SHANKS GROUP PLC
GREEN BOND

FRAMEWORK OVERVIEW AND SECOND OPINION BY SUSTAINALYTICS

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SUSTAINALYTICS

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1. PREFACE

Shanks Group Plc (Shanks) has engaged Sustainalytics to provide an opinion on Shanks' Green Bond framework and the environmental credentials of the bond. As part of this engagement, Sustainalytics held conversations with various members of Shanks' senior management team to understand the sustainability impact of Shanks' business processes and planned use of proceeds for its Green Bond. Sustainalytics also reviewed relevant public and internal documents and provided its opinion on the Green Bond. This document contains two sections: Framework Overview – summary of Shanks Green Bond framework; and Sustainalytics' Opinion – an opinion on the framework.

2. FRAMEWORK OVERVIEW

2.1 Introduction

Shanks Group is an international sustainable waste management business. The company is headquartered in Milton Keynes, United Kingdom and operates in the Netherlands, Belgium, the United Kingdom, and Canada, offering waste management solutions across four business sectors: Belgium Commercial, Netherlands Commercial, Hazardous Waste and Municipal. The company is involved in the collection, recycling, and treatment of non-hazardous solid waste, including industrial and commercial, construction and demolition, and municipal waste; the reprocessing and recycling of contaminated soil, water, and other contaminated materials; and the destruction of hazardous waste. It also collects and treats food waste, garden waste, and other organic materials such as sludges.

2.2 Shanks' Green Bond

Shanks is planning to issue a Green Bond the proceeds of which will be used to fund eligible sustainable waste management projects across its business divisions and operations and to refinance existing loans on eligible projects. Shanks discloses that about €45 million will be used for refinancing existing projects and the rest to fund committed projects. The following sections summarize Shanks' Green Bond framework regarding the use of proceeds, project selection, the management of proceeds, and reporting.

2.2.1 Use of Proceeds

2.2.1.1 Eligibility Criteria

To be eligible for the Green Bond proceeds, the projects committed or refinanced must meet the following criteria:

1. The project should be categorized under one or more of the following activities:
    a. Solid Waste Treatment – recycling waste into usable products;
    b. Hazardous Waste Treatment – treatment of contaminated water and/or soil;
    c. Organics Treatment – waste to energy and other usable products;
    d. Recycling and Waste Management – diverting waste from landfills; and
    e. Reducing emissions associated with the required transport of wastes.
2. Eligible projects include:
    a. Projects committed after the issuance of the Green Bond; or

b. Projects committed before the issuance of the Green Bond but funded after the issuance of the Bond; or
c. Projects funded within the 18 months prior to the issuance of the Green Bond.

Eligible Activities

Solid Waste Treatment – recycling waste into usable products

Solid waste treatment refers to the collection, sorting, treatment and ultimate disposal of solid waste materials. However, projects that involve the use of technologies to recycle waste into usable products are eligible for the Green Bond proceeds. The project activities can include taking the waste produced from industries such as construction and demolition, industrial and commercial, and producing recyclates such as glass, plastics and cardboard; products such as compost, building materials, and aggregate; and power, including gas from landfills, or waste-derived fuels and pellets which can be used in power stations or cement plants as a fuel. Through recycling and recovering waste, the carbon burden associated with using raw materials and non-renewable energy is reduced.

Hazardous Waste Treatment – treatment of contaminated water and/or soil

Hazardous waste treatment refers to the treatment of (i) contaminated water, (ii) paint and solvent waste and (iii) contaminated soil. Contaminated soil can be cleaned by washing or thermal treatment. The contaminated water treatment process involves putting the contaminated water through a decanter to remove solids and oils. The contaminated water is then treated in five biological treatment tanks in which bacteria cleans the contaminants and produces clean water. The paint and solvent waste treatment process involves collecting solid or liquid waste, along with sludge, and treating such waste in a gasification process to produce largely inert ash. Hazardous waste treatment activities as defined above are eligible for the Green Bond proceeds. Long term storage and the disposal of hazardous waste is excluded from the bond proceeds.

