CDEng.Com Limited — Computer Design Engineering

CDEnviromental Limited — Complete Service To The Waste Industries

State of the Art and Financing of sorting plants for dry recyclables in England

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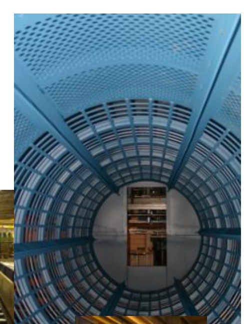
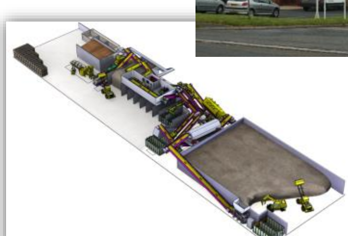
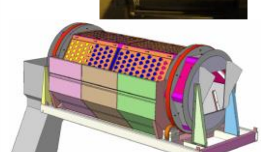
Introduction to CDEng.Com Limited: Computer Design Engineering

- Mechanical and Industrial Engineering Design
- Recycling, Security, Industrial Design, Electrical and Electronics, Hydraulics, PLC, Power factor, Production, Special Purpose Machines, Control Systems…..
- Trading 25 years.
- International







Source segregated v co mingled collections

30 million tonnes of Municipal solid waste in the UK

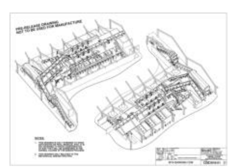
Recycling rate of 12.5% in 2001 – 44.2% in 2013

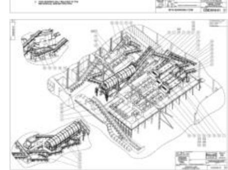
Growth in co mingled collections has been the biggest single factor

Legal challenge from certain UK stakeholders

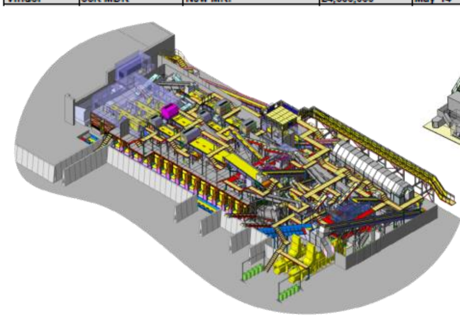
Company Overview

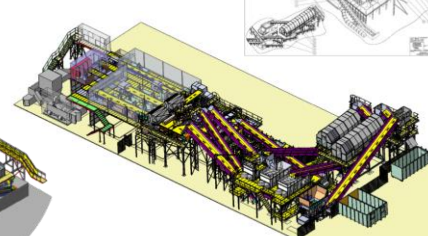
CDE Recent Projects:





Project	Capacity/Kind of Project	Description of Works	Value of Works	Date	Place of works	Principle Contractor (PC) or Contractor (C)
FCC	150K C&I MRF	New MRF	£2,400,000	Jun-12	Alfreton	PC
Mid UK	90K C&I MEF	New MEF	£2,000,000	Jun-13	Barkston heath	PC
Mid UK	60K Carpet Plant	Carpet plant	£1,000,000	Jun-13	Barkston heath	PC
Mid UK	Various	H&S Consultantcy	£200,000	Jun-13	Two Sites	PC
FCC	100K Black Bag	Three Waste Shredders	£900,000	Jun-12	Thre sites	PC
Moodys	50K Green Waste	New Screening Process	£750,000	May-14	Thre sites	PC
GlasgowCC	100K MDR	Upgrade MRF	£150,000	May-14	Glasgow	PC
Viridor	35K MDR	New MRF	£4,500,000	May-14	Plymouth	C





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CURENT DESIGN AND BUILD PROJECT
PLYMOUTH MRF
FOR MDR 13-14TPH

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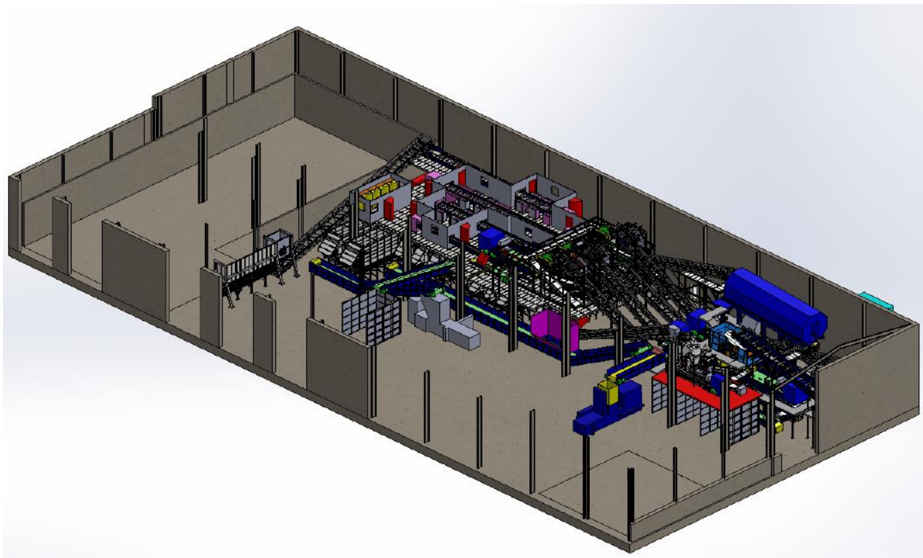

