Welcome & Introduction

Illustrative CGI of the proposed Waste to Hydrogen facility

Welcome to our public consultation showcasing the proposals for a waste-to-hydrogen facility at Manston, Kent. We would like to hear your views before any planning application is submitted.

At this stage, the proposals are still being developed. Final decisions have still to be made on the design/layout of the proposals. We are keen to obtain feedback from you on the draft plans to help shape how the project progresses.

The proposal

We are exploring a new way of managing non-recyclable waste by converting it into clean hydrogen fuel. Instead of being sent to landfill or incineration, waste could be used to produce hydrogen which could be used to fuel local transport networks and essential services, helping reduce reliance on fossil fuels and support the transition to cleaner energy.

Members of the project team are available today to answer questions about the process and proposals, listen to and take on board your comments.

If you would like to receive any of the materials shown today as a paper copy or another format, speak with us directly after this event, or contact DevComms, our community representatives at HTEManston@devcomms.co.uk or 0800 080 3162.

About Hydrogen Transition Energy (HTE)

HTE is a British clean-tech company focused on addressing waste management and carbon emissions challenges currently faced by the UK. HTE is a leading developer in the delivery of a cleaner, smarter future by transforming non-recyclable waste into clean, Fuel Cell grade hydrogen. Using cutting-edge technology, HTE transforms non-recyclable waste into hydrogen, captured CO_2, and inert aggregate which can be used in construction, making the whole process 100% recyclable and reusable. This process not only diverts waste from landfill sites and incinerators but also generates low-carbon hydrogen to power the industries and transport systems of the future.

Working in partnership with councils, businesses and communities, we are planning to develop the UK's first waste-to-hydrogen facility in Manston, Kent. Our technology turns non-recyclable waste into valuable energy, helping to reduce emissions, create skilled local jobs and build a more sustainable future for Thanet and Kent more widely.

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About The Site

The site forms part of a larger parcel of agricultural land located to the west of Manston Road.

The site is adjacent to other commercial and industrial businesses off Manston Road, including logistics and distribution, reclamation and industrial businesses. The site itself is featureless, and topographically, the site is flat.

The site benefits from strong transport connections, with easy access to the A299, which links directly to the A2 and M2 motorway, connecting Manston with Canterbury, Dover and the wider Kent road network. The site is also within a mile of Manston Airport and around a 30-minute drive from the ports of Ramsgate and Dover, providing a well-connected location for the movement of materials and clean hydrogen.

These connections make the site well-suited for the movement of materials and clean hydrogen while avoiding unnecessary traffic through nearby villages and residential streets.

HydrogenTE Site Plan

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What Is Being Proposed?

The Proposal

Hydrogen Transition Energy (HTE) is proposing the UK's first waste-to-hydrogen facility at **Manston, Kent.**

The facility would convert non-recyclable waste into clean hydrogen fuel, providing an alternative to landfill and incineration.

The proposed development would:

- Operate within a fully enclosed, controlled facility
- Produce clean hydrogen for transport, industry and energy
- Capture carbon dioxide (CO_2) rather than release it
- Create a reusable inert material for construction use

Safety, environmental protection and noise control have been built into the design from the outset.

What is being proposed?

- Waste-to-hydrogen processing facility
- Hydrogen storage and dispatch infrastructure
- Carbon capture systems
- An innovation and education centre to support skills, training and careers in hydrogen and renewable energy.
- Landscaping and screening
- Associated access and services

The site is located within an established industrial area with good access to the strategic road network.

Our approach

The facility has been designed to:

- Operate safely and quietly
- Protect air and water quality
- Minimise noise through building design and layout

An Environmental Impact Assessment (EIA) is being undertaken as part of the proposals.

Have your say

These proposals are still being developed and we welcome local feedback before any planning application is submitted.

