14	Pyrus calleryanna 'Chanticleer'	25 - 30cm		
T15	Quercus robur	30 - 35cm		
T16	Sorbus aucuparia 'Cardinal Royal'	20 - 25cm		
T17	Tilia cordata	20 - 25cm		

Tilia cordata	20 - 25cm	Annual Cut (October - November)		
POLICH GRASS MIX (Emorgate	s Soods Roft EM10 Tussock Mixture)	Meadow Mix - Emorsgate Seeds EM3 with EC1		
, ,	,			
	COMMON NAME	Flouring Low Coast Miss Found South Flat Flouring Miss		
20 Wild Flowers 0.5 Achillea millefolium Yarrow		Flowering Lawn Grass Mix - Emorsgate Seeds EL1 Flowering Lawn Mixture		
•				
Agrimonia eupatoria		Cut Grass Turf, assuming an average of 10 bulbs per m² in all areas.		
Centaurea nigra	Common Knapweed			
Centaurea scabiosa	Greater Knapweed	Notes:		
Daucus carota	Wild Carrot	This plan is to be read in conjunction with 'The Quays Development Phase 1 Ecological Mitigation Strategy,		
Dipsacus fullonum	Wild Teasel	E0811601/R05' and 'The Quays Ecological Management Plan, Ref: E0811601/R07'.		
Galium album (Galium mollugo)	Hedge Bedstraw	The following excludes hard landscape detail which will be provided in relation to the relevant reserv		
Geranium pratense	Meadow Cranesbill	matters phase of the development.		
Leucanthemum vulgare	Oxeye Daisy	The following does not cover translocation or building related ecological mitigation measures, which		
Plantago lanceolata	Ribwort Plantain	 The following does not cover translocation or building related ecological mitigation measures, which should be costed separately. 		
Silene dioica	Red Campion	The following assumes as site constraints to two planting (contactions as a site of the si		
Silene vulgaris	Bladder Campion	Trees: The following assumes no site constraints to tree planting (contamination or services) which result in further revision. All Trees container grown, ground anchored with 2x2x1m urban tree so pit. (Assumes no site contamination or drainage issues). Plant trees upright in centre of pit at origin depth. Unless otherwise stated, topsoil backfill in tree pits to be not less than 1000 x 1000mm and depth of 600mm. A free draining subsoil layer of 300mm deep should be laid below the tree ro		
Torilis japonica	Upright Hedge-parsley			
Verbascum thapsus	Great Mullein			
Vicia cracca	Tufted Vetch	Thoroughly break up existing site material to a depth of 300mm prior to laying subsoil to ensur		
Vicia stavia ssp. segetalis	Common Vetch	drainage. Ensure no water is standing in excavated pits. Prior to preparation of tree pits ensu ground within 2m radius and 1m depth of finished pit formation is free of any remnant concrete f		
80 Grasses		large boulders, rubble or other undesirable material larger than 500mm in any dimension and present, break up locally.		
Alopecurus pratensis	Meadow Foxtail			
Cynosurus cristatus	Crested Dogstail	This drawing has been produced without definitive knowledge of existing and proposed below groun services. No tree to be planted within 3 meters of existing or proposed below ground services witho		
Dactylis glomerata	Cocksfoot	the use of a suitable root barrier to protect service.		
Deschampsia cespitosa	Tufted Hair-grass	Where trees are to be installed within hard surfacing use an appropriate tree grille installed to		
Festuca rubra	Slender-creeping Red-fescue	manufacturer's guidance.		
Holcus Ianatus	Yorkshire Fog	Root Barrier Membrane: To be installed where services are located within 3m of tree planting. Greenleaf ReRoot 600 or ReRoot 2000, where services located at depth greater than 600mm below finished ground level or similar approved. Install within service trench at time of services installation accordance with manufacturer's specification. Control solutions may need to be considered for steep		
Schedonorus arundinacea	Tall Fescue			
Schedonorus pratensis	Meadow Fescue			
Trisetum flavescens	Yellow Oat-grass	sloping ground.		
m² Extra Over Seed		Mass Shrub Planting: All shrub areas to have a minimum 300mm depth of reused site topsoil or		
Extra Over Seed		Mass Shrub Planting: All shrub areas to have a minimum 300mm depth of reused site topsoil or imported premium grade topsoil as BS3882:2007, laid over a 300mm deep layer of approved site or		
	BOTANICAL NAME Wild Flowers Achillea millefolium Agrimonia eupatoria Centaurea nigra Centaurea scabiosa Daucus carota Dipsacus fullonum Galium album (Galium mollugo) Geranium pratense Leucanthemum vulgare Plantago lanceolata Silene dioica Silene vulgaris Torilis japonica Verbascum thapsus Vicia cracca Vicia stavia ssp. segetalis Grasses Alopecurus pratensis Cynosurus cristatus Dactylis glomerata Deschampsia cespitosa Festuca rubra Holcus lanatus Schedonorus arundinacea	Wild Flowers Achillea millefolium Yarrow Agrimonia eupatoria Agrimony Centaurea nigra Common Knapweed Centaurea scabiosa Greater Knapweed Daucus carota Wild Carrot Dipsacus fullonum Wild Teasel Galium album (Galium mollugo) Hedge Bedstraw Geranium pratense Meadow Cranesbill Leucanthemum vulgare Oxeye Daisy Plantago lanceolata Ribwort Plantain Silene dioica Red Campion Silene vulgaris Bladder Campion Torilis japonica Upright Hedge-parsley Verbascum thapsus Great Mullein Vicia cracca Tufted Vetch Vicia stavia ssp. segetalis Common Vetch Grasses Alopecurus pratensis Meadow Foxtail Cynosurus cristatus Crested Dogstail Dactylis glomerata Cocksfoot Deschampsia cespitosa Tufted Hair-grass Festuca rubra Slender-creeping Red-fescue Holcus lanatus Yorkshire Fog Schedonorus arundinacea Tall Fescue		

