The page numbering of the final project specification should be revised as appropriate.

This Model Specification assumes that the JCLI Landscape Works Contract conditions are to be used. If not, alternative clauses may be needed in Section A2.

Appendix A Example schedules
Appendix B Not available in this version
Appendix C Schedule of Clause names
Appendix D Schedule of Trade Names and British or European Standards mentioned in the text.

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The information in Section A1 must be adequate to enable a busy tenderer with no prior knowledge to understand the nature of the project.

A105: The main elements of the work should be listed so that the tenderer can check that he has the necessary skills and resources. For example “The Works involve the creation of a new garden from approximately 0.5 hectares of meadow. The design involves major recontouring of the site, land drainage work and the creation of a pond. Hard landscape features include steps, walls and natural stone paving.”

A110: Amend this list as necessary. Other priced and unpriced schedules may be included.

Specification for Garden Design Works

This Specification should be read in conjunction with all Contract Documents and the Conditions of the Joint Committee For Landscape Industries (JCLI) Landscape Works Contract.

A - Preliminaries and general conditions

A1 Description of Project

A100 THE PROJECT:
Name of the project: ........................................
Address of the site: ......................................

A105 DESCRIPTION OF THE WORKS:
..............................................................

A110 TENDER DOCUMENTS shall consist of:
This specification.
Planting schedule.
Tender Drawings: Nos. ...............
A115: The designer’s client will normally become the employer of the successful tenderer.

A115 EMPLOYER means:
(Name)..............................................................
(Address)...........................................................
(Post Code)................... Tel:.........................

A120 DESIGNER / GARDEN DESIGNER /LANDSCAPE ARCHITECT means:
(Name)..............................................................
(Address)...........................................................
(Post Code)................... Tel:.........................

A125 CONTRACTOR / LANDSCAPE CONTRACTOR means the accepted tenderer.

A130 SITE PARTICULARS: Tenderers are advised to visit the site by prior arrangement with the employer, in order to familiarise themselves with the access, ground conditions and available facilities.

A135 RESTRICTIONS TO CONTRACTOR’S WORKING AREA: The area of the site available for use by the contractor is shown on drawing No. ....
A201 is appropriate on larger projects if the JCLI Landscape Works Contract (JCLI LWC) is to be signed by the employer and contractor.

The JCLI LWC is the usual standard form of contract. The designer should also be familiar with the JCLI Practice Notes Nos. 8 and 9 and the JCT Practice Note “Deciding on the appropriate JCT Contract”.

On small projects, a less formal way for your client (the employer) to enter into a contract with the successful tenderer is for them to write a simple letter of acceptance. (see sample letter in Appendix B of the hard copy book.) By using A206 with A210 the JCLI LWC Conditions of Contract are incorporated by reference in the same way that the requirements of a British Standards may be referred to.

A215: This is more fully covered in the JCLI LWC. The employer should only issue instructions to the Contractor through the designer who must confirm in writing. To allow more than one person to issue instructions is likely to lead to chaos.

A221: If the completion date is not stated in A226, change this clause and ensure that the length of construction period is defined.

A2 THE CONTRACT

A201 FORM OF CONTRACT
The Contract will be The Landscape Works Contract last published by the Joint Committee for Landscape Industries (JCLI LWC).

A206 FORM OF CONTRACT
The Contract will be in the form of a letter signed by the employer accepting the completed Form of Tender. The Conditions will be those contained in the Landscape Works Contract last published by the Joint Committee for Landscape Industries (JCLI LWC).

A210 CONTRACT DOCUMENTS shall be:
- the Tender Documents listed in clause A110
- the Form of Tender as completed by the accepted tenderer
- the employer's letter of acceptance, if appropriate.

A215 AUTHORITY OF THE DESIGNER
The contractor shall carry out instructions given to him in writing only by the designer.

A221 SCOPE OF THE CONTRACT
The tender shall include the cost of all plant, labour, materials and plants necessary to complete the Works by the stated date for completion in Clause A226.
General Note on A226: The text of items marked with * should be marked ‘Deleted’ if they are either not applicable or are unwanted alternatives.

4th Recital: Normally a fixed price contract will be required and Clause 4.11 will be deleted. If so, the 4th Recital and Schedule 2 are not applicable.

5th Recital: The JCLI Practice Note No.8 para.3 gives guidance on the application of the CDM Regs.

Clause 1.1: No Construction Phase Plan is required if the project is non-notifiable under the CDM Regs.

Clause 2.8: Designers should agree with their client whether the complexity of enforcing Liquidated Damages is appropriate to the risks and benefits. If so Refer to JCLI Practice Note 8 for method of calculation.

Clause 2.10: The JCLI LWC is not applicable to Landscape Maintenance contracts. If Clients wish to hold the original Contractor liable for plant failures, a separate “establishment maintenance” contract is needed to last for 12 months minimum.

A226 CONTRACT PARTICULARS

The following list of the Clauses from the JCLI LWC Contract Particulars will apply to this project and are to be either amended, deleted or completed as shown:

4th Recital and Schedule 2
Base Date……………………

4th Recital and Clause 4.2
The employer *is/is not a contractor for the purposes of CIS.

5th Recital
*The CDM Regulations do not apply.
*The CDM Regulations apply but the project is not notifiable.
*The CDM Regulations apply and the project is notifiable.

Article 7
Article 7 and Schedule 1 (Arbitration) *apply/do not apply.

Clause 1.1
*The CDM Planning Period shall mean ……….*days/weeks.

Clause 2.2
Date for commencement of the Works: ………………….
Date for completion ………………….

Clause 2.8
Liquidated damages at the rate of £………. per *day / week.

Clause 2.10A* or 2.10B*
Responsibility for plant establishment and plant defects to be by Contractor* or by Employer*
Clause 2.10: If no establishment maintenance contract is entered into and Clause 2.10A is deleted, the rectification period applies only to defects in hard landscape. Ideally the rectification period should extend to cover a winter season but 6 months is usual.

Clause 2.10A* or 2.10B* Rectification period ……… months.

Clause 2.13 Provisional Sum to cover theft or malicious damage £ …………

Clause 4.3 Percentage of the total value of Works in a progress certificate ………% 

Clause 4.5 Percentage of the total value of Works in the penultimate certificate ………%

Clause 4.8.1 Final Certificate: period allowed for the supply of documents …… months.

Clause 4.11 Contributions, levy and tax changes Clause 4.11 applies / deleted*.

Clause 4.11 / Schedule 2 (para.13) Percentage addition for fluctuations option ………. %.

Clause 5.3.2 The Contractor’s public liability insurance should be not less than £1m.

Clause 5.3.2 Contractor’s insurance to cover injury to persons or property £ …………

Clause 5.4 *5.4A Insurance of the Works shall be by Contractor in joint names

*5.4B Insurance of the Works and existing Structures shall be by the Employer in joint names.

*5.4C Insurance for the existing structures shall be by the Employer.

Clause 5.4 Percentage to cover professional fees ……… %

Clause 5.4 Provisional Sum to cover theft or malicious damage £ …………

Clause 7.2 The Adjudicator is ………..
A236: **Provisional Sums** are to cover work which may be required but not yet detailed and therefore cannot be priced by the tenderers until after the contract has been signed. It is also usual to advise your client to set aside a sum of money to cover unforeseen events (contingencies) such as the discovery of a previously unknown cess pit. The amount should be based on assessed risk or insert 2.5% of the contract value. This Contingency Sum is a form of Provisional Sum.

A245: For example, waste skip licenses, charges for water taken from a hydrant.

A250: The designer should state which buildings, garden walls and other features are listed. Quote the reference No. and date of Order. See also Note to C620 - C635

A255: Under the Wildlife and Countryside Act and other legislation it may be necessary to protect the identified flora, fauna and their habitats. The advice of the statutory nature conservation organisation e.g. English Nature, DEFRA or the local Council, should be passed to the Tenderers.

A236 **PROVISIONAL SUMS:** Allow the following sums to be included in the Tender:

- Provisional sum for Contingencies £ ……….
- Provisional Sum for: ………………………. …… £ ……….
- Provisional Sum for: …………………………….. £ ……….

A245 **STATUTORY REGULATIONS**

Comply with all statutory requirements which apply to the Works and pay all fees and charges.

A250 **TOWN AND COUNTRY PLANNING:**

The following structures on site are Grade ….. listed:

- (state which)…………………………as shown on Drawing No.……….
- The site… (is/is not)… in a Conservation Area.
- Trees on the site …(are/are not)… subject to Tree Preservation Orders.
- Comply with the conditions of Planning Permission Ref: …… …….
- The Party Fence Wall shown on drawing …….. is subject to an Award, the conditions of which must be complied with.

A255 **WILDLIFE**

…………………………., a protected species is known to exist on site ……….(location) …… and the contractor is to ensure its protection in accordance with the statutory Nature Conservancy organisation and / or DEFRA license.
A300: See sample standard letter in Appendix B.

A310: If the JCLI LWC form is to be used the JCLI clause 4.10 will apply and 4.11 will be deleted.

A315: Some designers prefer that the written descriptions in the specification and schedules take precedence over the drawn information. If so, modify this clause.

A3  Tendering

A300  TENDERING PROCEDURE
The Tenderer must submit his Tender in writing in accordance with the procedure in the letter of Invitation to Tender.

A305  AVAILABILITY OF PLANTS AND MATERIALS
Tenders must be based on plants and materials which will be available when needed. If plants or materials as specified are not available or it can be anticipated that they will not be available when required, tenderers must submit a priced schedule of the alternatives which they have incorporated in their tender.

A310  FIXED PRICE
The tender must be for a fixed price. No additional payment will be made for cost fluctuations of any kind.

A315  DISCREPANCIES
All queries regarding the true interpretation of the tender documents should be resolved with the designer before tendering. If discrepancies come to light after the acceptance of tender, the information shown on any drawing will take precedence over the specification or schedule.
A400: Inadequate supervision is a major problem leading to poor work and mistakes. Under the JCLI form of contract the designer's role is to 'inspect'. The designer should not be involved in 'supervision' or management of the Works.

A415: The JCLI Conditions set out clearly the situations where the contractor can claim an extension of time. Delay due to the contractor's own failure to order in good time is not included.

A420: Contractors may be reluctant to provide a detailed programme, but it is a very valuable tool to help the designer to monitor progress of the Works.

A430: Consult your client as to acceptable working hours.

A4 Management of the Works

A400  FOREMAN
Whenever work is in progress, keep a competent foreman on site to supervise the Works and to take the designer's instructions.

A405  SITE MEETINGS: Hold site meetings when required by the Designer.

A410  MATERIALS ON SITE which have been delivered for the Works become the property of the employer when paid for but must remain the responsibility of the contractor until Practical Completion.

A415  ORDERING:
Order goods and materials in good time so that the Works are not delayed. No extension of contract period will be allowed where delay could reasonably have been avoided by the contractor.

A420  PROGRAMME AND PROGRESS REPORTS
Before commencement, provide the designer with a programme of work showing dates for all main operations and the number of staff to be employed daily on the site.
Keep the programme updated and reissued at monthly intervals.

A425  USE OF THE SITE by the contractor shall be solely for carrying out Works described in the Contract.

A430  WORKING HOURS: to be 08.00 to 18.00hrs. Monday to Friday. No work is to be executed on site outside these hours without specific approval.
A440: For safety reasons, list all other contractors or workmen who may be on the same site at the same time.

A445: If there is more than one contractor and/or self-employed craftsmen working on the same site the employer may be required by the Construction (Design and Management) Regulations (CDM Regs) to appoint the successful tenderer as 'Principle Contractor' with statutory role of coordinating safety on site. See also A520.

A435 NOISE: to be kept to a minimum at all times. Portable radios or CD players are not permitted but "Walkman" type personal radios or CD players will be allowed.

A440 CONCURRENT CONTRACTS: ......................................

A445 LIAISON WITH OTHER CONTRACTORS: Co-operate and liaise with any other contractors on site to ensure that the Works proceed safely and efficiently.

