



Frog Island – ELWA Contract

Keith Sinfield – Engineering &
Performance Director

8th December 2017

ELWA Contract

- 25 year PFI contract
- 450ktpa waste arisings
- £98 million investment
- Recycling and Diversion Targets

Includes:

- Reduce and Reuse Centres (RRC Sites)
- Bring Sites
- Transfer & Treatment



A2A- MBT Technology

- To dry and stabilise household waste
- To recover for recycling:
 - SRF (Solid Recovered Fuel)
 - RDF (Refuse Derived Fuels)
 - Fe & Non Fe Metals
 - Glass & Stone
 - Compost Like output
- Totally enclosed process
- Natural biological air filters



UK A2A MBT Facilities



Renewi and A2A Relationship



Long term relationship



- Partnership formed in 1990s with the then Ecodeco business.
- Ecodeco MBT key Renewi technology for UK PFI Market.

Delivery



- A2A has delivered 6 MBT facilities across the UK with an installed capacity of 825,000tpa.
- Facilities range in capacity from 65,000 to 250,000tpa
- All facilities delivered on time and budget.

SLA Agreement



- A2A engineers located in the UK to support ongoing operations and lifecycle replacement.
 - Support continuous improvement and technical development.
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A2A Group

Frog Island – A2A Technologies

Frog Island, 8th December 2017

A2A Group, the Leading Italian Multiutility

MAIN DATA 2016



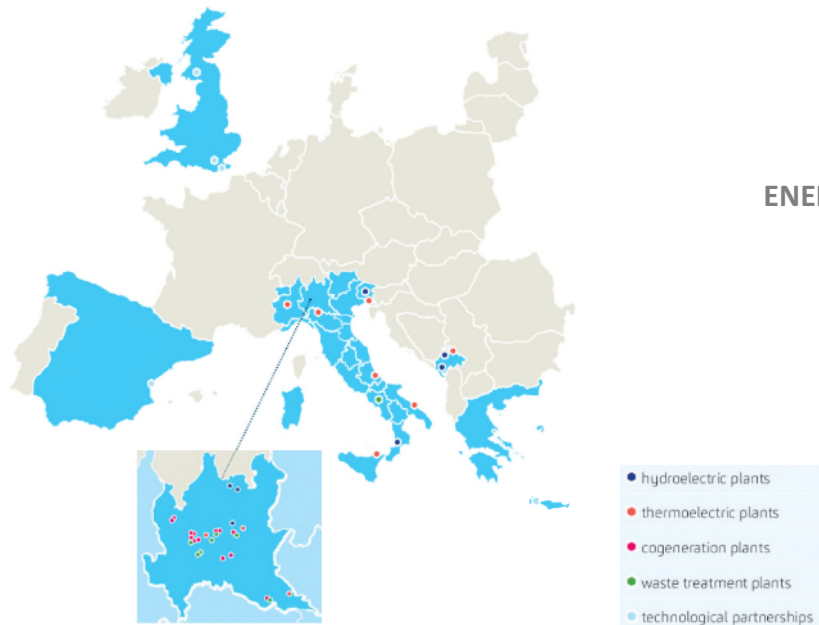
A2A FOOTPRINT

Revenues: 5.093 million €

Net operating result: 456 million €

EBITDA: 1.231 million €

Dividend: 0,049 € per share



SHAREHOLDING'S STRUCTURE

25%

MUNICIPALITY OF BRESCIA

3.1%

NORGES BANK

46.1%

OTHER SHAREHOLDERS/MARKET

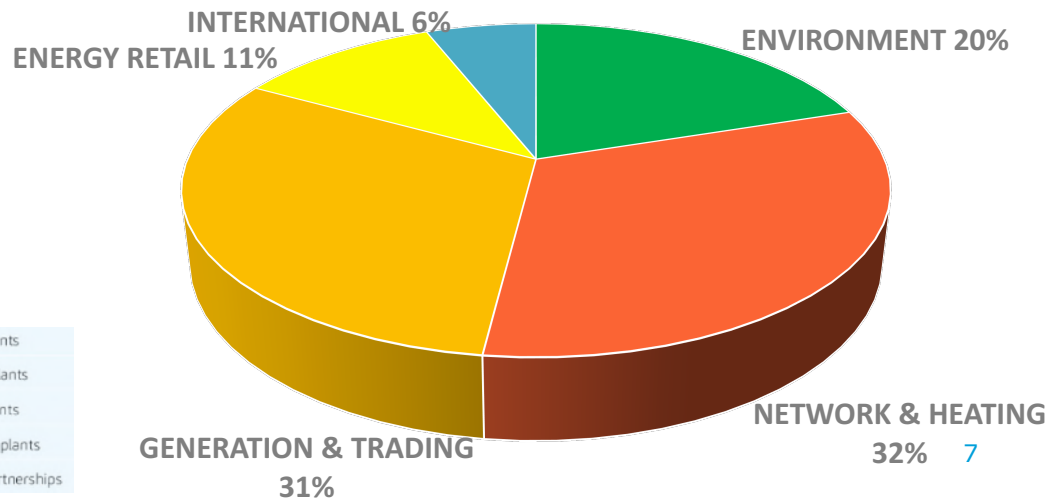
25%

MUNICIPALITY OF MILAN

0.8%

A2A S.P.A. (TREASURY SHARES)