%	% BOTANICAL NAME COMMON			
20	Wild Flowers			
0.5	Achillea millefolium	Yarrow		
0.5	Centaurea nigra	Common Knapweed		
1.8	Centaurea scabiosa	Greater Knapweed		
0.6	Daucus carota	Wild Carrot		
0.5	Galium album (Galium mollugo)	Hedge Bedstraw		
1.0	Galium verum	Lady's Bedstraw		
1.0	Knautia arvensis	Field Scabious		
0.3	Leontodon hispidus	Rough Hawkbit		
1.0	Leucanthemum vulgare	Oxeye Daisy		
0.5	Lotus corniculatus	Birdsfoot Trefoil		
0.2	Origanum vulgare	Wild Marjoram		
0.2	Plantago media	Hoary Plantain		
1.5	Poterium sanguisorba	Salad Burnet		
1.0	Primula veris	Cowslip		
1.0	Prunella vulgaris	Selfheal		
2.5	Ranunculus acris	Meadow Buttercup		
1.0	Ranunculus bulbosus	Bulbous Buttercup		
1.0	Rhinanthus minor	Yellow Rattle		
0.4	Rumex acetosa	Common Sorrel		
1.0	Silene dioica	Red Campion		
1.5	Silene vulgaris	Bladder Campion		
1.0	Vicia cracca	Tufted Vetch		
80	Grasses			
8.0	Agrostis capillaris	Common Bent		
40.0	Cynosurus cristatus	Crested Dogstail		
28.0	Festuca rubra	Slender-creeping Red-fescue		
4.0	Phleum bertolonii	Smaller Cat's-tail		
g/m²	Extra Over Seed			
1.0	Leucanthemum vulgare	Oxeye Daisy		

%	BOTANICAL NAME	COMMON NAME	
100	Wild Flowers	I	
45.0	Agrostemma githago	Corn Cockle	
10.0	Anthemis arvensis	Corn Chamomile	
15.0	Centaurea cyanus	Cornflower	
20.0	Glebionis segetum (Chrysanthemum segetum)	Corn Marigold	
10.0	Papaver rhoeas	Common Poppy	

