

Schedule <insert schedule number>

Contractual specification for Local Authority collected garden wastes

For composting processes working towards initial certification or already certified to PAS 100 Specification and the Compost Quality Protocol

1. Purpose

The purpose of this input specification is to provide a standard for the quality and types of input materials that can be delivered for composting to <name of the composting facility> under contractual arrangements between <insert Contractor name> and <insert Local Authority's name>. This specification shall be defined so that it enables the Contractor to produce marketable compost compliant with the requirements of BSI PAS 100 Specification (PAS 100)¹ and the Compost Quality Protocol². This input specification also provides guidance on how the input materials delivered to the composting facility shall be compared to the quality standard and defines the actions to be taken if it is established that the material does not meet the required standard.

2. Specification variation

This specification may be reviewed by agreement between the Local Authority and the Contractor when this involves mutual benefits for both parties. A collaborative approach is imperative to ensure the Local Authority and the Contractor work closely to develop adequate specifications and comply with regulations to supply quality compost. Both parties should be looking to improve quality as far as is reasonable practical within existing collection infrastructure and Local Authority's powers³.

Note:

The adequacy of the maximum acceptance criteria in table 2 should be reviewed at least on an annual basis or more frequently if appropriate. A maximum acceptance limit is considered adequate when it enables the cost effective production of quality compost compliant with PAS 100 minimum quality criteria and any other additional, more stringent quality criteria required by compost customers. PAS 100 specifies the following upper limits for the compost produced: 0.25 % (mass/mass of air-dry sample) for the total amount of physical contaminants > 2 mm, 0.12 % (mass/mass of air-dry sample) for the amount of plastics > 2 mm and 8 % (mass/mass of air-dry sample) for the amount of stones > 4 mm. In addition, PAS 100 specifies that 'physical contaminants that are "sharp" are unacceptable in any application where compost is bagged or supplied for any use where it is handled without protective gloves. Tolerances for physical contaminants, including those that are sharp, can vary between other compost end markets.' Particularly demanding market sectors (e.g. potato growers) require that the content of sharps in the compost is nil.

If, as a result of the above review, if it is established that the maximum criteria specified in this document are inadequate (e.g. they do not deliver the compost quality required, given the processes, infrastructure and labour employed at the composting site), the Contractor and the Local Authority shall review this input specification and define new, adequate acceptance criteria, or additional processing must be employed to reduce the contaminants to acceptable levels. Reviewing the adequacy of the

¹ BSI PAS 100:2011 Specification for composted materials. See <http://www.qualitycompost.org.uk>

² EA / WRAP Quality Protocol for the production of composts from source-segregated biodegradable wastes (the 'CQP'). See <http://www.qualitycompost.org.uk>. The Protocol specifies End of Waste criteria for composts in England, Wales and Northern Ireland; in other words, only composts that are certified compliant with the CQP can be regarded as product in these countries. Please note that the Compost Quality Protocol, which defines End of Waste criteria for composts, requires independent assessment for conformance with all requirements of PAS 100.

³ It may not always be possible for a collection crew to see what a householder actually puts in the waste collection recitals.

'critical limits' (in this case, the input material maximum acceptance criteria) at regular intervals is a fundamental requirement of PAS 100. Failure to do so results in non-compliance.

3. Targeted input materials

Definitions of targeted material suitable for receipt and composting at the composting facility named above are detailed in Table 1.