A450 INCOMPETENCE OR MISBEHAVIOUR OF WORKMEN: the contractor shall comply with any reasonable request of the designer to permanently exclude from the Works any person employed thereon.
A505 and 510: Damage to a shared private road could be an embarrassing source of dispute with neighbours.

A5 Quality and safety

A501 BRITISH STANDARDS AND CODES OF PRACTICE
Where the Tender Documents do not fully detail the quality of the Works, comply with current good practice as defined by:-
- BS 4428 ‘Recommendations for general landscape work’ and other relevant British Standards;
- National Plant Specification published by the Horticultural Trades Association;
- any other Code issued by a relevant Trade organisation.
- all British Standards and other documents referred to in this specification are to be of the edition current at the date of Tender.

A505 PROTECTION
Adequately protect all existing landscape, buildings and public and private roads, from damage caused by the carrying out of the Works. Damage is to be made good at the contractor's expense.

A510 CONDITION OF THE SITE
Before work commences, agree with the designer the condition of the site/site access. Make a photographic record if requested.

A515 SAFETY
Comply with the Health and Safety at Work Act. Before using any substance which may present a hazard, carry out a Risk Assessment and keep the record available on site for inspection. Ensure safe working methods are used.

A515: A risk assessment is a written review of the potential dangers of a particular material or a method of work and the necessary measures to be taken to remove the risk.
A521: Designers should check whether the requirements of the CDM Regs apply to the Works and complete Clause A226. (5th Recital)

A525: Designers must not forget their own obligation under Health and Safety legislation to design in the safest way. Secondly designers must inform all tenderers of site hazards of which the designer or the employer is aware, for example, old wells or underground cables, etc. Make sensible enquiries and insert additional clauses as appropriate.

A540: Check whether the use of pesticides and herbicides is acceptable to your client. COSHH is the Control of Substances Hazardous to Health Regulations.
A600 Compare the requirements of the JCLI Conditions. Ensure that the times or stages are defined either as part of the letter of invitation to tender or in the Specification. Discuss this with your client.

A606 Any contingency sum should be agreed with the client so that the client has budgeted for unforeseen problems which often arise. State the agreed figure in clause A230-A235.

A610 This is only appropriate where the employer is able to reclaim VAT. Normally the tender will be inclusive of any VAT due.

A615 Will the client permit workmen to use toilet facilities in the house?

A620 A client is likely to be seriously inconvenienced if the site is left untidy, especially at week-ends.

A600 General requirements

A600 PAYMENT
At the times or stages specified for payment, the contractor shall submit his claim to the designer and the designer shall certify in writing the amount due and send a copy to the contractor and the employer. The amount of the designer's certificate shall be payable by the employer to the contractor within 14 days of the date of the certificate.

A606 PROVISIONAL SUMS
Any Provisional sums including any Contingency sum shall only be expended on the written instruction of the designer.

A610 VALUE ADDED TAX
All contractor's claims for payment under this contract shall show any VAT due separately and the employer shall pay to the contractor all tax properly charged.

A615 TEMPORARY WORKS: provide all necessary secure storage, site toilets and other offices.

A620 SITE CLEANLINESS: Keep the site clean and tidy at all times. Remove rubbish from site at least once a week.
A625; The provision of samples is one of the most valuable methods of quality control available to the designer. This is particularly valuable for hard landscape such as brickwork where the prior approval of the client may also be important.

A630; Confusion may arise if the client also gives instruction or approval (see also clause A215).

A635 and A640 are designed to ensure competition and may be insisted on by local councils, charities and larger commercial firms.

A645; Check your Client’s requirements for privacy and security.

A625 SAMPLES: Provide samples and construct sample panels for approval when requested or specified. Keep approved samples on site for quality control purposes. Clear away on completion or when requested.

A630 APPROVAL and words derived therefrom shall mean the written approval of the designer.

A635 ALTERNATIVE PRODUCTS: the words ‘or other equal and approved’ shall be taken as following any brand name which is used to define the product required in the Specification or drawings.

A640 OR OTHER EQUAL AND APPROVED: shall mean that the contractor is at liberty to propose an alternative similar product which may be approved by the designer and the Contract Sum adjusted as appropriate, but the tender must be based on the product originally specified.

A645 ADVERTISING AND PUBLICITY: obtain approval before displaying any signboard or publishing any article or photograph of the Works.
B101: A traditional optical instrument commonly used would be a ‘Dumpy’ level which can set out angles as well as establish levels. Modern laser levels are easier to use.

B105: Fires can be fatal to existing trees or shrubs even though damage is not immediately apparent.

B111. Retained trees may need protective fencing in accordance with BS 5837 ‘Trees in relation to construction’ which recommends that the Root Protection Area should be calculated as an area equivalent to a circle with a radius 12 times the stem diameter for single stem trees and 10 time the basal diameter of trees with more that one stem arising below 1.5m above ground. See also Clause A136

B116: If hard surfaced paths or drives are to be constructed within the area of the tree crown, further detailed instructions should be given based on BS 5837 ‘Trees in relation to construction’.

B - Hard landscape - Workmanship and materials

B1 General preamble

B101 SETTING OUT:
- Provide and use suitable instruments for accurately setting out the Works;
- Make these instruments available to the designer for purposes of checking;
- Clearly define all boundaries between different elements of the design and inform Designer that setting out is ready for inspection before starting any subsequent construction or planting work.

B105 FIRES are not permitted on site without specific approval. When permitted, fires must not be within 10m of the drip line of any trees to be retained.

B111 PROTECTIVE FENCING: Before stripping or clearance of the site, provide, erect and maintain barriers to form Construction Exclusion Zones, using 1.2m high chestnut pale attached to scaffold poles top and bottom, or other approved strong fencing, in positions shown on the drawings and/or as scheduled below. See also Clause A136.

B116 PROTECT TREES TO BE RETAINED
Within the spread of the crown and any area protected by fencing:
- do not reduce or increase soil levels;
- avoid compaction of the soil by plant or the storage of materials;
- avoid the spillage of toxic materials;
- where excavation is specifically approved, use only trenchless or hand excavation and backfill immediately;
- do not cut roots over 25mm diameter or damage their bark without approval.
B2 Excavation and filling

B200 GROUND WORKS: comply with BS 4428 Code of Practice for general landscape operations and BS 8000 pt.1 Clause 3.1 - 3.3 for excavation and filling.

B205 SITE CLEARANCE: remove to an authorised tip all scrub, undergrowth, roots, weeds, stones larger than 60mm, concrete, brick, tile and other unwanted material.

B210 COMPACTION/DAMAGE BY PLANT: Do not allow plant to run over spoil heaps. Minimise compaction by controlling access routes. All compacted ground or pans to be broken up by subsoiling using a heavy tine ripper appropriate to the type of soil before practical completion.

B215 EXCAVATIONS: give 24 hours notice to the Designer that foundation bottoms will be ready for inspection. Do not proceed with further work until bottoms have been inspected.

B220 EXCAVATIONS: keep free of water.
A trial hole was dug on …………… in the position shown on drawing No. …… and the level of ground water was noted as ……… at that time.

B225 EXISTING TOPSOIL: to be removed from areas of hard landscape and areas to be re-graded. Keep free of contamination and store in heaps <1m high.

B230 SUB-SOIL Store clear of top soil in separate heaps. Soil in excess of requirements or deemed unsuitable for back-filling, to be removed from site.

B215: It is not necessary for the designer to ‘approve’ excavations. Contractors may press for approval to be given in order to avoid liability for future failures.

B220: If the level of ground water has been checked with a trial hole as part of your survey, give date and details.

B225: Topsoil stacked more than 1m deep will lose its fertility.
B240: BS 4428 ‘C.P. for general landscape operations’ requires only 600mm of top soil at tree stations but the use of larger semi-mature specimens may require greater depths.

B245: Lack of proper consolidation can lead to long term settlement causing damage to hard landscape and ponding.

B235 IMPORTED TOPSOIL to be:
- medium loam with a pH value to match that on the site;
- stone size to pass a 40mm sieve and stone content to be <10%;
- free of sub-soil, perennial weed seed stolons, rhizomes or poisonous substances;
- if stored in temporary heaps, stacked less than 1m high.

B240 SPREAD TOP SOIL to provide the following minimum depths:
- grassed areas 100mm
- shrub areas 400mm
- tree stations 600mm
- Graded slopes to be of even gradient without puddles and kept 50mm above bordering hard surfaces to allow for settlement.

B245 CONSOLIDATION OF FILL: Spread and consolidate approved fill in layers not exceeding 200mm deep. General levels to be within ±50mm of design levels. Finished levels adjacent to hard landscape features and buildings to be ±20mm of design levels after settlement.
B301: ‘Portland’ cement is a name given to the type of cement traditionally manufactured from the limestone quarried at Portland in Dorset. Since June 2001 ordinary Portland Cement has been re-designated by the code ‘CEM 1’. The class number refers to compressive strength and the letter N or R refers to normal or rapid hardening qualities. Aggregates are divided between ‘fine’ i.e. sand less than 5mm in size and ‘coarse’ which is gravel or stone from 5mm upwards. For concrete it is usual to specify the maximum size of the coarse aggregate. The concrete mix will then contain a range of sizes between 5mm and the maximum size specified. Size is graded through sieves. Therefore thin stones longer than the nominal size may slip through the mesh.

B305: Site-mixed concrete is likely to be much less reliable than ready-mixed concrete because of the lack of quality control. For this reason concrete used for the surface of drives and pavings is best specified as ready-mixed. The local Council’s Building Control Officer can advise on the presence of any damaging sulfates. Where ready-mix is not economic, because of the small quantity involved or lorry access is impossible, the specification in Clause B305 compensates for the possible lack of strength and durability by increasing the proportion of cement in the mix. ‘All-in aggregate’ means that the sand and coarse aggregate are supplied mixed together and not as separate materials. The ‘slump’ is a measure of how fluid a concrete mix is. This is normally controlled by the amount of water added. Too much water weakens the concrete.

B3 Concrete and mortar

B301 MATERIALS FOR CONCRETE
Cement: CEM 1 class 42.5N to BS EN 197-1
Rapid hardening cement: CEM 1 class 42.5R to BS EN 197-1
Sulfate resistant Portland cement (SRPC): class 42.5N or 42.5R to BS 4027
Aggregates: to BS EN 12620
Coarse aggregate: 20mm nominal max, unless otherwise specified.
Water: mains drinking water or tested to BS EN 1008

B305 SITE MIXED CONCRETE PROPORTIONS BY VOLUME:
General purposes: 1 : 2 : 3 Cement / sand / coarse aggregate
or 1 : 4 Cement / all-in aggregate
Foundations in sulfate bearing soils:
1: 2½ : 3½ SRPC /sand /coarse aggregate
or 1 : 5 SRPC / all-in aggregate.
SRPC = Sulfate resisting Portland Cement
Exposed concrete paving:
1 : 1½ : 3½ Cement / sand / coarse aggregate
or 1 : 3½ Cement / all-in aggregate
Fence post backfill: 1 : 10 Cement / all-in aggregate.

Slump is not to exceed 75mm unless otherwise stated.
General purposes mix used for bedding and backing curbs or edges of
B311 Ready-mix references called Designated Mixes are shown in this clause. These references follow the requirements of EN 206-1 or BS8500 for unreinforced concrete and are used by Ready-mix suppliers. Unless otherwise specified the concrete supplied will have a 75mm slump. 125mm slump may be used for trench fill foundations.

B315: Stepped changes in level of foundations are normally designed as multiples of brick height i.e. 75mm, 150mm, 225mm, etc.

‘Trench fill’ foundations (where the trench is filled with concrete to within 150 of finished ground level) saves bricklayers working at the bottom of a narrow trench. Trench fill may be the safer and cheaper option.

B320: For thin slabs <75mm, the shrinkage and expansion joint intervals should be reduced. 18mm bitumen impregnated fibre board is the traditional expansion joint filler. Modern proprietary materials are available. Minimum sub-base: normally 100mm min. but 200mm for clay soil. Concrete thickness: e.g. 100mm for cars or 150mm for occasional delivery lorries. Surface finish: e.g. tamped, wood float, brushed, retarded and washed.