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The Process: How It Works

Waste Delivered

Non-recyclable waste is delivered to the site and handled safely indoors

High-Temperature Treatment

Waste is exposed to extreme heat in a sealed system, breaking it down via plasma gasification

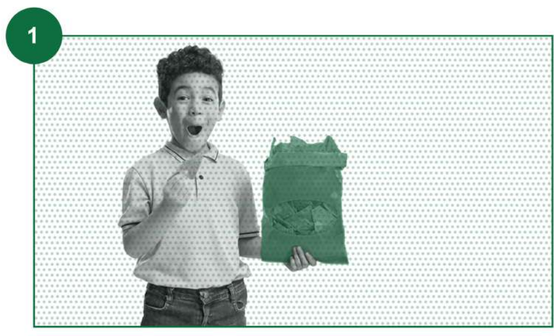
Clean Gas Created

The heat converts the waste into a clean gas, with no smoke or ash

Hydrogen Separated

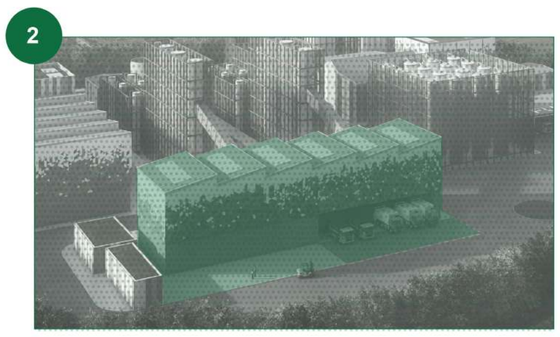
Hydrogen is extracted from the gas and prepared for use as a clean fuel

