HEATHER'S MODEL SPECIFICATION FOR LANDSCAPE AND GARDEN CONSTRUCTION

SGD EDITION 1 **Revision 5**

October 2019

SGD

SOCIETY OF GARDEN DESIGNERS

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Foreword to Revision 5 of Edition 1

The SGD are pleased to offer this revised and updated version of the John Heather's Model Specification for Garden Design. First published in 1995 to address the requirement for detailed specifications suitable for Garden Design schemes, the 'Model' can be adapted for individual projects. The SGD is committed to updating the document regularly, as part of the agreement with the Heathers, to ensure that standards move with the times and reflect current recommendations for good practice on site. The SGD encourages all users of this document to ensure they are working from the current version.

The SGD hopes that this document will improve standards within the profession from Designer to Landscape Contractor. Students of Garden Design also benefit by using this document as a learning tool, developing good practice right from the start.

This specification forms part of a suite of documents to support the scale and types of projects our members are carrying out. Also available from the SGD are the JCLI Consultancy Agreement and two Homeowner Landscape Contracts with the associated JCLI Practice Note No 10, Amendments for use in Scotland and the Model Forms for use with the contract.

Many thanks go to John and Duncan Heather for passing on the rights of this document to the SGD and to Colin Moore who conscientiously revised these documents on behalf of the SGD.

Sarah Morgan
SGD Chair 2017-2020

Foreword to Edition 1 (November 2011)

This document is a revised and updated version of John Heather's Model Specification for Garden Design. The original book was first published in 1995 and its purpose was to fill several gaps: specifications for landscape works existed, but they covered larger scale projects and were not finely tuned enough to meet the more detailed needs of garden designers. So this book was the first to address this need. It was evident too at the time that such a document could provide one of the fundamental learning tools for students. It has certainly succeeded in this respect and is well regarded and recommended by many of the colleges – and many have been shouting at us to know when this is back in production. The other significant role that this document has achieved is to improve standards, both within the profession and with contractors and the work on site. All of these factors represent the sort of achievements which every professional body seeks for its members.

When John Heather approached the SGD a year or so ago and offered us the rights to his book we leapt at the opportunity. As part of the agreement we willingly accepted the obligation to ensure this document is regularly updated, and also revised as necessary to meet changing needs. Anyone familiar with the original book will recognise it in its new format. Anyone new to it will hopefully find it easy to navigate and use. It remains a 'model' specification to be adapted to suit particular projects but it has been completely and thoroughly revised and new sections added. We have outline plans for subsequent additions and changes, and are keen that this document remains relevant and useful in achieving standardisations and good practice. We have established a steering group to direct the future development of the specification and we welcome any contributions or suggestions our readers or users may have.

This specification forms part of a suite of documents and training the SGD is producing and promoting to support the scale and type of projects our members are carrying out. Accompanying new documents include the new JCLI Consultancy Agreement and two Homeowner Landscape Contracts with the associated JCLI Practice Note No 10 and Model Forms for use with the contract.

We are indebted to John Heather for having pioneered this work and also for his generosity in passing on the rights to the SGD and thereby giving us more ideas of what we could do. Also to Colin Moore who has applied himself wholeheartedly to this project ably assisted by the steering group of Alex Johnson MSGD, Paul Hadley and Andrew Wenham MSGD. When I said to Colin once some time ago in the former Landscape Institute library that I thought he ought to write a book on contracts and specifications little did I think it would happen quite in this way. While Colin and the steering group have put in the elbow grease, John Wyer MSGD had the vision to see the potential value and benefits for the Society in taking a lead with these contract documents. An excellent team of people.

Annabel Downs MSGD
Chair 2009 - 2012

Introduction

The Society of Garden Designers took over the rights to John Heather's *Specification Writing for Garden Designers* in 2011 and produced an extended and updated version as SGD Edition 1 of *Heather's Model Specification for Landscape and Garden Construction* in November 2011. The specification was subsequently updated approximately every 18 months, sometimes with additional sections added. This specification is Revision 5 of Edition 1.

Purpose and scope

The main purpose of a specification is to provide sufficient descriptive information about a project including the quality of materials and workmanship, so that a contractor is able to realistically price the work and subsequently build the project to the standard required.

Writing a good specification requires skill, experience and judgement. One of the most valuable aspects of this document is that it explains and interprets the specification clauses which focus on those relevant to garden and landscape design projects.

This model specification can be used by garden designers, landscape architects and students of these professions at three levels: as a guide to writing and producing project specific specifications; to inform ideas during the process of designing; and the sources and references quoted can direct the reader to specific guidance and relevant background information.

The format of the Heather specification was influenced by *Project Specification: A Code of Procedure for Building Works* (1987), CCPI and those familiar with the much larger National Building Specification (NBS) will recognise a similar approach.

When to use a specification

Specification information is required for every project which is to be built.

For very small projects, where typically a contract is established between the client and contractor by an exchange of letters (offer and acceptance); and when the contractor is known by the client or consultant to be reliable and to consistently produce work to the quality required, the relevant specification information is generally added onto the drawings.

For all other projects it is normal to produce a separate specification document and to use a Standard Form of Contract which has been specifically developed for garden and landscape projects like one of the two JCLI Landscape Contracts for Home Owner / Occupier, or the JCLI Landscape Works Contract. The Heather specification is designed for use with these contracts.

Project information supplied to contractors typically includes:

- Drawings which illustrate the work required or provide other illustrative information;
- Specification which describes the work required and provides other descriptive information;
- Bills of Quantity or Work Schedules which quantify the work required and which the contractor prices.

The distinction between these 3 document types is very important and duplication of information both between documents and within documents should be avoided as far as practical since duplication generates errors.

Descriptive information on drawings should be limited to key words to identify types of area or elements and to specification clause numbers (eg 'Field Gate: spec B850'; 'Sub-base: spec B260').

The smaller simple projects often do not need a document quantifying the work, but when one is provided the specification should not include quantities. When there is no document quantifying the work the contractor measures the work to provide a price and submits rates for the different types of work (Schedule of Rates) which are used to assess the cost of changes.

Key points in specification writing

Standardisation

There are many advantages for specifiers and contractors in using a standard format for specifications including time-saving and familiarity with terms, expression and expectations.

The Heather specification and the NBS are both 'model' and not 'standard' specifications in that the specification document is revised by the user to produce a project specific specification.

In contrast, the standard wording in standard documentation (eg the JCLI Standard Forms of Contract or the Specification for Highway Works – see specification clause B260 notes below) can only be revised by the users for specific projects by producing an addendum 'add and omit' schedule, or marking up the standard printed document.

Use of key words

The scope and complexity of each project will determine the selection and use of key words. The use of key words is fundamental to the success of a set of documents and these should be established at the start of producing documentation for the contractor to price, and be rigorously applied throughout all of the documents.

- For example 'lawn' written on a drawing will invoke all the specification clauses using the word 'lawn' as well as items in the Bills/Schedules (or Schedule of Rates) using the word 'lawn' (and also 'lawn' in any measurement preambles). But if the

word ‘grass’ is used in any one of those locations but not the others then the system fails and results in confusion.

- However, if there are different areas of grass like three types of seeded areas with different mixes and two types of turfed areas using different turf as well as existing grass they all need clearly identifying separately because each will have different associated work (often including different topsoil depths, preparation, mix/turf, maintenance to establish etc).

- The names of the different areas need to be short to work as effective key words, eg ‘Turf A’, ‘Turf B’, ‘Seed C’, ‘Seed D’, ‘existing grass’ (and include any type of grass area whether lawn, shade tolerant, rough grass, wildflower grass etc).

- Any area requiring different work needs to be identified differently, eg if the same turf is laid in one area on existing topsoil but in another area on new topsoil then they should be identified with different key words.

- If there is more than one type of grass area, it must be clear in each clause of the specification referring to grass exactly which type or types of grass area the clause applies to. This can only be determined by the specification writer because it depends on each particular project. The model specification clauses include such references only to the extent appropriate for the model clauses and not to the extent that will be required for a project with different types of grass. For example, the grass cutting clause excludes wildflower areas and there is a specific clause for cutting wildflower meadows, but for a particular project there may be more grass cutting clauses needed for different types of grass/wildflower areas.

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Adding, revising or deleting clauses

Although it is not possible to cover all design permutations in a model specification, the framework is flexible enough to allow the addition or omission of individual clauses or additional sections within the document in order to accommodate the particular requirements of any project.

The specification is organised with ‘Preliminaries and general conditions’ (Section A); and materials and workmanship are included under ‘Hard Landscape’ (Section B) and ‘Soft Landscape’ (Section C). Different categories within these main sections [eg paving, drainage and shrubs herbaceous and ground cover plants] are listed on the Contents page (page 1).

Additional information should be included in the most appropriate location within the specification in order to make the specification easy to use by the contractor.

Additions and revisions should be worded in a similar way to the model specification clauses:

- Number new clauses appropriately within the numbering structure using the standard format of section letter (A, B etc) subsection number (1, 2 etc) followed by two numbers. If you wish to clearly identify project specific additional clauses, a letter (A, B etc) can be added at the end;

- Use one of the three techniques for clause writing used in the specification:
  - bullet points usually following words like ‘ … to be:’
  - listing information
  - narrative, which is only suitable for a few points (but keep it concise);

- Capitalise a few words at the start of the clause to clearly identify what it is about, particularly including key words to identify areas or elements to which the clause applies;

- Use the same terminology as the model specification;

- Be clear and concise, avoid repetitive terminology like ‘the contractor shall’ but use terminology to instruct the contractor that he must do something (generally avoiding optional wording implying he may do it if he wishes);

- Avoid ambiguity;

- Use up-to-date product and other information;

- Refer to British Standards (BSs) and other published trade standard as applicable;

- Ensure specification does not contradict quoted Standards or manufacturer’s recommendations and avoid duplicating information from Standards or other documents referred to;

- Ensure all information is provided to identify a unique product from a manufacturer, or all the performance requirements are specified for a material or product that could be supplied by several manufacturers;

- Cross reference to other specification clauses rather than duplicate information, eg Type 1 sub-base is used for many different elements but should be specified once and all other times it is needed it is referred to by a cross reference;

- Ensure a clause is capable of being enforced;

- Avoid transferring the contractor’s liability to the consultant;

- Avoid committing the consultant to onerous inspection not practical within the consultant’s fee.

It is not always possible to achieve all of these ideals.

Before deleting a clause which is considered not to be required for a particular project, search the document for the clause number (using ‘find’) to check and review any cross references in other clauses. This might mean that the clause should stay or that any clauses with the reference will need modifying. Similarly when changing the number of a clause use ‘find and replace’ to change all cross references to that clause. If creating a new clause ensure it is cross referenced to other relevant clauses.

Using Heather's Model Specification for Landscape and Garden Construction

1 Revision 5 (October 2019) of SGD Edition 1 of the specification is supplied as a pdf document containing all of the specification clauses and associated guidance. It supercedes Edition 1 (November 2011) and revisions 1 to 4 of Edition 1 (issued as Supplements dated November 2012, April 2014, December 2015, May 2017).

Four Word documents are also provided, one each for the three Standard Form Contracts in Section A2 (JCLI HLC/C, JCLI LWC, JCLI HLC) and one for the option to use a different Standard Form Contract or a bespoke agreement and conditions. Each of the documents for the three Standard Forms only includes the clauses and terminology appropriate for the Form of Contract. In the case of the different form of contract option the terminology of JCLI LWC is used but if this option is chosen the terminology will probably need changing throughout the specification in order to conform to the terminology in the chosen contract. The orange colour coding for the Scottish versions of the Standard Form Contracts remains in the Word documents but the other colour coding has been removed, see item 5 below.
Please note these documents are for the sole use of the purchaser for their own projects and are all subject to the restrictions stated on the inside front cover of this document.

2. Specifiers are responsible for ensuring that their documentation is up to date and suitable for the specific project. The British Standard and other references included in the specification were current at July 2019. It is the specifier's responsibility to check whether any BS (or any other document referred to in the specification) has been updated and if the specification needs to be revised to take account of new or updated BSs (or other documents) and that the BSs (or other documents) are relevant to their particular project. The current status and other information on BSs can be obtained by entering the BS number in the search box at http://shop.bsigroup.com/

3. Trade names mentioned in the text are examples only and should not be taken as endorsement of a particular product.

4. The specification assumes that the consultant is appointed directly by the client to provide: a design; documents to obtain prices from contractors (either one or several in competition); and that either a consultant will oversee the contractor doing the work or the client will deal with the contractor with advice from a consultant if necessary, using either an appropriate Standard Form of Contract or a bespoke agreement and conditions of contract. If the consultant and the contractor are part of the same organisation then the specification and other information (eg the sample letters and forms in the appendices) will need modifying or will not be required.

5. In the pdf document the specification clauses, guidance and, where appropriate, terminology is colour coded with colours for the different Standard Forms of Contract included in section A2. The Contracts and colours are:

- the *JCLI Landscape Contract for a Home Owner/Occupier who has appointed a consultant to oversee the work* (JCLI HLC/C) with the terminology 'Consultant', 'Customer', 'finished', etc;

- the *JCLI Landscape Works Contract* (JCLI LWC) with the terminology 'Contract Administrator', 'Employer', 'complete', etc;

- the *JCLI Landscape Contract for a Home Owner/Occupier who has not appointed a consultant to oversee the work* (JCLI HLC) with the terminology 'Customer', 'finished', etc;

- orange is used for amendments to the clauses and guidance notes for Scottish projects using the appropriate JCLI Scottish Amendment for each of the three JCLI Contracts above.

- black is used for a bespoke agreement and conditions of contract.

6. The term 'Clause' (with a capital) is used for clauses in the applicable Standard Form of Contract; 'clause' is used in all other contexts usually with a reference to the applicable document, eg 'specification clause'. In the notes to specification clauses 'this clause' is used to refer to the specification clause to which the note applies.

7. Prepare your project specification by firstly deciding which Standard Form Contract is appropriate for the project and then selecting the appropriate Word document. Select the orange options if a Scottish version of the Contract is required, otherwise delete the orange options. Modify the specification to suit your project and delete any "/"s, "*"s or "or"s between alternative words, phrases or lists. For a specification using a Scottish version of one of the Standard Form Contracts (and any other specification where colour has appeared during editing) change all text to black as part of the process of finalising the project specification.

8. The designer can add his own title page, headers and footers (including practice name, project name, date and unique reference) to the project specification to be consistent with other documents produced and with the other project documentation. Check all the pages are numbered and revise the Contents page accordingly.

9. **Brexit**. Guidance on the effects of UK leaving the EU whether with a deal or not related to legislation is available on the gov.uk website and such guidance is expected to be updated as Brexit progresses. After the UK leaves the EU changes to legislation are likely to occur relative to EU legislation and while producing a project specification specifiers should update clauses as necessary to reflect changes in legislation. This revision 5 of Edition 1 of the specification is pre-Brexit.

Heather's Model Specification for Landscape and Garden Construction

SGD Edition 1 Revision 5 October 2019

Guidance Notes

Modify title to '(Project name) Specification'

Update the contents page to correspond with the final project specification sections.

The page numbers on the contents page should correspond with the final project specification page numbers.

Add title page, headers and footers etc to final project specification as appropriate to be consistent with the corporate identity of the consultant's other project documentation.

The following appendices are provided at the end of the specification for information and to assist in preparing the documents. None of these would be appendices to a project specification. Lists like the Plant List should be a part of the specification at the end and listed on the contents page; The Form of Tender and the Letter of Invitation to Tender are issued at the same time with the other tender documents and the Letter of Acceptance at the appropriate time.

Appendices

Contents

Section A assumes that either the JCLI Landscape Contract for a Home Owner/Occupier who has appointed a consultant to oversee the work 2019 (JCLI HLC/C) or the JCLI Landscape Works Contract 2017 (JCLI LWC) or the JCLI Landscape Contract for a Home Owner/Occupier who has not appointed a consultant to oversee the work 2019 (JCLI HLC) (or the Scottish version of one of these contracts) will be used for the project. If either a different Standard Form of Contract, or, a bespoke agreement and conditions of contract is to be used then Section A must be revised accordingly. Alternatives are provided at specification section A2 for each of the possibilities for the Form of Contract (A2A, A2B, A2C and A2D).

Note: The A2 sections, other clauses or guidance and terminology associated with the individual contracts are colour coded in this document (but not in the Word documents) for ease of use.

A2A: JCLI HLC/C: Red
A2B: JCLI LWC: Blue
A2C: other/bespoke: Black
A2D: JCLI HLC: Green

Orange is used for amendments to the clauses and guidance notes for Scottish projects.

Note: The JCLI homeowner contracts (JCLI HLC/C and HLC) are only appropriate for projects for 'domestic' clients, see JCLI Practice Note No 10 Revision 3 (October 2019). The JCLI commercial contracts (JCLI LWC, LWCD and LMWC) are not appropriate for projects for 'domestic' clients.

For projects involving electrical installation see the Guidance beside

This Specification should be read in conjunction with all Contract Documents.

A Preliminaries and general conditions

A1 Description of Project

section B12 below before choosing the most appropriate contract

Note: the JCLI Landscape Works Contract with Contractor's Design 2017 (JCLI LWCD) is appropriate for 'commercial' projects but only if there is any design required from the contractor (eg fabrication drawings for carpentry, timber or metalwork, or electrical design as note to section B12 below). However, it is not a design-and-build contract.

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

Clauses A100, A105, A115 and A120 all provide information which will be completed in the chosen Standard Form of Contract and these specification clauses should be completed while studying the Contract.

A105: The short description of the works will be that which will be written in Clause A1 of the JCLI HLC/C or in Clause A1 of the JCLI HLC or in the first Recital on page 2 of the JCLI LWC. Work outside the scope of this description cannot be subsequently instructed without the agreement of both the Contractor and Customer / Customer / Employer.

A106: 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, including major recontouring of the site, land drainage work, the creation of a pond, planting and lawns. Hard landscape features include steps, walls and natural stone paving.'
This clause should be deleted if there is a Schedule of Works, Bill of Quantities or other document where all of the work is listed.

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

A105 SHORT DESCRIPTION OF THE WORKS:
…….

A106 DESCRIPTION OF THE WORKS:
…….

A110: Revise if the tender documents are listed elsewhere.

A115: *The designer's client will normally be the Customer (JCLI HLC/C or HLC) or Employer (JCLI LWC) of the Contractor (the successful tenderer). If the Customer / Employer is a company include the Registered Address and Company Number.*

A120: The Consultant (JCLI HLC/C) or Contract Administrator (JCLI LWC) will normally be the designer.
There is no Consultant in JCLI HLC: the Customer deals with the Contractor but the designer might be appointed by the Customer to advise the Customer (but has no power under the contract to deal with the Contractor).

A130: See also specification clause A340.
Revise Customer / Customer to Consultant / Consultant if required.
Advise Customer / Customer / Employer of visits and provide Customer / Customer / Employer with brief, and not to discuss the project with the tenderers. Note also see JCLI HLC/C or HLC Part 1 Clause D3 (but there is no similar clause in JCLI LWC).

A135: The CDM Regulations require designers to eliminate foreseeable risks, reduce remaining risks throughout design stages and convey information on remaining risks to whoever needs it (typically the Principal Designer and Principal Contractor, or if there will be only one contractor, other designers and the Contractor and for some future risks the client). Any risks inherent in the site eg access, contamination, steep slopes, water, restricted working area, etc, should be conveyed to the Contractor in this part of the specification, or by cross reference to specification clause A520. Additionally anything which restricts the Contractor should be included here.
*The CDM Regulations apply to **all** construction work in GB and the*

A110 TENDER DOCUMENTS see specification clause A300

A115 CUSTOMER / CUSTOMER / EMPLOYER means:
(Name).....
(Address).....
(Post Code)..... *Tel:*.....
Email:.....

A120 CONSULTANT / CONTRACT ADMINISTRATOR means:
(Name).....
(Address).....
(Post Code)..... *Tel:*.....
Email:.....

A125 CONTRACTOR means the accepted tenderer.

A130 SITE PARTICULARS: Visit the site prior to tendering by prior arrangement with the Customer / Customer / Employer, in order to familiarise yourselves with the site and surroundings including access, ground conditions, available facilities, site conditions and satisfy yourself that the proposed works are appropriate.

A135 ACCESS: Access to the site to do the work is shown on drawing No. ....

definition of construction work in the Regulations includes hard landscape work, pipes, earthworks, demolition, but excludes soft landscape work – for more details see JCLI Practice Note No 8 Rev 2 (April 2017) item 3 available from https://www.landscapeinstitute.org/technical/jcli/.
However, there are similar requirements for dealing with risk in the Management of Health and Safety at Work Regulations so it is considered good practice for designers to apply the eliminate, reduce, inform, control (ERIC) process to health and safety risks during design for all projects.
CDM 2015: www.hse.gov.uk/construction/cdm/2015/index.htm
CDM Regulations 2015 HSE Legal Guidance L153: Managing Health and Safety in Construction; www.hse.gov.uk/pubns/books/l153.htm.
The CDM guidance in JCLI Practice Notes 8 and 9 (Revisions 2, April 2017) has been agreed by the Health and Safety Executive and is 'landscape industry standard guidance' on the CDM Regulations.

A136 would be important if, for instance, the client wishes to retain part of his existing garden for children to play in safely, while the Contractor is working.
Temporary fencing, eg for security or to protect trees and vegetation, should be specified in A616 and A617.
On restricted sites the location of lorry access, temporary storage areas and concrete mixing locations may all need to be defined. See also note to A135 above.
See also A2A21 or A2D21 which is applicable when JCLI HLC/C or HLC is being used and may render A136 unnecessary.

A136 RESTRICTIONS TO CONTRACTOR'S WORKING AREA: The area of the site available for use by the Contractor is shown on drawing No. ....

A137: Include any restrictions on Contractor parking vehicles (eg one only) on site, and location, and any restrictions on deliveries (eg particular times of day). Also if appropriate add requirement to liaise with Customer / Customer / Employer re access if unavoidable for vehicle or delivery to block access/egress for Customer / Customer / Employer.

A137 PARKING AND DELIVERIES:

A138: Include any other restrictions which will affect the Contractor carrying out the work, for example special security restrictions and/or dates of specific Customer / Customer / Employer events when the Contractor will not be allowed to work and for which the garden must be left presentable.

A138 OTHER RESTRICTIONS:

A140: The specification should state which buildings, garden walls and other features are listed.
Quote the reference No. and date of Order and permissions etc as appropriate. Add additional items or delete items as appropriate.
See also Note to specification clauses C600
This clause needs to be comprehensive for the particular project and state the status concerning permissions and who is responsible for applying for and dealing with them.
Attach permissions as Appendices to the specification if they include any restrictions on the Contractor or his work or he is required to submit anything or get approval for anything.

If any work is subject to Building Regulations approval add an additional clause stating the status of the application what it applies to and requiring the Contractor to complete the approval process and arranging the necessary inspections and documentation as appropriate

A140 TOWN AND COUNTRY PLANNING ETC:
The following structures on site are Grade ….. listed:
(state which)……as shown on Drawing No…….
(state status of permission and who responsible)

The site… *(is/is not)…* in a Conservation Area.
Trees on the site *…(are/are not)…* subject to Tree Preservation Orders. *(state which, refer to drawing)*
(state status of permission and who responsible)

Comply with the conditions of Planning Permission Ref: *…… ……. (or state status of permission and who responsible)*

A142: Delete if not appropriate. Provide details as appropriate.

Note: the Party Wall Act does not apply in Scotland, see Guidance item 3 in the 'JCLI Homeowner Amendments for use in Scotland' available from www.sgd.org.uk

A142 PARTY WALL ACT
Party Wall Notices have been served to adjacent owners:
(state which and in relation to what work)

The Party Fence/Wall shown on drawing ……. is subject to an Award, the conditions of which must be complied with.

A145: 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. Natural England, DEFRA or the Local Authority or

A145 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

appropriate organisations in Devolved Nations, or ecologist appointed for the project should be included in an Appendix to the specification. See www.gov.uk/topic/planning-development/protected-sites-speciesand www.gov.uk/guidance/wildlife-licences

If an ecologist has been appointed for the project, advise tenderers of details and copies of any reports and include any specific requirements in the tender documents.

This document includes four parts in section A2:
A2A for use if JCLI HLC/C is to be used
A2B for use if JCLI LWC is to be used
A2C for use if either another Standard Form Contract or a bespoke agreement and conditions is to be used
A2D for use if JCLI HLC is to be used

Four Word documents are provided, one each for the three Standard Form Contracts in Section A2 (JCLI HLC/C, JCLI LWC, JCLI HLC) and one for the option to use a different Standard Form Contract or a bespoke agreement and conditions. Each of the documents for the three Standard Forms only includes the clauses and terminology appropriate for the Form of Contract. In the case of the different form of contract option the terminology of JCLI LWC is used but if this option is chosen the terminology will probably need changing throughout the specification in order to conform to the terminology in the chosen contract.

Amendments to the JCLI Homeowner contracts for projects in Scotland are available from the SGD website www.sgd.org.uk. JCLI Scottish Agreements are available for use with JCLI LWC, LWCD and LMWC from the LI website www.landscapeinstitute.org/technical/jcli/. Orange is used for alternative clauses, amendments to the clauses and guidance notes for Scottish projects.

Conservancy organisation and / or DEFRA Licence

A2 The Contract

Note: the JCLI Landscape Works Contract with Contractor's Design 2017 (JCLI LWCD) is appropriate for 'commercial' projects where there is any design required from the contractor (eg detailed design drawings for carpentry, timber or metalwork, or electrical design as note to section B12 below). Note that it is not a design-and-build contract. Modify section A2B as appropriate for JCLI LWCD.

Note: The A2 sections and other clauses or guidance associated with the individual contracts are colour coded in this document (but not in the Word documents) for ease of use.

A2A: JCLI HLC/C: Red
A2B: JCLI LWC: Blue
A2C: other/bespoke: Black
A2D: JCLI HLC: Green

A2A: Applies only if the JCLI Homeowner Landscape Contract with Consultant is being used.

This contract is only appropriate for projects for 'domestic' clients.