Table 1 List of waste types that are accepted for composting		
European Waste Code	Waste description	Any caveat / rules / restrictions to waste types targeted
20 02 01	<p>Plant-derived wastes from household gardens and public park wastes. These consist of leaves, grass cuttings, hedge and tree, tree cuttings and any either similar vegetable materials arising from gardens.</p> <p>It includes leaf litter from parks and gardens.</p>	<p>It shall not include woody matter exceeding 100 mm in diameter.</p> <p>It shall not include road sweepings e.g. those collected:</p> <ul style="list-style-type: none"> • from urban areas, where it is expected that grit or other contaminants would form a high or majority of the waste; • when the roads have been gritted; • from gully pots (gully suckings); • from areas where road resurfacing works are being undertaken; • from areas where it is likely that pollution has occurred (e.g. traffic accident).
<p>20 01 39</p> <p><i>ORG guidance: if the collection does not entail the use of collection bags / sacks / liners, please delete this section in the table. On the other hand, if the collection entails the use of liners / bags / sacks, then only the types that are certified 'compostable' should be regarded as 'targeted waste'.</i></p>	<p>Collection plastic bags / liners / sacks</p>	<p>Allowed only if:</p> <ul style="list-style-type: none"> • have a valid certificate of compliance with standard BS EN 13432, BS EN 14995, ASTM D6400, ISO 17088, ISO 18606 or Vincotte's 'Program OK 2' criteria for 'home compostable' packaging/plastics; • carry the appropriate certification mark authorised by the certification body that issued the final product's certificate; and • carry the corresponding final product certification code issued by the certification body (e.g. if the certifier is DinCertco, final product codes begin with '7P', not '7W' as the 'W' denotes base material).
<p>20 01 01</p> <p><i>ORG guidance: if the collection does not entail the use of collection bags / sacks / liners, please delete this section in the table. On the other hand, if the collection entails the use of liners / bags / sacks, then only the types that are certified 'compostable' should be regarded</i></p>	<p>Collection paper bags / liners / sacks</p>	<p>Allowed only if:</p> <ul style="list-style-type: none"> • have a valid certificate of compliance with standard BS EN 13432, BS EN 14995, ASTM D6400, ISO 17088, ISO 18606 or Vincotte's 'Program OK 2' criteria for 'home compostable' packaging/plastics; • carry the appropriate certification mark authorised by the certification body that issued the final product's certificate; and • carry the corresponding final product certification code issued by the certification body (e.g. if the certifier is DinCertco, final

as 'targeted waste'.		product codes begin with '7P', not '7W' as the 'W' denotes base material).
[Add new waste types as appropriate to your contract]		

Input materials accepted by the Contractor for composting shall meet the above definitions. There shall be no limit to the proportion of any one constituent of targeted materials within any one load unless it can be proven by the Contractor that the inclusion of excessive amounts of that constituent prejudices the composting operation.

4. Maximum acceptable criteria for contaminants

Incidental contaminants are defined as any material contained in Table 2 and which, when included within waste can potentially prejudice the ability of that load to be handled and processed into marketable compost complying with PAS 100 specification. They can also be referred to as 'Non-compostable' materials (NCM).

Prohibited materials are any material which, in processing, would put the Contractor in breach of any site licence / permit, other regulatory consent, compliance with PAS 100 Specification, or the Compost Quality Protocol.

Table 2. Input specification: prohibited materials, incidental contaminant types and associated maximum acceptance limits		
In addition to the individual thresholds below, the total incidental contamination shall not be more than 2 % by weight in aggregate		
Prohibited material type	Incidental contaminant type	Maximum proportion of organic waste load %) or maximum number of items⁴
-	Paper ⁵ (except for paper bags as specified in Table 1)	<insert maximum percentage by weight as received>
-	Card ⁵	<insert maximum percentage by weight>

⁴ For some contaminant types, the Contractor may wish to specify a maximum number of items. This is especially recommended for contaminants such as plastic bags and packaging, which would normally weigh relatively little e.g. 2 % plastic bags by weight does not sound much but equates to approximately 2500 bags / tonne.

⁵ Although there are some types of paper and card that are compostable (e.g. plain paper /cardboard or certified 'compostable' to one of the relevant standards), this template is for 'garden wastes' only; hence, any type of paper and card is considered to be a non-target material.

