Lakenheath Community Primary School

CIBSE Education Buildings Group

18th February 2026

Our new School – The first Net-Zero operational school in East Anglia

Suffolk County Council

PENTACO CONSTRUCTION LTD

Mike Malina & Karen Settle

Lakenheath CPS **Concertus**

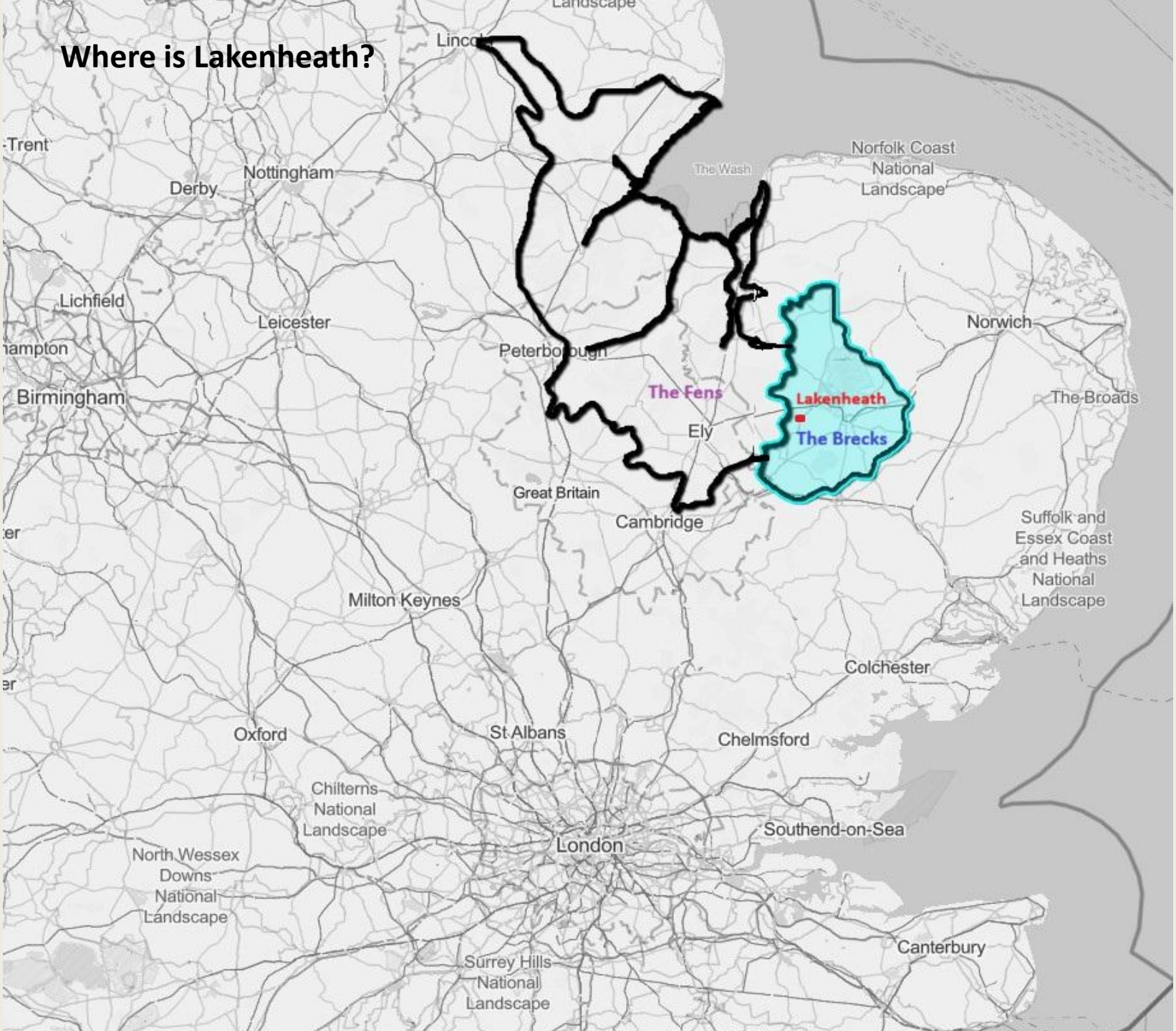
Concertus Part of the Vertas Group

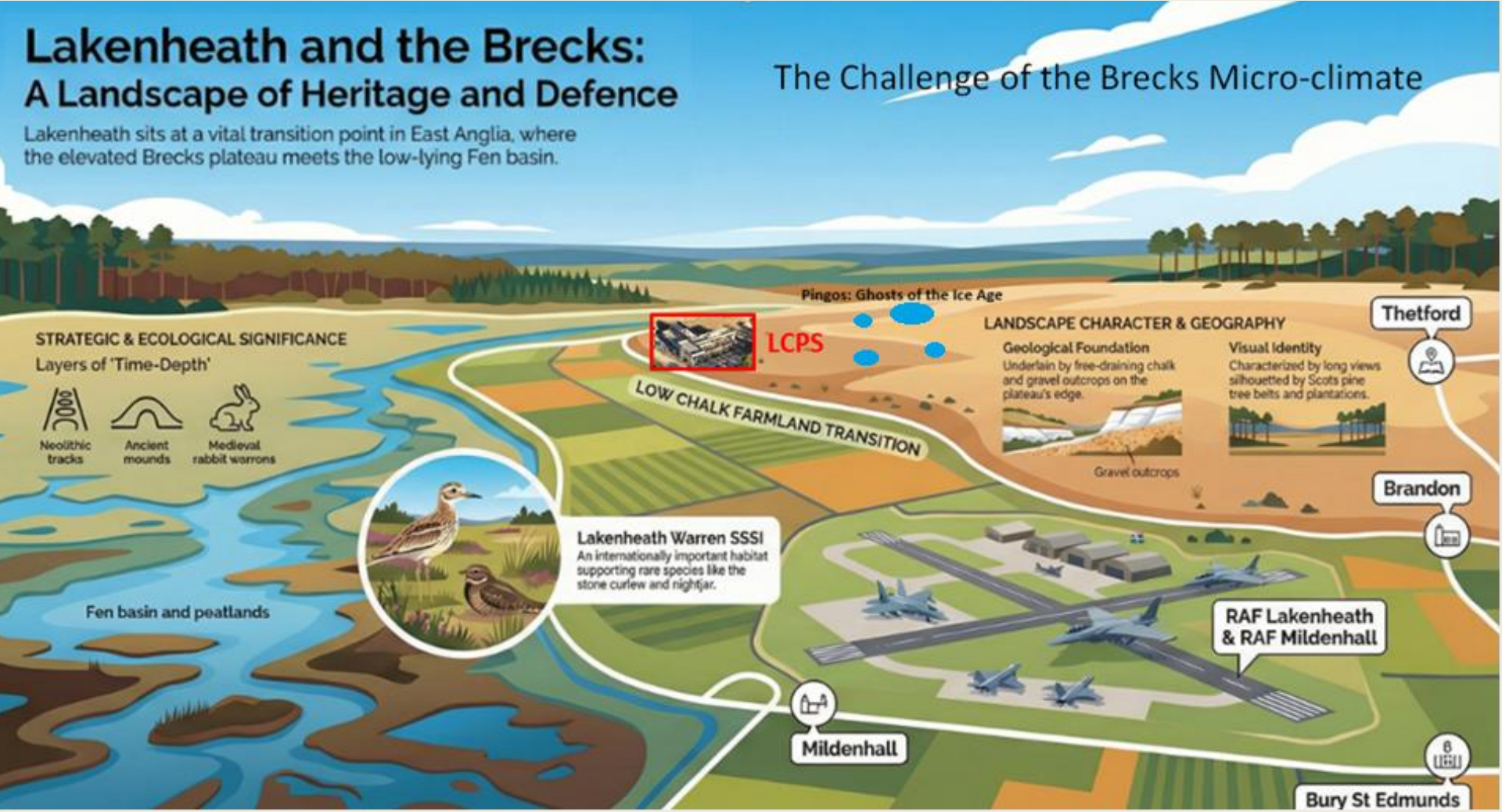
A unique Challenge:

