

Guidance for building and civil engineering projects

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# Procurement requirements for reducing waste and using resources efficiently



Model procurement wording for clients and contractors to cut waste on construction projects

WRAP's vision is a world without waste, where resources are used sustainably. We work with businesses and individuals to help them reap the benefits of reducing waste, develop sustainable products and use resources in an efficient way.

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# 1.0 Introduction

The procurement process is essential to cutting waste in construction. This guidance will help you to reduce both the costs of waste and its environmental impacts by clearly defining your requirements and how you expect your supply chain to respond.

This document is for both construction clients and contractors<sup>1</sup>:

- **for clients**, it advises on how to write procurement requirements on your design team and contractors for the construction and maintenance of building and civil engineering/infrastructure projects (**see Section 2**); and
- **for contractors**, it sets out how to apply requirements when appointing your supply chain (**see Section 3**).

The model procurement wording is also available in an interactive tool at:

[www.wrap.org.uk/procurement\\_requirements](http://www.wrap.org.uk/procurement_requirements)

If you routinely procure projects with values of less than £1M or programmes of minor works, see the supplementary guidance available at: [www.wrap.org.uk/constructionminorworks](http://www.wrap.org.uk/constructionminorworks)

## 1.1 What should you ask for?

To fully benefit from waste reduction and recovery on a project, good practice must be adopted at the earliest possible stage, and mandated through the procurement process. Planned actions, metrics and targeted outcomes should be communicated between the client and contractor and passed down through the supply chain (including design and consultancy teams, subcontractors, waste management contractors and material suppliers) and across all project phases – from option identification and preliminary/outline design through to project completion and whole-life management.

Requiring your supply chain to help you reduce and better manage construction waste builds on the established practice of Site Waste Management Planning (a legal requirement in England since April 2008). The key activities within the supply chain are:

- taking steps during the early stages of design to ‘Design out Waste’ and plan the reuse of materials;
- implementing a Site Waste Management Plan (SWMP) from an early stage that includes project-specific targets for total waste arisings and the amount of waste sent to landfill, based on:
  - a robust forecast of waste arisings;
  - actions to reduce waste (e.g. matching design and material dimensions, and protecting materials from damage onsite);
  - actions to make effective use of any materials generated onsite (e.g. reuse of excavation or demolition materials; remediation or stabilisation of materials in-situ);
  - actions to achieve high levels of waste recovery (e.g. by segregating suitable wastes where site conditions allow); and
- reporting on performance using industry-standard metrics and measurement methods.

Sections 2 and 3 provide model wording to help you effectively incorporate these types of requirement into your policy, pre-qualification, briefing, tender and appointment documents.

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<sup>1</sup> ‘Contractor’ is a generic term used in this document to refer to the main contractor, principal contractor or other named contractor that is responsible for co-ordinating the delivery of the client’s requirements.

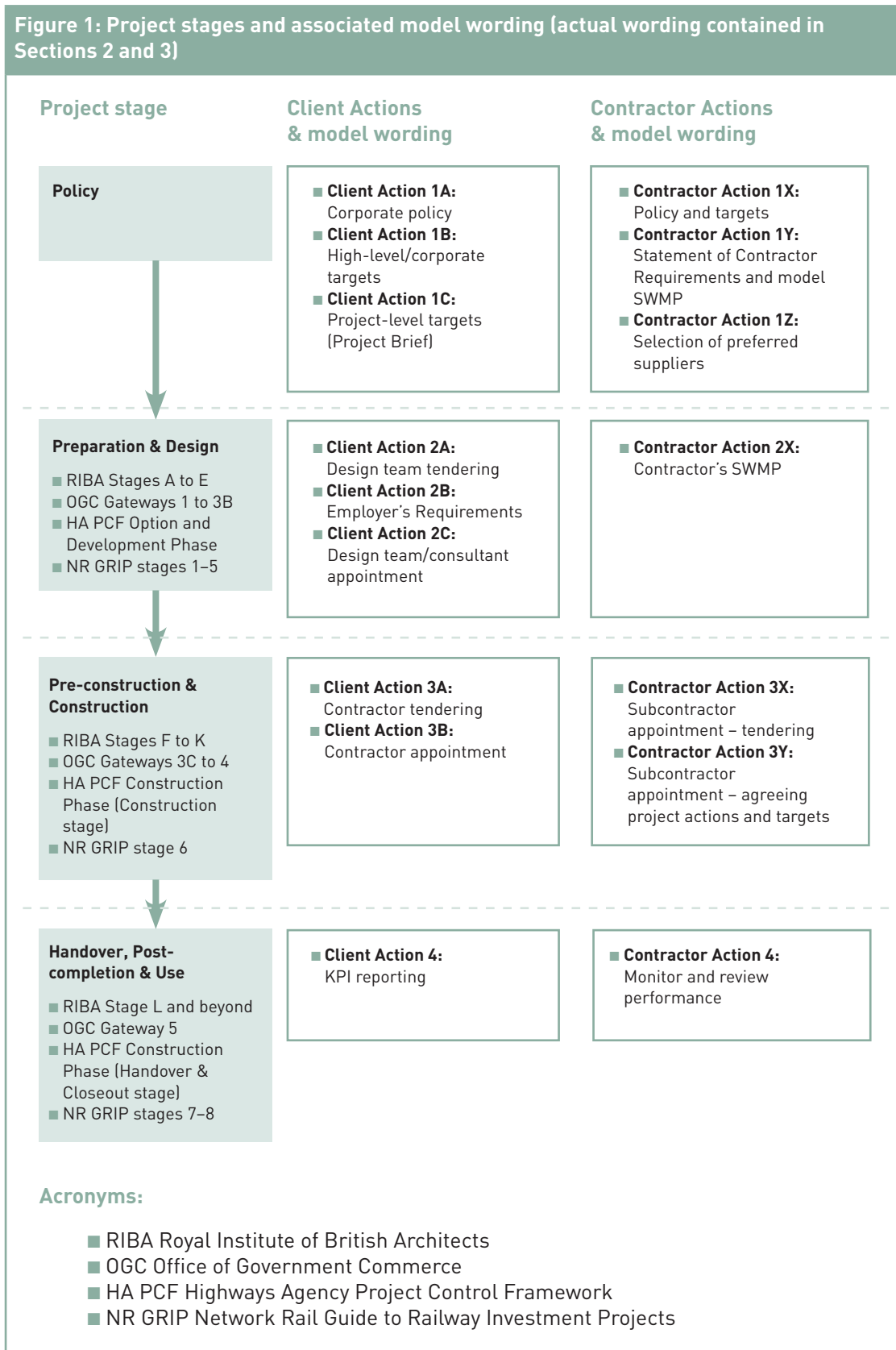
## 1.2 Application at different stages of the procurement process

For ease of use, the model procurement clauses are set by **project stage** rather than **procurement route** (see Figure 1). This means that, irrespective of the procurement route adopted for a project – for example Traditional, Design and Build (D&B), Private Finance Initiative (PFI), and Framework and Term contracts for maintenance or long term asset management, etc – actions and model wording should be selected according to project stage. Requirements can also be applied to procurement processes targeted at maintaining rather than building new facilities, civil engineering and infrastructure where there is little or no design involved.

Appendix A contains a Jargon Buster that lists the different documents that are used under each procurement route. Your documents may be specific to an operating unit or work across your whole group. It is rarely necessary to generate new documentation to set requirements; it is likely to be easier simply to modify existing documentation.

To support you and your suppliers in responding to these requirements, WRAP have generated a range of tools and guidance (see Appendix B), which are freely available at [www.wrap.org.uk/construction](http://www.wrap.org.uk/construction) and [www.aggregain.org.uk](http://www.aggregain.org.uk). These include a SWMP Template, waste forecasting tools, Designing out Waste guidance, and the Waste to Landfill Reporting Portal.

The model wording in this guide is split into the following project stages:



### 1.3 Keys to success

Experience shows that incorporating requirements into procurement will lead to significant benefits across the supply chain. Companies that have already started to cut waste cite the following success factors:

- **Timing** – the benefits from waste reduction and recovery are greater when they are planned earlier on in a project, especially at the design stage.
- **Monitoring compliance** – take the opportunity at gateway reviews (e.g. RIBA Stage review meetings, OGC Gateways etc) to check that design teams and contractors are implementing the actions and performance levels defined in procurement documents, tender responses and the project SWMP.
- **Consistency** – it is important that your requirements are stated throughout the procurement process and not solely within contracts. You might find it useful to map out your procurement process and evaluate which documents should be amended to include waste requirements.
- **Outcomes** – focus on what you want to achieve from your project and ensure the requirements reflect this. You may wish to improve waste forecasting, design team involvement, use of materials with higher recycled content, or better, more accurate, reporting.
- **Proportion** – ensure the extent of wording on waste is proportional to the document and scale of the project, particularly in relation to other areas such as carbon reduction and health & safety. The wording should also be in line with the style of the document.
- **Progressive** – the requirements should build through successive stages of procurement. Start by asking for capability in Pre-Qualification Questionnaires, then define outcomes in the Invitation to Tender, and finally secure agreement to achieve these outcomes in the Contract or order.
- **Performance targets** – embed your company and/or project-level targets in your requirements or preamble. Where appropriate, set waste targets to achieve specific credits within a BREEAM or Code for Sustainable Homes assessment.
- **SWMP** – the project's SWMP should meet good practice standards and incorporate both design stage and onsite actions (including waste reduction and reuse, not just recycling). You may find it useful to require your supply chain to manage their activities using the detailed project SWMP.
- **Construction Commitment** – signing up to the industry-wide voluntary agreement (Construction Commitments: Halving Waste to Landfill) is a good way of signalling your expectations to your suppliers. Include reference to this in your documentation.
- **Measurement and reporting** – the requirements should enable you to collect robust data and manage your performance using industry-standard KPIs.
- **Inclusive** – requirements should be used as a basis for engagement with suppliers (including small contractors) so that all parties can work to improve performance.
- **Be flexible** – there are many ways to effectively procure your supply chain. Take the time to reflect on which is right for your organisation and its processes. For example, some contractors ask their subcontractors to sign up to their SWMP and state that work will be undertaken in accordance with its content. Others might ask their supply chain to commit to a sustainability charter or other document.

## 2.0 Model wording for clients

### How to use this model wording

The clauses in this section are structured by **project stage** (as illustrated in Figure 1):

- Policy;
- Preparation & Design;
- Pre-construction & Construction; and
- Handover, Post-completion & Use.

The model wording should be inserted into the corresponding procurement documents and tailored where appropriate. (Note: clients and their project teams should review what they ask for on a contract-by-contract basis, for waste just as for other requirements.) The wording can be applied to different procurement routes and forms of contract. Appendix A names the documents in each procurement route which correspond to the project stages set out here.

### What are you asking your designer and contractor?

	Design team	Contractor
<b>Policy and targets</b>	Actions 1A and 1B <ul style="list-style-type: none"> <li>■ “You will need to support our ambition to reduce waste.”</li> </ul>	
<b>Project brief</b>	Action 1C: <ul style="list-style-type: none"> <li>■ “You will need to meet our targets for waste reduction, reuse and recovery at project level, and headline requirements for action planning, measurement and reporting.”</li> </ul>	
<b>Pre-qualification questionnaire</b>	Action 2A (preamble, PQQs): <ul style="list-style-type: none"> <li>■ “What is your ability to forecast waste, develop an early SWMP, and identify and prioritise options to reduce and reuse waste and increase use of recycled content?”</li> </ul>	Action 3A (preamble, PQQs): <ul style="list-style-type: none"> <li>■ “What is your ability to forecast waste; identify and prioritise options to reduce, reuse and recover more waste and increase use of recycled content; use the SWMP effectively; and ensure your supply chain will help deliver our objectives?”</li> </ul>
<b>Invitation to tender</b>	Action 2A (preamble, ITT questions, Employer’s Requirements for design & build): <ul style="list-style-type: none"> <li>■ “Tell us how you will identify and prioritise options to reduce and reuse waste and increase use of recycled content on this project, and use the SWMP to help meet our cost saving and waste objectives.”</li> </ul>	Action 3A (preamble, ITT questions, Employer’s Requirements for design & build): <ul style="list-style-type: none"> <li>■ “Tell us how you will take actions to deliver our objectives and project-level targets for waste reduction, reuse, recovery and recycled content; help prioritise actions at the design and pre-construction stages; use the SWMP to manage and report performance; and work with your supply chain.”</li> </ul>
<b>Appointment/contract documents</b>	Action 2C (contract): <ul style="list-style-type: none"> <li>■ “Agree what actions you will take to design out waste and to ensure your plans are implemented during the construction phase.”</li> </ul>	Action 3B (contract conditions, preliminaries): <ul style="list-style-type: none"> <li>■ “Agree to deliver the project-level targets, use the SWMP to prioritise actions and forecast the resulting improvements, and report on performance.”</li> </ul>



## 2.1 Policy stage

Clients should use the Policy stage to embed a corporate-level commitment:

- **Action 1A** – stating corporate policy such as agreement to the “Halving Waste to Landfill Commitments”;
- **Action 1B** – setting high-level/corporate targets; and/or
- **Action 1C** – setting project-level targets.

**On a one-off project, Actions 1A and 1B may be omitted.**

The objective is to signal your intent to your own organisation and to members of your supply chain, and to provide a clear simple basis for measuring (and hence managing) your overall performance. Insert the model wording below into your corporate strategy documents and the Project Brief.

### 2.1.1 Action 1A: Corporate policy

#### Corporate Social Responsibility (CSR) policy document

“We commit to playing our part in halving the amount of construction, demolition and excavation waste going to landfill by 2012. We will work to adopt and implement standards for good practice in reducing waste, recycling more, and increasing the use of recycled and recovered materials.