Organics Treatment – waste to energy and other usable products

Organics treatment refers to treating organic waste, such as food waste, supermarket waste, and industrial fats, and turning it into green energy, compost and fertiliser. Such projects and activities are eligible for the Green Bonds proceeds. If left in landfills, organic waste emits methane, a highly potent greenhouse gas. Organic waste can be transformed into compost for agriculture and the remainder evaporated as clean water. This technology involves the use of micro-organisms which convert waste into biogas and heat in an oxygen-free environment. Each tonne of waste can produce 85 cubic metres of biogas, which is then used to generate electricity and additional heat in a combined heat and power (CHP) unit.

Recycling and Waste Management – diverting waste from landfills

Project or activities that divert waste from landfills by recycling and waste management are eligible for the Green Bond proceeds. Recycling and waste management refers to the conversion of domestic waste and dry recyclates into products such as solid recovered fuel and green electricity, thereby diverting such waste from landfills. This process includes the operation of household waste recycling centres and material recycling facilities to sort incoming waste streams into recyclates.

Reducing emissions associated with the required transport of wastes

Wastes need to be transported from where they arise to where they are treated. For unique and specialised waste treatment facilities, the distances involved may be significant. The provision of 'bulking' facilities where wastes can be transferred from smaller collection vehicles to larger transport vehicles reduces the number of journeys required, and thus, reduces emissions. In addition, the replacement of older vehicles with lower emissions vehicles, such as Euro VI compliant vehicles, likewise reduces hydrocarbons, NO_x (nitrogen oxides) and particulates emissions.

2.2.2 Project Selection

Selecting projects that meet the eligibility criteria is necessary to ensure that the Green Bond proceeds are correctly allocated. Shanks has identified eligible projects - existing and committed projects that meet the eligibility criteria, towards which the Green Bond proceed will be allocated. Appendix 1a provides details regarding the eligible projects and amounts spent or committed in each financial year. Appendix 1b provides overview of each eligible project, its eligibility category and the environmental benefit. Shanks plans to use the bond proceeds to refinance loans corresponding to these projects or meet the funding requirements of these projects.

2.2.3 Management of Proceeds

The proceeds from the Green Bond will be placed in Shanks' treasury and managed by the treasury department. Shanks will allocate the Green Bond proceeds towards (i) eligible projects and (ii) the repayment of outstanding debt borrowed to fund existing eligible projects. Shanks' treasury department will track investments made using the Green Bonds proceeds in each of its divisions through the years ended 31 March 2015 and 31 March 2016, and will produce a year-to-date spend report. Shanks intends to allocate all of the Green Bonds proceeds to eligible projects within a year of the issuance of the Green Bonds.

2.2.4 Reporting

Shanks will publish the breakdown of the proceeds of the Green Bonds showing the amounts allocated to refinance outstanding debt and the amounts used to fund new projects. Shanks is expected to provide annual information on these eligible projects in a section of its Corporate Responsibility Report which is published annually on its website at http://www.shanksplc.com/our-responsibilities/cr-reports/2014.aspx. Shanks will report the environmental and social benefits of eligible projects including a description of the environmental benefit of each eligible project, and where possible the carbon footprint of the eligible project. These reports will include the eligible project's carbon emissions, carbon potentially avoided, and the net amount of carbon that was avoided due to the eligible project. Appendix 2 provides a few examples of project-level carbon emissions reporting.

In addition, Shanks will publish aggregate recycling and environment figures at the company-level, in its Corporate Responsibility Report. The Corporate Responsibility Report will include information on overall recycling and recovery rate, total waste handled, and total materials recovered; and at the company-level, the total potential carbon emissions avoided, total energy generated, and total waste-derived fuels produced and sold.