- **Taking account of the unique Brecks microclimate**
- **How to achieve Net Zero operation in an extreme noise environment**
- **Dealing with an infrastructure Challenge**
- **Keeping our school community heritage and adaption to a new school site/building**

Some great Opportunities

- **Building design and operation**
- **Net Zero (in operation) technologies**
- **Shallow water table - Water borehole for irrigation**
- **A living lab / educational resource - Inspiring the scientists and engineers of the future**
- **An enhanced community resource**


Where is Lakenheath?
Lincoln
Landscape
Trent
Nottingham
Derby
The Wash
Norfolk Coast
National
Landscape
Lichfield
Leicester
Norwich
Peterborough
The Fens
Lakenheath
The Brecks
Ely
The Broads
Birmingham
Great Britain
Cambridge
Suffolk and
Essex Coast
and Heaths
National
Landscape
Milton Keynes
Colchester
Oxford
St Albans
Chelmsford
Chilterns
National
Landscape
Southend-on-Sea
London
North Wessex
Downs
National
Landscape
Canterbury
Surrey Hills
National
Landscape



Not to scale representation and for locality education purposes

The Brecks - a unique heritage and landscape, designated as a National Character Area, it is a vital conservation area holding the largest lowland forest in the UK, with 28% of the UK's rarest species.

Geology: Chalk bedrock – covered in sandy glacial drift deposited in the last ice age

Climate: Hot Summers, Cold Winters, Low rainfall - A stark contrast to the neighbouring wet Fens

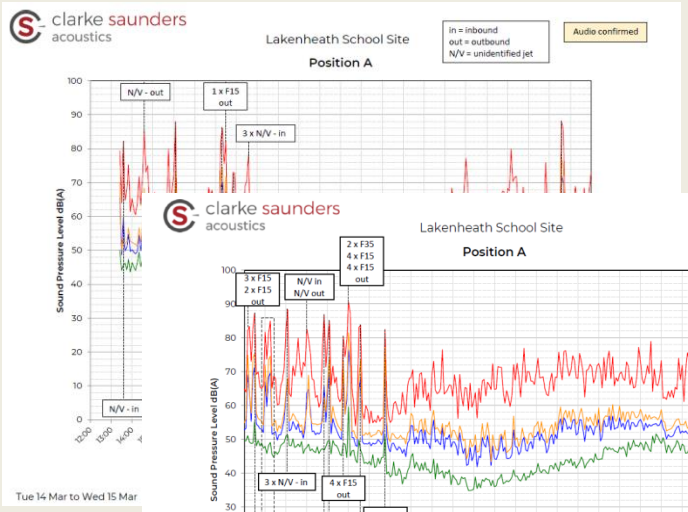
Lakenheath – The Big Picture, why we need a new school

From 2024, Lakenheath has seen the beginning of construction and rapid growth in housing; a total of 720 dwellings have outline or detailed planning permission.
This will represent a growth of 36% over the next decade to the existing housing in the village, equating to a likely additional population of approximately 1700 people.