B311 READY-MIX CONCRETE DESIGNATED MIXES
Mass concrete and trench fill in non-aggressive soils GEN 1
Foundations and general work in non-aggressive soils GEN 3
Foundations in Class 2 sulfate conditions FND 2
Foundations in Class 3 sulfate conditions FND 3
Foundations in Class 4 sulfate conditions FND 4
House drives, domestic parking and external paving PAV 1
Haunching to flexible block paving edgings and kerbs GEN 1
Obtain copy of delivery note and retain on site.

B315 STRIP FOUNDATIONS:
Overlap stepped foundations at changes of level by not less than 300mm or twice the change in level which ever is greatest. Use sulfate resistant cement in soils having a class 2 sulfate content or above. Back fill over-excavation or soft spots with foundation concrete, not rammed earth. Minimum excavation depth to be 500mm or to undisturbed ground or as shown on the drawings which ever is deeper. Minimum foundation concrete thickness to be 150mm Minimum foundation width 300mm greater than the wall or as shown on the drawings.

B320 CONCRETE DOMESTIC DRIVE
Bay size: shrinkage joints at not exceeding 4m intervals. Expansion joints at not exceeding 24m intervals and at all abutting manhole covers, walls and similar obstructions. Expansion joint filler: ............... Granular sub-base to B706; thickness: ....mm Concrete: ......mm thick to Clauses B301 and 311. Edging detail: .................. Surface finish: ..................
B330: In cold weather concrete may take several weeks to gain its required strength.

B335: Concrete must be kept damp for it to cure and gain strength. Concrete will harden even under water. Concrete, which dries out too soon, will be weak.

B341: Air entraining plasticisers make mortar more spreadable and workable for the bricklayer by introducing microscopic bubbles into the mix. Air entrainment also increases frost resistance.

B325 MIXING AND PLACING CONCRETE
Use a batch mixer of approved type or use a ready-mix supplier who is a member of the British Ready-mix Concrete Bureau. Place as soon as practical after mixing and before the initial set takes place. Compact thoroughly and achieve a level top surface after compaction unless falls are specified.

B330 CONCRETING IN COLD WEATHER
Do not use frozen materials; Do not lay against frozen formwork or frozen excavations; Pre-heat aggregate/water to ensure a minimum temp. 5°C at the time of placing and maintain this temperature for at least 3 days.

B335 CONCRETE CURING
Protect from frost, snow, wind or hot sun by covering all concrete with polythene sheet for a minimum of 7 days. Do not allow any wheeled traffic on concrete bases or drives for at least 14 days.

B341 MATERIAL FOR MORTAR
Cement: CEM 1 class 42.5N to BSEN 197-1 Sulfate resistant cement (SRPC) to BS 4027: 1991 class 42.5N Lime: to BS EN 459-1 Sand: soft building sand to BS 882 Store lime and cement in a ventilated dry store clear of the ground. Mortar plasticisers where specified to be of the air entraining type to BS EN 934-3. Use according to the manufacturer's instructions.

B345 MAKING MORTAR
Batch mortar proportions by volume using gauge boxes. In cold weather pre-heat water and sand. Do not mix for longer than 5 minutes after adding water.
B350:  Masonry cements contain inert fillers and are designed to take the place of both the cement and lime content in a traditional mortar mix. The required proportion of cement is greater. E.g. the equivalent of 1 : 1 : 6 is 1 : 5. Follow manufacturer’s instructions.

B356:  Hydraulic lime mortar may be required for work on listed historic structures for mortar or for rendering. Hydraulic lime is not the same chemical composition as the lime used in conjunction with cement. Hydraulic lime sets when mixed with water but is not as strong or as quick setting as cement. For details of mix proportions read the manufacturer’s recommendations (e.g. Hydraulic Lincolnshire Limes manufactured by Singleton Birch Ltd. see also www.hydrauliclimes.co.uk). Hydraulic lime mortar allows greater seasonal movement and may make expansion joints unnecessary. A lime mix for rendering is more vapour permeable allowing trapped moisture to escape. The use of experienced contractors when using hydraulic limes is essential.

B360:  MIXING HYDRAULIC LIME MORTAR
Add water to the lime in the drum or paddle mixer and mix to a wet slurry before adding sand. Add further water as necessary and mix for not less than 15 minutes.

B365:  The colour of the mortar makes a striking difference to the appearance of brickwork. The only guaranteed method of obtaining a consistent colour is to specify premixed coloured mortar from a specialist supplier such as Tarmac Ltd. who can supply over 100 colours in 1 tonne bags. The mortar consists of pigment, lime and sand leaving the cement to be added on site.

B365 PREMIXED COLOURED LIME / SAND ‘COARSE STUFF’ to be:
Manufactured by ....................
Colour reference: ............
Mix proportions: ............

B350 MORTAR MIXES OF CEMENT, LIME AND SAND to be:
- 1 : 1 : 6 or 1 : 2 : 8 for general purposes;
- 1 : ½ : 4 for copings, foundations and work up to 150 above ground level or 1 : ¼ : 3 in very cold weather;
- mix proportions are for dry sand. Allow for bulking if damp;
- use SRPC for foundation work in soils with a high sulfate content.

B356 HYDRAULIC LIME MORTAR
Where lime mortar is specified without the addition of cement, the lime shall be of the hydraulic type to BSEN 459-1 strength grade HL3.5 or HL5 and the sand shall be washed sharp flint or quartz sand containing a good proportion of 3 to 4mm grit. Mix proportions shall be: ...............
**B4 Walling**

**B401** WALL TIES to be BS EN 845-1 stainless steel or galvanised wire unless otherwise specified.

**B405** DAMP PROOF COURSE AT COPING LEVEL to be 2 courses of dpc or engineering bricks to BS 3921 in cement mortar with plasticiser.

**B406** DAMP PROOF COURSE UNDER COPINGS to be ............... high bond type.

**B410** DAMP PROOF COURSE AT BASE OF WALLS to be 2 courses of dpc or engineering bricks to BS 3921 in cement mortar.

**B416** BRICKWORK FROST RESISTANCE
Bricks up to 2 courses above ground and for the top 2 courses of the wall, to be frost resistant designated FL to BS 3921 Table 3 (or grade F2+S2 to BS EN 771-1).

**B420** FACEWORK:
- facework to start not less than 150 below finished level of external paving or soil;
- select bricks which are unchipped on their face;
- mix bricks from separate deliveries to minimise any colour variations;
- where cut edges are exposed to view, use a masonry saw.

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**B401: Wire ties are suitable for walls faced with knapped flint or rubble facings or for free standing cavity walls. Retaining walls may need stronger vertical twist type ties.**

**B406: For example Ruberoid ‘Permabit’ with good bond to mortar. Damp proof course (d.p.c). membranes should be laid with mortar on both sides. The danger of introducing a membrane dpc at coping level is creating a line of weakness allowing vandals or frost to dislodge the coping.**

**B410: To avoid introducing a line of weakness, membrane dpcs should never be used at the base of a straight garden wall.**

**B416: This is a minimum requirement for the most vulnerable positions. If bricks of only moderate frost resistance are used in the body of the wall, a water proof coping is highly desirable to keep them dry.**
B425: The requirement to lay bricks ‘frog up’ to fill the recess with mortar, is important for retaining walls which rely on the weight of the masonry to resist the sideways thrust of the material behind the wall.

The size of older bricks is frequently larger than the current British Standard size. Therefore, it is often not possible to interlock or ‘tooth in’ every new course to existing brickwork without producing unsightly thick bed joints. The best solution may be to divide the new from the existing brickwork using a vertical movement joint.

B425 LAY BRICKS:
- frog up on a full bed of mortar to Clauses B341 to B350;
- with vertical joints filled solidly;
- four brick courses per 300mm height;
- face to be plumb unless a batter is specified;
- Courses to be level and perpends to line through vertically;
- Ask for instructions to be issued on site if brickwork is to be built adjacent to or bonded to existing walls.

B435 PROTECTION OF BRICKS AND BRICKWORK:
- Handle with care to avoid chipping;
- Stack clear of the ground on level hard-standing;
- Keep stacks covered to protect from rain and to keep clean;
- Cover new brickwork with a board and polythene sheeting to protect from rain and frost;
- Rake out all frost damaged mortar and repoint.
- Do not lay bricks when the temperature is at 6ºC and falling;
- Keep new work clean.

B435 ENGINEERING BRICKWORK for ……… (location) ………..
Bricks: to BS 3921, Engineering Class B
Mortar mix: cement : lime : sand 1 : ¼ : 3
Bond: English
Joints: Flush

B440 SPECIAL SHAPE BRICKS:
Use standard specials to BS 4729 where appropriate.
Where specials are not available and cut bricks are required, use machine cutting for all visible faces.
Work not visible is to be struck off with the trowel as work proceeds.

B440 Standard Specials are those shapes for which the manufacturer has the moulds. There may still be a delay while the bricks are actually manufactured.
B446: For example, bucket handle; recessed; weather struck.

B450: To be effective this needs careful workmanship. A number of proprietary products are available ranging from small clay pipes to plastic slots to fit into perpends.

B455: Brick should be classified FL to BS 3921 or F2 + S2 to BS EN 771-1
Blocks to be dense (not light weight) blocks to BS 6073
Examples:-
Bond: Stretcher bond, English garden wall bond, etc.
Joint: bucket handle, flush, recessed, weather struck.
Batter: up to 50mm for retaining walls.
Dpc: Type 2 bricks manufactured by ..............
Coping dpc: to clause B406
Coping: Engineering brick manufactured by... or pre-cast concrete ...
Vertical dpc: 2 coats R.I.W. Ltd. ‘Heviseal’
Drainage: weepholes to clause B450 or fin drain to clause B1020. Free-draining granular backfill.

B460: The brick should have a low soluble salt content to avoid sulfate attack on the rendering. Concrete blocks should have a surface which the manufacturer claims will give a good bond with the rendering and should conform to BS EN 771-3. If both sides of the wall are to be rendered, any water penetrating may be trapped in the wall. Therefore a waterproof coping is essential.

B446 MORTAR JOINTING:
Facework to be jointed to an approved ............ profile. Brush with a stiff brush after the initial set, to lightly texture the joint. Work not visible is to be struck off with the trowel as the work proceeds.

B450 WEEPHOLES where specified to be provided at 1200mm centres by leaving perpends free of mortar. Ensure that each perpend is unobstructed through to free-draining backfill.

B455 FREE STANDING / RETAINING WALLS
Brick/block manufacturer and type: ......
Foundation: ..............mm, and to clause B315 unless otherwise specified.
Bond: ..................
Joint profile: ..................
Batter: ..... mm per retaining height.
Damp proof course: 2 courses to BS3921 type: ...........
Coping damp proof course: ............
Coping: ............
Vertical damp proofing to back of retaining wall: ............
Drainage system: ......
Backfilling: ..................

B460 WALL FOR RENDERING:
Brick or block type: .................
Base dpc: .......
Coping detail and movement joints as drawing No. ......
Rake brickwork mortar joints to a depth of 10mm.
Blockwork joints to be struck off flush with the trowel.
B466: The strength of the render coats must suit the strength of the masonry material. The top coat mix should never be stronger than the base coat. Normal mix is 1:1:5-6 plus a top coat of 1:2:8. For very strong masonry or exposed location use 1:1/2:4 plus a top coat of 1:1:5-6. Pebble dash is thrown by hand into a wet ‘butter coat’. Spatterdash or other texture finish may be applied to the top coat. Top coats for painting should be finished with a wood float. Sample panels for approval may be needed. Movement joints in the wall must be carried to the face of the render. The use of external quality stainless steel or galvanised render stops and bellcast mouldings neatens and reinforces the edges of render. For example: Expamet Building Products range.

B470: suggested range 50 x 75 up to 100 x150mm depending on the scale and texture required. Normally flint but other materials may be available locally especially in coastal locations. eg. 1:2:8 with white cement; see also Clause B356.

