



Hedge	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	Total	
Blackthorn (<i>Prunus spinosa</i>)	40-60cm	60cm Tubex shelter and stake	55	150	115	170	103	157	153	111	85	410	
Elder (<i>Sambucus nigra</i>)	40-60cm	60cm Tubex shelter and stake	10	25	35	27	50	50	25	25	25	342	
Field maple (<i>Acer campestre</i>)	40-60cm	60cm Tubex shelter and stake	25	50	50	50	50	50	35	35	25	470	
Hawthorn (<i>Crataegus monogyna</i>)	40-60cm	60cm spiral and cane	130	360	275	410	250	425	415	375	240	3355	
Holly (<i>Ilex aquifolium</i>)	2-3L CG	60cm Netlon guard and stake	15	40	25	50	25	35	25	25	25	350	
Oak (<i>Quercus robur</i>)	40-60cm	60cm Tubex shelter and stake	25	50	35	25	35	35	30	35	25	391	
Spindle (<i>Euonymus europaea</i>)	40-60cm	60cm Tubex shelter and stake	25	25	35	10	25	35	25	9	10	222	
Total			220	600	460	680	412	700	668	612	444	340	5640

Block	Area (m²)	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	Total
Alder (<i>Alnus glutinosa</i>)	40-60cm	60cm Tubex shelter and stake	15	25	15	10	5	25	25	15	5	35	15	50	25	25	25	25	266
Silver Birch (<i>Betula pendula</i>)	40-60cm	60cm Tubex shelter and stake	15	10	15	15	15	15	15	15	15	15	15	15	15	15	15	15	220
Blackthorn (<i>Prunus spinosa</i>)**	40-60cm	60cm Tubex shelter and stake	5	10	10	15	30	20	25	30	5	50	35	25	25	25	25	25	346
Wild Cherry (<i>Prunus avium</i>)	40-60cm	60cm Tubex shelter and stake	5	15	15	25	15	15	15	25	25	25	5	50	75	25	25	25	330
Dogwood (<i>Cornus sanguinea</i> **)	40-60cm	60cm Tubex shelter and stake	25	15	15	35	25	25	25	15	5	50	50	35	25	25	25	25	330
Elder (<i>Sambucus nigra</i>)	40-60cm	60cm Tubex shelter and stake	5	15	15	25	10	10	25	10	25	10	35	15	25	15	25	15	180
Field maple (<i>Acer campestre</i> **)	40-60cm	60cm Tubex shelter and stake	10	20	20	40	25	25	25	35	25	10	35	15	75	35	25	25	490
Hawthorn (<i>Crataegus monogyna</i>)**	40-60cm	60cm spiral and cane	35	75	70	80	40	75	100	30	125	25	175	15	150	125	115	130	1340
Hazel (<i>Corylus avellana</i> **)	40-60cm	60cm Tubex shelter and stake	40	25	25	25	25	25	25	25	25	60	15	50	25	25	25	25	385
Holly (<i>Ilex aquifolium</i>)	2-3L CG	60cm Netlon guard and stake	15	15	15	15	15	15	15	15	15	35	25	25	25	25	25	25	210
Oak (<i>Quercus robur</i>)	40-60cm	60cm Tubex shelter and stake	5	15	15	25	15	25	25	25	25	10	55	15	75	50	15	15	465
Scots Pine (<i>Pinus sylvestris</i>)	40-60cm	60cm Tubex shelter and stake	10	20	20	40	25	25	25	25	25	10	35	15	15	10	15	10	175
Spindle (<i>Euonymus europaea</i>)	40-60cm	60cm Tubex shelter and stake	15	15	25	10	5	25	15	25	25	35	15	15	15	15	15	15	185
Wild Service Tree (<i>Sorbus torminalis</i>)	40-60cm	60cm Tubex shelter and stake	15	10	10	10	25	25	25	25	25	25	25	25	25	25	25	25	185
Goat willow (<i>Salix caprea</i>)	40-60cm	60cm Tubex shelter and stake	25	25	15	15	5	25	25	5	35	15	35	25	5	270	270	270	270
Total			65	165	160	400	240	210	340	325	600	300	50	725	90	795	800	275	5375