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MRF Layout 23TPH MDR

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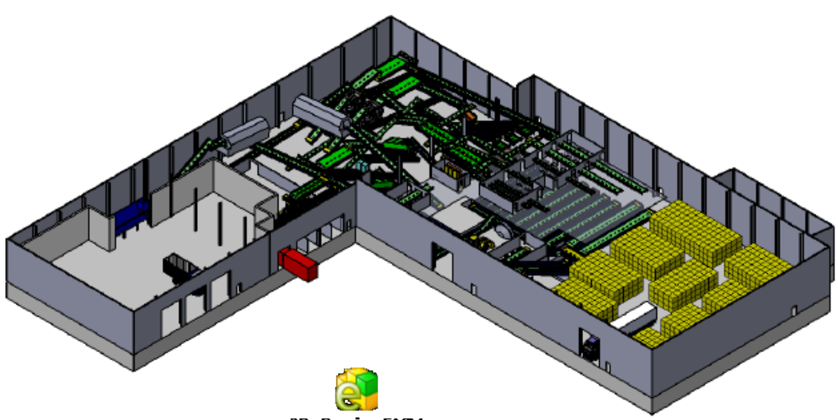

3D eDrawing.EASM

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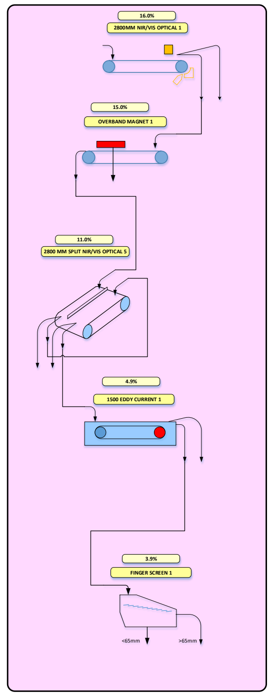
POLYMERS PROCESSING:

TYPICAL EQUIPMENT:

TITECH COLOUR & NIR OPTICAL SORTER
MANAPOWER OVERBAND MAGNET
TITECH SINGLE OR SPLIT OPTICAL SORTER
MAGNAPOWER EDDY CURRENT SEPARATOR
IFE FINGER SCREEN
CLEAN UP PICKING LINE

ADDITIONAL TITECH OPTICAL SORTERS ARE USED
ALLOWING UP TO FIVE POLYMERS
TO BE SEPERATED



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How Can CDE Help: (Recovered materials)

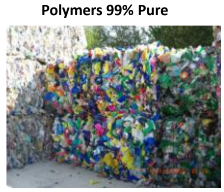
The Recyclables Side Of The Business
CDE's Sister Company CDEnviromental
Handles The Procurement, Marketing, Distribution, Sales & Pricing

PET 98% Pure

Coloured HDPE 98% Pure

Mixed Papers 98% Pure

Polymers 99% Pure



Glass Fraction 99% Pure

- **Customers are now seeking a whole package of installation and market off take of materials.**
- **Long term pricing matrix**
- **Quality assurance on product**
- **Plant installers have had to move from a minimum guaranteed purity of 87% to 96% per material type recovered.**

- **Growth in the development of recycling facilities at waste treatment plants that take recyclables from residual waste.**
- **This is true of Energy from waste (EFW)**
- **Mechanical Biological Treatment (MBT)**
- **Refuse Derived Fuel (RDF)**
- **Seeking and securing long term markets for recovered materials from these plants is not easy**
- **20 million tonnes of Municipal solid waste will go through waste treatment plants in the UK by 2020.**

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Financing of sorting plants

PFI/ PPP (Special Purpose Vehicle SPV set up as a 50-50 joint venture with the waste contractor having 100% of the operating company)

Dry Recycling plants are largely financed through PFI/PPP as part of a long term integrated waste management contract. Typically 25 years .

The UK has gone through 3 rounds of this process and is set to meet its EU 2020 landfill diversion targets through this route.

A typical MRF capital cost for processing 25k tonnes of dry recyclables would be say £4m. This cost will be spread across the much larger authority integrated waste contract.

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- ## Finance mechanisms

  Investment funds
- **There are a number of funders available but they are mainly focused on Green Energy**

- **Waste Resources Action Program (WRAP) was set up to stimulate market activity but there remit has largely changed**

- **Material price and small local authority contracts have lead to some of the larger waste management companies building regional facilities.**
- **Landfill price £95 including tax**
- **EFW price currently £80 but dropping to compete with RDF export**
- **MRF gate fees currently negative £40 (varies with market price)**

- **Green Investment Bank was established to boost funding but again this is mainly focused on energy**

- **Material subsidy**

- **In the UK there is only one direct financial subsidy and that is through a packaging tax. (PRN system) where the tax is taken from the producer and the money given to the collector at the point of delivery ie at the paper mill.**

- **This is similar in concept to the DSD in Germany and Eco Emballage in France but very different in practice as it is very expensive.**

- **It was set up as a least cost system and that is how it has operated with average subsidy being circa£10 per tonne**

- **Sector issues**

- **Quality**

- **Material pricing and end market availability**

- **Static recycling growth**

- **The cross over point where quality and market availability move recyclables into RDF**