A2A00: always use the latest edition and revision with any applicable Amendments or Corrections issued by JCLI. Check www.sgd.org.uk for details prior to tender. Refer to the Contract (JCLI HLC/C) and JCLI Practice Note No 10 Rev 3 when preparing the specification section A2A. Note the website includes other associated 2019 documents JCLI Practice Note No 10 Rev 3, Scottish Amendments and Model Forms for use by the Consultant to administer the contract as free downloads.

The A2A specification clauses go through the JCLI HLC/C indicating exactly how it will be completed (usually by the consultant) for signature by the Customer and Contractor. Hence A1, A2, … in clauses A2A10, A2A11 … refers to A1, A2 … in Part 1 of the Contract.

A2A JCLI Homeowner Landscape Contract with Consultant

A2A00 FORM OF CONTRACT
The Contract will be the JCLI Landscape Contract for a Home Owner / Occupier who has appointed a consultant to oversee the work 2019 (JCLI HLC/C) with the 2019 JCLI Amendment for use in Scotland for JCLI HLC/C 2019 and any amendments or supplementary conditions listed below.

A2A01 CUSTOMER: as specification clause A115

A2A02 CONSULTANT: as specification clause A120

Orange is used for amendments to the clauses and guidance notes for Scottish projects. Delete the orange text if the project is not in Scotland.

Part 1 The arrangements for the work:

A2A10 A1: short description as specification clause A105

A2A11: delete and add as appropriate including unique document references and dates.

If the list of drawings is too long to fit into the space in the Contract then either refer to a drawing list (provided as a separate document attached to the specification) or to a specification clause listing the drawings.

Some documents may be provided for information and not be contract documents, see guidance beside specification clause A300.

Leave quotation date blank in the specification.
If any documents for pricing are included in the tender documents then the priced versions should be listed (although not received yet).
If the tenderers are required to submit anything additional with their tender then it should be listed, eg Contractor's Schedule of Rates.

A2A11 A2:

- Contractor's quotation dated ……..
- Consultant's drawings numbered ……..
- Consultant's specification (this document)
- Other documents:
  ……..
  ……..

A2A12: delete if project is not in Scotland.

A2A12 B: Note: Item 1 of the Scottish Amendment substitutes different wording for Part 1 B in JCLI HLC/C

A2A13: delete items as appropriate after discussion with client.

A2A13 C: Facilities available for the Contractor to use:

- Electricity
- Telephone/fax
- Washroom / toilet
- Water

A2A15: delete 2 options and complete as appropriate. Also see

A2A15 E1: Payment options

JCLI Practice Note No 10 Rev 3 (paras 4.2.3, 4 and 5.

The first payment in Option 2 could be a payment on account before work starts. However, if the contractor goes into liquidation before that value of work has been completed then the money will not be recoverable (unless paid by credit card). Advise client accordingly.

Option 1: 95% when works certified finished

Option 2: Stage instalments as follows:
…….. £……..
…….. £……..
…….. £……..
…….. £……..

Option 3: Periodic instalments every …… weeks

A2A16: delete one of the options.

A2A16 F1: Start the work no later than …….. and finish it by ……..
or
Finish the work within ……. weeks of start date to be agreed

A2A18: delete one of the options. Also see JCLI Practice Note No 10 Rev 3 para 4.2.6.
The Contractor is not responsible for plants after the work is finished unless there is a separate contract for maintenance commencing when the work is finished and using the same contractor.

A2A18 H: The Contractor will care for the planting and grass under a separate contract for a period of ……. months after the work is finished
or
The Customer will care for the planting and grass after the work is finished

A2A19: insert amount if a specific amount is required (typically £2,000,000) see also specification clause C610 and adjacent notes. Otherwise leave this specification clause blank and require Contractor to advise of the limit of cover he has when tendering, see specification clause A310.

A2A19 I4: £ ……

A2A20 J: Working hours: between ……. am and ……. pm

A2A21: delete one of the first 2 options and 2 of the second 3 options. If the second option of the last 3 is chosen complete it as appropriate. Also see JCLI Practice Note No 10 Rev 3 para 4.2.7.

A2A21 K1: The house will be lived in
or
The house will not be lived in

Revise 'A136' if that is not the relevant clause.

The garden will be used by the Customer
or
Parts of the garden will be used by the Customer as illustrated on drawing number…….. or otherwise described in specification clause A136
or
The garden will not be used by the Customer

A2A22: delete if project is not in Scotland.

A2A22 L: Note: Items 2, 3 and 4 of the Scottish Amendment substitutes different wording for Part 1 L in JCLI HLC/C

Part 2 The conditions

A2A29: complete as appropriate. Also see JCLI Practice Note No 10 Rev 3 para 4.3.2.

A2A29 7(b): No later than ……. months

A2A31: delete if project is not in Scotland

A2A31 9: Note: Item 5 of the Scottish Amendment substitutes "5 years" for "6 years" in Clause 9

A2A36: delete if project is not in Scotland.

A2A36 14: Note: Item 6 of the Scottish Amendment substitutes different wording for Part 2 Clause 14 in JCLI HLC/C

A2B: Applies only if the JCLI Landscape Works Contract is being used or the JCLI Scottish Landscape Works Agreement (or JCLI LWCD by making appropriate modifications).
** indicates where one or more alternatives need deletion.*
This contract is only appropriate for projects for 'commercial' (ie not 'domestic') clients. It is only appropriate for 'domestic' clients if appropriately modified.

A2B JCLI Landscape Works Contract * / JCLI Scottish Landscape Works Agreement

A2B00: Always use the latest edition and revision with any applicable Amendments or Corrections issued by JCLI. Check www.landscapeinstitute.org/technical/jcli/ for details prior to tender. Any updates are likely to affect section A2B specification clauses.

A2B00 FORM OF CONTRACT
The Contract will be the JCLI Landscape Works Contract 2017 (JCLI LWC) with any amendments or supplementary conditions listed below.

Note: the LI JCLI webpage includes useful free downloadable documents associated with the JCLI LWC, LWCD and LMWC Contracts, including JCLI Practice Notes 8 and 9 (revisions 2, April 2017), and Model Certificates and Other Forms documents for each contract.

Note: the JCLI Landscape Works Contract with Contractor's Design 2017 (JCLI LWCD) should be used if there is any design required from the contractor (eg detailed design drawings for carpentry, timber or metalwork, or electrical design as guidance note to section B12 below). Note that it is not a design-and-build contract. Section A2B of the specification would need to be revised as appropriate for JCLI LWCD.

JCLI LWC, LWCD and LMWC have strict timings for certification of payment, payment and notification of deductions from certified amounts, which are explained in detail in JCLI Practice Notes 8 and 9 and the relevant Model Certificates and Other Forms document for the contract.

The A2B specification clauses go through the JCLI LWC indicating exactly how it will be completed (usually by the consultant) for signature by the Employer and Contractor. The Contract and JCLI Practice Note No 8 Rev 2 (April 2017) should be studied while completing the specification clauses.

Orange is used for amendments to the clauses and guidance notes for Scottish projects. Delete the orange text if the project is not in Scotland.

When the site is in Scotland use the JCLI Scottish Landscape Works Agreement April 2017 (JCLI SLWA) with the JCLI LWC 2017 in accordance with the guidance in the Scottish Agreement (which is available free from www.landscapeinstitute.org/technical/jcli/).

Where "or" indicates alternatives delete the blue text (which is black

or

The Contract will be the JCLI Scottish Landscape Works Agreement April 2017 (JCLI SLWA) with any amendments or supplementary conditions listed below.

A2B01 EMPLOYER: as specification clause A115

A2B02:FIRST RECITAL: description of the works as specification clause A105 and location as specification clause A100.

text in the Word document) and retain the orange text (eg in clause A2B00)

A2B03: Delete 'Work Schedules' if not part of the tender documents; delete 'Schedule of Rates' if the tenderers are not required to provide one with their tender; all tender information should be in the drawings, specification or work schedules (eg plant list should be part of the specification or, if it is to be priced by tenderers, in the work schedules).
Some documents may be provided for information and not be contract documents, see guidance beside specification clause A300

A2B04: select the appropriate statement and when completing the contract for signature delete words as appropriate to achieve the selected statement

A2B11 and A2B12: There will only be a Principal Designer (PD) and a Principal Contractor (PC) under the CDM Regulations if there will be more than one contractor doing construction work on site at any time (sub-contractors count as contractors). See footnote 8 in JCLI LWC 2017.

A2B11 and A2B12 (continued): See JCLI Practice Note No 8 Rev 2 (April 2017) item 3 for guidance on the application of the Regulations to landscape construction works and JCLI Practice Note No 9 Rev 2 (April 2017) item 3 for the application of the Regulations to landscape maintenance works (available free www.landscapeinstitute.org/technical/jcli/).

A2B03 SECOND RECITAL: the Contract Documents:

- JCLI Scottish Landscape Works Agreement April 2017
- JCLI LWC 2017
- Drawings ……..
- Specification
- Work Schedules
- Schedule of Rates.

A2B04 THIRD RECITAL

* the Contractor has supplied the Employer with a copy of the priced Contract Specification
* the Contractor has supplied the Employer with a copy of the priced Work Schedules
* the Contractor has provided a Schedule of Rates

A2B10 ARTICLE 3: CONTRACT ADMINISTRATOR: as specification clause A120

A2B11 ARTICLE 4 PRINCIPAL DESIGNER is:
The Contract Administrator *
Or *
(Name).....
(Address).....
(Post Code)..... *Tel:*.....

A2B12 ARTICLE 5 PRINCIPAL CONTRACTOR is:
The Contractor *
Or *
(Name).....
(Address).....
(Post Code)..... *Tel:*.....

See also specification clauses A2B26 (5th Recital), A440, A445, A515, A517, A520, A522, A523, A525, A662, A665 and adjacent guidance notes.

Delete either A2B13, or A2B11 and A2B12.
If A2B11 and 12 apply, select the appropriate alternative in each.

A2B13: See notes for specification clauses A2B11 and A2B12: delete either A2B13, or A2B11 and A2B12.

*General Note on A2B26: The text of items marked with * should be deleted if they are either not applicable or are unwanted alternatives. State if an item is not applicable rather than deleting it completely.*

4th Recital and Schedule 2: Base Date is usually the date set for the return of tenders (but does not change if the date for return is changed after issue of the tender documents).

4th Recital and Clause 4.2:, Always ask the client pre-tender if they are a 'Contractor' under Construction Industry Scheme (CIS).

5th Recital: JCLI Practice Note No 8 Rev 2 (April 2017) item 3 gives guidance on the application of the CDM Regulations and the options in JCLI LWC (and LWCD).
See also the additional wording in JCLI LWC concerning the application or not of Articles 4 and 5 and Clauses 3.9 applicable for each of the 3 circumstances.
See also specification clauses A2B11, A2B12, A2B13, A440, A445, A515, A517, A520, A522, A523, A525, A662, A665 and associated guidance notes.
A project is notifiable to the Health and Safety Executive (HSE) if it will exceed either 30 working days of construction work and involve more than 20 workers doing construction work at any time or 500 person days of construction work.

A2B13 ARTICLES 4 and 5 are not applicable

A2B26 CONTRACT PARTICULARS
The JCLI LWC / JCLI SLWA Contract Particulars will be completed as shown below:

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

4th Recital and Clause 4.2: The Employer at the Base Date *is/is not a 'contractor' for the purposes of CIS.

5th Recital: CDM Regulations:
*The CDM Regulations do not apply.
*The CDM Regulations apply and only one contractor is required.
*The CDM Regulations apply and more than one contractor is required.

The project *is/is not notifiable to HSE

6th Recital: Framework Agreement. Not applicable / *

7th Recital: paragraphs 1-6 in the Supplemental Provisions (Schedule 3) are individually optional.

If paragraph 6 is to apply the Contractor should name his nominee before the contract is signed or the works commence whichever is earlier.

Supplemental Provisions 7 and 8 apply only in particular circumstances, see footnote no 13 in JCLI LWC.

Article 7: the client should decide arbitration or litigation pre tender; see footnotes 9, 10 and 14 and Guidance Note 17 in JCLI LWC

Article 9 in JCLI SLWA, see Guidance item 18 on page 19/19 of the JCLI SLWA April 2017.

Clause 2.2: If necessary insert provisional dates here and agree actual dates for inclusion in the contract before commencement – insert note stating 'provisional to be agreed ….'.

(Title)
(Date)
(Parties)

7th Recital and Schedule 3:

Supplemental Provision 1 applies/does not apply *

Supplemental Provision 2 applies/does not apply *

Supplemental Provision 3 applies/does not apply *

Supplemental Provision 4 applies/does not apply *

Supplemental Provision 5 applies/does not apply *

Supplemental Provision 6 applies/does not apply *

Where Supplemental Provision 6 applies:

Employer's nominee:
……..

Contractor's nominee:
……..

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

Article 9: Limitation Period: six / twelve* years

Clause 2.2: Works Commencement Date: ……..
Date for Completion …….

Clause 2.8: Agree with your client prior to tender whether Liquidated Damages are appropriate for the project. Refer to JCLI Practice Note No 8 Rev 2 (April 2017) item 5 for method of calculation. Liquidated damages are an effective incentive for a Contractor to finish a project.	Clause 2.8: Liquidated damages at the rate of £……. per *day / week.
Clause 2.10: The JCLI LWC is not appropriate for landscape maintenance contracts, or appropriate for landscape maintenance works after practical completion. If Clients wish to hold the original Contractor liable for plant failures, a separate "establishment maintenance" contract with the same contractor (using JCLI LMWC) is needed to last for 12 months minimum. See JCLI Practice Note No 8 Rev 2 (April 2017) items 1 and 6, and JCLI Practice Note No 9 Rev 2 (April 2017).	Clause 2.10A or 2.10B: Responsibility for plant establishment and plant defects to be *by Contractor, Clause 2.10A applies (Clause 2.10B deleted) or *by Employer, Clause 2.10B applies (Clause 2.10A deleted)
Clause 2.10: If no establishment maintenance contract is entered into and Clause 2.10A is deleted, the rectification period <u>does not</u> apply to plants. At least 6 months is usual for landscape works, the default is 12 months.	Clause 2.10A or 2.10B: Rectification period …… months.
Clause 2.13: This Clause does not apply unless a sum is inserted. It normally does not apply, see JCLI Practice Note No 8 Rev 2 (April 2017) item 7. Insert 'not applicable' if it is not to apply.	Clause 2.13: Provisional Sum to cover theft or malicious damage £ ……..
Clause 4.3.1 and 4.4.1: The default for Clause 4.3.1 is 95%. See JCLI Practice Note No 8 Rev 2 (April 2017) item 9 concerning higher retentions in Clauses 4.3.1 and 4.4.1 for projects with high value plants or a high proportion of the project cost being plants.	Clause 4.3.1: Percentage of the total value of Works in a progress certificate …….%
Clause 4.4.1: The default is 97.5%	Clause 4.4.1: Percentage of the total value of Works in the penultimate certificate …….%
Clauses 4.3, 4.4 and 4.8: Fluctuations provision. The norm for contracts of short duration (less than 6 months from commencement to completion) is to have no fluctuations provision. For longer contracts Schedule 2 should apply. During periods of high inflation	Clauses 4.3, 4.4 and 4.8: Fluctuations provision: *Schedule 2 applies *no fluctuations provision applies *the following fluctuations provision applies:

other fluctuations provisions might be appropriate for longer contracts.

Clauses 4.3, 4.4 and 4.8: only applicable if Schedule 2 applies. The percentage is usually very low or zero

Clause 4.8.1: The default is the same period as in Clause 2.10A or 2.10B

Clause 5.3: The Contractor's public liability insurance should be not less than £1m, typically £2m. Some Employers require more. See also specification clause C610.

Clauses 5.4A. B, C and D: see footnote 17 and Guidance Note 28 in JCLI LWC. Clause 5.4A and Clause 5.4C together usually apply when there are existing structures.

Clauses 5.4A and 5.4B: If none stated the default is 15%.

Clause 5.4D: see notes beside Clauses 5.4A, B, C and D item above.

Clause 7.2: normally an adjudicator is not named and the nominating body applies. Often a nominating body is not selected and the default (RIBA) applies.

……..

Clauses 4.3, 4.4 and 4.8:
Schedule 2 (para.13): Percentage addition …..… %.

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

Clause 5.3: Contractor's Public Liability insurance to cover injury to persons or property, minimum £ …….. for any one occurrence or series of occurrences arising out of one event.

Clauses 5.4A, 5.4B, 5.4C and 5.4D:
*5.4A Works insurance by Contractor in joint names applies
*5.4B Works and existing structures insurance by the Employer in joint names applies
*5.4C Existing structures insurance by the Employer applies
*5.4D Works and existing structures insurance by other means applies

Clauses 5.4A and 5.4B:
Percentage to cover professional fees …….. %

Clause 5.4D: Insurance arrangements are set out in the following document(s):
……..
……..
……..

Clause 7.2: The Adjudicator is ……
The nominating body is:
*Royal Institute of British Architects
*Royal Institution of Chartered Surveyors
*constructionadjudicators.com
*Association of Independent Construction Adjudicators

*Chartered Institute of Arbitrators

Or

Clause 7.2: The Adjudicator is ……
The nominating body is:
*The Royal Incorporation of Architects in Scotland
*The Royal Institution of Chartered Surveyors in Scotland
*constructionadjudicators.com
*Association of Independent Construction Adjudicators
*Chartered Institute of Arbitrators (Scottish Branch)

Schedule 1: often a nominator is not selected and the default (RIBA) applies

Schedule 1: Appointor of Arbitrator:
*Royal Institute of British Architects
*Royal Institution of Chartered Surveyors
*Chartered Institute of Arbitrators

Or

Schedule 1: Appointor of Arbitrator:
*The Royal Incorporation of Architects in Scotland
*The Royal Institution of Chartered Surveyors in Scotland
*Chartered Institute of Arbitrators (Scottish Branch)

A2B27: The contract can be signed (executed) either 'under-hand' or as a Deed depending on the Employer's wishes ('under-hand' is normal for small projects). The contract includes notes and guidance on the two options for signing as well as the pages for signature and witness information. Ideally the contract should be signed before the Contractor mobilises and commences but in order to establish a contract before the contract is signed and thus enable mobilisation and commencement a 'letter of acceptance of tender' should be issued to the successful tenderer detailing the accepted tender sum and all of the contract documents (which should be uniquely

A2B27 EXECUTION: JCLI LWC will be executed under hand/as a Deed *

identifiable for certainty) see sample letter in Appendix D.

Delete A2B27 when using JCLI SLWA. see notes on signing on page 18/19 of the JCLI SLWA

A2B28: List any modifications that the Employer wishes to apply but ensure they are checked by a solicitor for the effect on the other Conditions (or other parts of JCLI LWC).
Unless JCLI Amendment or Correction documents are incorporated as an additional Article modifications to the Conditions or Schedules to the Conditions listed on JCLI Amendment or Corrections documents should be listed here.
The wording of any bespoke amendment document should be included here, or the document referred to here and included as a tender document, and incorporated as an additional Article (see example in JCLI Practice Note No 9 Revision 2 (April 2017) item 15).
Any amendments and/or corrections to the Recitals, Articles and Contract Particulars should be incorporated in the relevant specification clauses above.
Note that revisions listed here will be hand written into 2 copies of the JCLI contract before signing, unless they are in a document which will be incorporated as an additional Article).

A2C: Applies only if JCLI HLC/C or JCLI HLC or JCLI LWC (or LWCD, or SLWA or SLWAD) are not being used

A2C00: Delete one of the options as appropriate.

Always use the latest edition and revision with any applicable Amendments or Corrections for any Standard Form of Contract being used (eg a JCT, RIBA, ICC or NEC Form). Check their websites for details prior to tender. Note that the only Standard Forms of Contract which accommodate soft landscape works appropriately are the JCLI Contracts. Complete details of how the Standard Form will be completed in this section of the specification

A2B28 JCLI LWC CONDITIONS and Schedules to the Conditions shall be modified as listed below:

- ……

Or

A2B28 JCLI SLWA: As well as the revisions listed in the Appendix to JCLI SLWA, the JCLI LWC 2017 Conditions and Schedules to the Conditions shall be modified as listed below,

- ……

A2C Agreement and Conditions of Contract

A2C00 FORM OF CONTRACT
The Contract will be .... with any amendments or supplementary conditions listed below.

Or

The Agreement and Conditions of Contract are bespoke for this project and are included with the tender documents.

similar to sections A2A and A2B but modified as appropriate for the Standard Form being used. Other sections of the specification will also need to be revised to correspond with the requirements and terminology of the Contract being used.

Bespoke contracts are not advisable, they are costly and time consuming to write, costly for contractors to check, take longer to agree, generally increase tender prices and are untested in the legal system.

A2D: Applies only if the JCLI Homeowner Landscape Contract without Consultant is being used.

This contract is only appropriate for projects for 'domestic' clients.

A2D00: always use the latest edition and revision with any applicable Amendments or Corrections issued by JCLI. Check www.sgd.org.uk for details prior to tender. Refer to the Contract (JCLI HLC) and JCLI Practice Note No 10 Rev 3 when preparing the specification section A2D.

The A2D specification clauses go through the JCLI HLC indicating exactly how it will be completed for signature by the Customer and Contractor. Hence A1, A2, … in clauses A2D10, A2D11 … refers to A1, A2 … in Part 1 of the Contract.

Orange is used for amendments to the clauses and guidance notes for Scottish projects. Delete the orange text if the project is not in Scotland.

When JCLI HLC is used the Customer will be doing all inspections, approvals, comments and agreeing submissions and all similar issues required by the specification. If the Customer is using the designer or other consultant for advice during the construction work then the designer or consultant advises the Customer and does not

A2D JCLI *Homeowner Landscape Contract without Consultant*

A2D00 FORM OF CONTRACT
The Contract will be the JCLI Landscape Contract for a Home Owner / Occupier who has not appointed a consultant to oversee the work 2019 (JCLI HLC) with the 2019 JCLI Amendment for use in Scotland for JCLI HLC 2019 and any amendments or supplementary conditions listed below.

A2D01 CUSTOMER: as specification clause A115

deal with the Contractor. However, if the Customer will not be receiving advice, prior to preparing the specification ascertain from the Customer which issues the Customer wishes the Contractor to agree with him or wishes to inspect etc and modify the specification accordingly.

A2D11: delete and add as appropriate including unique document references and dates.

If the list of drawings is too long to fit into the space in the Contract then either refer to a drawing list (provided as a separate document attached to the specification) or to a specification clause listing the drawings.

Leave quotation date blank in the specification.
If any documents for pricing are included in the tender documents then the priced versions should be listed (although not received yet).
If the tenderers are required to submit anything additional with their tender then it should be listed, eg Contractor's Schedule of Rates.

Some documents may be provided for information and not be contract documents, see guidance beside specification clause A300.

A2D12: Depending on the project, delete the first list, or the second list or individual bullet points to indicate who will apply for each, ensuring that one of each of the 4 bullet points remains (even if permission is considered not necessary).

The Scottish Amendment does not include the "Party Wall consents" item, so delete it for Scottish projects.
Delete the note referring to the Scottish Amendment if the project is not in Scotland.

Part 1The arrangements for the work:

A2D10 A1: short description as specification clause A105

A2D11 A2:

- Contractor's quotation dated ……..
- Drawings numbered ……..
- Specification (this document)
- Other documents:
  ……..
  ……..

A2D12 B1: The Contractor will apply for:

- Planning permission
- Tree work permission
- Building regulations approval / Building warrants
- Party wall consents

Note: Item 1 of the Scottish Amendment substitutes different wording for Part 1 B in JCLI HLC/C

Scotland has building warrants rather than building regulations approval, delete as appropriate.

The Customer will apply for:

- Planning permission
- Tree work permission
- Building regulations approval / Building warrants
- Party wall consents

A2D13: delete items as appropriate after discussion with client.

A2D13 C: Facilities available for the Contractor to use:

- Electricity
- Telephone/fax
- Washroom / toilet
- Water

A2D14 D: Note: Item 2 of the Scottish Amendment substitutes different wording for part of Part 1 D in JCLI HLC/C

A2D15: delete one option and complete as appropriate. Also see JCLI Practice Note No 10 Rev 3 para 5.2.2.

The first payment in Option 2 could be a payment on account before work starts. However, if the contractor goes into liquidation before that value of work has been completed then the money will not be recoverable (unless paid by credit card). Advise client accordingly.

A2D15 E1: Payment options

Option 1: 95% when works certified finished

Option 2: Stage instalments as follows:
……..£……..
……..£……..
……..£……..
……..£……..

A2D16: delete one of the options.

A2D16 F1: Start the work no later than …….. and finish it by ……..
or
Finish the work within ……. weeks of start date to be agreed

A2D18: delete one of the options. Also see JCLI Practice Note No 10 Rev 3 para 5.2.3.
The Contractor is not responsible for plants after the work is finished unless there is a separate contract for maintenance commencing

A2D18 H: The Contractor will care for the planting and grass under a separate contract for a period of ……. months after the work is finished
or

when the work is finished and using the same contractor.

The Customer will care for the planting and grass after the work is finished

A2D19: insert amount if a specific amount is required (typically £2,000,000) see also specification clause C610 and adjacent notes. Otherwise leave this specification clause blank and require Contractor to advise of the limit of cover he has when tendering, see specification clause A310.

A2D19 I4: £ ……

A2D20 J: Working hours: between ……. am and ……. pm

A2D21: delete one of the first 2 options and 2 of the second 3 options. If the second option of the last 3 is chosen complete it as appropriate. Also see JCLI Practice Note No 10 Rev 3 para 5.2.4.

Revise 'A136' if that is not the relevant clause.

A2D21 K1: The house will be lived in
or
The house will not be lived in

The garden will be used by the Customer
or
Parts of the garden will be used by the Customer as illustrated on drawing number…….. or otherwise described in specification clause A136
or
The garden will not be used by the Customer

A2D22: delete if project is not in Scotland.

A2D22 L: Note: Items 3, 4 and 5 of the Scottish Amendment substitutes different wording for Part 1 L in JCLI HLC

Part 2 The conditions

A2D29: complete as appropriate. Also see JCLI Practice Note No 10 Rev 3para 5.3.1.

