

WASTE RECYCLING APPLICATIONS

ENGINEERED FOR A CIRCULAR ECONOMY

Global population growth and the unrelenting pace of progress means the world is devouring sand like never before – 50 billion tonnes a year globally and “set to build the equivalent of a New York City every month from now until 2060”¹. Illegal sand mining is the third biggest global crime after counterfeiting and drugs trafficking and every year hundreds of millions of tonnes of ‘waste’ is sent to landfill. This is not sustainable.

At CDE, we understand the urgency, and this is why we are innovating at pace to make an impact. This is why we work with our customers to maximise the recovery of every grain of sand, **to create our best world, a ton at a time.**

For over 30 years, we have been revolutionising the materials processing industry with our wet processing innovations. Today, across the world, we are engineering sustainable solutions for a range of waste recycling applications.

Together with our customers we are co-creating solutions to recycle material from construction and demolition (C&D), hydro-excavation, crushed concrete, non-hazardous and contaminated soils, trommel fines, utility risings, road sweepings, and wastewater sludge.

CDE solutions enable customers to reuse 80-100% of waste materials, creating valuable sands and aggregates.

¹ (How to Avoid a Climate Disaster, Bill Gates, 2021)

OVER 20 MILLION TONNES DIVERTED FROM LANDFILL EVERY YEAR

Wet processing is our sole focus - no other company can match our experience and expertise in this field. We take on challenges that others can't. With over 2,000 successful projects around the world in challenging environments, CDE's proven solutions empower our customers to transform waste into valuable resources, creating sustainable businesses while making a positive impact on the world around them.

Every year, CDE equipment diverts over 20 million tonnes of variable material from landfill, laying the foundation for the circular economy. This material is reused as high value aggregates for new domestic, commercial or infrastructure construction projects around the world.

WHY RECYCLE?

- Reduce waste of valuable sand and aggregates
- Conserve depleting natural resources for essential use
- Reduce pressure on landfill
- Remove contaminants from the environment, aiding biodiversity
- Reduce 'whole life' CO₂ emissions
- Minimise empty trucks and lower truck mileage

SAVINGS & REVENUE GENERATION

- Save on landfill charges
- Save on transportation costs
- Generate revenues from valuable new products

DON'T THINK WASTE THINK OPPORTUNITY

POTENTIAL USES FOR RECYCLED WASTE MATERIAL



SAND
used in concrete, cable laying, asphalt, golf, beaches, topsoil improvement.



AGGREGATES
used in concrete, blocks, interlocking blocks, pipe bedding, paving, decorative stone, retaining walls, railway ballast.



GLASS
reused infinitely to create new glass products.



ORGANICS
used in compost.



FILTER CAKE
used as a soil conditioner, landfill engineering / capping.

C&D WASTE

As urban landscapes and built environments evolve, humanity produces millions of tonnes of construction and demolition (C&D) waste each year.

The variable nature of waste material, typically comprising of clay, stone, concrete, wood, metals, rubber, plastics, organics, paper and polystyrene, present operators with a significant challenge to process and separate effectively and efficiently. Through wet processing, this material can be separated, washed, and sized to be recycled back into the circular economy as high value, reusable sands and aggregates.



CRUSHED CONCRETE

Demolition projects produce large volumes of waste concrete and bricks, which is often disposed of in landfill or crushed and used as low value fill.

Wet processing crushed concrete creates an opportunity to remove unwanted debris, separate by size and clean the material. This produces a wider range of added value products with more commercially viable uses in the circular economy.



HYDRO EXCAVATION WASTE

Hydro excavation is an efficient and effective way of removing soil from construction sites. However, it produces high volumes of slurry which is challenging to process, expensive to transport and difficult and costly to dispose of.

Typically consisting of 60% water and 40% solids, HydroVac waste can be treated on site to dewater and harvest the valuable soils and aggregates, recovering up to 85% of the solid material. In addition to recycling saleable materials into the construction market, this process saves on transportation, disposal, and water costs.



NON-HAZARDOUS SOILS (MUCK AWAY)

The removal of rubble and soil from construction or infrastructure projects produces millions of tonnes of non-hazardous soils. This high-volume material is often disposed of in landfill, incurring considerable charges. Soil washing facilitates the recovery of valuable sand and aggregates which are extracted, cleaned and sized for reuse. Sand washing operations can be conducted close to the source, reducing haulage costs and minimising carbon impact.