3 SUSTAINALYTICS' OPINION

A sustainable waste management company: Shanks Group Plc defines itself as a sustainable waste management company meeting the growing need to manage waste without damaging the environment. The company's solutions reduce greenhouse gas emissions, recycle natural resources and limit fossil fuel dependency. Shanks states that sustainability and waste management are key components of the company's corporate responsibility vision. The company provides effective alternatives to landfill and mass incineration, and is involved in combining technologies to create usable products from waste. Shanks is rated by Sustainalytics' ESG research as an outperformer among its peers in the environmental and facilities services industry in terms of its overall ESG performance. Furthermore, Shanks has not been involved in any significant controversies or incidents relating to environmental issues. Given that the company's mission, vision and business aim to create environmentally positive outcomes, and given its outperformance among its peers in the management of ESG issues, Sustainalytics regards Shanks as a sustainability-oriented company that is well positioned to issue a Green Bond that is in line with its vision.

Use of proceeds toward reducing environmental impact of waste. Recycling waste into usable products, treatment of contaminated water and/or soil, converting waste to energy and other usable products, diverting waste from landfills, and reducing emissions associated with the required transport of wastes are the projects and activities that would be funded by the proceeds of the Green Bond. These activities help in the reduction of greenhouse gas emissions, production of green energy from waste, treatment of contaminated waste, recycling of resources, production of recovered fuel, and reduction of untreatable waste residues. For example, Shanks reports in its Corporate Responsibility Report that in 2013/2014, the company's recycling and recovery operations produced a carbon avoidance benefit of more than 1.2 million tonnes, its Hazardous Waste division has a 96% recycling and recovery rate, and its organic treatment operations produced nearly 70,000 megawatt hours of green power. Sustainalytics considers these projects and activities to be relevant in the mitigation of environmental impacts from waste and are essential for managing waste in a sustainable manner.

Reporting: Shanks' commitment to annually report positive environmental impacts of each project and in some cases carbon emissions data – on the carbon emitted by projects and the potential carbon avoidance, will ensure a high degree of transparency, and this level of detail will exceed current best practice within the Green Bond space. In addition, Shanks will report fund allocation report in the form of a year-to-date spend report. Furthermore, Shanks commits to publically report aggregate environmental data in its annual Corporate Responsibility Report. This will complement the impact reporting of the bond and provides a useful summary for investors.

3.1 Conclusion

The projects financed by Shanks' Green Bond will support sustainable waste management through waste treatment and recycling. Shanks' Green Bond framework is aligned with market best practices and norms such as the Green Bond Principles. Furthermore, Shanks' rigorous approach to reporting will provide transparency to investors regarding the impact of projects funded by the bond as well as the compliance of these projects with the bond's eligibility criteria. Sustainalytics is of the opinion that the Green Bond issued by Shanks is robust, credible and effective in reducing environmental impact of waste.

APPENDICES

APPENDIX 1a: List of Eligible Projects and Spend/Commitment

Project	Spend		Spend year			
	Spend local currency (million)	Spend Euro equivalent (million)	2016/17 (million Euros)	2015/16 (million Euros)	2014/15 (million Euros)	2013/14 (million Euros)
Municipal Division • City of Surrey Anaerobic Digestion Plant (Canada) • Barnsley Doncaster Rotherham (BDR) PFI - mechanical biological treatment and anaerobic digestion (North England) • Wakefield PFI - autoclave, anaerobic digestion, recycling and composting (North England)	GBP 35.2 & CAD 50.0	84.1	10.0	74.1		
Hazardous Waste Division • ATM Electrostatic precipitator replacement (Netherlands) • Thamesweg waste water storage (Netherlands) • Reym Totalcare North Site (Netherlands) • ATM Storage Tanks (Netherlands) • ATM Vapour destruction equipment (Netherlands) • ATM Drum Storage Facility (Netherlands) • Replacement of trucks Reym, industrial cleaning (Netherlands)	EUR 34.3	34.3		9.2	15.3	9.8
Netherlands Commercial • VVC Sorting Line, new recycling line (Netherlands) • Vliko New Recycling Facility (Netherlands) • Stone Crusher Hook of Holland (Netherlands) • Replacement of trucks Netherlands solid waste operations	EUR 32.8	32.8		24.0	7.8	1.0
Belgium Commercial • Replacement of trucks Belgium solid waste operations	EUR 11.0	11.0		4.5	5.8	0.7
Total		**162.2**	**10.00**	**111.8**	**28.9**	**9.8**