-	Total plastics ⁶ <i>(This includes light plastics as well as heavy plastics. It does not include plastic bags/sacks/liners that are certified 'compostable' and/or 'home compostable' in compliance with one of the relevant standards⁷ if their use is allowed within the collection service.)</i>	Max 0.24 % total plastics by weight as received
	Light plastics (low density, flexible plastics of any colour or transparency)	Max 13 plastic bags / 10 tonnes load of input materials delivered See ORG Visual Assessment Guidance
-	Textiles	<insert maximum percentage by weight as received >
-	Metals	<insert maximum percentage by weight as received >
-	Glass (including sharp and rounded pieces)	0 %
-	Hardcore, concrete, rocks, tiles, ceramics, stones etc.	<insert maximum percentage by weight as received >
-	Nappies	<insert maximum percentage by weight as received >
-	Dog droppings and other faecal matter	<insert maximum percentage by weight as received >
	Any non-source segregated or non-compostable input materials of any type other than those stated in this table	<insert maximum percentage by weight as received >
Hazardous household waste items	-	0 %
Clinical wastes	-	0 %

⁶ The maximum amount of plastics, metals, card, paper, other physical contaminants and the overall amount of physical contaminants allowed to be accepted for composting will depend on the type and level of processes and labour employed before and after composting. For example, a picking station prior to composting, or a wind-sifting unit installed on the screen will enable better removal of contaminants than a simpler composting operation with no picking station or wind-sifting unit. These levels will also vary depending upon screen aperture size when compost is being screened e.g. if the compost is screened down to 0 - 10 mm particle size range, the reduction in plastics and other physical contaminants will be far greater than if the compost is screened to 0 - 40 mm particle size range. However, where contaminant levels are higher, not only will the cost of processing be greater (as more processing will be required to remove contaminants), but there will also be significantly higher costs for disposing of the rejects. When the Contractor and the Local Authority agree maximum acceptance criteria, consideration should be given to these issues. Additional processing costs associated with decontaminating loads prior to or after composting should also be carefully considered (see Table 3 in this contract).

⁷ 'Compostable' means independently certified compostable to the "compostable" criteria within BS EN 13432, BS EN 14995, ASTM D6400, ISO 17088, ISO 18606 or Vinçotte's 'Program OK 2' criteria for "home compostable" packaging, plastics or equivalent. See <http://organics-recycling.org.uk/page.php?article=1991>.

Animal by-products (e.g. category 3 catering wastes)	-	0 %
Liquid, sludges, or mixtures of solids and liquids	-	0 %
<i>[Add new prohibited material types as appropriate to your contract]</i>	<i>[Add new incidental contaminant types as appropriate to your contract]</i>	

Many of the current contractual arrangements with LAs specify a maximum of 5 % of physical contaminants or plastics in input loads delivered to composting plants. It is often unclear whether this percentage is expressed on a weight or on a volume basis. ORG has estimated that 5 % (on a fresh weight basis) of physical contaminants in the input materials may result approximately in 18 % (on an air-dry weight basis) of contaminants in the compost product. ***This is far above the PAS 100 upper limit for physical contaminants (0.25 % on an air-dry weight basis) and plastics (0.12 % on an air-dry matter basis).*** This calculation is approximate and does not take into account any reduction in physical contaminants and plastics achieved with pre-composting (e.g. picking lines) and/or post-composting steps (e.g. screening, wind sifting). The calculation is based on the following assumptions:

- 40 – 50 % reduction in mass due to CO₂ and H₂O (in liquid and gas forms) and other gaseous losses during biological treatment (e.g. 5 % of physical contaminants by fresh weight in feedstock results in 9.5% of physical contaminants by fresh weight in compost product); and
- conversion of 9.5 % by fresh weight into 18 % by air-dry weight to enable comparison with the PAS 100 upper limit for physical contaminants or plastics (this is based on 40 % compost moisture content).

5. Garden wastes load inspection and associated procedures

Each load of input material delivered under this contract is visually inspected following [ORG visual assessment guidance](#).

Any load containing prohibited materials shall be rejected.

Any load containing incidental contaminants in excess of the proportions given in Table 2 shall be subject to the procedures shown in Flow chart 1. The chart describes the procedure for determining whether a load is to be rejected or subjected to additional treatment to remove excess contamination.

A load shall not be rejected where contaminants can be removed, or the level of contamination can be brought within the maximum allowable specified in Table 2, including the total contamination level, by minimal and safe (assuming normal personal protective equipment e.g. gloves, steel soled boots etc.) hand sorting or picking. Minimal hand sorting shall be undertaken by the Contractor and shall not normally take one person more than five minutes (this is classed as ‘Score 3’ load).