A2D29 6(c)(ii): No later than ……. months

A2D30: delete if project is not in Scotland.

A2D30 7: Item 6 of the Scottish Amendment substitutes "5 years" for "6 years" in Clause 9

A2D36: delete if project is not in Scotland.

A2D36 12: Note: Item 7 of the Scottish Amendment substitutes different wording for Part 2 Clause 12 in JCLI HLC

A3: The specification assumes two or more contractors are tendering in competition and applies the normal construction industry formal tender process for non-public clients. Modify the specification if only one contractor is to tender for the project (and the price negotiated). If a less formal approach is needed revise the specification, letter of Invitation to Tender and Form of Tender (see Appendices B and C) accordingly. See also notes in Appendix B

A3 Tendering

A300. The first list is for JCLI HLC/C, the second for JCLI LWC and the third for JCLI HLC.

Identify every document with unique reference and date (and drawings also with revision letter, size, title). If necessary refer to drawing list in a specification Appendix.

Add items to list as appropriate (eg Contract Addendum which will be incorporated as an Article, see guidance beside A2B28). The list should relate to the list in A2A11 or A2B03 or A2D11.

However, some documents may be supplied for information with the tender but which should not be tender documents or contract documents (eg soil test, surveys, planning permission conditions). Add such documents to this list but identify them as provided for information only.

Some clients may require other forms completing by the tenderers, eg many Authorities require a Non-collusion Certificate; if so add to list and add to A305 and A2A11 or A2B03 or A2D11.

A300 TENDER DOCUMENTS. The documents issued to all tenderers are:

- Consultant's drawings numbered ……..
- Consultant's specification (this document)
- Other documents: …….

- Drawings ……..
- Specification (this document)
- Work Schedules ……..

- Drawings ……..
- Specification (this document)
- Other documents: ……

A305: The first list is for JCLI HLC/C, the second for JCLI LWC and the third for JCLI HLC.

Delete either Work Schedules or Schedule of Rates.

Add items to list as appropriate.

A305 TENDER SUBMISSION: Submit in writing in the special envelope provided to the address on the envelope not later than the time and date in the Letter of Invitation to Tender, or subsequent date notified in writing to tenderers by the Consultant / Customer / Contract Administrator. No marks to be added to the envelope which might identify the tenderer.

Letter of Invitation to Tender, see sample in Appendix B.

Tender submission to include:

- Contractor's quotation, see specification clause A310
- Schedule of Rates, see specification clause A315
- Priced Work Schedules, see specification clause A317

- Completed Form of Tender, see specification clause A311
- Priced Work Schedules, see specification clause A317
- Schedule of Rates, see specification clause A315

- Contractor's quotation, see specification clause A310
- Schedule of Rates, see specification clause A315
- Priced Work Schedules, see specification clause A317

A307: For information and implications of 'more than one contractor' see guidance to specification clauses A2B26 (5th Recital) and A2B11. Delete the item concerning notification to HSE if the project has already been notified.
A project is notifiable to the Health and Safety Executive (HSE) if it will exceed either 30 working days of 'construction work' and involves more than 20 workers doing 'construction work' at any time or 500 person days of 'construction work'. 'Construction work' definition see guidance beside clause A515.
Include one, both or neither of these items on the Form of Tender for the tenderers to complete as appropriate.

A307 TENDER SUBMISSION shall include:
For the purposes of the CDM Regulations:

- confirmation that there will be *more than one contractor / only one contractor
- confirmation that the project *is / is not notifiable to HSE

A310: This clause only applies if JCLI HLC/C or JCLI HLC is being used.
Delete first bullet point and insert instead Completed Form of Tender if one is being used. Include requirement for VAT Registration Number on Form of Tender
Delete second bullet point if the Contractor is required to submit Priced Work Schedules by specification clause A305.
Delete the third bullet point if a minimum level has been stated at

A310 CONTRACTOR'S QUOTATION shall include:

- Total price for the work including VAT and VAT Registration Number (advise if not registered), signed by authorised person
- Detailed breakdown of the price by elements of the work with total for each item and VAT rate applicable to the total (or each element if VAT rate varies)
- Limit of Public Liability Insurance held for any one claim

specification clause A2A19 / A2D19, otherwise include item for contractor to complete the amount on the Form of Tender. See also specification clause C610 notes.

arising from one event with evidence of insurance

- Total price for the work including VAT and VAT Registration Number (advise if not registered), signed by authorised person
- Detailed breakdown of the price by elements of the work with total for each item and VAT rate applicable to the total (or each element if VAT rate varies)
- Limit of Public Liability Insurance held for any one claim arising from one event with evidence of insurance

A311: see sample form in Appendix C

A311 FORM OF TENDER: Complete including signature of authorised person

A315 and A317: Delete one or both of these clauses if the tenderers are not required to submit a Schedule of Rates or Work Schedules with their tender as stated in specification clause A305.

A315 SCHEDULE OF RATES: Tenderers shall submit a Schedule of Rates with their tender covering all elements in the Works, including unit rates and listing Provisional Sums included in their tender as specification clause A320

A317: delete "in accordance with RICS NRM2 /" or "* / as stated in the introduction to the Work Schedules*" as appropriate. If Work Schedules are not measured in accordance with NRM2 then include details of how the Work Schedules have been measured in the introduction to the Work Schedules and select that option.*
NRM: New Rules of Measurement (RICS) available free at www.rics.org/uk/products/nrm/*, replace SMM7 (Standard Method of Measurement for Building Works 7th edition).*

A317 WORK SCHEDULES: Tenderers shall price the Work Schedules included in the tender documents and return them as part of their tender. The Work Schedules have been measured: in accordance with RICS NRM2* / as stated in the introduction to the Work Schedules*

A320: 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 a sum of at least 5% of the estimated contract value. This Contingency Sum is a form of Provisional Sum.

A320 PROVISIONAL SUMS: Allow the following sums to be included in the Tender:
Provisional Sum for Contingencies £ …….
Provisional Sum for: …….. £ …….
Provisional Sum for: …… £ …….

If the tender documents include Work Schedules then it is normal for the Provisional Sums to be in them rather than in the specification, in which case delete this specification clause.
See also specification clause A605.

A330 All tenderers should be advised of all of the questions and answers (without disclosing the names of tenderers) in adequate time to take account of them in their tender.

A335: Tenders are not comparable unless they are on the same basis

A350: Delete the third bullet point if Work Schedules are not being priced by the tenderers with rates, item totals, page totals and tender total.

Some clients (particularly authorities and others using public funds) may require a different method for resolving errors in tenders (eg applying the appropriate percentage adjustment to all rates to achieve the tendered total) – if so modify the third bullet point accordingly.

Providing each tenderer with a list of tender totals after a tender has been accepted (but not the list of tenderers) is good practice. In Scotland it is normal practice to provide each tenderer with a list of tenderers (alphabetical) and a list of tender totals (ascending order), but not relating the individual tenderer with their tender total.

A330 TENDER QUERIES. Submit in writing to Consultant / Customer / Contract Administrator at least 5 days before date set for return of tenders.

A335 TENDER COMPLIANCE. Tenders must be strictly in accordance with the tender documents without qualification (including plant material). Failure to comply may invalidate a tender. See also specification clause A337

A337 ALTERNATIVE TENDERS. An alternative tender may be submitted proposing alternative designs, specifications, materials or methods but will not be considered unless a tender as specification clause A335 is also submitted

A340 SITE VISIT. see specification clause A130

A350 RECEIVED TENDERS:

- Late tenders and tenders not complying with the specification section A3 will not be considered.
- The Customer / Customer / Employer will not be liable for any expenses incurred by tenderers preparing a tender.
- Tenders will be arithmetically checked and errors corrected and revised tender total calculated. Tenderer will be advised of corrections and asked to clarify, confirm or withdraw their tender.
- The Customer / Customer / Employer may or may not accept the lowest or any tender.
- If a tender is accepted the tenderers may be provided with a list of submitted tender totals.

A4 Management of the Works

A405 SITE MEETINGS: Hold site meetings when required by the Consultant / Customer / Contract Administrator.

A415: The JCLI HLC/C, HLC and JCLI LWC only allow extension of time for reasons beyond the control of the Contractor. See Clauses 6, 5 and 2.7 respectively.

A415 ORDERING:
Order goods and materials in good time so that the Works are not delayed.

A417: If there are no Work Schedules clearly identifying exactly what has been priced by the Contractor, state whether the drawings or specification are to take precedence in terms of determining whether more or less money is due to the Contractor as a result of clarifying the discrepancy. Clarification may not be a variation but tardy clarification by the Consultant / Customer / Contract Administrator may result in extension of time and/or additional cost.

A417 DISCREPANCIES
Refer any discrepancies found in the documents immediately to the Consultant / Customer / Contract Administrator for clarification

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

A420 PROGRAMME AND PROGRESS REPORTS
Before commencement, provide the Consultant / Customer / Contract Administrator 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: Delete this clause if JCLI HLC/C or HLC is being used because working hours are included in the contract, see A2A20 or A2D20 above.
Planning permission may limit hours of work or consult your client as to acceptable working hours.

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 agreement.

A435: Planning permission may limit noise levels, if so state levels

A435 NOISE: to be kept to a minimum at all times. No radios, CD,

and times in clause.

A440: For coordination reasons, including safety, list all other contractors or workmen who may be on the same site at the same time, or adjacent, state what they will be doing and expected duration of their work.

A445: If there will be more than one contractor doing 'construction work' on site at any time then under the CDM Regulations the Contractor will most probably be appointed by the Employer as the Principal Contractor (or for a project for a 'domestic' client, the Contractor will be the Principal Contractor by default). Alternatively if another contractor is the Principal Contractor then the Contractor will have to comply with the reasonable (health and safety) requirements of the Principal Contractor. If this is the case state it in this clause. See specification clause A2B26 (5th Recital), notes beside A2B11 and A2B12 and JCLI Practice Note No 8 Rev 2 (April 2017) item 3 and notes beside clause A135.

A450: Delete this clause if using JCLI LWC because it is included in the Conditions

MP3 or similar 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 Consultant / Customer / Contract Administrator to permanently exclude from the Works any person employed thereon.

A5 Quality and safety

A500 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 or European Standards;
- *National Plant Specification* (available free at www.csdhub.com);
- any other Code issued by a relevant Trade organisation.

- all British Standards and other documents referred to in this specification are to be the version current at the date of Tender.

A505, A507 and A510: Damage to a shared private road could be an embarrassing source of dispute with neighbours. A detailed pre commencement photographic record of existing condition, agreed between contractor and consultant/client is advisable, see note beside A510 below.

A505 PROTECTION

Adequately protect all existing landscape, buildings, other artefacts, and public and private roads, which are to be retained, from damage caused by the carrying out of the Works. Damage is to be made good at the Contractor's expense.

Tree and vegetation protective fencing see specification clause A617.

A506: If hard surfaced paths or drives are to be constructed near trees which are to be retained, further detailed specification should be given based on BS 5837 ' Trees in relation to design, demolition and construction'.
Tree, Root Protection Area and other vegetation protective barriers/fencing see specification clause A617.
If Root Protection Areas or Construction Exclusion Zones have been defined in accordance with BS 5837 modify this clause accordingly. However, other vegetation being retained also needs to be protected.
Refer to specification section C5 if tree work is proposed as part of this contract.

A506 PROTECT VEGETATION TO BE RETAINED

Do not damage or prune the visible parts of any vegetation which is to be retained without permission.

Within the Root Protection Area or spread of the crown of trees (whichever is greater) or other retained vegetation:

- do not reduce or increase soil levels;
- avoid compaction of the soil;
- do not use machinery or store any materials or equipment, or locate facilities;
- do not spill or store toxic materials;
- where excavation is agreed, use only trenchless or hand excavation and backfill immediately;
- do not cut roots over 25mm diameter or damage their bark without agreement.

A507: Tree, Root Protection Area and other vegetation protective fencing see specification clause A617.

A507 DAMAGE TO PLANTS:

Plants damaged by the Works are to be repaired or replaced with agreed species at the next suitable planting season at the discretion of the Consultant / Customer / Contract Administrator and at the Contractor's expense.

Any replaced trees or shrubs shall be maintained by the Contractor for the next 12 months and replaced if they fail to

thrive during that period.
Damaged trees in a Conservation Area or protected by a TPO or if the project has Planning Permission shall be repaired/replaced to the requirements of the Planning Authority and Consultant / Customer / Contract Administrator.

A510: see note beside A505 above concerning photographic survey. Revise this clause if more extensive photo survey is required, eg of existing structures which are to be retained close to the works.

A510 CONDITION OF THE SITE
Before work commences, agree with the Consultant / Customer / Contract Administrator the condition of the site/site access. Make a photographic record if requested and copy to Consultant / Customer / Contract Administrator.

A515: The CDM Regulations apply to projects for 'domestic' clients in the same way as for commercial projects except that the client's duties are undertaken by the Principal Contractor (or contractor if there is only one contractor) or the Principal Designer (if there is a written agreement between PD and client stating the PD is to do the client's CDM duties). For the definition of 'domestic' clients see JCLI Practice Note No 8 Rev 2 (April 2017) item 3.
The definition of 'construction work' in the Regulations includes hard landscape work, earthworks, demolition, but excludes soft landscape work – See JCLI Practice Note No 8 Rev 2 (April 2017) item 3.
The most important designer duties are to eliminate foreseeable risks, reduce remaining risks throughout design stages and convey information on remaining risks to whoever needs it (typically the Principal Designer and Principal Contractor, or if there will be only one contractor other designers and the Contractor and for some future risks the client).
It is a requirement of the CDM Regulations to provide Pre-Construction Information to contractors before work commences (usually provided in specification). The requirements for the information are listed in HSE document L153 Appendix 2 (www.hse.gov.uk/pubns/books/l153.htm). The relevant information is included, or clauses provided for its inclusion, in this specification, eg: A135, A136, A520, A525(notes).
Pesticides/biocides: see notes beside specification clause A540

A515 SAFETY HEALTH AND WELFARE
Comply with the latest revisions or updates of the *Health and Safety at Work Act*, the *Management of Health and Safety at Work Regulations*, the *Construction (Design and Management) Regulations* (CDM), the *Control of Pesticide Regulations*, the EU *Biocide Regulations,* Plant Protection Products legislation, the *Control of Substances Hazardous to Health Regulations* (COSHH) and all other relevant Acts, Statutory Instruments, Regulations or Orders.
Ensure compliance of employees, sub-contractors and all other persons on site.
Provide adequate welfare and first aid facilities.
Carry out risk assessments and prepare method statements as appropriate.
Ensure safe working methods are used.

A517: This clause should be deleted if JCLI LWC and section A2B above is being used (or JCLI LWCD with modified A2B). If any other Standard Form Contract or a bespoke contract is being used (including JCLI HLC/C or HLC) this clause will be required (unless the contract includes the information elsewhere).
If the first bullet point applies delete the second bullet point.
If the second bullet point applies delete the first, third and fourth bullet points and ask the tenderers to confirm whether there will be more than one contractor when they submit their tender (see clause A307 above) and if so the client for a non-domestic project must appoint a PD and PC before construction work starts, but the client for a domestic project should appoint a PD and PC (if not then the defaults in the CDM Regs applies).
If the fifth bullet point applies delete the sixth and ask tenderers to confirm whether the project is notifiable, and if so the client must notify as soon as possible.
If the sixth bullet point applies delete the fifth.
A project is notifiable to the Health and Safety Executive (HSE) if it will exceed either 30 working days of construction work and involves more than 20 workers doing construction work at any time or 500 person days of construction work.
If the project is notifiable but 'domestic' whoever is responsible for the client's CDM duties must notify HSE of the project (normally the PC) – if the Contractor is PC with the client's duties then modify the last part of the sixth bullet to require the Contractor to notify HSE.

A517 CDM REGULATIONS

For the purposes of the CDM Regulations:

- it has been assumed that there will be more than one contractor
- it has been assumed that there will only be one contractor
- the Principal Designer is …….
- the Principal Contractor *will be the Contractor / is …….
- it has been assumed that the project is not notifiable to HSE
- it has been assumed that the project is notifiable and it has been notified to HSE (a copy of the notification will be provided to the Contractor before work commences)

A520: Designers must inform tenderers of remaining risks following elimination of risks and reduction of remaining risks during the design work. List the remaining risks that the Contractor must manage in this clause. Do not include risks that are normal for a competent contractor for the type of work to deal with. Only include competent contractors on the tender list.
Include risks associated with the design and also site risks of which the designer or the Customer / Customer / Employer is aware, for example, old wells or underground services, contaminated ground,

A520 HEALTH AND SAFETY HAZARDS

The following significant risks remain following the designers process of eliminating risks and reducing remaining risks during the design process:

- ……..
- ……..
- ……..

etc. Make sensible enquiries before commencing design in order to reduce risks during the design process (advise client to commission surveys if appropriate). If more detail is appropriate insert additional specification clauses as well as listing the risks in this clause.

A522: The CDM Regulations require the Principal Contractor (or Contractor if there is only one contractor) to prepare a Construction Phase Health and Safety Plan before work commences on site; in which case this clause applies. The client must ensure that a Construction Phase H&S Plan has been prepared. In the case of a 'domestic' project the person with the client's duties must ensure one has been prepared.
Delete this clause if there is a Principal Contractor but it is not the Contractor.

A522 CONSTRUCTION PHASE (Health and Safety) PLAN
Before commencing any work on site submit a Construction Phase Plan in accordance with the CDM Regulations to the Consultant / Customer / Contract Administrator, Principal Designer if applicable and the Customer / Employer.
Include details of welfare provisions in the Plan.

A523: This clause applies instead of clause A522 if there is a Principal Contractor but it is not the Contractor.

A523 CONSTRUCTION PHASE (Health and Safety) PLAN
Before commencing any work on site submit information to the Principal Contractor for the Construction Phase Plan in accordance with the CDM Regulations.
Comply with any reasonable requests from the Principal Contractor in order to facilitate the management of health and safety issues for the whole project.

A525: Any available drawings of existing services on or adjacent to the working areas/access etc. should be made available to the contractor (eg drawings in an existing Health and Safety File, survey drawings, or Utility Company drawings).

A525 UNDERGROUND SERVICES
Before starting work locate the exact position of underground services by making all necessary investigations and by hand digging. No mechanical digging is to take place within 0.5m of gas or electrical services. Follow the guidance issued by the Utility Authority/Company when working close to underground services.

A530 DAMAGED UNDERGROUND OR OVERHEAD SERVICES
If damage is caused to gas or electricity services, act immediately to:
- remove all persons from the vicinity;
- notify the service Authority by phone and comply with their

safety instructions.
If damage is caused to other services, act quickly to minimise damage, undertake the necessary repair works to the utility Authority/Company requirements (or those of the Customer / Customer / Employer if appropriate) and minimise inconvenience to Customer / Customer / Employer.

A535 STORAGE AND USE OF EQUIPMENT AND MATERIALS to be:

- in accordance with the manufacturer's written recommendations;
- in a position agreed with the Consultant / Customer / Contract Administrator when stored on site.

A540: Pesticides includes herbicides, fungicides etc as defined in the legislation, see www.hse.gov.uk/pesticides/.

Check whether the use of pesticides is acceptable to your client.

COSHH is the Control of Substances Hazardous to Health Regulations.

Do not specify pesticides unless you have an appropriate certificate of competence for specifying pesticides. The specification clauses assume that you don't and could be modified if you do.

Pesticides/biocides and Brexit, see: www.hse.gov.uk/pesticides/ and www.hse.gov.uk/biocides/index.htm

A540 PESTICIDES (including herbicides and other chemicals hazardous to fauna and flora, see www.hse.gov.uk/pesticides/):

- Where appropriate ensure that only firms Certificated under the *Food and Environmental Protection Act* carry out application of these chemicals;
- Obtain advice on whether the use of a chemical is appropriate and if so which and at what rate for the particular circumstances, from a competent person with a BASIS Certificate in Crop Protection (Amenity Horticulture). Provide Consultant / Customer / Contract Administrator with full details of the advice and recommendations;
- Contractor is entirely responsible for the choice, application, storage, disposal etc of pesticides;
- Choice to take account of existing vegetation being retained and proposed vegetation;
- Make a COSHH assessment before use and ensure where appropriate that application of chemicals is made only by competent individuals with an NPTC certificate in the Safe Use of Pesticides and on the National Register of Sprayer Operators;

- Apply entirely in accordance with all relevant Regulations, the conditions of approval of the chemical, manufacturer's recommendations and the *Pesticides: Code of Practice for Using Plant Protection Products*;
- Comply with Environment Agency requirements for the use of pesticides near water if applicable;
- Keep appropriate records of all pesticide applications on site;
- Prevent all unauthorised access to treated areas for at least 24 hours;
- Store chemicals in a locked secure space in their original clearly marked containers.

A550: for more information see www.nonnativespecies.org/home/index.cfm and for the Code see www.nonnativespecies.org//index.cfm?pageid=299

A550 INVASIVE NON NATIVE SPECIES
Comply with the *Invasive Non Native Species Horticultural Code of Practice.*

A6 General requirements

A605; Contingency see A320 notes.

A605 PROVISIONAL SUMS
Any Provisional Sums including any Contingency shall only be expended on the written instruction of the Consultant / Customer / Contract Administrator.

*A610: All prices in JCLI HLC/C and HLC are **inclusive** of VAT*
*All sums in JCLI LWC are **exclusive** of VAT*

VAT invoices:
If using JCLI HLC/C, delete the two bullet points which do not apply to the project depending on which payment option has been chosen in the contract.
If using JCLI HLC delete the bullet point which does not apply to the project depending on which payment option has been chosen in the contract.

Note: if the Customer can reclaim VAT then the project is not 'domestic', neither JCLI HLC/C nor HLC is appropriate (use JCLI

A610 VALUE ADDED TAX
The price for the work is inclusive of VAT.
or
The price for the work is inclusive of VAT.
or
The Contract Sum is exclusive of VAT.

Issue a VAT invoice:
- when all the work is finished;
  or
- when each stage of the work is finished;
  or

LWC).

- within 5 days after the issue of a payment certificate by the Consultant
- within 5 days after the issue of a payment certificate by the Contract Administrator
- when all the work is finished;
  or
- when each stage of the work is finished;

A615; If using JCLI HLC/C or HLC modify this specification clause because the information on facilities is included in the Contract, see specification clause A2A13 or A2D13
If using JCLI LWC Provide information on which facilities the Employer will (or will not) allow the Contractor to use for the works, eg water, electricity, toilet and washing facility etc.
Add any other requirements for temporary works (other than fencing, see A616 and 617) here or as additional clause(s).

A615 TEMPORARY WORKS: provide all necessary secure storage, site welfare facilities and other offices. Locations to be agreed.

A616: This clause may need expansion, or additional clauses may be required, if there are specific requirements, for example: fencing to secure the site; segregate building (or garden) users from the works; protect artefacts (see also A505); vegetation (see A506 and A617 below).
See also guidance beside clause A136.

A616 TEMPORARY WORKS: provide all necessary temporary protective fencing to secure the Works

A617: Retained trees (and other retained vegetation) may need protective barriers/fencing in accordance with BS 5837 'Trees in relation to design, demolition and 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, with a cap of 707 sqm; for multi-stem trees the area is 12 times the combined stem diameter and formulae to calculate the combined stem diameter are included in the BS.
Where protective barriers are not possible, ground protection (to protect roots from compaction and physical damage) as BS 5837

A617 PROTECTIVE FENCING
Before stripping or clearance of the site, provide, erect and maintain barriers to form Construction Exclusion Zones in accordance with BS 5837, using welded mesh panels securely attached to a braced scaffold pole vertical and horizontal framework as BS 5837 Figure 2, in positions shown on the drawings and /or as listed below:
……(list) ……
Clear away and make good as necessary when all the work is finished / is finished / has achieved practical completion

may be appropriate
See also specification clause A136, A505, A506, A507 and A616.
If planning permission is required (or permission to do work to TPO trees or trees in a Conservation Area) tree protection measures may need to be agreed as part of the permission. If necessary modify clause to comply with any Planning Authority requirements.

A618: Temporary access routes over tree Root Protection Areas see BS 5837 para 6.2.3.3 and The Tree Advice Trust Arboricultural Practice Note No 12 'Through the Trees to Development' (APN 12) available from www.trees.org.uk.
Proprietary track systems to spread loads and protect existing surfaces are available, eg: www.livetrackway.com/products/trackway

A618 TEMPORARY ACCESS ROUTES

A620; A client is likely to be seriously inconvenienced if the site is left untidy, especially at weekends.

A620 SITE CLEANLINESS: Keep the site clean and tidy at all times.
Remove rubbish from site as work progresses and at least at the end of each working week.

A622: As well as requiring contractors to comply with their legal duties concerning waste, some clients may want more stringent attention paid to waste management and disposal at both design and construction stages.
The principals of waste management should be applied to all projects during design and construction: in priority order, waste minimising and re-using, recycling, recovering, before considering disposal options; and a waste audit trail to minimise fly-tipping.

A622 WASTE DISPOSAL:
- Comply with all waste disposal legislation applicable;
- Only allow licensed waste carriers to carry waste from site and to licensed locations;
- Retain all waste transfer notes and make available for inspection on request;
- Apply waste minimisation and re-using, recycling, recovering before considering disposal;
- Segregate waste as far as possible to aid recovery.

A624: Fires can be fatal to existing trees or shrubs even though damage is not immediately apparent. Planning permission or permissions for tree work may include restrictions on fires.

A624 FIRES are not permitted on site without agreement. When permitted, fires must not be within 10m horizontal distance of the canopy spread of any trees or other vegetation to be retained.

A625, A626 and A627; *The provision of samples of materials and workmanship is one of the most valuable methods of quality control*

A625 SAMPLES:
Provide full details and samples of any material or product

available to the Consultant / Customer / Contract Administrator. This is particularly valuable for hard landscape such as brickwork where agreement of the client may also be important. Samples of materials or workmanship should not be 'approved' by the Consultant / Customer / Contract Administrator but only commented on. If approval is given it should be qualified as appropriate (eg approval of appearance as a minimum standard). 'Approval' by Consultant / Customer / Contract Administrator may transfer liability from the Contractor to the Consultant / Customer / Contract Administrator.

specified by performance specification, for comment by Consultant / Customer / Contract Administrator prior to ordering.