BUSINESS PORTFOLIO



A2A Waste Management Activities

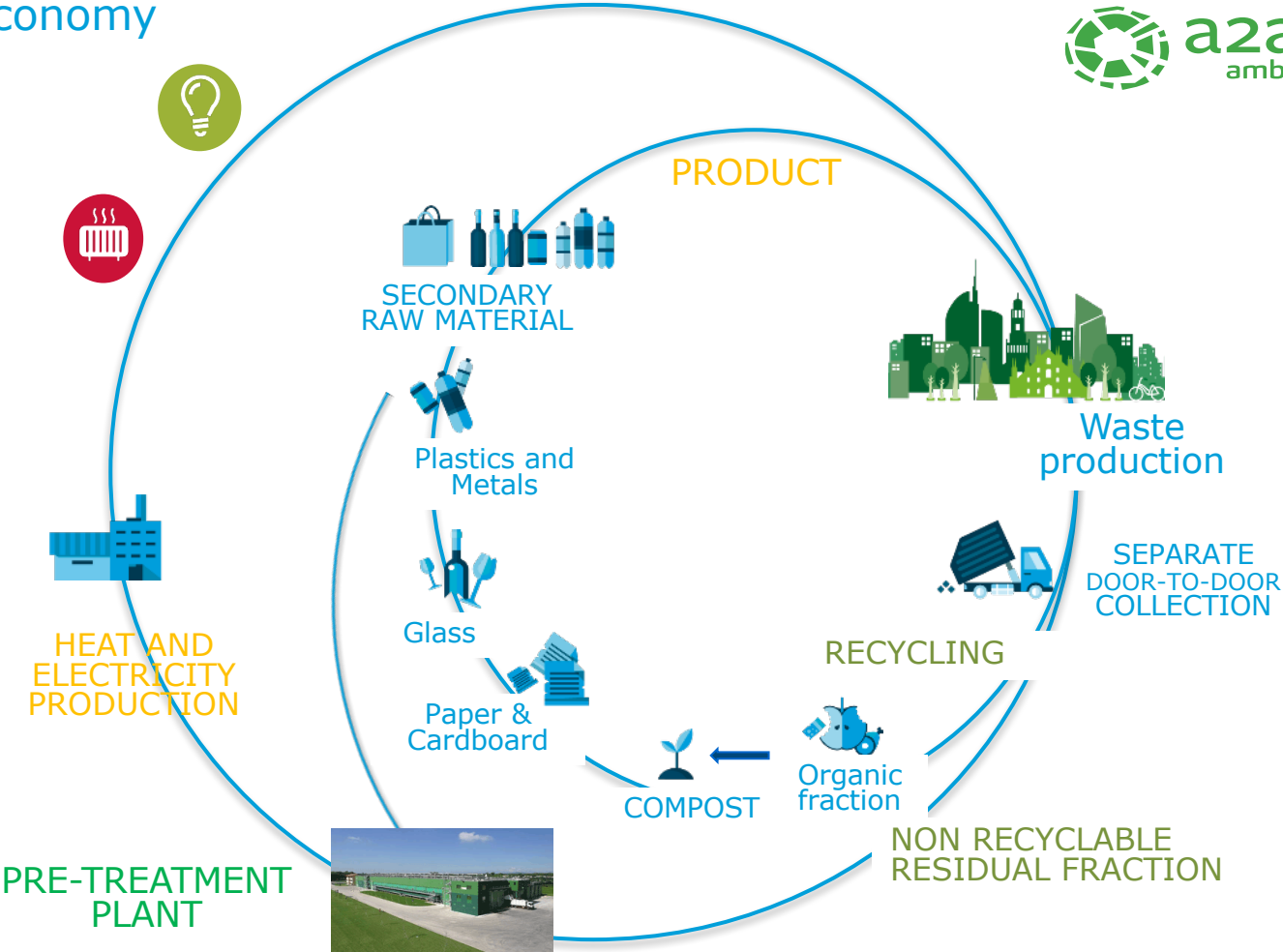
✓ A2A activities



...and covering the entire Waste Management value chain, including collection, treatment and disposal...

(1) MBT: Mechanical Biological Treatment

A2A Circular economy



A2A Ambiente

GLOBAL PRESENCE



WTE managed