B470 and B480: Wall ties would be unnecessary if lacing courses are used, i.e. 1 or 2 courses of brick headers at 750 max. vertical centres with brick quoins and intermediate brick piers at 2 to 3m centres.

B466 CEMENT:LIME:SAND RENDERING
Sand: ‘sharp’ sand to BS1199
Undercoat mix: ........... Thickness: 10mm
Top coat mix: ........... Thickness: 8mm
Surface finish: ...........
Allow base coat to cure thoroughly before applying top coat. Protect both coats from drying out for 3 days minimum with polythene hung in close contact.
Render stop: Manufacturer ............ Ref. ............
Bellcast drips: Manufacturer ............ Ref. ............
Movement bead: Manufacturer ............ Ref. ............

B470 COBBLE FACED BRICK OR BLOCK WALLING:
Cobble size: ...... x ........
Stone type: ............
Mortar for bedding cobbles: ............
Backing brick/block type: ............... Wall ties: to clause B401 at least 150mm long, set at 450 centres vertically and 900 centres horizontally.
Lacing courses: ............... Quoins and piers: ...............

B475 LAYING COBBLE FACINGS:
Select and position cobbles stones to achieve horizontal courses bedded and surrounded in a full layer of mortar. The orientation of the cobbles is to achieve a consistent size of exposed cobble after jointing. Rake back mortar 25mm from the front face with wooden cobbler. Carefully remove mortar stains from the stones and finish mortar joints with a stiff stipple brush when partially set.
B480: Suggested flint size: minimum of 75 x 75 x 75 but discuss with supplier. This form of traditional walling is common in south-east England where the chalk strata provides plentiful supplies of flint.

See also Note to B470

B490: The bonding of a wall without mortar is a skilled craft. Experienced workmen are needed. The wall detail will depend on the type, size and shape of the available stone.

B491: The mortar must be weaker than the stone; e.g. use 1 : 2 : 8 for soft limestone and 1 : ¼ : 3 for granite.

B495: If the walling is part of a listed structure, the repointing may need to be done using hydraulic lime mortar 1 : 3 to clause B356.

B480 KNAPPED (SPLIT) FLINT FACED WALLING
Drawing No. ...........
Flint size: .........
Mortar for bedding flints: 1 : 2 : 8 using white cement.
Facing brick type: ............
Backing brick/block type: .......
Wall ties: to clause B401 at least 150mm long set at 450 centres vertically and 900 centres horizontally.

B485 LAYING KNAPPED FLINT FACINGS: Lay split faces outermost to form a flush wall surface with a mortar joint round each flint. The joint is to be a minimum of 5mm wide, slightly recessed and brushed lightly after laying. Remove all mortar stains from face of flints.

B490 RUBBLE DRY STONE WALLING
Drawing No: ...........
Carefully interlock and bond the two faces of the wall using through stones or bonders at the minimum rate of 3 per m². The faces of the wall shall be battered back at the rate of 35mm per metre height. Select the largest available stones for ends and corners.

B491 STONE RUBBLE WALLING:
Drawing Ref: ...........
Use crushed stone fine aggregate for mortar, colour matched to approval. Mortar mix proportions to be: ..................
Carefully interlock and bond the two faces of the wall using through stones or bonders at the minimum rate of 1 per m². Select the largest available stones for ends and corners.

B495 REPOINTING BRICKWORK
Where specified cut out old mortar to 15-20mm depth. Remove dust, dampen joint and neatly repoint in 1 : 2 : 8 mortar with bucket handle joint unless otherwise specified.
B5 Carpentry

B500 STRUCTURAL TIMBER QUALITY unless otherwise stated to be a minimum of Strength Class C16 to BS EN 338 or SC3 to The Building Regulations Part A

B505 TIMBER FOR JOINERY: the limit for knots, splits, shakes and other timber defects is to be Class J40 to BS EN 942.

B510 TIMBER TREATMENT unless otherwise stated, all external timber is to be preservative treated to BS EN 460 for Hazard Class 4 with a desired service life of 15 – 20 years with ………………….. Provide designer with the plant operator's treatment certificate.

B515 TIMBER DECK BOARDS: to be treated to BS EN 460 for Hazard class 3 with a desired service life of 15 – 20 years with …………. water repellent preservative treatment. Provide designer with the plant operator's treatment certificate.

B520 TREATMENT OF CUT ENDS: As far as possible avoid cutting after treatment and do not place cut ends in ground contact. Brush treat all cuts with 2 full coats of …………. preservative concentrate to restore protection from rot.

B525 BRACING OF STRUCTURES: Joints required to be nailed to have a minimum of two nails. Inform the designer if additional bracing is needed for stability.
B530  Examples:
Concrete to specification Section B3
Mild steel hot dip galvanised to detail........
Sawn softwood or planed European Oak

Posts:  75 x 75mm, 100 x 100mm, 125 x 125mm

Fixings:  2No. 10mm galvanised coach bolts with washers per junction.
Treatment:  None, if the timber is durable, otherwise clause B510.
Decorative finish to clause B601.

B535  Examples:
General Structural Grade or C16, C24 etc.

Decking which is not at right angles to joists may need noggings (short lengths of wood nailed between joists). Consider the need for non-slip finish and specifying grooved deck boards. ‘Bark side up’ is to minimise tripping over raised edges due to moisture movement.

B530 to 540:  The design of external joinery should encourage the drainage of rainwater from horizontal surfaces and avoid pockets which could retain water. This will prolong the life of the timber and its decoration and minimise moisture movement.
Boarding may be t and g (tongued and grooved) 100 x 22mm nominal size.

B530  PERGOLA as drawing No. .........
Foundations:  .................
Support shoes:  ....................
Timber species and finish:  ................
Posts size:  ........
Longitudinal members:  ...............mm
Cross members:  .................mm
Fixings:  ................

Treatment:  ..................

Decorative finish:  Type:  ..................  Colour:  ................

B535  TIMBER DECK/BOARD WALK as drawing No. ........
Foundations:  ....................
Support shoes:  Hot dip galvanised  to drawing No. .......
Timber species and/or strength grade:  .................
Posts:  ...... x ......mm
Longitudinal members (beams):  .............mm
Cross members (joists):  ...............mm
Decking:  ...............mm, fixed to .............
Fix boards bark side up using .............
Treatment:  to clause B515
Surface finish:  Type ............  Manufacturer's Colour Ref:  ........

B540  PURPOSE MADE DOORS/GATES:

Drawing No. ............
Timber species:  .................
Post material:  ....................
Frame jointing:  .....................
Boarding:  ................

Treatment:  ................
Decorative finish:  Type:  ..................  Colour:  .....................
**B545: FIXINGS AND FASTENINGS**

All mild steel nails, screws, bolts (including washers), hinges and other ironmongery which is not fully corrosion resistant are to be hot dip galvanised to BS EN 1461. Damaged galvanising to be touched up with two full coats of ……… zinc-rich paint to BS 4652 or use low melting point zinc alloy repair rods. Aluminium components are to be anodised.

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**B6 Painting**

**B601 HIGH BUILD WOOD STAIN FINISH:**
To be obtained from one only of the following manufacturers:
…………………………

**B605 WOOD PAINT FINISH**
To be obtained from one only of the following manufacturers:
…………………………

**B615 PREPARATION OF TIMBER SURFACES:** to BS 8000-12.
Retreat all cut ends of preservative treated wood before priming;
Rub down to a smooth surface.
Remove sharp arises and clean off all dust.
Fill blemishes and seal resinous knots on timber to be painted.

**B620 PAINT AND EXTERIOR WOOD STAIN APPLICATION:**
Apply in accordance with the manufacturer's written instructions.
Do not apply in damp, frost, wind or when full sun may cause faults to develop.
Prime surface with the appropriate primer if required.
Apply evenly in full coats to produce a uniform depth of colour without brush marks.
Allow adequate drying time between coats.
**B700** Consider the need to include clause B225 for the removal of all topsoil and vegetable matter.

**B700 to B710:** Any paving within the root spread of trees to be retained should be designed to BS 5837. This may require cellular confinement systems and no-dig methods of construction in addition to no-fines granular material or sharp sand to ensure continuing water and oxygen supply.

**B706** sub-base thickness (mm)

<table>
<thead>
<tr>
<th></th>
<th>Drives*</th>
<th>Terraces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy clay or silt</td>
<td>350§</td>
<td>250</td>
</tr>
<tr>
<td>Silty Clay</td>
<td>200§</td>
<td>150</td>
</tr>
<tr>
<td>Sandy clay</td>
<td>130</td>
<td>100</td>
</tr>
<tr>
<td>Sand</td>
<td>100</td>
<td>N/A</td>
</tr>
<tr>
<td>Sandy gravel or chalk</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* Domestic use by cars and light vans
§ Use a geotextile under the sub-base. eg Terram 900

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**B7** **Pavings and steps**

**B700** LEVELS: make up levels as necessary with compacted gravel, hoggin, clean broken stone or brick to pass a 75mm ring.

**B706** GRANULAR SUB-BASE for ......................... to be Type 1 material to clause 804 of The Highway Agency Specification for Highway Works ......mm thick. Geotextile under-layer type: ............

**B710** COMPACT SUB-BASE in layers not exceeding 150 mm thick with a plate vibrator minimum mass 100kg. or equivalent mechanical rammer. Apply a blinding if necessary to achieve a smooth, closed surface.

**B711** BLINDING to be sand, pea shingle or PFA or similar approved fine material.

**B720** RIGID BRICK PAVING for ................... *(location)*

Brick Manufacturer and Reference: .........................

Brick size: ...................

Bond pattern: .................

Granular sub-base: as clause B706. Thickness: 100mm

Base: Concrete to Section B3 Base Thickness ......mm

Cement mortar bedding thickness: 25mm mix: 1 : 4 with approved plasticiser.

Mortar joint mix: ...................

Joint profile: .......................

Bay size: ...............

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31
B731: See Note to clause B706. No sub-base required for car
drives or footpaths on good ground such as gravel or chalk.
For example, block pattern to be herringbone / stretcher
bond / as drawn detail. Minimum 1:60 fall.

B725 LAYING RIGID BRICK PAVING
Set out bond to give uniform joint width.
Butter bed and joint faces of bricks and bed firmly on a bed of fresh
mortar of plastic consistency. Tool joints to specified profile and
clean off brick surface.
Protect with polythene from weather and traffic for 4 days minimum.

B731 CLAY BRICK/BLOCK FLEXIBLE PAVING for .........................
Granular sub-base material: to clause B706.
Sub-base thickness: ....mm.
Edge restraint: .......... bedded and haunched in cement mortar 1 : 6
Sand for bedding: sharp sand to BSEN 12620 laid to 65mm
thickness before compaction.
Block pattern: .................. Surface falls: ..................
Joint filling: dry fine graded sand to BS 882 to pass a 1.18mm sieve.

B735 LAYING BRICK / BLOCK FLEXIBLE PAVING
Ensure the bedding sand is moist enough to form a ball under hand
pressure and then screed it to even falls as specified or shown on
drawings. Cut blocks as required to maintain the specified bond
using a block splitter.
Lay the blocks tight butted on the sand bedding and compact with a
minimum of two passes using a plate vibrator. Spread a layer of
fine sand over the whole area and vibrate again to cause the sand to
fill the joints between the blocks.
B740: for rough textured stone use 1 : 40 cross fall to prevent ponding. Smooth flat stone can be laid to flatter gradients.

B745: BS 7263 covers a range of heavy duty slabs (flags) from 300 x 300 up to 600 x 900. These are suitable for occasional use by service vehicles and by cars. The bedding for vehicle use should be a continuous layer of mortar. If using the lighter domestic precast concrete or artificial stone for pedestrian use, remove the reference to British Standard and follow the Manufacturer’s recommendations. See note to clause B731 for sub-base thickness.