We will:

- set a target for reducing waste to landfill;
- embed the target within corporate policy and processes;
- set corresponding requirements in project procurement and engage with our supply chain;
- measure performance at a project level relative to a corporate baseline; and
- report annually on overall corporate performance.”

### 2.1.2 Action 1B: Corporate targets

#### CSR policy document and Project Brief

“By [2012], [name of organisation] aims to [halve/reduce by X% – state target] the rate at which its projects send construction, demolition, and excavation waste to landfill (i.e. quantity of waste per unit of construction), relative to a baseline year of 2008 [or alternative date], and will report progress annually using the following KPIs:

- tonnes of waste per £100k construction value<sup>2</sup>;
- tonnes of waste to landfill per £100k construction value; and
- % of waste diverted from landfill.

This will support national policy goals [e.g. halving waste to landfill by 2012, adopted in England by the Government’s Strategy for Sustainable Construction; Zero Waste Scotland; Towards Zero Waste and a proposed 75% reduction in waste to landfill by 2020 in Wales], and will be achieved by reducing waste, recovering more materials and using more recovered material<sup>3</sup> in new construction.”

<sup>2</sup> Construction value is the price in the accepted tender or, if there is no tender, the cost of labour, plant and materials, overheads and profit.

<sup>3</sup> This includes materials reused and recycled on site, reclaimed products, recycled aggregates and manufactured products supplied to site with recycled content.

Note: Waste per unit of construction value is recommended as a standard KPI. Alternative measures of construction output for normalising and benchmarking performance include building area in m<sup>2</sup>, number of dwellings/bed spaces, linear metres of carriageway, or other capacity measure. Business turnover may be applicable to framework projects for maintenance works or to street works projects for utility companies. However, construction value is a universal measure (e.g. across both infrastructure and building projects), and a common metric will facilitate reporting to/by clients who use a number of contractors.

### 2.1.3 Action 1C: Project-level targets

#### Project Brief

“Our design and construction project teams will be required to:

- implement Site Waste Management Plans throughout the design and construction period that comply with regulatory requirements (where applicable) and include in such Plans project-specific targets for waste recovery and reused and recycled content (below) and for waste reduction;
- measure and report progress against the corporate KPIs for the quantity of waste produced and the quantity of waste sent to landfill (measured in tonnes per £100k construction value<sup>4</sup>) [using the WRAP Waste to Landfill Reporting Portal<sup>5</sup> and guidance – delete reference as necessary];
- recover at least [70% – state target] of construction materials, and aim to exceed [80% – state target];
- recover at least [80% – state target] of demolition, strip-out and excavation materials (where applicable), and aim to exceed [90% – state target]; and
- ensure that at least [15% – state target] of total material value derives from reused and recycled content in new construction, select the top opportunities to exceed this figure without increasing the cost of materials, and report actual performance.

Project teams shall forecast waste quantities and reused and recycled content and set targets for waste reduction from an early design stage (for instance by using WRAP’s Designing out Waste Tools and Net Waste Tool<sup>6</sup>).

Before starting on site, the project team shall submit a copy of the Site Waste Management Plan, identifying the actions to be taken to reduce waste, increase the level of recovery and increase reused and recycled content, and quantifying the resulting changes.

On completion of the Works, the project team shall submit a copy of the completed Site Waste Management Plan, reporting the forecast and actual performance for waste quantities, disposal routes, and reused and recycled content used in construction.”

<sup>4</sup> Construction value is the price in the accepted tender or, if there is no tender, the cost of labour, plant and materials, overheads and profit.

<sup>5</sup> Accessible at [www.wrap.org.uk/reportingportal](http://www.wrap.org.uk/reportingportal)

<sup>6</sup> The Designing out Waste Tools for Buildings and for Civil Engineering and the Net Waste Tool are freely accessible at [www.wrap.org.uk/nwtool](http://www.wrap.org.uk/nwtool)

## Project Brief for a programme of minor works (projects less than £300k)

“By [2012], [name of organisation] aims to [halve/reduce by X% – state target] the rate at which its projects send construction, demolition and excavation waste to landfill (i.e. quantity of waste per unit of construction), relative to a baseline year of 2008 [or alternative date], and will report progress annually.

“Across our **programme of minor works**, we seek to:

- recover a minimum of [70% – state target] of construction materials, and aim to exceed [80% – state target];
- recover a minimum of [80% – state target] of demolition, strip-out and excavation materials (where applicable), and aim to exceed [90% – state target];
- measure and report progress quarterly against our corporate KPIs for the quantity of waste produced and the quantity of waste sent to landfill (measured in tonnes per £100k construction value<sup>7</sup>); and
- after measuring our baseline for waste generation, set and pursue a target for reducing the quantity of waste produced (measured in tonnes per £100k construction value) each year.

We require **each individual project** to:

- measure and report construction, demolition (including strip out) and excavation waste amounts separately, and identify the destinations (landfill, materials recovery facility etc) to which these amounts are sent and their recovery rates;
- identify the five most significant construction materials/products (by quantity, cost and wastage) and the most significant waste streams (in terms of disposal cost);
- propose and implement the most cost-effective methods of reducing, reusing and recovering more of these waste materials;
- identify, for at least one of these five product/material categories, options with higher recycled content available on the market at a competitive cost<sup>8</sup> and use these products in construction; and
- provide a record of waste data and waste reduction/reuse/recovery/recycled content actions from each individual project using an agreed template.”

Where a programme of minor works is being procured, the tender and contract documents for the design team and contractor should be modified to reflect the requirements in the Project Brief above. See [www.wrap.org.uk/constructionminorworks](http://www.wrap.org.uk/constructionminorworks) for more information.

The wording of Action 1C can also provide the basis for a Charter or similar partnering agreement between the client and their supply chain (such as a framework of principal contractors). Such a Charter can be introduced after contracts have already been signed, subject to voluntary approval.

<sup>7</sup> Construction value is the price in the accepted tender (excluding VAT) or, if there is no tender, the cost of labour, plant and materials, overheads and profit.

<sup>8</sup> Identify product options by talking to suppliers and using WRAP’s Recycled Content Product Guide, freely accessible at [www.wrap.org.uk/rcproducts](http://www.wrap.org.uk/rcproducts)

## 2.2 Preparation & Design stage

### How to use this model wording

Construction clients should use the model wording in this Section when procuring a design team. (The term 'design team' is used broadly and includes all consultants (and contractors where they are involved in the preparation stage) required for the construction process.)

The objective is to include waste and materials use as a systematic consideration from an early design stage – rather than leaving waste for the contractor to consider later, when much of the opportunity to reduce and reuse waste materials and secure cost savings will have been missed. In addition, by getting the design team to quantify potential savings upfront, the client is much better placed to secure more competitively priced tenders from contractors.

Depending on the procurement route adopted (and the nature of the contract), design teams may be involved only as far as construction, or until completion<sup>9</sup>, or not involved at all. For example, design teams for buildings may be involved up to RIBA Stage C<sup>10</sup>, or in some cases through to completion<sup>11</sup>. Contractor involvement can also occur from Preliminary Design or earlier within Early Contractor Involvement (ECI) procurement, and from RIBA Stage C to Stage E within Design and Build procurement.

Demolition, ground investigation and site clearance contractors may be appointed early in the project lifecycle, and can have a substantial impact on material recovery rates. Although the model wording below is aimed at project design teams, it can be easily adapted to apply to demolition, ground investigation and site contractors involved in the preparation stage.

The wording needs to be applied to those charged with design<sup>12</sup> responsibility for your project. Irrespective of procurement route adopted, the model wording can be inserted in design team Pre-Qualification Questionnaires (PQQs), Invitation to Tender (ITT) documents, and consultant appointment contracts. This wording will also apply to maintenance/framework contracts where the principal contractor has some design responsibility; in these situations, see Action 2B which sets out Employer's Requirements for such design and construction.

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<sup>9</sup> Where there is early design involvement by the contractor such as under ECI contracts or under PFI contracts.

<sup>10</sup> For example, under Traditional Procurement a separate design team works up the design brief, after which a second design tender can be issued for RIBA Stage C outline and RIBA Stage D&E detailed design work.

<sup>11</sup> For example, where there is early design involvement by the contractor such as under Design and Build contracts or under PFI contracts.

<sup>12</sup> Design should be defined broadly and includes all consultant services that impact on the nature, extent, quality and cost of the project.

## 2.2.1 Action 2A: Design team tendering

### Pre-Qualification Questionnaire (PQQ) and Invitation to Tender (ITT)

#### Preamble to PQQ

“In all of our development work, our aim is to minimise any adverse impacts that construction has on the environment. We seek this through the design process, materials selection, construction techniques, and operational methods. All organisations appointed to work on our behalf are required to work in accordance with these principles. Specific information on our environmental policy is set out in [insert reference to the relevant document on this topic], to which all consultants and contractors appointed on our projects are expected to conform.

The waste to landfill objective is to reduce waste and use materials efficiently [and specifically to support our corporate objective to reduce waste to landfill by [X% – state target] by [2012] from a [2008] baseline – delete text where appropriate]. The appointed design consultant shall work to the following general design principles (and in accordance with the waste hierarchy<sup>13</sup>):

- forecast likely waste streams;
- reduce materials wasted in construction;
- reduce the proportion of waste that is sent to landfill;
- reduce materials used in construction; and
- increase the use of recovered materials and materials with above-average levels of reused and recycled content.

Evidence shows that taking action to reduce waste and increase reuse and recycling rates will reduce project costs, and the appointed design consultant shall seek such savings on behalf of the client.

#### PQQ questions

These questions probe the general capability of a design team to design out waste and save money for the client.

1. “What experience, if any, does your company have in forecasting waste arisings and identifying and implementing options to reduce construction waste and associated costs?”
2. What experience, if any, does your company have in preparing or contributing to a Site Waste Management Plan at the design stage, which results in quantified reductions in waste to landfill?
3. What experience, if any, does your company have in evaluating reused and recycled content, and specifying construction materials containing a higher recycled content as well as reused materials<sup>14</sup>?”

<sup>13</sup> The waste hierarchy orders preferred waste management options. The most preferred option is reduce, followed by reuse, recycling, energy recovery, treatment and, lastly, disposal.

<sup>14</sup> Recycled content is the proportion, by mass, of recycled material in a product. In various product categories, cost-competitive mainstream products are available with higher levels of recycled content than others in the same category.

### An ideal PQQ response would provide the following details:

- project experience illustrating how the bidder has previously identified waste streams, forecasted waste arisings and investigated waste reduction and recovery options at an early design stage;
- project experience illustrating how the bidder contributed towards a Site Waste Management Plan that reduced waste to landfill;
- examples showing how the bidder affected the selection of construction materials containing higher levels of recycled content;
- examples of how the bidder has designed projects to reuse in-situ, excavation and demolition materials in the past;
- examples showing how the bidder has previously collaborated with their supply chain to deliver these outcomes.

### Preamble to ITT

“In all of our development work, our aim is to minimise any adverse impacts that construction has on the environment. We seek this through the design process, materials selection, construction techniques, and operational methods. All organisations appointed to work on our behalf are required to work in accordance with these principles. Specific information on our environmental policy is set out in [insert reference to the relevant document on this topic], to which all consultants and contractors appointed on our projects are expected to conform.

The waste to landfill objective is to reduce waste and use materials efficiently [and specifically to support our corporate objective to reduce waste to landfill by [X% – state target] by [2012] from a [2008] baseline – delete text where appropriate]. The appointed design consultant shall work to the following general design principles (and in accordance with the waste hierarchy<sup>15</sup>):

- forecast likely waste streams;
- reduce materials wasted in construction;
- reduce the proportion of waste that is sent to landfill;
- reduce materials used in construction; and
- increase the use of recovered materials and materials with above-average levels of reused and recycled content<sup>16</sup>.

Evidence shows that taking action to reduce waste and increase reuse and recycling rates will reduce project costs. For this reason, your services should identify how to achieve these outcomes most effectively<sup>17</sup>. Designers may wish to refer to the ‘basic principles of designing out waste’, contained in the WRAP Designing out Waste guidance<sup>18</sup>.”

<sup>15</sup> The waste hierarchy orders preferred waste management options. The most preferred option is reduce, followed by reuse, recycling, energy recovery, treatment and, lastly, disposal.

<sup>16</sup> Recycled content is the proportion, by mass, of recycled material in a product. In various product categories, cost-competitive mainstream products are available with higher levels of recycled content than others in the same category.

<sup>17</sup> WRAP’s Net Waste Tool can be used to forecast wastage and set targets for waste reduction and recovery from the design stage.

The same tool will evaluate reused and recycled content. The tool is freely accessible at [www.wrap.org.uk/nwtool](http://www.wrap.org.uk/nwtool)

The Designing out Waste Tools for Buildings and for Civil Engineering are available at the same web address and provide a simple and rapid evaluation at an earlier stage of design.

<sup>18</sup> Designing out Waste guidance for buildings and infrastructure are available at [www.wrap.org.uk/designingoutwaste](http://www.wrap.org.uk/designingoutwaste)

### ITT wording

These clauses ask designers to explain how they will systematically consider waste and maximise cost savings as part of the design development process.

“We require designers to respond to this tender specifically listing:

- a) how you will identify, prioritise and select options to design out waste, set targets for waste reduction, and increase reused and recycled content on this project;
- b) how you will maximise the use of demolition, in situ and excavation materials [delete as appropriate];
- c) how you will embed information into a Site Waste Management Plan and communicate design decisions; and
- d) how you propose to contribute most effectively to meeting our cost saving and Waste to Landfill objectives.