by A2A Ambiente
or by subsidiaries



ITS built and
operated by
A2A Ambiente
or by subsidiaries



ITS operated
by third parties
(Technology
Partnership)



Pre-treatment
platforms
operated by
A2A Ambiente
or by subsidiaries



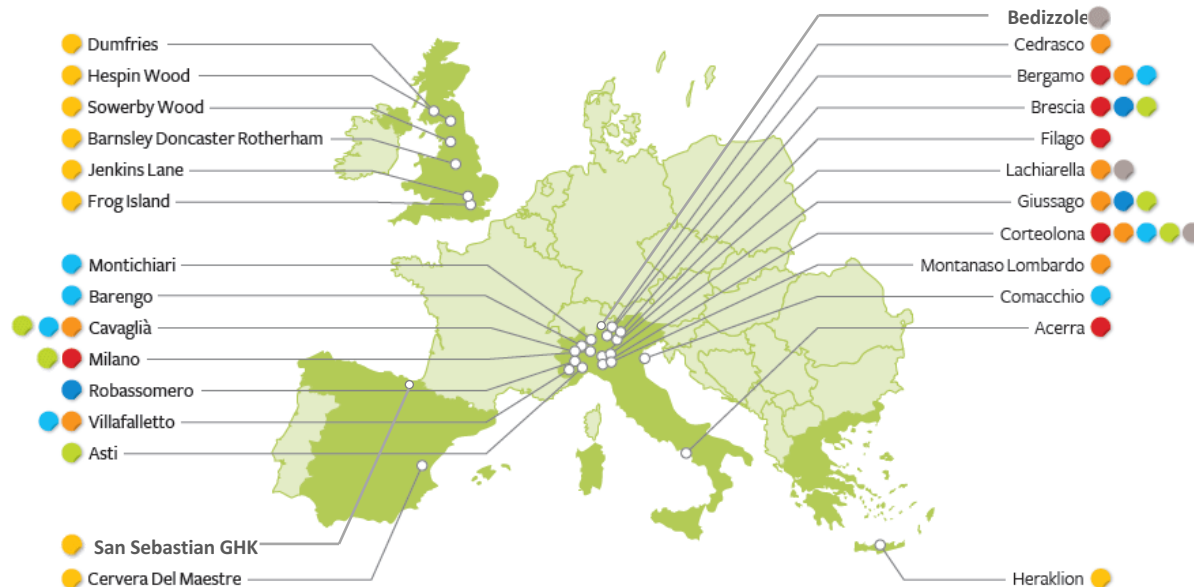
Landfills
operated by
A2A Ambiente
or by subsidiaries



