Hampstead Heath Ponds Project

Landscape Specification

City of London

For Construction

20 February 2015

ATKINS

Plan Design Enable

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This document has 69 pages including the cover.

Document history

Job number: 5117039			**Document ref: 5117039-ATK-XX-ZZ-SP-L-0001 C2**			
Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
1	Issue for 'For Costing'	AW	LB	BJ	MW	17/10/14
2	Issue for 'For Costing'	AW	LB	BJ	MW	31/10/14
C1	For Construction	AW	LB	BJ	MW	20/02/15
C2	For Discharge of Planning	AW	LB	BJ	MW	03/03/15

Client signoff

Client	City of London
Project	Hampstead Heath Ponds Project
Document title	Landscape Specification
Job no.	5117039
Copy no.	
Document reference	5117039-ATK-XX-ZZ-SP-L-0001 C1

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Landscape Specification

Appendices

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Appendix 1/5: Testing to be carried out by the Contractor

105.1 In addition to the tests described in Volume 1 Specification for Highway Works the Contractor shall be responsible for carrying out the following tests detailed in the following Table in accordance with Clause 105.

105.2 The Contractor shall submit weekly to the Overseeing Organisation a programme of his anticipated testing regime for the following weeks work. This programme shall be submitted by 1200 hrs on the Friday preceding the weeks testing.

105.3 The Contractor shall ensure the timely undertaking of all testing and submission of all results to the Overseeing Organisation. The Contractor shall submit daily a list of all samples/tests taken that day.

105.4 If the Contractor fails to carry out any testing to the required frequency, or to supply the results thereof in a correct and timely manner, the Overseeing Organisation may carry out such tests as he considers necessary to determine the acceptability of the works/materials employed and shall recover the costs thereof from the Contractor.

105.5 All tests must be witnessed by the Overseeing Organisation or his Representatives.

105.6 Where the quantity of materials used in the Works is less than the quantity described under 'Frequency of Testing' then the quantity described under 'Frequency of Testing' shall be read as the quantity used in the Works.

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
Series 700					
702	Pavement courses				
	Surface regularity	2m long straight edge	Every 10m	Not Required	Surface regularity sufficient to ensure drainage of path.
	Surface regularity	2m long straight edge	Every 10m	Not Required	
	Vertical alignment	Dip	10m by 2.0m grid	Not Required	
Series 800					
801 803 804 805 806	General requirements for Unbound Mixtures for Subbase (other than slag) adjacent to cement bound materials, concrete pavements, structures or products	Water-soluble sulphate (WS) content (N)	1 per 400 tonnes or per location if less than 400 tonnes	Required	
		Oxidisable sulphides (OS) content and total potential sulphate (TPS) content (N)	1 per 400 tonnes or per location if less than 400 tonnes		
	Unbound mixtures beneath surface of a road or paved central reserve	Frost heave (N)	1 per source		
		Grading and fines content	1 per week		
		Plastic index (N)	1 per 400 tonnes		
		Resistance to fragmentation (N)	6 monthly		
		Resistance to wear micro-Deval test			
		Resistance to freezing and thawing (magnesium sulphate soundness (N)	1 per source		
		Water absorption (N)			
		Volume stability of blast furnace slags	6 monthly		

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
		Volume stability of steel (BOF and EAF) slags	6 monthly		
		CBR (N)	1 per source and then monthly		
		OMC/mc (N)			
		Density (N)	1 per 500 tonnes		
		Water absorption (N)	1 per source		
		Recovered bitumen content (N)	1 per 400 tonnes		
Series 900					
901, 925, 937, 938, 943	Aggregates for bituminous materials				National quality management sector scheme applies
	Hardness	Resistance to fragmentation (hardness)	Monthly	Required	
		Impact value (N)	Monthly		
	Resistance to freezing and thawing (durability)	Soundness (N)	1 per source		
		Water absorption (N)	Monthly		
	Cleanness	Sieve test (mass passing 75µm sieve) (N)	Monthly		Washing and sieving method to be used
	Shape	Flakiness index (N)	Monthly		
	Blast furnace slag	Bulk density (N)	1 per 500 tonnes		
		Soundness (N)	Once every 4 months		
		Dicalcium silicate disintegration (N)	1 per 500 tonnes		
		Iron disintegration	1 per 500 tonnes		
	Steel slag	Bulk density			
		Volume stability (N)	1 per 500 tonnes		
	Coarse aggregate for surface courses	PSV (N)	1 per source		
		AAV (N)	1 per source		
	Binders for bituminous Materials	Penetration (N)	1 per 750 tonnes		National quality management sector scheme applies. Modified binders should have a BBA HAPAS Roads and Bridges Certificate. In the event that no such Certificates have been issued, then in the interim only modified binders undergoing BBA assessment should be considered for approval by the Overseeing Organisation.
		Softening point (N)	1 per 750 tonnes		
		Binder Content (N)	1 per 100 tonnes		
903 to 907, 909 to 912, 914, 916, 925, 926, 929, 937, 938, 942, 943, 946 to 948	Bituminous mixtures	Grading (N)	For Audit Test purpose only		National quality management sector scheme applies
		Binder content (N)			

Notes:

1 Tests comparable to those specified in this Appendix will be necessary for any equivalent work, goods or materials proposed by the Contractor (See sub-Clause 105.4)
2 (N) indicates that a UKAS test report or certificate is required.
3 Unless otherwise shown in this Appendix tests for work, goods or materials as scheduled under any one Clause are required for all such work, goods or materials in the Works.
4 Cube strength tests are not required for concrete complying with Clause 2602.
5 Unless otherwise shown in this Appendix test certificates for work, goods or materials as scheduled under any one Clause are required for all such work, goods or materials in the Works.

Appendix 3/1: Fencing, Gates and Stiles

302 Requirements for Temporary and Permanent Fences

302.1 Temporary fencing is required on the perimeter of planted/seeded, turfed areas and around individual trees, in accordance with clause 303.1.

302.2 Contractor will provide and maintain temporary fencing to accommodate health and safety requirements, and his method of working including: temporarily fencing an open pond edge which is normally fenced, protection of footpath diversions, statutory undertaker's working area or apparatus, compounds, working areas and construction access.

303 Temporary Fences

303.1 Temporary fencing to protect planted/seeded, turfed areas and individual and groups of trees (as specified in clause 3006.52), shall be type (ii) Post and wire fencing but with no barbed wire.

Tree protection fencing: Refer to Arboriculture Statement 5117039/ATK/XX/ZZ/SPL0005 Section 4:3 for details of tree protection fencing.

Fencing to protect the marginal planting areas shall be in accordance with drawing 5117039-ATK-ZZ-ZZ-DR-L-7251 and the Specification for Pond Restoration and Planting ref: 5117039-ATK-XX-ZZ-SP-L-0004.

305 Fittings

305.1 All Fittings shall be galvanised steel. Stainless steel fittings shall not be used.

306 Permanent Fencing

306.1 Where the ground on the pond edge has been disturbed during the works and the ground is uneven under the line of the proposed or reinstated fence the ground should be shaped/trimmed to ensure the function of the fence in that location as advised by the client representative.

306.1 Joining new to existing fences: Refer to details 5117039-ATK-ZZ-ZZ-DR-L-7507.

Proposed metal post and wire to metal railing eg Stock Pond - New metal post to be installed immediately next to end post of existing metal railing panel to achieve same height as existing.

Proposed timber post and wire fence and/ or timber palisade and chestnut pale fence to existing timber fence – New timber post to replace existing to achieve same height as existing.

306.1 Drawings series 5117039-ATK-XX-DR-L-7100 Landscape and Ecology General Arrangement show where fencing is required and the position. The specification for each pond and type of fence to be provided is included in Table 1 and should be read with reference to the following notes below:

1. Where identified on the drawings or agreed with the client representative the existing fence is to be lifted and re-used where possible. Any fencing which cannot be re-used or is damaged during removal or construction works shall be replaced with new as follows:

   Metal Railings Stock Pond – detail no. 1 on drawing 5117039-ATK-ZZ-ZZ-DR-L-7502.

   Post and Rail Fence – Mens Bathing Pond – detail no. 2 on 5117039-ATK-ZZ-ZZ-DR-L-7503.

   Timber and Chespale Fence – Highgate no. 1 and Ladies' Bathing Ponds – detail no. 2 on 5117039-ATK-ZZ-ZZ-DR-L-7503.

   Knee Rail – Ladies' Bathing Pond – detail no. 1 on 5117039-ATK-ZZ-ZZ-DR-L-7505.

2. Existing fence on downstream side of path across dam at Mixed bathing Pond to be lifted and re-located at the bottom of the downstream slope – set at least 1m back from pond edge and installed as shown on detail no.2 on drawing 5117039-ATK-ZZ-ZZ-DR-L-7502. Any fencing which cannot be re-used or is damaged during removal or construction works shall be replaced with new as the detail no.2 on drawing 5117039-ATK-ZZ-ZZ-DR-L-7502.

3. Permanent wildfowl fencing refer to detail 5117039-ATK-ZZ-ZZ-DR-L-7257 and specification 5117039-ATK-XX-ZZ-SP-L-004.

4. Surplus fencing shall be retained by City of London or removed offsite as instructed by the Project Manager.

5. Where identified on the drawings existing fencing adjacent to works shall be left in-situ and worked around. Where any damage occurs during the works fencing shall be replaced with new as follows:

   Vale of Heath – Concrete post and metal rail – detail 1 on drawing 5117039-ATK-P11-ZZ-DR-7500.

   Hampstead No. 2 – Timber post and metal rail – detail 2 on drawing 5117039-ATK-ZZ-ZZ-DR-L-7502.

Table 1: Fencing

Highgate Chain							
Stock Pond P1							
Type		**Drawing Reference 5117039-ATK-**	**Height**	**Materials**	**Finish**	**Footings**	**Note**
Metal Palisade Railing (note 1)	Across Dam	ZZ-ZZ-7502 Detail 1	1.5m	Mild steel	Hot dip galvanised to BS EN ISO 1461. Painted in accordance with clause 312. Colour to match existing.	300x300x500mm concrete footing. Refer to engineering specification clause 2.20 5117039-ATK-ZZ-ZZ-SP-C-0001 for concrete specification.	Working under trees and over inlet. Refer to Arboricultural Method Statement 5117039-ATK-XX-ZZ-SPL0005 Existing fence to be lifted and reinstated.
Metal Post and Wire 1500mm	Across Spillway	ZZ-ZZ-7504 Detail 2	1.5m	Mild steel posts. Black plastic coated wire.	Hot dip galvanised to BS EN ISO 1461.Painted in accordance with clause 312. Colour to match existing.	300x300x500mm concrete footings in accordance with Engineering Specification as above.	1:4 side slope to spillway fenceline to follow slope as clause 306.
Ladies Bathing Pond P2							
Type		**Drawing Reference**	**Height**	**Materials**	**Finish**	**Footings**	**Note**
Timber Post and Wire Fence	Across Spillway	ZZ-ZZ-7504 Detail 1	0.9m	Timber posts with 4 line strained wire galvanised	Pressure treatment colour: Brown	400x450x500mm refer to Engineering Specification as above.	
Timber Knee Rail (note 1)	On Dam	ZZ-ZZ-7505 Detail 2	0.6m	Pressure treated softwood posts and rails.	Pressure treatment colour : Brown	300x300x450mm concrete footings in accordance with Engineering Specification clause 2.20 5117039-ATK-ZZ-ZZ-SP-C-001	Existing knee rail lifted and reinstated.

Type		Drawing Reference	Height	Materials	Finish	Footings	Note
Timber Post and Chestnut Pale Fence (note 1)	Either side of entrance path from west.	ZZ-ZZ-7503 Detail 2	1.25m	Pressure treated softwood posts and rails. With chestnut pale fencing attached to rails.	Pressure treatment colour : Brown	Rammed backfill	

Men's Bathing Pond P6							
Type		**Drawing Reference**	**Height**	**Materials**	**Finish**	**Footings**	**Note**
Timber Post and Chestnut Pale Fence	Across Spillway includes top hinged fence	ZZ-ZZ-7506 Detail 1	1.25m	Pressure treated softwood posts and rails. With chestnut pale fencing attached to rails.	Pressure treatment colour : Brown	350x450x550mm. Concrete footings in accordance with Engineering Specification clause 2.20, 5117039-ATK-ZZ-ZZ-SP-C-0001	Slope 1:3 slope at western end. Position 2m back from edge of existing concrete coping.
Timber Post and Chestnut Pale Fence	New fence reinstated west of spillway at top of bank	ZZ-ZZ-7503 Detail 2	1.25m	Pressure treated softwood posts and rails. With chestnut pale fencing attached to rails.	Pressure treatment colour : Brown	Rammed backfill	
Timber Post and Chestnut Pale Fence (note 1)	New fence east spillway	ZZ-ZZ-7503 Detail 2	1.25m	Pressure treated softwood posts and rails. With chestnut pale fencing attached to rails.	Pressure treatment colour : Brown	Rammed backfill	Located on side of bund. Existing fencing lifted and reinstated.

*To be confirmed if Sinclair Garden Scheme goes ahead

Highgate No. 1 Pond P5							
Type		**Drawing Reference**	**Height**	**Materials**	**Finish**	**Footings**	**Note**
*Timber Post and Chestnut Pale Fence (note 1)	On garden boundary if existing fence removed to be reinstated. Sinclair Garden	ZZ-ZZ-7503	1.25m	Pressure treated softwood posts and rails. With chestnut pale fencing attached to rails.	Pressure treatment colour : Brown	Rammed backfill	Check if affected by new Sinclair garden wall.

Hampstead

Mixed Bathing Pond P8							
Type		**Drawing Reference**	**Height**	**Materials**	**Finish**	**Footings**	**Note**
Timber Post and Single Metal Rail Fencing (note 2)	On dam existing to be removed and reinstated at toe of dam on downstream face	ZZ-ZZ-7502 Detail 2	0.9m	Pressure treated softwood posts with galvanised mild steel rail	Rail - Hot dip galvanised to BS EN ISO 1461. Pressure treated colour: Brown	400x450x550mm concrete footings in accordance with Engineering Specification as above.	
Timber Post and Single Metal Rail Fencing	To maintenance access steps	P8-ZZ-7502	1.1m	Pressure treated softwood posts with galvanised mild steel rail	Rail - Hot dip galvanised to BS EN ISO 1461. Pressure treated colour: Brown	400x450x550mm concrete footings in accordance with Engineering Specification as above.	

Type		Drawing Reference	Height	Materials	Finish	Footings	Note
Timber Post and Metal Railing	On dam fixed along coping on sheet pile revetment wall	P8-7500 and P8-7502	1.1m	Timber posts with 3no. galvanised mild steel rails	Hot dip galvanised to BS EN ISO 1461. Pressure treatment colour : Brown	Metal shoe fixing to coping in accordance with drawing 5117039-ATK-P8-DR-L-7500. Fixings to be in accordance with clause 305 Fittings.	Chain maintenance access to inlet structure
Timber Post and Chestnut Pale Fence	Existing fence to be removed, retained and reinstated. On dam at eastern end of upstream side	ZZ-ZZ-7503	1.25m	Pressure treated softwood posts and rails. With chestnut pale fencing attached to rails.	Pressure treatment colour : Brown	Rammed backfill	

Hampstead No 2 Pond P9							
Type		**Drawing Reference**	**Height**	**Materials**	**Finish**	**Footings**	**Note**
Timber Post and Single Metal Rail Fencing (note 1)	On dam existing railing retained in-situ.	ZZ-ZZ-7502 and P9-ZZ-7506-8	0.9m	Pressure treated softwood posts with galvanised mild steel rail	Hot dip galvanised to BS EN ISO 1461. Pressure treatment colour : Brown	400x450x550mm concrete footings in accordance with Engineering Specification clause 2.20, 5117039-ATK-ZZ-ZZ-SP-L-0001 for concrete specification.	At western end of dam
Existing rail to be removed in 2 locations and replaced with chain for disabled fishing access	On dam	P9-ZZ-7506-8	-	Mild Steel	Hot dip galvanised to BS EN ISO 1461.	-	Fishing Peg
Timber post and rail with metal mesh infill	On timber platform detail	P9-ZZ-7500	0.9m	Minimum class D30 Hardwood - Oak steel mesh galvanised metal fixings	Hot dip galvanised to BS EN ISO 1461.	Metal shoes refer to drawing P9-ZZ-7500	With 3 No change in direction
Existing timber post and metal rail fencing (note 5)	On dam	ZZ-ZZ-7502 and 7509	0.9m	Pressure treated softwood with galvanised steel rail	Hot dip galvanised to BS EN ISO 1461. Pressure treatment colour: Brown	400x400x550mm concrete footings in accordance with Engineering Specification	Existing fencing to be left in-situ. Damaged sections replaced if necessary and instructed by the Project Manager.

Hampstead No 1 P10							
Type		**Drawing Reference**	**Height**	**Materials**	**Finish**	**Footings**	**Note**
Timber Post and Wire Fence (detailed as part of Pond P9)	On outlet	P9-ZZ-7505	1.1	Mild steel posts with 4 line strained wire	Hot dip galvanised to BS EN ISO 1461.	400x450x550mm concrete footings in accordance with engineering specification and base plate footings as shown on detail P9-ZZ-7505.	2 no. change in direction

Vale of Health Pond P11							
Type		**Drawing Reference**	**Height**	**Materials**	**Finish**	**Footings**	**Note**
Dog proof mesh	On dam to be added to existing fence on upstream side	P11-ZZ-7500	0.6m	Galvanised steel wire and vine eyes or strap anchors	Hot dip galvanised wire.	N/A	
Concrete Post and Double Metal Rail Fencing (note 5)	On dam existing fence to retained insitu and worked round	ZZ-DR-L-7503 and P11-ZZ-7500	0.9m	Galvanised steel wire and vine eyes or strap anchors	Hot dip galvanised wire.	-	Existing fencing to be left in-situ. Damaged sections replaced if necessary and instructed by the Project Manager.
Concrete Post and Double Metal Rail Fencing	On edge of spillway	P11-ZZ-7500	0.9m	Wire and vine eyes or strap anchors as clause 306.9	Hot dip galvanised wire.	400x450x550mm concrete footings in accordance with Engineering Specification clause 2.20, 5117039-ATK-SP-L-0001 for concrete specification.	Check whether existing or not

New Chestnut pale shall be in accordance with BS 1722-4 except that the posts have been replaced with a post and rail fence. Post and rail fence shall be SPCR 125/2 type in accordance with BS 1722-7.