GRASSLAND SEEDING, WOODLAND & HEDGEROW PLANTING AND AFTERCARE SPECIFICATIONS

Agricultural Grassland: Establishment and Maintenance Works

Restoration Earthworks and Drainage

The worked out quarry phases will be backfilled to create the formation level surface, which will be approximately 1.0m below the final restoration contours indicated. The final subsoil and topsoil works will be undertaken in accordance with the Modified Loose Tipping Procedure for Soil Replacement devised by Dr. Stuart McRae (November 2008) and available by contacting David Brittain at DB Landscape Consultancy Ltd. (david@dblc.co.uk/07736083383). The intention of the Procedure is to avoid soil compaction, though if decompaction of the formation later is necessary prior to soil replacement, cross ripping operations should be undertaken in accordance with Sheet 19: Soil Decompaction by Bulldozer Drawn Tines of the DEFRA Good Practice Guide for Handling Soils (April 2000, available online from the National Archives).

As part of the restoration process, a grid of new gravel-filled drainage trenches at 15m centres will be installed running broadly west to east to take water from the areas restored to agriculture to discharge it into the lake system. These will be formed in the top of the formation level before the soils are placed. The system of gravel filled drainage trenches will be designed and constructed prior to restoration of the subsoil and topsoil in order to replicate the drainage through the gravels which have been removed. These will be installed in the second year following the Phase 1 restoration in the area west of the lakes and extended southwards/westwards as each Phase is progressively restored.

Ground Preparation, Seeding and Maintenance

If necessary, weeds will be sprayed off using glyphosate, dead vegetation will be ploughed into the soil and the land will be cultivated with a disc or power harrow to provide a fine, firm seed bed, then rolled with a Cambridge roller. Any stones or other large objects in excess of 150mm in any direction which are likely to impede cultivation or cropping shall be removed by hand. The land will be seeded in spring or early autumn with a low intensity medium term grass ley to establish an agricultural grassland. The seed mix sown at 35 kg/ha would be as follows (or similar):

- 7kg Monogel Italian Ryegrass
- 7kg Abernorr Perennial Ryegrass
- 7kg Aberstar Perennial ryegrass
- 7kg Aberdar Perennial ryegrass
- 4kg Promise Timothy
- 2kg Crusade White clover
- 2kg Barbalanca White clover

This mix is predominantly ryegrass which has the benefit of continued growth late into the season and is deep rooting giving winter ground cover whilst developing soil structure. The sward will be topped during spring and summer as required, to control weeds. Any severe weed infestation will be rectified by the topping of weed growth with the cutter bar set at 150mm above ground level, local spot treatment as necessary with a suitable selective herbicide or a combination of the two techniques.

Following successful grassland establishment (first 2 - 3 seasons following earthworks), the land shall be sown with maize, winter wheat or barley for the next 2 seasons at least, in order to demonstrate that the structure and performance of the replaced soil is of sufficient quality for long term agricultural use. Soil samples will be taken and analysed at twelve monthly intervals and applications of inorganic fertilisers made to rectify any plant nutrient deficiencies shown in the results of the analysis. The application rates of fertilisers (and lime, if deemed necessary) will be adjusted to maintain the index for both phosphate and potassium at Index 2, taking into account the requirements of the crop.

Meadow/Species Rich Grassland: Seeding and Maintenance Operations

These areas surrounding the lakes and water bodies would be developed and managed as more floristically rich grasslands in order to benefit nature conservation and help mitigate the effects of the mineral extraction works.