Other facilities
operated by
A2A Ambiente
or by subsidiaries



Organic/green
fraction treatment
plants operated
by A2A Ambiente

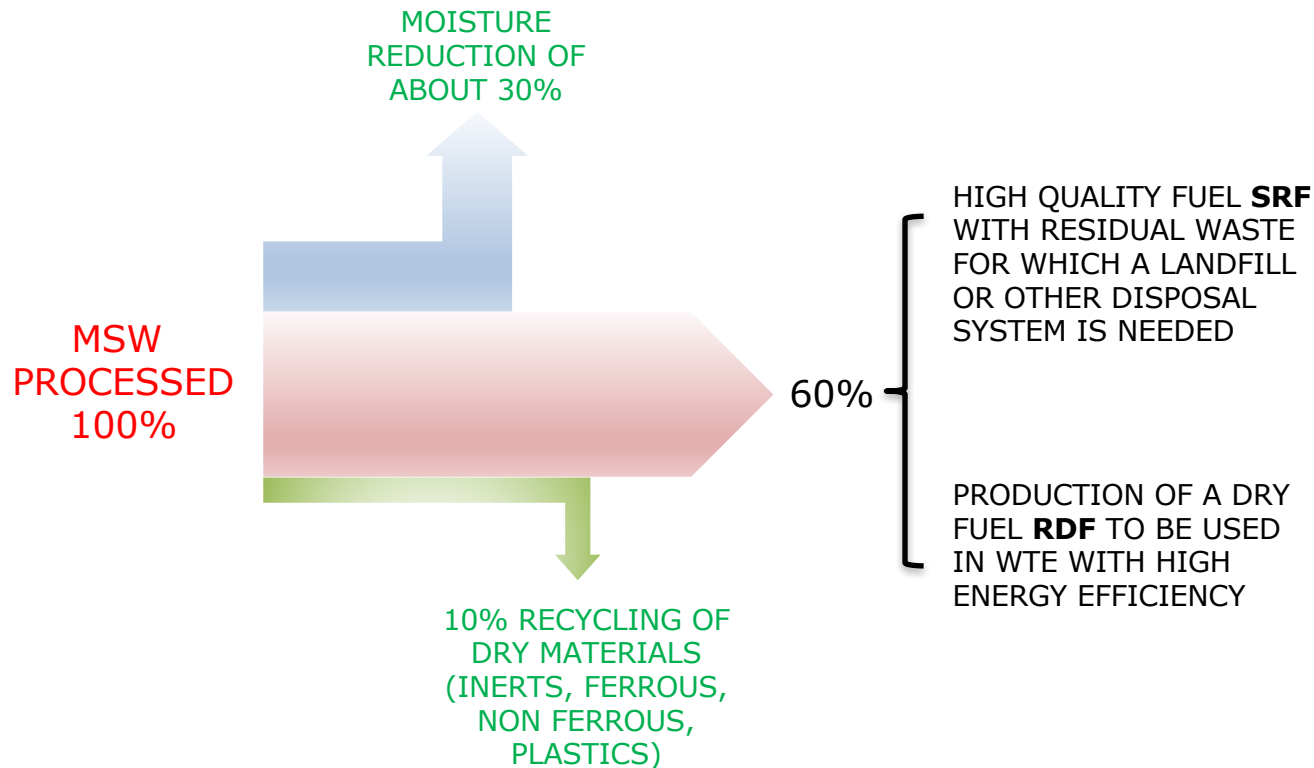


MBT Technologies



MBT technology has been proven and known in Europe for over 20 years.

Decision processes about MBT can be simplified by considering the outputs from an MBT process.



The **ITS®** (Intelligent Transfer Station) plant is an adapting system:

- ▶ It is composed by modules that can be chosen and added to comply with the local recycling/reuse opportunities.
- ▶ It produces **Ecorgite®**, a Solid Recovered Fuel for WtE plants of Cement Kilns and Coal Power Plants.
- ▶ Currently **16 ITS-plants** are in operation in Europe, treating 1.300.000 tons of MSW per year.
- ▶ Its biodrying technology is the **BIOCUBI®** process, patented by a2a as ECODECO.



PRE-TREATMENT

All the incoming waste is shredded and their size is reduced up to 300 mm or below.



BIODRYING

The shredded waste is collected inside the **BIOCUBI®** module, to promote the evaporation of the water inside. Then the vapor is removed through air and sent to Biofilter for odor reduction



REFINEMENT

The SRF is produced after further treatments that include sieving, light/heavy classification, separation of metals, shredding to the desired size. **Ecorgite®** is effectively a product, since it meets all the European End-of-Waste criteria.s produced

BIOCUBI® & ITS® - Main characteristics



Automatization:

All the operation are performed automatically, in order to reduce at minimum the contact among operators and waste.



Flexibility:

BIOCUBI® process has not be affected by the variation of waste composition during the years, occurred due to the environmental policy and regulation.