Metal rails shall be hot dip galvanised to BS EN ISO 1461.

306.6 **Wire Mesh to Permanent or Existing Fencing** - drawings 5117039-P11-ZZ-DR-L-7100 and 5117039-P11-ZZ-DR-L-7500 show where mesh is required and the position. The specification for each pond is included in Table 1. A dog proof mesh shall be installed to the upstream side of the existing concrete post and metal rail fence adjacent to the Vale of Health Pond. Mesh shall be 100 x 100 mm medium duty stock mesh (dog proof), type C8/80/15, secured to concrete posts on upstream face with strap anchors or 75mm vine eyes. Mesh shall be cut to fit height of fence. Strap anchors shall be as supplied by Rivelin Glen Products 01246 851777 or equal other approved.

5117039-ATK-P9-ZZ-L-7502 shows position of mesh required to Balustrade. Mesh shall be 50mm x 50mm x 12 gauge welded galvanised square mesh fixed with 14mm galvanised staples.

308 Gates and Stiles

308.1 The Landscape and Ecology General Arrangement Drawings 5117039-XX-ZZ-DR-L-7100 show where new gates are required and the position. The specification for each pond and type of gate to be provided is included in Table 2.

Table 2: New Gates

Mens Bathing Pond P5								
Type		**Drawing Reference**	**Height**	**Materials**	**Finish**	**Footings**	**Fittings**	**Note**
Timber	Fishing Access	P5-7501	1.1m	Timber	pressure treatment colour: Brown	Fixing in accordance with drawing 5117039-ATK-P5-DR-L-7501	Latch and padlock	Access gate for fishermen

309 Removing and Re-erecting Existing Fences and Gates

309.1 The Landscape and Ecology General Arrangement Drawings 5117039-XX-ZZ-DR-L-7100 show where existing gates and fences are to be removed and re- erected. The specification for each pond and type of gate to be provided for the ponds below:

Table 3: Existing Gates

Type	Drawing Reference	Width	Materials	Footings	Fittings	Note
Timber pedestrian gate	5117039-P2-ZZ-DR-L-7100	1.0m	Timber	300x300x500mm concrete footings in accordance with Engineering Specification clause 2.20 5117039-ATK-ZZ-ZZ-SP-C-001	Latch and padlock	Existing gate removed and reinstated at west entrance.

Parkside					
Type	**Drawing Reference**	**Width**	**Materials**	**Footings**	**Note**
Pedestrian metal palisade	P6-ZZ-DR-L-7100	1.0m	Steel	300x300x500mm concrete footings in accordance with Engineering Specification clause 2.20 5117039-ATK-ZZ-ZZ-SP-C-001	Existing gate removed and reinstated adjacent to sheet pile wall

312 Painting of Fences, Gates, Stiles and Posts

Existing and new metal railings as shown on detail no. 1 on drawing 5117039 – ATK-ZZ-ZZ-DR-L-7502. Colour to match existing adjacent fencing.

Painting to be to a 15 year system. One full coat of Crown Trade Protective Coatings High Build Rust Inhibiting Metal Primer Undercoat followed by two coats of Crown Trade High Build Minacious Iron Oxide and finish with two coats of Crown Trade Protective Coating High Performance Gloss for Metal.

New metal railings and existing railings which have been lifted and replaced during construction and/or damaged during construction, as shown on detail 1 on drawing 5117039-ATK-ZZ-ZZ-DR-L-7502 and drawing 5117039-ATK-P1-ZZ-DR-L-7100 shall be painted in accordance with the following specification:

- Railings shall be cleaned and primed with T-wash prior to painting.
- Trade Protective Coatings High Build Rust Inhibiting Metal Primer Undercoat followed by two coats of Crown High Build Micaceous Iron Oxide and finish with two coats of Crown Trade Protective Coating High Performance Gloss for metal or equal other approved.
- Colour to match existing adjacent fencing.

Appendix 6/1: Requirements for Acceptability and Testing of Earthworks Materials

601 Classification, Definitions and Uses of Earthworks Materials

601.1 (i) Acceptable topsoil material

Table 1

Class				General Material Description	Typical Use	Permitted Constituents (All Subject to Requirements of Clause 601 and Appendix 6/1)	Material Properties Required for Acceptability (In Addition to Requirements on Use of Fill Materials in Clause 601 and Testing in Clause 631)			Compaction Requirements in Clause 612
							Property (See Exceptions in Previous Column)	Defined and Tested in Accordance With:	Acceptable Limits Within: Lower	Acceptable Limits Within: Upper	
TOPSOIL	5	A	-	Topsoil, or turf, existing on site	Topsoiling	Topsoil or turf designated as Class 5A in the Contract	(i) grading (ii) refer to Appendix 6/8	Clause 618 Appendix 6/8	-	Clause 618	-
	5	B	-	Imported topsoil	Topsoiling	Specific Purpose grade - Acidic complying with BS 3882	(i) refer to Appendix 6/8	-	-	-	-

This specification is to be read in conjunction with the Engineers specification 5117039-ATK-ZZ-ZZ-SP-C-001 which contains details of all other earthwork materials.

Appendix 6/8: Topsoiling

See page 7 of 32 in Specification for pond restoration and planting - for guidance.

602 General Requirements

602.9 Topsoil Strip

Topsoil and subsoils shall be stripped from all existing grass areas affected by the works and stockpiled in accordance with clause 602.10. No soil stripping and handling operations shall be carried out during rainfall or when there is standing water, or when the soil moisture content is above 5% below the lower soil plastic limit. It shall not be placed or spread when the soil is frozen or covered with snow.

If protected species or habitats will be affected by ground disturbing activities, including any earthmoving activities, no works shall commence prior to the Contractor obtaining any necessary permits or licences. If a licence or permit for such works is granted, those works shall only be undertaken during the periods as stated on the licence or permit under the direction of the licence or permit holder. A copy of the licence and/or permit shall be provided to the Employer prior to commencement of the relevant activities.

602.10 Topsoil Storage

Material excavated and designated for processing shall be transported to the appropriate area for stockpiling. Topsoil stockpiles to be located in vicinity of area of strip and area of re-use. Clearly defined segregated stockpiles are required for different sub-classes of processed material. The maximum permitted height of stockpiles, for topsoil class 5, shall be 2.0 m.

For temporary storage of earthworks materials, except topsoil Class 5, maximum permitted height of stockpiles shall be 5.0 metres, subject to other restrictions noted elsewhere in this specification. Earthworks materials requiring to be stockpiled shall be stored in individual stockpiles for each earthworks class and end-use.

On completion of a stockpile the slopes shall be trimmed to falls to shed rain water and the surface sealed to limit infiltration. Temporary drainage shall be provided at the base of the stockpile to collect runoff from the stockpile and to carry any surface water away from the base of the stockpile.

The Contractor shall provide and maintain such measures as necessary to eliminate the production of dust from the stockpile during the life of the stockpile.

Topsoil is not to be stockpiled for more than 2 years. After 2 years the topsoil shall be excavated, reconditioned and formed into a new stockpile.

606 Watercourses

606.1 For details of existing water courses, construction of new water courses and earthworks drainage ditches refer to Specification for pond restoration and aquatic planting 5117039-ATK-XX-SP-L-004.

Positions of proposed swales are shown on 5117039-ATK-XX-ZZ-DR-L-7200 series drawings.

618 Topsoiling

618.1 Topsoiling shall be carried out using Class 5 material. Refer to table 1 in Appendix 6/1

Soil Testing shall be carried out according to the analytical methods stated and described in BS 3882:2007 Specification for Topsoil and Requirements for Use, and as specified below.

The Methodology for Permeability shall be the laboratory method as described in BS 1377 Part 5 1990 Section 5.

The composite sample(s) shall be tested prior to approval in accordance with the BS3882:2007 and other parameters. The following parameters should be requested:

a) Visual examination shall be carried out during sampling. This shall include, but not necessarily be limited to, recording the following properties at each sampling location, with reference to the Soil Survey Field Handbook (Technical Monograph No.5): Munsell colour, soil structure, moisture status, consistency, stone type, size and shape, the presence of any deleterious materials (eg. sharps), unusual odours (anaerobism) and invasive weeds (eg. Japanese Knotweed).

b) pH Value (1:5 soil:water)

c) Calcium Carbonate (% m/m – BS7755-3.10: 1995)

d) Exchangeable sodium percentage (% not measured if electrical conductivity <2800 µS/cm) (BS3882: 2007)

e) Electrical Conductivity (µS/cm) (1:2.5 soil/water extract and CaSO4 extract)

f) Particle Size Analysis (clay, silt, sand m/m) (BS7755:5.4: 1998).

g) Stone Content by % m/m weight (>2mm, >20mm, > 50 mm)

h) Visible Contaminants (>2mm) (BS3882: 2007)

i) Organic Matter (% m/m Modified Walkley-Black ref. BS3882: 2007))

j) Total Nitrogen (%) – BSEN 13954-2 (Dumas Method)

k) Extractable Phosphorus (P), Potassium (K) and Magnesium (Mg) (mg/l)

l) Carbon: Nitrogen Ratio

m) Phytotoxic Heavy Metals – Cu, Ni, Zn, B (mg/kg) – reference BS3882: 2007

n) Total Sulphate (mg/kg)

o) Water-soluble Sulphate (g/l)

The results of analysis should be presented in an interpretive report to include a Declaration of Compliance in accordance with BS 3882:2007, confirming that they meet the parameters for specific-purpose topsoil and the specific requirements of this specification, as set out below. The interpretative report shall compare the soil analysis results to this specification and comment on the significance of any non-compliance. The report shall include recommendations to rectify any non-compliance (if possible) and any adjustments to the proposed ameliorants for the particular end use of the soil.

618.2 Imported Topsoil

Imported topsoil shall only be bought onto site only when there are insufficient quantities of existing topsoil stock piled on site to achieve the proposed topsoil depths. Imported topsoil shall be topsoil to Class 5B Specific purpose topsoil (Acidic)

Specific purpose topsoil should comply with BS 3882:2007 Specification for Topsoil and Requirements for Use and with this specification and may be naturally occurring or manufactured. All specific purpose topsoil soil shall comply with BS3882:2007 Table 1 Specific purpose topsoil – Acidic.

It shall be sampled and analysed in accordance with the following specification.

Visual Examination: the soil shall have a visible homogeneity and shall be free from non-soil material, brick and other building materials and wastes, hydrocarbons, plant matter, roots of perennial weeds and any other foreign matter or material or substance that would render the topsoil unsuitable for use.

Testing of imported material shall be carried out by the Contractor prior to import in accordance with the Specification, to demonstrate that as a blended mix it complies with the specification. All soil sampling shall be carried out by a qualified Soil Scientist or practitioner.

Testing of all other material shall be carried out by the Contractor prior to use.

The sample(s) should be truly representative of the topsoil being considered.

A minimum of one composite sample shall be taken for every 1000m3 of topsoil being considered with a minimum of three samples per source. Each composite sample should be made up of 10 No. sub-samples taken from evenly spaced locations across the site or at regular intervals and depths across the stockpile. The sub-samples shall be mixed together and quartered down to form a 2 kg composite sample.

Each composite sample shall be placed in a clean plastic bag and labelled with the soil source or site reference, the date of sampling and the sample location.

Each composite sample should be sent to a laboratory that operates in accordance with MCERTS Performance Standards for Laboratories Undertaking the Chemical Testing of Soil.

A representative sample load of 0.5m^3 shall be provided from each source to be retained on site for comparison with subsequent deliveries. The sample(s) should be truly representative of the material being considered and be correctly stored for the duration of the contract period.

Soil Testing shall be carried out according to clause 618.1 above.

In addition the Asbestos concentration in the landscape soils shall have a maximum of 0.001% unless otherwise instructed.

618.3 **Topsoil Handling:** Topsoil shall not be excavated from stockpiles on site which have been exposed to a cumulative rainfall exceeding 100mm over the preceding 28 days over Hampstead Heath. For the duration of the soiling works the following soil handling recommendations should be implemented. It is important to avoid further physical degradation during all phases of soil handling (e.g. storage, re-spreading and planting). No soil handling operations shall be carried out during rainfall or when there is standing water, or when the soil moisture content is above 5% below the lower soil plastic limit. It shall not be placed or spread when the soil is frozen or covered with snow.

618.4 **Topsoil Placement:** (i) Placement of all soil or soil materials shall be undertaken by end-tipping methods in order to avoid trafficking and potential compaction of the soil. All soil carrying vehicles will run on the base layer whether loaded or empty. The soils will be spread and levelled using a tracked hydraulic excavator with a wide bucket or with a light-weight dozer equipped with low ground pressure tyres/tracks (max ground pressure 5 psi).

The contractor shall carry out soiling operations to achieve finished levels and shall be responsible for remedying any settlement, erosion, slippage, or washout occurring prior to completion of soiling the site area.

Between individual soil layers, (for example between subsoil and topsoil), or following localised compaction, the soil shall be partially relieved by re-ripping when the placed soil is dry enough to shatter. Heavily compacted soil shall be lifted and re-laid.

Soil shall be laid with a minimum compaction such that it permits plant roots to extend into it and excess water can drain away through it.

The Contractor shall comply with the requirements for laying soils for particular uses as given in:

- Chapter 6, Consultation on the draft Code of Practice for sustainable use of soils on construction sites. Defra, July 2008.
- BS3882 2007 – Specification for topsoil and requirements for use.

Upon laying the topsoil material, a guideline bulk density not exceeding 1.65g/cm3 or equivalent shall be recorded.

Topsoil shall be deposited and spread in accordance with the tables below:

Stock Pond P1			
Planting, grass seed or turf type	**Topsoil Depth (minimum)**	**Drawing Reference**	**Note**
Turf – Modified WFT Shade 41 turf	150mm	P1-ZZ-DR-L-7100	Eastern end of dam includes low bund
EW1 (Woodland mix for loamy soils) seed mix	150mm	P1-ZZ-DR-L-7100	Downstream and upstream edge of dam including slope downstream of timber wall
Shrub planting	350mm	P1-ZZ-DR-L-7100	Downstream and upstream sloping edge of dam and area between timber wall and fence
Enkamat with bitumen bound chippings to be seeded with A22 (Low maintenance) seed mix prior to laying Enkamat.	150mm	P1-ZZ-DR-L-7100	On slopes either side of ditch at outlet
Turf - Modified WFT Landscape 34 Turf – pre-grown with Enkamat reinforced matting	50mm	P1-ZZ-DR-L-7100	Spillway and path to Ladies' Bathing.
Turf - Modified Wildflower WFT 34 Turf	100mm	P1-ZZ-DR-L-7100	Spillway upstream of path and side slopes

Ladies' Bathing Pond P2			
Planting, grass seed or turf type	**Topsoil Depth**	**Drawing Reference**	**Note**
A22 (Low maintenance) seed mix	150mm	P2-ZZ-DR-L-7100 - 7103	Eastern end of dam
Area disturbed during construction – reinstatement with A22 (Low maintenance) seed mix)	150mm	P2-ZZ-DR-L-7100 - 7103	Either side of path adjacent to western gate
Turf - Modified WFT – Shade 41– Pre-grown and pregrown with Enkamat reinforced matting	50mm	P2-ZZ-DR-L-7100 - 7103	Spillway including side slopes
EW1 (Woodland mix for loamy soils) seed mix	600mm loose laid	P2-ZZ-DR-L-7100 - 7103	Stilling basin
Planting	350mm	P2-ZZ-DR-L-7300	To dam

Bird Sanctuary Pond P3			
Planting, grass seed or turf type	**Topsoil Depth**	**Drawing Reference**	**Note**
Turf –WFT Species rich 26 turf	100mm	P3-ZZ-DR-L-7100 - 7101	Spillway downstream slope of impounding dam

Model Boating Pond P4			
Planting, grass seed or turf type	**Topsoil Depth (minimum)**	**Drawing Reference**	**Note**
EM5 (Meadow mix for loamy soils) seed mix	100mm*	P4-ZZ-DR-L-7100 –7105	Island – reinstatement
Turf – Modified WFT Landscape 34 Turf – Pre-grown	100mm	P4-ZZ-DR-L-7100 –7105	Dam
Turf – Modified WFT Landscape 34 Turf – Pre-grown reinforced with enkamat	50mm	P4-ZZ-DR-L-7100 –7105	Spillway including side slopes
Turf – Modified WFT Landscape 34 Turf – Pre-grown	100mm	P4-ZZ-DR-L-7100 –7105	Area south of spillway including side slope of ditch into Men's bathing
Turf – Modified WFT Landscape 34 Turf – Pre-grown reinforced with enkamat	50mm	P4-ZZ-DR-L-7100 –7105	Around edge of pond – 1:3 slope

Model Boating Pond P4			
Planting, grass seed or turf type	**Topsoil Depth (minimum)**	**Drawing Reference**	**Note**
Turf – Landscape 34 Turf	100mm	P4-ZZ-DR-L-7100 –7105	Sloping ground West of pond either side of path with vehicular access
Turf – Emorsgate EM5 (meadow mix for loamy soils)	100mm	P4-ZZ-DR-L-7100 –7105	Sloping ground west of pond for borrow pit – reinstatement

* over areas which have been stripped and regraded

Men's Bathing Pond P5			
Planting, grass seed or turf type	**Topsoil Depth (minimum)**	**Drawing Reference**	**Note**
A22 (Low maintenance) seed mix	150mm	P5-ZZ-DR-L-7100 – 7101	Reinstated fishing access along upstream side of dam
A22 (Low maintenance) seed mix not identified on drawings	150mm	P5-ZZ-DR-L-7100 – 7101	Reinstated area west of Men's spillway
Compacted earth path sown A22 (Low maintenance) seed mix	150mm	P5-ZZ-DR-L-7100 – 7101	Crest of dam downstream side of sheet pile
Turf – Modified WFT Shade 41 turf	100mm	P5-ZZ-DR-L-7100 – 7101	Spillway including side slopes
EM5 (Meadow mix for loamy soils) seed mix	100mm	P5-P6-ZZ-DR-L-7300	Area underneath sheet pile wall.

