

# **EXCELLENCE in WASTE**

**A REPORT ON  
ALTERNATIVE STRATEGIES  
FOR THE ISLAND OF GUERNSEY'S SOLID WASTE**

**PRESENTED TO**

**MEMBERS OF THE STATES OF DELIBERATION OF GUERNSEY**

**ON**

**19 MARCH 2010**

By Advocate Roger Dadd

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The States of Guernsey Independent Panel of Inquiry  
into the future of solid waste disposal in Guernsey

## **INTRODUCTION**

In compiling this Report, I have received help and guidance from former members of the People's Panel, which evaluated waste streams contributing to landfill between March and August 2008, but whose activities ceased on 29 July 2008 as a result of a letter of dismissal from the Public Services Department of the States of Guernsey ("PSD"); members of the Guernsey Recycling Advisory Forum; and the Energy and Waste Sub-Committee of the Chamber of Commerce, but any views expressed or errors contained within it are mine alone.

This Report has come about in response to Island-wide recognition that an effective range of options for the reduction, reuse, recycling and treatment of residual waste needed to be presented within the covers of a single report. This would enable members of the States of Deliberation of Guernsey ("the States") to more easily consider the merits of the alternatives to incineration of the Island's solid waste.

Co-operation has been offered to the Waste Disposal Authority of the PSD, should that be required. Information gathered in the course of the preparation of this Report will be similarly available.

The Report has been produced following the February 2010 meeting of the States and prior to the March 2010 meeting.

Following the February meeting, some States Members have questioned the practicability and cost-effectiveness of the decision to adopt a strategy for Waste Minimisation, in favour of Mass Burn Incineration. The purpose of this Report is to set out in clear terms some options which the States may decide to follow, and the practical and cost implications for them. It does not set out to advance a single solution and, indeed some of the solutions advanced may not accord with the present policy of the States.

It is accepted that Waste Minimisation in the truest sense can only be a long term objective whilst some alternatives deliver results well within the time which would be required to commission a large Incinerator. What is common to the methods set out here is that each treats the Island's solid waste simply, using technology which is reliable and which reuses most of the end product.

The Report focuses on alternatives to Mass Burn Incineration. It takes a similar view to those expressed by the States' own Independent Panel of Inquiry, in its report of January 2005, and those of the People's Panel. All coincide to the extent that, whilst some form of micro-incineration may be an appropriate method for treating the residual fraction of the Island's solid waste, and perhaps eventually sewage cake, a large Mass Burn Incinerator is not an appropriate way to deal with the Island's solid waste.

Where these views are at variance with the historical view of PSD is that, although there will always be an inescapable cost attached to it, Guernsey's solid waste is not a **problem** but is a **resource** which has potential for use.

Without ascribing any bad faith, concern has been expressed at the level of misinformation given by members of the States, and others, who are committed to Mass Burn Incineration. Two topical examples of this would be the public statement by Deputy Hadley of Sunday, 7 March 2010, when he asserted that a Waste Transfer Station, necessary for collecting and preparing waste to go to Jersey for incineration, would cost £10 million (whereas reliable costings from suitably experienced civil engineers put the cost at between £4 million and £4.5 million), and the public statement by Deputy Spruce of Sunday, 14 March 2010, asserting that the remaining life of the landfill site at Mont Cuet was two years, when, at present rates of filling, various projections give a much longer period of time, to 2019 or beyond.

Although a lack of time has prevented more detailed costings being provided, it is an inescapable fact that, relieved of the huge capital cost of a Mass Burn Incinerator and the associated annual interest payments over twenty-five years, the alternatives, which are more modest in scale, coupled with an available source of income from part of the site at Longue Hogue, leads to the conclusion that, with proper planning and stewardship, the costs of dealing with Guernsey's solid waste other than by Mass Burn Incinerator, should be less expensive, whichever processes are chosen.

## **CONCLUSION**

- *Should incineration be necessary, Mass Burn Incineration is too large for Guernsey and is too expensive.*
- *If Waste Minimisation is effective, there is no need for Mass Burn Incineration, and more environmentally sustainable solutions may be employed.*
- *Given adequate resources and focus, it should be possible for PSD to bring a strategy for the minimisation and treatment of solid waste to the States within six months of the date of this Report.*

## **SPECIFIC ILLUSTRATIONS**

At pages 7 and 8 are two flow charts, which simply outline some alternatives for the way in which Guernsey's solid waste could be collected, treated and used. It is for PSD to provide the States with its reasoned conclusions as to any preferred route; the purpose of this Report is simply to illustrate that *such alternatives exist*.