Responses should be SMART (Specific, Measurable, Achievable, Realistic & Time-based).”

### An ideal ITT response would provide the following details:

- an outline of their method to reduce construction waste and increase the use of reused and recycled content through design, that integrates Designing out Waste into the project from an early stage (e.g. following the principles set out in WRAP guidance on Designing out Waste<sup>19</sup>);
- specific proposals showing a workable solution to setting and meeting project targets for waste reduction and reused and recycled content, including selection of the most cost-effective options – which would typically involve identifying around five design changes with the most significant impact and around five product materials categories where options with higher reused/recycled content are available on the market at a competitive cost;
- where strip out, demolition and excavation will take place, the bidder should show experience of reusing such materials, and specify how they will be used on this project; pre-demolition audits and ground/site investigations can help with this and the bidder should refer to using this information;
- where ground work is involved, the bidder should show experience in maximising the value of in-situ materials avoiding the need for excavation if possible; ground/site investigations can help with this and the bidder should refer to using this information;
- explanation of how they will help develop the SWMP – forecasting waste, and capturing design actions that will reduce construction wastes;
- explanation of how their approach will help to cut your costs and contribute towards your longer term Waste to Landfill objective, including solutions to project-specific barriers and constraints; and
- responses which are SMART (Specific, Measurable, Achievable, Realistic & Time-based).

## 2.2.2 Action 2B: Design/project team tendering

### Employer's Requirements at design stage, and for Design & Build or PFI contracts

The client can issue these Employer's Requirements when tendering for their own design team (alongside the ITT wording above), or when tendering for a D&B/PFI contractor who, depending on procurement route, may appoint their own design team.

These clauses ensure that D&B/PFI contractors and their design teams will systematically consider waste and associated cost savings as part of the design development process, and build forecasting, measurement and reporting into effective SWMPs.

"In all of our development work, our aim is to minimise any adverse impacts that construction has on the environment. We seek this through the design process, materials selection, construction techniques, and operational methods. All organisations appointed to work on our behalf are required to work in accordance with these principles. Specific information on our environmental policy is set out in [insert reference to the relevant document on this topic], to which all consultants and contractors appointed on our projects are expected to conform.

The waste to landfill objective is to reduce waste and use materials efficiently [and specifically to support our corporate objective to reduce waste to landfill by [X% – state target] by [2012] from a [2008] baseline – delete text where appropriate]. The project team shall work to the following general design principles (and in accordance with the waste hierarchy<sup>20</sup>):

- forecast likely waste streams;
- reduce materials wasted in construction;
- reduce the proportion of waste that is sent to landfill;
- reduce materials used in construction; and
- increase the use of recovered materials and materials with above-average levels of reused and recycled content<sup>21</sup>.

Our [Design & Build/PFI]project teams shall be required to:

- implement Site Waste Management Plans throughout the design and construction period that comply with regulatory requirements (where applicable) and include in such Plans project-specific targets for waste recovery and reused and recycled content (below) and for waste reduction, starting from an early design stage;
- measure and report progress against the corporate KPIs for the quantity of waste produced and the quantity of waste sent to landfill (measured in tonnes per £100k construction value<sup>22</sup>) [using the WRAP Waste to Landfill Reporting Portal<sup>23</sup> and guidance – delete reference as necessary];
- recover at least [70% – state target] of construction materials, and aim to exceed [80% – state target];
- recover at least [80% – state target] of demolition, strip-out and excavation materials (where applicable), and aim to exceed [90% – state target]; and
- ensure that at least [15% – state target] of total material value derives from reused and recycled content in new construction, select the top opportunities to exceed this figure without increasing the cost of materials, and report actual performance.

<sup>20</sup> The waste hierarchy defines the order of preferred waste management options. The most preferred option is reduce, followed by reuse, recycling, energy recovery, treatment and, lastly, disposal.

<sup>21</sup> Recycled content is the proportion, by mass, of recycled material in a product. In various product categories, cost-competitive mainstream products are available with higher levels of recycled content than others in the same category.

<sup>22</sup> Construction value is the price in the accepted tender or, if there is no tender, the cost of labour, plant and materials, overheads and profit.

<sup>23</sup> Accessible at [www.wrap.org.uk/reportingportal](http://www.wrap.org.uk/reportingportal)



Evidence shows that taking action to reduce waste and increase reuse and recycling rates will reduce project costs. For this reason, your services should consider how to achieve these outcomes<sup>24</sup>, and should forecast waste quantities and reused and recycled content and set targets for waste reduction and reuse from an early design stage (for instance by using WRAP's Designing out Waste Tools and Net Waste Tool<sup>25</sup>).

[Include the following wording where Employer's Requirements are being issued for a Design & Build or PFI project:]

Before starting on site, the project team shall submit a copy of the Site Waste Management Plan, identifying the actions to be taken to reduce waste, increase the level of recovery and increase reused and recycled content, and quantifying the resulting changes.

On completion of the Works, the project team shall submit a copy of the completed Site Waste Management Plan, reporting the forecast and actual performance for waste quantities, disposal routes, and reused and recycled content used in construction."

### 2.2.3 Action 2C: Design team/consultant appointment

#### Appointment document (e.g. consultant contract)

These clauses ensure that designers will systematically quantify waste and associated cost savings as part of the design development process, and will inform the client and principal contractor of design decisions and intended outcomes.

"In providing the services, the Consultant shall aim to minimise any adverse impacts that construction has on the environment. This shall be through the design process, materials selection, construction techniques, and operational methods. All organisations appointed to work on our behalf are required to work in accordance with these principles. Specific information on our environmental policy is set out in [insert reference to the relevant document on this topic], with which the Consultant is expected to comply.

The Consultant shall work towards the project objective to reduce waste and use materials efficiently, [and specifically to help reach our corporate objective to reduce waste to landfill by [X% – state target] by [2012] from a [2008] baseline – delete text where appropriate]. The Consultant shall support the delivery of the following project objectives:

- implement Site Waste Management Plans throughout the design and construction period that comply with regulatory requirements (where applicable) and include in such Plans project-specific targets for waste recovery and reused and recycled content (below) and for waste reduction;
- measure and report progress against the corporate KPIs for the quantity of waste produced and the quantity of waste sent to landfill (measured in tonnes per £100k construction value<sup>26</sup>) [using the WRAP Waste to Landfill Reporting Portal<sup>27</sup> and guidance – delete reference as necessary];
- [if requested by the Employer] report performance for construction, demolition (including strip out) and excavation waste streams separately<sup>28</sup>;
- recover at least [70% – state target] of construction materials, and aim to exceed [80% – state target];
- recover at least [80% – state target] of demolition, strip-out and excavation materials (where applicable), and aim to exceed [90% – state target]; and

<sup>24</sup> WRAP's Designing out Waste Tools for Buildings or for Civil Engineering and/or the Net Waste Tool should be used to forecast wastage and set targets for waste reduction from the design stage. The Net Waste Tool will also evaluate reused and recycled content. The tools are freely accessible via [www.wrap.org.uk/nwtool](http://www.wrap.org.uk/nwtool)

<sup>25</sup> The Net Waste Tool is freely accessible at [www.wrap.org.uk/nwtool](http://www.wrap.org.uk/nwtool)

The Designing out Waste Tools for Buildings and for Civil Engineering are used at an earlier stage of design and are available at the same web address.

<sup>26</sup> Construction value is the price in the accepted tender or, if there is no tender, the cost of labour, plant and materials, overheads and profit.

<sup>27</sup> Accessible at [www.wrap.org.uk/reportingportal](http://www.wrap.org.uk/reportingportal)

<sup>28</sup> The method agreed by members of the UK Contractors Group and Civil Engineering Contractors Association recommends that contractors measure and report these waste streams separately. It is recognised that many waste loads leaving site may be a combination of construction and demolition, or construction and excavation, or demolition and excavation, or construction, demolition and excavation waste streams, depending on the scheduling of works on the project. It is not necessary to report these combined wastes separately, but to report them as the predominant waste type in the load.

- ensure that at least [15% – state target] of total material value derives from reused and recycled content in new build, select the top opportunities to exceed this figure without increasing the cost of materials, and report actual performance.

In support of these targets, the Consultant shall apply the processes for designing out waste identified in their tender and specifically:

- identify methods to reduce waste and waste to landfill, and increase reused and recycled content, starting at the commencement of service, and during the course of the service report to the Employer [state frequency, e.g. monthly or at the end of each design and construction phase] the financial and practical implications of implementing the recommended actions – for instance by using WRAP’s Designing out Waste Tools or Net Waste Tool (freely accessible at [www.wrap.org.uk/nwtool](http://www.wrap.org.uk/nwtool)) to forecast waste quantities and increases in reused/recycled content and quantify potential reductions in waste and costs;
- work with the project team to ensure that design actions to reduce construction waste and increase reused/recycled content are implemented;
- agree with the Employer which level of waste reduction and reuse to pursue; and
- develop the Site Waste Management Plan from an early design stage, including waste forecasts and data on reduction targets and actions.

Designers should refer to the WRAP Designing out Waste guidance<sup>29</sup> to help them identify, prioritise and implement ways of meeting project targets for waste.”

Where the contractor does not have design involvement, the following model wording also applies (this clause will ensure the contractor is fully informed of the required project actions on waste):

- “ensure that the Contractor is fully informed at tender/negotiation stage (or before) of the Employer’s requirements for good practice waste reduction, reuse and recovery within the economic, physical and design constraints imposed by the project. As a minimum, the Consultant shall provide the Contractor with:
  - a brief description of the Employer’s objective – to reduce waste to landfill by [X% – state target] by [2012] from a [2008] baseline;
  - the requirements to achieve minimum levels of materials recovery and reused and recycled content;
  - a statement outlining the Contractor’s responsibilities for:
    - a) selecting and agreeing the most significant opportunities to reduce total waste and waste to landfill, and increase reused and recycled content; and
    - b) measuring and reporting actual performance against the agreed targets in the format specified by the Employer;
      - the requirement to implement site waste management planning which delivers the targeted outcomes; and
      - their initial SWMP and a list of those decisions taken during design which directly influence waste such that they may be incorporated into the Contractor’s SWMP;
- report the Contractor’s performance on the above requirements in the [monthly – state frequency] project report.”

## 2.3 Pre-construction & Construction stage

### How to use this model wording

Construction clients should use this wording when procuring a contractor. Depending on the procurement route, the contractor may have already been appointed and involved in the pre-construction activities. In such situations, the waste reduction and recovery targets will have been set at an earlier stage using 'Action 2C' model wording.

The wording below simply needs to be applied to those involved with construction works on your project. Irrespective of the procurement route adopted, the following model wording can be inserted in Pre-Qualification Questionnaires (PQQs), Invitation to Tender (ITT) documents and works contracts<sup>30</sup>. The wording can also be applied to maintenance contracts which involve no design work, or a combination of design and construction works.

JCT guidance ("Building a Sustainable Future Together", 2009, <http://www.jctltd.co.uk>) advises that "The specific and detailed sustainability requirements should be set out in the contract documentation [i.e. preliminaries, preambles, specification, or schedule specifically prepared for the project], but if users prefer these can be set out in a schedule to the contract conditions".

### 2.3.1 Action 3A: Contractor tendering

#### Pre-Qualification Questionnaire (PQQ) and Invitation to Tender (ITT)

##### Preamble to PQQ and ITT

"In all of our development work, our aim is to minimise any adverse impacts that construction has on the environment. We seek this through the design process, materials selection, construction techniques, and operational methods. All organisations appointed to work on our behalf are required to work in accordance with these principles. Specific information on our environmental policy is set out in [insert reference to the relevant document on this topic], to which all consultants and contractors appointed on our projects are expected to conform.

The waste to landfill objective is to reduce waste and use materials efficiently [and specifically to support our corporate objective to reduce waste to landfill by [X% – state target] by [2012] from a [2008] baseline – delete text where appropriate]. The contractor shall work to the following principles (and in accordance with the waste hierarchy<sup>31</sup>):

- forecast likely waste streams;
- reduce materials wasted in construction;
- reduce the proportion of waste that is sent to landfill;
- reduce materials used in construction; and
- increase the use of recovered materials and materials with above-average levels of recycled content<sup>32</sup>.

Evidence shows that taking action to reduce waste and increase reuse and recycling rates will reduce project costs. For this reason, the contractor shall consider how to reduce waste and increase the recovery rate of materials."

<sup>30</sup> Under management contracts procurement, the client should ensure the management contractor cascades waste requirements down to works contractors. Under construction management procurement, the client should ensure waste requirements are also placed on specialist contractors.

<sup>31</sup> The waste hierarchy defines the order of preferred waste management options. The most preferred option is reduction, followed by reuse, recycling, energy recovery, treatment and, lastly, disposal.

<sup>32</sup> Recycled content is the proportion, by mass, of recycled material in a product. In various product categories, cost-competitive mainstream products are available with higher levels of recycled content than others in the same category.

### PQQ questions

These questions probe the general capability of a contractor to manage waste using a SWMP and help to achieve the client's objectives.

1. "What experience, if any, does your company have in providing input to a Site Waste Management Plan (including at the design stage), for example by identifying waste streams, forecasting waste generation, and prioritising waste reduction and recovery opportunities?"
2. What experience, if any, does your company have in completing a Site Waste Management Plan which results in quantified reductions in waste to landfill?
3. What experience, if any, does your company have in evaluating reused and recycled content, and specifying construction materials containing higher recycled content as well as reused materials<sup>33</sup>?
4. Explain how you can ensure that suppliers in your supply chain with a direct impact on the contract will work towards the waste to landfill objective."