A626: List sample panels required and size. Delete if none required.

A626 SAMPLE PANELS:
Construct sample panels in agreed locations for inspection and comment by Consultant / Customer / Contract Administrator to agree appearance required, for:

- ……..
- ……..
- ……..

Clear away when all the work is finished or when agreed

A627: List the in-situ samples required and the size, eg:
York stone paving 3mx3m
Granite sett paving 2mx2m
Timber edging 5m curved

Delete if not required

A627 IN-SITU SAMPLES
Construct in-situ samples in agreed locations for inspection and comment by Consultant / Customer / Contract Administrator to agree appearance required for:

- ……..
- ……..
- ……..

Remove and redo or otherwise correct if appearance is not to the standard required.

A630; JCLI HLC/C or LWC: Confusion may arise if the client also gives instruction or agreement. Advise your client (Customer / Employer) that he has no power under the Contract to instruct the Contractor, but should go through you.

Advise your client, pre commencement, of his duties and powers under the JCLI HLC/C, LWC or HLC.

A630 AGREEMENT and words derived therefrom used in this specification shall mean the written agreement of the Consultant / Customer / Contract Administrator.

A635 and A640: if alternatives are 'approved' by the Consultant / Customer / Contract Administrator they must be thoroughly researched to ensure they are appropriate; the Consultant / Customer / Contract Administrator may become responsible for the choice of the material (rather than the Contractor). In this case the Price for the work / Contract Sum should be adjusted either up or down as if the substitution was a variation; see also specification clause A625 note above.

A635 is to ensure competition and may be insisted on by some clients, particularly authorities, charities and larger commercial firms. In this case the project is not 'domestic', JCLI LWC should be used and the client may have many other requirements with which the tender documents, tender procedure, acceptance procedure and contract must comply. Delete this clause if not required.

A635 ALTERNATIVE PRODUCTS: the words 'or equivalent' shall be taken as following any brand name which is used to define the product required in the specification or drawings.
Submit full details and samples of any proposed equivalent product which is fit for purpose to the Consultant / Customer / Contract Administrator for comment prior to ordering.
The tender must be based on the product originally specified.

A640: Delete this clause if A635 is used.

A640 OR EQUIVALENT: shall mean that the Contractor is at liberty to propose an equivalent product which is fit for purpose for comment by the Consultant / Customer / Contract Administrator prior to ordering.
The tender must be based on the product originally specified.

A645; Check your Client's requirements for privacy and security. Any requirements which restrict the Contractor's working should be in specification clause A138.

A645 ADVERTISING AND PUBLICITY: obtain agreement before displaying any signboard or publishing any article or photograph of the Works.

A660:
Modify the clause if the Contractor is maintaining pre-existing plants or areas for the duration of the contract.

A660 MAINTENANCE PRE FINISHING / FINISHING / COMPLETION:
All of the works shall be maintained as necessary until the Consultant certifies that all the work has been finished.

All of the works shall be maintained as necessary until the Customer agrees that all the work has been finished.

All of the works shall be maintained as necessary until the

Contract Administrator certifies practical completion.

Control weeds on site throughout the contract period. Water plants and grass as necessary to ensure establishment. Water plants thoroughly but infrequently, allowing soil to dry between waterings.
See also maintenance items in individual specification sections.

A662: If the CDM Regulations apply and there will be more than one contractor doing construction work on site at any one time then clause A662 applies and clause A665 should be deleted.

If there will be only one contractor then clause A665 applies and clause A662 should be deleted. Note sub-contractors count as contractors.

If there will be more than one contractor then under the CDM Regulations the Principal Designer will require the Principal Contractor to provide information for the Health and Safety File in accordance with the Regulations. If the Contractor is not the Principal Contractor then the Contractor will have to supply the information to the Principal Contractor. See JCLI Practice Note No 8 Rev 2 (April 2017) item 3 for guidance on the application of the CDM Regulations.

Add to and modify list as appropriate for the particular project and to correspond to the draft Health and Safety File prepared by the Principal Designer before construction commences.

The Health and Safety File should only include things relevant to the Health and Safety of future work to the location, whether maintenance, modification, demolition etc. However it is normal to include other information the client needs like operation and maintenance manuals for equipment (which may or may not have any health and safety relevance).

A662 HEALTH AND SAFETY FILE

Provide information to the Principal Designer (or Principal Contractor if appropriate) for updating the Health and Safety File before finishing the work / finishing the work / practical completion, including:

- Plans showing locations of all services as installed and locations of any pre-existing services found during the Works;
- NICEIC test certificate for electrical work (if applicable) as specification clause B1202;
- Operation and maintenance manuals for all equipment installed;
- A list of guarantee expiry dates for all equipment installed;
- Details of any (remaining) health and safety risks the Customer / Customer / Employer should be aware of (including anything buried);
- List of all materials used by product name, product code, manufacturer (supplier) as appropriate to clearly identify the exact material/product, scope of list to be agreed with Principal Designer (or Principal Contractor if appropriate);
- Manufacturer's literature on all products including any maintenance requirements, scope to be agreed with Principal Designer (or Principal Contractor if appropriate).

If the Principal Designer's employment has ended and the Contractor is the Principal Contractor, update and supply the Health and Safety File to the Customer / Customer /

'finishing the work' and 'faults' are applicable to JCLI HLC/C and HLC; 'practical completion' and 'defects' are applicable to JCLI LWC

A665: If the CDM Regulations apply and there will be more than one contractor doing construction work on site at any one time then clause A662 applies and clause A665 should be deleted.

If there will be only one contractor then a Health and Safety File is not required by the CDM Regulations, clause A665 applies and clause A662 should be deleted. Note sub-contractors count as contractors.

Add to and modify list as appropriate for the particular project.

'finishing the work' and 'faults' are applicable to JCLI HLC/C and HLC; 'practical completion' and 'defects' are applicable to JCLI LWC

Employer in accordance with the CDM Regulations.

Format of information to be agreed with Principal Designer (or Principal Contractor if appropriate).

A665 INFORMATION FOR CUSTOMER / CUSTOMER / EMPLOYER ON FINISHING / FINISHING / COMPLETION:
Just prior to finishing the work / finishing the work / practical completion provide the Customer / Customer / Employer with:

- Plans showing locations of all services as installed and locations of any pre-existing services found during the Works;
- NICEIC test certificate for electrical work (if applicable) as specification clause B1202;
- Operation and maintenance manuals for all equipment installed;
- A list of guarantee expiry dates for all equipment installed;
- Details of any (remaining) health and safety risks the Customer / Customer / Employer should be aware of (including anything buried);
- List of all materials used by product name, product code, manufacturer (supplier) as appropriate to clearly identify the exact material/product (scope of list to be agreed with Consultant / Customer / Contract Administrator);
- Manufacturer's literature on all products including any maintenance requirements (scope to be agreed with Consultant / Customer / Contract Administrator).

Format of information to be agreed with Consultant / Customer / Contract Administrator.

A667 FUTURE MAINTENANCE REQUIREMENTS:
Just prior to finishing the work / finishing the work / practical completion, or at the end of the maintenance period/contract if the Contractor is doing maintenance after finishing the work / finishing the work / practical completion, provide the

Customer / Customer / Employer with calendarised instructions for the maintenance of all plants, planting areas and grass for a full year.

A670 EQUIPMENT GUARANTEES:
Just prior to completion of correction of faults / faults / defects provide the Customer / Customer / Employer with all unexpired guarantees for equipment installed.

B: External Works product listings: www.esi.info/externalworks/ ; www.barbourproductsearch.info/external-works-code000020.html

B100: 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.
Do not 'approve' setting out, otherwise you may have to take responsibility for it if it is subsequently found to be wrong.
If JCLI HLC is the Contract and the Customer does not want his consultant to advise him on the setting out delete the last 2 bullet points, unless the Customer wishes to check the setting out himself, see guidance beside clause A2D00 (last para).

B202: If the soil can be worked in the fingers into a thin 5mm diameter thread without crumbling then it is too plastic for handling

B Hard landscape - Workmanship and materials

B1 General preamble

B100 SETTING OUT:

- Provide and use suitable instruments for accurately setting out the Works;
- Make these instruments available to the Consultant / Customer / Contract Administrator if requested for purposes of checking;
- Clearly define all boundaries between different elements of the design and inform Consultant / Customer / Contract Administrator that setting out is ready for inspection before starting any subsequent construction or planting work.

B105 FIRES see specification clause A624.

B110 PROTECTIVE FENCING: Tree, vegetation and other protective fencing see specification clauses A616 and A617

B115 PROTECTION
Protect artefacts to be retained, see specification clause A505
Protect vegetation to be retained, see specification clause A506

B2 Excavation and filling

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

B202 SOIL CONDITIONS
Undertake operations involving topsoil, subsoil in soft

operations

landscape areas and subsoil for reuse, when the soil is reasonably dry and workable and non-plastic in consistency, with a soil moisture content at or below the lower plastic limit; not when the soil is wet.

B205: See note concerning waste beside clause A622.
See note beside specification clause C640 concerning reuse of wood chips/logs;
See note beside specification clause B260 and B261 concerning reuse of materials for sub-base.

B205 SITE CLEARANCE: remove to an authorised tip all vegetation which is not to be retained, stones larger than 60mm, concrete, brick, tile, metal, timber and any other unwanted material not shown as retained on the drawings or specified for retention or appropriate for reuse in the Works. Segregate materials for recycling whenever appropriate and comply with specification clause A622.
Advise Consultant / Customer / Contract Administrator before removal or disposal of anything unforeseen discovered.
. Tree clearance see specification clauses C605 and C635

B210: Topsoil stacked more than 1m deep will lose its structure, becomes anaerobic and soil organisms die. Ideally also remove topsoil from storage and site office areas.
Stored topsoil must be protected from contamination, compaction etc, ideally by temporary fencing.
Excess topsoil should be sold.
Most of the topsoil may also be removed for wildflower areas (leaving about 25mm) in order to reduce fertility. Alternatively, if existing (or similar) levels need to be kept all of the topsoil could be removed, quality subsoil added to raise the levels and either the subsoil seeded, or 25mm topsoil spread and seeded.

B210 EXISTING TOPSOIL: to be removed from areas of hard landscape and areas to be re-graded. Keep free of contamination, compaction and store in heaps less than 1m high. Remove excess just before the work is finished / is finished / has achieved practical completion

B215 COMPACTION/DAMAGE BY PLANT:
Do not allow plant to run over topsoil or soil heaps.
Minimise compaction by controlling access routes.
Break up all compacted ground or pans in soft landscape areas by subsoil cultivation in accordance with specification clause B227 before proceeding with the filling/construction works in the area or before reinstatement.

B220: It is not necessary for the Consultant / Customer / Contract Administrator to 'approve' (or even inspect) excavations. Contractors may press for approval to be given in order to avoid liability for future failures. If you do not wish to inspect then delete the last 2 sentences of this clause.
Is your fee adequate to cover inspection of all foundation bottoms?

B220 EXCAVATIONS: Ensure all foundation bottoms have adequate bearing capacity for the proposed Works. Give 24 hours notice to the Consultant / Customer / Contract Administrator that foundation bottoms will be ready for inspection. Do not proceed with further work until bottoms have been inspected.

B222: If the level of ground water has been checked with a trial hole as part of your survey, give date and details. Also provide any other details of the soil conditions that are known.

B222 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 EXCAVATION FOR SOFT LANDSCAPE:
Excavate soft landscape areas as necessary to accommodate topsoil depths as specification clause B245.

B227: Subsoil cultivation is generally not necessary on undisturbed / uncompacted soils. It is necessary on regraded soils or those compacted by building or landscape operations.
On heavy soils in wet weather subsoil cultivation can do more damage than good. Therefore it is sometimes better not to carry out this operation – assess at the time rather than delete the clause.

B227 SUBSOIL CULTIVATE:
Break up subsoil with appropriate machinery for soil type and in appropriate weather and soil conditions to a minimum depth of 300mm using 500mm long fixed tines set 300mm apart, in 2 directions at right-angles. To:

- The bottom of excavations for soft landscape areas prior to topsoiling;
- Areas of subsoil prior to adding subsoil to raise levels under proposed soft landscape areas.

Use hand operated machinery or hand tools where necessary.

B230: Subsoil generally should not be reused under hard landscape areas unless of suitable quality for compaction without subsequent shrinkage.
Subsoil for reuse under soft landscape areas should generally be that excavated from within 500mm of the original ground level of undisturbed soils, but can usually easily be identified in a trial hole as the upper layer of subsoil. Heavy clay subsoils are not appropriate.
Imported subsoil see guidance beside B240.

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

B235: BS 3882 is generally inadequate as a specification for topsoil other than for basic landscape purposes. Many sites require topsoil with tighter requirements and B235 relies on an analysis and report with recommendations from a soil consultant.
Soil consultants eg Tim O'Hare Associates www.timohare-associates.com; or SOCOTEC www.socotec.co.uk/ (search topsoil and subsoil characterisation)
In order to get maximum advantage from this approach it is necessary to provide details to tenderers of the purpose of the soil, plant list (if appropriate re pH), analysis of existing topsoil if supplied soil is required to be similar, or other information as appropriate; and to ensure the appropriate information is passed on to the soil consultant before they prepare their report. The particular requirements for the soil should be stated in the criteria item.
If more than one topsoil is required, eg: multipurpose and acidic or low fertility or calcareous, then repeat the clause (as B236) with modified requirements and state the purpose of each at the start of the clause.
Manufactured topsoil is an alternative to natural topsoil in the BS but note that manufactured topsoil is usually in the calcareous pH range.

B235 IMPORTED TOPSOIL to be:

- multipurpose natural (not manufactured) topsoil;
- criteria: …….
- stone size to pass a 40mm sieve and stone content (over 2mm) to be less than 20%;
- free of building materials or other similar alien matter, sub-soil, large roots, stolons, rhizomes or poisonous substances;
- submit details of source of topsoil
- submit sample with full test results for texture, pH, organic matter, fertility, salinity and contaminants (phytotoxic, and zootoxic elements, hydrocarbons and visible asbestos), with report on suitability for required use, from agreed soil consultants. Report recommendations to be implemented by Contractor if report recommends use of the soil for the project. Otherwise another source to be found;
- if stored in temporary heaps, stacked less than 1m high and protected from compaction and contamination.

B238: If imported subsoil is required as fill under soft landscape areas specify it in accordance with BS 8601 multipurpose, acidic or calcareous. The subsoil should be compatible with the topsoil, the main difference being that the subsoil should have very low organic matter and low nutrient levels.
Soil consultants, see guidance beside clause B235.

B238: IMPORTED SUBSOIL to be in compliance with BS 8601, and:

- multipurpose subsoil
- Submit sample with full test results for texture, pH, organic matter, fertility, salinity and contaminants (phytotoxic, and zootoxic elements, hydrocarbons and visible asbestos), with report on suitability for required use, from agreed soil consultants. Report recommendations to be implemented by Contractor if report recommends use of the soil for the project. Otherwise another source to be found.

B240: Lack of proper consolidation can lead to long term settlement and ponding. Fill material should be loam or preferably sandy loam and have minimal organic matter content, low nutrients and no

B240 SUBSOIL FILL TO SOFT LANDSCAPE AREAS: Ensure surface to be filled is not compacted. Subsoil cultivate in accordance with specification clause B227 before adding

contamination.

material.
Spread and consolidate appropriate agreed fill in layers not exceeding 200mm deep. General levels to be within 50mm of design levels.
Contours to be free flowing to reflect the surface contours and different soil depths for different types of area.
Finished surface to be loose before topsoiling, if necessary by subsoil cultivation.

B245: BS 4428 'C.P. for general landscape operations' requires only 600mm of top soil at tree pits but the use of larger semi-mature specimens may require greater depths. Topsoil should generally not be deeper than 400mm; for greater depths use appropriate subsoil below the topsoil (see guidance beside B230)

Add a list of different size pits for different size trees or locations if appropriate, but ensure that it is clear (on the plant list or on the drawing) exactly which trees have which size pit.

Delete or modify any items as necessary for the project, eg add drainage layer to tree pits if required, as in specification clause B247

In heavy clay soils it may be necessary to provide piped drainage from the drainage layer to prevent water-logging.

B245 SPREAD TOP SOIL from topsoil storage heap* / SPREAD IMPORTED TOP SOIL * to provide the following requirements and minimum depths:

- grass areas 100mm;
- wildflower grass areas 25mm mixed with top of subsoil
- shrub areas 400mm;
- tree pits 600mm deep x …… m x …… m;
- Backfill in tree pits to 400mm below ground to be subsoil from spoil heap* / imported subsoil as B238*;
- Graded slopes to be of even gradient;
- Graded to avoid ponding hollows;
- Graded to even flowing contours with no sharp angles in any direction (unless shown on drawings);
- Topsoil edges 50mm above bordering hard surfaces to allow for settlement;
- Finished level (after mulch or other finishing) to be at least 150mm below the top of any damp proof course.

B247: Add a list of different size pits for different size trees or locations if appropriate, but ensure that it is clear (on the plant list or on the drawing) exactly which plants have which size pit.

Delete or modify any items as necessary for the project. For example drainage layer is not required on free draining subsoils. Geotextile, see notes beside specification clause B780

B247 INDIVIDUAL TREE PITS in existing topsoil areas:

- Excavate ……..mm deep by …….m square;
- Set aside topsoil for backfill and store subsoil or dispose if not required in the works;
- Drainage layer …….mm deep of 10-20mm clean washed gravel with geotextile …….. above below and on all sides with 150mm overlaps at joins;
- Backfill to 400mm below ground to be subsoil from spoil

In heavy clay soils it may be necessary to provide piped drainage from the drainage layer to prevent water-logging.

heap* / imported subsoil as B238*;

- Topsoil to 400mm deep, excavated topsoil with stored topsoil and/or thoroughly mixed with imported topsoil if needed.

B248: Add a list of different size pits for different size trees or locations if appropriate, but ensure that it is clear (on the plant list or on the drawing) exactly which plants have which size pit.

B248 INDIVIDUAL PLANT PITS in existing topsoil areas:
Excavate individual pits where existing topsoil has not been stripped and stored. Remove topsoil and set aside, remove subsoil to temporary store, if applicable backfill to 400mm below ground with subsoil from spoil heap* / imported subsoil as B238*, backfill with the set aside topsoil mixed with topsoil from storage heap or imported topsoil.
Tree pits: 600mm deep x ……m x …… m
Shrub pits: 400mm deep x …… mm x …… mm

B250: Inadequate materials beneath sub-base and lack of proper consolidation can lead to long term settlement causing damage to hard landscape and ponding. See also specification clauses B702 and notes to B705

B250: FILL TO HARD LANDSCAPE AREAS
Ensure starting surface is of appropriate material and compaction.
Add appropriate material and compact in layers maximum 200mm thick to achieve adequate bearing for foundation of proposed finish material and allowing for depth of construction.
Remove inadequate materials and fill with appropriate material and compact.

B255; Herbicide is only likely to be necessary in some circumstances under loose paving such as gravel or hoggin or thin specifications of macadam. Some geotextiles are also effective in preventing weed growth. See the notes beside specification clause A540.
The presence of some types of weed might mean that treatment (and for some weeds eradication) before excavation is much more effective and/or desirable (but takes time).

B255 HERBICIDE
Apply herbicide over the whole of the paved area after completing the reduced level digging, if considered necessary, in accordance with specification clause A540.

B260: Highways England Specification for Highway Works is Volume 1 of The Manual of Contract Documents for Highway Works www.standardsforhighways.co.uk/ha/standards/mchw/vol1/index.htm

B260 GRANULAR SUB-BASE Type 1 to be Type 1 material to clause 803 of the Highways England *Specification for Highway Works*.

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B260, B261 and B262: Specify thickness in individual specification clauses (eg B720)
Geotextile if required is specified in the appropriate individual specification clauses (eg B705 and B780)

B260, B261 and B262: Consider the reuse of existing on-site hardcore or broken brick, paving, concrete or other suitable materials as sub-base for informal pedestrian only paved areas instead of Type 1, 2 or 3.

B262: Permeable paving requires no or very low proportion of fine material in the sub-base, which Type 3 has.

Lay and compact to specification clause B265

B261 GRANULAR SUB-BASE Type 2 to be Type 2 material to clause 804 of the Highways England *Specification for Highway Works*.
Lay and compact to specification clause B265

B262 GRANULAR SUB-BASE Type 3 to be Type 3 material to clause 805 of the Highways England *Specification for Highway Works*.
Lay and compact to specification clause B265

B265 COMPACT SUB-BASE in layers to clause 802 of the Highways England *Specification for Highway Works*. Apply a blinding if necessary to achieve a smooth, closed surface.

B268 BLINDING to be sand or similar appropriate fine material.

B3 Concrete and mortar

B300: 'Portland' cement is a name given to the type of cement traditionally manufactured from the limestone quarried at Portland in Dorset. Ordinary Portland Cement is designated by the code 'CEM I'. (One of 5 codes CEM I, II, III, IV or V). The class number refers to compressive strength and the letter N or R refers to normal or rapid hardening qualities.
Aggregates are graded by 2 sieve sizes defining the grade range in mm of the aggregate; eg fine aggregate 0/2 or 0/4; natural graded 0/8; all in aggregate eg 0/8, 0/16, 0/32, 0/45; course aggregate X/X+ (X minimum 1) . For concrete it is usual to specify the minimum as 5mm and the maximum size of the coarse aggregate. The concrete

B300 MATERIALS FOR CONCRETE
Cement: CEM I class 42.5N to BS EN 197-1
Rapid hardening cement: CEM I class 42.5R to BS EN 197-1
Sulphate resistant Portland cement (CEM I-SR): class 42.5N or 42.5R to BS EN 197-1
Aggregates: to BS EN 12620
Coarse aggregate: 20mm nominal max. unless otherwise specified.
Water: mains drinking water or tested to BS EN 1008

mix will then contain a range of sizes between 5mm and the maximum size specified. Size is graded through sieves and therefore thin stones longer than the nominal size may slip through the mesh. Sieve sizes are listed in BS EN 12620

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 Authority's Building Control Officer can advise on the presence of any damaging sulphates.
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.
Revise and add to list at end of clause as appropriate

B310 Ready-mix references called Designated Mixes are shown in this clause. These references follow the requirements of BS EN 206 or BS 8500 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 for brick/block walls are normally designed as multiples of brick/block height

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 sulphate bearing soils:
1: 2½ : 3½ SRPC /sand /coarse aggregate
or 1 : 5 SRPC / all-in aggregate.
SRPC = Sulphate 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.
Use general purposes mix for bedding and backing kerbs or edges and …….

B310 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 sulphate conditions FND 2
Foundations in Class 3 sulphate conditions FND 3
Foundations in Class 4 sulphate conditions FND 4
House drives, domestic parking and external paving PAV 1
Haunching to flexible block paving edgings and kerbs GEN 1
Use a ready-mix supplier certified for product conformity by a UKAS accredited body
Obtain copy of delivery note and retain on site.

B315 STRIP FOUNDATIONS:
Overlap stepped foundations at changes of level by not less

i.e. for brick, 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, but see note beside specification clause B705.
Concrete thickness: e.g. 100mm for cars or 150mm for occasional delivery lorries.
Surface finish: e.g. tamped, wood float, brushed, retarded and washed. (Require a sample panel in specification clause A626 to agree acceptable finish).
Edging see specification clauses B770, B772, B774, B776.

Add addition clauses if different concrete areas with differing specifications are required.

than 300mm or twice the change in level whichever is greatest.
Use sulphate resistant cement in soils having a class 2 sulphate 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 whichever is deeper, but at least to achieve the minimum bearing capacity appropriate for the construction.
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 …….mm at not exceeding 24m intervals and at all abutting manhole covers, walls and similar obstructions.
Expansion joint filler: …….
Granular sub-base: ….mm thick Type 1 to specification clause B260.
Concrete: .....mm thick to specification clauses B300 and B310.
Edging detail: .....
Surface finish: .....

B325 MIXING AND PLACING CONCRETE
Use appropriate batch mixer or use a certified ready-mix supplier (see specification clause B310)
Provide adequate appropriate formwork if necessary.
Place as soon as practical after mixing and before the initial set takes place.

Compact thoroughly and achieve a level top surface after compaction or even falls as shown on the drawings

B330: In cold weather concrete may take several weeks to gain its required strength.

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. 5ºC at the time of placing and maintain this temperature for at least 3 days.

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.

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.

B340: 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.

B340 MATERIAL FOR MORTAR
Cement: CEM I class 42.5N to BS EN 197-1
Sulphate resistant cement (CEM I-SR) class 42.5N to BS EN 197-1
Lime: to BS EN 459-1
Sand: soft building sand to BS EN 12620
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, and use according to the manufacturer's recommendations.

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

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

equivalent of 1 : 1 : 6 is 1 : 5. Follow manufacturer's recommendations. See also BDA 'Mortar for Brickwork'.

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 sulphate content.

B355: 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 by Singleton Birch Ltd: www.singletonbirch.co.uk/birch-lime/, or Hanson: www.hanson.co.uk/en/packed-products/conservation-mortars). Hydraulic lime varies depending on the source and the specification should correspond with the supplier's recommendations and the lime from the chosen source must be appropriate for the use proposed. 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.

B355 HYDRAULIC LIME MORTAR
Where lime mortar is specified without the addition of cement, the lime shall be of the hydraulic type to BS EN 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: ……..

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 (www.tarmac.com/mortar/mortar/coloured-mortar/) who can supply over 50 colours. 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: …….

B4: Sample panels of walls for inspection and comment by Consultant / Customer / Contract Administrator should be required in specification clause A626 if needed. In-situ samples if needed should be required in specification clause A627 (eg for repointing existing walls). If samples of materials are required (not in-situ) the specific requirements should be included in the relevant clause in section B4

See Brick Development Association publications, eg: Design Note 7 'Brickwork Durability', 'Free Standing Walls', 'Mortar for Brickwork' available free from www.brick.org.uk

Always discuss suitability of proposed brick for the particular location (eg exposure of brick and climate) with manufacturer.