Highgate No.1 Pond P6			
Planting, grass seed or turf type	**Topsoil Depth (minimum)**	**Drawing Reference**	**Note**
Turf – WFT Shade 41 mix Turf	100mm	P6-ZZ-DR-L-7100 - 7101	Spillway and dam crest including slopes
Turf – WFT Shade 41 mix Turf	100mm	P6-ZZ-DR-L-7100 - 7101	Area west of path
Turf – Lawn turf for private Garden	150mm	P6-ZZ-DR-L-7100 - 7101	Sinclair Garden

Hampstead			
Viaduct Pond P7			
Planting, grass seed or turf type	**Topsoil Depth (minimum)**	**Drawing Reference**	**Note**
Turf – Modified WFT Shade 41 turf	100mm	P7-ZZ-DR-L-7100 - 7101	Spillway
EM5 (Meadow mix for loamy soils) seed mix	100mm	P7-ZZ-DR-L-7100 - 7101	Either side of hoggin path

Mixed Bathing Pond P8			
Planting, grass seed or turf type	**Topsoil Depth (minimum)**	**Drawing Reference**	**Note**
Shrub planting/underseeding with EW1 (Woodland mix for loamy soils) seed mix	350mm	P8-ZZ-DR-L-7100 - 7101	Area east of dam
Turf – WFT Species Rich 26 Turf	100mm	P8-ZZ-DR-L-7100 - 7101	Upstream side of dam includes low bund
Turf – WFT Species Rich 26 Turf	100mm	P8-ZZ-DR-L-7100 - 7101	Downstream slope of dam

Hampstead No. 2 Pond P9			
Planting, grass seed or turf type	**Topsoil Depth (minimum)**	**Drawing Reference**	**Note**
A22 (Low maintenance) seed mix	150mm	P9-ZZ-DR-L-7100	Reinstated pond edge – sloping bank either side of path
EW1 (Woodland mix for loamy soils) seed mix	150mm	P9-ZZ-DR-L-7100	Reinstated area over culvert and under trees, around platform and timber access and under planting
EM5 (Meadow mix for loamy soils) seed mix	150mm	P9-ZZ-DR-L-7100	Reinstated over culvert on open sloping ground to P10 and under planting

Hampstead No. 1 Pond P10			
Planting, grass seed or turf type	**Topsoil Depth (minimum)**	**Drawing Reference**	**Note**
EM5 (Meadow mix for loamy soils) seed mix	150mm	P10-ZZ-DR-L-7100 - 7101	Reinstated area over culvert, downstream slope and stilling basin
Shrub planting under-seeded with EM5 (Meadow mix for loamy Soils)	350mm	P10-ZZ-DR-L-7100 - 7101	Planting
A22 (Low maintenance) seed mix	150mm	P10-ZZ-DR-L-7100 - 7101	In front of spillway

Vale of Health Pond P11			
Planting, grass seed or turf type	**Topsoil Depth (minimum)**	**Drawing Reference**	**Note**
Turf - Modified WFT Landscape 34 Turf – Pre-grown	100mm	P11-ZZ-DR-L-7100	Western spillway including side slopes
Turf - Modified WFT Landscape 41 Turf – Pre-grown	100mm	P11-ZZ-DR-L-7100	Eastern spillway including side slopes
Planting and underseeded with EW1 (Woodland mix for loamy soils) seed mix	350mm	P11-ZZ-DR-L-7100, 7300	Downstream side of dam
EW1 (Woodland mix for loamy soils) seed mix	75mm	P11-ZZ-DR-L-7100	Downstream side edge path of in front of fence

Catchpit P12			
Planting, grass seed or turf type	**Topsoil Depth (minimum)**	**Drawing Reference**	**Note**
EM5 (Meadow mix for loam soils) seed mix	100mm	P12-ZZ-DR-L-7100 - 7101	Dam upstream slope
Turf – Modified WFT – Landscape 34	100mm	P12-ZZ-DR-L-7100 - 7101	Dam downstream slope
Turf – Modified WFT – Landscape 34 Reinforced with Enkamat	100mm	P12-ZZ-DR-L-7100 - 7101	Reinstated access across crest of dam
EW1 (Woodland mix for loamy soils) seed mix	100mm	P12-ZZ-DR-L-7100 - 7101	Area beneath birch trees

Borrow Pits			
Planting, grass seed or turf type	**Topsoil Depth (minimum)**	**Drawing Reference**	**Note**
EM5 (Meadow mix for loamy soils) seed mix	100mm	P4-ZZ-DR-L-7105	Borrow pit adjacent to Model Boating Pond
A9 (General Outfield)	150mm	-	Sports pitch

For areas seeded or turfed with wildflowers topsoil depths shall not exceed depths indicated in the tables above. Topsoil depths can be increased in areas seeded with amenity grass mixes or areas of shrub planting.

(ii) Requirements for non-removal and disposal off site of stones or other debris

All stones and other debris removed from topsoil, in accordance with Clause 618.4(ii) of SHW, shall be incorporated within Class 4 material.

Appendix 11/1: Kerbs, Footways and Paved Areas

1101 Precast Concrete Kerbs, Channels, Edgings and Quadrants

1101.1 The specification for each pond and the edges to be provided for paths is included in Table 1 Kerb, Channel and Edging Types

Table 1: Kerbs and Edges

Highgate			
Stock Pond P1			
Detail - Drawing Reference	**Size (Reference as drawings)**	**Type**	**Location**
ZZ-ZZ-7501 Detail 1	-	Soil edge	Inside of curve - east end of dam
ZZ-ZZ-7501 Detail 1	-	Soil edge	Both sides across spillway

Ladies' Bathing Pond P2			
Detail - Drawing Reference	**Size (Reference as drawings)**	**Type**	**Location**
ZZ-ZZ-7501 Detail 2	250x25mm x 1.8m	Timber edge, 250mm x 25mm x 1.8m, pressure treated softwood board secured with 50 x 50 x 450mm pressure treated softwood pegs	Path off dam to edge of spillway and paths along dam
P2-ZZ-DR-L-7500 Detail 2	150x3mm	Metal edge – 150x6mm High Grade – HG6 edging. As supplied by Kinley Systems or equal other approved	Across spillway

Bird Sanctuary Pond P3			
Detail - Drawing Reference	**Size (Reference as drawings)**	**Type**	**Location**
ZZ-ZZ-7501 Detail 1	-	Soil edge	Across dam on downstream side and upstream side

Model Boating Pond P4			
Detail - Drawing Reference	**Size (Reference as drawings)**	**Type**	**Location**
ZZ-ZZ-7501 Detail 2	250x25mm x 1.8m	Timber edge, 250mm x 25mm x 1.8m, pressure treated softwood board secured with 50 x 50 x 450mm pressure treated softwood pegs to bituminous footway (asphalt) with surface dressing)	Path with vehicular access to west of pond
ZZ-ZZ-7501 Detail 2	250x25mm x 1.8m	(no dig construction) Timber edge 250 x 25mm	Path with vehicular access to west of pond through trees at southern end
ZZ-ZZ-7501 Detail 1		Soil edge to bituminous footway (asphalt) with surface dressing)	Cycle path across dam

Detail - Drawing Reference	Size (Reference as drawings)	Type	Location
ZZ-ZZ-7501 Detail 1	-	Soil edge to hoggin path	Outer edge of path on pond edge
ZZ-ZZ-7501 Detail 2	250x50mm x 1.8m 50x50 x 450mm	Timber edge, 250mm x 50mm x 1.8m, pressure treated softwood board secured with 50 x 50 x 450mm pressure treated softwood pegs to hoggin path	On new dam : level and 1:12 gradient

Highgate No. 1 Pond P6			
Detail - Drawing Reference	**Size (Reference as drawings)**	**Type**	**Location**
ZZ-ZZ-7501 Detail 2	250x50mm x 1.8m	Timber edge, 250mm x 50mm x 1.8m, pressure treated softwood board secured with 50 x 50 x 450mm pressure treated softwood pegs to bituminous footway (asphalt) with surface dressing)	Path with vehicular access across spillway

Men's Bathing Pond P5			
Detail - Drawing Reference	**Size (Reference as drawings)**	**Type**	**Location**
ZZ-ZZ-7501 Detail 1		New hoggin path – soil edge	

Hampstead Chain			
Detail - Drawing Reference	**Size (Reference as drawings)**	**Type**	**Location**
ZZ-ZZ-7501 Detail 2	250x50mm x 1.8m	Timber edge, 250mm x 50mm x 1.8m, pressure treated softwood board secured with 50 x 50 x 450mm pressure treated softwood pegs to self – binding gravel/compact aggregate	Path across dam

Mixed Bathing Pond P8			
Detail - Drawing Reference	**Size (Reference as drawings)**	**Type**	**Location**
ZZ-ZZ-7501 Detail 2	250x25mm x 1.8m	Timber edge to bituminous footway (asphalt) with surface dressing)	Path across dam

Hampstead No. 2 Pond P9			
Detail - Drawing Reference	**Size (Reference as drawings)**	**Type**	**Location**
ZZ-ZZ-7501 Detail 2	250x25mm x 1.8m	Timber edge to bituminous footway (asphalt) with surface dressing)	Path over spillway and linking to existing path
ZZ-ZZ-7501 Detail 2	250x25mm x 1.8m	Timber edge to bituminous footway (asphalt) with surface dressing)	Southern edge of path on dam
ZZ-ZZ-7501 Detail 3	50x250mm x 1.8m	Timber retaining edge. Pressure treated softwood secured with 50x50x450mm pressure treated softwood pegs	Hoggin path from declining access ramp

Hampstead No. 1 Pond P10			
Detail - Drawing Reference	**Size (Reference as drawings)**	**Type**	**Location**
ZZ-ZZ-7501 P10-22-DR-2-7501	250x25mm x 1.8m 50x50mm x 450mm	Timber edge, 250mm x 25mm x 1.8m, pressure treated softwood board secured with 50 x 50 x 450mm pressure treated softwood pegs to hoggin with surface dressing	Path and steps for maintenance access
ZZ-ZZ-7501 Detail 3	250x50mm x 1.8m	Timber retaining edge. Pressure treated softwood secured with 50x50x450mm pressure treated softwood pegs	Path and steps for maintenance access

Vale of Health Pond P11			
Detail - Drawing Reference	**Size (Reference as drawings)**	**Type**	**Location**
P11 ZZ DR L 7500	145x255mm	Marshalls Conservation Kerb, 145 x 255 for upright laying, manufactured using 48.3% recycled materials. Colour to be Silver Grey. As supplied by Marshalls 0845 3020600 or equal other approved	Path across dam upstream side
ZZ-ZZ-7501 Detail 2	250x50mm x 1.8m	Timber edge, 250mm x 50mm x 1.8m, pressure treated softwood board secured with 50 x 50 x 450mm pressure treated softwood pegs to bituminous footway (asphalt) with surface dressing)	Path across dam downstream side
ZZ-ZZ-7501 Detail 2	250x50mm x 1.8m	Timber edge, 250mm x 50mm x 1.8m, pressure treated softwood board secured with 50 x 50 x 450mm pressure treated softwood pegs to bituminous footway (asphalt) with surface dressing)	Path across spillway

Pegs to timber edging shall be at 1 metre centres. Joints between boards shall be double staked or mitred. Boards shall be fixed to pegs using 2 no. 65mm (min) galvanised nails per stake. The finished height of retained paving shall be slightly higher than the timber edge to prevent ponding.

Top of the stake is to be angled and set down 30mm from top of the board.

Timber preservation shall be brown pressure treatment to give a guaranteed decay free life span of 20 years. All pressure treatment to comply with BS 8417:2003, BS EN 599-1 and BS 4072.

1105 Footways and Paved Areas (Flexible Surfacing)

1105.1

Table 2: Bituminous Footway with Surface Dressing

Pavement Layer	Materials	Thickness	Notes
Surface dressing	Double layer of class K1-60 bitumen emulsion and rolled in 6mm single size washed stone chippings, Colour to be golden gravel.	6mm	laid and compacted to maximum 1:40 (2.5%) cross fall or minimum 1:50 (2%) camber
Surface course	AC6 Dense surf 100/150	25mm	To BS EN 13108
Binder Course	AC20 Dense bin (HMB) 30/45	90mm	To BS EN 13108
Sub-Base	Type 1 unbound mixture to Highways Agency 'Specification for highway works', clauses 801 and 803	150mm	
Notes:			

Table 3: Hoggin

Pavement Layer	Materials	Thickness	Notes
Top Dressing			Ladies' Bathing pond only.
Surface dressing	20mm gravel rolled into surface.	50mm	
Surface	Hoggin	130mm compacted depth	Naturally occurring fine hoggin consisting of sand and gravel, with minimum clay content required to bind the material together, and with no large lumps of clay. - Hoggin should generally contain no particle larger than 40mm and be well graded with a minimum of 85% by weight passing a 10 mm BS sieve.
Sub-Base	Type 1 unbound mixture to Highways Agency 'Specification for highway works', clauses 801 and 803.	150mm	
Notes: The hoggin shall be spread evenly over the base and compacted with an 8 tonne roller to the required thickness. Hoggin shall be laid and compacted in successive layers not exceeding 80mm.			

Table 4: Self – Binding Gravel

Pavement Layer	Materials	Thickness	Notes
Wearing Course	Coxwell Gravel wearing course.	80mm	Proprietary mix supplied by Grundon Sand & Gravel Limited, Wicklesham Quarry, 01367 241325, or equal other approved.
Sub-base	Coxwell pathway sub-base or HA type 2 unbound mixture to Highways Agency 'Specification for highway works', clauses 801 and 804	100mm	Proprietary mix supplied by Grundon Sand & Gravel Limited, Wicklesham Quarry, 01367 241325, or equal other approved.
Notes: Sub-Base shall be laid 100mm thick and then compacted using a suitable weight vibrating roller. When the Coxwell Pathway Sub-Base is fully compacted and is still moist, the Coxwell Self Binding Path Gravel shall be laid. This shall be done in two layers, to achieve a finished compacted depth of 80mm. Each layer shall be laid to a thickness of 60mm and raked and compacted. The ideal compaction is best achieved by the initial first two passes of the roller being carried out with the roller vibrator turned off, then continue compacting with the vibrator operating. The Coxwell Pathway Sub-Base and the Coxwell Self Binding Path Gravel must both be very moist but not too wet when rolling.			

The specification for each pond and the surface finishes to be provided for paths is included in Table 5 below:

Table 5: Surfacing

Highgate Chain		
Stock Pond P1		
Surface type	**Drawing Reference**	**Note**
Bituminous Footway (asphalt) with surface dressing)	ZZ-ZZ-DR-L-7500	Western end of dam includes ramp
Self – Binding Gravel/Compact Aggregate	ZZ-ZZ-DR-L-7500	Eastern end of dam includes ramp

Ladies' Bathing Pond P2		
Surface type	**Drawing Reference**	**Note**
Hoggin with top dressing	ZZ-ZZ-DR-L-7500	Across dam and park to west of spillway
Hoggin with top dressing	P2-ZZ-DR-L-7500	Path off dam across spillway to western gate

Bird Sanctuary Pond P3		
Surface type	**Drawing Reference**	**Note**
Bituminous Footway (asphalt) with surface dressing	ZZ-ZZ-DR-L-7500	Across dam

Model Boating Pond P4		
Surface type	**Drawing Reference**	**Note**
Bituminous Footway (asphalt) with surface dressing	ZZ-ZZ-DR-L-7500	Path with vehicular access to west of pond
Bituminous Footway (asphalt) with surface dressing	ZZ-ZZ-DR-L-7500	Cycle path across dam
Hoggin	ZZ-ZZ-DR-L-7500	Around edge of pond
Hoggin	ZZ-ZZ-DR-L-7500	On new dam level and 1:12 gradient

Men's Bathing Pond P5		
Surface type	**Drawing Reference**	**Note**
Hoggin	ZZ-ZZ-DR-L-7501	Path reinstatement between Mens Bathing Pond and Highgate No. 1 Pond

Highgate No.1 Pond P6		
Surface type	**Drawing Reference**	**Note**
Bituminous Footway (asphalt) with surface dressing)	ZZ-ZZ-DR-L-7500	Path with vehicular access across spillway

Hampstead Chain		
Viaduct Pond P7		
Surface type	**Drawing Reference**	**Note**
Self – Binding Gravel	ZZ-ZZ-DR-L-7500	With camber across dam and spillway includes ramps

Mixed Bathing Pond P8		
Surface type	**Drawing Reference**	**Note**
Bituminous Footway (asphalt) with surface dressing)	ZZ-ZZ-DR-L-7500	Path across dam

Hampstead No. 2 Pond P9		
Surface type	**Drawing Reference**	**Note**
Bituminous Footway (asphalt) with surface dressing)	ZZ-ZZ-DR-L-7500	Path across spillway
Self – Binding Gravel	ZZ-ZZ-DR-L-7500	Path linking spillway to existing
Bituminous Footway (asphalt) with surface dressing)	ZZ-ZZ-DR-L-7500	Path across dam

Hampstead No. 1 Pond P10		
Surface type	**Drawing Reference**	**Note**
Hoggin	ZZ-ZZ-DR-L-7501	Maintenance access path

Vale of Health Pond P11		
Surface type	**Drawing Reference**	**Note**
Bituminous Footway (asphalt) with surface dressing)	ZZ-ZZ-DR-L-7500	Path across dam
Self – Binding Gravel	ZZ-ZZ-DR-L-7500	Path across spillway includes ramps

Appendix 11/2: Access Steps

1110 Access Steps

1110.1 Timber and Hoggin Access Steps

Refer to drawings 5117039-ATK-P10-ZZ-DR-L-7501, 5117039-ATK-P6-ZZ-DR-L-7501, 5117039-ATK-P8-ZZ-DR-L-7502 and 5117039-ATK-P2-ZZ-DR-L-7501 for construction details of access steps.

Hoggin tread to step to be naturally occurring fine hoggin consisting of sand and gravel, with minimum clay content required to bind the material together, and with no large lumps of clay. Hoggin should generally contain no particle larger than 40mm and be well graded with a minimum of 85% by weight passing a 10 mm BS sieve

Timber riser shall be pressure treated softwood.