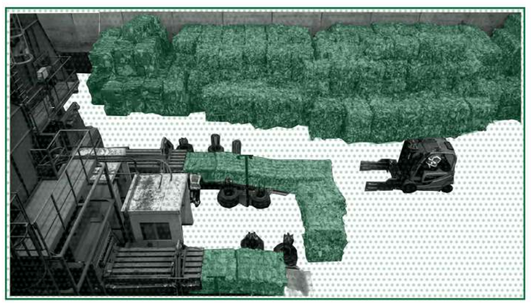
1

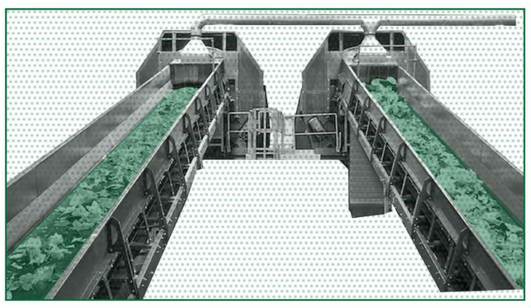


1. WASTE
Waste is taken to the Hydrogen Plant Facilities.

2

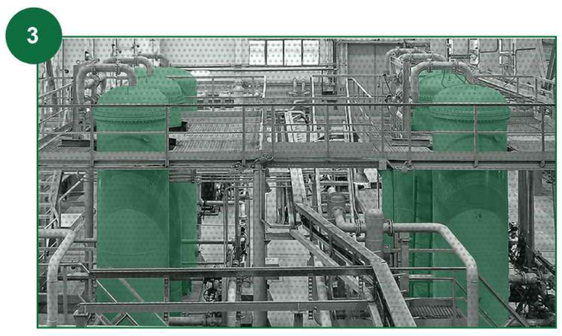






2. SORTING PLASTIC (PREPERATION STAGES)
Waste is sorted and compressed ready for **“HTE Process”**

3



3. PURIFICATION + STORAGE (HYDROGEN HANDLING)
The syngas is purified and then stored in tanks before being distributed.

4

4. DISTRIBUTION + USE (FUEL STAGE)
Fuel is then distributed and the process restarts.

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The Process: How It Works

CO_2 Captured

Carbon dioxide (CO_2) is captured instead of being released into the atmosphere

Hydrogen Stored & Dispatched

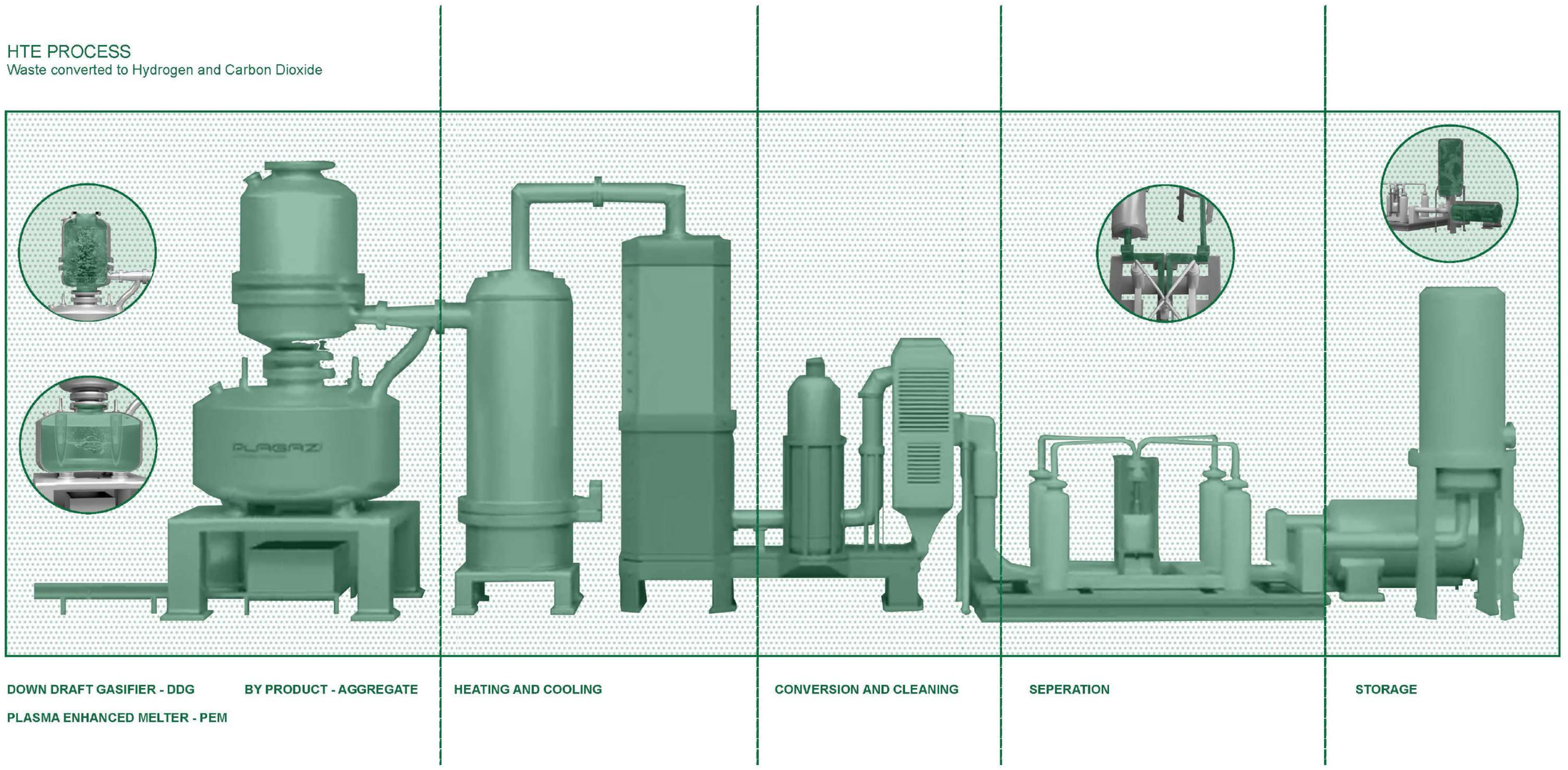
Hydrogen is stored safely on site and dispatched for use in transport, industry and power generation

Inert Material Reused

Any remaining solid material is turned into a glass-like, inert material that can be reused in construction.

Continuous Monitoring

The entire process is enclosed, automated and continuously monitored to ensure safe operation at all times



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Safety & The Environment

Safety Built into the Design

Safety is central to how the proposed waste-to-hydrogen facility at Manston would be designed, built and operated.

The facility would use **proven, independently reviewed technology**, with safety built into every stage of operation.

No hazardous by-products such as **dioxins or particulates** would be produced.

MONITORING & CONTROL

Continuous Monitoring and Safeguards

The facility would be fully automated and monitored 24 hours a day, 7 days a week.

- → Key parameters such as temperature, pressure and performance are continuously tracked
- → Automated systems allow any abnormal conditions to be detected and managed immediately
- → Multiple layers of protection help prevent fire, explosion or uncontrolled emissions

Emergency shutdown and pressure-release systems are built into the design, and the facility would be regulated and inspected by the relevant authorities.

ENVIRONMENTAL PROTECTION

Protecting Air Quality

- → Closed and controlled system with no continuous combustion emissions
- → No smoke, ash or untreated gases released
- → Carbon dioxide (CO_2) is captured rather than released

Water and Flood Risk Management

- → Sustainable drainage systems reduce flood risk
- → Rainwater harvesting for non-potable uses
- → Runoff filtered before entering the wider environment

Biodiversity and Landscaping

- → Extensive landscaping and tree planting across the site
- → Green infrastructure helps the development blend into the landscape
- → New habitats and wildlife corridors support biodiversity net gain

Waste and Resource Efficiency

- → Waste diverted away from landfill and incineration
- → Process outputs reused wherever possible
- → Supports a circular, local economy

NOISE MANAGEMENT

Designed to Minimise Noise

Noise impacts have been carefully considered from the outset and addressed through design and layout.