BS EN 771-1 Table NA.6 lists the performance characteristics in BS EN 771 for the old engineering brick classifications of A and B

B4 Walling

B402: Wire ties are suitable for walls faced with knapped flint or rubble facings or for free standing cavity walls or one brick wide stretcher bond walls or concrete backed walls. Retaining walls may need stronger vertical twist type ties.

B402 WALL TIES to be to BS EN 845-1 stainless steel or galvanised wire unless otherwise specified.

B405, B406 are normally alternatives and if brick dpc is used it is preferable to specify a specific brick and manufacturer or at least a colour, eg red or blue engineering … sample to be submitted etc.
If B410 or B415 is used B405 and B406 are not required (unless for different walls).
B405/6 and B410 are frequently used with clauses specifying the brick for the body of the wall and if the coping is not engineering brick as B405 then a separate coping clause.
See BDA 'Mortar for Brickwork'
Engineering bricks and frost resistance of bricks see final note beside B4 above

B405 DAMP PROOF COURSE AT COPING LEVEL to be 2 courses of dpc or engineering bricks to grade F2+S2 to BS EN 771-1 in cement mortar with plasticiser.

B406: For example IKO 'Hyload Permabit' (www.ikogroup.co.uk)

B406 DAMP PROOF COURSE UNDER COPINGS to be

with good bond to mortar. Damp proof course (dpc) 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.

…… high bond type.

B410: To avoid introducing a line of weakness, membrane dpcs should never be used at the base of a free standing wall whether retaining or not.
More than 2 courses are required if the ground slopes or if a course joint is not exactly at ground level (to avoid underground brickwork being visible)
See BDA 'Mortar for Brickwork'
Engineering bricks and frost resistance of bricks see final note beside B4 above

B410 DAMP PROOF COURSE AT BASE OF WALLS to be minimum 2 courses of dpc or engineering bricks to grade F2+S2 to BS EN 771-1 in cement mortar; to extend from below ground level to at least 150mm above ground level.

B415: 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. Preferable to specify specific brick, or at least colour (see note beside B405).
See BDA 'Mortar for Brickwork'
Engineering bricks and frost resistance of bricks see final note beside B4 above
B415 is an alternative clause to B405+B410 or B406+B410.

B415 FROST RESISTANT BRICKWORK
Bricks up to 2 courses above ground and for the top 2 courses of the wall, to be frost resistant to 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
- no holes or frog to be visible, use solid specials if necessary.

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

B425 LAY BRICKS:
- frog up on a full bed of mortar to specification clauses B340

masonry to resist the sideways thrust of the material behind the wall.

The size of older bricks is frequently larger or smaller than the current British Standard size. Therefore, it is often not possible to interlock or 'tooth in' every new course to existing brickwork. The best solution may be to divide the new from the existing brickwork using a vertical movement joint.

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 whether brickwork is to be built adjacent to or bonded to existing walls if detail is not provided on drawings.

B430 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: eg for below ground brickwork.
2 courses of engineering bricks in strong mortar are also an effective damp proof course, see specification clauses B405, B410 and B415. Engineering bricks and frost resistance of bricks see final note beside B4 above. See BDA 'Mortar for Brickwork' and notes beside B350 above.

B435 ENGINEERING BRICKWORK for …… *(location)*
Engineering bricks: to grade F2+S2 to BS EN 771-1
Mortar mix: cement : lime : sand 1 : ¼ : 3
Bond: English
Joints: Flush

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.

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. Ensure no frogs or holes are visible.

B445: For example, bucket handle; recessed; weather struck; or specify for individual walls in specification clause B455 (and any similar added clauses). See BDA 'Mortar for Brickwork'

B445 MORTAR JOINTING:
Facework to be jointed to an agreed …… 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 are needed for retaining walls unless land drain provided behind wall. To be effective free perpends need careful workmanship.
A number of proprietary products are available ranging from small clay pipes to plastic slots to fit into perpends.
Alternatively: recessed, 50mm dia black plastic pipe.

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

B455: Brick should be classified F2 + S2 to BS EN 771-1
Engineering bricks and frost resistance of bricks see final note beside B4 above
Blocks to be dense (not light weight) blocks to BS 6073-2 and BS EN 771-3
Get confirmation from manufacturer that brick/block is appropriate for the use and location proposed, appropriate mortar mix and other details..
Examples:-
Bond: Stretcher bond, or English garden wall bond, or etc.
Joint: bucket handle, or flush, or recessed, or weather struck, etc.
Batter: up to 50mm for retaining walls.
Dpc: Type …… manufactured by ……
Coping dpc: to specification clause B406
Coping: Engineering brick manufactured by... or pre-cast concrete ...
Vertical dpc: 2 coats RIW. Ltd. ' LAC® '*
(www.riw.co.uk/products/liquid-applied-systems/lac)
Drainage: weepholes to specification clause B450 or land drain to specification clause B1025 or fin drain to specification clause B1020. Free-draining granular backfill*.*
** applicable to retaining walls only*
Use references to previous specification clauses for mortar, dpc and coping information as appropriate.
Add additional clauses for different walls requiring different specifications as appropriate. Use 'key words' to identify different types of wall.

B455 FREE STANDING / RETAINING WALLS.
Drawing No …….
Brick/block manufacturer and type: ……
Foundation: .....mm wide x.....mm deep, and to specification clauses B300 to B315.
Mortar: …….
Bond: .....
Joint profile: .....
Batter: ..... mm per metre height.
Base damp proof course: ……
Coping damp proof course: .....
Coping: .....
Vertical damp proofing to back of retaining wall: .....
Weepholes: as specification clause B450
Drainage system: .....
Backfilling: .....

B460: The brick should have a low soluble salt content to avoid sulphate 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.

B460 WALL FOR RENDERING:
Drawing No ……..
Brick or block type: ……
Base damp proof course: …….
Coping damp proof course: .....
Coping: .....
Movement joints ……
Rake brickwork mortar joints to a depth of 10mm.
Blockwork joints to be struck off flush with the trowel.

B465: 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 : ½ : 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.
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 (www.expamet.co.uk).

B465 CEMENT:LIME:SAND RENDERING
Sand: 'sharp' sand to BS EN 13139
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; 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*. Mortar: 1 : 2 : 8 with white cement*; *see also specification clause B355.*

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

B470 COBBLE FACED BRICK OR BLOCK WALLING:
Drawing No ……
Cobble size: ..... x ……..
Stone type: .....
Mortar for bedding cobbles: .....
Backing brick/block type: ……..
Wall ties: to specification clause B402 at least 150mm long, set at 450 centres vertically and 900 centres horizontally.
Lacing courses: ……
Quoins and piers: ……...

centres.

B475 LAYING COBBLE FACINGS:
Select and position cobble 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 spatula. 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 75mm 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 specification clause B470

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 specification clause B402 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: 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.

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

B491 STONE RUBBLE WALLING:
Drawing No: ……..

Use crushed stone fine aggregate for mortar, colour matched to agreed sample. 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; If the walling is part of a listed structure, the repointing may need to be done using hydraulic lime mortar 1 : 3 to specification clause B355.
If an insitu sample is required, include it in specification clause A267
Revise pointing finish as necessary, eg may need to match existing.

B495 REPOINTING BRICKWORK
Where indicated on drawing number …….. and agreed on site, 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: In-situ samples if needed for carpentry should be required in specification clause A627. If samples for timber quality, finish, jointing are required (not in-situ) the specific requirements should be included in the relevant clause in section B5

B5 Carpentry and Metalwork

B500 STRUCTURAL TIMBER QUALITY unless otherwise stated to be a minimum of Strength Class C16 to BS EN 338

B505: A better quality than J40 may be appropriate for some external joinery.

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

B510: Chrome-free and arsenic-free treatment for external timber is available. For example 'Tanalith® ' from Lonza Timber Protection (www.lonzawoodprotection.com/eu/tanalith-family/) or 'Celcure® ' from Koppers (www.kopperspc.eu/products/celcure.html).
Use class 4 is timber in contact with the ground or fresh water. Use class 3 is timber above ground but exposed to weather (rain) divided into 3.1 (not remaining wet for long periods) and 3.2 (remaining wet for long periods). See BS EN 335 for use classes. Timber treatment should be appropriate for the use class.
Tanalised® softwood timber is widely available and many decorative stains can be applied to it (eg Sadolins, see note at B600);

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 Consultant / Customer / Contract Administrator with the plant operator's treatment certificate. Treat cut ends as specification clause B520

alternatively some colours are available as additives to the pressure treating process.
'Rip sawing, thicknessing and planing' must be done before treatment (or retreated)

B515: For example 'Tanalith® ' from Lonza Timber Protection (see B510 note).

B520: Consult preservative manufacturer/supplier for guidance on cutting after treatment and for appropriate end grain treatment.

B530 Examples:
Concrete to specification section B3
Mild steel hot dip galvanised to detail.....
Rough or fine sawn softwood, or, planed or fine sawn European Oak, or …
Posts: 75 x 75mm, 100 x 100mm, 125 x 125mm …
Timber lengths as drawings if variable but in clause if all equal for each type.
Fixings: 2No. 10mm galvanised coach bolts with washers per junction.
Treatment: None if the timber is durable, otherwise as specification clause B510.
Decorative finish to specification clause B600.

Add similar additional clauses for other timber features like trellises

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 Consultant / Customer / Contract Administrator with the plant operator's treatment certificate.

B520 TREATMENT OF TIMBER 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 to restore protection from rot.

B525 BRACING OF TIMBER STRUCTURES: Joints required to be nailed to have a minimum of two nails. Inform the Consultant / Customer / Contract Administrator if additional bracing is needed for stability.

B530 TIMBER PERGOLA as drawing No. .....
Foundations: .....
Support shoes: .....
Timber species and finish: .....
Posts size: ..... x ..... mm
Longitudinal members: .....x.....mm
Cross members: .....x.....mm
Fixings: .....
Treatment: .....
Decorative finish: Type: ..... Colour: .....

but see specification section B8 for fencing

B535 Examples:
Concrete to specification section B3
Timber lengths as drawings if variable but in clause if all equal for each type.
Shoes see also fencing posts
Decking which is not at right angles to joists may need noggins (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.
Recycled plastic boarding etc.

B530 to 540: The design of external joinery should encourage the drainage of rainwater from horizontal surfaces, avoid pockets which could retain water and exposed end grain as much as possible. 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.

Add additional clauses if necessary for different doors and gates, but see also specification section B8 for fencing and associated gates.

B545: For example, Fosroc 'Galvafroid' zinc rich paint (www.fosroc.com).
Aluminium components should not be in contact with timber treated with copper based preservatives (Tanalith® and Celcure® are copper based treatments – see specification clauses B510, B515, B520 and B530 notes above).

B550-599: Specify metalwork, railings, handrails, ornamental metal

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): ..... x .....mm
Cross members (joists): ..... x .....mm
Decking: ..... x .....mm, fixed to .....
Fix boards bark side up using ……..
Treatment: to specification clause B515
Decorative finish: Type ..... Colour …....

B540 PURPOSE MADE TIMBER DOORS/GATES:
Drawing No. .....
Timber species: .....
Post material: .....
Posts: ……. x …… mm
Frame: …… x …… mm
Braces: …… x …… mm
Frame jointing: .....
Boarding: ..... x ..... mm
Capping: …….. x …… mm weathered
Treatment: .....
Decorative finish: Type: ..... Colour: .....

B545 FIXINGS AND FASTENINGS for carpentry and timberwork.
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 ISO 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.

fencing etc here, but chainlink and other mesh metal fencing at B860-899 and specify metalwork on-site painting in section B6. Specify metalwork as off-the-peg items (eg: B550, B555) or provide detail drawing(s) of exactly what is required (eg B560, B565). Alternatively use a blacksmith or artist to design, manufacture and install feature metalwork, preferably under a separate contract.

B550: Modify items as necessary to ensure unique product description, including selection from all options (eg finials if applicable). Only include the variable product items in the clause. Many manufacturers, eg: AlphaRail, Lang and Fulton, Heras, Jacksons, Singer & James …
Finish refers to finish to be supplied by manufacturer, eg: Hot dip galvanised (to clause B575); or Hot dip galvanised, treated and spray painted (specify colour); or hot dip galvanised, treated and polyester powder coated.

B550 RAILING
Drawing No: ……
Manufacturer: ……
Type: ……
Height: ……
Standard bay length: ……
Finish: ……
Foundation: as drawing.

B555. Modify items as necessary to ensure unique product description, including selection from all options. Add anything additional (non-standard) which is required (but already agreed with manufacturer). Only include the variable product items in the clause.

B555 GATES
Drawing No: ……
Manufacturer: ……
Type: ……
Height: ……
Width: ……
Posts: ……
Finish: ……
Foundation: as drawing.

B560: Delete BS reference if railing is not mild steel with round or square verticals and flat horizontal bars.
Drawing should fully detail the railing dimensions and all metal sizes, as well as foundations, fixings of railing panels to posts (or other joints) or railing to walls etc as appropriate.
Many manufacturers fabricate special designs (see B550 notes)

B560 RAILING
Generally to BS 1722 Part 9
Drawing No: ……
Metalwork sizes as drawing.
Railing dimensions as drawing.
Foundations and fixings as drawing.

B565: Modify items as necessary for the circumstances and include all required fittings (eg: hinges, latches, locks, central support,

B565 GATES
Generally to BS 1722 Part 9

motorisation etc) as appropriate

Drawing No: ……
Metalwork sizes as drawing.
Gate dimensions as drawing.
Foundations and fixings as drawing.

B570: A requirement to submit fabrication (or shop) drawings can be specified but not normally appropriate if the drawings provided to the contractor detail everything.

B570 FABRICATION
Accurately measure on site prior to fabrication to ensure accurate alignment and fit with adjacent existing or built elements.
Clean surfaces to be welded. Ensure accurate fit. Joint with patent and filler metal fully bonded with no inclusions, holes, porosity or cracks. Remove all flux residue and slag. Make visible butt welds flush with adjacent surfaces.
Fabricate metalwork carefully and accurately.
Finished work to be free from distortions and cracks.

B575: Add requirement for contractor to allow inspection by Consultant / Customer / Contract Administrator if required.

Add additional clauses for preparation and spray painting, or preparation and polyester powder coating, by manufacturer if required. If final finish is applied by manufacturer then it is desirable for the manufacturer to install the items. If final finish (paint) is to be applied by the contractor use B640 (or similar)

B575 GALVANISING
Hot dip galvanise to BS EN ISO 1461 after fabrication complete and all fixing holes drilled.
Before galvanising remove all welding slag, splatter, anti-splatter compounds, paints, grease, flux, rust, burs and sharp arrises, make good any defects that would be visible after galvanising.

B580 PROTECTION
Prevent distortion, physical or chemical damage to metalwork, galvanising and final finish, during transport, handling, storage, fixing and until the work is finished / is finished / has achieved practical completion
Provide protective covering as necessary.

B585 FIXING
Position accurately, plumb, level and true to line. Fix securely.

B6: In-situ samples if needed should be required in specification clause A627. If samples of materials or a stained/painted off-cut are required (not in-situ) the specific requirements should be included in the relevant clause in section B6

B600 Examples: Sikkens Cetol: www.duluxtradepaintexpert.co.uk/*.*
Note: Sikkens, Hammerite, Cuprinol and Dulux are all AkzoNobel.
Note: Sadolins, Permoglaze, Sandtex are all Crown.
Dulux Ultimate Wood Stain
www.duluxtradepaintexpert.co.uk/en/brands/dulux-trade/trade-woodcare *.*
Sadolin 'Extra' or 'Classic', www.sadolin.co.uk.
Include product and colour if possible.
Check the 'manufacturer's recommendations' to ensure they comply with your requirements and do not conflict with specification clauses.
Delete one of the 2 alternatives.

B605 Examples: Jotun Demidekk.
Dulux Trade www.duluxtradepaintexpert.co.uk/
Sadolin Superdec www.sadolin.co.uk
Include product and colour if possible.
Delete one of the 2 alternatives.
Check the 'manufacturer's recommendations' to ensure they comply with your requirements and do not conflict with specification clauses.

B6 Painting

B600 HIGH BUILD WOOD STAIN FINISH:
*To be obtained from one only of the following manufacturers:
……
…….

To be ……(product name, colour)* from …*(manufacturer's name and details)*.

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

To be ……(product name, colour)* from …*(manufacturer's name and details)*.

B610 ALL PAINTING AND STAINING:
Take account of manufacturers COSHH assessments.
Use appropriately skilled and experienced operatives.
Apply products in accordance with the manufacturer's written recommendations, particularly to minimum thicknesses they specify.
Do not apply in damp, frost, wind or when full sun may cause faults / faults / defects to develop.
Apply evenly in full coats to produce a uniform depth of colour without brush marks.

Allow adequate drying time between coats.
Adequately protect existing painted surfaces which are not to be painted.
Adequately protect wet painted surfaces and completed painted surfaces.
Exhibit “wet paint” signs and barriers as appropriate.

B615 PREPARATION OF TIMBER SURFACES: to BS 8000-12.
Retreat all cut ends of preservative treated wood before priming;
Wash Tanalised® wood to remove surface deposits from tanalising.
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.
Carry out any other preparation recommended by manufacturer of treatment to be applied.

B620 TIMBER PAINTING AND EXTERIOR WOOD STAIN APPLICATION:
Prime surface with the appropriate primer if recommended by paint/stain manufacturer.
See B610 above.

B640 GALVANISED STEEL PAINT SYSTEM:
To be paint system specifically for galvanised steel.

*To be obtained from one only of the following manufacturers:
……
……

To be: Primer ……(product name, colour)*
Undercoat ……*(product name, colour)*
Finish coat ……*(product name, colour)*
from …*(manufacturer’s name and details),*

*B640: Preferable to specify one system rather than providing 3 for the contractor to select from. Delete one of the 2 alternatives denoted by *.*
Note: Sikkens, Hammerite and Dulux are all AkzoNobel; Sadolins, Permoglaze, Sandtex are all Crown. Alternative: Johnstones www.johnstonespaint.com.
Examples: Dulux: www.duluxtradepaintexpert.co.uk/brands/dulux-trade: Dulux Metalshield Quick Dry Metal Primer and Dulux Trade Metalshield Gloss;
Hammerite: Hammerite Direct to Galvanised Metal www.duluxtradepaintexpert.co.uk/products/hammerite/direct-to-

galvanised-metal-paint .
Include product and colour if possible.
Delete the Undercoat item if the system does not include an undercoat.
Check the 'manufacturer's recommendations' to ensure they comply with your requirements and do not conflict with specification clauses. (Detailed specifications for Dulux recommended paint systems are available from https://specifier.duluxtradepaintexpert.co.uk/. Ditto Johnstones www.johnstonestrade.com/specifiers/create-specifications)

B645: If necessary use the option of giving 3 alternative manufacturers for the contractor to chose one from as in A640 above, but preferable to specify one system.
Note: Sikkens, Hammerite and Dulux are all AkzoNobel; Sadolins, Permoglaze, Sandtex are all Crown. Alternative: Johnstones www.johnstonespaint.com.
Example: Dulux: www.duluxtradepaintexpert.co.uk/brands/dulux-trade: Dulux Metalshield Zinc Phosphate Primer and Dulux Trade Metalshield Gloss Finish.
Include product and colour if possible.
Delete the Undercoat item if the system does not include an undercoat.
Check the 'manufacturer's recommendations' to ensure they comply with your requirements and do not conflict with specification clauses. (Detailed specifications for Dulux recommended paint systems are available from https://specifier.duluxtradepaintexpert.co.uk/. Ditto Johnstones https://www.johnstonestrade.com/specifiers/create-specifications).

B650: If necessary use the option of giving 3 alternative manufacturers for the contractor to choose one from as in A640 above, but preferable to specify one system.
Note: Sikkens, Hammerite and Dulux are all AkzoNobel; Sadolins, Permoglaze, Sandtex are all Crown. Alternative: Johnstones www.johnstonespaint.com.

B645 GALVANISED STEEL PAINTING/RE-PAINTING SYSTEM
To be paint system specifically for repainting previously painted galvanised steel.
Primer ……*(product name, colour)*
Undercoat ……*(product name, colour)*
Finish coat ……*(product name, colour)*
from …*(manufacturer's name and details).*

B650 STEEL METALWORK PAINTING/RE-PAINTING SYSTEM
To be paint system specifically for repainting previously painted steel.
Primer ……*(product name, colour)*
Undercoat ……*(product name, colour)*
Finish coat ……*(product name, colour)*

Examples: Dulux: www.duluxtradepaintexpert.co.uk/brands/dulux-trade: Dulux Metalshield Zinc Phosphate Primer and Dulux Trade Metalshield Gloss.
Johnstones: Anti Rust Metal Primer, All Purpose Undercoat, Liquid Gloss www.johnstonespaint.com.
Hammerite: www.hammerite.co.uk/index.jsp: Hammerite No 1 Rustbeater preparation, Kurust and Hammerite Direct to Rust Metal Paint (one coat normally adequate).
Include product and colour if possible.
Delete the Undercoat item if the system does not include an undercoat.
Check the 'manufacturer's recommendations' to ensure they comply with your requirements and do not conflict with specification clauses. (Detailed specifications for Dulux recommended paint systems are available from https://specifier.duluxtradepaintexpert.co.uk/. Ditto Johnstones https://www.johnstonestrade.com/specifiers/create-specifications).

B660: Galvanised steel must be prepared correctly and painted with appropriate primer, (undercoat) and finish coat(s) otherwise the paint peals off extensively causing a significant repainting problem.
Adjust specification for preparation and painting to reflect the recommendations of the paint system manufacturer.
Add undercoat if part of painting system.
Modify number of primer and finish coats depending on manufacturer's recommendations (eg if specify Hammerite Direct to Galvanised Metal Paint).
Mordant Solution, eg Dulux

B665: If paint is extensively peeling from galvanised steel then mechanically remove all paint back to galvanised surface without damaging the galvanised surface.
Adjust specification for preparation and painting to reflect the recommendations of the paint system manufacturer.
Add undercoat if part of painting system.

from …*(manufacturer's name and details)* .

B660 GALVANISED STEEL PAINTING:
Degrease with solvent or detergent solution and wash away any residues. Surface must be clean and dry.
Apply Mordant Solution (T-wash) to bright new galvanising to etch surface to manufacturer's recommendations. If any areas do not turn black, wash, abrade and reapply Mordant Solution until all surface black. Rinse to remove residues. Ensure clean and dry.
Paint system as clause B640/B645*. Apply 1 coat Primer and 2 Finish coats.
See B610 above.

B665 REPAINTING GALVANISED STEEL:
Avoid damage to galvanised coating during preparation.
Remove defective and poorly adhering paint.
Degrease and wash down, rinse off and allow to dry.
Use abrasive to rub down and feather the edges of sound paint, remove dust.

A proprietary rust remover/inhibitor can be used on ferrous metals but not near galvanised surface (eg Hammerite Kurust).
Zinc rich paint example, Fosroc 'Galvafroid' zinc rich paint (www.fosroc.com).
Modify number of primer and finish coats depending on manufacturer's recommendations.

Where galvanising is damaged and rust showing through, power tool clean to remove rust and loose material back to stable surface, remove dust.
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.
Ensure clean and dry before painting.
Paint system as clause B640/B645*. Prime bare galvanised surface with minimum 1 coat. Apply 2 Finish coats.
See B610 above.

B667: Adjust specification for preparation and painting to reflect the recommendations of the paint system manufacturer.
Add undercoat if part of painting system.
A proprietary rust remover/inhibitor can be used on ferrous metals (but not near galvanised surfaces) (eg Hammerite Kurust).
Modify number of primer and finish coats depending on manufacturer's recommendations.
Modify reference to clause B650 if using a modified clause B640 to specify 3 alternative paint systems.
Adjust specification if metalwork has been supplied primed.

B667 PAINTING FERROUS METALS:
Use abrasive to rub down and remove any rust as appropriate, remove dust.
Ensure clean and dry before painting.
Paint system as clause B650: Prime bare metal with minimum 1 coat. Apply 2 Finish coats.
See B610 above.

B669: Adjust specification for preparation and painting to reflect the recommendations of the paint system manufacturer.
Add undercoat if part of painting system.
A proprietary rust remover/inhibitor can be used on ferrous metals (but not near galvanised surfaces) (eg Hammerite Kurust).
Modify number of primer and finish coats depending on manufacturer's recommendations.
Modify reference to clause B650 if using a modified clause B640 to specify 3 alternative paint systems.

If painting non ferrous metal(s) produce clauses based on B640, B650, B667, and B669 as appropriate to use paint system appropriate for the particular metal and preparation and application to comply with manufacturer's recommendations.

B669 REPAINTING FERROUS METALS:
Remove defective and poorly adhering paint.
Degrease and wash down, rinse off and allow to dry.
Use abrasive to rub down and feather the edges of sound paint, remove dust.
Where paint is damaged and rust showing through, power tool clean to remove rust and loose material back to stable surface, remove dust.
Ensure clean and dry before painting.
Paint system as clause B650: Prime bare metal with minimum 1 coat. Apply 2 Finish coats.
See B610 above.

B670: If necessary, use the option of giving 3 alternative manufacturers for the contractor to chose one from as in A640 above, but preferable to specify one system.
Note: Sikkens, Hammerite and Dulux are all AkzoNobel; Sadolins, Permoglaze, Sandtex are all Crown. Alternative: Johnstones www.johnstonespaint.com.
Examples: Dulux: www.duluxtradepaintexpert.co.uk/products/picker/index.jsp#painting: Dulux Trade Weathershield Stabilising Primer if required (see B675 below), with Dulux Trade Weathershield Masonry Gloss (need for thinned 'undercoat' depends on circumstances, 2 finishing coats); or Dulux Trade All Seasons Masonry Gloss (ditto for coats).
Include product and colour if possible.
Delete the Undercoat item if the system does not include an undercoat.
Check the 'manufacturer's recommendations' to ensure they comply with your requirements and do not conflict with specification clauses. (Detailed specifications for Dulux recommended paint systems are available from www.duluxtradepaintexpert.co.uk/paintspec. Ditto Johnstones www.johnstonestrade.com/specifiers/specification-tools/create-specifications)

B670 MASONRY PAINT

To be paint system specifically for painting masonry.