### An ideal PQQ response would provide the following details:

- policies in place at the corporate level to demonstrate commitment to resource efficiency and reducing waste to landfill;
- project experience illustrating how the bidder has previously identified waste streams, forecasted waste arisings and investigated waste reduction and recovery options at an early design stage;
- project experience illustrating how the bidder has contributed towards a Site Waste Management Plan which resulted in quantified reductions in waste to landfill;
- examples showing how the bidder has affected the selection of construction materials containing higher levels of recycled content;
- examples showing how the bidder has specifically increased the amount of material recovery and material recycling on previous projects, including the reuse of in situ, strip out, demolition and excavation materials; and/or
- examples showing how the bidder has previously collaborated with their supply chain to reduce waste to landfill and make better use of materials on site.

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<sup>33</sup> Recycled content is the proportion, by mass, of recycled material in a product. In various product categories, cost-competitive mainstream products are available with higher levels of recycled content than others in the same category.

## ITT wording

These clauses ask contractors to explain how they will systematically consider waste and maximise cost savings using the SWMP process.

“Our corporate objective is to reduce waste and use materials efficiently [and specifically to reduce waste to landfill by [X% – state target] by [2012] from a [2008] baseline – delete text where appropriate], to which this project should contribute. The Contractor shall support the delivery of the following project targets:

- implement Site Waste Management Plans throughout the design and construction period that comply with regulatory requirements (where applicable) and include project-specific targets for waste recovery and reused and recycled content (below) and for waste reduction;
- measure and report progress against the corporate KPIs for the quantity of waste produced and the quantity of waste sent to landfill (measured in tonnes per £100k construction value<sup>34</sup>) [using the WRAP Waste to Landfill Reporting Portal<sup>35</sup> and guidance – delete reference as necessary];
- [if requested by the Employer] report performance for construction, demolition (including strip out) and excavation waste streams separately<sup>36</sup>;
- [if quantified by the design team/consultant] reduce waste to less than [state target] tonnes per £100k construction value, and aim to generate less than [state target] tonnes per £100k construction value<sup>37</sup>;
- recover at least [70% – state target] of construction materials, and aim to exceed [80% – state target];
- recover at least [80% – state target] of demolition, strip-out and excavation materials (where applicable), and aim to exceed [90% – state target];
- [if quantified by the design team/consultant] reuse at least [X% – state target] of demolition/excavation and in situ materials on site; and
- ensure that at least [15% – state target] of total material value derives from reused and recycled content in new construction, select the top opportunities to exceed this figure without increasing the cost of materials, and report actual performance.

<sup>34</sup> Construction value is the price in the accepted tender or, if there is no tender, the cost of labour, plant and materials, overheads and profit.

<sup>35</sup> Accessible at [www.wrap.org.uk/reportingportal](http://www.wrap.org.uk/reportingportal)

<sup>36</sup> The method agreed by members of the UK Contractors Group and Civil Engineering Contractors Association recommends that contractors measure and report these waste streams separately. It is recognised that many waste loads leaving site may be a combination of construction and demolition, or construction and excavation, or demolition and excavation, or construction, demolition and excavation waste streams, depending on the scheduling of works on the project. It is not necessary to report these combined wastes separately, but to report them as the predominant waste type in the load.

<sup>37</sup> The design team/consultant may also quantify target wastage rates for key materials in the design stage elements of the SWMP.

We therefore require the Contractor to respond to this tender specifically listing;

- a) proposed actions to meet the project targets and contribute towards the Employer's Waste to Landfill target;
- b) how you will contribute to the design stage elements of the Site Waste Management Plan before work starts on site;
- c) how you will approach taking ownership of the SWMP and working with your supply chain to implement waste reduction, reuse and recovery actions;
- d) how you will measure, improve and report performance; and
- e) issues which you consider to be the main barriers to meeting the Waste to Landfill objective, and your proposed solutions.

Responses should be SMART (Specific, Measurable, Achievable, Realistic & Time-based)."

#### **An ideal ITT response would provide the following details:**

- specific proposals showing a workable solution to meeting the project targets for waste reduction, recovery and recycled content, e.g. supported by analysis from WRAP's Designing out Waste Tools and/or Net Waste Tool<sup>38</sup>;
- an explanation of how their approach will contribute towards your longer term Waste to Landfill objective, including solutions to project-specific barriers and constraints;
- arrangements for regular waste data monitoring and reporting from waste management and specialist subcontractors using the correct metrics (as specified in the ITT) to enable reporting against the project targets;
- where a Site Waste Management Plan is already set up, analysis of the forecasts, targets and actions contained therein and suggested improvements to wastage rates, recovery rates and levels of reused/recycled content;
- examples showing the approach to reducing major waste arisings (identifying individual waste streams for example);
- where demolition and/or excavation will take place, the bidder should specify how materials will be reused on this project; ground/site investigations can help with this and the bidder should refer to using this information;
- where ground work is involved, the bidder should show experience in avoiding excavation where possible and maximising the value of in situ materials; ground/site investigations can help with this and the bidder should refer to using this information; and
- responses should be SMART (Specific, Measurable, Achievable, Realistic & Time-based).

### **2.3.2 Action 3B: Contractor appointment**

#### **Main Construction Contract (general conditions)**

"The Contractor and his supply chain shall carry out and complete the works in compliance with the Employer's objectives for reducing, reusing and recovering waste materials."

<sup>38</sup> Freely accessible at [www.wrap.org.uk/nwtool](http://www.wrap.org.uk/nwtool); the Designing out Waste Tools are used at an earlier stage of design and are available at the same web address.

## Preliminaries

These clauses set out the contractor's responsibilities for achieving and reporting waste outcomes.

"The aim is to minimise any adverse impacts that the works have on the environment. This shall be achieved through the design process, materials selection, construction techniques, and operational methods. The Contractor shall work in accordance with these principles. Specific information on the Employer's environmental policy is set out in [insert reference to the relevant document on this topic], to which the Contractor shall conform.

With respect to the project objective to reduce waste and use materials efficiently, [and specifically to support the Employer's corporate objective to reduce waste to landfill by [X% – state target] by [2012] from a [2008] baseline – delete text where appropriate], the Contractor shall be required to:

- implement Site Waste Management Plans throughout the contract period that comply with regulatory requirements (where applicable) and include in such Plans project-specific targets for waste recovery and reused and recycled content (below) and for waste reduction;
- measure and report progress against the corporate KPIs for the quantity of waste produced and the quantity of waste sent to landfill (measured in tonnes per £100k construction value<sup>39</sup>) [using the WRAP Waste to Landfill Reporting Portal<sup>40</sup> and guidance – delete reference as necessary];
- [if requested by the Client] report performance for construction, demolition (including strip out) and excavation waste streams separately [using the WRAP Waste to Landfill Reporting Portal<sup>41</sup> and guidance – delete reference as necessary];
- [if quantified by the design team/consultant] reduce waste to less than [state target] tonnes per £100k construction value, and aim to generate less than [state target] tonnes per £100k construction value<sup>42</sup>;
- recover at least [70% – state target] of construction materials, and aim to exceed [80% – state target];
- recover at least [80% – state target] of demolition, strip-out and excavation materials (where applicable), and aim to exceed [90% – state target];
- [if quantified by the design team/consultant] reuse at least [X% – state target] of demolition/excavation and in situ materials on site; and
- ensure that at least [15% – state target] of total material value derives from reused and recycled content in new construction, select the top opportunities to exceed this figure without increasing the cost of materials, and report actual performance.

<sup>39</sup> Construction value is the price in the accepted tender or, if there is no tender, the cost of labour, plant and materials, overheads and profit.

<sup>40</sup> Accessible at [www.wrap.org.uk/reportingportal](http://www.wrap.org.uk/reportingportal)

<sup>41</sup> The method agreed by members of the UK Contractors Group and Civil Engineering Contractors Association recommends that contractors measure and report these waste streams separately. It is recognised that many waste loads leaving site may be a combination of construction and demolition, or construction and excavation, or demolition and excavation, or construction, demolition and excavation waste streams, depending on the scheduling of works on the project. It is not necessary to report these combined wastes separately, but to report them as the predominant waste type in the load.

<sup>42</sup> The design team/consultant may also quantify target wastage rates for key materials in the design stage elements of the SWMP.

The Contractor shall provide the following information to the Employer:

- before starting on site, provide a copy of the Site Waste Management Plan (SWMP) to the Employer, clearly identifying the following information:
  - the estimated total mass<sup>43</sup> of waste and the estimated recovery rate before mitigating actions, with a list of actions to reduce waste and increase the level of recovery (distinguishing construction, demolition/strip-out and excavation wastes as appropriate) and increase reused and recycled content; plus
  - a revised estimate of the total mass of waste and the estimated recovery rate after mitigating actions, and forecast performance indicators for:
    - tonnes of waste sent to landfill per £100k construction value; and
    - tonnes of waste produced per £100k construction value.
- on completion of the Works [or at another interval determined by the Employer, e.g. annually], provide to the Client a copy of the completed Site Waste Management Plan, reporting the forecast and actual performance for waste quantities, disposal routes, and reused and recycled content used in construction, including the following indicators of actual performance:
  - tonnes of waste sent to landfill per £100k construction value; and
  - tonnes of waste produced per £100k construction value.
- if requested by the Client, report forecast and actual waste performance for construction, demolition (including strip out) and excavation waste streams separately<sup>44</sup>.
- provide evidence of meeting the following requirements:
  - [if quantified by the design team/consultant] reduce waste to less than [state target] tonnes per £100k construction value, and aim to generate less than [state target] tonnes per £100k construction value<sup>45</sup>;
  - recover at least [70% – state target] of construction materials, and aim to exceed [80% – state target];
  - recover at least [80% – state target] of demolition, strip-out and excavation materials, and aim to exceed [90% – state target];
  - [if quantified by the design team/consultant] reuse at least [X% – state target] of demolition/excavation and in situ materials on site; and
  - ensure that at least [15% – state target] of total material value derives from reused and recycled content in new construction, select and implement the top opportunities to exceed this figure without increasing the cost of materials.

The Contractor [may/shall] use [WRAP’s Designing out Waste Tools/Net Waste Tool – or equivalent] to forecast waste quantities, quantify potential reductions in waste and costs, identify actions to reduce and recover waste, and quantify and select materials with reused and recycled content<sup>46</sup>.”

<sup>43</sup> Some members of the UK Contractors Group and Civil Engineering Contractors Association use the following factors to convert waste volumes to mass: mixed waste 0.87 tonnes per m<sup>3</sup>, excavation waste 1.25 tonnes per m<sup>3</sup>. For more information on conversion factors, see the guidance at [www.wrap.org.uk/reportingportal](http://www.wrap.org.uk/reportingportal)

<sup>44</sup> It is recognised that many waste loads leaving site may be a combination of construction and demolition, or construction and excavation, or demolition and excavation, or construction, demolition and excavation waste streams, depending on the scheduling of works on the project. It is not necessary to report these combined wastes separately, but to report them as the predominant waste type in the load.

<sup>45</sup> The design team/consultant may also quantify target wastage rates for key materials in the design stage elements of the SWMP.

<sup>46</sup> The Net Waste Tool is freely accessible at [www.wrap.org.uk/nwttool](http://www.wrap.org.uk/nwttool)

The Designing out Waste tools are used at an earlier stage of design and are available at the same web address.



#### 2.4 Handover, Post-completion & Use stage

Model wording does not apply at this final project stage. The client should collate KPI data from contractors (and waste management contractors if appropriate) in order to evaluate performance and report against any waste to landfill commitment. These parties should have been mandated in previous project stages to collect waste reduction and recovery data.

See the WRAP guidelines on measuring and reporting construction waste at the Waste to Landfill Reporting Portal ([www.wrap.org.uk/reportingportal](http://www.wrap.org.uk/reportingportal)).

## 3.0 Model wording for contractors

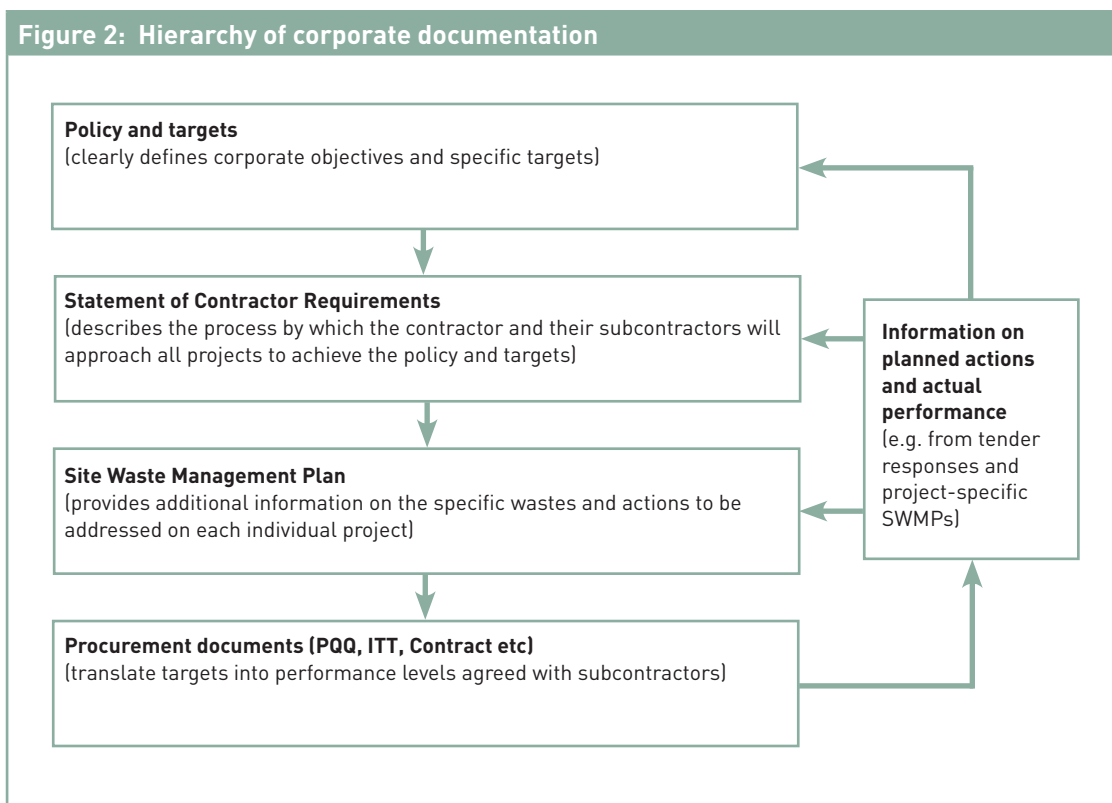
This section provides guidance and model wording for contractors in requiring good practices from their subcontractors. The information covers the selection and appointment of 'general subcontractors', material suppliers and waste management companies. The selection and appointment of design teams should follow the process set out previously in Action 2A Design team tendering.