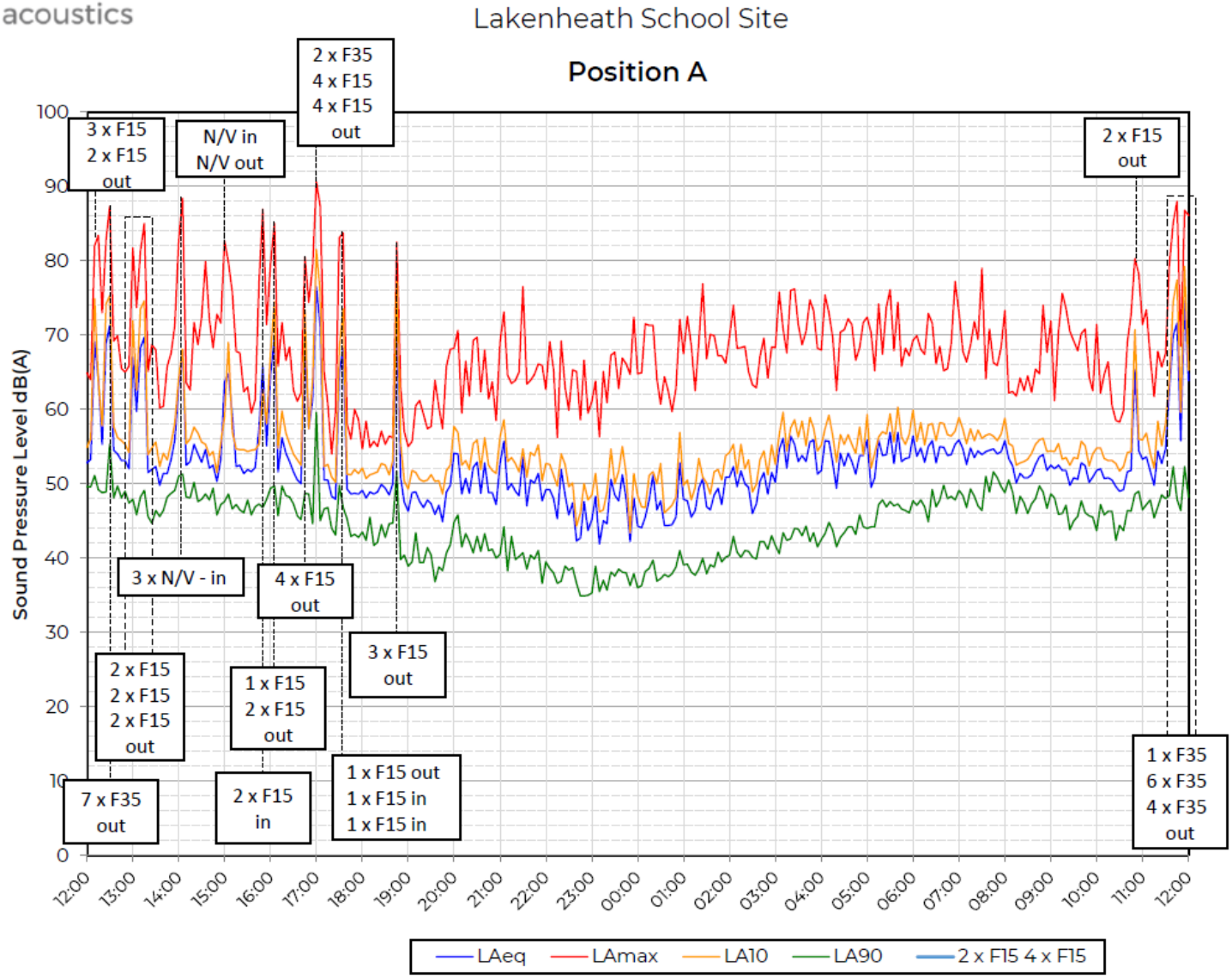
The Acoustic Challenge – RAF Lakenheath

USAF 48th Fighter Wing
F-15E Strike Eagle (~51 aircraft)
F-35A Lightning II (52+ aircraft)