- → All main processing equipment housed within purpose-built buildings
- → Sound-absorbing materials and acoustic enclosures used where required
- → Low-noise equipment selected wherever possible

Site Layout and Screening

- → Buildings positioned to act as noise barriers
- → Landscaping and tree planting provide additional noise buffering
- → Noisy activities located away from site boundaries

Monitoring and Management

- → Noise levels monitored to ensure compliance with strict permitted limits
- → Maintenance activities restricted to daytime hours

WHAT THIS MEANS FOR LOCAL RESIDENTS

- ✓ No smoke, ash or odour escaping the site
- ✓ No harmful emissions impacting local air quality
- ✓ Noise carefully managed and monitored
- ✓ All operations enclosed within buildings
- ✓ Designed to operate safely and responsibly at all times

An extensive **Environmental Impact Assessment (EIA)** is being undertaken for the proposed scheme.

Our Commitment

The proposed facility has been designed to operate safely, quietly and responsibly, with robust controls in place to protect people, the environment and nearby communities.

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Traffic & Access

The proposed waste-to-hydrogen facility has been designed to minimise impacts on local traffic and surrounding communities.

The site benefits from its location next to existing infrastructure and its proximity to the strategic road network, allowing vehicle movements to be managed safely and efficiently.

The proposed facility is located in an established commercial and industrial area off Manston Road and benefits from strong existing transport links.

- → **Direct access to the A299 Thanet Way, which connects to the A2 and M2 motorway network**
- → **Vehicles can access the site without travelling through nearby villages or residential streets**

Vehicle movements

- → **It is anticipated that daily HGV Movements would be associcated with waste deliveries, hydrogen distribution, CO_2 distribution and aggregate collection**
- → **HGV movements will use existing routes already designed for commercial vehicles**
- → **Vehicle numbers will be confirmed through a detailed Transport Assessment submitted with any planning application**

Construction traffic

During construction:

- → A **Construction Traffic Management Plan** would be put in place
- → This would set out **approved routes, hours of operation and site access arrangements**
- → Measures would be included to **reduce disruption to local residents**

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Community Benefits

If approved, the proposed waste-to-hydrogen facility at Manston would deliver a range of local benefits, supporting jobs, skills, cleaner energy and a more sustainable approach to managing waste.

The key benefits of the project include:

Create up to 130 skilled and unskilled jobs across operations, training and education.

Provide local training opportunities through partnerships with schools, colleges and universities, helping to inspire future careers in science and engineering.

Generate clean, reliable hydrogen to support the decarbonisation of transport and public services.

Create a sustainable, local circular economy, turning non-recyclable waste into valuable resources such as hydrogen fuel, captured CO2 and reusable construction materials, keeping materials and benefits within the local area.

Operate efficiently and responsibly, recovering around 70% of the energy from incoming waste and minimising demand on the National Grid.

Reduce carbon emissions by around 109,000 tonnes every year, the same climate benefit as 174 return flights between Berlin and New York.

Support community initiatives, including educational outreach and partnerships with local charities and groups.

Set a benchmark for clean energy innovation, helping to establish Thanet as a leading example for future waste-to-hydrogen projects across the UK.

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Frequently Asked Questions:

1. What is hydrogen (H_2)?

Hydrogen is the lightest and most abundant element in the universe. It is a colourless, odourless, non-toxic gas. When used as a fuel, hydrogen produces energy and water vapour as its only by-product.

2. What can the hydrogen be used for?

Hydrogen can be used for:

- Buses and HGVs
- Industrial processes
- Power generation when and where needed

3. Why is hydrogen considered valuable?

Hydrogen is a flexible energy carrier that:

- Produces no carbon dioxide when used as a fuel
- Helps decarbonise transport and industry
- Enables low-carbon and net-zero energy systems
- Can be stored and transported
- Can be produced from waste, supporting a circular economy
- Reduces reliance on fossil fuels and energy imports

4. What are the potential local benefits of a waste-to-hydrogen facility?

A local facility could:

- Reduce waste transport distances
- Lower emissions from HGV movements
- Contribute to a cleaner, more sustainable energy system
- Keep energy and economic value within Thanet
- Support a circular local economy

5. Will the proposed development create local jobs?

Yes, the proposed facility is expected to create up to 130 skilled jobs, including technical, operational and educational roles. HTE also plans to work with local schools, colleges and universities to support STEM learning and career pathways.