Actions are numbered by project stage (as illustrated in Figure 1 previously):

- **Policy:** Actions 1X (Policy and targets), 1Y (Statement of Contractor Requirements and model SWMP) and 1Z (Selection of preferred suppliers);
- **Preparation & Design:** Action 2X (Contractor's Site Waste Management Plan); and
- **Pre-construction & Construction:** Actions 3X (Subcontractor appointment – tendering) and 3Y (Subcontractor appointment – agreeing project actions and targets).

### 3.1 Key documents for contractors

Requirements for materials efficiency should be clear, consistent and linked to an over-arching corporate strategy. To achieve this, contractors require four key elements, as shown in Figure 2 below.



- **Policy and targets (Action 1X)** – this sets the agenda for the organisation, and should contain performance targets that are stretching but realistic.
- **Statement of Contractor Requirements (Action 1Y)** – this is a single set of requirements which details minimum requirements placed on subcontractors (including general subcontractors, material suppliers and waste management contractors). These requirements require subcontractors to support the development and maintenance of the SWMP. This Statement should be consistent across all projects and all supply chain members.
- **Site Waste Management Plan (Actions 1Y and 2X)** – a plan should be developed on all projects, ideally based on an agreed method and template, and should include a clear strategy to reduce waste and increase recovery.
- **Procurement documents (Actions 3X and 3Y)** – requirements should be embedded in Pre-Qualification Questionnaires, Invitations to Tender, contracts and other formal documents (such as the record of a post-tender interview meeting) to ensure clarity and ownership of project-specific actions on waste.

Linking all these documents is the need for data capture and analysis of actual performance.

### What are you asking your supply chain through the tendering process?

#### Pre-qualification of subcontractors

This is where you set the tone for specific requirements and targets at project level by establishing standards to achieve or work towards (as defined in the Statement of Contractor Requirements), and check their **ability/experience to deliver the following:**

- trade/specialist subcontractors – forecasting waste, reducing waste, reusing materials, complying with legislation, contributing to a SWMP, selecting materials with higher recycled content;
- material suppliers – reducing wastage e.g. through delivery methods and approach to packaging, offering higher recycled content;
- designers – identifying options to reduce and reuse waste and increase use of recycled content; and
- waste contractors – complying with legislation, increasing diversion from landfill, advising on most effective methods of waste collection and recovery, providing solutions to meet recovery targets, and reporting robust data.

#### Invitation to Tender (ITT)

This is where you can communicate project-specific targets and requirements, and request specific actions, behaviours, information and data:

- trade/specialist subcontractors – forecast of waste, how they will reduce and reuse waste (identifying actions to be recorded in the SWMP), how they will use higher recycled content;
- material suppliers – how they will reduce and reuse (take back) waste and reduce/reuse/recycle packaging, components offered with recycled content;
- designer – how they will identify, prioritise and implement design decisions to reduce construction waste, recording these in the SWMP and specifying actions for the contractor to deliver; any project-specific design proposals; and
- waste contractor – input to forecast of waste, proposal for most effective waste management method, recovery rates that will be achieved, specifics of waste reporting and data assurance process.

### Post-tender interview minutes/start-up meeting minutes

Where used, this is where a lot of the information requested in the ITT and provided in tender responses gets agreed on the project in specific detail:

- trade/specialist subcontractors – agree forecast of waste, waste reduction actions to be recorded in the SWMP, any specific targets, site rules for waste reduction, reuse and recovery etc;
- material suppliers – agree materials and level of recycled content, and actions to reduce materials and packaging wastage;
- designer – agree where to focus for waste reduction and reuse, and actions to be recorded in SWMP and communicated to contractor; and
- waste contractor – agree waste management method, recovery rates to be achieved and data reporting.

### 3.2 Appointment of subcontractors

When appointing subcontractors, it is important to bind them to helping deliver your corporate policy and targets as set out in the Statement of Contractor Requirements. The appointment process should therefore tie the subcontractor to this Statement, the Site Waste Management Plan and reporting mechanisms.

**Selection of preferred suppliers (Action 1Z)** – when selecting subcontractors either onto a framework or through a project-specific process (e.g. using a PQQ), it is important to ensure that they can meet your required performance standard<sup>47</sup>. The key actions at this stage are to:

- confirm that they can work in accordance with the Statement of Contractor Requirements; and
- ask how they will deliver reduced waste or increased recovery. This will allow you to assess competency to deliver your requirements.

**Appointments (Actions 3X and 3Y)** – where appropriate, contractors can reinforce the conditions of the Statement of Contractor Requirements by negotiating and setting performance levels with subcontractors. Performance levels can be stated within:

- invitation to tender or submit quotation;
- contract conditions;
- project Site Waste Management Plan; and
- record of post-tender interview.

The remainder of Section 3 provides model approaches to defining your policy and targets, setting out your requirements and then selecting and appointing general subcontractors, waste management companies and materials suppliers. (Contractors appointing their own design team can use the wording from Client Actions 2A and 2C.)

<sup>47</sup> There should be a regular review of performance standards.

### 3.3 Policy stage

At this stage, the priority is to define the key policy and processes that describe the approach to waste and materials management, and to use this when selecting preferred subcontractors.

#### 3.3.1 Action 1X: Policy and targets

##### Corporate Social Responsibility (CSR) policy document

A policy statement relating to waste and materials management can form part of a broader environmental/sustainability or CSR policy. The following wording could be used as a basis for the waste-related elements of such a policy (or see the extended wording in Client Actions 1A and 1B).

“We are committed to minimising the environmental impact of our activities. As part of this commitment, we will [play our part in halving/work to reduce] the amount of construction, demolition and excavation waste going to landfill. We will adopt and implement standards for good practice in reducing waste, recycling more, and increasing the use of recycled and recovered materials.

By [2012], [name of organisation] aims to [halve/reduce by X%] the rate at which its projects send construction, demolition, and excavation waste to landfill (i.e. quantity of waste per unit of construction), relative to a baseline year of [2008 – or alternative date]. We will report progress annually using the following KPIs:

- tonnes of waste per £100k construction value\*;
- tonnes of waste to landfill per £100k construction value\*; and
- % of waste diverted from landfill.

\* Construction value is the price in the accepted tender or, if there is no tender, the cost of labour, plant and materials, overheads and profit.

This will support national policy goals and will be achieved by reducing waste, recovering more materials and using more recovered material in new construction.”

#### 3.3.2 Action 1Y: Statement of Contractor Requirements and model SWMP

##### Statement of Contractor Requirements

A single document that describes the contractor’s approach to, and requirements for, waste management provides a common reference point for discussions with all subcontractors. An exemplar Statement of Contractor Requirements is included below.

Key characteristics of this Statement are that:

- it aligns with the corporate policy;
- it is applicable to subcontractors, material suppliers, and waste management contractors;
- it recognises the provision of subcontract design and resultant opportunities to design out waste;
- it addresses subcontractors who remove their own waste;
- it works in support of the SWMP; and
- it can form part of the appointment.

Supplementary information can be added as appropriate to describe any items referenced in the requirements, for example a description of the site waste management planning process or the approach to achieving higher levels of recycled content.

## Introduction

We are committed to minimising the environmental impact of our activities. As part of this commitment, we will [play our part in halving/work to reduce] the amount of construction, demolition and excavation waste going to landfill [by 2012]. We will work to adopt and implement standards for good practice in reducing waste, recycling more, and increasing the use of recycled and recovered materials.

To help deliver on this commitment we expect our supply chain partners to support us in this area, and to meet the minimum requirements set out below. All organisations appointed to work on our behalf are required to work in accordance with these requirements. Further information on our environmental policy is set out in [insert reference to the relevant document on this topic if appropriate].

## Corporate commitment and targets

By [2012], [company name] aims to [halve/reduce by X% – state target] the rate at which its projects send construction, demolition and excavation waste to landfill (i.e. quantity of waste per unit of construction), relative to a baseline year of 2008 [or alternative date], and will report progress annually using the following KPIs:

- tonnes of waste per £100k construction value\*;
- tonnes of waste to landfill per £100k construction value; and
- % of waste diverted from landfill.
- [add alternative/additional KPIs if desired]

\* Construction value is the price in the accepted tender or, if there is no tender, the cost of labour, plant and materials, overheads and profit.

This will support national policy goals, and will be achieved by reducing waste, recovering more materials and using more recovered material in new construction.

## Project targets

In support of our corporate commitment and targets, we shall work to the following standards, for which we require subcontractor support:

- develop and implement a Site Waste Management Plan (SWMP) that not only meets any minimum regulatory requirements but exceeds these requirements by setting project-specific targets and actions for waste reduction and recovery and measuring performance;
- measure and report progress against [company name]'s corporate KPIs for waste and waste to landfill, measured in tonnes per £100k construction value;
- report performance for construction, demolition and excavation waste streams separately, measured in tonnes;
- recover a minimum of [70% – state target] of construction materials, and aim to exceed [80% – state target];
- recover a minimum of [80% – state target] of demolition and strip-out materials (where applicable), and aim to exceed [90% – state target];
- reuse at least [X% – state target] of demolition/excavation and in situ materials on site; and
- ensure that at least [15% – state target] of total material value derives from reused and recycled content in new build, select the top opportunities to exceed this figure without increasing the cost of materials, and report actual performance.

On some projects, requirements and targets set by the project client or developer may also apply.

### General subcontractor and material supplier requirements

All subcontractors are required to:

support the development of the SWMP and:

- provide an accurate forecast of the types and quantities [choose mass (t) or volume (m<sup>3</sup>)] of waste that will be produced by your contract (inclusive of packaging waste);
- identify the wastage rate applied to each material, explaining the need for this level of wastage allowance and how it might be reduced;
- identify actions that you will take to reduce this level of waste, showing any additional costs or savings achieved by these measures;
- provide information on the method of materials delivery, unloading and storage whilst on site, including transport to the workface, identifying ways in which waste will be reduced;
- determine and provide information on the method of waste handling from workface to removal from site;
- participate in site briefings for operatives on materials handling and waste disposal;
- advise on the level of recycled content in major materials to be supplied by the subcontractor, and supply materials with a higher level of recycled content where technically and commercially viable; and
- identify how packaging waste arisings on site will be reduced;

support [contractor name] during the works by:

- working in full compliance with the methods detailed within the SWMP – in particular complying with all actions to reduce and reuse waste and increase levels of recovery;
- informing the [contractor name] (in advance) of deviations from the SWMP with justifying reasons;
- identifying additional ways to reduce and reuse waste and/or increase recovery and informing [contractor name];
- complying with the site waste segregation strategy, including the avoidance of cross-contamination of segregated (non-mixed) skips; and
- ensuring that materials and waste are stored in a safe and tidy manner and that waste is disposed of (in appropriate skip or other agreed receptacle) at the earliest opportunity;

support the contractor on completion of the Works and on request by:

- contributing to a project review to identify what could be improved and what worked well;
- ensuring all necessary data are provided to [contractor name]; and
- providing written evidence of the recycled content level of specified materials in the form of invoice/delivery notes along with datasheets for the materials.

Additional requirements include:

where the subcontractor has design responsibility, they must:

- develop a design solution that minimises waste and is technically and commercially viable;
- quantify the level of waste anticipated from the design, and use this to inform the wastage allowances applied to the materials order;
- specify materials with increased levels of recycled content where there is no impact on cost or performance; and
- work with the project team to ensure that design actions to reduce construction waste and increase reused/recycled content are implemented;

where the subcontractor has responsibility for removal of construction waste, they must comply with the specific requirements for waste management companies (see below).

### **Waste management company requirements**

Waste management companies are required to:

- provide a copy of their Waste Carrier's Registration to [contractor name] before starting work;
- comply with all relevant legislation including the Duty of Care Regulations;
- recover a minimum of [70% – state target] of construction materials\*, and aim to exceed [80% – state target];
- recover a minimum of [80% – state target] of demolition, strip-out and excavation materials\* (where applicable), and aim to exceed [90% – state target];
- aim to maximise the reuse of demolition and excavation waste arisings;
- identify ways to increase the recovery rate of materials by finding end-destinations with high recovery rates;
- advise on waste management actions most appropriate to each project;
- provide details of the end-destination of all movements of waste, including the following information: name and address of destination, type of facility, and recovery rate for that material;
- report on the different types of waste managed, and the split of each different type of waste according to the waste management method (reuse, recycling, recovery, landfill and other) and, in the case of reuse, recycling and recovery, whether this has taken place on or off site;
- monitor and report monthly (within 2 weeks of the end of the reporting period) in line with agreed industry methods for waste measurement and reporting (available from WRAP<sup>48</sup>), the quantities in [tonnes/m<sup>3</sup>] and percentage recovery rates for construction, demolition and excavation waste streams separately<sup>49</sup>;
- submit quarterly relevant data in the form of an Environment Agency Return from the waste transfer station to the Principal Contractor; and
- use a systematic process to record and check waste, recovery and recycling data which is available for inspection on request.