BOLBS				
CODE	BOTANICAL NAME	ADDITIONAL INFORMATION		
B1	Grade A, 6 per m ² , in drifts in EM3			
B2	Crocus (Autumn)	Grade A, 6 per m², in drifts in EM3 and EL1		
В3	Fritillaria meleagris	Grade A, 6 per m², in drifts in EM3 and EL1		
B4	Hyachinthoides non-scripta	Grade A, 6 per m ² , in drifts in EM3 and EL1		
B5	Narcissus 'Spp'	Grade A, 3 per m², in drifts in EM3 and EL1		

Key: > Various Hard Landscape Finishes Safety Surfacing and Play Equipment (To NEAP/LEAP Standards) Park Benches / Seating Tree Planting Mass Evergreen and Deciduous Shrub Planting

Annual Cut (October - November)

Rough Grass - Emorsgate Seeds EM10 Tussock Mixture

Mass Shrub Planting: All shrub areas to have a minimum 300mm depth of reused site topsoil or imported premium grade topsoil as BS3882:2007, laid over a 300mm deep layer of approved site or imported subsoil. Planting beds to have 100mm depth of multi-purpose compost cultivated into the top 200mm layer of topsoil. Following planting all shrub areas to be finished with a 50mm layer of coarse

Formal Hedges: All formal hedge planting to be 'ReadyHedge' supplied in 1m long troughs. All hedge

planting areas to have a minimum 300mm depth of reused site topsoil or imported premium grade topsoil as BS3882:2007, laid over a 300mm deep, free draining layer of approved, inert site or imported subsoil. Ensure no water is standing in hedge planting areas. Hedge planting areas to have 100mm depth of multi-purpose compost cultivated into the top 200mm layer of topsoil. Following planting all hedge areas to be finished with a 50mm layer of coarse sterile bark mulch as appropriate.

Wildflower Meadow: Sow seed (Emorsgate Seeds EM2 Standard General Purpose Meadow Mixture with EC1 Standard Cornfield Mixture as a nurse mix) on 150mm depth free draining layer of approved, inert site or imported subsoil. Seed is to be sown between September and January at a rate of 4g/m² to suppliers instructions. Seed not to be sown onto frozen or waterlogged ground. Do not incorporate or cover the seed but firm in with a roller, to give good soil/seed contact. Growth and development: Healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease. Appearance: A closely knit, continuous ground cover of even density, height and colour. Level of grass areas are to abut existing hard surfaces and planting. Clearly define edges adjacent to planting areas.

Flowering Lawn Grass: Sow seed (Emorsgate Seeds EL1 Flowering Lawn Mixture) on 150mm depth free draining layer of approved, inert site or imported subsoil. Seed is to be sown between September and January at a rate of 4g/m² to suppliers instructions. Seed not to be sown onto frozen or waterlogged ground. Do not incorporate or cover the seed but firm in with a roller, to give good soil/seed contact. Growth and development: Healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease. Appearance: A closely knit, continuous ground cover. Level of grass areas are to abut existing hard surfaces and planting. Clearly define edges adjacent to planting areas. With 10 bulbs per

Rough Grass and Meadow adjacent to paths should have a 500mm wide mowing strips maintained by