Primer ……*(product name, colour)*
Undercoat ……*(product name, colour)*
Finish coat ……*(product name, colour)*

from …*(manufacturer's name and details*.

B675: Undercoat may be a diluted Finish coat depending on manufacturer's recommendations, or there may be no undercoat. Modify specification as appropriate to follow manufacturer's recommendations for preparation, making good and painting.

B675 PAINTING MASONRY/RENDER

Thoroughly clean down surface removing dirt, grease, cement/mortar deposits, efflorescence, loose aggregate or similar.
If previously coated remove all defective coatings and loose material, rub down smooth surfaces to provide 'key'.
Cut out and make good cracks and holes with suitable compatible material. Allow to dry, rub down if appropriate, remove dust.
Paint system as clause B670.
If surface powdery and friable apply Stabilising Primer.
Ensure clean and dry. Apply 1 Undercoat and 2 Finish coats.
See B610 above.

B7: Sample panels of paving or steps for inspection and comment by Consultant / Customer / Contract Administrator should be required in specification clause A626 if needed. In-situ samples if needed should be required in specification clause A627. If samples of materials are required (not in-situ) the specific requirements should be included in the relevant clause in section B7.
In-situ concrete paving see specification section B3 (eg B320).

Porous/permeable paving: BS 7533-13 'Guide for the design of permeable pavements constructed with concrete paving blocks and flags, natural stone slabs and setts and clay pavers'.
Government document "Guidance on Permeable Paving of Front Gardens" www.gov.uk/government/publications/permeable-surfacing-of-front-gardens-guidance.
See also Interpave 'Suds + Permeable Paving Today' www.paving.org.uk

*B7: Any paving within the Root Protection Area of tree(s) to be retained as defined in BS 5837 'Trees in relation to design, demolition and construction' should be designed to **avoid digging and compaction** in accordance with The Tree Advice Trust Arboricultural Practice Note No 12 'Through the Trees to Development' (APN 12) (available from www.trees.org.uk) and BS 5837.*
For vehicle areas this may require cellular confinement systems and a load-spreader in addition to no-fines granular material (Type 3) and porous surface (eg. gravel, porous asphalt or porous bound gravel) to ensure continuing water and oxygen supply and minimise compaction and physical damage to roots.
Examples: Terram Geocell, www.terram.com, or Geosynthetics Cellweb, www.geosyn.co.uk.
For pedestrian paving within Root Protection Area consider permeable surfacing (eg, paving blocks or slabs with permeable joints, gravel, bark/wood chips, as appropriate) and raised edges with 'point' foundations/supports (eg timber edging resting on the

B7 Pavings and steps

B700: SITE CLEARANCE ETC.
See specification clauses: B205 for site clearance; B210 for removal and storage of existing topsoil; B255 for herbicide beneath sub-base.

ground with stake supports, see clause B778). Timber decking would also be appropriate within Root Protection Areas; or any other system with 'point' foundations (locations can be adjusted to avoid tree roots) and spanning beams, which achieves the criteria of no digging, no compaction and allows air and water through to the roots.

B702: Ensure drainage away from buildings. No level changes within Root Protection Areas

B705: sub-base thickness (mm)

	Drives*	***Terraces***
Heavy clay or silt	*350§*	*250*
Silty Clay	*200§*	*150*
Sandy clay	*130*	*100*
Sand	*100*	*N/A*
Sandy gravel or chalk	*N/A*	*N/A*

** Domestic use by cars and light vans.*
§ Use a geotextile under the sub-base. eg Terram T1000, see specification clause B780 notes.

Herbicide beneath sub-base: see note beside specification clause B255 as well as the notes beside specification clause A540.
Consider the reuse of existing on-site hardcore or broken brick, paving, concrete or other suitable materials as sub-base for informal pedestrian only paved areas instead of Type 1 or Type 2.
Use Type 3 for permeable paving
The appropriate thickness of sub-base required for permeable paving depends on the sub-soil permeability, rainfall and proposed system (total, partial or no infiltration) as well as the subsoil bearing capacity, type of paving and use (eg light vehicular or pedestrian). Many manufacturers of proprietary permeable paving systems provide details and specification for typical situations, including sub-base thickness (eg clay and concrete block systems as well as resin bound gravel systems). For example see Marshalls 'Permeable Paving Design Guide' www.marshalls.co.uk, or Aggregate Industries

B702 LEVELS: make up levels as necessary in accordance with specification clauses B220 and B250.

B705 GRANULAR SUB-BASE see specification clauses B260 (Type 1), B261 (Type 2), B262 (Type 3) and B265.

www.aggregate.com, or for resin bound systems www.sureset.co.uk or www.clearstonepaving.co.uk

B708 BLINDING see specification clause B268.

Note: B710-719 are unused numbers, free for the specification of basic types of paving other than the basic types covered in B3 (in-situ concrete) or B720 onward.

B720: This type of brick paving is now rarely used although it was the norm before flexible block paving was invented. Traditionally, appropriate frost resistant facing bricks (225 x 115 x 75mm nominal dimensions including joints, without holes) were used laid flat (frog down if applicable), or on edge, with 10mm joints.
This method is substantially more time consuming and expensive than flexible paving both in materials and labour.
Clay pavers for flexible paving only allow for approx 2mm joint, so the bond patterns are very limited if used for rigid paving with 10mm joints
See: BS 7533-9 'Pavements constructed with clay, natural stone or concrete pavers. Code of practice for the construction of rigid pavements of clay pavers'.
Coloured mortar, see guidance note to specification clause B365.
For example, brick pattern to be herringbone / stretcher bond / as drawn detail. Minimum 1:60 fall.
Edge: If specific edge required (eg upstand brick on edge) specify it at B770-779 and refer to clause number here.
Note: Surface water could be removed to a soakaway, or to the sub-base if designed as a reservoir to store water and allow it to soak away (ie typically a thicker sub-base using Type 3 granular material as for permeable paving).

B720 RIGID BRICK PAVING for ..... *(location)*
Drawing No ……..
Brick Manufacturer and Reference: .....
Brick size: .....
Bond pattern: ……..
Granular sub-base: 100mm thick Type 1 to specification clause B260.
Base: Concrete to Section B3: Base Thickness .....mm
Cement mortar bedding: 25mm thick, mix: 1 : 4 with appropriate plasticiser.
Mortar joint mix: .....
Joint profile: .....
Bay size: .....
Expansion joints: …….

B725: If using coloured mortar for joints revise clause omitting buttering of bricks but add filling joints (after bed has set) with semi-dry coloured mortar before tooling.
Brick cutting, add minimum size for cut bricks if appropriate, see note

B725 LAYING RIGID BRICK PAVING
Laid to BS 7533-9
Set out bond to give uniform joint width and align joints across area.

beside specification clause B735.

B730: See Interpave 'Concrete Block Paving', 'Planning with Paving', 'Understanding Permeable Paving', 'Suds + Permeable Paving Today' and 'Maintenance of Concrete Block Permeable Paving' available free at www.paving.org.uk
Porous/permeable paving: BS 7533-13 'Guide for the design of permeable pavements constructed with concrete paving blocks and flags, natural stone slabs and setts and clay pavers'.
If specifying permeable paving ensure specification is to brick/block manufacturer's recommendations. Manufacturers often have permeable paving systems specific for permeable paving: eg Formpave http://forterra.co.uk/formpave/aquaflow-suds-system; Marshalls www.marshalls.co.uk permeable paving in both their commercial and garden and driveways sections;
see also Marshalls 'Permeable Paving Design Guide'
Add if using concrete blocks 'Concrete blocks to BS EN 1338'.
See also: BS 7533-2 'Guide to structural design …'
See note to specification clause B705 concerning sub-base.
Block pattern typically herringbone / stretcher bond / as drawn detail.
Minimum 1:60 fall.
Standard building bricks are not appropriate for flexible paving (mainly due to their size allowing for 10mm joints when bonded), clay pavers designed for flexible paving should be used (see note beside B720.
Edge restraint: if not from the same manufacturer and matching the paving brick/block then reference the relevant edging clause from B770 to B776. Bedded and haunched edge restraint is unlikely to be appropriate within any Root Protection Area of retained tree(s).
Flexible paving on slopes may require intermediate constraints depending on steepness and use, eg on sloping drives with four-wheel drive vehicles turning – consult block/brick manufacturer.

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 keep brick surface clean.
Protect with polythene from weather and traffic for 4 days minimum.

B730 CLAY BRICK / CONCRETE BLOCK FLEXIBLE PAVING for .....
Drawing No ……..
Granular sub-base: ….mm thick Type 1 to specification clause B260.
Edge restraint: ..... bedded and haunched in cement mortar 1: 6
Sand for bedding: sharp sand to BS EN 12620 laid to 65mm thickness before compaction.
Blocks: Manufacturer: ..... and type: .....
colour: .....
Block pattern: ……..……..
Surface falls: .....
Joint filling: dry fine graded sand to BS EN 12620 to pass a 1.18mm sieve.

B735: specifying a minimum size for cut blocks is desirable to minimise tiny pieces at edges (which tend to come out) specifying a minimum size means that 2 adjacent blocks need to be cut and / or a block turned to break the bond.
Blocks cut by saw produce a better finish but increases risk to health of operator.
If blocks have chamfered edges, cut edges will not be chamfered unless the specification requires the contractor to chamfer them (expensive).
If permeable paving ensure specification is to brick/block manufacturer's recommendations.

B735 LAYING BRICK / CONCRETE BLOCK FLEXIBLE PAVING
Laid to BS 7533-3.
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 but ensure joints align and compact with a minimum of two passes using a plate vibrator. Spread a layer of joint filling and brush into joints and vibrate again to cause the sand to fill the joints between the blocks, repeatedly brush sand in and vibrate until joints full, and subsequently if joint filling settles.

B740: for rough textured stone use 1 : 40 cross fall to prevent ponding. Smooth flat stone can be laid to flatter gradients.
Cutting, specify how and minimum cut sizes if appropriate
Refer to BS EN 1341 Natural stone slabs for external paving, if appropriate.
See: BS 7533-8 'Guide to structural design …'
Porous/permeable paving: BS 7533-13 'Guide for the design of permeable pavements constructed with concrete paving blocks and flags, natural stone slabs and setts and clay pavers'. If permeable paving ensure specification is to supplier's recommendations.
Note: Surface water: see note beside B720.
Reduce joint size for precision cut slabs.

B740 NATURAL STONE PAVING for .....
Drawing No. ……
Stone type and finish ....
Slab size .....mm x .....mm. Thickness .....mm.
Laid to BS 7533-4.
Granular sub-base: 100mm thick Type 1 to specification clause B260.
Bedding .....
Jointing: ……. 15mm wide.
Minimum cross fall: …….. Ensure no water ponding.

B745: See Interpave 'Concrete Flag Paving' available free at www.paving.org.uk
See also: BS 7533-8 'Guide to structural design …'
BS EN 1339 covers a range of heavy duty slabs (flags) from 300mm x 300mm up to 600mm x 900mm. 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

B745 PRECAST CONCRETE SLAB PAVING for .....
Drawing No. ……
Slabs to BS EN 1339: Laid to BS 7533-4.
Size: .....mm x .....mm x .....mm.
Manufacturer ..... and Ref: .....
Cutting: use a masonry saw or hydraulic slab splitter.
Granular sub-base: ….mm thick Type 1 to specification clause B260.
Bedding: …….

Manufacturer's recommendations.
See note to specification clause B705 for sub-base thickness.
Cutting, specify minimum size of slab if appropriate.
If edging required refer to one of the edging clauses B770-776.
Increase crossfall for rough/textured slabs (1:60 or 1:40).
See last 2 notes beside B740 for permeable paving and surface water

Joints: ..... 10mm wide.
Minimum cross fall: 1 : 80. Ensure no water ponding.

B750 and B751: Delete either or both if not referred to in stone or concrete slab paving clauses (B740-B749) above.

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.

B751: Not suitable for paths or drives carrying cars and not suitable for thin slabs; consult manufacturer for appropriate bedding for proposed paving. Use specification clause B750 with an appropriate sub-base where thin slabs are proposed or light wheeled traffic is planned.

B751 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.

B755 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. Keep face of slabs clean of mortar. Lightly tool the surface to consolidate, then cover with polythene for at least 3 days.

B760: Concrete base will be necessary on poor soils or where heavy wheeled traffic is planned.
If edging required refer to one of the edging clauses B770-776.
Refer to BS EN 1342 Natural stone setts for external paving, if appropriate.
See last 2 notes beside B740 for permeable paving and surface water

B760 GRANITE/CONCRETE/STONE SETT PAVING for .....
Setts: ……..
Laid to BS 7533-7.
Granular sub-base: ….mm thick Type 1 to specification clause B260.
Pressed into a 100mm thick bed of cement mortar mix 1:4 with plasticiser of a consistency suitable for bricklaying.
Pointed: to specification clause B755'

B765: 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.
If edging required refer to one of the edging clauses B770-776.

See last note beside B740 for surface water.

B765 COBBLES/PEBBLE PAVING for .....
Laid to BS 7533-7'
Granular sub-base: ….mm thick Type 1 to specification clause B260'
Bedding: 75mm 1:2:4 fine concrete screed using 10mm pea shingle aggregate.
Cobbles: 75mm long, smooth, egg-shaped, of uniform size and colour. Provide sample.
Grout: dry Rapid Hardening cement and sand 1:3 to specification clause B300.

B767 LAYING AND GROUTING COBBLES
Bed each stone on end into a screed in neat, close butted rows. Firm in each stone with a mallet to half its depth and to level the tops. Immediately brush in dry grout leaving 25mm of the stone exposed. Ensure that final levels allow free surface water drainage.
Water with a fine spray. Remove grout stains from the exposed stones within 24 hours. Protect from rain and all traffic for 4 days.

B770-779: Add additional types of edging as required, eg metal or stone edgings. Refer to detailed drawings where provided.

B770: See Interpave 'Concrete Kerbs' available free at www.paving.org.uk.
Specify manufacturer and product reference if appropriate.
Specify how corners are to be achieved, eg special units.
Specify how radii are to be achieved, eg special radius units (but design using the standard radii).
Add additional information as necessary if alternatives are available, eg finish, colour.
Add dropped kerbs if required including dropper units (left and right handed).
Stone kerbs, modify clause accordingly.

B770 PRECAST CONCRETE KERBS
To BS EN 1340.
Type: ……. Size: ……
Laid to BS 7533-6
Concrete base: ……..
Mortar bed: ……..
Haunching: ……..
Joints: butt jointed.
Laid to even lines, curves and levels as drawings.

B772: See Interpave 'Concrete Kerbs' which also covers channels and edgings, and 'Concrete Flag Paving' available free at www.paving.org.uk.
Specify manufacturer and product reference if appropriate.
Specify how corners are to be achieved, eg special units.
Specify how radii are to be achieved, eg special radius units (but design using the standard radii).
Add additional information as necessary if alternatives are available, eg finish, colour.

B772 PRECAST CONCRETE EDGINGS
To BS EN 1340.
Type: ……. Size: ……
Laid to BS 7533-6.
Concrete base: ……..
Mortar bed: ……..
Haunching: ……..
Joints: butt jointed.
Laid to even lines, curves and levels as drawings.

B774: See Interpave 'Concrete Block Paving' available free at www.paving.org.uk.
Specify how corners are to be achieved, eg special units.

B774 CONCRETE BLOCK EDGING
Manufacturer: ….
Type: ……. Colour: ……..
Laid to BS 7533-6.
Concrete base: ……..
Mortar bed: ……..
Haunching: ……..
Joints: butt jointed.
Laid to even lines, curves and levels as drawings.

B776:
Specify how corners are to be achieved, eg special units.
Some clay paviour manufacturers produce matching kerb/edging units which should be detailed and laid in accordance with the manufacturer's recommendations. They are often butt jointed. Traditional brick kerbs had 10mm mortar joints and used appropriate building bricks.

B776 BRICK EDGING
Manufacturer: ….
Type: …….
Laid to BS 7533-6.
Concrete base: ……..
Mortar bed: 25mm, mix: 1:4 with appropriate plasticiser.
Haunching: ……..
Joints: 10mm: Mortar mix: ……..
Laid to even lines, curves and levels as drawings.

B778: For no dig construction within Root Protection Areas of trees revise wording/detail so that the edging is placed on the ground (shaping the board to the ground rather than the ground to the board). Thicker boards and larger pegs fixing with screws rather than nails may all be more appropriate. Boards and pegs are visible

B778 TIMBER EDGING
Boards: …… mm x ……mm.
Pegs: …… mm x …… mm pointed..
Soft wood treated to specification clause B510.
Finish: ……..

so consider finish, or making them a feature (eg planed with chamfered edges; stained; boards top edge 75mm wide, straight, all joints mitred; pegs on the inside; etc).
Add additional clauses if there is more than one timber edge but identify clearly where they are located on plans and differentiate with different names (key words).

Decorative treatment: ……..
Pegs at minimum 1.2m centres and at board joints, on opposite side from paving.
Top of peg 35mm below top of board, top sloped from board to shed water.
Boards twice nailed to pegs, galvanised nails.
Curves: pegs closer to achieve even curve; on tight curves board partly cut at appropriate intervals and depth on inside of curve to achieve even curve.
Angled joints mitred.
Laid to even lines, curves and levels as drawings.

B780: Geotextile separating layer Terram Ltd ' T1000' (www.terram.com).
Sub-base granular material may not be necessary depending on soil and type of use.
Herbicide beneath sub-base: see note beside specification clause B255 as well as the notes beside specification clause A540.
Edging: refer to one of the edging clauses B770-779.
Whether gravel is permeable depends on the proportion and size of fine particles in the materials: the surfacing specified in this clause with Type 3 sub-base would be permeable with the sub-base acting as a reservoir allowing water to soakaway.
Self-binding gravel see note beside B785.

B780 GRAVEL PATHS/DRIVES
Geotextile separating layer: …….. to be laid over excavation and turned up at the sides to meet edging.
Granular sub-base: 100mm thick Type 2 to specification clause B261.
Surfacing: 50mm thick graded angular stones, 20mm down to 6mm.
Edging: …….

B782: 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.
If edging required refer to B778 or one of the other edging clauses B770-779.
Herbicide beneath sub-base: see note beside specification clause B255 as well as the notes beside specification clause A540.

B782 WOODCHIP AND GRAVEL PATHS
Edging: ……..
Sub-base: 100mm thick Type 2 to specification clause B261.
Surfacing: ……..……
Thickness of surfacing: …..mm.

B783: Appropriate for footpath routes within Root Protection Areas.
Example suppliers: www.melcourt.co.uk www.pracbrown.co.uk.

B783 WOODCHIP OR MULCH PATHS
Edging: ……
Surfacing: ……

Thickness of surfacing: ……mm thick applied on existing ground surface and consolidated in accordance with suppliers recommendations.
Topped up as necessary before all the work is finished / is finished / has achieved practical completion.

B785: 'Hoggin' is a non-specific term used to describe an as-dug gravelly material with a sufficient proportion of clay and fines to make it bind together when watered and rolled. Too much clay will make it muddy. Provide falls and surface drainage, hoggin is generally not permeable.
Some suppliers have 2 grades, one for surfacing over the other.
Self-binding gravel is an alternative, eg Breedon Golden Amber Gravel (which is not permeable), www.breedon-special-aggregates.co.uk.
If edging required refer to one of the edging clauses B770-779
Herbicide beneath sub-base: see note beside specification clause B255 as well as the notes beside specification clause A540.
Sub-base and possibly geotextile may be required depending on soil type.

B785 HOGGIN FOR PATHS/DRIVES
Hoggin to be as-dug material consisting of self binding mixture of gravel, sands and clay, 95% to pass a 20mm sized sieve. Submit sample with full details of source and grading analysis for comment by Consultant / Customer / Contract Administrator prior to delivery.
Lay and roll in 2 equal layers to achieve 150mm thick.

B788: Proprietary systems using a clear plastic binder and gravel (or other materials) are available and should be specified by brand name following research into its durability. Many products are permeable and some are appropriate around trees. Use the manufacturer's recommendations to produce the detail and specification. Eg:
Clearstone www.clearstonepaving.co.uk
Addaset Resin Bound Surfacing System www.addagrip.co.uk (includes 'Addastone Tree Pit System').
RonaDeck resin bound system www.ronacrete.co.uk/range/resin-bound-and-bonded-surfacing/ including a tree pit solution.
Sureset Resin Bound Gravel www.sureset.co.uk/
Some products can be laid on existing surfaces (depending on the quality of the existing surface and its construction).
Herbicide beneath sub-base: see note beside specification clause

B788 RESIN BOUND GRAVEL PAVING
Manufacturer: ……..
Product: ……..
Edging: ……..
Sub-base: ……..
Binder Course: ……..
Surfacing: ……..

B255 as well as the notes beside specification clause A540.
Edging: refer to one of the edging clauses B770-776.
Resin bonded surfacing is an alternative, see note beside B794.

B790: Macadams bound with bitumen or tar are coated stone of different sizes from 3mm up to 40mm.
Lay geotextile under sub-base for drives on clay soils.
Sub-base: see notes to specification clause B705.
Base course: 60mm thick for drives /40mm thick for paths.
The course thickness should be at least twice the aggregate size.
Note other parts of BS EN 13108 listed in Appendix E, appropriate for other blacktop surfaces, eg Part 7 Porous Asphalt. See PD 6691 (also from BS) for guide to BS EN 13108.
If edging required refer to one of the edging clauses B770-776.
See last note beside B740 for surface water.

B790 MACADAM PAVING FOR PATHS /DRIVES:
to BS EN 13108-1 and BS 594987 with limestone aggregate.
Geotextile: ……..
Granular sub-base: ….mm thick Type 1 to specification clause B260.
Edging: ……
Binder course: ……mm thick of 20mm sized open textured aggregate.
Surface course: 20mm thick, of 6mm sized medium textured aggregate.

B794: TRL Road Note 39 is available free from www.trl.co.uk
This traditional surface dressing bonds a thin layer of gravel to a hoggin base or granular sub-base (Type 1) 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.
It is now more common to apply the tar spray and gravel to a macadam base in order to achieve a more consistent and durable finish (ie B790 excluding surface course + B794 surface).
Also there are some proprietary products (resin bonded gravel), normally not permeable, see their literature for specifications and construction details etc. Specify by brand name after research into durability: eg:
Addastone Resin Bonded Surfacing www.addagrip.co.uk (includes 'Addastone Tree Pit System').
RonaDeck resin bonded: www.ronacrete.co.uk/range/resin-bound-and-bonded-surfacing/.
Some products can be laid on existing surfaces (depending on the quality of the existing surface and its construction).
See last note beside B740 for surface water.

B794 BINDER AND GRAVEL SURFACE DRESSING to TRL 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 16ºC.

Herbicide beneath sub-base: see note beside specification clause B255 as well as the notes beside specification clause A540.
If edging required refer to one of the edging clauses B770-776.
Resin bound gravel is an alternative, see clause B788.

B795: Many paving manufacturers illustrate how their products can be used as steps, or produce special step units, eg: Marshalls, www.marshalls.co.uk
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. Risers should all be equal in any flight, and similarly treads. Generally the bigger the riser the shorter the going (tread) but external steps generally should have treads between 300 and 450mm. Confined narrow external flights of steps are usually steeper than broad open flights.
See also section 9.1.2 page 35 of BS 8300-1 and Part M of The Building Regulations. Building Regulations available free from: www.gov.uk/government/collections/approved-documents.
Also consider: the edging of steps beside soil or grass; handrails.

B795 EXTERNAL STEPS: Drawing No. ……
Riser material: ..... manufacturer and reference: .....
Tread material: ..... manufacturer and reference: .....
Tread fall 1 : 60 towards nosing.
Granular sub-base: 150mm thick Type 1 to specification clause B260.
Concrete and mortar to specification section B3.
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.
Joints:

B798: See notes beside specification clause B795.
Consider how to prevent the soil at the side encroaching on the tread. The use of a board to form a sloping string course either side solves the problem and strengthens the timber structure.

B798 TIMBER RETAINED STEPS: Drawing. No. ……
Riser: 38mm x 150mm softwood.
String courses: 32mm x 150mm softwood.
Stakes: 50mm x 50mm x 450mm with splayed top.
Timber treatment: to specification clause B510.
Granular fill: to specification clause B260 to completely fill behind the risers to give a level top surface blinded if necessary with coarse sharp sand.

B8: Add fence types as necessary for the particular project, including products from individual producers if required, or alternative producers where appropriate.
In-situ samples if needed should be required in specification clause A627. If samples for timber quality, finish, jointing are required (not in-situ) the specific requirements should be included in the relevant clause in section B8

B8 Fencing

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

B805: In ground where the levels have been increased with fill or in poor soil, a greater depth may be necessary to ensure stability.

B805 POST HOLES to be vertical sided. Hole depth to be half the height of the fence, but a minimum of 500mm deep.

B810 POSTS SET IN CONCRETE to be vertical and rigid.
Post hole diameter to be a minimum of 200mm larger than the post section. Concrete to be 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 200mm layers each thoroughly consolidated.

B820 CHESTNUT PALE FENCING: to BS 1722-4.
Height: ….....m.
Posts: spaced at 2.25m max. and driven into ground.
Spacing between pales: 75mm.

B825: Rails are normally arrissed (triangular in section, two from 75x75mm) and morticed into posts.
Post material: Concrete or timber

B825 CLOSE BOARDED FENCING: to BS 1722-5.
Height ….....m.
Number and type of rails: …. No. …….

Post setting: in concrete, rammed earth or driven.
Feather edge boards: BS size is 100 x 13 down to 6mm, two from 100x22mm
Centre stump 600 x 50 x 50mm
Gravel boards may be timber sized 150 x 22 or 150 x 32 or concrete 150 x 50mm.