As of 11/2026

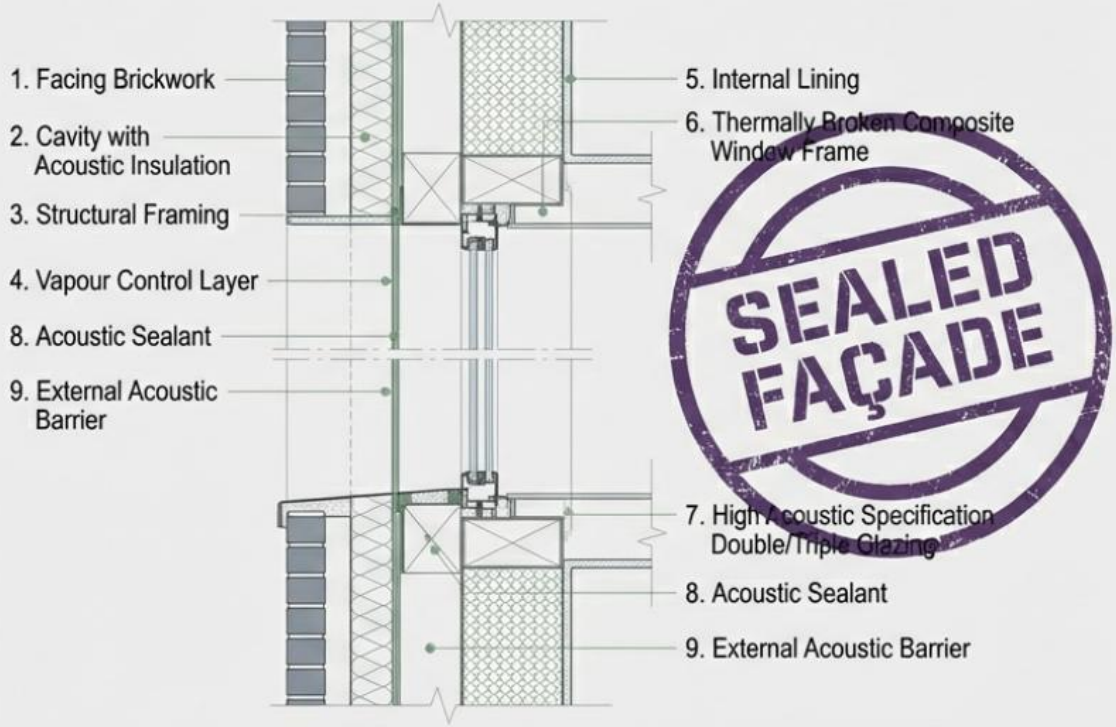


clarke saunders acoustics



Fighter jet noise (up to **94dB**) exceeds BB93 noise standards for schools, challenging classroom communication. To solve this, the design uses a **sealed envelope** with full **mechanical ventilation** and **acoustic lobbies**. Additionally, an **Alternative Performance Standard** is proposed, prioritising peak noise control over unattainable long-term averages.

ACOUSTIC STRATEGY & THE SEALED ENVELOPE



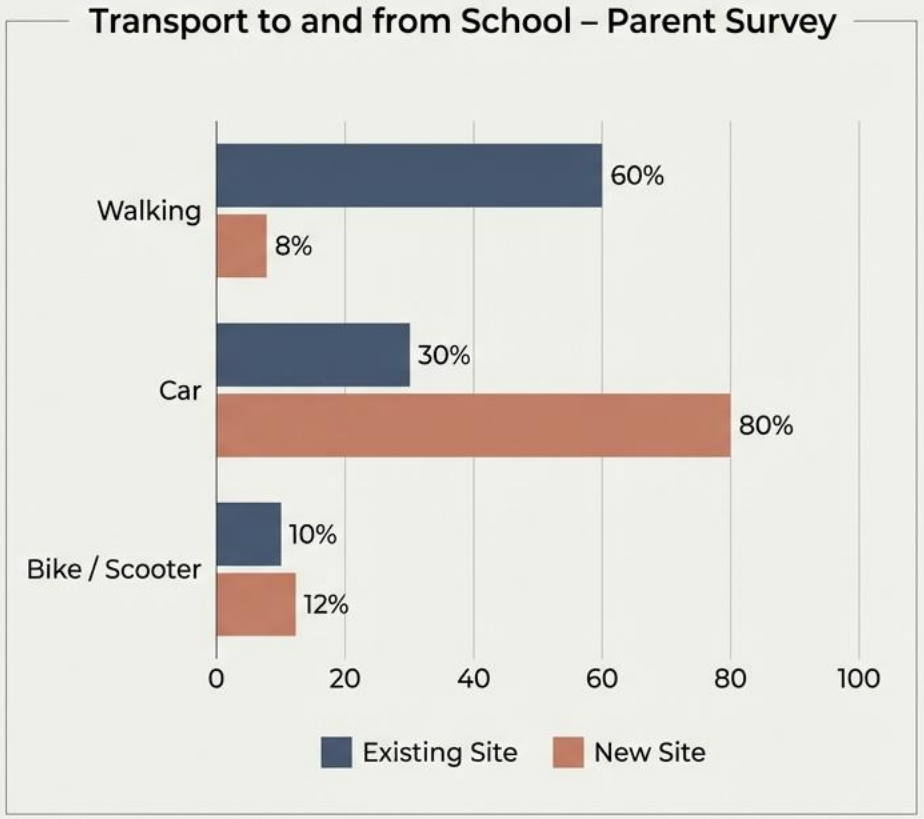
- **Challenge:** High background noise from RAF Lakenheath.
- **Solution:** Mechanically ventilated, sealed building envelope.
- **Glazing:** Thermally broken composite frames with high acoustic specification.
- **Result:** A calm, quiet internal environment regardless of external aircraft activity.