CONTAMINATED SOILS

As our urban populations swell, more brownfield sites are being repurposed for residential, commercial or leisure use. Their industrial past often leaves a challenging environmental legacy and site clean-up produces millions of tonnes of contaminated soils. The removal of pollutants and contaminants from the soil is vital to ensure the restored site is safe for human and wildlife activity while also protecting the environment and water sources.

The contaminants in excavated soils are removed through modern wet processing methods. Contaminants, such as PFAS, fluoride, chrome, and arsenic can be safely and efficiently removed and appropriately recycled or disposed of. The cleaned sands and aggregates can then be safely repurposed for reuse or sold into the construction circular economy.

UTILITY ARISING

Utility arising is the evacuated waste material generated from utility installation and repair. Typically disposed of in landfill, this material is ideal for recycling, through wet processing, to create high quality sand and aggregate for sale or reuse.

TROMMEL FINES

Trommel fines are the residues from skip waste which cannot be effectively treated in a dry process and are typically sent to landfill. Increasingly regulators are classifying these materials as contaminants that should be separated and removed instead of being disposed of in landfill. Material that doesn't meet the Loss on Ignition (LOI) guidelines will be subject to higher landfill charges. Wet processing removes the recyclable materials from the trommel fines or screenings, which will find a ready market such as pipe bedding, landscaping, and sub-bases. It can also isolate the materials formerly classed as contaminants for use in refuse-derived and solid recovered fuels.