In producing these charts, due account has been taken of the fact that certain methods of treatment, particularly involving high temperature and complex engineering are, as yet, insufficiently proven. Accordingly, they are not included.

This Report would not be complete if it did not address Waste Minimisation, Shipment of Waste to Jersey, and some of the private proposals which have been brought forward by commercial consortia.

### **Waste Minimisation**

Put simply, Waste Minimisation means **dealing with no more than the minimum amount achievable**. It is only after reducing, repairing, reusing and recycling that recovery or disposal comes into play.

*It is this fundamental which was only officially recognised by the States in their final vote of 38 to 2 in the debate of Friday, 26 February 2010, when PSD were directed to return to the States as soon as practicable with a Report, setting out proposals for a revised strategy for disposing of solid waste.*

*The path to Waste Minimisation is well-trodden elsewhere. In complying with that decision, PSD will not be breaking new ground, nor entering areas of unknown costs.*

If the States adopt a strategy for Waste Minimisation, it will do so understanding that it is aiming at a moving target. Over time, a strategy for Waste Minimisation should become progressively more effective. For this reason, the chosen methods for treating various fractions of solid waste need to be modular, so that their capacities may be moved up or down in response to changing circumstances, the overall objective being to reduce the amount of waste requiring treatment.

#### Kerbside Collection

Island-wide kerbside collection offers an opportunity to remove approximately 9,000 tonnes per annum of putrescible food and biological waste from landfill each year. Were this to be done, and it should be achievable within one year of the date of this Report, it would reduce odours, methane, seagulls and vermin, whilst extending the life of the tip.

Kerbside Collection need not involve the use of expensive vehicles. A modified collection system, using contractors to the Parishes, could, and perhaps should, remain. A simple method, where households put out for collection two bags, one containing wet recyclables and the other dry recyclables, with glass as a third (separate) fraction, could provide an initial system which could then be developed over time.

The possible methods for treating the wet and dry fractions of household waste and commercial waste arisings are more simply dealt with in the flow charts.