APPENDIX 1b: Eligible Projects, Eligibility Category, Overview and Benefits

Project	Eligibility Category	Overview	Synopsis of environmental benefit
City of Surrey Anaerobic Digestion Plant (Canada)	• Organics Treatment – waste to energy and other usable products	Use of anaerobic digestion technology to divert organic waste from landfill	The Surrey AD Plant will produce: Green compost, a waste derived fuel and bio-gas. The green compost displaces less environmental products from the market, and the waste derived fuel can be used to displace fossil fuels. The estimated carbon avoidance benefit of these two waste products amounts to a carbon saving of some 4,000 tonnes per year. The bio-gas from the plant will be injected direct into Surrey's existing supply grid for use on vehicles and similar. The estimated volume of bio-gas produced per year is some 3 million cubic metres, equivalent to 2.9 million litres of diesel fuel.
Barnsley Doncaster Rotherham (BDR) PFI - mechanical biological treatment and anaerobic digestion (North England)	• Recycling and Waste Management – diverting waste from landfills. • Organics Treatment – waste to energy and other usable products	Multi-technology waste management site using mechanical biological treatment to produce a waste derived fuel for green energy production, and a dry anaerobic digestion plant producing green compost	Carbon benefits of waste derived fuel displacing fossil fuel in electricity production and displacement of less environmental composts. The carbon avoidance benefit is outlined in the Appendix 2 below.
Wakefield PFI - autoclave, anaerobic digestion, recycling and composting (North England)	• Recycling and Waste Management – diverting waste from landfills. • Organics Treatment – waste to energy and other usable products	Multi-technology waste management site using recycling, green waste composting, autoclave and anaerobic digestion technologies	Carbon benefit of recycled and recovered materials produced and green power generated by the anaerobic digestion plant. The carbon avoidance benefit is outlined in the Appendix 2 below.
ATM Electrostatic precipitator replacement (Netherlands)	• Hazardous Waste Treatment – treatment of contaminated water and/or soil	Replacement of older electrostatic precipitator associated with environmental treatment of contaminated soils and similar with new and more efficient equipment	One of ATM's main activities is the thermal treatment of contaminated soils. Post-treatment these soils can be used in various landscape etc projects. Overall Shanks ATM site has a recycling and recovery rate in excess of 90%. The thermal treatment of soils results in emissions which are controlled by various types of emissions system at ATM. One of the key emissions systems in place is the electrostatic precipitator. This removes particulates from emissions. The new electrostatic precipitator results in reduced emissions to atmosphere by use of more efficient and effective equipment.

Project	Eligibility Category	Overview	Synopsis of environmental benefit
Thamesweg waste water storage (Netherlands)	• Hazardous Waste Treatment – treatment of contaminated water and/or soil. • Reducing emissions associated with the required transport of wastes	Local waste capture to transport in bulk for treatment	Waste water is produced locally and requires transport to treatment facilities. This involves the use of road tankers, and results in emissions from such road transport. Providing bulking facilities allows smaller lorries to discharge waste water at the bulking facility rather than transporting direct to treatment facility. This results in a reduction in number of road journeys required to take wastes for treatment, and an associated reduction in emissions from road transport.
Reym Totalcare North Site (Netherlands)	• Hazardous Waste Treatment – treatment of contaminated water and/or soil. • Reducing emissions associated with the required transport of wastes	Local waste capture to transport in bulk for treatment	Waste water is produced locally and requires transport to treatment facilities. This involves the use of road tankers, and results in emissions from such road transport. Providing bulking facilities allows smaller lorries to discharge waste water at the bulking facility rather than transporting direct to treatment facility. This results in a reduction in number of road journeys required to take wastes for treatment, and an associated reduction in emissions from road transport.
ATM Storage Tanks (Netherlands)	• Hazardous Waste Treatment – treatment of contaminated water and/or soil.	Increased holding capacity to accommodate extra waste from degassing regulation etc.	Improved water treatment ability, so reducing potential environmental risk associated with contaminated waters.
ATM Vapour destruction equipment (Netherlands)	• Hazardous Waste Treatment – treatment of contaminated water and/or soil.	Process degassing waste to comply with new regulations	For health and safety reasons, ships are required to de-gas (vent their storage tanks). This is often achieved by venting tanks to atmosphere, resulting in the emission of VOCs and similar. At ATM ships can de-gas into a sealed system where emissions are subject to thermal treatment, so reducing the impact of emissions. See attached case study from Shanks Corporate Responsibility Report 2014 for more information.