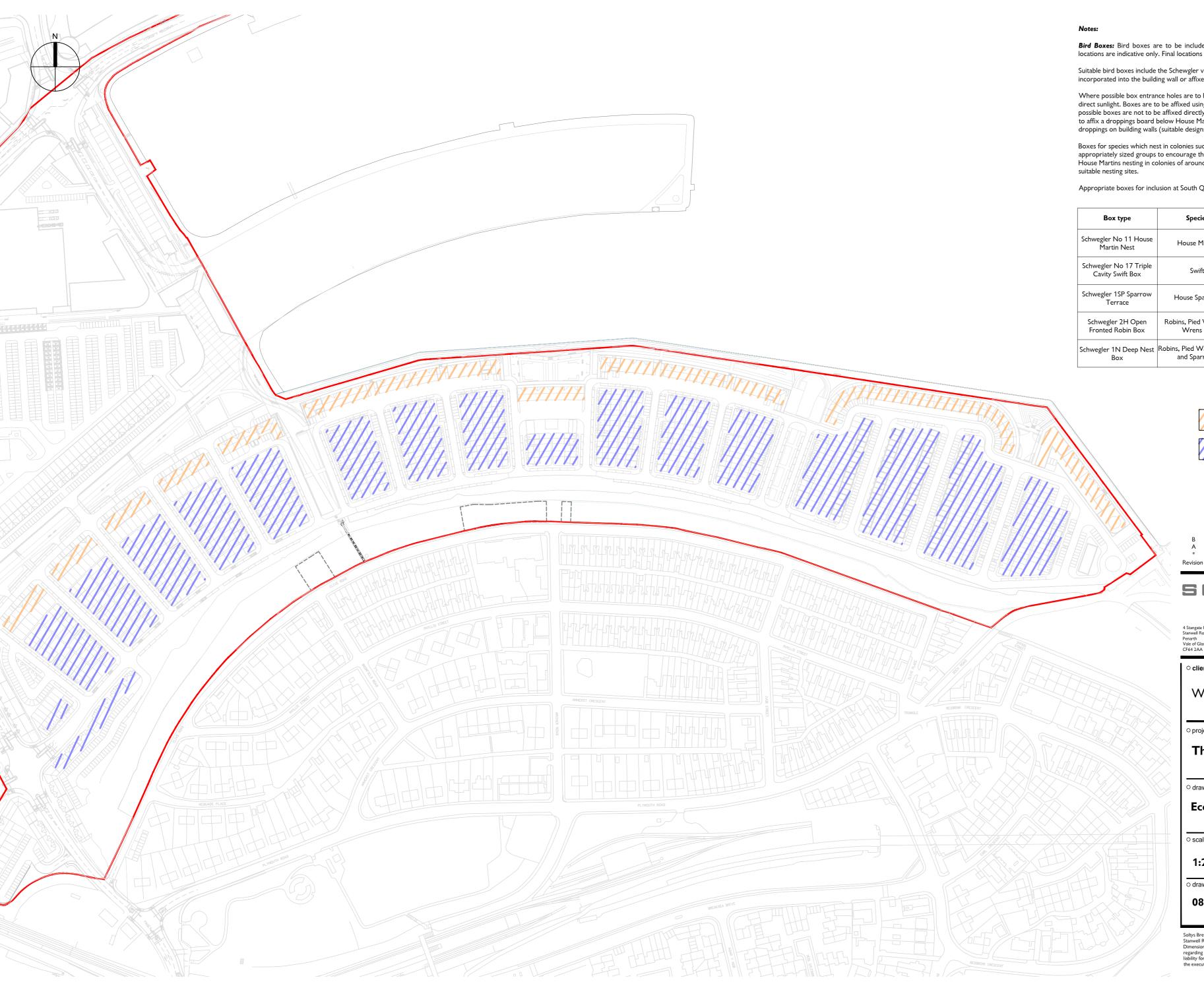
12-04-12 28-02-12 Date Soltysbrewster consulting

Facsimilie:- + 44(0) 29 2040 8482 e-mail:- enquiry@soltysbrewster.co.uk Waterfront Barry Consortium The Quays, Barry **Ecological Mitigation: East Quay Park** date approved July 2012 1:500 @ A1 O drawing no.

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0833103/PI/GA/068



Bird Boxes: Bird boxes are to be included on 1:5 (20%) of the houses within South Quay. Recommended bird box locations are indicative only. Final locations will be dependent upon confirmed site layout.

Suitable bird boxes include the Schewgler variety (available from Alana Ecology or similar), and those that can be incorporated into the building wall or affixed to external walls.

Where possible box entrance holes are to be positioned to face between north and east, out of the prevailing wind and direct sunlight. Boxes are to be affixed using galvanized or stainless steel screws, or nails that will not rust. Where possible boxes are not to be affixed directly above windows to prevent droppings falling onto them. It may be necessary to affix a droppings board below House Martin nests boxes in certain locations to avoid problems with a build-up of bird droppings on building walls (suitable designs include the Schwegler Droppings Board).