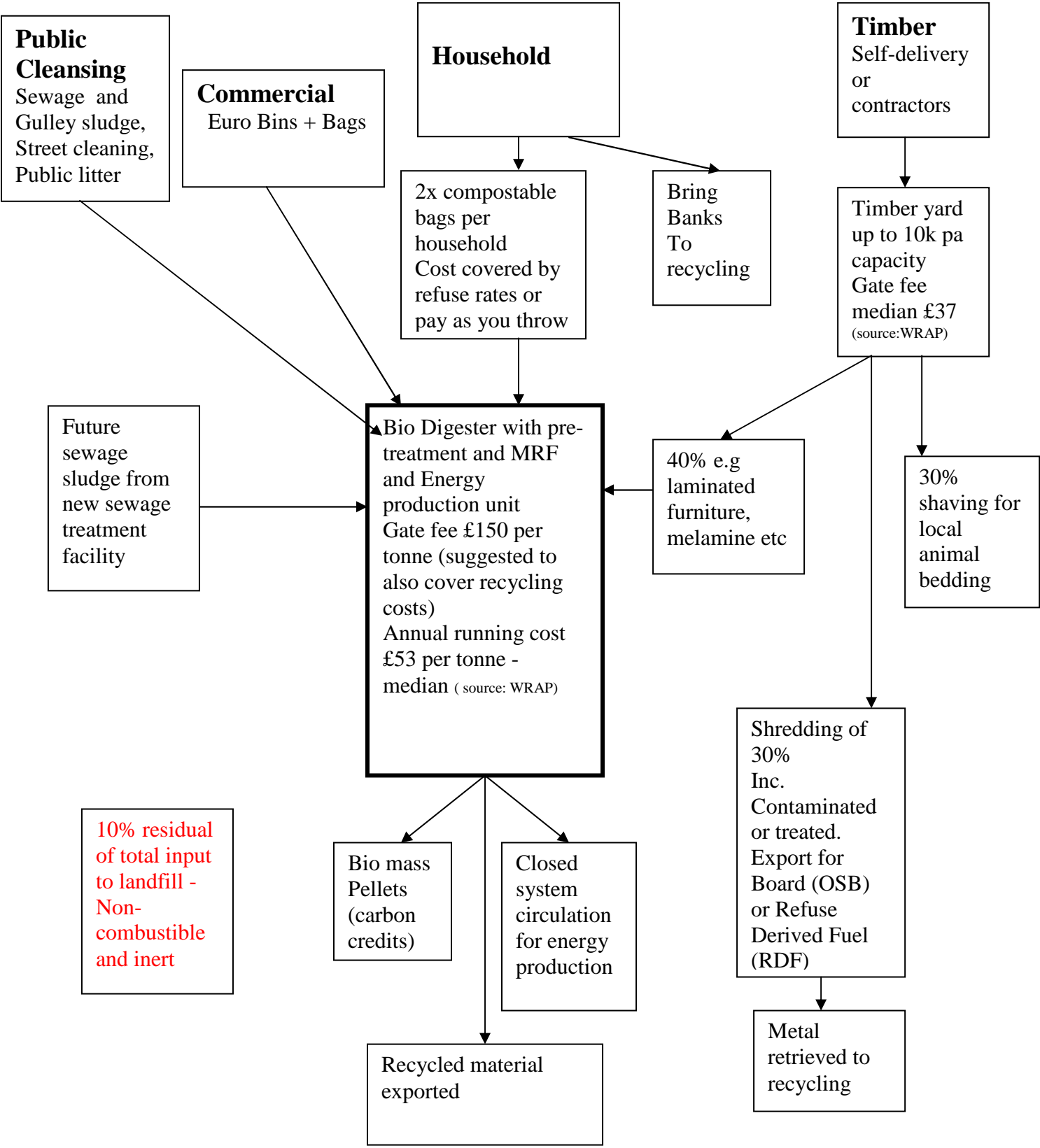
Kerbside Collection is not a “cure all” for dealing with domestic waste, which is in any event but a small proportion of the overall waste stream. It would be most effective if combined with other initiatives, such as the creation of a Civic Amenity Site where items suitable for repair, recycling or reuse could be delivered. Such a facility could be created at Longue Hougue, as the footprints of alternatives to Mass Burn Incineration are smaller. There is also potential for the creation of low cost workshops (“Fred in the shed”) which could allow private initiatives for dealing with this fraction of the waste, or provide facilities for trades which would sit comfortably with the primary activities at Longue Hougue. In all cases, there is potential to derive income from a part of the land and what takes place upon it.

Kerbside Collection has, historically, been ruled out on grounds of cost and/or impracticability. *There is evidence of numerous examples in Europe and the UK which demonstrate that, with the necessary focus and commitment, Kerbside recycling within Guernsey is perfectly possible.*