6. Point of Responsibility

The Contractor is responsible for monitoring each biowaste load for compliance with this input specification.

In cases where the Contractor has identified a potentially rejectable load, the Contractor shall immediately notify the Local Authority by telephone, and confirm in writing at the earliest opportunity that the Contractor considers the load potentially rejectable. If possible, photographic evidence should be provided to support the warning message from the contractor.

Where the Contractor identifies to the Local Authority that a load which has not been rejected may have failed to meet the input specification, the Local Authority shall use its reasonable endeavours to ensure that the source of the contamination is identified and future contamination minimised.

7. Officer responsible for dealing with the Contractor

The Local Authority shall appoint a person who is responsible to deal with the Contractor in relation to issues associated with input material contamination.

8. Joint inspection

Except in cases of emergency, or regulatory restriction, the potentially rejectable load will be stored separately on site for up to one working day (Monday to Friday) pending an opportunity to joint inspect by the Contractor and the Local Authority. Where a joint inspection is not possible or not deemed necessary by the Contractor and the Local Authority, the Contractor will provide the local Authority with his/her subjective assessment of the level of contaminants in the load, together with photographic evidence of entire load and the contamination items.

9. Agreement on contamination

The Local Authority shall not unreasonably withhold or delay its agreement that any relevant load fails to meet this specification and shall, in any event, respond within one working day after the Authority receiving the notification pursuant to paragraph 6 or within the input waste storage period allowed in the contractor's authorisation from the regulator, whichever is sooner.

Where the Contractor and the Local Authority agree that any load delivered fails to meet this input specification, the load shall either be removed by the Contractor to energy recovery, landfill or other legitimate disposal means ('Score 4b' load), or shall be subject to additional processing at the facility ('Score 4a' load). If the costs are not already part of contract rates or agreements the additional costs shall be borne in full by the Local Authority.

Where the Contractor and the Local Authority fail to agree that a load does or does not comply with this input specification the load shall be subject to further analysis of the contamination levels in the load, according to [ORG's Protocol to measure physical contaminants in biowastes](#) or an equivalent method. The analysis shall involve taking a representative sample of the load followed by an assessment of the levels and types of contaminants in the load.

Where the analysis determines that a load failed to meet this input specification, the costs of the analysis shall be borne in full by the Local Authority.

10. Processing costs and rejection costs

The Contractor shall make reasonable endeavours to clean up the loads, which are agreed to have failed to meet this input specification but could be processed to remove

contamination. The Contractor will notify the Local Authority of the additional costs associated with the additional processing required. These shall include:

- direct cost associated with the additional processing, labour costs, and reduction of contamination to acceptable levels
- additional costs of processing and/or disposing of the contaminants;
- any ancillary cost such as transportation;
- any cost associated with taking samples and assessing the levels of contaminants in the delivered load; and
- any cost associated with any agreed on-going monitoring.

All costs would need to be present to Local Authorities openly, transparently.

Any failure to reach an agreement on these costs within twenty-four hours from the load being delivered shall result in disposal of the contaminated load at the current cost of landfill disposal. This may need to change to reflect the maximum storage time allowed in the site environmental permit.

Table 3 shows the fees that will be charged according to whether the load is classed as:

- Visual assessment scores 1 or 2 load – load compliant with the input specification (fee rate 1)
- Visual assessment score 3 load – load not compliant with input specification, but can be dealt with minimal hand picking / sorting (fee rate 1)
- Visual assessment score 4a load – load not compliant with input specification and is subjected to significant extra processing (fee rate 2)
- Visual assessment score 4b load – load not compliant with input specification, is rejected and sent to the agreed method of disposal (fee rate 3).

11. Monitoring the levels of physical contaminant in the input materials

The quality of input materials shall be kept under review by the Contractor.

The Contractor shall be responsible for monitoring the quality of the waste materials against the input specification in table 2 of this Schedule and agree with the Local Authority the method, frequency and cost of such monitoring.