\* where these waste recovery rates are not achievable (e.g. because of contamination or where only certain types of materials are being managed) [contractor name] should be informed immediately together with an explanation of the measures proposed to maximise recovery as far as is possible.

<sup>48</sup> Details are available to download at [www.wrap.org.uk/reportingportal](http://www.wrap.org.uk/reportingportal)

<sup>49</sup> It is recognised that many waste loads leaving site may be a combination of construction, demolition and excavation waste streams. It is not necessary to report these combined wastes separately, but to report them as the predominant waste type in the load.



**Supplemental information:****Guide to [contractor name] Site Waste Management Plan**

[Include a description of your SWMP and the way in which it operates.]

**Guide to [contractor name] recycled content target**

The reuse of materials and the use of materials with a higher level of recycled content is a powerful way to reduce the burden on landfill, and lessen the demand for primary aggregates and other materials. For this reason we have set a target that at least [15% – state target] of the total value of materials used should be derived from recycled and reused content on projects with a contract sum in excess of [insert minimum project value].

The most significant opportunities to increase the value of materials derived from recycled and reused content should be implemented where these are technically and commercially viable (typically 3-10 materials per project).

To help meet this target, we rely on our supply chain to identify such opportunities. This includes both the provision of processed aggregates and manufactured products. We will require data on these products to enable project performance to be calculated. On request, evidence will be required in the form of invoice/delivery notes along with datasheets for the materials.

Most opportunities to substitute alternative cost-competitive products with higher recycled content are from the following components:

- bulk aggregates (sub-base, pipe bedding, fill etc);
- ready mix concrete (foundations, floor slabs etc);
- asphalt;
- drainage products/pipes;
- pre-cast concrete products (paving, slabs);
- concrete tiles, slate tiles;
- dense and lightweight blocks;
- clay facing bricks;
- plasterboard;
- ceiling tiles;
- chipboard and other wood based boards;
- insulation (floor, wall and roof); and
- floor coverings.

### Model approach to Site Waste Management Planning (SWMP)

The Statement of Contractor Requirements must be supported by a robust approach to site waste management planning. This should aim to exceed the minimum requirements of the Site Waste Management Plan Regulations (2008) for England and incorporate the following elements of good practice:

- project-specific targets for the quantity of waste arisings and waste going to landfill;
- record of design decisions that will avoid, reduce and reuse waste, based on discussions with the design team – ideally this will be completed by the design team at an early project stage;
- quantified forecast of waste arisings based on the nature of the project and the materials and construction methods employed;
- clear set of waste prevention and reduction actions covering the procurement, supply and fitting of materials – each action should have specific action owners and contributors (e.g. nominated subcontractors);
- strategy for managing each of the predicted waste streams, including location and plan for storage of wastes, and identification of waste recovery actions for the most significant wastes; and
- facility for recording actual waste arisings and comparing these with forecast quantities, project targets and KPIs.

The corporate approach to the preparation and use of the SWMP should be clearly defined and a model template structure provided. WRAP have prepared a model SWMP Template available at [www.wrap.org.uk/swmp](http://www.wrap.org.uk/swmp), and a tool for combining data from multiple SWMPs to support reporting at the corporate level.

If the contractor does not issue a Statement of Contractor Requirements and standard approach to Site Waste Management Planning, then their specific requirements should be added to the wording of the Invitation to Tender (Action 3X below).

#### 3.3.3 Action 1Z: Selection of preferred suppliers

##### Pre-Qualification Questionnaire (PQQ)

All subcontractors should confirm that they are willing to work in accordance with the contractor's standard requirements. The following model wording could be used.

"[Contractor name] has developed targets and minimum requirements for materials resource efficiency. These are defined in our [Statement of Contractor Requirements].

Please confirm that you have read and are prepared to work in accordance with our [Statement of Contractor Requirements].

If you are unable to accept these requirements, please provide information to explain this position."

The following questions can be used to assess the ability of a subcontractor to deliver good practice. Information is broken down into questions for 'general' subcontractors, waste management companies and materials suppliers. This is where the contractor can set expectations ahead of applying specific targets on individual projects.

### General subcontractors

“Please tell us how you will work to support us achieve our targets for waste by describing your approach to:

1. providing high quality information on the likely quantity, timing and composition of wastes associated with your activities;
2. reducing the generation of construction, demolition or excavation (CD&E) waste;
3. managing your activities so as to ensure that as much of the waste is recovered (i.e. diverted from landfill) as practicable;
4. reusing suitable materials (including CD&E waste materials, in-situ materials, and materials reclaimed or recovered off site) rather than using new material;
5. making use of construction products with higher levels of recycled content;
6. [where applicable] identifying opportunities to reduce waste through design (for example by applying WRAP’s Designing out Waste principles);
7. [where applicable] managing your wastes so as to achieve or exceed our waste recovery requirements; and
8. [where applicable] providing high quality information on waste arisings and its fate in line with our approach to measurement and reporting (as defined in our [Statement of Contractor Requirements]).

Where appropriate, use examples to illustrate your previous experience in implementing these approaches and the specific outcomes achieved.”

**An ideal response would provide the following details:**

1. evidence of being able to **forecast waste** on projects (e.g. using previous experience of wastage rates), including the quantity, timings and composition of wastes;
2. examples showing the approach to **reducing** specific waste arisings (e.g. for major components, with a corresponding reduction in wastage allowances);
3. actions taken to increase **waste recovery** on previous projects such as segregation of waste streams – responses will vary depending on whether the subcontractor was responsible for their own waste management and disposal or participated in a waste service arranged by the principal contractor;
4. examples of **reuse of materials** on previous projects, such as offcuts, recycled aggregates and reclaimed products;
5. examples showing how the bidder has previously selected products (e.g. bricks and blocks) containing higher levels of **recycled content**;
6. previous application of the principles and processes involved in **designing out waste** (see WRAP Designing out Waste guidance) – relevant where the subcontractor has design responsibility or input;
7. evidence of achieving a specified % recovery of waste materials (i.e. diversion from landfill) – relevant in those cases where the subcontractor is responsible for waste management; and
8. previous experience of waste data monitoring and reporting using appropriate metrics – relevant in those cases where the subcontractor is responsible for waste management.

Responses should be SMART (Specific, Measurable, Achievable, Realistic & Time-based).

Note: You should bear proportionality in mind when assessing responses. Clearly, more information will be required from a prospective specialist engineer than a small general works or trade subcontractor. As every construction project is unique, you should aim to elicit the most information from those subcontractors who will have the biggest potential to impact on waste to landfill.

### Waste management companies (WMCs)

“Please tell us how you will work to support us achieve our targets for waste by describing your approach to:

1. supporting the development of our Site Waste Management Plan;
2. working with us and our subcontractors to effectively manage waste on site, including advising on segregation options where this will reduce costs or increase levels of waste recovery, and how to cope with space constraints on site;
3. managing our wastes so as to achieve our waste recovery requirements (as a minimum);
4. providing high quality information on waste arisings and its fate in line with our approach to measurement and reporting (as defined in our [Statement of Contractor Requirements]);
5. providing evidence that wastes are being managed in line with legal requirements and that stated recovery rates are being achieved in practice; and
6. providing collection services that vary according to the programme and project type.

Where appropriate, use examples to illustrate your previous experience in implementing these approaches and the specific outcomes achieved.”

#### An ideal response would provide the following details:

From smaller waste management contractors:

1. project experience illustrating how the bidder contributed towards quantified reductions in waste to landfill;

From larger waste management contractors, in addition to the above:

2. project experience illustrating how the WMC has previously **identified waste streams, contributed towards segregation strategies, investigated recovery options and contributed to a Site Waste Management Plan;**
3. project experience of delivering waste recovery solutions **at minimal cost and with cost savings;** details of their own Materials Recovery Facility (MRF) or third party recovery arrangements;
4. standardised process for **waste data monitoring and reporting**, which is auditable and verifiable – to include the use of correct metrics (as requested by the principal contractor), and data reporting which is scheduled to be provided at the right time (e.g. monthly, weekly etc); ideally tenderers will refer to agreed industry methods for waste measurement and reporting, available from WRAP<sup>50</sup>;
5. capability for **recovering**, managing and processing strip-out, demolition and excavation arisings and securing reliable markets/uses for the resulting materials; where waste management contractors process aggregate materials, this should be done in accordance with the WRAP Quality Protocol<sup>51</sup>;
6. range of **collection methods**, frequencies and arrangements on offer – flexible services to suit the project.

Responses should be SMART (Specific, Measurable, Achievable, Realistic & Time-based).

<sup>50</sup> A document setting out the method for waste measurement and reporting agreed by major contractors is available at [www.wrap.org.uk/reportingportal](http://www.wrap.org.uk/reportingportal)

<sup>51</sup> See the Quality Protocol for Aggregates at [www.aggregain.org.uk/quality/quality\\_protocols/](http://www.aggregain.org.uk/quality/quality_protocols/)

## Materials suppliers

“Please tell us how you will work to support us achieve our targets for waste by describing your approach to:

1. working with us and our subcontractors to minimise wastage of the products you supply (for example through logistics, taking back surplus materials or by providing pre-assembled/pre-cut products);
2. working with us and our subcontractors to minimise the quantity and wastage of packaging associated with the products you supply;
3. increasing the recovery of any packaging that is wasted; and
4. increasing the level of recycled and reused content in the products you supply (without increasing project costs).

Where appropriate, use examples to illustrate your previous experience in implementing these approaches and the specific outcomes achieved.”

### An ideal response would provide the following details:

1. example training material, guidance notes or good practice guide for delivery staff to **reduce waste in loading, transit and offloading**; waste reduction metrics showing how careful handling and transit reduce wastage rates; awareness of industry good practice guides and materials logistics plans; examples of project/s where **material take-back schemes** have been successfully introduced; knowledge of manufacturers and distributors of materials and products who can offer take-back schemes;
2. examples of products or suppliers which provide **efficient use of packaging** (minimal or reusable packaging);
3. examples of products or suppliers where the **packaging is recovered** through packaging take-back schemes; and
4. awareness of the **difference between reusable, recyclable, reused and higher recycled content** materials and products; list of key materials and products supplied that can be later reused or recycled; understanding of manufacturers and distributors who can offer reclaimed products and products with higher recycled content; knowledge of tools and guides to source materials and products with reused and recycled content; knowledge of calculating recycled content in materials and for projects.

Responses should be SMART (Specific, Measurable, Achievable, Realistic & Time-based).

### 3.4 Preparation & Design stage

The preparation and design stage (e.g. prior to Stage E for buildings) is the best time to begin work on the project-specific SWMP. Ideally the plan will have been initiated by the design team during the early stages of the project (see Client Actions 2A, B and C). Where appropriate, the plan should be based on the model approach already defined by the Contractor in Action 1Y.

#### 3.4.1 Action 2X: Contractor's Site Waste Management Plan

As soon as the contractor is involved in a project, they should start to contribute to the SWMP. By so doing, they will maximise the reduction and reuse of waste through design measures and potentially avoid waste problems arising during the construction stage of the project. Further guidance on the preparation of SWMPs and on the approach to Designing out Waste in construction is available from [www.wrap.org.uk/swmp](http://www.wrap.org.uk/swmp) and [www.wrap.org.uk/designingoutwaste](http://www.wrap.org.uk/designingoutwaste)

### 3.5 Pre-construction & Construction stage

At this project stage, the contractor will begin to appoint subcontractors to support them in delivering the project – typically drawn from preferred suppliers selected in Action 1Z. The contractor should take advantage of each subcontractor's specialist knowledge of their trade package, and enlist their help in identifying ways to reduce waste or increase recovery on a trade by trade basis.

The appointment process will vary from a simple work instruction through to a full invitation to tender and subsequent evaluation. It is common for the specific standards and approaches that will be implemented on the project to be confirmed at a post-tender interview/start-up meeting.