Boxes for species which nest in colonies such as Swift, House Martin and House Sparrow are to be positioned in appropriately sized groups to encourage their use. House Sparrows tend to nest in loose colonies of 10-20 pairs, with House Martins nesting in colonies of around 5-10 pairs. Swift colony size is determined largely by the availability of

Appropriate boxes for inclusion at South Quay and optimal positioning for each type of box is detailed below.

Box type	Species	Position	Height above the ground	Percentage of boxes
Schwegler No 11 House Martin Nest	House Martin	On unobstructed walls directly beneath the eaves, or on walls without eaves	2m or above	15
Schwegler No 17 Triple Cavity Swift Box	Swift	Near the roof of the building	6-7m	30
Schwegler 1SP Sparrow Terrace	House Sparrow	Incorporated into the building or affixed to walls	2m or above	20
Schwegler 2H Open Fronted Robin Box	Robins, Pied Wagtails, Wrens etc	Hung from building walls or fences, with the entrance to the side	1.5m - 2.5m	20
Schwegler 1N Deep Nest Box	Robins, Pied Wagtails, Tits and Sparrows	Hung from building walls or fences	2 - 3m	15

Key:



Suitable locations for Swift and House Martin Nest Boxes (Schwegler No.11 and No.17)



Suitable locations for Sparrow Terrace, Open Fronted Robin Box and Deep Nest Box (Schwegler 1SP, 2H and 1N)