Project	Eligibility Category	Overview	Synopsis of environmental benefit
ATM Drum Storage Facility (Netherlands)	• Hazardous Waste Treatment – treatment of contaminated water and/or soil.	Upgrading of existing drum handling facilities to Serveso III standard	Many hazardous wastes are contained in drums, IBCs (small intermediate bulk containers) and similar. ATM's drum facility manages such wastes to reduce potential environmental impact. The upgrade of these facilities to the standard required under the Serveso III Directive reduces any potential risk to the environment, and offers improved health and safety standards.
VVC Sorting Line, new recycling line (Netherlands)	• Solid Waste Treatment – recycling waste into usable products.	New recycling plant to sort and separate waste materials for reprocessing	Carbon benefit of recycled materials displacing use of virgin raw materials in manufacture. The carbon avoidance benefit is outlined in the Appendix 2 below.
Vliko New Recycling Facility (Netherlands)	• Solid Waste Treatment – recycling waste into usable products.	New recycling plant to sort and separate waste materials for reprocessing	Carbon benefit of recycled materials displacing use of virgin raw materials in manufacture. This project is too early in its planning stages for an outline carbon footprint to be produced. However, the benefits are of a similar nature to those shown in the attached footprint for the VVC sorting line.
Stone Crusher Hook of Holland (Netherlands)	• Solid Waste Treatment – recycling waste into usable products.	New recycling equipment for the recycling of construction and demolition wastes	Carbon benefit of recycled materials displacing virgin raw materials. In addition, construction wastes are heavy, resulting in the need for more road transport journeys than for lighter materials. The provision of local recycling facilities for construction wastes reduces the number and length of road journeys required to move wastes to treatment.
Replacement of trucks Belgium solid waste operations	• Reducing emissions associated with the required transport of wastes.	Replacement of older trucks with newer Euro VI compliant vehicles	The Euro VI standard for heavy duty engines (such as those used in road transport vehicles) is a significant step-up from the previous Euro V and prior standards. Permitted hydrocarbon emissions are reduced by some 70%, NOx emissions by some 80% and particulates by some 50%. Shanks purchasing of lorries to the Euro VI standard will reduce its emissions from road transport significantly.

Project	Eligibility Category	Overview	Synopsis of environmental benefit
Replacement of trucks Netherlands solid waste operations	• Reducing emissions associated with the required transport of wastes.	Replacement of older trucks with newer Euro VI compliant vehicles	The Euro VI standard for heavy duty engines (such as those used in road transport vehicles) is a significant step-up from the previous Euro V and prior standards. Permitted hydrocarbon emissions are reduced by some 70%, NOx emissions by some 80% and particulates by some 50%. Shanks purchasing of lorries to the Euro VI standard will reduce its emissions from road transport significantly.
Replacement of trucks Reym, industrial cleaning (Netherlands)	• Reducing emissions associated with the required transport of wastes.	Replacement of older trucks with newer Euro VI compliant vehicles	The Euro VI standard for heavy duty engines (such as those used in road transport vehicles) is a significant step-up from the previous Euro V and prior standards. Permitted hydrocarbon emissions are reduced by some 70%, NOx emissions by some 80% and particulates by some 50%. Shanks purchasing of lorries to the Euro VI standard will reduce its emissions from road transport significantly.