Timber preservation shall be brown pressure treatment to give a guaranteed decay free life span of 30 years. All pressure treatment to comply with BS EN 599-1:2009. Any timbers cut on site shall be treated with preservative in accordance with the manufacturer's recommendations.

Sub-base shall be Type 1 unbound mixture to Highways Agency 'Specification for highway works', in accordance with clauses 801 and 803

Pegs to timber edging shall be at 1 metre centres. Boards shall be fixed to pegs using 2 no. 50mm (min) galvanised nails per stake. The finished height of retained paving shall be slightly higher than the timber edge to prevent ponding.

Concrete steps to be formed in-situ. Refer to engineering specification 5117039-ATK-ZZ-ZZ-SP-L-0001 for concrete specification.

Surface of steps shall be brushed to provide a non-slip surface.

Ladies' Bathing Pond P2		
Type	**Drawing Reference**	**Note**
Hoggin with top dressing and timber riser	P2-ZZ-DR-L-7501	Between dam path and path off dam to spillway.

Highgate No. 1 P6		
Type	**Drawing Reference**	**Note**
Hoggin with timber riser	P6-ZZ-DR-L-7501	Downstream of sheet pile wall

Mixed Bathing P8		
Type	**Drawing Reference**	**Note**
Hoggin with timber riser	P8-ZZ-DR-L-7501	Access steps to inlet wall screen

Hampstead No 1 P10		
Type	**Drawing Reference**	**Note**
Steps – maintenance access	P10-ZZ-DR-L-7501	Maintenance access steps to west of culvert

Appendix 30/1: General

3001 General Requirements

Notice and Liaison

3001.2 Notice periods for operations i) – x) and additional operations shall be 5 working days unless advised by the client representative.

The Contractor shall also give notice to the Project Manager in writing, for:

- Procurement programme and delivery of plants
- Setting out of planting areas and locations of trees; approval to be obtained before starting work.
- Planting of trees into previously dug pits
- Application of fertiliser
- Each site visit during the aftercare period
- Application of herbicide
- Mechanical or hand weeding
- Watering

The Contractor shall provide method statements and risk assessments for each of the operations detailed in 3001.2

Peat

3001.3 Peat shall only be used where part of the growing medium for the wildflower turf. Percentage of peat in growing medium shall not exceed 20%. The supplier of turf shall provide details of peat quantities and sources prior to confirmation of order.

Pesticide Application

3001.13 Pesticide record sheets shall be submitted to the Project Manager at monthly intervals or within one month of application if less frequent.

Bird Nesting Season

3001.14 The bird nesting season shall be 1st February to 31st August.

Inspection Reports

3001.15 Inspection reports shall be submitted at monthly intervals until the completion of the Works. The forms shall be submitted to the Project Manager within 3 working days of date of monthly visit. The report should include for weather conditions, watering, maintenance undertakings and condition of stock. It shall include species, number, condition, cause of failure and intended remedial actions for failed plants and those which are unhealthy or damaged.

Appendix 30/2: Weed Control

3002 Weed Control

General

3002.1 All seeded, turfed and planted areas: control of injurious weeds using selective herbicides to grass areas shall be carried out to keep all areas totally weed free during the active growing season. Weeds shall be cut in accordance with sub clause 3002.9 with the arisings removed off site in accordance with clause 3002.10, prior to the application of the herbicide. If outside the active growing period or if the works programme does not allow for the herbicide to be effective, or if hand weeding is more appropriate as directed by the Project Manager, clause 3002.8 shall apply. In addition to the injurious weeds listed the following shall also be controlled;

(ix) Himalayan Bramble

Himalayan balsam, giant hogweed and Japanese knotweed are known to be present on the site. The location of these species is indicated on drawing series 5117039-ATK-P1-P12-ZZ-DR-L-7100.

Allow recommended period for herbicide to take effect before clearing dead weeds. Allow for a suitable foliar acting herbicide to kill re-growth.

Total Weed Control

3002.3 Total weed control shall be carried out during the active growing season for all weeds on hard surfaces as directed by the Project Manager.

All areas to be seeded, turfed or planted, total weed control by a non-residual translocated herbicide shall be carried during the active growing season keep all areas totally weed free prior to soiling and then totally weed free during the active growing season until final seeding/turfing/ planting is carried out and, where required as directed by the Project Manager and in accordance with clauses 3004.2, 3 and 4.

3002.4 Topsoil heaps shall be treated prior to seeding.

After application of herbicide, dead vegetation is to be cut down to ground level as necessary and removed off site. If outside the active growing period or if the works programme does not allow for the herbicide to be effective clause 3002.8 weed control by Pulling/Handweeding shall apply.

3002.5 All herbicide use across the site shall be approved for use in or near water unless agreed otherwise with the Project Manager.

Weed Control by Spot Application of Herbicide

3002.7 Spot treatment shall be undertaken as advised by the Project Manager during the active growing season to those species as listed in 3002.1.

Weed Control by Pulling/Hand weeding

3002.8 Hand weeding or weed wipes shall be undertaken to keep all areas totally weed free during the active growing season. Hand weeding or weed wipes shall include those weeds as described in clause 3002.1 and all other weeds. Hand weeding shall remove the minimum quantity of soil, and disturb plants and mulched surfaces as little as possible. Where necessary rake area to a neat, clean condition and reinstate mulch to original depth.

Weed Control by Cutting

3002.9 The position of Japanese Knotweed is shown on drawing series 5117039-ATK-P1-P12-ZZ-DR-L-7100 The Project Manager shall be notified of the presence of any additional Japanese knotweed on site. The cutting of the knotweed shall be undertaken prior to the herbicide application and again after regrowth unless otherwise directed by the Project Manager. Herbicide application shall be in accordance with ‘Invasive Species Management for Infrastructure Managers and the Construction

Industry', CIRIA, 2008 ref C679. The Contractor shall employ the Environment Agency, Code of Practice 'Managing Japanese knotweed on development sites'. All arisings containing Japanese knotweed and all excavated soil shall be removed in a covered vehicle to a specialist disposal site registered by the Environment Agency. All machinery shall be cleaned down before leaving the site to prevent knotweed being spread off site.

Arisings from Weed Control Operations

3002.10 Unless specified otherwise, disposal of arisings shall be as follows:

- Biodegradable arisings: Remove to recycling facility.
- Grass cuttings: Remove to recycling facility.
- Tree roots and stumps: Remove from site.
- Shrub and tree prunings: Remove to recycling facility.
- Litter and non biodegradable arisings: Remove from site.
- Injurious weeds: shall be collected and removed off site in accordance with CIRIA Invasive species management for infrastructure managers and the construction industry. The Contractor shall employ the Environment Agency Code of Practice 'Managing Japanese Knotweed on development sites'.

Appendix 30/4: Ground Preparation

3004 Ground Preparation

Vegetation Clearance

3004.1 Grass and herbaceous material over all areas as shown as turfing or seeding on drawing series 5117039-ATK-P1-P12-ZZ-DR-L-7100 and areas of mass groundcover planting on drawings 5117039-ATK-P1 -ZZ-DR-L-7100 and 5117039-ATK-P2 -ZZ-DR-L-7100 shall be cut to ensure soil is free of unwanted vegetation prior to placing subsoil or topsoil.

3004.2 A non-residual herbicide shall be applied to all areas as shown as turfing or seeding on drawing series 5117039-ATK-P1-P12-ZZ-DR-L-7300 and areas of mass groundcover planting on drawings 5117039-ATK-P1 -ZZ-DR-L-7100 and 5117039-ATK-P2 -ZZ-DR-L-7300, 5117039-ATK-P7-ZZ-DR-L-7300, 5117039-ATK-P8-ZZ-DR-L-7101, 5117039-ATK-P11-ZZ-DR-L-7300, 7301, to ensure soil is free of unwanted vegetation prior to placing subsoil or topsoil as directed by the Project Manager.

A non-residual herbicide shall be applied over all areas where top soil is to be lifted and re-used on site where there are existing areas of thistle and as directed by the Project Manager.

Site Preparation, refer to clause 3002.4 for herbicide treatment to topsoil heaps.

Subsoil Treatment

3004.5 Prior to carrying out any landscape operations, all planting, seeding and turfing areas shall be surveyed to establish that there are no surface or subsurface compacted soil layers or other subsurface materials likely to impede drainage or cause other damage to the plants. Where compacted soil layers or consolidated materials are found, the ground shall be, in accordance with clauses 3004.5, relieved by physical means by methods accepted by the Project Manager.

Final Preparation of Soils

3004.7 All areas to be turfed, seeded or planted as shown on drawing series 5117039-ATK-P1-P12-ZZ-DR-L-7100 shall be prepared in accordance with clauses 3004.8-3004.11. The requirements of clauses 3004.1-3004.4 shall be applied as required by the client representative.

3004.8 To all areas to be seeded, turfed or topsoil spread. Breaking up of consolidated material in areas of less than 300mm of topsoil or sub-soil is to be agreed with the Project Manager.

All areas to receive subsoil and/or topsoil for landscape operations shall be free draining and permeable both vertically and horizontally as specified in Series 600. The ground shall be broken up as necessary including compacted sub-soils which shall be loosened as specified in Series 600 and this clause.

Any consolidated material shall be broken up to full depth to ensure percolation for drainage. To a depth of 450mm, the soil shall be loosened, aerated and the top 50mm of soil broken up into particles of 2-8mm no more than 3 days before planting to form a suitable tilth for final grading using a grading blade.

All undesirable material brought to the surface including stones and clay balls larger than 50mm in any dimension, roots, tufts of grass and foreign matter is to be removed.

Areas inaccessible for mechanical access shall be cultivated by hand forking to 300mm. Cultivate the top 200mm (minimum) after the soil ameliorant is applied as specified in Series 600. Work to be undertaken no more than 3 days before planting, turfing or seeding leaving a regular and even surface.

No digging or cultivating shall be undertaken within the soil within root spread of trees and shrubs to be retained. Soil for cultivating shall be moist, friable and not waterlogged.

3004.9 Uniformly grade areas to a smooth surface, free from irregular surface changes. Provide a smooth transition between adjacent existing grades and new grades. Grade with constant slope between points where elevations are given. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances as set out in Series 600. Achieve smooth and flowing contours, with falls for adequate drainage. Hollows and ridges are not permitted. Contractor to submit method statement on grading to the nominated landforms for approval by the Project Manager.

Blade grading may be used to adjust topsoil levels provided depth of topsoil is nowhere less than 100 mm. Notice to be given before work commences on each planting, seeding or turfing area.

Appendix 30/5: Wildflower and Grass, Seeding and Turfing

3005 Grass Seeding, Wildflower Seeding and Turfing

Season

3005.1 Areas to be grass seeded shall be sown in Spring or Autumn in accordance with Appendix 30/5 unless otherwise directed by the Project Manager. Wildflower mixtures shall be sown March-April or August-September. Spring sowings shall be over sown with Yellow Rattle in the Autumn after the Autumn cut.

Final Cultivations

3005.2 The upper 50mm of soil shall be reduced to a fine tilth by use of a rake or a chain harrow in over all areas to be seeded or turfed as directed by the Project Manager. Rake to a true, even surface, friable and lightly firmed but not over compacted removing all surface stones/earth clods exceeding 50mm. Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.

3005.4 All seed mix shall be as specified in Appendix 30/5 Table 2. Variations to the mix to be agreed by the Project Manager. The seed shall be free from toxins, pathogens or other extraneous substances harmful to plant, animal or human life. For each of the above mixes the following shall be submitted to the Project Manager; a certificate giving supply source, content analysis, confirmation of suitability for purpose and confirmation of absence of harmful substances such as chemical, biological and physical contaminants.

3005.6 The seed shall be produced for the current growing season and shall be blue label certified varieties. It shall be to EC purity and germination regulations where applicable. Provide details of supplier. Submit Official Seed Testing Station certificate of germination, purity and composition. Samples of the mixture shall be submitted if requested by the Project Manager.

3005.7 The seed mix shall be of UK Provenance and local provenance wherever possible and the Tenderer shall supply details of provenance of all seed to be supplied for approval by the Project Manager. Documentation shall be supplied for seed mixes and seed mixes used to supply turf. Documentation of UK Provenance of seed mixes used to grow turf shall be supplied for approval by the Project Manager before the turf is sown.

Conventional Sowing

3005.8 Sow at a rate as specified in Appendix 30/5 Table 2. Seed for grass seeding shall be supplied by Emorsgate, or British Seed Houses or similar approved. Seed mixes shall be sown using a calibrated approach to ensure the target community is created.

For reinstatement of Pitch 11
A9 – (General Outfield), as supplied by British Seed Houses or equal other approved.

For reinstatement of general areas disturbed during construction
EG1 – (General Purpose Meadow Grass Mixture), as supplied by Emorsgate or equal other approved.

For reinstatement of areas disturbed during construction adjacent to amenity areas or paths
A22 – (Low Maintenance), as supplied by British Seed Houses or equal other approved

For under seeding planting and adjacent areas
EM5 – (Meadow Mix for Loamy Soils), as supplied by Emorsgate or equal other approved
EW1 – (Woodland Mix for Loamy Soils), as supplied by Emorsgate or equal other approved

3005.9 Seed shall be lightly rolled into the soil and not covered.

3005.10 Not used.

Grass Seed Germination

3005.11 Establishment shall be regarded as the following:

Wildflower areas: a healthy, uniform, close stand of plants shall have germinated, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 0.92 sq. m and bare spots not exceeding 300 by 300 mm.

All bare areas of wildflower and grass, areas of dead wildflowers and grass or wildflower areas or grass areas which in the opinion of the Project Manager are failing to make satisfactory growth shall be reseeded or replaced by the Contractor. These areas are to be reseeded with species composition appropriate to location and as directed by the Project Manager. Reseeding shall be undertaken at the earliest opportunity in the appropriate season. All replacement turf shall be in accordance with Clause 3004 and 3005 at a time agreed with the Project Manager. All arisings shall be removed in accordance with clause 3002.10. Re-cultivation shall be undertaken as directed by the Project Manager. Grass shall be watered in to field capacity, in accordance with Clause 3008.

Turf

Turf shall be inspected in the nursery by the Project Manager or his representative prior to delivery to site. Turf delivered to site without this inspection will be rejected.

3005.14 Imported species rich turf and wildflower turf and Enkamat reinforced turf for spillways and lawn turf for the reinstatement of private gardens:

The supplier shall be a member of the Turfgrass Growers Association (TGA), to TGA quality standards as accepted by the Project Manager.

The turf supplied shall be in accordance with the species composition in Table 2 and:

For Open spillways and Dams to be maintained to a height of 150mm:
Modified WFT-Landscape 34 and Modified WFT – Landscape 34 pre-grown with Enkamat reinforcement mesh, as supplied by Wild Flower Turf Ltd 01256 771222 or equal other approved. Enkamat reinforcement mat to be as specified in the Engineer's specification – Chapter 12 Turf Reinforcement.

For Shaded spillways and Dams to be maintained to a height of 150mm:
Modified WFT-Shade 41 and **Modified WFT-Shade 41 pre-grown with Enkamat reinforcement mesh**, as supplied by Wild Flower Turf Ltd 01256 771222 or equal other approved. Reinforcement mesh to be as specified in Engineer's Specification Chapter 12 – Turf Reinforcement.

For Spillways and Dams adjacent to more amenity areas where grass may be cut more frequently:
WFT-Species-Rich-26 as supplied by Wild Flower Turf Ltd 01256 771222 or equal other approved.

For Areas outside of spillways and dams which do not need to be maintained to a height of 150mm and will not be regularly mown but receive an annual cut only:
WFT-Landscape 34 as supplied by Wild Flower Turf Ltd 01256 771222 or equal other approved.

Lawn Turf for Private Garden reinstatement: Turflawns cultivated, seeded turf as supplied by **www.turflawns.co.uk** 0844 4430709 or other equal approved for private garden lawn reinstatement.

The location of grass seed and turf types to be provided for each pond are included in Table 1 and excludes the contractor's working areas for reinstatement.