Pre-treatment, biodrying and refinement can be integrated in a single solution that performs its best technically and economically, but it's possible to provide the biodrying section alone.



Product reliability:

The BIOCUBI® process ensures a biodried material with constant characteristics in every condition, so for that the WtE is protected against fluctuations of lower Heating values



Adaptability & Robustness:

The robustness of the technology is proven by the number of operating plants in different countries with different waste compositions from over 20 years.

The adaptability of the process to variation of waste and production of fuel with standard characteristics is guaranteed.

BIOCUBI® Technology

Key numbers: History and Capacity



Biocubi®
Technology
Patented in E.U.



1994

Giussago,
First Plant
in operation



1996-02

Frog Island,
First Plant in
U.K.



2006

Heraklion,
First Plant
in Greece



2010

Castellon,
First Plant
in Spain

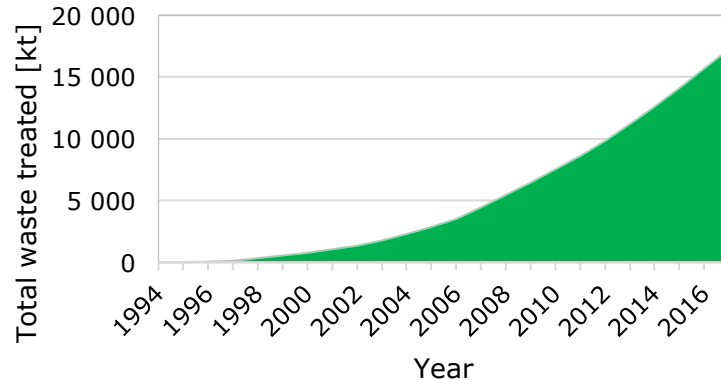


2012

BDR
250.000 t/y
in U.K.



2015



- High-quality construction material and equipment
- Operating plant for more than 99% of the total operating hours
- Strong and reliable relationship between Clients and a2a





Frog Island Treatment Facility Visitor Induction

Site Rules: PPE

Site PPE standards must be adhered to at all times, the minimum requirements in operational areas are:-

- Hard Hat
- Safety boots (No Rigger boots)
- Safety glasses
- Hi Vis jacket/waistcoat
- Gloves
- Trousers (no shorts)

Specific site areas may have local additional PPE requirements such as respirators and or ear defenders.

Review these requirements at entry points according to Site Signage.

Exceptions:

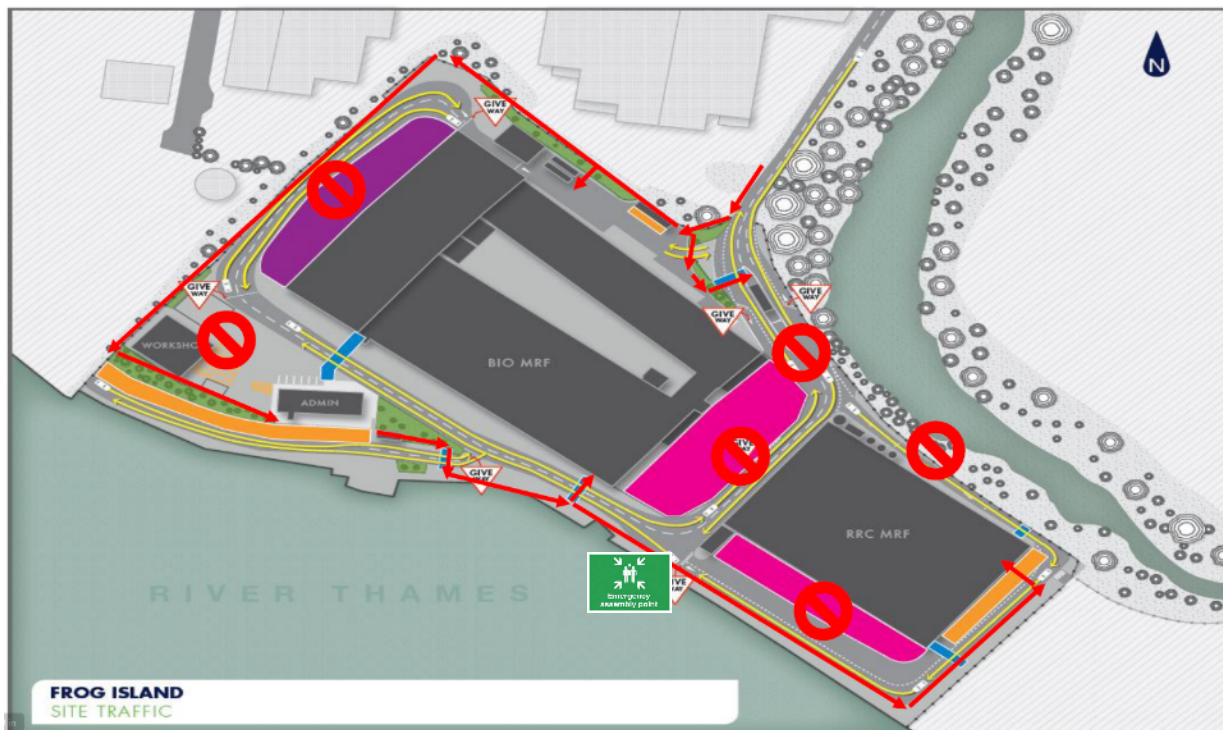
Access is allowed into the following areas without the need for PPE