Appendix 2: Examples of Project-level Carbon Reporting

Wakefield PFI Venture - outline carbon footprint (2019/2020 year)				
1. Significant carbon emissions (tonnes carbon equivalent)				
	Consumption (litres)	**Consumption (KWhrs)**	**Carbon factor**	**Emissions (tonnes C)**
Process emissions (AD plant)	NA	NA	NA	3000
Fuel use emissions (red derv - mobile plant)	323988	NA	0.0030289	981
Fuel use emissions (white derv - vehicles)	101272	NA	0.0026694	270
Gas use emissions (autoclave)	NA	12104180	0.00018396	2227
Power generation (AD plant generation)	NA	19993210	NA	NA
Electricity generation (export post site use)	NA	-2738285	0.0005442	-1490
			Total significant emissions	**4988**
2. Carbon potentially avoided recycling/recovery (tonnes carbon equivlant)				
	Tonnes out	**Generation KWhrs**	**Carbon factor**	**Avoidance (tonnes C)**
Recyclates out				
Paper and card	15529	NA	0.4500	6988
Ferrous metals	5307	NA	1.4870	7891
Non-ferrous metals	1370	NA	12.7000	17397
Glass (bottles)	9653	NA	0.2530	2442
Plastics	11156	NA	1.5500	17291
Misc recycling	2341	NA	NA	NA
Bring recyclates	1228	NA	NA	NA
Commercial recyclates	495	NA	NA	NA
HWRC recyclates	10861	NA	NA	NA
			Total potential carbon avoidance: Recyclates	**52010**
Recovery out				
Digestate	32610	NA	0.0635	2071
Compost	14208	NA	0.0039	55
RDF (refuse derived fuel)	46728	NA	1.0143	47394
			Total potential carbon avoidance: Recovery	**49521**
			Total potential carbon avoidance: Recycling and recovery	**101530**
			Potential carbon avoidance minus significant emissions	**96542**

Notes:

1. Emissions are from significant sources and do not include small scale emissions such as business/commuter travel
2. AD plant process emissions estimated based on Shanks Netherlands data (will vary dependent on waste inputs)
3. Carbon factors (both for emissions and potential avoidance) are those used in Shanks annual CR Reports, sourced from various organisations (see Shanks indicators document on Shanks Group's web site)
4. Electricity use emissions are negative (AD plant generation minus site consumption)
5. Recyclates, recovered products, consumption etc data based on data from model predictions for 2019/2020 year
6. Digestate carbon factor has been sourced from Shanks Belgium as no available UK information
7. Avoidance figure for RDF use assumes replaced fuel is coal
8. Where recyclates not identified as specific type no carbon calculation has been attempted (data only noted for reference)

9. Recyclates/recovered products data assumes all product used/sold
10. While summed figure (avoidance - emissions) provided the avoidance figure should not be accredited only to the Wakefield Venture: Customers (for input wastes and output products) may wish to claim a proportion of this avoidance

BDR PFI Venture - outline carbon footprint (2019/2020 year)				
1. Significant carbon emissions (tonnes carbon equivalent)				
	Consumption (litres)	**Consumption (KWhrs)**	**Carbon factor**	**Emissions (tonnes C)**
Process emissions (AD plant)	NA	NA	NA	3000
Process emissions (MBT plant)	NA	NA	NA	11000
Fuel use emissions (red derv - mobile plant)	230400	NA	0.0030289	698
Fuel use emissions (white derv - vehicles)	2000	NA	0.0026694	5
Gas use emissions (heating etc)	NA	400000	0.00018396	74
Power generation (AD plant generation)	NA	3142150	NA	NA
Electricity use emissions (residual post AD)	NA	10585337	0.0005442	5760
			Total significant emissions	**20537**
2. Carbon potentially avoided recycling/recovery (tonnes carbon equivlant)				
	Tonnes out	**Generation KWhrs**	**Carbon factor**	**Avoidance (tonnes C)**
Recyclates out				
Ferrous metals	3300	NA	1.4870	4907
Non-ferrous metals	1900	NA	12.7000	24130
Glass	18350	NA	0.2530	4643
Plastics	14975	NA	1.5500	23211
			Total potential carbon avoidance: Recyclates	**56891**
Recovery out				
Compost	16625	NA	0.0039	65
RDF (refuse derived fuel)	116925	NA	1.0143	118592
			Total potential carbon avoidance: Recovery	**118657**
			Total potential carbon avoidance: Recycling and recovery	**175548**
			Potential carbon avoidance minus significant emissions	**155011**