B750: SOLID BEDDING OF PAVING SLABS
Bed slabs on a continuous 50mm semi-dry mortar bed using cement : sand 1 : 4 or lime : sand mix 1 : 3
Ensure slabs are at specified level ±6mm and free from rocking and that the difference in level of adjacent slabs is less than 4mm.

B755: NOT SUITABLE FOR PATHS OR DRIVES CARRYING CARS. Use clause B750 with an appropriate sub-base where light wheeled traffic is planned.

B755: MORTAR DAB BEDDING OF PAVING SLABS
Bed slabs on 5 mortar dabs of cement: sand 1:4 or lime: sand mix 1 : 3.
Ensure slabs are at specified level ±6mm and free from rocking and that the difference in level between adjacent slabs is less than 4mm.
B765: Sub-base will be necessary on poor soils or where wheeled traffic is planned.

B770: Cobbles are pebbles (typically flint or sandstone) worn to an egg-shape by the action of water. Cobbles are sometimes known as ‘duckstones’ in the Midlands and northern England.

B760 SEMI-DRY POINTING OF JOINTS
Brush in semi-dry cement mortar 1:3. Lightly tap slabs and repeat until joints are solidly filled to the surface. Lightly tool the surface to consolidate, then cover with polythene for at least 3 days.

B762 SAND FILLING OF FLEXIBLE PAVING JOINTS using dry fine graded sand to BS EN 12620. Brush into joints and lightly tap slabs until joints are solidly filled to the surface.

B765 GRANITE/CONCRETE/STONE SETT PAVING for ...............
Sub-base: ........mm thick to clause B706.
Pressed into a 100mm thick bed of cement mortar mix 1:4 with plasticiser of a consistency suitable for bricklaying.
Pointed: to Clause B760

B770 COBBLES/PEBBLE PAVING for ............
Granular Base: 75mm well consolidated limestone scalpings, clinker or equal approved.
Bedding: 75mm 1:2:4 fine concrete screed using 10mm pea shingle aggregate.
Cobbles: 75mm long, smooth, egg-shaped, of uniform size and colour.
Grout: dry Rapid Hardening cement and sand 1:3 to clause B301.
Weedkiller is only likely to be essential under loose paving such as gravel or hoggin or thin specifications of macadam. Some geotextiles are also effective in preventing weed growth.

For example: Scotts UK Professional, ‘Casoron G’ (6.75% w/w dichlobenil)

Geotextile separating layer Terram Ltd ‘900’ or ‘BuildA’

Surfacing: wood chip sized 5 – 60mm or wood chip sized 5 – 30mm and angular gravel 3 –10mm in the proportion of 60% wood chip to 40% stone by volume.

‘Hoggin’ is a non-specific term used to describe a gravely material with a sufficient proportion of clay and fines to make it bind together when rolled. Too much clay will make it muddy.

Applying sodium chlorate at the rate of 65 g/m² over the whole of the paved area after completing the reduced level digging. Where the roots of trees and shrubs may be affected, substitute weedkiller applied in accordance with the manufacturer's written recommendations.

Geotextile separating layer: …………… to be laid over excavation and turned up at the sides to meet edge board. Surfacing: 50mm thick graded angular stones, 20mm down to 6mm.

Woodchip and gravel paths

Edging board: 25 x 150 larch supported by 50 x 50 larch stakes at 1200 max. centres.
Granular base: 100mm open textured Type 2 or other approved free draining material laid and rolled. In dry weather water while rolling to improve consolidation.
Surfacing: ……………
Thickness of surfacing: …..mm.

Hoggin for paths/drives to be as-dug material consisting of self binding mixture of gravel, sands and clay, 95% to pass a 20mm sized sieve. Lay 150mm thick and roll to consolidate. Submit sample for approval prior to delivery.
B790: Bitumen or tar macadams are coated stone of different sizes from 3mm up to 40mm. Lay geotextile under sub-base for drives on clay soils. Sub base: 200mm for drives used by delivery vans etc. 100mm for drives on poor ground used solely by private cars. 75mm sub-base required for car drives on good ground and for footpaths. Base course: 60mm thick for drives /40mm thick for paths.

B791: This traditional surface dressing bonds a thin layer of gravel to a hoggin or scalpings type base and reduces the spread of gravel onto surrounding surfaces. It is suitable for footpaths and occasional use by cars. A second layer can be applied in areas of wear such as gateways. Proprietary systems using a clear plastic binder are available and should be specified by brand name.

B795-796: The formula for the relationship between the size of riser and tread in mm for external formal steps is “the sum of twice the riser + the going should be between 550 and 700mm”. The riser should preferably be between 130 and 170mm or exceptionally between 100 and 180mm. See also page 19 of BS 8300 and Part M of The Building Regulations.

B796: A design problem with external steps is how to prevent the soil at the side encroaching on the tread. If the soil is kept low the side of the step is revealed. The use of a board to form a sloping string course either side solves the problem and strengthens the timber structure.

B790 MACADAM PAVING FOR PATHS /DRIVES: to BS 4987 with limestone aggregate. Geotextile: .................... Sub base: granular material ……mm thick to clause B706 Base course: ……mm thick of 20mm sized open textured aggregate. Wearing course: 20mm thick, of 6mm sized medium textured aggregate.

B791 TAR SPRAY AND PEA SHINGLE SURFACE DRESSING to DETR Road Note 39. Ensure that the surface to be dressed is sound and to the required level. Apply during a period of dry weather with a minimum temperature of 16°C

B795 EXTERNAL STEPS: as detailed on Drawing No. …….. Riser material: ……….. manufacturer and reference: ..................... Tread material: ……….. manufacturer and reference: ................. Tread shall fall 1 : 60 towards the nosing for drainage. Granular sub-base: 150mm thick to clause B706 Concrete materials to clause B301 Concrete foundation min.150mm thick, mix 1 : 4 all-in aggregate with 50mm slump. Mortar for bedding slabs or brickwork: 1: 4 with air entraining plasticiser’

B796 TIMBER RETAINED STEPS: as detailed on Dwg. No. …….. Riser: 38mm x 150mm softwood. String courses: 32mm x 150mm softwood. Stakes: 50mm x 50mm x 450mm with splayed top. Timber treatment: to clause B510. Granular fill: to clause B706 to completely fill behind the risers to give a level top surface blinded if necessary with coarse sharp sand.
In ground where the levels have been increased with fill or in poor soil, a greater depth may be necessary to ensure stability.

Rails are normally arrised (triangular in section).
Post material: Concrete or timber
Post setting: in concrete, rammed earth or driven.
Feather edge boards: BS size is 100 x 13 down to 6mm
Gravel boards may be timber sized 100 x 25 or concrete 150 x 38mm.

**B8 Fencing**

**B800** SET OUT AND ERECT FENCING:
- In straight lines or as shown on the drawing;
- To follow the ground profile.

**B805** POST HOLES to be vertical sided. Hole depth to be a minimum of 500mm deep for fences up to 1.2m high. For fence heights above 1.2m the depth of hole shall be half the height of the fence.

**B810** POSTS SET IN CONCRETE to be vertical and rigid.
Post hole’s diameter to be a minimum of 200mm larger than the post section. Concrete to be to not leaner than 1 part cement to 10 of graded aggregate max. 20mm size. Concrete to be well rammed round post and kept 150 below finished soil level. Complete filling of hole up to finished ground level with rammed topsoil.

**B815** POSTS SET IN SOIL to be vertical and rigid.
Holes to be vertical sided and as small as practical in plan to allow for rammed back-fill. Backfill with soil in 3 stages thoroughly consolidated at each stage.

**B820** CHESTNUT PALE FENCING: to BS1722-4
Height: ………m
Posts: spaced at 2.25m max. and driven into ground.
Spacing between pales: 75mm.

**B825** CLOSE BOARDED FENCING: to BS1722-5
Height ……..m Number and type of rails: …. No. ……………
Timber species: ……………… Timber finish: ……..
Post material: …………….. Post preservation: to B510
Post spacing: not exceeding 3m
Method of setting posts: ………………
Feather edge boarding: ……………..mm
Gravel boards: ……… Gravel boards preservation: to B510
B830: (BS1722-7 also covers cleft timber posts and rails.)

Height: 1.1m or 1.3m high.
Joints: nailed or mortised.
Number of rails: 3 or 4.
Post setting in concrete, rammed earth or driven.
Timber: European oak, sweet chestnut or softwood.

B830 SAWN TIMBER POST AND RAIL FENCING: to BS1722-7

Height: ……..m
Joint type: ……………
Number of rails: …
Method of setting posts: ……………
Timber species: ………
Post preservation: to B510

B835 LAP BOARDED PANEL FENCING: to BS1722 Pt. 11

Height: ……..m
Post material: ……………
Post preservation: to B510
Method of setting posts: ……………
Panel type: …………
Gravel boards: …………
Preservation: ………… Decorative finish: …………

B841 RABBIT FENCING

Posts: 75mm diameter treated round wood 1.8m long with one end pointed and driven 600mm into ground at 3.5m centres.
Braced straining posts: 100mm diameter at not exceeding 70m centres and at all changes of direction.
Galvanised wire netting to BS EN 10223-2; 31mm mesh; 1050mm high; buried 150mm
Straining wire: 3 No. 3.15mm galvanised wires, fixed with galvanised staples
Timber preservation: to B510
**B850**  For example 2.4, 2.7, 3m wide galvanised steel or timber – oak, larch, red wood or douglas fir.

*Posts; concrete, steel or timber – oak, etc.*

**B845**  PURPOSE MADE FENCING for ...................... *(location)*
- Drawing No. ................
- Timber species: ................
- Timber finish: ...........
- Post material: ............
- Post preservation: to B510.
- Method of setting posts: ................
- Gravel boards: ..............

**B850**  FIELD GATE: to BS 3470. Manufactured by: .........................
- Width: ...........m.
- Gate material: ............
- Timber: preservation to B510
- Post material: .............

**B855**  FIXINGS AND FASTENINGS: to Clause B545

**B9**  Site furniture and equipment
B1001: Rule of thumb for the required volume of a rubble filled soakaway (assuming the soil is reasonably permeable such as gravel, sandy loam or chalk and above the water table) ‘Area of hard surface to be drained in m² divided by 20 = required volume in m³.’ The speed with which the water permeates the soil can be increased by forming a long trench rather than a soakaway pit of the same volume. When the total terrace area to be drained is over 100m² it may be economic to use a concrete ring or plastic preformed soakaway. The required volume of such soakaways is only 30% of the equivalent rubble filled soakaway.

B1010: For small soakaways prefabricated plastic perforated drums are available. For large installations the traditional material is precast concrete.

B1013: 200 - 400mm deep depending on soil conditions and 30 – 60mm wide.

B1015: Mole drains are only useful on clay soils. In clay the bullet shaped 75mm plough forms a drainage channel 600mm below ground which will last 5 to 10 years. Filter drains are laid at intervals across the line of the mole drains to collect the water.

B1020: Fin drains are usually proprietary sandwiches of geotextile and a porous core which are inserted into a narrow trench. They can be used behind a retaining wall or to catch underground horizontal seepage of water.

B10 Drainage

B1001 RUBBLE FILLED SOAKAWAY

Drawing No. ..........
Volume: ..... m³ measured below inlet pipe
Excavated depth: ..m.
Filling: granular material to B1005
Vertical Inspection pipe: 150mm with screwed plastic inspection cap
Horizontal distributor pipe: 100mm to clause B1045
Geotextile filter membrane to bottom, sides and top to B1035
Backfilling above inlet pipe to be as dug soil.

B1005 GRANULAR MATERIAL FOR SOAKAWAYS: to be clean crushed concrete, stone, brick, tile or gravel in the size range 130 to 50mm.

B1010 PREFABRICATED SOAKAWAYS:
Manufacturer: .................. Size/Ref: ..............

B1013 SAND SLITS to be ........mm deep cut with a mechanical slitting wheel .......mm wide and filled with 10mm shingle and capped with 50mm depth of coarse sand.