Table 1: Grass Seed and Turf Types

Highgate Chain		
Stock Pond P1		
Grass seed and turf type	**Drawing Reference**	**Note**
Turf – Modified WFT Shade 41 turf	P1-ZZ-DR-L-7100	Eastern end of dam includes low bund
EW1 (Woodland mix for loamy soils) seed mix	P1-ZZ-DR-L-7100	Downstream and upstream edge of dam including slope downstream of timber wall
Enkamat with bitumen bound chippings to be seeded with A22 (low maintenance) seed mix prior to laying Enkamat	P1-ZZ-DR-L-7100	On slopes either side of ditch at outlet
Turf – Modified WFT Landscape 34 Turf – Pre-grown with Enkamat reinforced matting	P1-ZZ-DR-L-7100	Spillway and path to Ladies' Bathing.
Turf - Modified WFT Landscape 34 Turf	P1-ZZ-DR-L-7100	Spillway including side slopes

Ladies' Bathing Pond P2		
Grass seed and turf type	**Drawing Reference**	**Note**
A22 (Low maintenance) seed mix	P2-ZZ-DR-L-7100 - 7101	Eastern end of dam
Area disturbed during construction – reinstatement with A22 (Low maintenance) seed mix	P2-ZZ-DR-L-7100 - 7101	Either side of path adjacent to western gate
Turf – Modified WFT Shade 41 Turf – Pre-grown with Enkamat reinforced matting	P2-ZZ-DR-L-7100 - 7101	Spillway upstream of path and i side slopes
EW1 (Woodland mix for loamy soils) seed mix	P2-ZZ-DR-L-7100 - 7101	Stilling basin

Bird Sanctuary Pond P3		
Grass seed and turf type	**Drawing Reference**	**Note**
Turf -WFT Species rich 26 Turf	P3-ZZ-DR-L-7100 - 7101	Spillway downstream slope of impounding dam
Area disturbed during construction – reinstatement with A22 (Low maintenance) seed mix	P3-ZZ-DR-L-7100 - 7101	Scour pipe

Model Boating Pond P4		
Grass seed and turf type	**Drawing Reference**	**Note**
EM5 (Meadow mix for loamy soils) seed mix	P4-ZZ-DR-L-7100 – 7105	Island – reinstatement
Turf – Modified WFT Landscape 34 Turf	P4-ZZ-DR-L-7100 – 7105	Dam
Turf – Modified WFT Landscape 34 Turf – Pre-grown with Enkamat reinforcement	P4-ZZ-DR-L-7100 – 7105	Spillway including side slopes (northern section)
Turf – Modified WFT Landscape Shade 41 with Enkamat	P4-ZZ-DR-L-7100 – 7105	Spillway including side slopes (southern section)
Turf – Modified WFT Landscape 34 Turf	P4-ZZ-DR-L-7100 – 7105	Area south of spillway including side slope of ditch into Men's bathing
Turf – Modified WFT Landscape 34 Turf – Pre-grown with Enkamat reinforcement	P4-ZZ-DR-L-7100 – 7105	Around edge of pond – 1:3 slope
Turf WFT Landscape 34	P4-ZZ-DR-L-7100 – 7105	Sloping ground west of pond either side of path with vehicular access
Turf Landscape 34 for loamy soils	P4-ZZ-DR-L-7100 – 7105	Sloping ground west of pond for borrow pit – reinstatement
Turf – Modified WFT Landscape 34 Turf – Pre-grown with Enkamat reinforcement	P4-ZZ-DR-L-7100 – 7105	Enkamat path across crest of dam

Men's Bathing Pond P5		
Grass seed and turf type	**Drawing Reference**	**Note**
A22 (Low maintenance) seed mix	P5-ZZ-DR-L-7100 – 7101	Reinstated fishing access along upstream side of dam
A22 (Low maintenance) seed mix	P5-ZZ-DR-L-7100 – 7101	Reinstated area west of Men's spillway
Compacted earth path with A22 (low maintenance) seed mix	P5-ZZ-DR-L-7100 – 7101	Crest of dam downstream side of sheet pile
Turf – Modified WFT Shade 41 Turf – Pre-grown	P5-ZZ-DR-L-7100 – 7101	Spillway including side slopes inc reinstatement area
EM5 (Meadow mix for loamy soils) seed mix	P5-P6-ZZ-L-7503	To base of sheet pile wall

Highgate No.1 Pond P6		
Grass seed and turf type	**Drawing Reference**	**Note**
Turf – WFT Shade 41 modified Turf	P6-ZZ-DR-L-7100 - 7101	Spillway and dam crest including slopes
Turf – WFT Shade 41 modified Turf	P6-ZZ-DR-L-7100 - 7101	Area west of path
Turf – Lawn turf for private Garden	P6-ZZ-DR-L-7100 - 7101	Sinclair Garden
EM5 (Meadow mix for loamy soils) seed mix	P5-P6-ZZ-DR-L-7301	To base of sheet pile wall

Hampstead		
Viaduct Pond P7		
Grass seed and turf type	**Drawing Reference**	**Note**
Turf – Modified WFT Shade 41 modified Turf	P7-ZZ-DR-L-7100 - 7101	Spillway
EM5 (Meadow mix for loamy soils) seed mix	P7-ZZ-DR-L-7100 - 7101	Both sides of dam path

Mixed Bathing Pond P8		
Grass seed and turf type	**Drawing Reference**	**Note**
Shrub planting under seeded with EW1 (Woodland mix for loamy soils)) seed mix	P8-ZZ-DR-L-7100 - 7101	Area east of dam
Turf – WFT Species Rich 26 Turf	P8-ZZ-DR-L-7100 - 7101	Upstream side of dam includes low bund
Turf – WFT Species Rich 26 Turf	P8-ZZ-DR-L-7100 - 7101	Downstream slope of dam

Hampstead No. 2 Pond P9		
Grass seed and turf type	**Drawing Reference**	**Note**
A22 (Low maintenance) seed mix	P9-ZZ-DR-L-7100	Reinstated pond edge – sloping bank either side of path
EW1 (Woodland Mix for loamy soils) seed mix	P9-ZZ-DR-L-7100	Reinstated area over culvert – under trees and around platform and timber access
EM5 (Meadow mix for loamy soils) seed mix	P9-ZZ-DR-L-7100	Reinstated over culvert on open sloping ground to P10 and under planting

Hampstead No. 1 Pond P10		
Grass seed and turf type	**Drawing Reference**	**Note**
EM5 (Meadow mix for loamy soils) seed mix	P10-ZZ-DR-L-7100 - 7101	Reinstated area over culvert and downstream slope
Shrub planting under-seeded with EM5 (Meadow Mix for loamy soils) seed mix	P10-ZZ-DR-L-7100 - 7101	Reinstated area over culvert and downstream slope
A22 (low maintenance) seed mix	P10-ZZ-DR-L-7100 - 7101	In front of spillway

Vale of Health Pond P11		
Grass seed and turf type	**Drawing Reference**	**Note**
Turf – Modified WFT Landscape 34 Turf	P11-ZZ-DR-L-7100	Spillway including side slopes western side of path
Turf – Modified WFT Landscape 41 Turf	P11-ZZ-DR-L-7100	Spillway including side slopes eastern side of path
Planting and underseeding with EW1 (Woodland mix for loamy soils) seed mix	P11-ZZ-DR-L-7100, 7300	Downstream side of dam
EW1 (Woodland Mix for loamy soils)	P11-ZZ-DR-L-7100, 7500	Downstream side edge path of in front of fence

Catchpit P12		
Grass seed and turf type	**Drawing Reference**	**Note**
EM5 (Meadow mix for loamy soils) seed mix	P12-ZZ-DR-L-7100 - 7101	Dam upstream slope
Turf – Modified WFT Landscape 34	P12-ZZ-DR-L-7100 - 7101	Dam downstream slopes
Turf – Modified WFT Landscape 34 Reinforced with Enkamat	P12-ZZ-DR-L-7100 - 7101	Reinstated access across crest of dam
Underseeding with EW1 (Woodland mix for loamy soils) seed mix	P12-ZZ-DR-L-7100 - 7101	Underneath birch trees

Sinclair Garden		
Drawing Reference	**Drawing Reference**	**Note**
Turflawns.co.uk seeded, cultivated lawn turf or equal other approved	n/a	Private garden lawn reinstatement

Summary of Seed and Turf Species Mixes

Table 2: Summary of Seed Mixes

Seeding mix	Species
EG1 – General Purpose Meadow Grass Mixture sown at a rate of 5g/m2	10% Agrostis capillaris – Common Bent
	50% Cynosurus cristatus – Crested Dogstail
	35% Festuca rubra – Slender Creeping Red Fescue
	5% Phleum bertolonii – Smaller Cats Tail

A9 (General Outfield) sown a rate of 35g/m2	40% Vitellius Perennial Rye Grass
	30% Corail Strong Creeping Red Fescue
	20% Cadix Perennial Rye Grass
	10% Julia Smooth Stalked Meadow Grass

Seeding mix	Species
A22 (Low Maintenance) sown at a rate of 50g/m2	60% Aberimp Perennial Rye Grass
	35% Josephine Slender Creeping Red Fescue
	5% Highland Browntop Bent

EM5 –Meadow Mix for Loamy Soils sown at a rate of 4g/m2	10% Agrostis capillaris – Common Bent
	1% Anthoxanthum odoratum – Sweet Vernal Grass
	2.2% Brizia media – Quaking Grass
	32% Cynosurus cristatus – Crested Dogstail
	10% Festuca ovina – Sheep's Fescue
	20% Festuca rubra – Slender Creeping Red Fescue
	4% Phleum bertolonii – Smaller Cat's Tail
	0.5% Achillea millefolium – Yarrow
	2% Centaurea nigra – Common Knapweed
	1% Galium verum – Lady's Bedstraw
	0.5% Geranium pratense – Meadow Cranesbill
	1.5% Knautia arvensis – Field Scabious
	0.5% Lathyrus pratensis – Meadow Vetchling
	0.5% Leontodon hispidus – Rough Hawkbit
	1.5% Leucanthemum vulgare – Oxeye Daisy
	1.5% Lotus corniculatus – Bird's Foot Trefoil
	0.5% Malva moschata – Musk Mallow
	1% Plantago lanceolata – Ribwort Plantain
	1.5% Primulus veris – Cowslip
	0.5% Prunella vulgaris – Self Heal
	2.5% Ranunculus acris – Meadow Buttercup
	1.5% Rhinanthus minor – Yellow Rattle
	1% Rumex acetosa – Common Sorrel
	2% Silene vulgaris – Bladder Campion

EW1 – Woodland Mixture sown at rate of 4g/m2	10% Agrostis capillaris – Common Bent
	2% Anthoxanthum odoratum – Sweet Vernal Grass
	6% Brachypodium sylvaticum – False Brome
	35% Cynosurus cristatus – Crested Dogstail
	1% Dechampsia caespitosa – Tufted-Hair Grass
	26% Festuca rubra – Slender Creeping Red Fescue
	2.5% Alliaria petiolata – Garlic Mustard
	0.8% Allium ursinum – Ramsons
	1% Betonica officinalis – Betony
	0.6% Campanula trachelium – Nettle-leaved Bellflower
	1.5% Digitalis purpurea – Foxglove
	2% Filipendula ulmaria – Meadowsweet
	3% Geum urbanum – Wood Avens
	1% Hyacinthoides non-scripta – Bluebell
	0.1% Primula vulgaris – Primrose
	0.5% Prunella vulgaris – Selfheal
	2.5% Silene dioica – Red Campion
	0.5% Lychnis flos-cuculi – Ragged Robin

Seeding mix	Species
	1% Stachys sylvatica – Hedge Woundwort
	1% Teucrium scorodonia – Wood Sage

Table 3: Summary of Pre-grown Turf Mixes

Turf Mixes	Species
Modified WFT Landscape 34 (40% grass species / 60% wildflower species in mix. Refer to grower for seeding rates) **and** **Modified WFT Landscape 34 pre-grown with Enkamat reinforcement mesh (60% grass species / 40% wildflower species in mix. Refer to grower for seeding rates)**	Cynosurus cristatus - Crested Dogstail
	Festuca ovina - Sheeps Fescue
	Festuca rubra - Slender Creeping Red Fescue
	Scorzoneroides autumnalis - Autumn Hawkbit
	Stachys officinalis - Betony
	Lotus corniculatus - Birdsfoot Trefoil
	Silene vulgaris - Bladder Campion
	Hypochoeris radicata - Cats Ear
	Rumex acetosa - Common Sorrel
	Linaria vulgaris - Common Toadflax
	Vicica sativa ssp segetalis - Common Vetch
	Prunella vulgaris - Cowslip
	Leontodon hispidus - Greater Hawkbit
	Ranunculs acris - Meadow Buttercup
	Geranium pretense - Meadow Cranesbill
	Filipendula ulmaria - Meadowsweet
	Hypericum perforatum - Perforate St John's Wort
	Lychnis flos-cuculi - Ragged Robin
	Plantago lanceolata - Ribwort Plantain
	Sanguisorba minor - Salad Burnet
	Vicia lanceolata - Tufted vetch
	Armeria maritima - Thrift
	Trifolium pretense - Wild Red Clover
	Rhinanthus minor - Yellow Rattl
Modified WFT Shade 41 (40% grass species / 60% wildflower species in mix. Refer to grower for seeding rates) **and** **Modified WFT Shade 41 pre-grown with Enkamat reinforcement mesh (60% grass species / 40% wildflower species in mix. Refer to grower for seeding rates)**	Festuca ovina - Sheeps Fescue
	Trisetum flavescens - Yellow Oatgrass
	Leontodon – hispidus - Autumn Hawkbit
	Stachys officinalis - Betony
	Lotus corniculatus - Birdsfoot Trefoil
	Hypochoeris radicata - Cats Ear
	Rumex acetosa - Common Sorrel
	Linaria vulgaris - Common Toadflax
	Vicia sativa ssp segetalis - Common Vetch
	Primula veris - Cowslip
	Galium verum - Lady's Bedstraw
	Anthyllis vulneraria - Kidney Vetch
	Ranunculus acris - Meadow Buttercup
	Geranium pretense - Meadow Cranesbill
	Lathyrus pratensis - Meadow Vetchling
	Filipendula ulmaria - Meadowsweet
	Hypericum perforatum - Perforate St John's Wort
	Luchnis flos-cuculi - Ragged Robin

Turf Mixes	Species
	Plantago lanceolata - Ribwort Plantain
	Leontodon hispidus - Rough Hawkbit
	Sanguisorba minor - Salad Burnet
	Prunella vulgaris - Self Heal
	Ononis spinosa - Spiny Restharrow
	Vicia lanceolata - Tufted vetch
	Teucrium scorodonia - Wood Sage
	Reseda lutea - Wild Mignonette
	Trifolium pretense - Wild Red Clover
	Rhinanthus minor - Yellow Rattle
WFT Landscape 34 (40% grass species / 60% wildflower species in mix. Refer to grower for seeding rates)	Cynosurus cristatus – Crested Dogstail
	Festuca ovina - Sheep's Fescue
	Festuca rubra - Slender Creeping Red Fescue
	Scorzoneroides autumnalis – Autumn Hawkbit
	Stachys officinalis - Betony
	Lotus corniculatus - Birdsfoot Trefoil
	Silene vulgaris - Bladder Campion
	Hypochoeris radicata - Cats Ear
	Centaurea nigra - Common Knapweed
	Rumex acetosa - Common Sorrel
	Linaria vulgaris - Common Toadflax
	Vicia sativa ssp segetalis - Common Vetch
	Primula veris - Cowslip
	Knautia arvensis – Field Scabious
	Leontodon hispidus – Greater Hawkbit
	Galium verum – Lady's Bedstraw
	Ranunculus acris – Meadow Buttercup
	Geranium pretense – Meadow Cranesbill
	Filipendula ulmaria – Meadowsweet
	Malva moschata – Musk Mallow
	Leucanthemum vulgare – Ox-eye Daisy
	Hypericum perforatum – Perforate St John's Wort
	Lychnis flos-cuculi – Ragged Robin
	Silene dioica – Red Campion
	Plantago lanceolata – Ribwort Plantain
	Sanguisorba minor – Salad Burnet
	Prunella vulgaris – Self Heal
	Vicia cracca – Tufted Vetch
	Daucus carrota – Wild Carrot
	Origanum vulgare – Wild Marjoram
	Trifolium pretense – Wild Red Clover
	Silene latifolia - White Campion
	Achillea millefolium – Yarrow
	Rhinanthus minor – Yellow Rattle
WFT Species-Rich-26 (40% grass species / 60% wildflower species in mix. Refer to grower for seeding rates)	Anthoxyanthum odoratum – Sweet vernal grass
	Festuca rubra trichophylla
	Festuca rubra commutate – Chewing's Fescue

Turf Mixes	Species
	Lolium perenne (dwarf cultivar)
	Phleum bertolonii – Smaller Cat's-tail
	Poa pratensis – Common Meadow-grass
	Achillea millefoilium – Yarrow
	Bellis perennis – Daisy
	Centaurea nigra – Common knapweed
	Clinopodium vulgare – Wild Basil
	Gallium mollugo – Smooth bedstraw
	Galium verum – Lady's Bedstraw
	Lotus corniculatus – Bird's-foot Trefoil
	Prunella vulgaris – Self-heal
	Sanguisorba minor – Salad Burnet
	Trifolium dubium - Suckling Clover
	Medicago lupulina – Black medick
	Ranunculus acris – Meadow buttercup
	Stachys officinalis - Betony
	Campanula rotundifolia - Harebell
	Lathyrus pratense – Meadow Vetchling
	Origanum vulgare – Wild marjoram
	Rumex acetosa – Garden Sorrel
	Trifolium pratense – Red clover
Cultivated turf for Sinclair Garden supplied byTurflawns.co.uk or other equal approved.	20% Bargold Perennial Ryegrass
	30% Bossanova Strong Creeping Red Fescue
	20% Viktorka Slender Creeping Red Fescue
	10% Barcrown Slender Creeping Red Fescue
	20% Barswing Chewings Fescue

3005.15 A 10m^2 sample of turf in a permanent location is to be laid for the Project Manager's acceptance or turf shall be inspected in the nursery by the Project Manager or his representative prior to delivery to site. Turf delivered to site without either prior approval of a 10m^2 sample or inspection in the nursery by the Project Manager or his representative will be rejected.

3005.17 Turf shall not be lifted during frosty weather or when ground is waterlogged. Turves shall be kept covered at all times and laid with minimum possible delay after lifting. The sward shall be of an even density, height and colour.

3005.18 Turves shall not be stored in stacks over 1m. Turves shall not be used if showing any signs of deterioration or drying out as directed by the Project Manager.

3005.19 Turves shall not be laid when persistent cold or drying winds are likely to occur.

3005.20 The Contractor shall not walk on prepared bed or newly laid turf. Turves shall not be stretched.

3005.22 Laid turf shall have full contact with the substrate. Levels of adjacent seed beds shall marry in with the turf.

3005.25 Unreinforced turves shall be secured in place by galvanised wire pins, 200 mm long x 4 mm diameter, bent or hairpin pattern. Pre-grown Enkamat turves shall be secured in accordance with engineer's specification – Chapter 12 Turf Reinforcement

3005.26 New turfed areas shall be watered at a rate of 7.5l/m2 per day until established and in accordance with Appendix 30/8.

3005.27 Watering to be undertaken evenly to field capacity and without displacing seed, seedlings or soil in accordance with the application rates in accordance with Appendix 30/8.

Establishment Cuts

3005.28 Any gaps exceeding 50mm shall be returfed.

3005.29 Prior to the establishment cut, any turf or seeding area is to be offered for acceptance by the Project Manager. Any areas that have failed to thrive in accordance with 3005.11 excluding theft or malicious damage shall be recultivated and returfed in accordance with clause 3007.33A.

Wildflower Meadow areas as appendix 30/7: first cut to be no earlier than 6 months after seeding or laying turf and to be in the first autumn when established once flowering plants have dropped their seeds. The height of the first cut to be as Appendix 30/7. Leave arisings insitu for 2 days to ensure seed dispersal and then remove off site. Subsequent cuts prior to the aftercare period will be as directed by the Project Manager.

Seeded areas are to be cut early during establishment at the direction of the Project Manager as necessary to prevent the establishment of annual weeds such as Fat Hen.

3005.30 All arisings to be disposed of in accordance with 3002.10.

Maintaining perennial wild flowers – Prior to Practical Completion

3005.31 All areas of perennial meadow seed sowing shall be inspected on a weekly basis after seeding has taken place, until Practical Completion.