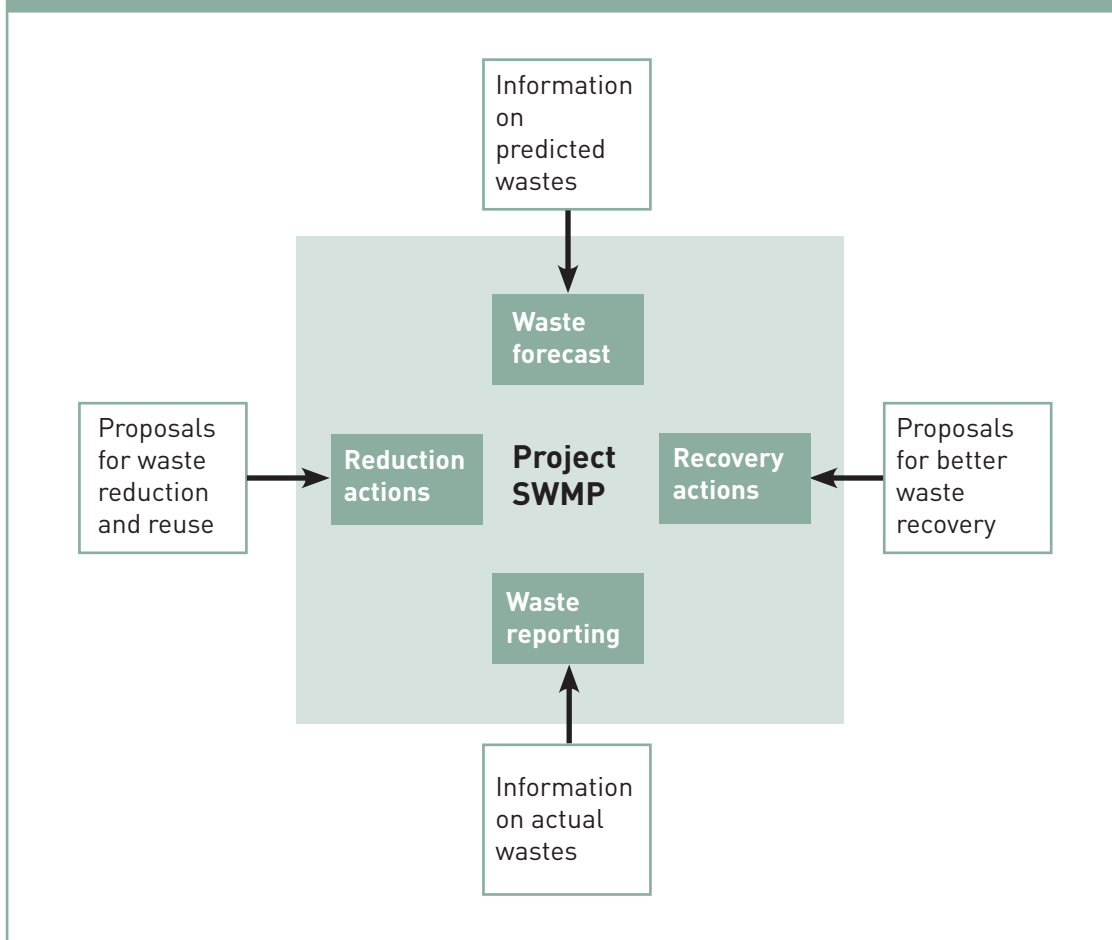
Irrespective of the approach, the appointment process should require adherence to the Statement of Contractor's Requirements. It should also involve the subcontractor providing data for the SWMP as part of their tender submission and then formally accepting the project SWMP and any applicable actions/targets at the post-tender interview. If the SWMP is not in place at the time of appointment, then as a minimum the subcontractor should be required to contribute to the SWMP and undertake to work in accordance with the SWMP when this is drafted.

### 3.5.1 Subcontractor contribution to the Site Waste Management Plan

Where possible, subcontractors should supply the following:

- information on predicted wastes – for use in completing the waste forecast;
- proposals for waste avoidance/reduction – e.g. through design measures, logistics or site practices;
- proposals for better waste recovery – e.g. through segregation of specific wastes and/or identification of suitable waste destinations; and
- data on waste arisings in an agreed format – where the subcontractor has responsibility for management of at least part of their wastes.

Figure 3: Contributions to the Site Waste Management Plan



This support should be provided where it is applicable to the scope of the subcontractor's responsibilities. For example, a subcontractor responsible for only a minor package of work and likely to generate relatively little waste would simply be required to contribute to the waste forecast and adhere to the contractor's minimum performance standards. Conversely, a major subcontract such as curtain walling or building services is likely to involve design, installation and possibly waste management. In this case the subcontractor would be expected to input to the waste forecast, propose and agree a series of specific waste reduction/avoidance measures, and (if relevant) agree the approach to waste management, recovery targets and approach to reporting wastage information.



### 3.5.2 Action 3X: Subcontractor appointment – tendering

#### Invitation to Tender (ITT)

The following wording can be used to ensure that tenders provide specific information that will demonstrate how the subcontractor will help the contractor meet corporate and project targets.

#### Preamble

“[Contractor name] has developed targets and minimum requirements for materials resource efficiency. These are defined in our [Statement of Contractor Requirements]. You will work in accordance with these requirements and also any applicable project-specific requirements detailed in the project SWMP.

[If SWMP is available] A draft Site Waste Management Plan has been prepared that forecasts the wastes predicted for this project and the actions that will be implemented to reduce waste, increase waste recovery and increase use of recycled and reused materials.

The following specific targets have been set for this project [delete any that do not apply]:

- [insert target] tonnes of waste to landfill (per £100k);
- [insert target] tonnes of waste (per £100k construction value);
- [insert target] percentage recovery of construction wastes;
- [insert target] percentage recovery of demolition, strip-out and excavation wastes;
- [insert target] percentage on-site reuse of demolition, excavation and in-situ materials;
- [insert target] percentage reused and recycled content by value.”

#### General subcontractors

- “1) Please describe the steps you will take to meet our corporate requirements and help us achieve our waste targets on this project. You are specifically asked to identify and provide information on:
- the quantity, timing and composition of wastes that you envisage being generated by activities covered by this contract;
  - the steps that you will take to reduce the quantity of waste generated (including wastage rates targeted for major materials) and to increase the proportion of these wastes that are recovered;
  - the specific opportunities you will pursue to increase the use of reused or recycled materials and products with higher recycled content; and
  - (where appropriate) the recovery rates you will achieve for wastes for which you are responsible.
- 2) [If a draft SWMP has been provided] Provide comments on the draft SWMP and recommendations for its development as it relates to the activities covered by this contract. You will be expected to work in accordance with the project SWMP if appointed.”

**An ideal response would provide the following:**

- specific proposals showing a workable solution to meeting the project's waste reduction, recovery, reuse and recycled content targets – in which the opportunities to improve performance have been identified and prioritised to maximise impact; and
- explicit reference to achieving/improving on the relevant wastage rates as identified in the SWMP (if stated).

Note: If the principal contractor has used WRAP's Designing out Waste Tools<sup>52</sup> or Net Waste Tool to forecast waste and select reduced wastage allowances for priority components/materials, then specialist contractors need to be bidding to deliver these wastage rates – otherwise the principal contractor may not secure the waste and cost savings identified.

**Waste management companies**

- "1) Please describe the steps you will take to meet our corporate requirements and help us achieve our waste targets on this project. You are specifically asked to identify and provide information on:
- the key wastes that you estimate are likely to arise on this project;
  - the steps you will take to effectively manage the key wastes;
  - the level of waste recovery that you will achieve for each of these key wastes;
  - the overall level of waste recovery that you will target for construction wastes and for demolition and excavation wastes;
  - specific wastes where segregation may be beneficial, in terms of cost or waste recovery rate, for some or all of the contract period;
  - opportunities to provide materials for reuse on site; and
  - any support/resources you require to enable you to more effectively manage wastes and the benefits associated with our provision of these resources.
- 2) [If a draft SWMP has been provided] Provide comments on the draft SWMP and recommendations for its development as it relates to the activities covered by this contract. You will be expected to work in accordance with the project SWMP if appointed."

**An ideal response would provide the following:**

- proposals detailing how the project's waste recovery objective will be met, and (if set) how the % targets for reuse, recycling and energy recovery will be met and exceeded; and
- identification of project-specific constraints that may prevent recovery targets being met, and the solutions to overcome these constraints.

## Materials suppliers

- "1) Please describe the steps you will take to meet our corporate requirements and help us achieve our waste targets on this project. You are specifically asked to provide information on:
- the steps you will take to reduce wastage in relation to the materials covered by this contract – identify those materials and actions you consider to be most significant in terms of their contribution to reducing overall levels of wastage and waste to landfill;
  - the steps you will take to reduce the quantity and wastage of packaging – identify the sources of packaging waste and the actions you consider to be most significant in terms of their contribution to reducing overall levels of wastage and waste to landfill;
  - the ways in which delivery of the materials covered by this contract may give rise to waste (e.g. during unloading, storage, etc) and how you will work to reduce this wastage;
  - which of the materials covered by this contract you would be prepared to take back if unused/surplus to requirements and the conditions under which you would be prepared to do this; and
  - which of the materials covered by this contract you will be able to provide with above standard levels of recycled content\*. Specific components where higher levels of recycled content are sought are [insert list where known].
- \*for information on benchmark levels of recycled content, please refer to WRAP's Recycled Content Product guide available at <http://rcproducts.wrap.org.uk/>
- 2) [If a draft SWMP has been provided] Provide comments on the draft SWMP and recommendations for its development as it relates to the activities covered by this tender. You will be expected to work in accordance with the project SWMP if appointed."

### An ideal response would provide the following:

- specific proposals for waste reduction of materials and packaging (prioritised in terms of maximum impact);
- proposed manufacturers and distributors of materials and products who offer take-back schemes; and
- specific proposals for reused and recycled content materials and products.

### 3.5.3 Action 3Y: Subcontractor appointment – agreeing project actions and targets

#### Minutes of post-tender interview/start-up meeting

Following the receipt of information from the subcontractor, it is common for a post-tender interview to be held to clarify and agree **specific** actions and standards to be targeted during the project.

Only those subcontractors with the potential to significantly influence the project's performance should be required to implement specific additional actions or targets as part of this process. In many cases it will not be appropriate or practicable to set specific wastage targets for a general subcontractor or materials supplier. However, if their contract is likely to be the only/major source of a significant waste for the project in question, it may prove beneficial to specify a target and monitor performance accordingly. In addition, wastage allowances should be agreed for the purchase of components which are expected to be significant sources of waste.

What is essential is to agree which of the proposed targets and actions will be implemented by the subcontractor and recorded in the SWMP.

The following key outcomes should be recorded for each subcontractor, and will build on information provided in their tender submissions.

“[Subcontractor name] will work in accordance with [contractor name’s] Statement of Contractor Requirements and will comply with any additional requirements specified in the project SWMP.

[Where applicable] Specific actions that will be undertaken by [subcontractor name] are to:

- [list agreed actions or, if available, refer to relevant actions in the project SWMP]

[Where applicable] Specific targets relating to [subcontractor name] are to [select as appropriate]:

- reduce project waste arisings associated with [insert material or activity name] to X [% wastage rate or total tonnes];
- achieve the following waste recovery rates [insert list of agreed recovery rates for specific materials];
- achieve an overall recovery rate of [state target] for construction wastes and [state target] for demolition, strip-out and excavation wastes; and
- achieve minimum levels of recycled or reused content for the following materials used in the project\* [list materials and minimum recycled content levels].

\* provided this is achievable without increasing project costs.”

Where no post-tender meeting is held, the above wording can form the basis for the waste element of the contract agreement.

### 3.6 Handover, Post-completion & Use stage

At this stage, the priority is to collate and analyse data and learning from the project and to record these data in a format that can be used to help improve the approaches for future projects. The SWMP Regulation in England requires a post-project review, and this can be a valuable mechanism for learning and continuous improvement (for client, design team, contractor and subcontractors).

### 3.6.1 Monitor and review performance

Where a panel or framework of preferred suppliers is maintained, it is beneficial to assess the performance of suppliers on an ongoing basis and to share information on best practices between suppliers. The best approach to managing performance will depend on the systems already in place for supply chain management and post-project reviews. The following aspects should be considered:

- Did the subcontractor meet your requirements as they applied to their work, and what were the critical success factors?
- To what extent does the subcontractor deliver services that go beyond the requirements and proactively reduce waste, increase recovery or the use of reused/recycled materials?
- Are there any specific examples of good practice that could be applied to other projects or shared with other subcontractors?

Waste data should be gathered from each subcontractor involved in waste management. The data collated should enable easy and consistent completion of the contractor's waste measurement and reporting system. WRAP have published a set of guidelines for measuring and reporting construction waste ([www.wrap.org.uk/document.rm?id=6748](http://www.wrap.org.uk/document.rm?id=6748)) which have been accepted by members of the UK Contractors Group and Civil Engineering Contractors Association as a robust basis for consistent measurement of waste.

To ensure support from subcontractors in undertaking these reviews, the model Statement of Contractor Requirements includes a requirement that the subcontractor provides data and contributes to project review processes on request.

## Appendix A: Jargon Buster

### Documents used in procurement processes

This Jargon Buster details the documents used in different procurement routes together with a brief explanation outlining their purpose. It is intended to demystify the wide range of terminology used. Different documents occur at different stages of a project lifecycle according to which procurement route is used (Traditional, Design and Build, PFI etc.). These documents can be drawings, specifications, legal agreements or any other type of project information.

There are numerous variations on the three procurement routes listed in Table 1. Some caveats to note are listed here:

- **Procurement management** (management contracts and construction management) types of procurement will use similar documents to those 'Traditional' documents listed below. For Management Contracts, agreements will be between the client and the management contractor. The management contractor will then cascade Waste to Landfill requirements down to the works contractors they appoint to the project. For Construction Management, where the client takes control, individual agreements containing Waste to Landfill requirements will be made between the client and lead designer, construction manager and specialist/trade contractors.
- **Design and Build (D&B)** can either be a single stage or two stage appointment process. Table 1 below depicts a single stage D&B process. A two stage D&B process uses the same documents, only repeating the short-listing and contractor appointment stage a second time around to appoint a final D&B contractor. The benefit of a two stage D&B is that a preferred contractor can be appointed at the first stage before the design is completed, so works can commence on site earlier than would otherwise have been the case.
- The **PFI** documents cited below relate to appointing the main project consortium who will design, build and manage the project. However, it is also usual for the client to appoint PFI advisers who assist in the process of letting the complex PFI contract. Where this is the case, advisers will also have PQQ and ITT documents issued to them by the client, which could also contain higher-level Waste to Landfill objectives. For more information on the PFI process, see the HM Treasury web site at [http://www.hm-treasury.gov.uk/ppp\\_index.htm](http://www.hm-treasury.gov.uk/ppp_index.htm)

The number next to each document in Table 1 refers to the corresponding explanation later in Table 2.