Specify decorative treatment if required eg to specification clause B600 or B605 with preparation and application as B610, B615 and B620
Specify matching gates as appropriate, see also B540

Timber species: ..... Timber finish: .....
Post material: .....
Post size: …….x……..x……..x……
Post spacing: not exceeding 3m .
Method of setting posts: .....
Feather edge boarding: .....mm.
Capping and counterrails: ……
Gravel boards: .....
Softwood timber preservation: to specification clause 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.
Specify decorative treatment if required eg to specification clause B600 or B605 with preparation and application as B610, B615 and B620
Specify matching gates as appropriate, field gate see B850.

B830 SAWN TIMBER POST AND RAIL FENCING: to BS 1722-7.
Height: ……m.
Joint type: .....
Number of rails: …
Method of setting posts: .....
Timber species: ……..
Softwood timber preservation: to specification clause B510.

B835: Alternatives:
Height, 0.6, 0.9, 1.2, 1.5, 1.8m
Posts, concrete or timber
Setting of posts, concrete or rammed earth
Panel type, e.g. waney edge horizontal boards.
Specify decorative treatment if required eg to specification clause B600 or B605 with preparation and application as B610, B615 and B620
Specify matching gates as appropriate, see also B540

B835 LAP BOARDED PANEL FENCING: to BS 1722-11.
Height: …….m.
Post material: .....
Method of setting posts: .....
Panel type: .....
Gravel boards: .....
Softwood timber preservation: to specification clause B510.

B840: Specify matching gates as appropriate (including barrier in ground)

B840 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; 30mm mesh; 1050mm high; buried 150mm.
Straining wire: 3 No. 3.15mm galvanised wires, fixed with galvanised staples.
Softwood timber preservation: to specification clause B510.

B845: Specify decorative treatment if required eg to specification clause B600 or B605 with preparation and application as B610, B615 and B620
Delete items (eg gravel boards) or add items (eg capping) as appropriate
Specify matching gates as appropriate, see also B540

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

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.
Add hinges, latches, bolts, locks etc as required
Post sizes/specification may be different for hanging post and closing post. Double gates benefit from a resting block where they meet. Consider resting block in open position. Consider rising hinges for sloping ground.

B850 FIELD GATE:
Manufactured by: ….....
Width: ….....m.
Gate material: ….....
Softwood timber preservation: to specification clause B510.
Post material: ….....
Post size: ……..
Hinges: ……..
Latch: ……..

B855 FIXINGS AND FASTENINGS: to specification clause B545.

B860 - B899: specify chainlink and similar mesh fencing etc here but railings, handrails and ornamental metal fencing in B5 (B550 onward)

B9: To be completed as necessary for seats, sculpture, urns etc.

B9 Site furniture and equipment

B10 Drainage

B1000: 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 paved 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.

B1000 RUBBLE FILLED SOAKAWAY
Drawing No. ……..
Volume: ….. m³ measured below inlet pipe.
Excavated depth: ….m.
Filling: granular material to specification clause B1005.
Vertical Inspection pipe: 150mm with screwed plastic inspection cap.
Horizontal distributor pipe: 100mm to specification clause B1045.
Geotextile filter membrane to bottom, sides and top to specification clause B1035, lapped 150mm at all joints.
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: For small soakaways prefabricated plastic perforated drums are available. For large installations the traditional material is precast concrete.

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

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

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

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.

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

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.

B1020 FIN DRAIN
Trench: …....mm minimum depth x …. mm wide.
Porous pipe size: 100mm unless otherwise noted.
Minimum gradient: 1 in 100.

Tailor specification to product used and manufacturer's recommendations

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. Surface finish can vary to suit design but must drain freely, eg pea shingle or larger single size aggregate.

B1035: Geotextile filter membrane Terram Ltd. 'T1000' (www.terram.com).

Geotextile filter: …….
Granular backfill: 20mm single sized stones.

B1025 FILTER DRAIN FOR GROUND AND SURFACE WATER
Trench: ……. mm 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 required 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 6mm grit.

B1035 GEOTEXTILE FILTER MEMBRANE for drainage work: ……..

B1040 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 PVC-U DRAIN PIPES FOR SURFACE WATER: to BS EN

1401-1.

B1060: Consider the need for rodding access using inspection chambers or rodding eyes.
Building Regulations available from www.gov.uk/government/collections/approved-documents

B1060 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 as detailed in the Building Regulations Approved Document H;
- workmanship to BS 8000-14.

B1065 INSPECTION CHAMBERS AND COVERS

Locate chambers so that covers are completely in one surface material and at least 200mm from the boundary of any materials and where close to the edge of any material parallel to that edge.
Set covers to marry into adjacent finished levels (25mm below grass level and at soil level pre mulching).
In unit paving set covers parallel to paving joints and locate as far as practical to minimise paving cutting and small pieces of paving.

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.
BS EN 13598-1 covers inspection chambers in pedestrian areas and -2 covers deep chambers and those in traffic areas.

B1066 PLASTIC INSPECTION CHAMBERS: to BS EN 13598-1 and BS EN 13598-2.
Manufacturer: ….....

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

B1070: BS EN 771-1 Table NA.6 lists the performance characteristics in BS EN 771 for the old engineering brick classifications of A and B

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: Type and size of cover may be limited by the use of a

B1075 INSPECTION CHAMBER COVERS

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, pedestrians only.

Type: ……..
Grade: …..
Size: …… x …….mm.

B1080: is this amount of inspection necessary and within the number of visits agreed with your client?

B1080 INSPECTION, CLEANING AND TEST: Check line and gradient of pipes and do not backfill any drain without inspection by Consultant / Customer / Contract Administrator.
Keep drainage system free of obstruction.
Rod and flush out drains just before all the work is finished / is finished / has achieved practical completion.
Pressure test drains to BS 8000-14.

B11 Water supply, ponds and irrigation

B1100: Design using domestic water supply of potable water to garden irrigation systems or pond top-up supplies to comply with BS EN 806-1 to -5. BS 8558 provides complementary guidance to BS EN 806
Taps that may be (or are) connected to a hose pipe for garden irrigation to be protected against backflow using a double check valve installed within a building envelope on new installations or within the tap assembly for existing installations.
Where porous hose irrigation is installed either on or below ground level a category 5 risk exists and should be supplied only through a Type AA, AB, AD or AUK1 air gap arrangement.
Any irrigation system with a final outlet less than 150mm below the water supply outlet is classed as a category 5 risk and should be protected as above.
No pond, pool or fountain installation may be directly or permanently connected to a potable mains water supply. Temporary connection (such as automatic top-up systems) may be made provided a

B1100 WATER SUPPLY
Domestic water supply of potable water to garden irrigation systems or pond top-up supplies shall be in compliance with BS EN 806.

category 5 backflow prevention arrangement is made.

B1105: Filter systems can be of the gravel or gauze types or based on UV light.

B1105 WATER PUMP AND FILTER SYSTEM
Pump manufacturer and reference: ….....
Filtration system type: ….....
Manufacturer and ref: ……
Electrical supply: as specification section B12 .....

B1110: Alternative liner materials are black EPDM rubber or black butyl sheet. Liner thickness 0.75mm

B1110 POND LINER to be: Material: …….. Thickness ……mm.

B1112: 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.

B1112 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 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: The maximum size of pond using this form of lining should be 4m. The larger the pond the more difficult it is to keep it watertight.

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
Concrete work see specification section B3.
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: Careful curing prevents quick early drying of the concrete / ferro-concrete. Premature drying would weaken the material. Changing the water 3 or 4 times before introducing plants is essential to reduce the alkalinity.

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.

B1150 onward: specify irrigation here.

B12 Electrical

*B12: **BS 7671**: 2018 is the 18th edition of the IET Wiring Regulations which although not statutory sets UK standards and **enables compliance with the law**. If the BS is revised after submission of tender then the system must comply with the new version and any change to the work will be a variation.*

If you are not fully conversant with the BS and are unable to design a scheme which is fully compliant with the BS then either:

- *Use the manufacturer of the proposed lights to do the design and specification, or;*
- *Use a lighting consultant to design and specify the lighting scheme, or;*

- *Use the electrical (sub-)contractor to design the scheme, in which case make sure he is competent to do the design. If the design is to be part of the landscape contractors work, do not use JCLI HLC/C, HLC or JCLI LWC but if a project for a 'commercial' client use JCLI LWCD (the 'with Contractor's Design' version, see specification clause A2 notes, and modify section B12 accordingly).*

For most 'domestic' garden projects, using one of the first 2 options and either JCLI HLC/C or HLC as the Contract will be most appropriate.

B1200: Building Regulations available from: www.gov.uk/government/collections/approved-documents
It is prudent to ensure the Competent Person Scheme to which the contractor belongs is recognised by the relevant local authority. Membership of a competent scheme provider would not necessarily mean experience of external lighting; www.gov.uk/building-regulations-competent-person-schemes, www.competentperson.co.uk

B1200 ELECTRICAL WORK

The design and installation shall be to BS 7671 and Part P of the Building Regulations. If there is any contradiction between the specification and BS, comply with the current version of the BS.
Electrical work shall only be carried out by a contractor who is:

- a member of the one of the Competent Person Scheme providers, which include the NICEIC and the ELECSA.
- experienced in SELV (Separated extra low voltage) external lighting.

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.

If another consultant or the manufacturer has provided the design and specification say so in an additional clause here and include the design and specification in an appendix to your specification.

B1210: delete either 'A622/ or '/A665' to reflect which clause has been deleted in Section A6

B1210 AS-INSTALLED DRAWINGS: see specification clause A662/A665* for as installed drawings and other requirements

on finishing / finishing / completion of the Works.

B1215 TREE ROOTS: Avoid routing underground cables near existing trees. Where this is unavoidable work to specification clause A506.

B1218 EXISTING INSTALLATIONS: do not disturb any existing electrical installation without agreement.

B1220 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.

B1230: Different parts of BS EN 60598-2 concern the particular requirements of different luminaires, some are listed in Appendix E Add additional clauses to specify the lighting poles, luminaires etc you require.

B1230 EXTERIOR LIGHTING FITTINGS to BS 4533 and BS EN 60598-1.

B1240: If you are specifying the work add additional clauses as appropriate but entirely in compliance with BS 7671.

C: External Works product listings: www.esi.info/externalworks/

C Plants and planting - Workmanship and Materials

C: Section C only covers work (including any necessary maintenance work) required before the work is finished / is finished / has achieved practical completion. If maintenance work is required thereafter it should be a separate contract (see clauses A2A18, A2D18, A2B26 Clause 2.1).

C1 General preamble

C100 GENERAL
Setting out see specification clause B100
Fires see specification clause A624
Protective fencing see specification clause A617
Retained vegetation protection see specification clause A506
Soil conditions see specification clause B202

C101 CLEARANCE, EARTHWORKS AND SOILING for soft landscape areas see specification clauses B200 to B249

C102: For guidance on options for the contractor's responsibility for watering see JCLI Practice Note No 8 Rev 2 (April 2017) item 11.

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

C103: The JCLI/CPSE Code of Practice for Plant Handling is incorporated in the National Plant Specification (at www.csdhub.com: under Plant Specification, Product Features (find out more), NPS General Information, NPS Handling and Establishment).
Plant Health and biosecurity is an increasing issue: See 'Plant health and biosecurity Toolkit for landscape consultants': www.landscapeinstitute.org/technical-resource/biosecurity-toolkit/.
A plant health management standard is being developed for nurseries and landscape contractors which will be linked to a plant health assurance scheme and in future will enable the use of

C103 SUPPLY & HANDLING OF TREES & PLANTS
Comply with the *National Plant Specification* (NPS) and the *NPS Handling and Establishment (Code of Practice for Plant Handling by CPSE)* available free at www.csdhub.com.
Ensure all nurseries / plant suppliers comply with the NPS and all legal requirements concerning plant health and biosecurity, eg plant passporting and import notifications for particular species as appropriate.
All plants shall have been growing in GB for at least 12 months prior to delivery.

contractors in the scheme and specifications to require that all nursery suppliers must be in the scheme: https://planthealthy.org.uk/. The Plant Health Portal is a comprehensive source of biosecurity information and guidance: https://planthealthportal.defra.gov.uk/, For highest risk pests and diseases see www.gov.uk/guidance/find-a-specific-tree-pest-or-disease.
Restrictions see www.gov.uk/guidance/importing-trees-and-plants-to-england-and-wales-from-the-eu. There are notification requirements on import from EU countries of Plane, Oak (increased restrictions in July 2019), Sweet Chestnut, Pine, Elm, Olive, Prunus and Ash (Ash currently prohibited including movement in UK) current August 2019. Many plants require Plant Passports. More extensive restrictions apply to imports from outside EU.
In terms of biosecurity it is recommended that all plants should have been growing in GB for 12 months prior to delivery. This enables quarantine of imported plants.
If time is available (minimum 1 growing season) contract growing of plants for a project has numerous advantages, see JCLI Practice Note No 11 Contract Growing Guidance, at www.landscapeinstitute.org/technical/jcli/
Sustainable growing media (preferably peat free) should be used in all pots and containers during plant production.

All plants shall have been grown in peat free growing media. Provide details of the growing media used.

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

C107: Add other appropriate seasons for different types of plant as appropriate
Revise clause as necessary if planting is required outside the normal seasons and specify that the Contractor must undertake any additional maintenance necessary to ensure establishment due to planting outside the usual season

C107 SEASONS: Undertake planting in the following seasons unless the agreed programme indicates otherwise:

- Deciduous plants: beginning November to end March
- Evergreen plants: October/November or April
- Grass and wildflower seeding: March/April or September/October
- Bulbs: when available depending on species, usually in

Autumn or Spring
- Aquatic and marginal plants: when available in Spring and Autumn
- ……

C108 WEATHER AND SOIL CONDITIONS
Soil conditions see specification clause B202
Undertake soft landscape works generally in open weather conditions, typically mild, dull and moist.
Do not undertake planting seeding or turfing when the temperature is below 4ºC and falling, when the ground is covered in snow, in frozen or waterlogged ground or in drought conditions.

*C110: **This clause only applies if** Clause H option 1 in Part A of JCLI HLC/C applies, or if Clause H option 1 in Part A of JCLI HLC applies, or if Clause 2.10A applies in JCLI LWC; ie when the Contractor is undertaking maintenance after the work is finished / is finished / has achieved practical completion*
'correction of faults' and 'A2A' apply to JCLI HLC/C, 'correction of faults' and 'A2D' apply to JCLI HLC and 'rectification of defects' and 'A2B' apply to JCLI LWC
For JCLI HLC/C and JCLI HLC see JCLI Practice Note No 10 Rev 3 item 4.2.6 or 5.2.3 and for JCLI LWC see JCLI Practice Note No 8 Rev 2 (April 2017) item 6. The requirement for plant replacement during the maintenance should be in the maintenance contract rather than the construction contract, so this clause can be deleted unless the maintenance is included in this contract
Any plants which fail to thrive before the work is finished / is finished / has achieved practical completion are unacceptable and must be replaced by the Contractor either before the works are accepted as finished / finished / practically complete or are listed on the Consultant's / Contract Administrator's certificate or Customer's list of outstanding work to be done afterwards.

C110 PLANT FAILURES: all plants supplied and planted by the Contractor including trees, which fail to thrive within the period for the correction of faults / correction of faults / rectification of defects of plants stated in Section A2A / A2B / A2C / A2D of this Specification, shall be replaced with the same species to match the size of adjacent plants of the same species at the next suitable planting season, unless otherwise agreed.

C115: see notes beside specification clause A540.

C115 PESTICIDES (including herbicides):

Apply if required in accordance with specification clause A540.

C120: herbicide and fertiliser are unlikely to be needed and should be deleted unless there is a long period between seeding / laying turf and the work is finished / is finished / has achieved practical completion.
Note maintenance items in this specification do not cover maintenance after the work is finished / is finished / has achieved practical completion.
Revise the clause depending on the type of grass area. Add additional similar clauses if there are different types of grass area, stating in the heading which type of area the clause applies to.

C120 GRASS MAINTENANCE (excluding wildflower areas)
Apply a selective herbicide (if required in accordance with specification clause A540) 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 the Consultant certifies the work is finished / Customer agrees the work is finished / Contract Administrator certifies practical completion.

C125: Revise the mowing heights depending on the type of grass area. Add additional similar clauses if there are different types of grass area, stating in the heading which type of area the clause applies to.

C125 GRASS CUTTING: (excluding wildflower areas).
When the grass (including weeds) is between 50 and 75mm high, clear surface debris and make a first cut with a sharp cylinder mower with a fitted grass box to reduce the grass to 40mm. Dispose of all grass cuttings to an agreed location.
Thereafter maintain the grass so that it is never longer than 50mm or shorter than 30mm by mowing at intervals until the Consultant certifies the work is finished / Customer agrees the work is finished / Contract Administrator certifies practical completion.

C126: 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.
Cutting will only be required under this contract until the work is finished / is finished / has achieved practical completion.

C126 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, or to the recommendations of the seed / turf supplier if different.

C130 ROLL grass 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 or contours on drawings and grade to even flowing contours with no sharp angles in any direction and no ponding hollows (unless shown on drawings)
Unless otherwise specified final levels after settlement are to be 20mm above any adjacent paving or other hard surface.
See also specification clause B245

C210: see note beside specification clause A540.

C210 PRE-EMERGENT HERBICIDE:
Before cultivation apply a herbicide, in accordance with specification clause A540, unless the ground has been kept fallow and weed free for a period of 6 months.

C215 GROUND PREPARATION FOR LAWNS:
Rotovate areas to be seeded to a minimum depth of 100mm
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 agreement 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.
See note beside specification clause B210

C220 GROUND PREPARATION FOR WILD FLOWER MEADOWS:
Harrow to reduce soil to a good tilth not exceeding 25mm.

C225: For example: Growmore is a general 7:7:7 fertiliser produced by several fertiliser suppliers, eg Vitax .
Or pre-seed fertiliser, typically N6:P9:K6

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 and water in well.
Not applicable to wildflower meadow areas

C230-240: The specification of alternative suppliers is desirable. Allowing the Contractor choice may encourage more competitive tendering.

eg, mixes from:
Germinal Seeds (previously British Seed Houses)
https://germinalamenity.com/grass-seed-mixtures
Rigby Taylor www.rigbytaylor.com
Johnsons www.johnsonslawnseed.com

Or specify seed mix by grass species with proportion of each which could be supplied by any supplier. Include requirements for reputable source and testing for viability, quality and mix proportions etc

C230 GRASS SEED with ryegrass for utility areas to be one of the following:
……
……
……
……
Sowing rate: ……. g/m².

C235 GRASS SEED for sunny lawn areas to be one of the following:
……
……
……
……
Sowing rate: ……. g/m².

C240 GRASS SEED for fine lawns in shade to be one of the following:
……
……
……
……
Sowing rate: ……. g/m².

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:
Ensure even mixing of all seed varieties at all times
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: Mix depends on soil type and conditions as well as species required. Mixes usually include grasses as well as wildflowers.
Example suppliers:
Emorsgate Seeds: http://wildseed.co.uk/
Germinal Seeds: www.germinalamenity.com
Landlife Wild Flowers www.wildflower.org.uk
Select an appropriate standard mix or list species and proportion of each. Most suppliers provide preparation, sowing and maintenance information/advice
Add additional clauses for different mixes as appropriate.

Wildflower turf is also available, if required specify it in specification section C3: eg from:
Lindum http://turf.co.uk/wildflower-turf/
Wildflower Turf ™ www.wildflowerturf.co.uk.

C255 WILD FLOWER SEED MIX:
…… or equivalent and appropriate mix.
Sowing rate: ……. g/m².

C260 SOWING WILD FLOWER SEED MIX:
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 roll to consolidate.

C270: delete reference to C126 if no wildflower grass seed areas

C270 MAINTENANCE OF NEW GRASS SEEDED AREAS
See specification clauses A660, C120, C125, C126, C130

C3 Turfing

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 rolls (typically 1640 x 610mm) or for large schemes where tractor laying is possible rolls are supplied (typically 750mm x 27m).

C300 TURF QUALITY for ……to be……
- to BS 3969 with herbicide applied 1 to 3 months before lifting;
- 900 x 300 minimum size, even thickness, max 10mm thick thatch and 7-18mm thick topsoil.

Supply a representative sample to site for inspection by Consultant / Customer / Contract Administrator before delivery.

Or specify turf by name from specific supplier. For example
Rolawn Medallion® www.rolawn.co.uk/turf-medallion.html
or Inturf Classic www.inturf.com/turf/classic-turf/
or Coronet Lawn Turf www.wildflowerturf.co.uk
or Festival from Lindum (www.turf.co.uk)
Wildflower turf: see note beside C255
Add additional clauses for different types of turf as appropriate.

C305 DELIVERY to be phased to ensure laying within 48 hours of lifting. Stacks not to exceed 1.4m high. Ensure turves do not dry out.

C307 GRADIENTS AND LEVELS:
Conform to the spot heights or contours on drawings and grade to even flowing contours with no sharp angles in any direction and no ponding hollows (unless shown on drawings) Unless otherwise specified final levels after settlement are to be 20mm above any adjacent paving or other hard surface. See also specification clause B245.

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: For example: Growmore is a general 7:7:7 fertiliser produced by several fertiliser suppliers, eg Vitax
Or pre-turf fertiliser.
No fertiliser for wildflower turf

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 30º.
Ensure final surface is 20mm above any adjacent hard surface.

C325: A larger radius will be needed for large trees (these areas should be mulched – see specification clause C545)
Revise 'turf right up to existing trees' if areas of bare soil or mulch are required beneath/around existing trees in grass areas.

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: Add clause for maintenance of wildflower turf if required (ask supplier for maintenance requirements)

C330 MAINTENANCE OF NEW TURF:
Spread and brush in a top dressing of fine sieved topsoil and sand 50:50 to fill cracks and depressions.
See also specification clauses A660, C120, C125, C130

C4 Shrubs, herbaceous, ground-cover and aquatic plants

C400: Specify nursery if required, or from one of a list of three, or leave it to the Contractor but include requirement for Contractor to provide details of the proposed nursery for agreement.
Include requirement for inspection and selection of plants at nursery by Consultant / Customer / Contract Administrator with Contractor if appropriate.
Sustainable growing media and biosecurity are increasing issues. See notes at clause C103 above.
Note: If the Customer / Customer / Employer or Consultant / Customer / Contract Administrator is supplying the plants delete this clause and add one to advise the Contractor accordingly. The

C400 NURSERY STOCK: in accordance with the plant list and as specified in the *National Plant Specification* (NPS, available free at www.csdhub.com).
Comply with the requirements of clause C103 above.
Obtain plants from ……..

Contractor will not be responsible for their replacement if they fail even if the Contractor is required to plant them.
If the Consultant / Customer / Contract Administrator wishes to set out the plants with the Contractor state it here. If the Consultant / Customer / Contract Administrator will be helping the Contractor do the planting also state it here. If the Consultant / Customer / Contract Administrator will be doing the planting without the assistance of the Contractor revise the specification accordingly to make it clear exactly who will be doing what.

C403: Soil in 'flat' planting areas should be higher than surroundings in order to appear 'full' and to allow for settlement over time. The soil level at the edges needs to allow for the depth of any mulch and finish low to avoid mulch spreading over the adjacent surface, but the soil should grade up from the edge (unless a different profile is required). The required profiles are best shown on cross-sections on detail drawings.

C403 GRADIENTS AND LEVELS:
Conform to the spot heights or contours on drawings and grade to even flowing contours with no sharp angles in any direction and no ponding hollows (unless shown on drawings).
Level of soil adjacent to paving and other surfaces shall be as shown on the detail drawings.
See also specification clause B245.

C405: herbicide, see note beside specification clause A540.

C405 PREPARATION FOR PLANTING:
Apply herbicide if required in accordance with specification clause A540, allowing adequate time for it to work before proceeding.
Rotovate ground to a minimum of 250mm deep and remove stones over 50mm in any dimension.
Remove existing unwanted plants including their roots.

C410: Peat should not be used for environmental reasons. Note spent mushroom compost is peat based, normally very alkaline (high pH) and decomposes rapidly.
PAS 100: Note, composted green waste normally has a high pH.
Some types of organic matter are better specified by volume if they are supplied by volume rather than weight, and applied by volume (eg 50mm deep over planting area, which is 0.05 m^3/m^2, ie 50 litres/ m^2)

C410 ORGANIC MATTER: apply and incorporate into the surface 250mm of planting areas, one of the following to be agreed:

- well rotted farmyard manure at a rate of 5kg/m^2.
- concentrated bagged animal manure at the rate of ……kg/m^2.
- composted green waste complying with BSI PAS 100 from an agreed supplier at the rate of ……./m^2.
- well rotted leaf-mould or spent mushroom compost at a rate of …kg/m^2.

C412: Add additional clauses for different size pits if appropriate. Pits previously dug and topsoiled in accordance with specification clause B248

See notes beside specification clause C410

C415: Inorganic fertilisers such as bonemeal should be applied in the autumn. Use organic or slow release fertilisers in the spring. Alternatively use controlled release fertilisers eg
ICL Enmag CRF
ICL Osmocote https://icl-sf.com/uk-en/

C412 ORGANIC MATTER: apply and incorporate into the surface 250mm of shrub pits, one of the following to be agreed:

- well rotted farmyard manure at a rate of …..
- concentrated bagged animal manure at the rate of …….
- composted green waste complying with BSI PAS 100 from an agreed supplier at the rate of ……..
- well rotted leaf-mould or spent mushroom compost at a rate of ….

C415 FERTILISER: incorporate bonemeal:

- in planting areas at the rate of 70gm/m² into the topsoil
- in individual shrub pits at the rate of ……..

Do not fertilise aquatic plants

C425 PREPARATION OF PLANTS:
Remove inorganic containers.
Check for and reject any damaged, diseased, poorly rooted, pot-bound, pest infested, wrongly identified plants, or plants not complying with all the requirements of the plant list (unless previously agreed)
Carefully prune any minor root damage.

C429 WATERING BEFORE PLANTING:
If soil is dry, thoroughly water 48 hours before planting
Saturate the root ball of container grown and rootballed plants 24 hours before planting.

C430 PLANT :

- in previously prepared pits and planting areas
- 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;
- set plants so that their original soil level matches the new surrounding ground and
- with their best side displayed.

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.