For Autumn/Winter sowings: Any area of seeding that has not germinated by the last week of May in accordance with 3005.11 should be re-landscaped at the Landscape Contractor's expense as detailed below.

Re-landscaping shall consist of re-seeding with the specified or an alternative perennial seed mixture to be approved by the Project Manager. If in the Contractor's opinion it is not viable to re-sow using the original seed mixture, an alternative seed mixture should be proposed by the Landscape Contractor which must to be agreed by the Project Manager prior to works taking place. This mixture shall be as similar as possible in composition to the original mixture whilst allowing later germination.

The Landscape Contractor shall undertake this re-seeding work as often as is required until growth is established in accordance with clause 3005.11, across all areas of perennial meadows.

All such re-seeding works shall be undertaken using the same methodology as the original works.

This re-seeding method shall also be used where seeded areas that were established in accordance with 3005.11 subsequently fail prior to Practical Completion.

Should the Project Manager require alternative methods of perennial meadow establishment in failed areas, such as plug/container grown planting or turfing this shall be instructed by the Project Manager.

Appendix 30/6: Planting

3006 Planting

3006.1 Use only machinery and tools suitable for the site conditions and the work to be carried out. Use hand tools within 100mm of trees and plants or in confined spaces where it is impracticable to use machinery.

Before planting carefully prune any badly damaged roots in accordance with clause 3010.

All planting lines to be marked out by the Contractor and accepted by the Project Manager prior to planting being undertaken. The Contractor is to allow for the inspection and review by the Project Manager the following setting out:

(i) Semi mature tree locations – 7 days prior to planting.

(ii) Woodland understory shrubs and herbaceous – first complete bed 7 days in advance of remainder.

Plants

3006.3 All plant species and numbers to be as stated in the schedules on Drawings series 5117039-ATK-XX-DR-L-7100 Landscape and Ecology General Arrangement. Unless otherwise specified, plants shall be in uneven numbered groups 3, 5, 7, 9 etc. Plant species, size, and root condition shall be to the acceptance of the Project Manager.

Plants/trees unobtainable or known to be likely to be unobtainable at time of ordering are to have alternatives submitted to the Project Manager stating: price, difference from specified plants/ trees and any further alternatives. Proposed substitutions may not be acceptable and submission of further alternatives may be required. The Project Manager reserves the right to inspect and select all substitution stock. Approval must be obtained in writing from the Project Manager before making any substitutions.

All material must comply with UK and EU regulations for plant health and quality, and relevant certifications provided by the supplier where required for export. Species must be true to name. The importation process will be managed by the Contractor, who will have responsibility for collating Plant Passport documentation where required as part of their normal legal responsibilities.

The Contractor shall provide a certificate that plants comply with this Specification. The size of plants given on the plant schedules are minimum sizes.

Plants shall be:

- Condition: Materially undamaged, sturdy, healthy and vigorous.
- Appearance: Of good shape and without elongated shoots. Plants shall also be free from disfiguring knots, abrasions of the bark, wind, or freezing injury or other disfigurements, and shall bear evidence of proper pruning.
- Hardiness: Grown in a suitable environment and hardened off.
- Health: Free from pests, diseases, discoloration, weeds and physiological disorders.
- Root system and condition: Balanced with branch system and good, fibrous root systems through having been regularly transplanted in the nursery according to the needs of the species.
- Species: True to name, consistent in species, cultivar and clone.

Name, forms, dimensions, provenance and other criteria: As scheduled and defined in the National Plant Specification.

Adequately and carefully pack and protect against mechanical damage, extremes of temperature and drying out.

Any material supplied and delivered which is considered sub-standard by the Project Manager is to be removed free of charge off-site. The Project Manager will be the arbiter in determining defective plants to be replaced.

Notice of 7 working days from acknowledged receipt of certificate by Project Manager before transporting from the nursery to be given before ordering or using.

Containerised plants/ trees shall be:

- Pot size: Supplied in the container sized stated in the Plant Schedule. Size of container to be adequately proportioned to the size and dimension of the plant.
- Growing medium: With adequate nutrients for plants to thrive until permanently planted.
- Plants: Centred in containers, firmed and well watered.
- Root growth: Substantially filling containers, but not root bound, and in a condition.
- Conducive to successful transplanting.
- Hardiness: Grown in the open for at least two months before being supplied.
- Containers: With holes adequate for drainage when placed on any substrate commonly used under irrigation systems.

Plants must have been grown in the containers for at least six months over a summer period prior to planting out. Plants up to a 5L container shall not have been grown in the container for longer than 12 months without having been potted on.

Air grown container trees shall be:

Air pots shall be used for any plants above a 5L pot size. Where air pots are used to containerise trees, approved nursery standards will be followed:

- Size of container to be 10% larger than rootball and generally be of adequate proportion for the size and dimension of the tree.
- Air pot materials: To be approved proprietary system.
- Growing medium: Supplied in a growing medium with adequate nutrients for the tree to thrive until permanently planted. To be maintained weed free.
- Plants: Centred in the container, firmed and well watered.
- Trees to be grown in air pots from February to mid-July as a minimum period.
- Pots with trees to be placed vertically on a ground root barrier, tied to post and tensioned cable supports using approved rubber ties.
- Drip irrigation to provide adequate water and slow release fertilizer to maintain the tree in a vigorous and healthy condition.
- Increase the size of the container each year by 10cm as directed by the Project Manager.

During implementation of the planting, but before Practical Completion, the Project Manager reserves the right to reject any plant material he believes does not comply with this specification, planted or otherwise. The Contractor shall replace any such rejected plants with new stock acceptable to the Project Manager.

3006.4 Grafted stock is not permitted.

3006.5 Immediately before planting the rootballs of all trees and roots of all bare root plants will be watered with “Mycoforce Transplanter” (Endo and Ecto Transplant) as manufactured by Symbio, www.symbio.co.uk or similar approved and applied in accordance with the manufacturer’s instructions.

The dip will contain beneficial soil bacteria and fungi. It shall be stored and used in accordance with manufacturer’s recommendations.

3006.6 Origin/Provenance: Standard trees and semi-mature trees shall have been grown in the United Kingdom for at least one growing season, unless otherwise approved. Transplant and feathered stock shall be UK Provenance. Oak (Quercus robur) shall be only be supplied from Hampstead Heath's own nursery stock. Importing of oak trees to site is not permitted unless agreed with the Project Manager.

Definition: Origin and Provenance have the meaning given in the National Plant Specification.

3006.7 All trees and shrubs are to be as the plant schedule and are to be inspected by the Project Manager prior to delivery to site. The supplier to give 7 working days notice when the trees and shrubs will be ready for inspection. The trees and shrubs shall be clearly labelled as being reserved for use on this project. The Contractor is to allow for the selection, inspection and tagging of material by the Project Manager in the nursery prior to placing of any order.

The Contractor shall provide each plant/ tree or group of plants/ trees of a single species or cultivar with supplier's labelling for delivery to site, showing:

- Full botanical name.
- Total number.
- Number of bundles.
- Part bundles.
- Supplier's name.
- Employer's name and project reference.
- Plant specification, In accordance with scheduled National Plant Specification categories.

Semi mature trees: Each individual plant shall be labelled by the Supplier with securely attached, waterproof and readable label identifying the following:

a. The PLANT NAME (botanical and common), SIZE and the TOTAL QUANTITY in the consignment shall be clearly and durably displayed on every label.

b. SUPPLIER'S NAME.

c. IDENTIFICATION REFERENCE: Supply plastic tag attached to each tree with a unique reference number. At Practical Completion, submit schedule of reference numbers which identifies species, size, grower's nursery/plantation, supply date and planting location.

d. EU Regulations & Plant Health Regulations: Species requiring plant passports that are the subject of the Plant Health (Great Britain) Order 1993 and forestry species specified under the EU Forest Reproductive Materials Regulations (1977) shall be documented in accordance with those Regulations.

3006.8 Transportation shall not be undertaken in frosty conditions. All plants shall be packed, loaded and transported in such a manner as to facilitate the unloading at the various delivery points with the minimum of time and cost whilst avoiding damage to the plant material. Plant packaging to be to clause 3006.8.

All plant material shall be supplied to site, for off-loading, by the Contractor. Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.

The type and number of planting material to be delivered to site, including the dates for delivery, will be as determined by the Contractor to meet the programme. If requested by the Project Manager, details of the country of origin and date supplied and consignment details to reference shall be provided

Confirmation will be supplied to the Project Manager, not less than 5 working days in advance of each and every delivery with descriptions and quantities.

The Contractor shall take note of the unloading locations and shall satisfy himself as to means of access to the site, facilities for unloading, and is to agree the same with the Project Manager.

Subject to the above, the Contractor shall arrange his deliveries to coincide with normal site working hours.

Prior to delivery of any plant stock, the Contractor shall furnish the Project Manager with a method statement for approval covering the transportation, installation and maintenance procedures proposed to ensure the stock is kept alive, healthy and in its best possible condition during these operations. The method statement is to include a programme for boxing up, lifting, transporting and installing the trees.

3006.9 In addition to 3006.9 (ii): Plant packaging for bare root trees and shrubs shall be coextruded polyethylene bags with black interior and white exterior. Packaging of bulk quantities shall be pallets or bins sealed with polyethylene and shrink wrapped. Planting shall be upright or well balanced with best side to front.

ix. All plants that do not carry the Employers tag on arrival to site shall be rejected.

x. Plants shall be delivered to site within 72 hours of loading at the nursery. Plants to be planted within 36 hours of delivery to site and shall be in accordance with Clause 3006.17 and 3006.18.

xi. Wildflowers, ferns and herbaceous plants are to be kept watered and in the shade until planted.

Topsoil, Compost, Fertiliser, Mulch and Anti-desiccants

3006.12 Topsoil for backfill to tree pits shall be existing site topsoil lifted and stored in accordance with Appendix 6/8 and mixed with organic compost soil ameliorant. Refer to Table 1 below.

3006.13 Shrub groundcover and herbaceous planting beds – Organic compost for use as soil improver may be added as required to topsoil to raise the organic-matter content in the topsoil to minimum values. Refer to table 1 below for locations.

Table 1:

Stock Pond P1						
Type of Planting	**Topsoil Depth (minimum)**	**Volume of soil ameliorant to be incorporated**	**Planting Mulch**	**Woodland Mulch**	**Drawing Reference**	**Note**
Groundcover, wildflower plug planting	350mm	As determined by soil testing	50mm	-	P1-ZZ-DR-L-7300	Downstream and upstream sloping edge of dam

Ladies' Bathing Pond P2						
Type of Planting	**Topsoil Depth (minimum)**	**Volume of soil ameliorant to be incorporated**	**Planting Mulch**	**Woodland Mulch**	**Drawing Reference**	**Note**
Shrub and herbaceous planting	350mm	As determined by soil testing	75mm	-	P2-ZZ-DR-L-7300	Banks to either side of access paths on dam
Tree planting feathered – semi mature	Refer to table 30/1	80 : 20 Soil : Organic compost	-	75mm	P2-ZZ-DR-L-7100, 7101	Planting to west side of pond
Whips/ Transplants/ Shrubs	Refer to table 30/1	-	-	75mm	P2-ZZ-DR-L-7100	

Model Boating P4						
Type of Planting	**Topsoil Depth (minimum)**	**Volume of soil ameliorant to be incorporated**	**Planting Mulch**	**Woodland Mulch**	**Drawing Reference**	**Note**
Tree planting feathered – semi mature	Refer to table 30/1	80 : 20 soil : Organic compost	-	75mm	P4-ZZ-DR-L-7100, 7101, 7102	To dam and west side of pond island
Whips/ Transplants/ Shrubs	Refer to table 30/1	-	-	75mm	P4-ZZ-DR-L-7102, 7103	Next to spillway

Men's Bathing Pond P5						
Type of Planting	**Topsoil Depth (minimum)**	**Volume of soil ameliorant to be incorporated**	**Planting Mulch**	**Woodland Mulch**	**Drawing Reference**	**Note**
Climbing plants and wildflower seeding	150mm between 300x300x 300mm pits for climbing plants	80 : 20 soil : organic compost to planting pits		75mm as 600mm diameter circle around climbing plants	P5-ZZ-DR-L-7100, 7101, 7300	Either side of sheet pile wall. Backfill and mulch to climber planting pits only
Tree planting feathered – semi-mature	Refer to table 30/1	80 : 20 soil : organic compost		75mm	P5-ZZ-DR-L-7101	Tree and shrub planting to west of spillway

Highgate No.1 Pond P6						
Type of Planting	**Topsoil Depth (minimum)**	**Volume of soil ameliorant to be incorporated**	**Planting Mulch**	**Woodland Mulch**	**Drawing Reference**	**Note**
Climbing planting and wildflower seeding	150mm between 300x300x 300mm pits for climbing plants	80 : 20 soil : organic compost		75mm as 600mm diameter circle around climbing plants	P6-ZZ-DR-L-7300	Either side of sheet pile wall. Backfill and mulch to climbing plant pits only.

Viaduct P7						
Type of Planting	**Topsoil Depth (minimum)**	**Volume of soil ameliorant to be incorporated**	**Planting Mulch**	**Woodland Mulch**	**Drawing Reference**	**Note**
Shrub and groundcover planting	350mm	As determined by soil testing	75mm		P7-ZZ-DR-L-7101, 7300	Planting north-east of spillway

Mixed Bathing Pond P8						
Type of Planting	**Topsoil Depth (minimum)**	**Volume of soil ameliorant to be incorporated**	**Planting Mulch**	**Woodland Mulch**	**Drawing Reference**	**Note**
Tree planting feathered – semi-mature	Refer to table 30/1	80 : 20 soil : organic compost to planting pits		75mm	P8-ZZ-DR-L-7101	Area east of dam
Whips/ Transplants/ Shrubs	Refer to table 30/1			75mm	P8-ZZ-DR-L-7101	Area east of dam

Hampstead No. 2 P9						
Type of Planting	**Topsoil Depth (minimum)**	**Volume of soil ameliorant to be incorporated**	**Planting Mulch**	**Woodland Mulch**	**Drawing Reference**	**Note**
Tree planting feathered – semi-mature	Refer to table 30/1	80 : 20 soil : organic compost to planting pits		75mm	P9-ZZ-DR-L-7100	West end of dam and around outfall spillway to Hampstead No. 1
Whips/ Transplants/ Shrubs	Refer to table 30/1			75mm	P9-ZZ-DR-L-7100	Around outfall spillway to Hampstead No. 1

Hampstead No.1 P10						
Type of Planting	**Topsoil Depth (minimum)**	**Volume of soil ameliorant to be incorporated**	**Planting Mulch**	**Woodland Mulch**	**Drawing Reference**	**Note**
Plug planting of wildflowers	350mm	As determined by soil testing	50mm		P10-ZZ-DR-L-7101	Over spillway structure
Ground cover planting	350mm	As determined by soil testing	75mm		P10-ZZ-DR-L-7101	Over spillway structure
Tree planting feathered – semi-mature	Ref to table 30/1	80 : 20 soil : organic compost		75mm	P10-ZZ-DR-L-7101	To west and south of spillway structure
Whips/ Transplants/ Shrubs	Refer to table 30/1	-		75mm	P10-ZZ-DR-L-7101	West of spillway structure

Vale of Heath P11						
Type of Planting	**Topsoil Depth (minimum)**	**Volume of soil ameliorant to be incorporated**	**Planting Mulch**	**Woodland Mulch**	**Drawing Reference**	**Note**
Groundcover and climbing plant	350mm	As determined by soil testing	75mm		P11-ZZ-DR-L-7100	Downstream side of dam
EW1 Woodland Mix	75mm	-	-	-	P11-ZZ-DR-L-7100, 7500	Downstream side edge path of in front of fence

Catchpit P12						
Type of Planting	**Topsoil Depth (minimum)**	**Volume of soil ameliorant to be incorporated**	**Planting Mulch**	**Woodland Mulch**	**Drawing Reference**	**Note**
Tree planting feathered – semi-mature	Refer to table 30/1	80 : 20 soil : organic compost	-	75mm	P12-ZZ-DR-L-7100	Upstream and downstream of dam
Whips/ Transplants/ Shrubs	Refer to table 30/1	-	-	75mm	P12-ZZ-DR-L-7100	Upstream of dam

Organic Compost Specification

3006.14 Composition of organic compost and mulch shall be in accordance with the following specification for the supply and use of organic compost, in differing grades as a soil ameliorant or mulch.

Organic compost shall comprise well composted, weed free, graded residues of British origin from approved sources. It shall be peat-free and comply with the requirements below.

Organic compost shall comply with PAS 100 (2005) Specification for Composted Materials and with this specification. It shall be sampled and analysed in accordance with the requirements of PAS 100:2005 during manufacture and composting operation at source(s) and tested during the supply operation to assess any localised deficiency. Suppliers shall be registered with the Waste and Resources Action Programme (WRAP) as providing material to the PAS 100 standard.

Sampling

Analysis of imported material shall be obtained prior to import in accordance with the Specification, to demonstrate that it complies with the specification. A certified analysis is required for each source of material. All soil sampling shall be carried out by a qualified Soil Scientist or practitioner.

A representative sample load of 0.5m3 shall be provided from each source to be retained on site for comparison with subsequent deliveries. The sample(s) should be truly representative of the organic compost being considered and be correctly stored for the duration of the contract period.

Weed Seed Bioassy Sampling and Testing: - The compost shall be tested by bioassay to ensure an appropriate level of sterility. One test (seed tray – see below) per 10cu metre of compost or from each source whichever is smaller.

The method shall be as follows: - Using standard sized seed trays 200 x 300mm, the compost shall be watered to field capacity and maintained in an enclosed growing environment such as a greenhouse or growing room for 10 days. At the end of this time there shall be no more than five germinated weed seedlings per tray.

Dated photographic evidence shall be recorded for reference.

Compost once passed shall be maintained sterile by keeping in containers or bags and shall not be contaminated with any other materials up to the time of use.

Testing

Pre-delivery: the testing shall be carried out at a frequency and methodology according to the analytical methods stated and described PAS 100 (2005) (A representative sample shall adhere to the guidance stated in BS EN 12579:2000 Soil Improvers and Growing Media: Sampling).