6. Will the proposed facility impact local air quality?

No - the proposed facility uses a closed, tightly controlled process where no smoke, ash or untreated gases are released into the atmosphere. There are no harmful by-products, and the system is designed to meet strict environmental standards.

7. Is this going to increase traffic on the local road network?

Most of the traffic will be from waste delivery vehicles already operating in the area. These vehicles already use the main road network, including the A299.

8. How much waste does Thanet produce?

In 2023–24, Thanet District Council managed **49,173 tonnes of waste.**

9. How is Thanet's waste currently treated?

In 2023–24:

- 31,144 tonnes were sent to Energy-from-Waste (incineration)
- 10,443 tonnes were recycled
- 7,445 tonnes were composted
- 140 tonnes went to landfill

10. Does Thanet's waste travel long distances?

Yes. Much of Thanet's waste is transported significant distances, including **outside the local area**, and is often handled multiple times before final treatment.

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Frequently Asked Questions:

11. Why is local waste treatment being considered?

Treating waste closer to where it is produced could:

- → Reduce long-distance transport
- → Cut HGV mileage and emissions
- → Keep waste and energy value within the local area
- → Support a more resilient local waste system

12. How does waste-to-hydrogen differ from incineration?

Energy-from-Waste incineration:

- → Burns waste
- → Releases carbon dioxide directly to the atmosphere
- → Produces electricity only

Waste-to-hydrogen:

- → Operates in a **closed system**
- → **Captures carbon dioxide** instead of releasing it
- → Produces **hydrogen**, a flexible, high-value fuel

13. How much CO_2 is produced by incineration?

For around **49,000 tonnes of waste**, a typical incinerator would release around **49,000 tonnes of CO_2**, including approximately **22,000 tonnes of fossil-based CO_2**.

14. What happens to CO_2 in a waste-to-hydrogen process?

Carbon dioxide is **captured**, not released.

It can be reused in industry or stored securely, reducing emissions to the atmosphere.

15. How does the energy output compare?

For the same amount of waste:

- → **Incineration** produces around **30 GWh per year** of electricity
- → **Waste-to-hydrogen** could produce around **260–300 GWh** of energy as hydrogen

Even after accounting for electricity used by the process, the **net usable energy remains significantly higher.**

16. Can hydrogen explode?

Hydrogen does not explode on its own. An explosion can only occur if hydrogen is mixed with air in a specific concentration range and exposed to an ignition source. This is like natural gas.

The facility will use multiple engineered safety systems, including isolation valves, monitoring equipment and ventilation controls to prevent unsafe conditions from occurring.

17. What happens if something goes wrong in the plant?

If an abnormal condition occurs, the system is designed to safely divert gases through a controlled flue and release them to atmosphere.

This is acceptable because the gases involved are water vapour, hydrogen, and carbon dioxide. While these substances can be hazardous in high concentrations within enclosed spaces, they are naturally occurring components of the atmosphere.

Once released and dispersed in open air, they rapidly dilute and become non-hazardous and inert, ensuring there is no risk to people or the environment.

18. Who should I contact if I have any questions?

Please contact our community representatives, DevComms, by phone on **0800 080 3162** or by email at **HTEManston@devcomms.co.uk.**

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Next Steps & Have Your Say

Thank you for attending our event today on the proposed waste-to-hydrogen facility being proposed in Manston. We would like to invite you to share your feedback and questions relating to the proposed development via our feedback form provided today. You can also send feedback via email, using the address below. You will also have the opportunity to be kept informed with updates related to out application.

Our consultation window will remain open until **Saturday 14th February 2026,** and as such all feedback should be submitted to us by this date.

You can provide your comments by:

- Completing a paper feedback form today.
- Visiting our project website and completing the online feedback form.
- Contacting DevComms by freephone or email.

Stay in touch

If you would like to stay informed as the project progresses, further updates will be shared through the project website and future communications and key milestones in the project's lifetime.

You can visit our project website at: **hte-manston.co.uk**

If you would like to contact our community representatives, DevComms, you can do so using the following details:

- Freephone: **0800 080 3162**
- Email: **HTEManston@devcomms.co.uk**

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