Note:

Clause 6.1.9 of PAS 100:2011 states that 'each delivery of input material shall be inspected at a location where there is adequate control of risk of cross-contamination between the delivered load and any input materials accepted for composting, materials undergoing composting or fully composted materials in storage'.

'NOTE Inspection should be carried out soon after the load has been discharged from the transport vehicle, as appropriate to the facility layout and its composting system. Inspection activities should be sufficient to verify whether the load is within the critical limits in the composter's acceptance criteria. QMS activities include checking that the CLs are effective.'

Once the inspection has taken place, some operators have found it very useful to record the outcome of their subjective assessment of the level of contaminants on a record (e.g. the Input Load Inspection Record Sheet). A copy of the relevant part(s) input load inspection record sheet is then provided to the waste supplier as a feedback on the quality of the input materials delivered.

ORG has recently released a methodology to measure the levels and the types of physical contaminants in delivered loads of biowastes. This can be found [HERE \(http://www.organics-recycling.org.uk/page.php?article=2334&name=AfOR+releases+its+protocol+to+measure+physical+contaminants+in+biowastes\)](http://www.organics-recycling.org.uk/page.php?article=2334&name=AfOR+releases+its+protocol+to+measure+physical+contaminants+in+biowastes). This methodology can be used to:

1. *ascertain and monitor contamination levels in loads of biowaste delivered to organics recycling facilities;*
2. *obtain evidence to support the specification or revision of maximum acceptance criteria in contractual arrangements with suppliers;*
3. *check compliance with the acceptance criteria specified within existing contractual arrangements;*
4. *provide biowaste suppliers with feedback on specific collection rounds that are routinely causing issues with respect to contamination; and*
5. *justify the implementation of a differential pricing mechanism based on the results of the assessment carried out.*

When this methodology is used, it should be carried out at least quarterly to take into account any potential seasonal variation.

In the event of repeated contamination that requires action by the Contractor, the parties should agree a revised monitoring programme to check contamination levels over a period of time.

Assessment of the levels and types of physical contaminants in delivered loads will be of particular interest to sites receiving loads with excessive levels of physical contaminants, or where disputes arise concerning contamination levels.

Please contact ORG if you wish to receive any information or clarification about this methodology.