Restoration Earthworks and Drainage

Soils will be loosely replaced in these areas using the same methodology as for the agricultural grassland areas, as above. However, no gravel-filled drainage trenches would be installed prior to final sowing operations. Soil would be cultivated as above in preparation for seeding operations. The land would be seeded by a combination of either hay spreading using locally sourced hay from a suitable species rich meadow and/or seeded with an appropriate seed mix, preferably following soil analysis post restoration earthworks. A potentially suitable seed mix is as follows:

EM2 Standard General Purpose Meadow Mixture	Nurse Grass Species (80% of total)
Widflower Mix (20% of total)	80% <i>Agrostis capillaris</i> Common Bent <i>Cynodon dactylon</i> Crested Dogtail <i>Gallium verum</i> Lady's Bedstraw <i>Leucanthemum vulgare</i> Oxeye Daisy <i>Lobelia corniculata</i> Bird's-foot Thistle <i>Plantago lanceolata</i> Ribwort Plantain <i>Plantago media</i> Hoary Plantain <i>Phenacis verna</i> Cowslip <i>Phytolacca virginica</i> Soft-hoed <i>Ranunculus acris</i> Meadow Buttercup <i>Rhinanthus minor</i> Yellow Rattle <i>Rumex acetosa</i> Common Sorrel <i>Trifolium pratense</i> Wink Red Clover
TOTAL	20%

Areas would be seeded in early Spring at a rate of c. 5g/sq.m (50kg/ha). Seed would be lightly covered by chain harrow and rolled in with a Cambridge roller.

Deep Zone (c. 0.4 - 0.6m)
Callitriche stagnalis (Common water starwort), *Geratophyllum demersum* (Common hornwort), *Fontinalis antipyretica* (Willow moss), *Myriophyllum spicatum* (Spiked water-milfoil), *Nymphaea alba* (White waterlily), *Phalaris arundinacea* (Reed canary grass), *Phragmites australis* (Common reed), *Potamogeton crispus* (Curled pondweed), *Stratiotes aloides* (Water soldier)

Woodland and Hedgerow Planting Operations

All planting and landscape operations to comply with 'Recommendations for General Landscape Operations' BS.4428 (1989).

Woodland Blocks (P1 to P17) - Plant Species, Spacing and Pattern

For woodland areas, trees & shrubs will be planted in two plant mixes, as follows:

1) Main mix comprising the central part of each block, randomly planted at spacings of between 3m centres and 2m centres which would be consistent with an average of 2.5m centres but which would allow for some variety and avoid the development of a strict planting 'grid'. Plants will be planted in random groups of 3 - 7 of each species. Species would include a selection of the following, as per the Schedules of Plant Material above:

Common alder - *Alnus glutinosa*, Silver birch - *Betula pendula*, Blackthorn - *Prunus spinosa*, Wild cherry - *Prunus avium*, Dogwood - *Cornus sanguinea*, Elder - *Sambucus nigra*, Field maple (*Acer campestre*), Hawthorn - *Crataegus monogyna*, Hazel - *Corylus avellana*, Holly - *Ilex aquifolium*, English oak - *Quercus robur*, Scots pine (*Pinus sylvestris*), Spindle - *Euonymus europaea*, Wayfaring tree - *Viburnum lantana*, Crack willow - *Salix fragilis*, Goat willow - *Salix caprea*.

2) Fringe (ecotone) planting on the edge of the woodland blocks, acting as an interface between the main woodland and the agricultural land. The width of the fringe area would vary between 2 and 4 metres, and would have a scalloped edge. Shrubby species to be planted within this area would include Hawthorn, Blackthorn, Hazel, Field Maple and Dogwood. Plants would be planted randomly in groups of 3 - 5 and would be spaced at approx. 1.5m centres.

The hedgerow would comprise mainly hawthorn (c. 50%) with other species randomly spaced throughout the hedge in groups of 1 - 3. Other species would include those listed above to be included in the fringe areas on the edge of woodland blocks.