Notes:

1. Emissions are from significant sources and do not include small scale emissions such as business/commuter travel
2. AD plant process emissions estimated based on Shanks Netherlands data (will vary dependent on waste inputs), MBT plant emissions are based on Shanks UK data for other same technology plants
3. Carbon factors (both for emissions and potential avoidance) are those used in Shanks annual CR Reports, sourced from various organisations (see Shanks indicators document on Shanks Group's web site)
4. Electricity use emissions are residual use after AD plant generation accounted for
5. Recyclates, recovered products, consumption etc data based on data from model predictions for 2019/2020 year
6. Avoidance figure for RDF use assumes replaced fuel is coal
7. Recyclates/recovered products data assumes all product used/sold
8. While summed figure (avoidance - emissions) provided the avoidance figure should not be accredited only to the BDR Venture: Customers (for input wastes and output products) may wish to claim a proportion of this avoidance

Van Vliet Contrans New Sorting Line - outline carbon footprint				
1. Significant carbon emissions (tonnes carbon equivalent)				
	Consumption (litres)	**Consumption (KWhrs)**	**Carbon factor**	**Emissions (tonnes C)**
Fuel use emissions (derv - mobile plant)	60000	NA	0.0030289	182
Electricity use emissions (sorting line)	NA	1557619	0.000455	709
			Total significant emissions	**890**
2. Carbon potentially avoided recycling/recovery (tonnes carbon equivalent)				
	Tonnes out	**Generation KWhrs**	**Carbon factor**	**Avoidance (tonnes C)**
Recyclates out				
Sieving Sand	25650	NA	0.0005	13
Paper/Cardboard	1900	NA	0.4420	840
Ferrous metals	3800	NA	1.7360	6597
Plastics/foil	1900	NA	1.2070	2293
Rubble	21850	NA	0.0010	22
			Total potential carbon avoidance: Recyclates	**9765**
Recovery out				
	Tonnes out	**Generation KWhrs**	**Carbon factor**	**Avoidance (tonnes C)**
Wood mix (for bio-mass)	20900	NA	0.7420	15508
Residual waste (waste derived fuel)	19000	NA	0.0090	171
			Total potential carbon avoidance: Recovery	**15679**
			Total potential carbon avoidance: Recycling and recovery	**25443**
			Potential carbon avoidance minus significant emissions	**24553**

Notes:

1. Emissions are from significant sources and do not include small scale emissions such as business/commuter travel
2. Carbon factors (both for emissions and potential avoidance) are those used in Shanks annual CR Reports, sourced from various organisations (see Shanks indicators document on Shanks Group's web site)
3. Recyclates, recovered products, consumption etc data based on data from model predictions
4. Recyclates/recovered products data assumes all product used/sold
5. While summed figure (avoidance - emissions) provided the avoidance figure should not be accredited only to the new VVC line: Customers (for input wastes and output products) may wish to claim a proportion of this avoidance

Disclaimer

The Opinion was drawn up with the aim to explain why the analyzed bond is considered sustainable and responsible. Consequently, this Opinion is for information purposes only and Sustainalytics will not accept any form of liability for the substance of the opinion and/or any liability for damage arising from the use of this Opinion and/or the information provided in it.

As the Opinion is based on information made available by the client, Sustainalytics does not warrant that the information presented in this Opinion is complete, accurate or up to date.

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The client is fully responsible for certifying and ensuring its commitments` compliance, implementation and monitoring.