PLANNING

12-04-12 28-02-12

Planning Issue

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Waterfront Barry Consortium

The Quays, Barry

O drawing title

Ecological Mitigation: Bird Box Locations

○ approved ○ date

1:2000 @ A2 AP

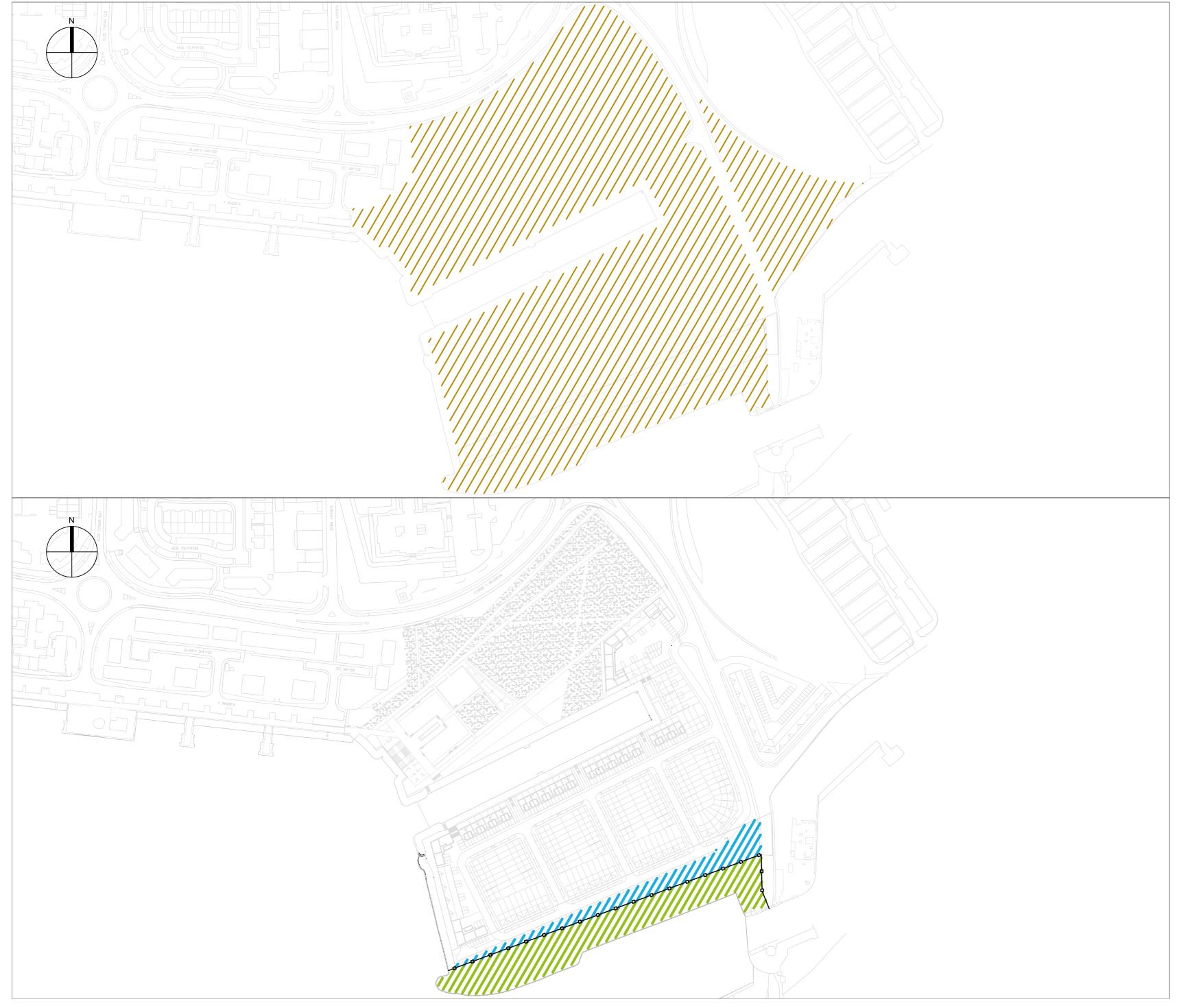
July 2012 MW

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0833103/PI/GA/071

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Key

Grassland to be managed via annual cutting in September/ October in the interim prior to development

Grassland to be retained and protected

Grass seed mix to be sown on any re-graded/ disturbed ground (Emorsgate EM10 Tussock Mixture)

Fence with lockable gates

Notes

In the interim prior to development at East Quay, the existing grassland is to be maintained via cutting to ground level annually in September/October. All arisings are to be removed and disposed off or composted off-site as appropriate. No cutting is to be undertaken in the breeding bird season, which typically runs from March to August inclusive.

The retained grassland is to be managed with the aim of maintaining a resource for ground nesting birds such a Skylark and Meadow Pipit. The retained grassland is to be fenced out during all site clearance/construction works to prevent damage occurring during construction across the rest of the site. Vehicles are not to be tracked over the area and it is not to be used for storage or for any other purpose.

A grass sward is to be re-established over any areas that required re-grading directly adjacent to the residential development. Emorsgate EM10 Tussock Mixture is to be sown over disturbed ground in spring or autumn to supplier specifications.

Following completion of construction the retained grassland is to be enclosed by a fence with lockable gates to prevent unauthorised public access. The fence is to have bird deterrent devices (e.g. bird spiking) fitted onto all potential perching posts that could be used by predatory birds.

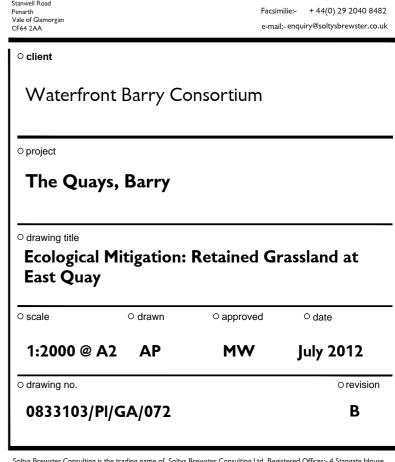
The reatined grassland is to be managed via cutting annually in September/October, with all arisings removed.

PLANNING

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Notes:

The cliff top is considered suitable to support breeding birds and common reptiles (Slow Worm Anguis fragilis have been identified on site). To avoid conflict with these species, timings and working methodology are to be undertaken as set out below.

Cliff Top - Clearance for Allotments/ Wildlife Gardens

Areas proposed for allotments/wildlife gardens are to be cleared of vegetation to reduce the suitability of the habitat for reptiles and nesting birds and to encourage these species to disperse into adjacent habitats. Vegetation is to be cleared over winter between December and February, with clearance of all trees and scrub to be undertaken outside the bird nesting season. Clearance between December and February would coincide with the period of reptile hibernation and would avoid the need for successive, gradual cuts of vegetation that would be required later in the year.