Flow chart 1

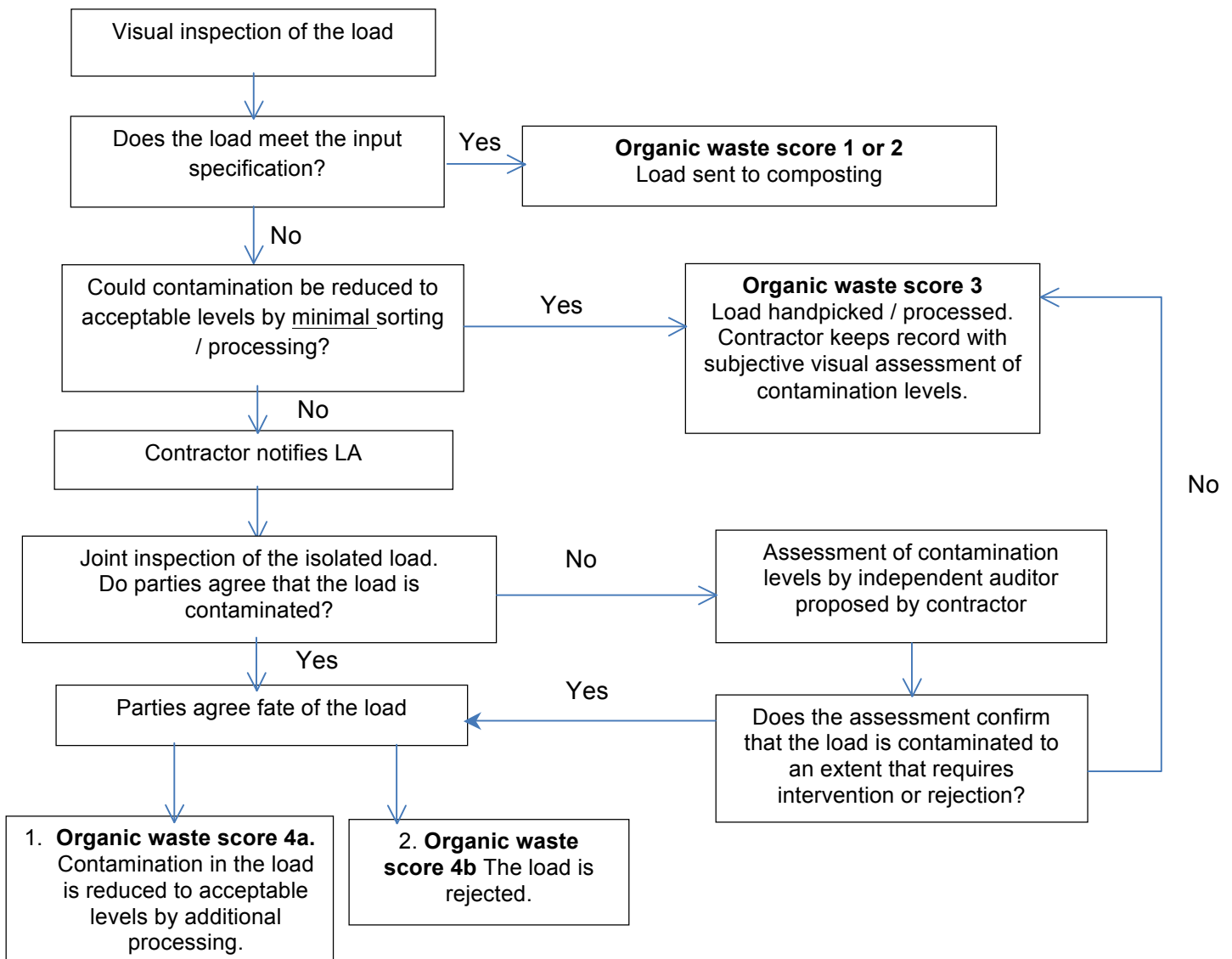


Table 3: Banded fee system based on load quality and the fate			
Organic Waste Visual assessment score (see ORG visual assessment guidance)	Contaminants levels	Fee band	Costs description
1 and 2	Waste complies with max levels in Table 1	Fee rate 1	Standard gate fee for this waste type [£/tonne]
3	Waste does not comply with max levels in Table 1, but can be cleaned up with minimal sorting / picking	Fee rate 1	Standard gate fee for this waste type [£ / tonne]
4a	Waste does not comply with max levels in Table 1, and cannot be cleaned up with minimal sorting / picking. Contractor and LA agree to further process the load to reduce contaminants to acceptable levels	Fee rate 2	Standard gate fee for this waste type plus: <ul style="list-style-type: none"> • Direct cost associated with the additional processing, labour costs and reduction of contamination to acceptable levels; • The additional costs of processing and disposing of the contaminant materials • Any ancillary cost such as transportation • Cost of contamination assessment if performed (e.g. waste composition analysis) • Cost of any agreed on-going monitoring [£ / tonne]
4b	Waste contains prohibited materials or does not comply with max levels for contaminants in Table 1, and cannot be cleaned up with minimal sorting / picking. Load is rejected and sent for disposal	Fee rate 3	Current cost of disposal plus any transportation and ancillary costs for removal [£ / tonne]

Acknowledgments

The ORG would like to thank Andrew Goddard and Bill Griffiths at Viridor for having provided examples of biowaste specifications that represented the basis for this template. Our special thanks also go to Gurbaksh Badhan from Buckinghamshire CC (NAWDO) for the extremely useful feedback and support provided. #####

The ORG would like to thank Gurbaksh Badhan from Buckinghamshire County Council, whose feedback was extremely important to understand NAWDO and local government's views on this subject. We would also like to thank our members MEC Recycling, Viridor, SITA and Envar for the constructive feedback provided, which

informed the contents of this guidance. Many thanks also to MEC Recycling for having kindly provided the above pictures.

In addition, we would like to thank Tony Breton at Novamont for his expert contribution and assistance in writing this template.