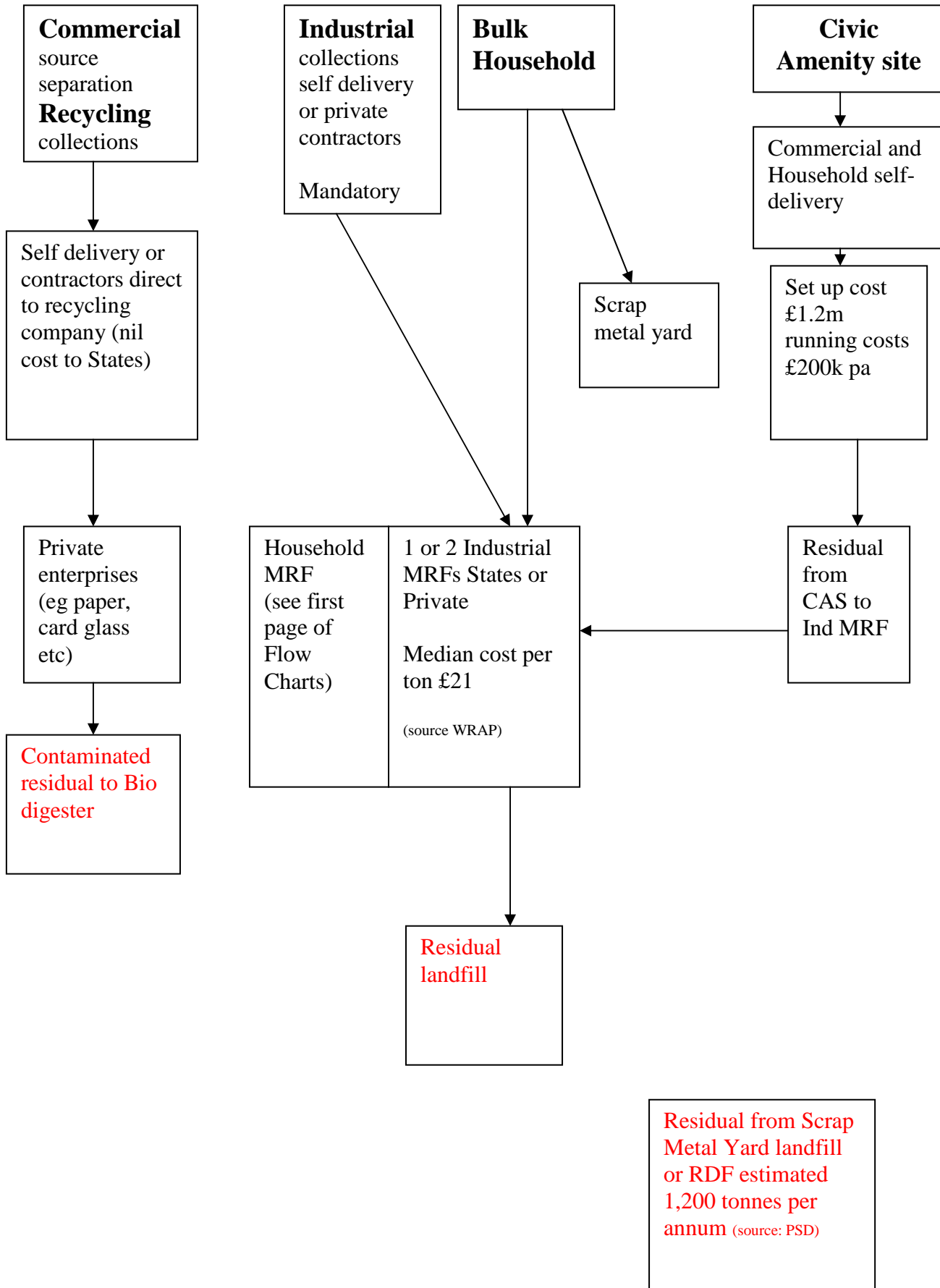
At page 14 of this Report is included a projection of a possible layout for various facilities at Longue Hougue, including buildings for waste processing, various two-storey buildings for waste-related or compatible alternative use, and a number of smaller units for local businesses. Although not shown, space exists for a new Abattoir adjacent to the Existing Carcass Incinerator.

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# An Example of a New Waste Management Strategy



# Possible Routes for Commercial, Industrial and Bulk Domestic Waste



## Shipping to Jersey

*Shipping waste to Jersey for treatment in the Mass Burn Incinerator which will be commissioned in 2012 is both a legal and practical possibility.*

This Report addresses the issue from the standpoint that any such arrangement would be temporary, for up to ten years' duration and would be limited to a maximum of 30,000 tonnes of solid waste per annum.

Present indications are that there is political will in Jersey for this to be explored, but that any formal approach should come from PSD. Until that happens, it is not possible to know what commercial terms may be applicable to any such arrangement.

It would be advisable that any agreement provides for termination by Guernsey within the ten-year period, without penalty, and that whilst a maximum annual rate may be specified, there would be no obligation to deliver that amount. This is because alternatives could present themselves which may vary the imperative of shipping to Jersey over time.

PSD can be expected to carry out an exercise which benchmarks a realistic gate fee for the types and volumes of waste delivered under a licensed agreement between the two Islands. Indications are that a reasonable price for compacted black bag waste in the region of £80 per tonne is likely to be more realistic than the figure of £120 per tonne which was previously quoted by PSD.

Recent research confirms that there is shipping capacity to handle a stream of waste of up to 30,000 tonnes and return bottom ash to Guernsey. Fly ash derived from the waste of both Islands could similarly be moved to France or the UK for specialised treatment.

The preferred method of shipment would be by compacting waste into twenty-foot shipping containers manufactured specifically for the movement of waste. The alternative of baling may exist.

The infrastructure for shipping waste would probably include a two-stream compactor facility within a Waste Transfer Station sited at Longue Hougue. As previously mentioned, up-to-date investigation suggests a cost of up to £4.5 million, but probably less, bearing in mind that this would be a temporary proposition.