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

C445: NPS see specification clause C400.

C445 BULBS, CORMS AND TUBERS: to *National Plant Specification* (NPS, available free at www.csdhub.com).

C450: If appropriate modify clause.
In clay soils plant on 50mm bed of sharp sand.
In areas to be seeded/turfed bulb planting often undertaken before seeding/turfing depending on season when bulbs available and project programme.
Bulbs often spread by randomly throwing over designated area and planting where they fall.

C450 PLANT BULBS:
- under plugs of turf when in existing grass 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.

C460 WATERING:
Water thoroughly immediately after planting and at intervals as necessary in accordance with clause A660 until the Consultant certifies the work is finished / Customer agrees the work is finished / Contract Administrator certifies practical completion.

C465: Mulch: refer to the required clause(s) below, as necessary for different areas

C465 MULCHING:
Fork soil to a medium tilth in the areas to be mulched. Apply mulch after watering to a lightly consolidated depth of …… mm.

C466: specify specific supplier and product as necessary to specifically identify the material required.
List alternative products if acceptable.

C466 MULCH:
Supplier: ……
Type: ……..

Example suppliers: www.melcourt.co.uk www.pracbrown.co.uk
Alternatively use a performance specification – material, size, appearance, content requirements and sample requirements
Specify different mulches for different areas as appropriate.
See also note beside specification clause C640 for reuse of wood chips.

C470 POLYTHENE CRATES FOR AQUATIC PLANTS:
Provide sufficient crates of appropriate size to accommodate all pond and marginal plants as listed 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.
Do not fertilise aquatic plants
After planting apply a 25mm layer of washed pea shingle with a neutral pH to retain the soil in place.

C475 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.

C480: Specification clause C110 may not apply and may have been deleted

C480 MAINTENANCE PLANTS AND PLANTING AREAS
Keep the ground weed free.
See also specification clauses A660, C110

C5 Trees

C500: TDAG 'Tree Species Selection …' www.tdag.org.uk/species-selection-for-green-infrastructure.html
Specify nursery if required, or preferably from one of a list of three, or leave it to the Contractor but include requirement for Contractor to provide details of the proposed nursery for agreement.

C500 TREE QUALITY, SIZE AND TYPE: in accordance with the plant list and as specified in the *National Plant Specification* (NPS. available free at www.csdhub.com).
Comply with the requirements of clause C103 above.
Obtain plants from ……..

Include requirement for inspection and selection of plants at nursery by Consultant / Customer / Contract Administrator with Contractor if appropriate.
Sustainable growing media and biosecurity are increasing issues. See notes at clause C103 above.
Note: If the Customer / Customer / Employer or Consultant / Customer / Contract Administrator is supplying the plants delete this clause and add one to advise the Contractor accordingly. The Contractor will not be responsible for their replacement if they fail even if the Contractor is required to plant them.
If the Consultant / Customer / Contract Administrator wishes to set out the plants with the Contractor state it here. If the Consultant / Customer / Contract Administrator will be helping the Contractor do the planting also state it here. If the Consultant / Customer / Contract Administrator will be doing the planting without the assistance of the Contractor revise the specification accordingly to make it clear exactly who will be doing what.
Note: 'new' BS on trees (Feb 2014): BS 8545: Trees: from nursery to independence in the landscape. Recommendations. This BS includes extensive recommendations on design as well as plant production and planting. Currently not referred to in this specification which uses the National Plant Specification rather than BSs to specify plants. If BS 8545 is to apply specify exactly which parts are to apply and design and specify accordingly ensuring that the specification is enforceable.

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

C506: ties and spacers for clause C510

C506 TREE TIES AND SPACERS:
Type: ……..
By: ……..

C507: webbing for clause C511

C507 WEBBING
Type: …….
By: ……..

C510: Longer stake may be required for exposed locations Double or triple staking to just below the first fork/crotch may be required for better support in areas of high vandalism.

C510 STAKING FOR BAREROOT AND BAGGED TREES: Drive stake upright 600mm into bottom of excavated planting pit before planting, close to the tree stem on the windward side. Cut off at 600mm above ground and secure tree with ties and spacers as clause C506 approx 50mm from the top of the stake.

C511: Longer stakes and/or 3 stakes may be required in exposed locations or areas of high vandalism. Avoid crossbars because they provide a fulcrum over which to break the tree.

C511 STAKING FOR ROOTBALLED AND CONTAINER TREES: Drive 2 stakes upright 600mm into bottom of excavated planting pit 600mm apart, before planting, either side of the rootball in line with the prevailing wind. Cut off at 600mm high above ground level and after planting secure tree with loops of webbing as clause C507 secured approx 50mm from the top of the stake to hold the tree vertical.

C513: Specify guying for stabilising some types of mature transplanted trees, particularly conifers. Provide a drawing and detailed specification

C513 UNDER/OVER GROUND GUYING to be provided for the following trees: *…….*

C515: Some research indicates that no fertiliser is necessary for tree planting.

Note: No organic matter should be incorporated below 300mm

C515 TREE PIT PREPARATION
To pits topsoiled as specification clauses B245 or B247 but excluding pits in planting areas, shortly before planting:

- incorporate organic matter in accordance with specification clause C410 to a maximum depth of 250mm;
- incorporate fertiliser at the planting area rate in accordance with specification clause C415

C517 PREPARATION OF TREES:
Remove inorganic containers or rootball support materials. Check for and reject any damaged, diseased, poorly rooted, pot-bound, pest infested, wrongly identified plants, or plants not complying with all the requirements of the plant list (unless previously agreed).
Remove any string, or similar from canopy and prune out any dead, diseased or malformed growth prior to planting. Carefully prune any minor root damage.

C519 WATERING BEFORE PLANTING:
If soil is dry, thoroughly water 48 hours before planting
Saturate the root ball of container grown and rootballed plants 24 hours before planting.

C520 PLANT TREES:

- preparation of plants see specification clause C517;
- plant in previously prepared tree pits;
- upright and in exact positions shown on the drawings or in agreed positions;
- in holes large enough to allow adequate root spread or 150mm wider all round rootball;
- cut back any damaged roots to sound growth;
- loosen soil of sides of rootball while backfilling;
- so that the finished soil level is above the surrounding soil by 5% of the tree pit depth;
- so that the root flair is clearly visible above the finished soil level (including mulch if applicable);
- so that the original orientation is maintained (if marked on tree in nursery).

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

C525 TREE PROTECTION:
……

C530: Either specify pipe type, dia and length with caps etc or a proprietary system eg one (or more depending on tree size) from the RootRain range by Green Blue Urban:
www.greenblue.com/gb/type/tree-pit-irrigation-aeration/
Add aeration pipes if considered necessary for the type and depth of soil but they should extend down and circle around near the bottom of the tree pit, perforated pipe with no caps.

C530 WATERING PIPES: provide perforated plastic watering pipes in a circle around the top edge of the rootball.

C535 BACKFILLING to be the excavated (pre-prepared) soil. The backfill is to be evenly worked round the roots and well heeled in.

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

C540 PRUNING:
Remove any dead or damaged growth apparent before the work is finished / is finished / achieves practical completion.

C545 WATERING:
Water thoroughly immediately after planting and at intervals as necessary in accordance with clause A660 until the Consultant certifies the work is finished / Customer agrees the work is finished / Contract Administrator certifies practical completion.

C547: Mulch: insert appropriate specification clause, eg C466

C547 MULCHING
Fork soil to a medium tilth in the areas to be mulched. Apply mulch after watering to a lightly consolidated depth of…… mm, including soil areas around trees in grass.
Mulch: ……

C550: If area round tree not mulch, specify diameter to be kept weedfree.
Specification clause C110 may not apply and may have been deleted

C550 MAINTENANCE :
Keep the ground weed and grass free within mulched area round each tree.
See also specification clauses A660, C110

C6 Work to existing trees and plants

C600: Ensure that Permission from the Local Planning Authority has been obtained for work to trees which are subject to a Tree Preservation Order or in a Conservation Area. See also specification clause A140.
6 week notice to the Local Authority is required if the tree is in a Conservation Area. Fruit trees cultivated for their fruit are not covered by these restrictions.
Larger volumes of timber may require a felling licence for which you

C600 TREE WORK to be to BS 3998 '*Recommendations for Tree Work*' unless otherwise specified or agreed.
See also specification clauses:

- A140 TPO and other permissions;
- A505, A506, A507 vegetation protection;
- A515 and A520 Health and Safety;
- A617 Protective fencing;
- A620 site cleanliness;

need to contact the Forestry Commission.
Tree removal and tree work agreed as part of a Planning Permission does not require further TPO or Conservation area approval. However, work to retained trees on a development site which was not included in the Planning Permission may also need permission under the Planning Permission for the development.
Modify list of specification clauses as appropriate for the project.

C605: General site clearance see specification clause B205

C610: Check insurance amount with client. Private clients are likely to require £2 million cover. Public clients may ask for considerably more. This amount cannot be greater than the amount in the contract, ie for JCLI HLC/C and HLC the amount is provided by the tenderers (see specification clause A310) so if tree work is required the specification should require a minimum amount at clause A2A19 or A2D19. For JCLI LWC not greater than the amount in specification clause A2B26 (Clause 5.3.2).
If the tree works contractor is appointed separately from the landscape contractor then the levels of insurance can be different. The latter is often preferable if there is considerable work to large trees, and it is often done before the landscape work commences. If done separately delete specification section C6 from this specification, unless some other tree work is required in this contract. Major work to large trees such as cabling, etc., should always be done by specialist contractors preferably on the advice of an independent arboriculturalist who will also provide (or advise on) the Tree Work List and the specification required, as well as advise on appropriate specialist contractors.

- A622 Waste disposal;
- A624 fires.

C605 SITE CLEARANCE: TREES
Areas of trees and individual trees to be cleared are indicated on drawing no …
Agree with Consultant / Customer / Contract Administrator and mark each tree to be removed.
Stump clearance: see specification clause C635.

C610 TREE WORK SUBCONTRACTOR
The removal of major branches or felling of trees over 6m high and similar tree surgery operations shall only be carried out by specialist subcontractors with £ … million (any one claim arising from one event) public liability insurance.

C615-630: BS 3998 provides extensive guidance on specifying tree work.

C615 TREE WORK
Individual trees are indicated on drawing no … and the required work is listed on the Tree Work List.
Agree with Consultant / Customer / Contract Administrator on site exactly what work is required to each individual tree.

C620 – C635: may be used for minor works but the work should always be done by experienced, competent workmen.

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. Remove dead or damaged wood whether or not specifically listed.

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.

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

C635: Modify this clause if any stumps are to be left. The List of Tree Works should identify which can remain and at what height the stump should be left and any other treatment.
Modify clause if arisings are not to be removed from site.
Include on Tree Works list the radius from trunk from which roots are to be removed for each tree or if not equal all round then mark area on plan; or state maximum diameter of roots that can remain. Also include method (or exclude a method) on schedule for particular trees (eg root grinding is not appropriate for some diseased trees depending on the disease) or in specification if the same for all trees being removed.
Stumps which are left are vulnerable to honey fungus – check vicinity

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 or on Tree Work List.
In proposed soft areas backfill any resulting excavation with topsoil, or if over 300mm deep with appropriate subsoil and topsoil of appropriate depth for the type of area.
In proposed hard areas backfill in accordance with specification clause B250.

for honey fungus before keeping stumps.

C635 and C640: Diseased wood: comply with any restrictions imposed on the disposal of wood related to a particular disease or plant species (eg by DEFRA / FC or Local Authority by planning conditions), or if no restrictions dispose of diseased wood appropriately to avoid spread of the disease. Modify clauses C635/640 accordingly and add additional clause(s) if necessary.

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. Recent research indicates that composting of bark and chippings before use may not be necessary. Alternatively chips and wood can be used in log piles, wood chip piles etc for wildlife if appropriate in the design. Modify or expand this clause as appropriate

C640 WOOD CHIPS / LOGS: Chips from stump and brushwood chipping and/or logs are to be stored on site in agreed locations or as shown on the plans for use by the Customer / Customer / Employer or wildlife.

Sample Lists Appendix A

The inclusion of detailed lists of items like plants (and for example work required to each existing tree) enables detailed information to be conveyed to tenderers to enable them to price accurately and is invaluable for price certainty and quality control. The JCLI LWC contract uses the word Schedule(s) in the specific contexts of: Work Schedules which quantify the work (provided by the designer in the tender documents and priced by the tenderers); Schedule of Rates (provided by the tenderers if required to do so by the specification); as well as Schedules to the Conditions. Therefore it is preferable if lists of plants or other items should only be called Schedules in the context of Schedules in the JCLI Contract. Additionally such Lists may or may not include rates, totals and a grand total completed by the tenderers if they are part of the Work Schedules or Schedule of Rates (the latter usually only have rates and not totals).

Sample Plant List

Specify plants in accordance with the National Plant Specification (www.csdhub.com). If the species you require are not listed contact nurseries to determine sizes, other specification criteria and availability.
If codes are used to identify plants on drawings then include codes on the Plant List. Use annotation like A, B after code or plant name on list and drawings (and in specification if appropriate) to identify different sizes of the same type of plant and/or different tree pit sizes and/or climbers / shrubs in individual plant pits, etc. to suit the project.

Trees

Name	Form	Times Transp	Height (cm)	Girth (cm)	Clear Stem (cm)	Root system	Breaks	Quantity	Rate £	Rate p	Total £	Total p
Acer campestre	Standard	3x	425-600	14-16	175-200	Bagged	5	1				
Fraxinus excelsior	Standard	4x	min 450	20-25	min 200	Rootballed	3	1				
Quercus robur	Feathered	2x	200–250	-	-	C/15L	5	3				

Shrubs

Name	Height Spread (D) (cm)	Root System	Container Size	Habit	Breaks	Quantity	Rate £	Rate p	Total cost £	Total cost p
Ceanothus 'Autumnal Blue'	40-60	C	3L	Leader + laterals	4	4				
Lavandula augustifolia 'Hidcote'	20-30	C	3L	Bushy	5	100				

Phormium cookianum 'Cream Delight'	-	C	10-12L	Triple crown	-	24				
Salvia officinalis	20-30	C	2L	Branched	3	10				

Climbers

Name	Height Spread (D) (cm)	Root System	Container Size	Habit	Breaks	Quantity	Rate £	p	Total cost £	p
Clematis montana 'Grandiflora'	60–80	C	2L	Several Shoots	2	3				
Hydrangea petiolaris	30–40	C	3L	Several Shoots	2	4				
Lonicera periclymenum	60–80	C	3L	Several Shoots	3	1				

Herbaceous Perennials

Name	Root System	Container Size	Number of buds	Propagation method	Quantity	Rate £	p	Total cost £	p
Acanthus mollis	Clump	-	-	Seed	10				
Crocosmia 'Emberglow'	C	1L	-	V	25				
Hosta sieboldiana elegans	C	3-4L	2	V	5				

Bulbs

Name	Grade	Quantity	Rate £	p	Total cost £	p
Narcissus bulbocodium	3/+	50				
Narcissus 'King Alfred'	14/16	100				
Narcissus pseudonarcissus	7/+	500				

Abbreviations

C Container D Diameter L Litres etc ……..

APPENDIX B

Sample Letter of Invitation to Tender

Letter to each contractor being invited to tender for the work, on Consultant's / Customer's / Contract Administrator's letter headed paper, dated and with a unique reference (different for each contractor). Note that with JCLI HLC the Consultant may be issuing this letter for the Customer

Wording in the body of the text to be identical for each contractor.

The degree of formality of the letter should reflect the degree of formality intended for the whole tender process. This example is very formal which is typical for all but the smallest projects in the construction industry. The formality of the process has been developed to ensure fair competition and minimise the risk of fraud.

At the final stage of preparing the list of tenderers, it is normal to ask contractors whether they are interested in tendering for the project by giving them details of the approximate location, size, content of the work, programme etc so that they can advise whether they wish to tender. For large projects this is usually done in writing, but by telephone for smaller ones.

The return envelope must have the return address on it and states on the envelope that it is a Tender (often with the project name) and 'not to be opened until …'. Authorities usually provide their standard tender envelopes.

(Contractor's name and address) *(Date)*
(Ref)

Dear Sirs

(Project Name)

Following my recent enquiry I enclose the Tender Documents referred to in section A3 of the enclosed Specification, in order that you may submit a tender for the above mentioned work.

Please carefully note the instructions on preparing and submitting your tender in section A3 of the Specification as failure to comply with the instructions may invalidate you tender. Your tender is to be submitted sealed in the enclosed official tender envelope, to the address on the envelope, not later than ***(time and date)***, in accordance with the instructions in the Specification section A3.

Please acknowledge receipt of this letter and enclosures and confirm you are able to submit a tender in accordance with these instructions.

Yours faithfully

(Consultant's / Customer's / Contract Administrator's name)
Enc
Cc *(Customer / Customer / Employer)*

*This form should **not** be on the Consultant's / Customer's / Contract Administrator's letter headed paper (it is not from the Consultant / Customer / Contract Administrator but from the Contractor to the Customer / Customer / Employer)*

Modify the list of documents (3x) as appropriate

See note in Appendix B concerning degree of formality

This sample form is designed for use with the JCLI LWC rather than JCLI HLC/C or HLC. If required for the HLC/C or HLC then revise accordingly, particularly

- *'Employer' to 'Customer'*
- *'excluding' to 'including' VAT*
- *Revise the list of documents (3x)*
- *'execute' to 'carry out', 'complete' to 'finish' and 'the Completion of' to 'finishing'*
- *Add 'VAT Registration Number _____ (or insert not registered)' at the bottom*
- *Add 'Limit of Public Liability Insurance for any one claim arising from one event £ _____' if the amount is not stated in the specification (see guidance beside clause A310)*
- *Add 'For the purposes of the CDM Regulations, there will be / will not be more than one contractor and the project is / is not notifiable to HSE' if confirmation of these issues is required from the contractor (and in the latter case the project has not already been notified)*

Allow space in the form for its completion.

Authority clients often require additional forms to be completed by the tenderers eg Non-collusion Certificate

Sample Form of Tender

FORM OF TENDER

Tender for: ***(Project Title)***

To: ***(Employer's Name)***

I/We having inspected the Site of the Works do hereby offer to execute and complete all of the Works in accordance with the Conditions of Contract, Specification, Work Schedules and Drawings, for the Sum (excluding VAT) of:

_____

_____ £_____

I/We undertake to execute an agreement with the Employer according to the type of contract, for the Completion of the Works and the complete fulfilment of the terms of the Conditions of Contract, Specification, Work Schedules and Drawings. I/We further agree that until such Contract is executed, the said Conditions of Contract, Specification, Work Schedules, Drawings and this Tender together with the Acceptance thereof under the hand of your Authorised Representative shall be the Contract.

I/We further agree that this Tender shall remain open to be Accepted or not by the Employer and shall not be withdrawn other than by mutual agreement, for a period of three months from the final date fixed for the receipt of tenders.

Signature _____
Name _____
Position _____
Date _____
Company _____
Address _____
_____

Ideally this letter should be issued by the Customer / Customer / Employer to the Contractor (first paragraph and last 3 paragraphs modified accordingly). However the Consultant / Contract Administrator can write the letter as Agent of the Customer / Employer but the Consultant should ensure he has authorisation in writing from the Customer / Employer to do so.

Letter on Consultant's / Customer's / Contract Administrator's letter headed paper, dated and with a unique reference.

Modify the list of documents as appropriate. These documents are all contract documents (including this letter).

See note in Appendix B concerning degree of formality

Sample Letter of Acceptance of Tender

(Contractor's name and address) *(Date)*
(Ref)

Dear Sirs

(Project Name)

I have been instructed by *(Customer / Customer / Employer Name)* to accept your tender on his behalf for the Landscape Works for the above project in the sum of £ (*state sum)* in accordance with the following documents:

1. My letter of *(date)* reference *(state ref)* with attached Tender Documents *(list document titles, dates and references)*

2. *(list any letters and any attached documents between Consultant / Customer / Contract Administrator and contractor and visa-versa (with who from and to, dates and references), issued between the date of the letter of invitation to tender and the return of tenders – eg extending tender period, or answering tenderers questions – extend numbering as necessary)*

3. Your submitted tender *(date and reference)* with attached documents *(list document names, dates and references)*

4. *(list subsequent letters and any attached documents between Consultant / Customer / Contract Administrator and contractor and visa-versa (with who from and to, dates and references), issued between receipt of tenders and the date of this letter which concern the project, eg letters resolving errors or clarifying information etc– extend numbering as necessary)*

Please note that in accordance with the Form of Tender a contract now exists between you and *(Customer / Customer / Employer name)* for the Landscape Works at the above site. The contract will be prepared for signature shortly.

I will be in contact with you shortly to arrange a pre-commencement meeting on site.

I look forward to working with you on this project.

Yours faithfully

(Consultant's / Customer's / Contract Administrator's name)
Cc *(Customer / Customer / Employer)*

British and European Standards
(mentioned in the specification or associated notes)

APPENDIX E
(updated July 2019)

The latest status of any BSs can be obtained by entering the BS number in the search box at http://shop.bsigroup.com/

BS 1722-4: 1986: Specification for chestnut pale fences
BS 1722-5: 2006/2018: Spec for close boarded and wooden palisade fences
BS 1722-7: 2006/2018: Spec for wooden post and rail fences
BS 1722-9: 2006: Spec for mild steel fences …
BS 1722-11: 2006/2018: Spec for prefabricated wood panel fences
BS 3882: 2015: Specification for topsoil
BS 3969: 2013: Recommendations for turf for general purposes.
BS 3998: 2010: Recommendations for tree work.
BS 4428: 1989: C.P. for general landscape operations (excluding hard surfaces).
BS 4533: various: Luminaries see also BS EN 60598
BS 4652: 1995: Specification for zinc-rich priming paint
BS 4729: 2005/2016: Specification for bricks of special shapes and sizes
BS 4962: 1989: Specification for plastic pipes …. for use as sub-soil field drains.
BS 5837: 2012: Trees in relation to design, demolition and construction.
BS 6073-2: 2008: Guide for specifying precast concrete masonry units
BS 7533-2: 2001: Structural design light trafficked clay pavers + concrete blocks
BS 7533-3: 2005/2009: CoP laying conc block and clay paver flexible paving
BS 7533-4: 2006: CoP for pavements of natural stone and concrete pavers
BS 7533-6: 1999: CoP laying stone concrete and clay kerbs
BS 7533-7: 2010: CoP construction stone units cobbles and rigid block paving
BS 7533-8: 2003: Structural design light trafficked stone and concrete flags
BS 7533-9: 2010: CoP construction rigid pavement clay pavers
BS 7533-13: 2009: Design permeable conc block/flag, stone sett/slab + clay pave
BS 7671: 2018: Requirements for Electrical Installations (IEE Regulations)
BS 8000-1: 1989: Code of Practice for excavation and filling.
BS 8000-12: 1989: Code of Practice for …painting.
BS 8000-14: 1989: Code of Practice for below ground drainage
BS 8300-1, -2: 2018 Design of accessible inclusive external built environment
BS 8500-1, -2: 2015/2016/2019: Concrete specification – complementary to BS EN 206
BS 8545: 2014: Recom: trees from nursery to independence in landscape
BS 8558: 2015: Complementary Guidance to BS EN 806
BS 8601: 2013: Specification for subsoil
BS 594987: 2015/2017: Asphalt for roads and other paved areas - …

PD 6691: 2015/2016: Guidance on the use of BS EN 13108 Bituminous mixtures.
PAS 100: 2018: Specification for composted materials

BS EN 197-1: 2011: Cement. Composition, specification and conformity …
BS EN 206: 2013/2016: Concrete …
BS EN 295: 2012-13 Vitrified clay pipes and fittings … for drains.
BS EN 335: 2013: Durability of wood: use classes etc
BS EN 338: 2016: Structural timber. Strength classes.
BS EN 459-1: 2015: Building lime.
BS EN 460: 1994: Durability of wood …… hazard classes.
BS EN 771-1: 2011/2015: Specification for masonry units; clay (bricks).
BS EN 771-3: 2011/2015: Spec for masonry units; aggregate concrete (blocks)
BS EN 806-1 to -5: 2000-2012: Spec for installations for drinking water .
BS EN 845-1: 2013/2016: Specification for … masonry ties …
BS EN 934-3: 2012: Mortar admixtures…. air retaining (plasticizing) admixtures
BS EN 942: 2007: Timber in joinery – general classification of timber quality.
BS EN 1008:2002: Mixing water for concrete
BS EN 1338: 2003: Concrete paving blocks
BS EN 1339: 2003: Concrete paving slabs
BS EN 1340: 2003: Concrete kerb units
BS EN 1341: 2012: Natural stone slabs for external paving
BS EN 1342: 2012: Natural stone setts for external paving
BS EN 1401-1: 2019: Plastic piping … for underground drainage (PVC-U).
BS EN ISO 1461: 2009: Hot dip galvanized coatings.
BS EN 10223-2: 2012: Hexagonal steel wire netting
BS EN 12620: 2002/2008: Aggregates for concrete
BS EN 13108-1: 2016: Bituminous mixtures: material specs Asphalt Concrete
BS EN 13108-2: 2016: Bituminous mixtures: material specs Thin Asphalt Conc
BS EN 13108-3: 2016: Bituminous mixtures: material specs Soft Asphalt
BS EN 13108-4: 2016: Bituminous mixtures: material specs Hot Rolled Asphalt
BS EN 13108-5: 2016: Bituminous mixtures: material specs Stone Mastic Asph
BS EN 13108-6: 2016: Bituminous mixtures: material specs Mastic Asphalt
BS EN 13108-7: 2016: Bituminous mixtures: material specs Porous Asphalt
BS EN 13108-8: 2016: Bituminous mixtures: material specs Reclaimed Asphalt
BS EN 13139: 2002: Aggregates for mortar
BS EN 13598-1, -2: 2009/2016: Plastic piping systems … inc inspection chambers.
BS EN 60598-1: 2015/2018: Luminaires: General requirements and tests
BS EN 60598-2-4: 2018: Portable general purpose luminaries
BS EN 60598-2-13: 2006/2016: Ground recessed luminaires


SGD