B1015 MOLE DRAIN
Mole Channel depth below finished ground:.........mm
Mole Channel spacing:............mm
Filter drain spacing ..........m

B1020 FIN DRAIN
Trench: .........mm minimum depth x .... mm wide
Porous pipe size: 100mm unless otherwise noted.
Minimum gradient: 1 in 100
Geotextile filter: ............
Granular backfill: 20mm single sized stones.
B1025: This type of drain is the traditional method used to lower the water table. In heavy clay the drains may need to be spaced at 2 or 3m intervals. The required depth depends on maximum required water table. For trees the water table should be at least 750mm below ground and for shrubs 500mm.

If the granular material is carried right to the surface the drain will also collect surface water. Otherwise specify that the top 300mm is backfilled with topsoil.

Placed either side of a drive, this type of drain could be suitable for ensuring that the water table is kept 600mm below ground and does not reach the sub-base material and to take the surface run-off.

B1035: Geotextile filter membrane Terram Ltd. ‘900’ or ‘BuildA’.

B1025 FILTER DRAIN FOR GROUND AND SURFACE WATER

Trench: ……. Minimum depth x 450 mm wide
Trench spacing: ……………m
Porous pipe size: 100mm unless otherwise noted
Minimum pipe gradient: 1 : 80
Geotextile filter: ……
Granular backfill: 20mm single sized stones.

B1030 LAYING FILTER DRAINS

Excavate to scheduled depth and width. Line the trench sides and bottom with geotextile filter membrane.

Lay the drainage pipe on a 50mm bed of pea shingle.

Backfill the trench with coarse single sized granular material to 300mm below finished level. Fold the geotextile over the top to enclose the fill.

Complete the backfilling with further coarse granular material up to 50mm below finished ground level and cap with 40 mm of hard ash.

B1035 GEOTEXTILE FILTER MEMBRANE for drainage work:

…………………………………………

B1041 CLAY POROUS PIPE LAND DRAINS: to BS EN 295

B1045 RIGID PLASTIC PERFORATED LAND DRAINS: to BS 4962

B1050 EXCAVATED MATERIAL: set aside all true topsoil for re-use. Remove surplus or unsuitable subsoil from site immediately.

B1055 PVCu DRAINPIPES FOR SURFACE WATER: to BS EN 1401-1
B1061: Consider the need for rodding access using inspection chambers or rodding eyes.

B1066: It may not be possible to angle the covers of plastic prefabricated inspection chambers to match the slope of any embankment. Traditional brick inspection chambers may be preferred for that reason.

B1066 to B1075: Drainage manholes less than 900mm deep are usually termed ‘inspection chambers’.

B1075: Type and size of cover may be limited by the use of a proprietary inspection chamber. Otherwise choose galvanised pressed steel, cast iron or recessed. The recessed covers are designed to take an infill to match the surrounding paving.
Grade A for roads with commercial traffic.
Grade B for drives for light traffic.
Grade C light duty for footpaths with no chance of cars or tractors.

B1061 LAY AND PROTECT UNDERGROUND DRAINS:
- to precise line and level on a 50mm bed of pea shingle;
- add pea shingle up to the level of the crown of the pipe after laying;
- protect shallow drains with additional 50mm of shingle and precast concrete slabs as detailed in the Building Regulations Approved Document H if the crown of the pipe is less than 200mm under terraces, 600mm under lawns and beds and 900 under drives carrying commercial vehicles.
- workmanship shall conform to BS 8000-14

B1066 PLASTIC INSPECTION CHAMBERS: to BS EN 13598-1
Manufacturer: ....................

B1070 BRICK INSPECTION CHAMBERS to be constructed of Engineering bricks Class B built in cement mortar 1 : 3. Thickness 225mm in Flemish Bond built off 150mm thick concrete. Benching to be cement mortar 1 : 3 sloped smoothly down into the drainage channel.

B1075 INSPECTION CHAMBER COVERS
Type: ....................
Grade: .....  
Size: ...... x ......mm

B1080 INSPECTION, CLEANING AND TEST: Check line and gradient of pipes and do not backfill any drain without approval. Keep drainage system free of obstruction till hand-over. Rod and flush out drains just before hand-over. Pressure test drains to 50mm w.g. if instructed by the designer.
B1100: Filter systems can be of the gravel or gauze types or based on UV light.

B1105: Alternative liner materials are black EPDM rubber or black butyl sheet. Liner thickness 0.75mm

B1110: The use of both sand and geotextile is a precaution against penetration of the pond liner by stones or other sharp objects. It may be difficult to retain the sand on steep or vertical sides.

B11 Water supply, irrigation and ponds

B1100 WATER PUMP AND FILTER SYSTEM
   Pump manufacturer and reference: ..................................................
   Filtration system type: ..............................
   Manufacturer and ref: ..........................
   Electrical supply: as Specification section B12 ..............

B1105 POND LINER to be: Material: ............. Thickness ......mm

B1110 POND CONSTRUCTION WITH BUTYL / GRP LINER
   Excavate to the dimensions shown on drawing No. ........... and install any sub-pool drainage system shown.
   Consolidate any backfilling thoroughly.
   Remove all stones or sharp debris over 40mm in any dimension from surface of excavation.
   Blind surface with 50mm of sharp damp sand.
   Lay geotextile liner to sides and bottom as per construction drawing.

B1115 LAYING POND LINER:
   Lay liner to the excavated contours and form a minimum number of neat tucks with the surplus material to leave the general areas of liner unwrinkled.
   Overlap the pond rim with the liner by a minimum of 150mm all round.
   Slowly fill pond with water adjusting the liner tucks as necessary prior to securing liner at the rim.
   On completion of edge detailing, empty pond and remove all debris.
   Ballast the bottom of liner with 100mm depth of rounded pea shingle before final filling with water.
**B1125: PREPARING FERRO-CONCRETE POND LINING**

Excavate to required shape avoiding curves with a radius less than 400mm. Consolidate excavated surface.
Line with galvanised wire mesh with a 20mm mesh size.
Cut and fold mesh sufficient to ensure it lies flat on the excavation.
Tie joints together at 300mm centres with galvanised wire.
Spray the excavation thoroughly to dampen the ground and reduce the absorption of water from the concrete.

**B1130 APPLYING FERRO-CONCRETE**

Mix 1 part Cement with 1½ - 2 parts sharp sand with plasticiser.
Apply concrete with a firm pressure to force the mix through the mesh. The minimum finished thickness to be 25mm with 10mm cover over the mesh.
Apply concrete with a wood float in one operation to avoid weakness at day joints in the lining.

**B1135 CONCRETE POND CURING:**

Completely cover with polythene for 3 days then fill pond with water for a week. Empty and refill pond 3 times at further weekly intervals.
B12 Electrical

B1201 ELECTRICAL WORK shall only be carried out by firms who are:
- registered with the NICEIC or
- approved by the Electrical Contractor’s Association;
- experienced in low voltage external lighting installations.
The design and installation shall be to the latest edition of the IEE Regulations and Part P of the Building Regulations.

B1202 COMPLETION CERTIFICATE
The electrical contractor shall issue an NICEIC test certificate (or shall obtain a Local Authority Building Control equivalent) for all work that is notifiable under Part P of the Building Regulations.

B1205 UNDERGROUND DUCTING to be
- 50mm diameter PE waste pipe and fittings to BS 5255 for extra low voltage cable;
- 100mm diameter pvc-u ducts for mains voltage cable;
- jointed with solvent welded fittings;
- radius of bends to be not less than 4 times the duct diameter
- minimum depth 450mm below finished ground level;
- left with draw wire and plugged ends for electrician.
Provide separate ducts for telephone and audio-visual cabling. Ensure that ducts carrying mains voltage are kept a minimum of 100mm away.

B1210 MAINS VOLTAGE CABLE: to be pvc/swa/pvc steel wire armoured cables.
When buried, trench to be at least 350 below final ground levels and be marked with warning tape or tiles. Cables buried under paving are to be in ducts. Temporarily seal the ends of all SWA cables. A separate core of the cable shall be allocated for earth protection.
B1215 SEPARATED EXTRA LOW VOLTAGE (SELV) CABLE: unless otherwise approved shall be Heavy Duty Rubber Flexible (type H07) having a minimum cross sectional area of 2.5mm², and be suitable for exterior and buried underground use. Alternative cable specifications must meet EU Regulations, must have stranded conductors and be rated to limit the cable voltage drop to 0.6v between the transformer and the furthest fitting.

B1220 SEPARATED EXTRA LOW VOLTAGE (SELV) LIGHTING:
• use twist or crimp connectors to join any supply cable to the leads of the fitting;
• protect junction of the leads with a heat shrunk sleeve;
• route SELV supply cables in positions where they are least likely to be disturbed;
• when routed in trees allow slack for growth and wind movement.

B1225 TREE ROOTS: Avoid routing underground cables near existing trees. Where this is unavoidable work to clause B116

B1230 POSITIONING OF WIRING AND EQUIPMENT: to be as unobtrusive as possible and neatly clipped back. Bury or conceal equipment and junction boxes behind hard landscape features or planting where possible. Above ground wiring, equipment, transformers and similar items to be coloured to blend with the background. Above ground cables to be a minimum of 100mm above ground level and be clipped to a permanent and robust construction. Woven or lap boarded panel fencing is not acceptable as a support structure.
B1235 ABOVE GROUND ENCLOSURES:
All external equipment shall be securely mounted not less than 150mm above adjacent ground level and have cable entry from below. PVC/SWA/PVC cables are to be terminated in an approved shrouded exterior gland incorporating an armour clamping earth ring.

B1240 BELOW GROUND ENCLOSURES: Buried transformers and any other below ground equipment shall be warranted by their manufacturer as suitable for below ground use. Use stainless steel glands for cast aluminium components. Bed components on a bed of pea shingle or coarse sand and ensure adequate drainage is available.

B1245 CIRCUIT PROTECTION: all circuits which may be used to power fixed external equipment must be protected with a permanent, fixed RCD not of the plug-in or in-line type and a circuit breaker of appropriate type and rating.

B1250 INGRESS PROTECTION: Ingress protection rating shall be not less than IP55. Seal all glands and blanking plugs with silicon sealant. Use PTFE tape on all threaded glands.

B1255 TRANSFORMERS:
- provide all transformers with a fuse protection on the primary side and a thermal cut-out unless these are provided as an integral part of the equipment;
- transformers supplying SELV lighting (under 50 volts) shall not power any other equipment;
- all transformers shall provide SELV supply on the secondary side to meet EU Directives.

B1261 EXTERIOR LIGHTING FITTINGS to BS 4533 and BS EN 60598-1
B1265 RATING OF SWITCHES shall be appropriate to the load allowing for inductive loads.

B1270 EXISTING INSTALLATIONS: do not disturb any existing electrical installation without specific approval.

B1275 AS-INSTALLED DRAWINGS: on completion provide the employer with:
   • plans to show all equipment positions and cabling routes;
   • operating and maintenance instructions for all equipment.
C - Plants and planting - Workmanship and Materials

C1 General preamble

C102 WATER SUPPLY RESTRICTIONS
If the water supply is, or is likely to be restricted, do not carry out planting or seeding until instructed. If planting or seeding has been carried out, obtain instructions on watering.

C103 SUPPLY & PLANTING OF TREES & PLANTS shall comply with the 'Code of Practice for Plant Handling' drawn up by the Committee on Plant Supply and Establishment (CPSE).

C105 PLANT LABELING:
All plants delivered to site shall be clearly and durably labeled with exact genus, species, cultivar and supplier. Where plants are grouped one label is to be retained in place on completion of the work.

C110 MAINTENANCE INSTRUCTIONS:
Provide typed calendarised instructions for the maintenance of all planting for a full year and pass to Employer within 1 month of completing the work.

C111 PLANTING FAILURES: all plants including trees, which fail before Practical Completion or within any defects liability period stated in Section A2 of this Specification, shall be replaced with approved equivalent material to match the size of adjacent plants of the same species at the next suitable planting season.


C110: On small projects lasting less than a year it is more likely that a separate contract will be let if the client requires periodic maintenance work. This clause is included to remind designers of the need to co-ordinate any replacement planting with ongoing grass cutting and maintenance work. See also Appendix A.