A daily movement of fifteen containers each of 20-tonne capacity would require a shipping company to provide in the order of fifty units. *Enquiries as to the cost per tonne indicate a lesser sum than was envisaged by the Independent Panel of Inquiry in 2004.*

Recent developments of sea routes between the Channel Islands and the adjacent coasts of France and the UK also present possibilities for a fresh look at the movement of recyclables for both Islands, with advantages resulting from advanced recycling techniques available in France and economies of scale.

The earlier reference to the need for a modular approach to on-Island waste treatment is equally applicable to consideration of the volumes of trans-shipped waste over time.

This section has addressed waste which may be sent to Jersey, having received minimal treatment in Guernsey, apart from basic processing, compacting and some sorting. However, the possibility may also exist to supply Refuse Derived Fuel from Guernsey to meet any shortfall of waste arising in Jersey. In this event, the dynamics of such an arrangement would be different both as respects the on-Island treatment of waste being sent to Jersey, the improved calorific value, reduced handling and the value of the product to Guernsey as a saleable commodity.

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### **Alternative Technologies**

Local interests have advanced (at least) two technical solutions to the treatment of solid waste which are claimed to be suitable for Guernsey.

Whilst it is not the purpose of this Report to offer a conclusion on either, a comprehensive overview of the available options requires that they be mentioned.

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**The Proposals of Stan Brouard Group and  
The Baltic Development Group  
(The Vantage Waste Plant)**

Rodney Brouard advocates the introduction of a Vantage Waste Plant as a solution for dealing with solid waste without the need for Kerbside Collection. He and his partners are willing to bring a small plant to the Island, lay a concrete base and erect a simple shed to cover the Plant, at no cost to the States. The quid pro quo would be the necessary permissions to erect and operate the Plant and no ground rent.

On this basis, a Vantage Waste Plant would accept and treat not less than 5,000 tonnes of mixed waste over a short period of time. If the States adopted this method of waste treatment, the Plant would be expanded; if not, everything would be removed without penalty.

A charge of £80 per tonne would be made for all waste treated, which Mr Brouard contrasts with the present gate fees at Mont Cuet of £136.60 per tonne for household waste and £205 per tonne for contaminated commercial waste.

The system can accept a maximum of 80,000 tonnes per annum. It relies on open-ended autoclave technology, the core principles of which are well proven. After grading and removal of recyclables, a continuous waste stream is passed through a 16 x 2.7 metre chamber at 160°C for one hour, using a worm drive. The proposed Plant would include a range of capabilities, such as sorting, shredding and composting. The cost of the energy requirements of the Plant would be for the Operator, and possibly be self-generated.

The treated waste forms pellets which, under the proposal, are mixed with a 2% solution of glue and moulded into “plastic” pallets, pipes, fencing and other products.

If the States were to decide upon such a Plant, the proposer would require a gate fee of £80 per tonne until 2013, with local RPI inflation being added thereafter. Income for the Operator would be derived primarily from sale of the end products, but would include the gate fee and income from recycled materials.

The long-term commitment on the part of the States would include the provision of a three-acre site for a period of up to twenty-five years at a peppercorn rent, together with the nomination of the Operator as the primary provider of waste treatment.

Mr Brouard contends that what he offers is a “Guernsey Solution”, and there is little to be lost and much to be gained in allowing his company to commence treating solid waste almost immediately. This would permit the States and the public to judge the veracity of his claims by the results delivered. Mr Brouard has gathered in excess of 13,000 signatures on a Petition which, at least, represents a groundswell of opinion in favour of alternatives to Mass Burn Incineration.

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### **The Proposals of Green Homes Guernsey**

These proposals have been explained in various presentations, and are being brought forward by David de Carteret. Again, they did not find their way into the tendering process, which gave rise to the nomination of Suez as the previously preferred bidder.

The proposed solution is complex, involving a Sorter, Autoclave, Pyrolysis, Gasification and a Gas Engine. The proposers maintain that it is an advanced process, different from and better than similar plants elsewhere. It has a capacity of 50,000 tonnes per annum and can generate 3 megawatts of electricity per hour. It would be capable of accepting household, commercial, medical and sewage wastes. The Plant would require an area of two acres at Longue Hougue.

Plants are being built in Wales, the United States of America and India. A plant presently operates in Pakistan. The waste streams feeding these plants may not be the same as those of Guernsey.

It is expected that 15% residual inert waste would require to be landfilled, with toxic residues being removed by the Operator at its expense. Emissions are claimed to be well within present European standards.