Protection from Rabbits

All 40 - 60cm transplants (except Hawthorn) will be protected by 60cm Tubex shelters supported by 90cm x 32mm treated softwood or cleft chestnut stakes. Hawthorn would be protected by 60cm clear spirals supported by 90cm bamboo canes.

All containerised plants (Holly) will be protected from rabbits by 60m Netlon guards supported by 90cm x 32mm x 32mm treated softwood or cleft chestnut stakes. All supports will be well secured in the ground and left upright and wind-firm on completion.

Woodland and Hedgerow Aftercare Operations (Duration 5 Years)

Weed Control

All grass and weeds in a minimum 80cm diameter spot around each plant would be controlled by two applications of glyphosate herbicide (eg. Roundup) during early/mid spring and again during mid/late summer for the first three seasons and then as deemed necessary thereafter.

Herbicide would be applied along the length of each new hedge in a c. 1m wide band. Herbicide to be applied only by qualified personnel in accordance with manufacturers recommendations.

Replacement of Losses and Shelter Adjustment

Losses of losses and shelter for the first three seasons after planting, and thereafter only with those species which appear to be thriving on site, to achieve minimum 90% stocking after five years. All natural regeneration of desirable species arising within planting areas would be accepted to boost stocking density. Shelters and stakes which become loose, over-tight or broken would be re-firmed and adjusted annually.

Trimming (Provisional)

If deemed necessary, and in addition to herbicide application as above, planting areas would be trimmed in early/mid spring and/or mid/late summer to manage the encroachment of undesirable weeds and to keep the grass areas between the plants tidy.

Annual Aftercare Report and Meeting: An annual aftercare report will be submitted to the LPA in autumn/winter which summarises the previous years' aftercare operations and proposals for the forthcoming year. An aftercare meeting (consisting of the operator, the landowner (or agent), the LPA and tenant farmer) will be held the following spring to inspect the land, discuss the report and agree on actions.

Client: **NEW MILTON SAND & BALLAST CO.**

Site: **DOWNTON MANOR FARM QUARRY**

Project: **PLANNING APPLICATION**

Drawing Title: **REVISED RESTORATION PLAN**

Date: **FEBRUARY 2018** Drawing No. **26G-01-15RevB**

Scale: **1:2,500 @ A2**

File Ref: **1802_006.026_26G-01-15RevB** Revision: **B**

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RevA: Changes to lakes to more closely reflect existing situation, consequent changes to woodland planting
RevB: Changes to route of proposed public Footpath, addition of seeding and planting notes including Schedules, addition of wet flushes

KEY

	APPLICATION BOUNDARY		PROPOSED TRACK		EXISTING WET FLUSHES
	EXISTING SURROUNDING CONTOURS		EXISTING WOODLAND/HEDGEROWS		INDICATIVE CROSS SECTIONS (Refer to Drawing Nos: 26G-01-16 to 18RevA)
	PROPOSED RESTORATION CONTOURS		PROPOSED WOODLAND/HEDGEROWS		REFERENCE FOR PLANTING BLOCK OR HEDGEROW AS PER THE SCHEDULES OF PLANT MATERIAL
	EXISTING INFORMAL PATH		AREAS RESTORED TO AGRICULTURAL USE		
	PROPOSED PERMISSIVE PATH		PROPOSED MEADOW/SPECIES RICH GRASSLAND SURROUNDING WATER BODIES		
	PROPOSED SHOREFIELD PARK CARAVAN TRANSPORT ACCESS ROAD		PROPOSED WATER BODY WITH REEDS/MARGINAL AQUATIC PLANTS		

0 10 20 30 40 50 60 70 80 90 100 METRES
SCALE 1:2500

Note: The site drainage system and its management/maintenance is detailed in the following report: Technical Note: Post Restoration Site Drainage - Provision of Additional Information to Hampshire County Council dated February 2018 by BCL Consultant Hydrologists Limited.