Table 1: Documents used under different procurement routes			
Project stage	Traditional procurement documents	Design & Build procurement documents	PFI documents
<b>Policy</b>	<b>CSR</b> (see 1 overleaf)	<b>CSR</b> (see 1 overleaf)	<b>CSR</b> (see 1 overleaf)
<b>Preparation</b>	<b>Project Brief</b> (see 2 overleaf)  <b>Consultant PQQ</b> (see 4 overleaf)  <b>Consultant ITT</b> (see 5 overleaf)	<b>Project Brief</b> (see 2 overleaf)  <b>Consultant PQQ</b> (see 4 overleaf)  <b>Consultant ITT</b> (see 5 overleaf)  <b>Consultant Contract</b> (see 7 overleaf)	<b>OBC</b> (see 3 overleaf)  <b>Consortium PQQ</b> (see 4 overleaf)  <b>ISOP or ISOS, ITPD</b> (see 6 and 14 overleaf)  <b>ISDS, ITFSB</b> (see 14 overleaf)  <b>ITN</b> (see 8 overleaf)
<b>Design</b>	<b>Consultant Contract</b> (see 7)	<b>Contractor PQQ</b> <sup>53</sup> (see 4 overleaf)  <b>Contractor D&amp;B ITT</b> (see 10 overleaf)  <b>Employers Requirement (ER)</b> (see 11 overleaf)  <b>Contractor Consultant Contract</b> (see 12 overleaf)	<b>BAFO</b> (see 9 overleaf)
<b>Construction preparation</b>	<b>Contractor PQQ</b> (see 4 overleaf)	<b>Contractor's Proposal (CP)</b> (see 13 overleaf)	<b>Output Specification or FSOS</b> (see 14 overleaf)  <b>PFI Contract and SPA</b> (see 15 overleaf)
<b>Construction</b>	<b>Main Contract</b> (see 16 overleaf)  <b>Sub-Contracts</b> (see 18 overleaf)	<b>Main D&amp;B Contract</b> (see 17 overleaf)  <b>Sub-Contracts</b> (see 18 overleaf)	<b>Sub-Contracts</b> (see 18 overleaf)

<sup>53</sup> Depending on early or late Contractor involvement in the design process, they may be involved as early as Preliminary Design, or as late as Pre-Construction. This will affect when PQQs are issued.

Table 2: Explanation of the documents used under different procurement routes		
Document	What does the acronym mean?	Explanation
<b>(1) CSR</b>	Corporate Social Responsibility	Based on the idea that a company's responsibility goes beyond the strict legal and regulatory responsibilities. The <b>CSR</b> policy document is adopted by companies and sets how to improve their business impact on society and the environment. Model wording (refer to Client Action 1A and Contractor Action 1X) can be placed in this document.
<b>(2) Project Brief</b>		Document outlining the background and requirements of the project. Model wording (refer to Client Action 1C) can be placed in this document.
<b>(3) OBC</b>	Outline Business Case	This early-stage in-house client document is developed following the establishment of the business need for the PFI project. The <b>OBC</b> is then typically sent for Ministerial approval. If approved, the project is advertised in the Official Journal of the European Union (OJEU).
<b>(4) Consultant, Contractor or Consortium PQQ</b>	Pre Qualification Questionnaire	<p>The <b>PQQs</b> are normally the first stage of a short-listing process. They are sent to consultants, contractors or PFI consortia depending on the procurement route chosen. Model wording for PQQs is contained in Client Actions 2A and 3A and Contractor Action 1Z.</p> <p>In the PFI process, the <b>PQQ</b> is issued when the project is advertised in a notice placed in the Official Journal of the European Community (OJEU), accompanied by a <b>Descriptive Document</b> and an early version of the <b>Output Specification</b> (which should include requirements for waste reduction). Bidders listed (pre-qualified) after submitting PQQ responses receive an <b>Invitation to Participate in Dialogue (ITPD)</b> or <b>Invitation to Submit Outline Solutions (ISOS)</b> or <b>Invitation to Submit Outline Proposals (ISOP)</b> – see 6 below.</p>
<b>(5) Consultant or Contractor ITT</b>	Invitation to Tender	The ITT process follows the PQQ process, or sometimes both PQQ and ITT can be issued at the same time. The ITT can include a number of documents (such as outline consultant terms & conditions and outline consultant scope) and requests the tendering company to submit their bid. Model wording (refer to Client Actions 2A and 3A) can be placed in this document.
<b>(6) ISOP or ISOS; ITPD</b>	<p>Invitation to Submit Outline Proposals, or Invitation to Submit Outline Solutions;</p> <p>Invitation to Participate in Dialogue</p>	The <b>ISOS</b> or <b>ISOP</b> document may be issued to selected bidders, and should include an early version of the <b>Output Specification</b> . This stage may be termed the <b>Invitation to Participate in Dialogue (ITPD)</b> . Its purpose is to help the client evaluate bidders, leading to the selection of a short-list. Also see 8 and 14 below.
<b>(7) Consultant Contract</b>		The consultant appointment will usually include terms and conditions of appointment, finalised consultant scope and a fee agreement. Model wording (refer to Client Action 2C) can be placed in this document.



Table 2: Explanation of the documents used under different procurement routes, continued		
<b>(8) ITN</b>	Invitation to Negotiate	<p>The <b>ITN</b> is initially sent to PFI bidders pre-qualified following a review of PQQ responses; this stage of procurement is equivalent to the <b>Invitation To Participate in Dialogue (ITPD)</b> or <b>Invitation to Submit Outline Solutions (ISOS)</b>.</p> <p>The ITN may evolve in detail (as draft, preliminary/provisional and final ITNs) through the stages of procurement. The <b>Output Specification</b> is a key component of the ITN (and should include requirements for waste reduction).</p>
<b>(9) BAFO</b>	Best and Final Offer	The <b>BAFO</b> is generated where the preferred PFI bidder has been requested to refine their bid following project changes since the ITN bid submission.
<b>(10) Contractor D&amp;B ITT</b>	Design & Build Invitation to Tender	The <b>ITT</b> process follows the PQQ process, or sometimes both PQQ and ITT can be issued at the same time. The ITT can include a number of documents (such as general contract conditions) and requests the tendering D&B company to submit their bid. Model wording (refer to Client Action 3A) can be placed in this document.
<b>(11) ER</b>	Employers Requirement	Under D&B, the <b>Employers Requirement</b> will be included. This document will usually be included in the Contractor D&B ITT. The Employers Requirement usually consists of a performance specification and drawings. Model wording (refer to Client Action 2B) can be placed in this document.
<b>(12) Contractor Consultant Contract</b>		<p>The contract between the contractor and design consultants. The design consultants may be the original designers (with contracts simply novated from client to contractor) or different designers employed by the contractor. Irrespective of who is employed, the contract will usually include consultant terms, consultant scope and a fee breakdown. Model wording (refer to Client Action 2C) can be placed in this document.</p> <p>Note: This process will take place after the contractor has been appointed, which under D&amp;B can be as early as Preliminary Design (e.g. RIBA Stage C) or late as Construction Preparation.</p>
<b>(13) CP</b>	Contractor's Proposals	This is the contractor's response to the ITT and ER. The <b>CP</b> will usually include drawings, specifications, contract sum analysis and any qualifications.
<b>(14) Output Specification or FSOS</b>	Facilities and Services Output Specification	The <b>Output Specification</b> is developed <u>throughout</u> the PFI design development stages, and is similar to the Employers Requirement document that is used under D&B. The document lists the desired specification of the final construction/project. It is finalised at 'financial close' of the PFI process (prior to works commencing on site).

Table 2: Explanation of the documents used under different procurement routes, continued		
<b>ISDS</b>  <b>ITFSB</b>	Invitation to Submit Detailed Solutions  Invitation To Submit Final Bids	<p>Model wording (refer to Client Actions 1C and 2B) can be placed in the Output Specification.</p> <p>The client issues an early version of the Output Specification when the project and PQQ is advertised in the Official Journal of the European Community (OJEU) notice. Subsequently, refined versions of the Output Specification also accompany:</p> <ul style="list-style-type: none"> <li>■ the <b>Invitation To Participate in Dialogue (ITPD)</b> issued to long-listed (pre-qualified) bidders, which may also be termed the <b>Invitation to Submit Outline Solutions (ISOS)</b>;</li> <li>■ the <b>Invitation to Continue Dialogue</b> issued to short-listed bidders, which may also be termed the Invitation to <b>Submit Detailed Solutions (ISDS)</b>; and</li> <li>■ the <b>Invitation To Submit Final Bids (ITFSB)</b> or <b>Call for Final Tenders (CFT)</b>.</li> </ul>
<b>(15) PFI Contract and SPA</b>	Private Finance Initiative Contract  Strategic Partnering Agreement	<p>This is a PFI-specific construction contract. The contract document (aka 'project agreement') includes the output specification, payment mechanism and contract terms.</p> <p>A <b>Strategic Partnering Agreement (SPA)</b> may be agreed between the PFI contractor and the client. The SPA may includes KPIs and threshold/target levels of performance on sustainability, including waste reduction, recovery of construction and demolition material, and use of recycled content in new build and refurbishment projects.</p>
<b>(16) Main Contract</b>		<p>The main contract is made up from a number of documents including:</p> <ul style="list-style-type: none"> <li>■ General conditions (such as JCT, NEC etc);</li> <li>■ Drawings;</li> <li>■ Specifications including: Preliminaries (where model wording can be placed – see Client Action 3B); and</li> <li>■ Pricing document.</li> </ul>
<b>(17) Main D&amp;B Contract</b>	Main Design & Build Contract	<p>The main D&amp;B contract is made up from a number of documents including:</p> <ul style="list-style-type: none"> <li>■ General conditions (such as JCT, NEC, where model wording can be placed – see Client Action 3B);</li> <li>■ Employers Requirements (where model wording can be placed – see Client Action 2B);</li> <li>■ Contractor's Proposals; and</li> <li>■ Contract sum analysis.</li> </ul>
<b>(18) Sub-Contracts</b>		<p>Used where subcontractors are appointed to complete discrete work packages. These documents will include subcontract conditions, drawings, specifications (including Preliminaries where model wording can be placed – see Contractor Actions 1Y and 3Y) and a pricing document.</p>

## Appendix B: Actions through the project life-cycle

Client and contractor actions to reduce waste to landfill				Tools available to help	
Project stage	Action – what you need to do	Outcome – what result you will get	Model wording provided to help enable 'Action'	WRAP tools	Non-WRAP tools
Policy	<b>Make a commitment on construction waste</b> and include requirements in policy documents.	Corporate commitment demonstrates resolve to the supply chain. Documents can be referred to in subsequent stages.	<b>Corporate policy document and Project Brief</b>	WRAP procurement guidance	
	<b>Set PQQ and ITT questions</b> that test capability and relevant experience of design team members (architects, engineers and consultants).  <b>Appoint</b> design team members, mandating waste reduction & recovery targets for the project.	Prospective design team members will bid, trying to demonstrate capability and relevant previous experience.  Design team will set contractually binding waste reduction & recovery targets.	<b>Design team PQQs, ITT, Employer's Requirements and Appointment</b>	WRAP procurement guidance Site Waste Management Plan (SWMP) Template Designing out Waste Tools and Net Waste Tool AggRegain modules and directories	Benchmarks of waste from previous projects European standards, and UK guidance and specifications
Pre-construction & Construction	<b>The client tenders and appoints contractor</b> , establishing actions and assigning responsibilities through formal contract.	Contractor will be contractually required to help reduce waste and waste to landfill, and will pass this requirement to their supply chain.	<b>Contractor PQQs, ITT and Contract/Preliminaries</b>	WRAP procurement guidance Designing out Waste Tools and Net Waste Tool SWMP Template	Site waste data collection and SWMP tools
	<b>The contractor tenders and appoints subcontractors and waste management contractors</b> , establishes actions and assigns responsibilities through formal contract, via negotiation or agreements made at meetings.	Subcontractors and waste management contractors sign up to responsibilities and actions to deliver project-specific targets on waste reduction/waste recovery/waste recycling and use of recovered materials.	<b>Subcontractor, waste management contractor and material supplier PQQs, ITT and Contract/Preliminaries</b>	Site Specific Waste Analysis Tool Waste Management Contractor Audit Protocol AggRegain modules and directories	
Handover, Post-completion & Use	<b>Collect contractual data</b> from construction supply chain on waste to landfill KPIs and metrics.	Supply chain will report against performance targets using agreed metrics. This will allow corporate monitoring of progress in reducing waste and waste to landfill.		Waste to Landfill Reporting Portal SWMP Template SWMP Reporting Tool	Environment Agency Waste Returns data and SWMP tools

WRAP, Cyril Sweett, Davis Langdon and Scott Wilson believe the content of this report to be correct as at the date of writing. However, factors such as procurement policy, procurement practice and regulatory requirements are subject to change and users of the report should check with their advisers to confirm the current situation. The views and recommendations within this report are based upon normal contracting conditions and consideration must be given to the relevance of this guidance to each project type. Particular care should be taken in using the model wording provided as it is based upon numerous project-specific assumptions (such as scale, location, tender context, etc.). Whilst steps have been taken to ensure accuracy, WRAP cannot accept responsibility or be held liable to any company/organisation or private individual for any loss or damage arising out of or in connection with the accuracy or completeness of this information. It is the responsibility of the potential user of a service, material or product to consult with the supplier or manufacturer and ascertain whether a particular product will satisfy their specific requirements.

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