There are indications that a gate fee for black bag waste would be charged at £80 per tonne, whilst commercial and medical waste would cost more.

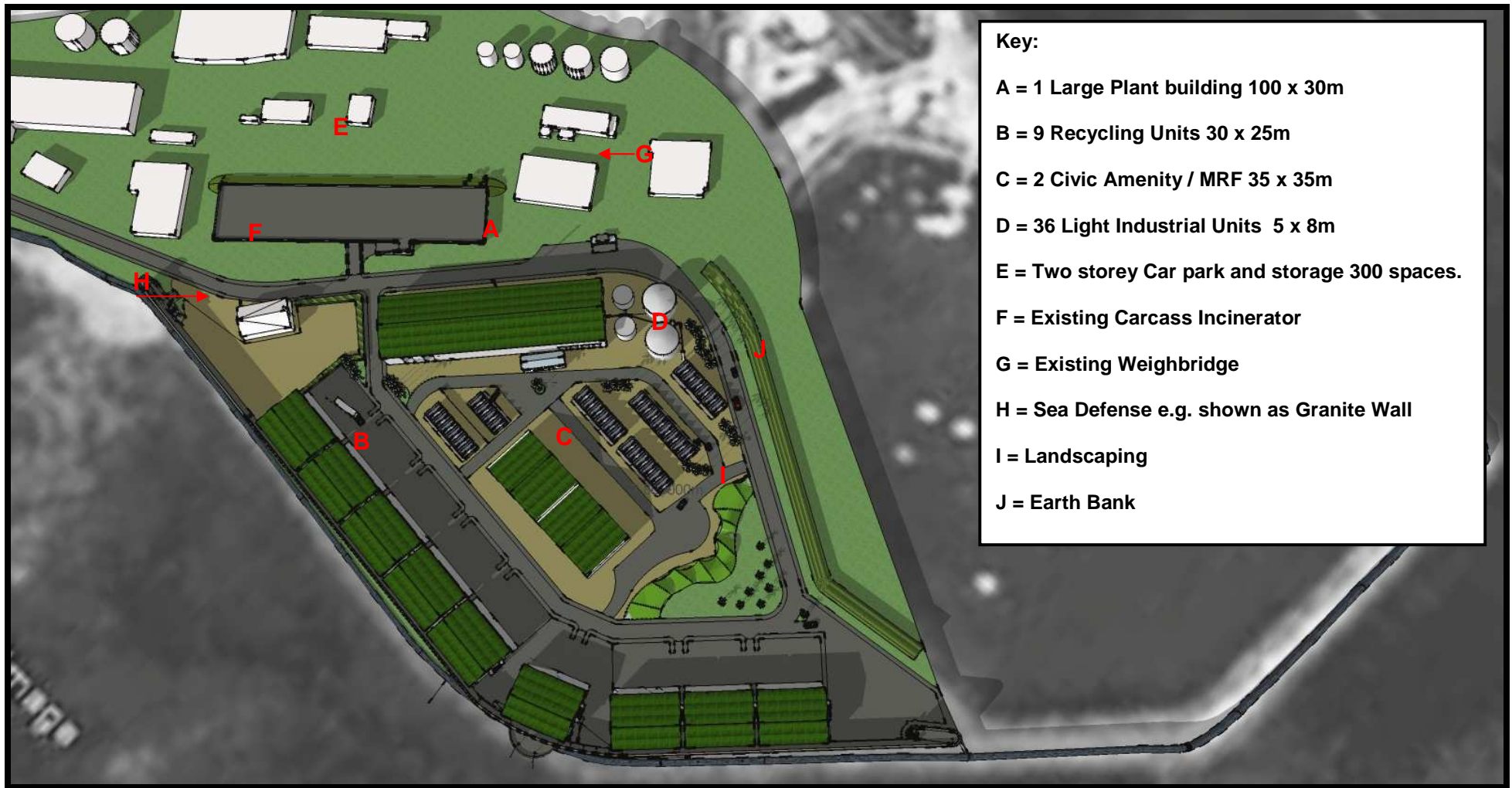
In addition to the gate fees, the operator would derive revenue from recycled materials and the generation of electricity sufficient to power 1,000 homes.

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# POSSIBLE INDUSTRIAL AND ENVIRONMENTAL DEVELOPMENT OF LONGUE HOUGUE



DRAWING PRODUCED COURTESY OF