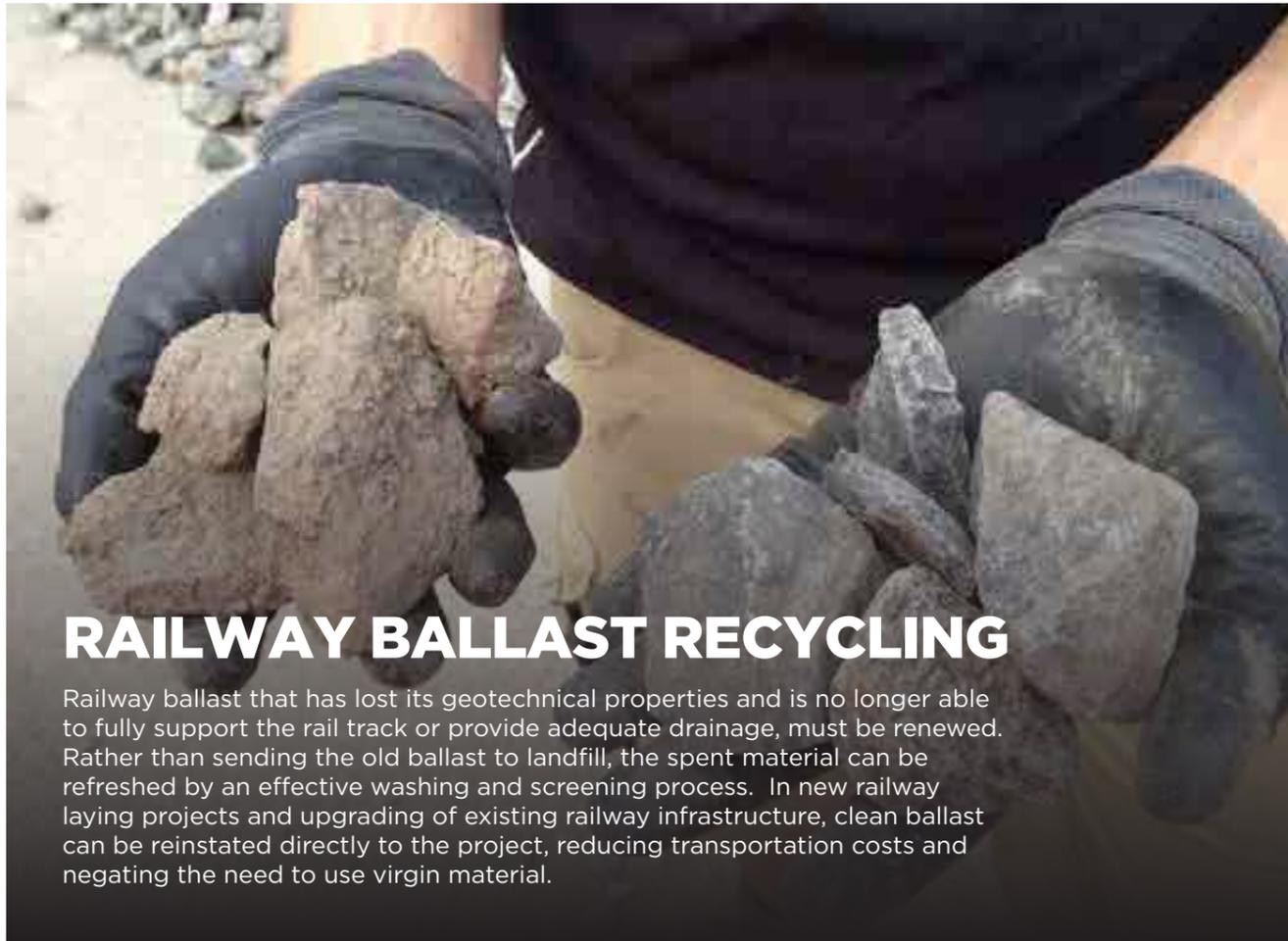


ROAD SWEEPINGS / GULLY WASTE

Road sweeping contractors collect thousands of tonnes of sand, silt, aggregates, litter, and organic matter from roads and gullies every day. Much of this waste finds its way to landfills, incurring high charges. This material can become valuable resources if recycled correctly.

Highly efficient wet processing enables the diversion of up to 99.7% of this material from landfill and the recovery of saleable sands.





RAILWAY BALLAST RECYCLING

Railway ballast that has lost its geotechnical properties and is no longer able to fully support the rail track or provide adequate drainage, must be renewed. Rather than sending the old ballast to landfill, the spent material can be refreshed by an effective washing and screening process. In new railway laying projects and upgrading of existing railway infrastructure, clean ballast can be reinstated directly to the project, reducing transportation costs and negating the need to use virgin material.



WASTE GLASS RECYCLING

Glass is infinitely recyclable. It can be melted and reformed endlessly to make new glass products with no loss in quality. Yet even the most advanced, environmentally conscious nations recycle less than 50% of the glass they use. Instead, we send millions of tonnes of used glass to landfill each year.

Recycling cullet, the granular material made by crushing bottles and jars from recycling, reduces energy costs and vastly cuts greenhouse gas emissions, including carbon dioxide, nitrogen oxide, and sulphur oxides, compared to using mined sand to create new glass.

Wet processing removes contaminants, such as paper, organics, metals, and plastics, and produces a clean, higher value cullet ready to reuse in glass production.