Post-delivery: a sample shall be prepared from 10 sub-samples randomly representative of the material to be tested (The product type shall be stated - see Table 4.1), at a frequency of one test per 500m3.

Each composite sample should be sent to a laboratory that operates in accordance with MCERTS Performance Standards for Laboratories Undertaking the Chemical Testing of Soil.

The composite sample(s) shall be tested prior to approval in accordance with the methods listed in BSi PAS100:2005. The following parameters should be requested:

a) pH Value (1:5 soil:water)
b) Electrical Conductivity (µS/cm) (1:5 extract)
c) Visible Contaminants
d) Organic Matter (loss of ignition)
e) Total Nitrogen (N) Dumas Method
f) Total Phosphorus (P) and Potassium (K)
g) Carbon: Nitrogen Ratio
h) Moisture content
i) Stone Content (>4mm)
j) Bulk density
k) Weed seed bioassay
l) Grading analysis

Typical Analysis: A typical analysis can be expected to meet the following values (determination by methods BS EN12579:2000, BS EN13038:2000, BS EN 13039:2000)

Moisture content	35-55%
Bulk Density:	450-550g/l
pH:	7.0-8.7
Carbon: Nitrogen ratio:	≤ to 20:1

Particle Size range: according to nominal grade

Stone content >4mm:	(in grades other than mulch) < 8%
Visible Contaminants >2mm:	≤ 0.5% (of which ≤ 0.25% is plastic and Zero % is sharps)
Nitrogen (Total)	0.7-1.3%
Phosphorus (Total):	0.1-0.3%l
Potassium (Total):	0.5-1.2%l
Electrical Conductivity (Water Extract):	≤500 µS/cm
Organic Matter Content:	25-40% dry weight basis

The results of analysis should be presented in an interpretive report to include a Declaration of Compliance in accordance with PAS100:2005 and with this Specification confirming that they meet the parameters for organic compost and the specific requirements of this specification, as set out below.

Chemical Parameters: All materials shall meet the parameters set below (or lower levels where required by SSRS) unless otherwise agreed with the Project Manager.

Total Cadmium (Cd)	mg/kg ≤ 1.5
Total Chromium (Cr)	mg/kg ≤ 100
Total Lead (Pb)	mg/kg ≤ 200
Total Mercury (Hg)	mg/kg ≤ 1.0
Total Copper (Cu)	mg/kg ≤ 200
Total Nickel (Ni)	mg/kg ≤ 50
Total Zinc (Zn)	mg/kg ≤ 400

Grading

Organic Compost Grading: Compost shall be clearly labelled at all times with its product type and use shall be restricted to that shown on the Schedule and in locations in Table 1 unless otherwise approved.

Table 2: Schedule of Grades for Organic Compost and Mulch

Grade	Product Type	Proposed Use
Medium to fine grade (includes fines)	Soil Ameliorant	Backfill to tree pits and amelioration of planting beds.
Medium/coarse (no fines)	Planting Mulch	For mulching herbaceous and ground cover shrubs
Coarse (no fines)	Woodland Mulch	For mulching large shrubs and trees

Soil Ameliorant: medium to fine grade (includes fines)

Organic compost used as soil ameliorant shall include the use of the material for local soil modification, bulk incorporation for meeting the requirements for high organic matter content, and in planting backfill preparation in accordance with and where stated in the specification.

The grade shall be percentage passing 100% 20mm; 90% 10mm; 20% 5mm; 5% 1mm. 3 % fines (<1mm).

In-situ mixing shall be carried out by spreading the compost in layers over the soil/substrate into which it shall be incorporated. The material shall then be incorporated by rotovation or other mechanical means. All vehicles, delivery, tractor or other machinery used in the process shall not exert a ground pressure of more than 5 psi when being used on planting areas, except with mat precaution.

No handling operations shall be carried out during rainfall or when there is standing water, or when the soil moisture content is above the soil plastic limit. No materials shall be spread or placed when the soil is frozen or covered with snow.

The constituents of the mixing process together with the mixed material shall be covered by impervious waterproof tarpaulins or similar at all times before mixing in order to maintain a consistent moisture content. Upon mixing or incorporating by rotovation, the areas shall be temporarily covered in readiness for planting.

Planting Mulch: medium/coarse grade (no fines)

Organic matter shall be used as mulch for small shrubs and herbaceous plants after planting at a depth stated in the schedules of 75mm as indicated in Table 1 and on the drawings.

The grade shall be percentage passing: 100% 35mm; 70% 30mm; 50% 25mm; 5% 5mm; 0% passing 2mm; no fines (<1mm).

Placement of the mulch shall be carried out by hand and raked into position avoiding covering the crowns of plants or the apex of growing shoots. All compost material shall be removed from any foliage.

Woodland Mulch: course grade (no fines)

The contractor shall establish a 1 metre weed free ring prior to planting

Organic matter shall be used as mulch for large shrubs and trees after planting at a depth of 75mm and covering a 1m diameter weed free ring around each planting station.

The grade shall be percentage passing: 100% 75mm; 70% 50mm; 50% 25mm; 5% 15mm; 0% 2mm; no fines.

Placement of the mulch shall be carried out by hand and raked into position avoiding covering the crowns of plants or the apex of growing shoots. All compost material shall be removed from any foliage.

3006.15 Enmag or similar approved by the Project Manager shall be incorporated at the manufacturer's recommended application rates. All fertiliser shall be delivered in sealed bags and shall be stored in a dry and stable condition.

3006.16 All bare rooted plants (whether shrubs, transplants, whips or standards) must, immediately after lifting, have their root system immersed in Seanure Root Dip or similar approved in accordance with the manufacturer's recommendations.

Time of Planting

3006.17 Planting season to be as follows and as directed by the Project Manager;

Item	Month
Deciduous trees and shrubs	Late October to late March
Container grown plants	All seasons: subject to maintenance and ability to water plants. To be at the direction of the Project Manager.
Conifers and evergreen plants	Sept/Oct and March/April
Wildflower plugs:	March-May and September-October

Notch Planting of Trees, Shrubs, Hedges and Herbaceous plants

3006.23 Trees and shrubs specified as transplants shall be pit planted in accordance with table 30/1. Notch planting of wildflower plugs shall be in accordance with (i) and (iii).

Planting Pits, Beds and Trenches

3006.24 Planting pits shall be in accordance with table 30/1.

3006.27 For all semi-mature tree pits: prior to backfilling, test for free drainage before planting in accordance with Series 600 and to the satisfaction of the Project Manager If drainage is considered to be unsatisfactory the Contractor shall supply a written method statement for rectification.

Planting in Cultivated Beds

3006.29 The areas indicated as planting beds on drawings no. 5117039-ATK-P1-ZZ-DR-L-7300, 5117039-ATK-P2-ZZ-DR-L-7300, 5117039-ATK-P7-ZZ-DR-L-7300, 5117039-ATK-P10-ZZ-DR-L-7101 shall be cultivated in accordance with clause 3006.29.

3006.33 Watering of cultivated beds shall be watered in accordance with 3008.

Planting of Whips, Transplants and Shrubs in Pits or Trenches

3006.34 All whips, transplants and shrubs shall be pit planted. Location of whip, transplant and shrub planting is shown on Drawings series 5117039-ATK-XX-ZZ-DR-L-7100 Landscape and Ecology General Arrangement.

3006.35 Tree pits for semi-mature, extra heavy standard and selected heavy standard trees shall be backfilled with an 80% topsoil and 20% soil ameliorant organic compost as clause 3006.14. Refer to Table 1.

Stakes and Ties

3006.36 Stakes shall have a top diameter of 75-100 mm dia. Stakes to be peeled chestnut, larch or oak with no preservative treatment. Nails to be to BS 1202-1, galvanized, minimum 25 mm long and with 10 mm head diameter.

3006.37 For heavy standard trees and semi-mature trees underground guying shall be used.

Planting of Trees

For all semi mature trees, de-compact the root-ball soils by passing a thin rod vertically through the outer edge of the root-ball in four equidistant points to shatter compaction and promote aeration and drainage prior to backfilling.

3006.38 Not used.

3006.39 Where damage to root system occurs during planting cut back to sound growth and treat any cut ends over 25mm in diameter with fungicidal sealant as accepted by the Project Manager.

3006.40 Consolidate material around the stake.

3006.42 Ties to be positioned within 25mm of top of stake.

3006.43 Not used.

3006.44 Not used.

3006.45 The underground guying shall be to all extra heavy standard and semi mature trees in accordance with drawings series 5117039-ATK-XX-ZZ-DR-L-7100 Landscape and Ecology General Arrangement. The underground guying shall be Plati Mat Fixing System RF1P as supplied by Platipus Earth Anchoring Systems (01737 762300, www.platipus-anchor.com) or equal other approved for standard to semi-mature trees between 12cm/g and 25cm/g. For semi-mature trees between 25cm/g and 45cm/g, Plati Mat Fixing System RF2P shall be used as supplied by Platipus Earth Anchoring Systems (01737 762300, www.platipus-anchor.com) or equal other approved. Underground guying systems shall be installed in accordance with the manufacturers recommendations.

The Contractor shall include for all post planting adjustment to tree stems following settlement and the like, and shall allow in his tender for canopy reduction and shaping to all trees as directed by the Project Manager.

Immediately after planting, undertake any necessary formative pruning to the approval of the Project Manager. Carefully cut back any dead, damaged or diseased branches and remove any weak, thin or malformed growth to sound tissue and all cuts and wounds over 25mm in diameter treated with a fungicidal sealant to BS 3998 and shall be in accordance with Clause 3010 and any recommendations by the nursery. Cut back, where and to the extent appropriate for the species, to encourage growth. Work to be carried out by an appropriately qualified tree surgeon and as directed by the Project Manager.

3006.46 Backfill to tree pits shall be backfilled with an 80% topsoil and 20% soil ameliorant organic compost as clause 3006.14.

3006.49 Water in to field capacity and in accordance with clause 3008 ensuring watering shall avoid damaging plants, displacing plants, mulch or soil.

3006.50 The irrigation aeration pipe shall be fitted to semi mature trees. The irrigation pipe around the root-ball shall be Root Rain Urban (RRCIVIC2, Green-tech) with a plastic cap and all associated fittings. The irrigation pipe to be plastic, 60mm diameter and of sufficient length that on installation the minimum length of pipe shall be sufficient to have a coil at the top, half way down and level with the base of the root-ball. To be supplied by Greenleaf Horticulture, Haywood Way, Hastings, TN35 4PL, or equal other approved.

Tubes, Guards and Ties

3006.52 All newly planted trees shall be protected by a timber post and wire fence to encompass individual trees or larger group plantings as specified in Clause 303.1. The fence line shall be positioned a minimum of 1 metre outside the furthest canopy spread of individual trees or group of trees and maintained until such time as the trees have become suitably established and shall then be removed.

Mulches: Ground Preparation

3006.53 Prior to mulch application, water as Clause 3008.

Organic Mulches

3006.54 Organic mulches shall be as specified in 3006.14 and Table 1. The finished level of the mulch shall be 50mm above adjacent pathways and grassed areas.

Wildflower Plant Preparation and Planting

3006.68 Wildflower plugs and container grown plants shall be planted in accordance with clause 3006.23 (i) and (iii).

3006.69 Wildflower plugs shall be distributed as shown on drawing no. 5117039-ATK-P1-ZZ-DR-L-7300, avoiding straight lines, otherwise evenly spaced as directed by the Project Manager. The areas shall be marked out prior to planting for acceptance by the Project Manager.

3006.71 Not used.

Planting of Reeds, Rushes, Marginal, Emergent and Aquatic Plants

3006.73 Refer to Specification for Pond Restoration and planting, doc ref no. 5117039-ATK-PND-ZZ-SP-Y-001.

Marker Posts for Planted Areas

3006.80 - 3006.85 Not used.

Replacement of Failed or Defective Plants

3006.87 For a period of 12 months from completion of the planting.

3006.89 Within 6 weeks of “leafing-out” of plant material the Project Manager will make a schedule of all dead, dying and otherwise defective material which is to be replaced as soon as possible by the Contractor at his own expense, excluding acts of theft or malicious damage after completion. Replacements shall be in accordance with Clause 3006.89 or shall match size of nearby plants of same species whichever is greater and inspected by the Project Manager for acceptance prior to implementation. Where available, plants shall be sourced from the original supplier unless otherwise agreed with the Project Manager. Replacement planting shall be undertaken at the earliest opportunity as in accordance with the defects rectification programme agreed by the Project Manager.

Where planting areas have mulch, these are to be carefully moved to one side in preparation for replanting. Roots of adjacent plants are not to be disturbed.

3006.91 All trees to be watered in, in accordance with clause 3008.

Post Planting Maintenance

3006.92 For 12 months from completion of the planting. If pests are present the Contractor to submit Method Statement to the Project Manager for their control.

Appendix 30/7: Grass, Bulbs and Wildflower Maintenance

General Grass Maintenance

3007.1 Grass is to be maintained as a healthy vigorous sward free from disease, fungal growth, discolouration, scorch or wilt. In addition to the clause earth clods larger than 25mm in any dimension are to be removed prior to cutting. Fallen leaves are not to accumulate and shall be collected removed off site in accordance with clause 3002.10.

Pest and diseases: the Project Manager shall be made aware of any pests and diseases present in the turf and the Contractor shall submit written proposals for their eradication.

From the first establishment cut the Contractor shall carry out maintenance in accordance with Clauses 3007. This period shall run concurrently with the requirement for replacement of failed or defective grass

Indentations: Levelling of hollows and bumps shall be undertaken in accordance with BS7370-3 clauses 12.4 and 12.5.

3007.2 (iv) Ensure that all trees and shrubs are not damaged by use of mowers, filament rotary cutters and similar powered tools which are to be no closer than 100mm to the stem of any tree or shrub. Operations close to stem are to be undertaken by hand tools.

3007.5 1000mm radius or the weed free circle whichever is greater.

3007.6 Remove arising from all grass areas in accordance with clause 3002.10.

3007.7 Allow 48 hours of dry conditions after heavy or continuous rain before cutting. If the grass remains waterlogged or compacted the Contractor shall undertake remedial methods as approved by the Project Manager. Trampling, abrasion or scalping shall be repaired.

Grass Cutting: High Frequency

3007.9 Refer to table 1 for locations of high frequency cutting.

Grass Cutting: Medium Frequency

3007.13 Refer to table 1 for locations of medium frequency cutting.

3007.17 Not used

3007.18 Not used

3007.19 Not used

3007.20 Not used

3007.21 Not used

3007.22 Not used

Grass Cutting: Areas of Planting

3007.23 Area of tree and shrub planting to the west of Ladies' Bathing Pond shall receive a twice yearly cut to between 60-75mm in the Spring and Autumn as directed by the Project manager.

Wildflower Areas and Areas of Nature Conservation Value

3007.26 Cutting of Wildflower areas shall be in accordance with the frequency shown in table 1.

3007.27 Not used.

3007.28 Not used.

Table 1

Stock Pond P1			
Grass seed and turf type	**Drawing Reference**	**Cutting Frequency**	**Note**
Turf – Modified WFT Shade 41 turf	P1-ZZ-DR-L-7100	Late Spring/Early Summer cut to a height of 50-60mm. and Late Summer/early Autumn cut to height of 50-60mm.	Eastern end of dam includes low bund
EW1 (Woodland mix for loamy soils) seed mix	P1-ZZ-DR-L-7100	Late Spring/Early Summer cut to a height of 50-60mm. and Late Summer/early Autumn cut to height of 50-60mm.	Downstream and upstream sloping edge of dam
Enkamat with bitumen bound chippings to be seeded with A22 low maintenance seed mix prior to laying Enkamat	P1-ZZ-DR-L-7100	Medium Frequency grass cutting as clause 3007.13	on slopes either side of ditch at outlet
Turf - Modified WFT Landscape 34 Turf - Pregrown with Enkamat reinforced matting and modified WFT landscape 34 turf unreinforced	P1-ZZ-DR-L-7100	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Up to six intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Spillway including side slopes

Ladies' Bathing Pond P2			
Grass seed and turf type	**Drawing Reference**	**Cutting Frequency**	**Note**
A22 (Low maintenance) seed mix	P2-ZZ-DR-L-7100 - 7101	Medium Frequency grass cutting as clause 3007.13	Eastern end of dam
Area disturbed during construction - reinstatement with A22 (Low maintenance) seed mix	P2-ZZ-DR-L-7100 - 7101	Medium Frequency grass cutting as clause 3007.13	Either side of path adjacent to western gate
Turf - Modified WFT Landscape 34 Turf - Pregrown with Enkamat reinforced matting	P2-ZZ-DR-L-7100 - 7101	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Up to six intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Spillway including side slopes
EW1 (Woodland mix for loamy soils) seed mix	P2-ZZ-DR-L-7100 - 7101	Late Spring/Early Summer cut to a height of 50-60mm.	Stilling Basin

Bird Sanctuary Pond P3			
Grass seed and turf type	**Drawing Reference**	**Cutting Frequency**	**Note**
Turf - WFT - Pregrown species rich 26 turf	P3-ZZ-DR-L-7100 - 7101	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Up to six intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Spillway downstream slope of impounding dam
Area disturbed during construction - reinstatement with A22 (Low maintenance) seed mix	P3-ZZ-DR-L-7100 – 7101	Medium Frequency grass cutting as clause 3007.13	Area over scour pipe reinstated following construction

Model Boating Pond P4			
Grass seed and turf type	**Drawing Reference**	**Cutting Frequency**	**Note**
EM5 (Meadow mix for loamy soils) seed mix	P4-ZZ-DR-L-7100 – 7105	Late Spring/Early Summer cut to a height of 50-60mm.	Island - reinstatement
Turf - Modified WFT Landscape 34 Turf - Pregrown	P4-ZZ-DR-L-7100 – 7105	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Up to six intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Dam

Grass seed and turf type	Drawing Reference	Cutting Frequency	Note
Turf – Modified WFT Landscape 34 Turf – Pre-grown with Enkamat reinforcement and shade 41 turf with Enkamat	P4-ZZ-DR-L-7100 – 7105	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Up to six intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Spillway including side slopes
Turf - Modified WFT Landscape 34 Turf - Pregrown	P4-ZZ-DR-L-7100 – 7105	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Two intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Area south of spillway including side slope of ditch into Men's bathing