- ✓ Admin block
- ✓ Weighbridge
- ✓ Engineering block

Access to these areas must be accessed via designated walkways only.



Frog Island Site Map



Site Traffic Rules

- Site speed limit is **10MPH**.
- Reverse parking is in force in all car parking areas.
- All cars must use the main car park in front of the main office block .
- Shanks takes no responsibility for any losses from or damage to any vehicles whilst parked on site.
- All visitors must Sign in on the visitors register located on the second floor and then attempt to contact their site contact.
- **NO ATTEMPT SHOULD BE MADE TO GO AND MEET YOUR CONTACT.**



Welfare



- Shanks operates a no smoking policy inside all operational areas and vehicles.
- Smoking is only permitted in designated areas (outside the admin block)
- Any person not adhering to these rules will result in them being banned from all Shanks Facilities.
- No food or drink to be consumed in operational areas.
- Shanks operates a zero drug policy –if anyone appears to be under the influence of DRUGS or ALCOHOL they will be banned from the premises immediately.
- The use of mobile phones is prohibited in operational areas. DO NOT WALK ON SITE WHILE ON THE PHONE.
- No children or pets are allowed on site.

ELWA Site Emergency Procedures



FIRST AIDERS are available on site, see safety notice boards for contact details, report any accidents to your site contact immediately and ask them to take you to the first aid room in the main office block.

FIRE ALARM - High Pitch Solid Tone If a fire alarm sounds, during your visit go to the assembly point

FIRE ASSEMBLY POINT is along the sea walk in front of MBT; familiarise yourself with this on the site map. There is a daily fire alarm at 10:00am, there is no need to take any action

DO NOT stop to collect personal belongings – go straight to the assembly point.