Vegetation is to be cleared by hand to ground level (c.50mm) using stimmers, chainsaws, brush cutters or similar. All arisings are to be removed and disposed of/ composted off-site. Vegetation height is to be maintained at or below 50mm until works to construct the allotments/ gardens have commenced.

Works to construct the allotments/ gardens are to be undertaken between April and September, during the period when reptiles are active. No works (including storage of material, tracking of vehicles etc) are to be undertaken in any area except that cleared for allotments/ gardens.

Cliff Top - Retained Habitat

A 4-5m wide strip is to be retained along the length of the cliff top, with larger retained areas at the eastern and western ends. Retained areas are to be managed principally for the benefit of biodiversity.

Scrub cover is to be cut back until approximately 20% cover remains in patches. The 4-5m wide strip is to remain in-situ, with only minimal management to prevent encroachment into allotment/garden areas. Clearance of all scrub/trees is to be undertaken outside the breeding bird season. All vegetation clearance is to be undertaken by hand using stimmers, chainsaws, brush cutters or similar. All arisings are to be removed and disposed of or composted off-site. Clearance of scrub from retained habitats is to be programmed in from winter 2013. Woody scrub is to be stump treated with herbicide, or roots are to be 'grubbed out' between late spring and summer (during the period when reptiles are active). Grubbing out is not to be undertaken over winter to avoid the risk of affecting hibernating reptiles.

Cleared areas are to be allowed to naturally colonise with grassland species from the surrounding area or, to speed establishment, bare areas are to be sown with an appropriate native seed mix (such as Emorsgate EM10 Tussock Mixture, sown at $4g/m^2$ to suppliers instructions) or seed sourced from a grassland site in the local area.

4no. log-piles are to be created in the retained habitat at the eastern and western ends of the cliff-top (2no. log-piles at each end). Log piles are to be approximately 1.5m L \times 1m W \times 1m H and are to be constructed using timber and brash of varying sizes. Timber is to be sourced from the site, or sourced externally if required.

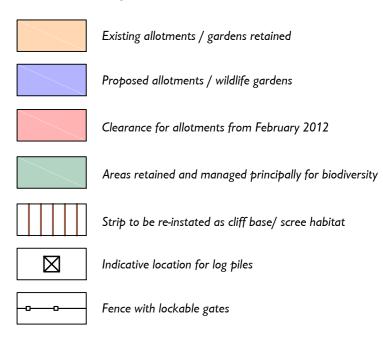
All retained habitat is to be enclosed with a suitable fence and lockable gates to prevent unauthorised public access. Retained habitat is to be managed via a cutting regime to maintain the grassland/scrub $\dot{}$

Cliff Bas

The grassland and scree at the base of the cliff is a key habitat for invertebrates. A strip at least 2m wide along the cliff base is to be re-established following surcharging to provide continued habitat resource in this area.

Scree and large boulders are to be excavated from along the length of the cliff base and stored in an appropriate location. The substrate at the foot of the cliff is to be excavated to a depth of 400mm and stored in an appropriate location. Following surcharging, the cliff base habitat is to be recreated using the stored substrate material, scree and boulders. The excavated substrate is to be replaced along the base of the cliff, with the scree placed on top of the substrate (to recreate the cliff base habitat). To prevent damage to the excavated substrate it should be moved no more than twice i.e. once to an appropriate storage location and once to return the substrate to the cliff base. Selected large boulders are to be replaced along the length of the cliff base (surplus boulders could be used elsewhere on the site, e.g. at the edge of the brownfield meadow and pond, or in the swale corridor). Vegetation should be allowed to naturally colonise the area, or sown with seed sourced from a grassland site in the surrounding area.

Key:



PLANNING

13-07-12 Revision of Text
12-04-12 Planning Issue
28-02-12 First Issue



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Waterfront Barry Consortium

The Quays, Barry

O drawing title

o drawing no.

○ project

Ecological Mitigation: Cliff Top and Cliff Base

○ scale ○ drawn ○ approved ○ date

1:2000 @ A2 AP MW July 2012

0833103/PI/GA/073

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