Grass seed and turf type	Drawing Reference	Cutting Frequency	Note
Turf – Modified WFT Landscape 34 Turf – Pre-grown with Enkamat reinforcement	P4-ZZ-DR-L-7100 – 7105	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Two intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Around edge of pond - 1:3 slope
Turf Landscape 34 for loamy soils	P4-ZZ-DR-L-7100 – 7105	Late Spring/Early Summer cut to a height of 50-60mm.	Sloping ground West of pond either side of path with vehicular access
Turf Landscape 34 for loamy soils	P4-ZZ-DR-L-7100 – 7105	Late Spring/Early Summer cut to a height of 50-60mm.	Sloping ground west of pond for borrow pit - reinstatement

Men's Bathing Pond P5			
Grass seed and turf type	**Drawing Reference**	**Cutting Frequency**	**Note**
A22 (Low maintenance) seed mix	P5-ZZ-DR-L-7100 – 7101	Medium Frequency grass cutting as clause 3007.13	Reinstated fishing access along upstream side of dam
A22 (Low maintenance) seed mix	P5-ZZ-DR-L-7100 – 7101	Medium Frequency grass cutting as clause 3007.13	Reinstated area west of Men's spillway
Compacted earth path with A22 (Low maintenance) seed mix	P5-ZZ-DR-L-7100 – 7101	Medium Frequency grass cutting as clause 3007.13	Crest of dam downstream side of sheet pile

Men's Bathing Pond P5			
Grass seed and turf type	**Drawing Reference**	**Cutting Frequency**	**Note**
Turf - Modified WFT Shade 41	P5-ZZ-DR-L-7100 – 7101	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Up to six intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Spillway including side slopes inc reinstatement area
EM5 (Meadow mix for loamy soils)	P5-ZZ-DR-L-7100 – 7101	Late/spring early summer cut	To base of sheet pile wall

Highgate No.1 Pond P6			
Grass seed and turf type	**Drawing Reference**	**Cutting Frequency**	**Note**
Turf – WFT Shade 41 Turf modified	P6-ZZ-DR-L-7100 - 7101	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Up to six intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Spillway and dam crest including slopes
Turf – WFT Shade 41 Turf modified	P6-ZZ-DR-L-7100 – 7101	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Two intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Area west of path
Turf – Turflawns.co.uk cultivated lawn turf for private garden	P6-ZZ-DR-L-7100 - 7101	High frequency cutting – 12 cuts per year.	Sinclair Garden
EM5 (Meadow mix for loamy soils) seed mix	P5-P6-ZZ-DR-L- 7301	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Two intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	To base of sheet pile wall

Hampstead			
Viaduct Pond P7			
Grass seed and turf type	**Drawing Reference**	**Cutting Frequency**	**Note**
EM5 (Meadow mix for loamy soils)	P7-ZZ-DR-L-7100 - 7101	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Up to six intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Either side of hoggin path
Turf - Modified WFT Shade 41 turf	P7-ZZ-DR-L-7100 - 7101	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Up to six intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Spillway including side slopes

Mixed Bathing Pond P8			
Grass seed and turf type	**Drawing Reference**	**Cutting Frequency**	**Note**
Under seeded EW1 (Woodland mix for loamy soils) seed mix	P8-ZZ-DR-L-7100 - 7101	Late Spring/Early Summer cut to a height of 50-60mm. and Late Summer/early Autumn cut to height of 50-60mm.	Area east of dam
Turf - WFT Species Rich 26 Turf	P8-ZZ-DR-L-7100 - 7101	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Up to six intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Upstream side of dam
Turf - WFT Species Rich 26 Turf	P8-ZZ-DR-L-7100 - 7101	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Up to six intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Downstream slope of dam

Hampstead No. 2 Pond P9			
Grass seed and turf type	**Drawing Reference**	**Cutting Frequency**	**Note**
A22 (Low maintenance) seed mix	P9-ZZ-DR-L-7100	Medium Frequency grass cutting as clause 3007.13	Reinstated pond edge - sloping bank
EW1 (Woodland mix for loamy soils) seed mix	P9-ZZ-DR-L-7100	Late Spring/Early Summer cut to a height of 50-60mm.	Reinstated area over culvert and under trees, around platform and timber access and under planting
EM5 (Meadow mix for loamy soils) seed mix	P9-ZZ-DR-L-7100	Late Spring/Early Summer cut to a height of 50-60mm.	Reinstated area over culvert and on open ground sloping to P10

Hampstead No. 1 Pond P10			
Grass seed and turf type	**Drawing Reference**	**Cutting Frequency**	**Note**
EM5 (Meadow mix for loamy soils) seed mix	P10-ZZ-DR-L-7100 - 7101	Late Spring/Early Summer cut to a height of 50-60mm.	Reinstated area over culvert, downstream slope and stilling basin
Under-seeded shrub planting with EM5 (Meadow Mix for loamy soils) seed mix	P10-ZZ-DR-L-7100 - 7101	Late Spring/Early Summer cut to a height of 50-60mm	Planting
A22 (Low maintenance) seed mix	P10-ZZ-DR-L-7100 - 7101	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Up to six intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	In front of spillway

Vale of Health Pond P11			
Grass seed and turf type	**Drawing Reference**	**Cutting Frequency**	**Note**
Turf - Modified WFT Landscape 34 Turf - Pregrown	P11-ZZ-DR-L-7100	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Up to six intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Western spillway including side slopes

Vale of Health Pond P11			
Grass seed and turf type	**Drawing Reference**	**Cutting Frequency**	**Note**
Turf - Modified WFT Landscape 41 Turf - Pregrown	P11-ZZ-DR-L-7100	Late Spring / Early Summer to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Up to six intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Eastern spillway including side slopes
Planting and underseeded with EW1 (Woodland mix for loamy soils) seed mix	P11-ZZ-DR-L- 7100, 7300	Late Spring/Early Summer cut to a height of 50-60mm.	Downstream side of dam
Seeded EW1 Meadow grass mix for loamy soils	P11-ZZ-DR-L-7100, 7500	Medium Frequency grass cutting as clause 3007.13	Downstream side edge path of in front of fence

Catchpit P12			
Grass seed and turf type	**Drawing Reference**	**Cutting Frequency**	**Note**
EM5 (Meadow Mix for loamy soils) seed mix	P12-ZZ-DR-L-7100 - 7101	Late Spring / Early Summer cut to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Up to six intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Dam upstream slopes
Turf - Modified WFT - Landscape 34	P12-ZZ-DR-L-7100 - 7101	Late Spring / Early Summer cut to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Up to six intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Dam downstream slopes
Turf - Modified WFT - Landscape 34 Reinforced with Enkamat	P12-ZZ-DR-L-7100 - 7101	Late Spring / Early Summer cut to a height of 50-60mm. Late Summer/early Autumn cut to height of 50-60mm. Two intermediate cuts when sward reaches 175mm to height of 125mm as directed by the Project manager.	Reinstated access on crest
EW1 (Woodland Mix for loamy soils) seed mix	P12-ZZ-DR-L-7100 - 7101	Underneath birch trees Late Spring/Early Summer cut to a height of 50-60mm.	Under birch trees

3007.29 Assess weed levels to all seeded and turfed areas and spot treat with glyphosate any significant noxious perennials or invading weeds in accordance with 3002.7.

3007.30 Any areas of fat hen which established shall be mown out as directed by the Project manager.

Molehills

3007.31 Not used

Appendix 30/8: Watering

3008.6 The establishment period is 12 months from completion of turfing or planting.

3008.7 All areas of wildflower turfing and seeding and grass seeding and turfing shall be watered during periods of dry weather to ensure establishment and prevent any shrinkage of turf.

Appendix 30/9: Establishment Maintenance for Planting

3009.1 All areas excluding established trees shown on the Drawings up to completion of the planting works shall be maintained for a period of two years following practical completion. Operations and site supervision of the maintenance operations to be carried out by suitably qualified staff to the approval of the Project Manager.

Before the end of the maintenance period the Contractor shall provide printed instructions recommending procedures to be established by the Employer of any special procedures to be carried out for 1 year after the end of the maintenance period. Provide a schedule of any ongoing maintenance problems/issues experienced during the defects liability period.

Frequency of maintenance visits shall be as necessary to maintain standards as described in the 3009 clauses.

Firming

3009.2 Collars in soil at base of tree stems, created by tree movement shall be broken up by fork, avoiding damage to roots. Backfill with topsoil and refirm.

Stakes, Tubes, Guards and their Ties

3009.3 At all times prevent rubbing of ties and adjust to accommodate growth and prevent chaffing. Where chafing has occurred, reposition or replace ties to prevent further chafing. Damage to bark to be cut back neatly with a sharp knife; prevent further damage.

Pruning

3009.7 Remove growth encroaching onto grassed areas and paths to be pruned as directed by the Project Manager.

Organic Mulch

3009.8 Organic mulch shall be topped up to designed levels prior to the handover of the site or as directed by the Project Manager.

Weed Control: Young Trees and Shrubs in Grass Plots

3009.9 Mulch circles for semi mature trees, standard trees, feathered trees, whips and transplants in grass areas shall be 1000mm radius.

3009.10 Not used.

3009.11 Not used.

3009.12 Mulch shall be maintained to a depth of 75mm or 50mm (refer to Table 1 Appendix 30/6 for mulch depth) at all times and to be inspected in the active growing season. If mulch is found to be less than an even depth of 75mm or 50mm as appropriate it shall then be topped up in accordance with Clause 3009.12.

3009.13 Not used.

3009.14 Not used.

Weed Control: Young Trees and Shrubs in Cultivated Beds

3009.16 Monthly weed control by hand shall be carried out in the locations in Table 1 below.

3009.19 Not used.

Table 1

Stock Pond P1		
Planting type	**Drawing Reference**	**Note**
Groundcover , wildflower plug and shrub planting bed	P1-ZZ-DR-L-7100	Downstream and upstream sloping edge of dam

Ladies' Bathing Pond P2		
Planting type	**Drawing Reference**	**Note**
Shrub and herbaceous planting bed.	P2-ZZ-DR-L-7100	Banks to either side of access path on dam

Vale of Heath P11		
Planting type	**Drawing Reference**	**Note**
Groundcover and climbing plants	P11-ZZ-DR-L-7100, 7300	Downstream side of dam

Hampstead No. 1 P10		
Planting type	**Drawing Reference**	**Note**
Plug planting of wildflowers	P10-ZZ-DR-L-7101	Over spillway structure
Groundcover planting	P10-ZZ-DR-L-7101	Over spillway structure

Viaduct P7		
Planting type	**Drawing Reference**	**Note**
Shrub and groundcover planting	P7-ZZ-DR-L-7100, 7300	Planting North East of spillway

Mixed Bathing P8		
Planting type	**Drawing Reference**	**Note**
Shrub planting	P8-ZZ-DR-L-7100	East of dam

Hampstead No. 2 P9		
Planting type	**Drawing Reference**	**Note**
Shrub planting	P9-ZZ-DR-L-7100	Either side of culvert on edge of P10

3009.20-23 Not used

Individual Trees

3009.25 Individual trees are indicated on the drawings series 5117039-XX-ZZ-DR-L-7100.

(ii) All weeds shall be removed by the application of a translocated herbicide during the growing season followed by a residual herbicide applied in the Autumn or as directed by the Project Manager.

Appendix 30/12: Special Ecological Measures

3012.2 Construction of log/brash piles and hibernaculae shall be completed prior to the commencement of reptile and insect hibernation (normally the end of September). No works shall be carried out within 5 metres of nesting birds (generally between 1st March and 30th September).

Dead wood log/brash piles and hibernaculae shall be constructed where indicated on Landscape and Ecology General Arrangement drawings 5117039-ATK-P1-ZZ-DR-L-7100 to 5117039-ATK-P12-ZZ-DR-L-7100. The exact position of each structure will be agreed on site with the Ecologist/Landscape Architect. See typical sketches for construction below.

Hibernacula Construction

Refer to the Design Manual for Roads and Bridges – DRMB Vol 10 Section 4 Part 7 (HA116/05) for typical design details for the construction of hibernacula on impermeable ground.

Log/Brash Pile Construction

Log/brash piles to be square in plan and of 800mm x 800mm maximum dimension.

They shall be constructed by means of 4 no. upright logs of 900mm to 1100mm in length by 125mm diameter (placed at 600mm centres to form each corner of the structure) into a pre-dug hole of 350mm wide by 450mm deep hole.

Rubble to be packed in as backfill to secure each log to 100mm below finished level. The final 100mm backfill shall be reinstated with as-dug topsoil from the original excavation.

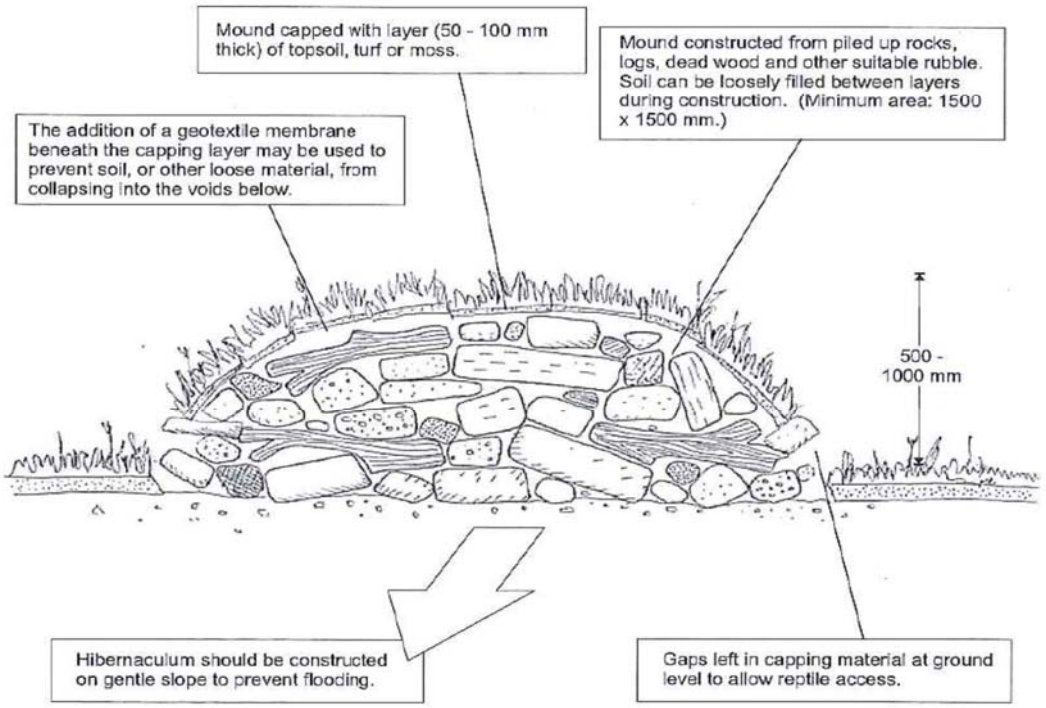
Logs/brash obtained from site clearance and cut to 800mm in length shall be packed between the uprights in alternate layers at 90 degrees to one another to a maximum height of 500-600mm. A variety of different log diameters shall be selected for use.

Some of the larger diameter logs shall have their cut ends drilled (using a 6mm and 8mm bit) to create a number of holes approximately 50mm deep to create insect refuges. The Ecologist/Landscape Architect will direct procedures on site.

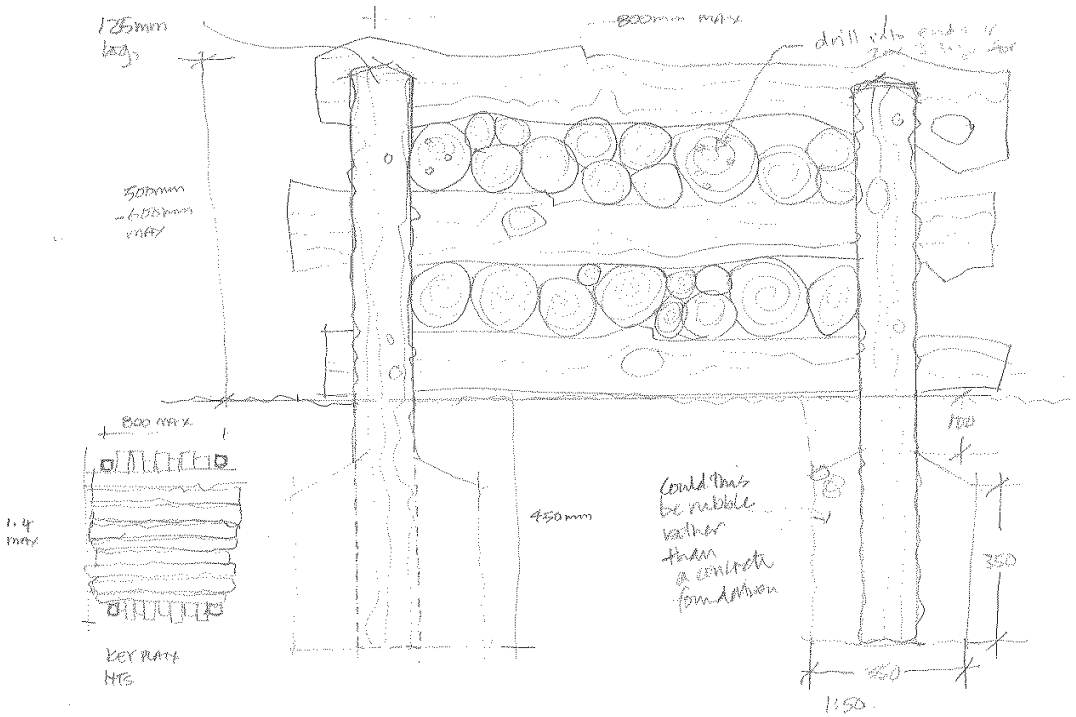
Typical Hibernacula Detail

Hibernaculum on impermeable ground

Where ground conditions are impermeable, then an 'above-ground' or mounded design should be utilised in order to prevent the hibernaculum from flooding. This design should also be used if it is not possible to excavate a pit for any other reason.



Typical Log/Brash Pile Detail



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