C111: Check whether you have confirmed the defects liability periods in Section A2 or by some other method. If so, a separate plant establishment Maintenance Contract will be required to last as long as the defects liability period.
C115 appropriate products for professional use only include the following types:
Glyphosate for perennial weeds/brushwood.
Paraquat/diquat for annual weeds.
Dichlorprop as a selective pre- and post-emergent herbicide

C115 WEED KILLING:
Where chemical weed killing is specified apply at least 7 days before cultivation. Use products appropriate to the type of weeds to be killed.

C120 GRASS MAINTENANCE
Apply a selective weedkiller the following spring in early April. Apply a N15.P5.K5. fertiliser the following spring in late April. Water using a fine spray whenever required to ensure continuing healthy growth until Practical Completion.

C125 GRASS CUTTING: when the grass is between 50 and 75mm high, clear the lawn of surface debris. Make a first cut with a sharp cylinder mower with a fitted grass box to reduce the grass to 25mm. Dispose of all grass cuttings to an agreed location. Maintain the grass within these limits by mowing at intervals until Practical Completion.

C130 ROLL lawn after the first cut with a mechanical drum roller weight ......kg
C2 Seeded lawns and meadows

C200 GRADIENTS AND LEVELS: Conform to the spot heights on drawings and ensure that falls are even without humps or hollows. Unless otherwise specified final levels after settlement are to be 20mm above any adjacent paving.

C205 PRE-EMERGENT WEEDKILLER: Before cultivation apply an approved weedkiller unless the ground has been kept fallow and weed free for a period of 6 months.

C210 PRE-EMERGENT WEEDKILLER: Before cultivation treat weeds with ............... according to manufacturer’s recommendations

C215 GROUND PREPARATION FOR LAWNS: Rotovate areas to be seeded to a minimum depth of 150mm Remove all debris exceeding 50mm in any dimension brought to the surface including stones, vegetation and rubbish. Ensure 100mm minimum depth of topsoil over all areas. Rake and roll the area to produce a firm and level seed bed. Reduce top 30mm of soil to a fine tilth not exceeding 10mm particles. Obtain approval before seeding the prepared ground.

C220: Most wild flower meadows will require less maintenance and are more sustainable when grown on soils of low fertility.

C225: For example Pbi or Gem ‘Growmore’

C220 GROUND PREPARATION FOR WILD FLOWER MEADOWS: Remove … mm of top soil to reduce fertility and problematic weed seed. Harrow to reduce remaining soil to a good tilth not exceeding 25mm.

C225 FERTILISER Dress areas to be grass seeded with N7:P7:K7 fertiliser at a rate of 50g/m². and work into the top 30mm of tilth 7 days before sowing/turfing and water in well.
C230: For example, WW Johnson & Sons of Boston, Ref: JL23 applied at a rate of 30g/m².

The specification of alternative suppliers is desirable for clauses C230 to C240. Allowing the contractor choice may encourage more competitive tendering.

C255: Example. British Seed Houses Ltd. Ref: WFG6 - wild flora and ornamental grasses mix for heavy clay soil or Landlife Wild Flowers Ltd.,

C261: Check suppliers recommended sowing rate which will depend partly on whether the mix contains grass seed.

C265: The removal of cuttings is to prevent mulching and nutrient build-up. Cutting from year 2 onwards depends on the seed mix. It should normally cease between April and September to allow the seed to ripen and drop.

C230  GRASS SEED with ryegrass for utility areas to be:

C235  GRASS SEED for sunny lawn areas to be one of the following:

C240  GRASS SEED for fine lawns in shade to be one of the following:

C245  TURF EDGING:
Lay a margin of turf to all edges before seeding, a minimum of 300mm wide. Turf grass mixture to match the seeding specification. Marry in the levels and trim turf to line.

C250  SOWING GRASS SEED:
During suitable weather use a broadcast machine to spread the seed in the quantity specified. Apply in two equal passes in transverse directions. Rake in the seed and roll with a lightweight roller.

C255  WILD FLOWER SEED MIX: ..................................................
or similar approved and appropriate mix.

C261  SOWING WILD FLOWER SEED MIX:
Sow at a rate of ...gm/m² preferably in September or October
Ensure even mixing of all seed varieties at all times
Bulk up the seed with 10 times the volume of sawdust or silica sand.
Carefully rake the seed into the surface and role to consolidate.

C265  CUTTING WILD FLOWER MEADOWS (FIRST YEAR):
When the sward reaches 100mm cut to 50mm high using a hand rotary mower. Rake off and remove cut material by hand.
Thereafter, mow every 2 months till the end of the first growing season
C300: insert one of the following BS types:
- general purpose with ryegrass,
or - general purpose without ryegrass,
or - fine sport/ornamental.
Standard domestic turf is supplied in 1m² metre rolls 406mm x 2490mm (60m² per pallet) or for large schemes where tractor laying is possible 800mm x 25m rolls are supplied.

C3 Turfing

C300 TURF QUALITY for ………………to be…………………………
- to BS 3969 with weedkiller applied 1 to 3 months before lifting;
- 900 x 300 minimum size x 25mm minimum even thickness.
Supply a representative sample to site for approval before delivery.

C305 DELIVERY to be phased to ensure laying within 48hrs. of lifting. Stacks not to exceed 1.4m high.

C310 PREPARATION FOR TURFING:
Remove all weeds, rubbish and stones over 30mm in any dimension.
Cultivate topsoil to a minimum depth of 100mm.
Reduce top 30mm to a fine tilth and on clay or heavy loam soils work in 50% of coarse sharp sand to produce a 60mm layer.

C315 FERTILISER:
Dress areas to be turfed with ………… N7:P7:K7 fertiliser at a rate of 50g/m². Work into the top 30mm of tilth 7 days before turfing and water in well.

C320 LAYING TURF:
Transport turf over close butted timber planks.
Lay turf in consecutive rows.
Lay turf from timber planks protecting previously laid turf.
Lay turf close butted breaking the joint in alternate rows.
Use only whole turves at margins.
Consolidate lightly with wooden beaters.
Brush in finely sieved topsoil to fill all joints.
Peg turfs with wooden pegs on slopes exceeding 30°.
Ensure final surface is 20mm above any adjacent hard surface.

C315: For example Gem or Pbi ‘Growmore’.
C325 TURFING ADJACENT TO OBSTRUCTIONS
Leave a neat 300mm radius of soil round all newly planted trees. Unless otherwise shown on the drawing, turf right up to existing established trees, walls, fences and similar obstructions, leaving no soil uncovered.

C330 CUT AND ROLL lawn after approximately 6 weeks using a sharp cylinder mower and a roller weight .......kg. Spread and brush in a top dressing of fine sieved topsoil and sand 50:50 to fill cracks and depressions.

C335 MAINTENANCE OF NEW TURF:
Apply a N15.P5.K5. fertiliser the following spring in late April. Water using a fine spray whenever required to ensure continuing healthy growth until Practical Completion.

C335 The practicality of this requirement depends on when the turf is to be laid and the length of contract.
C400: Specify nursery if required.

C405: Inorganic fertilisers such as bonemeal should be applied in the autumn. Use organic or slow release fertilisers in the spring.

C4: Shrubs, herbaceous, ground-cover and aquatic plants

C400 NURSERY STOCK: as specified in the National Plant Specification (NPS) published by the Horticultural Trades Association. Obtain plants from .................

C405 PREPARATION FOR PLANTING:
Apply approved weedkiller.
Rotovate ground and remove stones over 50mm in any dimension.
Remove existing unwanted plants including their roots.

C410 SOIL CONDITIONING: apply and lightly dig into the surface one of the following:
- well rotted farmyard manure at a rate of 5kg/m².
- concentrated bagged animal manure at the rate of ........k/m
- well rotted leaf-mould or spent mushroom compost at a rate of ……kg/m².

C415 FERTILISER: incorporate bonemeal at the rate of 70gm/m² into the topsoil.

C420 PLANT HANDLING, DELIVERY AND STORAGE: to be as recommended in the National Plant Specification. Phase the delivery of plants so that there is only sufficient for planting within 48hrs. of delivery or, if necessary, ensure suitable temporary storage before final planting by heeling in or lining out.

C426 PREPARATION OF PLANTS:
Remove inorganic containers.
Check for and reject any damaged, diseased, poorly rooted pest infested or wrongly identified plants
Carefully prune any minor root damage.

Do not feed aquatic plants
C435: Alien (ie imported) backfilling often inhibits plant establishment and growth. If needed, imported soil should be well mixed with the existing soil type. Refer to the National Plant Specification.

C440: Pruning should be minimal. Woody plants ‘live’ off the starch stored in their twigs at the beginning of their first growing season after transplanting.

C430 PLANT:
- in position shown on the drawings or in the absence of drawings space evenly;
- at the rate specified, avoiding regimented rows unless specifically shown;
- in holes large enough to allow adequate root spread and tease out congested root balls of container grown plants;
- excavate holes at least 75mm below the root system and a min. 400mm for climbers;
- set plants so that their original soil level matches the new surrounding ground and
- with their best side displayed.

C435 BACKFILLING to be selected existing topsoil. Add 600g/m³ of bonemeal to stimulate root growth. Any additional imported organic matter should be well mixed with at least an equal quantity of existing soil. The backfill is to be evenly worked round the roots and well heeled in.

C440 IMMEDIATELY AFTER PLANTING:
Lightly prune back any damaged or malformed growth. Rake soil to an even, fine tilth to the required levels.

C445 BULBS, CORMS AND TUBERS: to BS 3936 Part 9

C450 PLANT BULBS:
- under plugs of turf when in existing grassed areas;
- grouped at random for naturalised bulbs.
- with the base of bulb at the correct depth for the species and in contact with the soil;
- with fine, stone-free topsoil backfill.
PLANTING SEASON:
Plant out non-container grown plants only between October and March inclusive unless otherwise agreed. Container grown or containerised plants may be planted out at any time of year except when the temperature is below 4°C on a falling thermometer, in frozen or waterlogged ground or in drought conditions.

WATERING:
Saturate the root ball of container grown plants before planting. Thoroughly water plants immediately after planting and again before mulching.

MULCHING:
Fork soil to a medium tilth in the areas to be mulched. Apply 75mm of mulch with mature and coarse wood or bark chips before Practical Completion.

POLYTHENE CRATES FOR AQUATIC PLANTS:
Provide sufficient crates of appropriate size to accommodate all pond and marginal plants as scheduled or shown on the drawing. Crates to be of the fine hole pattern without liners; Use rotted turf or good topsoil free of fertiliser, manure or herbicide to fill the crates 75% full. After planting apply a 25mm layer of washed pea shingle with a neutral pH to retain the soil in place.

WATER LILY PLANTING:
Remove all mature leaves and trim roots with a sharp pruning knife before planting. Temporarily support newly planted crates on bricks to give 75mm to 150mm of water over the top of the crate until established.
C501: The size of standard or larger trees is normally measured by their girth in centimetres.

C510: This is suitable for domestic situations where vandalism is no problem. Double or triple staking to just below the first fork/crotch may be required for better support.

C515: Specify guying for stabilising some types of mature transplanted trees, particularly conifers.

C520: In heavy clay soils it may be necessary to prevent water-logging of tree pits by providing drainage.

C525: Use this clause to specify tree shelters, guard rails etc., as appropriate to protect from grazing animals/pests or vandalism. Also specify any special measures against excessive transpiration as appropriate to species and recommended by the nursery.

C5 Trees

C501 TREE QUALITY, SIZE AND TYPE: to the National Plant Specification with size as noted on drawing or schedule.

C505 TREE STAKES: 75mm minimum diameter, free of bark, with one end pointed.

C510 STAKING FOR TREES UP TO ‘STANDARD’ SIZE. Drive stake upright 450mm into bottom of excavated planting pit close to the tree stem on the windward side. Cut off at one-third the height of the tree and secure tree with approved ties and spacers at the top of the stake.

C515 UNDER/OVER GROUND GUYING to be provided for the following trees: .............