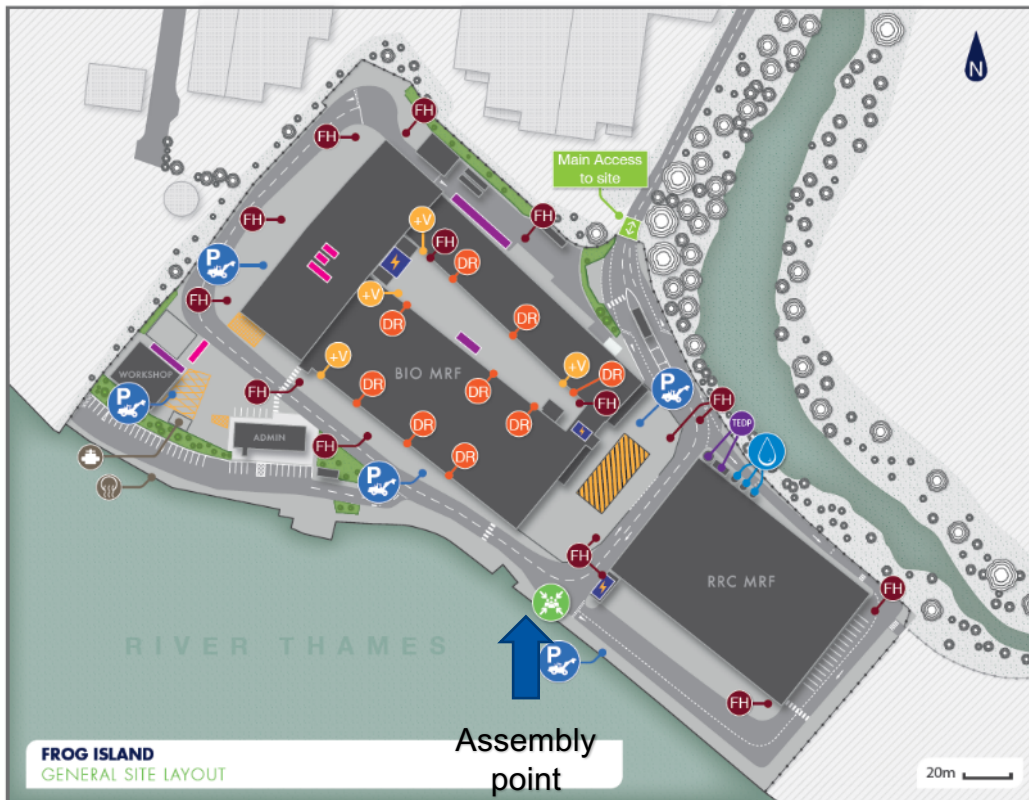
DO NOT re-enter any building until told to do so.

Site Map: Key Areas

Shanks

KEY

-  FH Fire hydrant
-  DR Dry risers
-  +V Valve - watercannon
-  Water storage tanks - Sprinklers
-  P Mobile plant parking
-  Surface water discharge point
-  Surface water closure valve
-  TEOP Trade effluent discharge point
-  Flammable liquids
-  Gas bottle storage
-  Site perimeter (fenced)
-  Quarantine area
-  Assembly point
-  High voltage
-  Made ground
-  Natural and unmade ground



Incident Reporting



ELWA has a zero incident target for the site. By working together and managing our risks we will achieve this. You can help us with our goal by letting us know if you see any of the following:

- ✓ **Close calls**
- ✓ **Unsafe acts**
- ✓ **Unsafe working conditions**
- ✓ **Accidents**
- ✓ **Failure of others to observe site rules**
- ✓ **Any unsafe behaviours**

All accidents or incidents however minor, **must** be reported to a member of Shanks staff and recorded using the correct incident report paperwork, which is located in the main office.

ELWA Key Points



- STAY ON FOOTPATHS AND WALKWAYS.
- BE AWARE OF SITE TRAFFIC MOVEMENTS.
- KEEP IN CONTACT WITH YOUR SITE CONTACT AT ALL TIMES.
- PERSONAL HYGIENE – ALWAYS WASH YOUR HANDS BEFORE AND AFTER YOUR VISIT TO OUR SITE DUE TO THE NATURE OF OUR BUSINESS.
- ALWAYS USE HAND RAILS ON STAIRCASES

ENJOY YOUR VISIT!





waste no more

Merger Rationale

- ✓ **EU strong recycling leader**
- ✓ **More products and services to our customers**
- ✓ **Broader geographical footprint**
- ✓ **Complementary businesses**
- ✓ **Firmer financial base**
- ✓ **Great long-term growth opportunities**



Renewi Divisions



Commercial NL	Commercial BE	Hazardous	Municipal	Monosteams
<ul style="list-style-type: none">• #1 in waste collection & processing• #1 in most main market segments• Complete geographical coverage Netherlands & Belgium• c. 3,500 FTEs	<ul style="list-style-type: none">• #1 in waste collection & processing• #1 in most main market segments• Complete geographical coverage Netherlands & Belgium• c. 1,900 FTEs	<ul style="list-style-type: none">• #1 in European thermal soil treatment, Dutch waste water treatment and high end industrial cleaning• Primarily in the Netherlands• c. 950 FTEs	<ul style="list-style-type: none">• UK leader in MBT treatment of waste• Canadian leader in treatment of organic waste• c. 700 FTEs	<ul style="list-style-type: none">• #1 in glass recycling and trading of recycled glass “cullet”• #1 handler of mineral waste in NL• #2 in NL organics• Top 3 in EU WEEE recycling• c. 470 FTEs

“Waste-to-product” is our common linkage