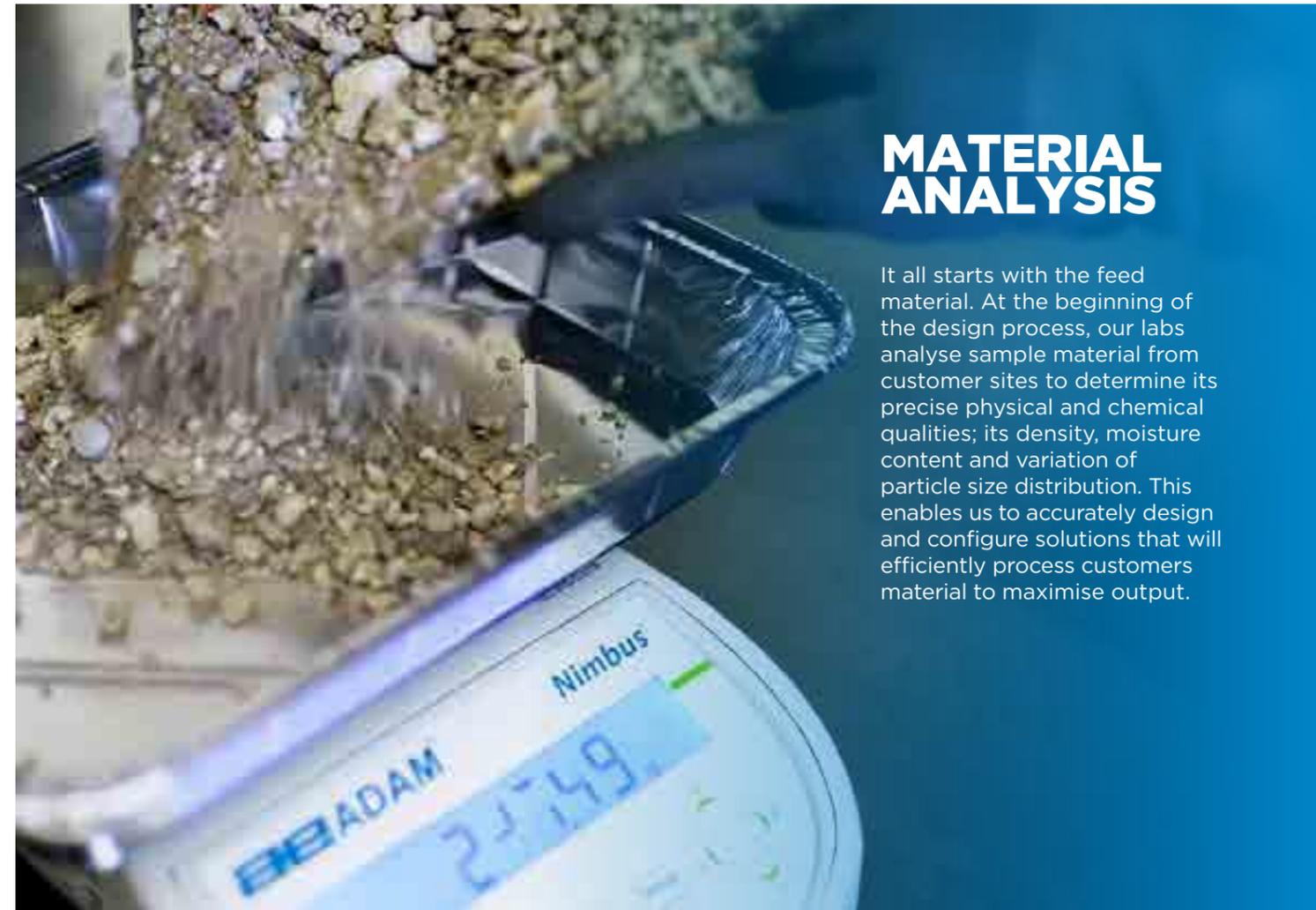
WATER A PRECIOUS RESOURCE

Like sand, water is resource under pressure and is central to the operational and environmental challenges facing our customers around the world. Our water management technologies ensure maximum water efficiency in our wet processing systems, with the potential to eliminate all wastewater.

Our Ultra Fines Recovery solutions ensure the smallest fractions of material are captured. Our AquaCycle™ thickener solutions remove the remaining sediment from the process water reducing the space needed for settling ponds. This means that recycling plants can be located in smaller urban sites where space is at a premium.

Finally, our Filter Press technology removes the need for settlement ponds and separates the remaining water from the sludge into a usable filter cake product.

CDE solutions can recycle up to 95% of system water in a continuous loop, minimising the need for top up water.



MATERIAL ANALYSIS

It all starts with the feed material. At the beginning of the design process, our labs analyse sample material from customer sites to determine its precise physical and chemical qualities; its density, moisture content and variation of particle size distribution. This enables us to accurately design and configure solutions that will efficiently process customers material to maximise output.



GLOBAL HEADQUARTERS

KILCRONAGH
COOKSTOWN
CO. TYRONE
NORTHERN IRELAND
BT80 9HJ
T: +44 28 8676 7900

EUROPE

SOLARSTRASSE 6A
4653 EBERSTALZELL
AUSTRIA
T: +43 316 231505

AUSTRALIA

37 HOMESTEAD DRIVE
STAPYLTON
QLD 4207
AUSTRALIA
T: + 61 7 3801 8755

NORTH AMERICAN HQ

430 MARTI DRIVE
DFW, TEXAS
76033
UNITED STATES
T: +1 682-350-0300

LATAM

BELO HORIZONTE
MINAS GERAIS
30110-044,
BRAZIL
T: +55 31 97121 3374

MIDDLE EAST AND AFRICA

T: +97 15 6705 0465