C520 PLANT TREES:
- upright and in exact positions shown on the drawings;
- in holes large enough to allow adequate root spread;
- so that their original soil level matches the new surrounding ground;
- so that the original orientation is maintained.
Excavate holes at least 75mm below the root system and loosen soil in base of hole.
For root balled or bare root stock, cut back any damaged roots to sound growth.

C525 TREE PROTECTION: .................................................................
C535: No fertiliser is necessary for tree planting backfill. Provide a top dressing of slow release fertiliser in the autumn of year 1 or inorganic fertiliser in the spring of year 2.

C540: General pruning should normally be delayed to years 2 or 3 after planting.

C531 WATERING AND AERATION PIPES: provide perforated plastic watering pipes in a circle one third down around the root ball.

C535 BACKFILLING to be selected existing topsoil where available. Any imported soil/organic matter should be well mixed with at least equal quantities of existing soil. The backfill is to be evenly worked round the roots and well heeled in leaving the top slightly proud of the existing level to allow for settlement.

C540 PRUNING:
Immediately after planting carry out light formative pruning according to species. Remove damaged or weak growth.

C545 WATERING AND PROTECTION:
Water thoroughly immediately after planting and at intervals as necessary until Practical Completion or until the end of the defects liability period named in the Contract if later. After the first watering, mulch with 75mm of composted coarse wood or bark chippings over the excavated area.

C550 MAINTENANCE AND REPLACEMENT:
Replace any dead or dying trees at the end of the Defects Liability Period with trees similar to those specified. In the following year in March or April apply N15:P15:K15 fertiliser round all trees and keep the ground weed free for 1 metre diameter round each tree.
C6 Work to existing trees and plants

C600 CONTRACTOR’S LIABILITY FOR DAMAGE:
Plants damaged by the Works are to be repaired or replaced with equal approved species at the next suitable planting season at the discretion of the Designer and at the Contractor’s cost. Any replaced trees or shrubs shall be maintained by the Contractor for 12 months.

C605 SITE CLEARANCE:
Do not burn vegetation on site without approval.

C610 SUPERVISION OF TREE WORK:
The removal of major branches or felling of trees over 6m high and similar operations shall only be carried out by specialist subcontractors with £… million public liability insurance.

C615 TREE SURGERY: to be to BS 3998 ‘Recommendations for Tree Work’ unless otherwise agreed.

C620 BRANCH REMOVAL:
Cut branches sufficiently far from the main stem to leave the branch bark ridge intact. Avoid moisture traps and horizontal surfaces. Remove heavy branches in sections. Dead or damaged wood will always be removed whether or not specifically scheduled.

C625 LIFTING THE CROWN:
Remove branches from the main trunk or from main vertical branches so that the space below the canopy is clear up to the specified height.
C640: Clients with space to compost bark and wood chippings for 3 – 6 months may wish to save the cost of removal and use the material for mulching.

C630 REDUCING AND SHAPING:
Carefully select and remove branches and prune subsidiary branches so that the height and/or spread are reduced to the specified dimensions without destroying the shape and character of the species.

C635 TREE REMOVAL means the complete removal from site of all arisings including stumps and root systems down to 500mm below finished ground level or as otherwise noted on the drawings. Backfill any resulting excavation with topsoil.

C640 WOOD CHIPS from stump and brushwood chipping is to be stored on site in an approved location for use by the employer.
The inclusion of a detailed schedules helps the Tenderer to price accurately and gives you the detailed information to price variations should changes be made later during the contract.

**Tree Schedule** *(Sample format only)*

Large field grown specimen trees should also be specified by the number of times they have been transplanted in the nursery.

<table>
<thead>
<tr>
<th>Name</th>
<th>Designation</th>
<th>Height (m)</th>
<th>Girth (cm)</th>
<th>Root system</th>
<th>Plant location</th>
<th>Quantity</th>
<th>Unit price (£ p)</th>
<th>Total cost (£ p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TREES</td>
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</tr>
<tr>
<td><em>Fraxinus excelsior</em></td>
<td>Standard</td>
<td>2.7 – 3.0m</td>
<td>8 – 10cm</td>
<td>Bare root</td>
<td></td>
<td>1</td>
<td></td>
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</tr>
<tr>
<td><em>Quercus robur</em></td>
<td>Feathered</td>
<td>1.8 – 2.4m</td>
<td>---</td>
<td>Rootballed</td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Plant Schedule** *(Sample format only)*

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Further description</th>
<th>Size (mm)</th>
<th>Container volume</th>
<th>Location/ Bed No.</th>
<th>Quantity</th>
<th>Unit price (£ p)</th>
<th>Total cost (£ p)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SHRUBS</strong></td>
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<tr>
<td><em>Ceanothus</em> <em>‘Autumnal Blue’</em></td>
<td></td>
<td>450-600</td>
<td>3L</td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Phormium cookianum</em></td>
<td>‘Cream Delight’</td>
<td>450 – 600</td>
<td>3L</td>
<td></td>
<td>24</td>
<td></td>
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</tr>
<tr>
<td><em>Lavandula spicata</em></td>
<td><em>augustifolia</em> ‘Hidcote’</td>
<td>200 – 300</td>
<td>2L</td>
<td></td>
<td>100</td>
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<tr>
<td><strong>HERBS</strong></td>
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<tr>
<td><em>Allium sativum</em> (garlic)</td>
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<tr>
<td><em>Salvia officinalis</em> (sage)</td>
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<td>10</td>
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<tr>
<td><strong>CLIMBERS</strong></td>
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<tr>
<td><em>Clematis Montana</em> <em>‘Grandiflora’</em></td>
<td></td>
<td>600 – 900</td>
<td>2L</td>
<td></td>
<td>3</td>
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<tr>
<td><em>Hydrangea petiolaris</em></td>
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<td>300 – 450</td>
<td>3L</td>
<td></td>
<td>4</td>
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<tr>
<td><em>Lonicera periclymenum</em></td>
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<td>600 – 900</td>
<td>3L</td>
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# Annualised Cultivation and Maintenance Schedule (sample format only).

<table>
<thead>
<tr>
<th>Plant name</th>
<th>Months of the year.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Jan</td>
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<tr>
<td><strong>Achillea ‘Moonshine’</strong></td>
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<td></td>
<td></td>
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<tr>
<td><strong>Alchemilla mollis</strong></td>
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<tr>
<td><strong>Bergenia cordifolia ‘Purpurea’</strong></td>
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<td></td>
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<tr>
<td><strong>Eryngium planun</strong></td>
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<td></td>
<td></td>
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<tr>
<td><strong>Fuchsia ‘Madam Cornelissen’</strong></td>
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<tr>
<td><strong>Hemerocallis ‘Stafford’</strong></td>
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<td></td>
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<tr>
<td><strong>Iris ‘Jane Phillips’</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Key**

- planting period
- divide and replant as necessary
- dead-head
- leaf mould mulch
- cut down to ground level
Schedule of model clause headings

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   A625 SAMPLES
   A630 APPROVAL
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Appendix C
<table>
<thead>
<tr>
<th>Appendix C</th>
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<tbody>
<tr>
<td>B740</td>
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</table>

| B800      | SET OUT AND ERECT FENCING |
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| B810      | POSTS SET IN CONCRETE |
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| B1015     | MOLE DRAIN |
| B1020     | FIN DRAIN |

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| B1035     | GEOTEXTILE FILTER MEMBRANE |
| B1041     | CLAY POROUS PIPES LAND DRAINS |
| B1045     | RIGID PLASTIC PERFORATED LAND DRAINS |
| B1050     | EXCAVATED MATERIAL |
| B1055     | PVCu DRAINS FOR SURFACE WATER |
| B1061     | LAY AND PROTECT UNDERGROUND DRAINS |
| B1066     | PLASTIC INSPECTION CHAMBERS |
| B1070     | BRICK INSPECTION CHAMBERS |
| B1075     | INSPECTION CHAMBER COVERS |
| B1080     | INSPECTION, CLEANING AND TEST |

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C620 BRANCH REMOVAL
C625 LIFTING THE CROWN
C630 REDUCING AND SHAPING
C635 TREE REMOVAL
C640 WOOD CHIPS
Trade Names mentioned in the Model Specification

Note: the use of a trade name in the text of this publication is as an example only and is not to be taken as an endorsement of that product.

B356 Hydraulic Lias Limes Ltd., 01935 815290
B365 Tarmac - coloured mortars 01902 382632
B406 Ruberoid Building Products Ltd. ‘Permbat’; 01257 259793
B455 RIW Ltd., ‘Heviseal’ 01344 861988
B466 Expamet Building Products 01429 866688
B510 + B530 Arch Timber Protection ‘Tanalith Extra’, ‘Ensele’. 01977 714000
B510 + B530 Osmose ‘Naturewood’ 01628486644
B545 Fosroc Expandite ‘Galvafroid’ 01827 262222
B601 Sikkens Cetol Novatech Akzo Nobel Woodcare 01480 496868
ICl Weatherseal Wood Stain 0870 2421100
B605 Jotun ‘Demidekk’ 0207 4812741
Akzo Permaglaze MVP Acrylic Gloss 01480 496868
B775 Scotts Co. Ltd., ‘Casoron G’. 01473 830492
B780 + B1035 Terram Ltd. ‘700’ and ‘900’ 01495 757722
C315 Pbi ‘Growmore’ 0845 3454100
C230 WW Johnson and Sons 01205 365051
C255 British Seed Houses Ltd. 01522 868714
Landlife Wildflowers 0151 7371819

Appendix D (updated to March 2006)

BS 4652 Specification for zinc-rich priming paint
BS 4660 Specification for PVC-U pipes …for below ground drainage…
BS 4729 Specification for bricks of special shapes and sizes
BS 4962 Specification for plastic pipes … for use as sub-soil field drains.
BS 4987 Coated macadam for …paved areas.
BS 5255 Specification for thermoplastic waste pipes and fittings
BS 5589 Code of Practice for preservation of timber. (obsolescent)
BS 5837 Trees in relation to construction.
BS 7263 Precast concrete flags.
BS 8000 Pt 1 Code of Practice for excavation and filling.
BS 8000-12 Code of Practice for …painting.
BS 8000-14 Code of Practice for below ground drainage
BS EN 197-1 Cement. Composition, specification and conformity …
BS EN 206-1 Concrete …
BS EN 295 Vitrified clay pipes and fittings … for drains.
BS EN 338 Structural timber. Strength classes.
BS EN 459-1 Building lime.
BS EN 460 Durability of wood … hazard classes.
BS EN 771-1 Specification for masonry units; clay (bricks).
BS EN 771-3 Specification for masonry units; aggregate concrete (blocks)
BS EN 845-1 Specification for … masonry ties…
BS EN 934-3 Mortar admixtures…. air retaining (plasticizing) admixtures
BS EN 942 Timber in joinery – general classification of timber quality.
BS EN 1008 Mixing water for concrete
BS EN 1401-1 Plastic piping … for underground drainage (PVC-U).
BS EN 10223-2 … Hexagonal steel wire netting
BS EN 12620 Aggregates for concrete
BS EN 13139 Aggregates for mortar
BS EN 13598-1 Plastic piping systems … including shallow inspection chambers.
BS EN 60598-2, -7 Luminaries … Portable luminaries for garden use.
BS EN ISO 11091 Construction drawings – landscape drawing practice.

British and European Standards

BS 1196 Specification for clayware field drainpipes and junctions.
BS 1199/1200 Specification for building sands from natural sources.
BS 1722 -4, -5, -7, -11. Fences
BS 3470 Specification for field gates and posts (obsolescent)
BS 3921 Clay bricks (current but obsolescent in 2006)
BS 3936-9 Specification for bulbs, corms and tubers.
BS 3969 Recommendations for turf for general purposes.
BS 3998 Recommendations for tree work.
BS 4027 Specification for sulfate-resisting Portland cement.
BS 4428 C.P. for general landscape operations (excluding hard surfaces).
BS 4533 Luminaries see also BS EN 60598