THE INFRASTRUCTURE CHALLENGE

Adapting to a Shift in Transport Behavior

Relocating the school creates a distinct shift in how families access education. With car usage projected to surge from 30% to 80%, the site layout requires robust drop-off zones and parking infrastructure.

Active Travel Plan:
Getting people out of cars
Walking / Cycling
Electric Minibus



LCPS Headteacher Survey of existing parents

Lakenheath North 456 Houses & School

Lakenheath Community Primary School New site

Landscape plan

THE ARCHITECTURAL RESPONSE

The design prioritizes a low visual impact strategy suited to the village edge. The facade utilizes a muted green aesthetic, chosen specifically to harmonize with the surrounding landscape and soften the building's profile against the rural skyline.

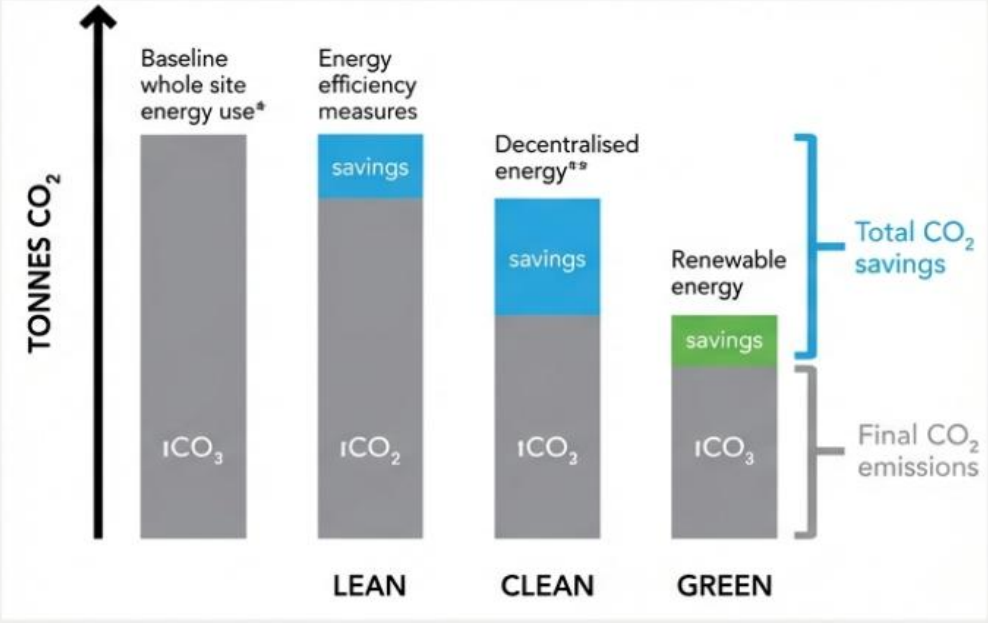
North Elevation | NTS

East Elevation | NTS

West Elevation | NTS

SUSTAINABILITY TARGETS: THE 'A+' STANDARD

- **Target Rating: A+**
- **Drive to NET ZERO**

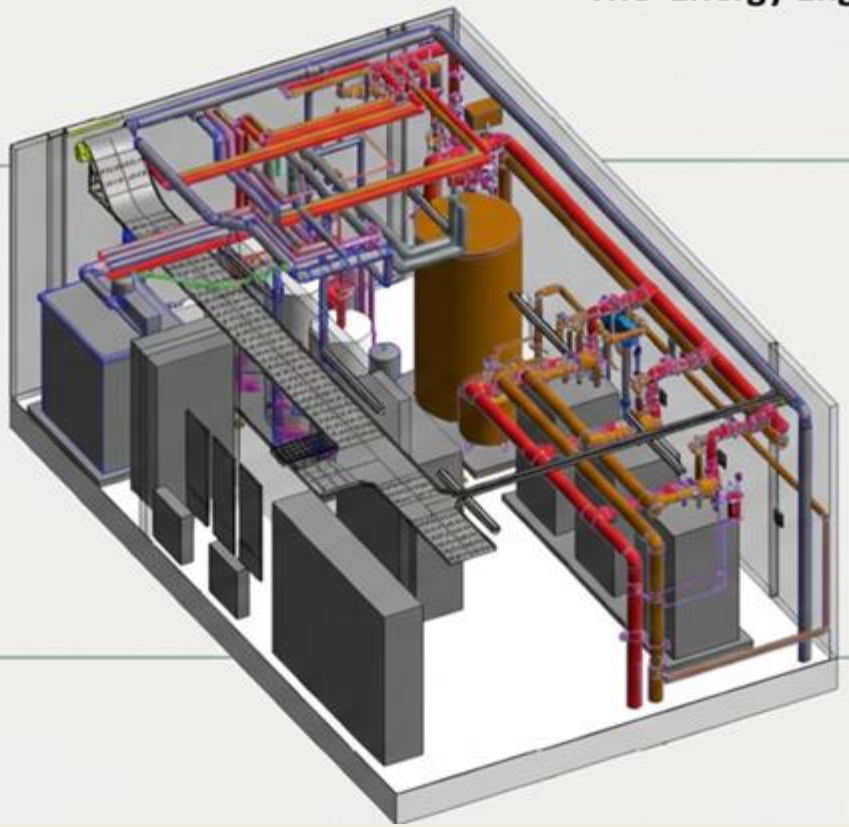


- Fabric First approach:
  - **External Walls:** U-Value 0.15 W/m²k
  - **Roof/Ground Floor:** U-Value 0.12 W/m²k
  - **Air Permeability:** Target of 3 m³/(h.m²) @ 50Pa

The Heart of the Building

The Energy Engine (MEP Strategy)

Ventilation:
Heat recovery systems to minimize energy loss.



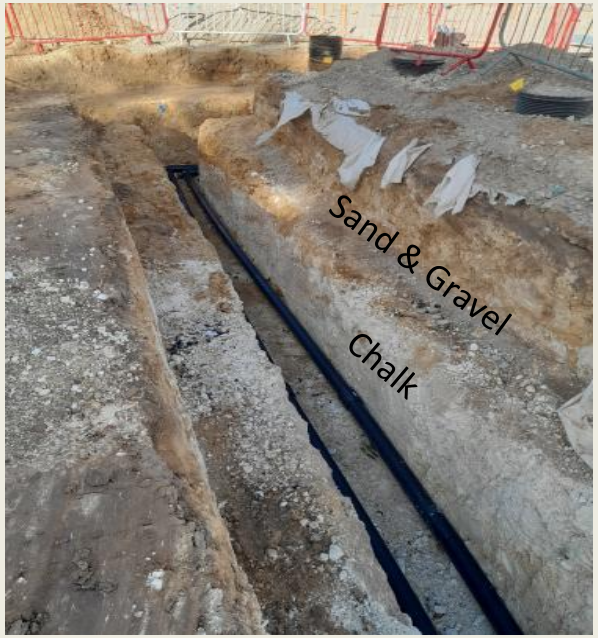
Power:
58 kWp Solar PV array on the roof.

Storage:
Modular Battery Storage system (approx. 40 kWh capacity).

Heating:
High-efficiency 150 kW Ground Source Heat Pumps (GSHP).

Lakenheath Community Primary School Plant Room

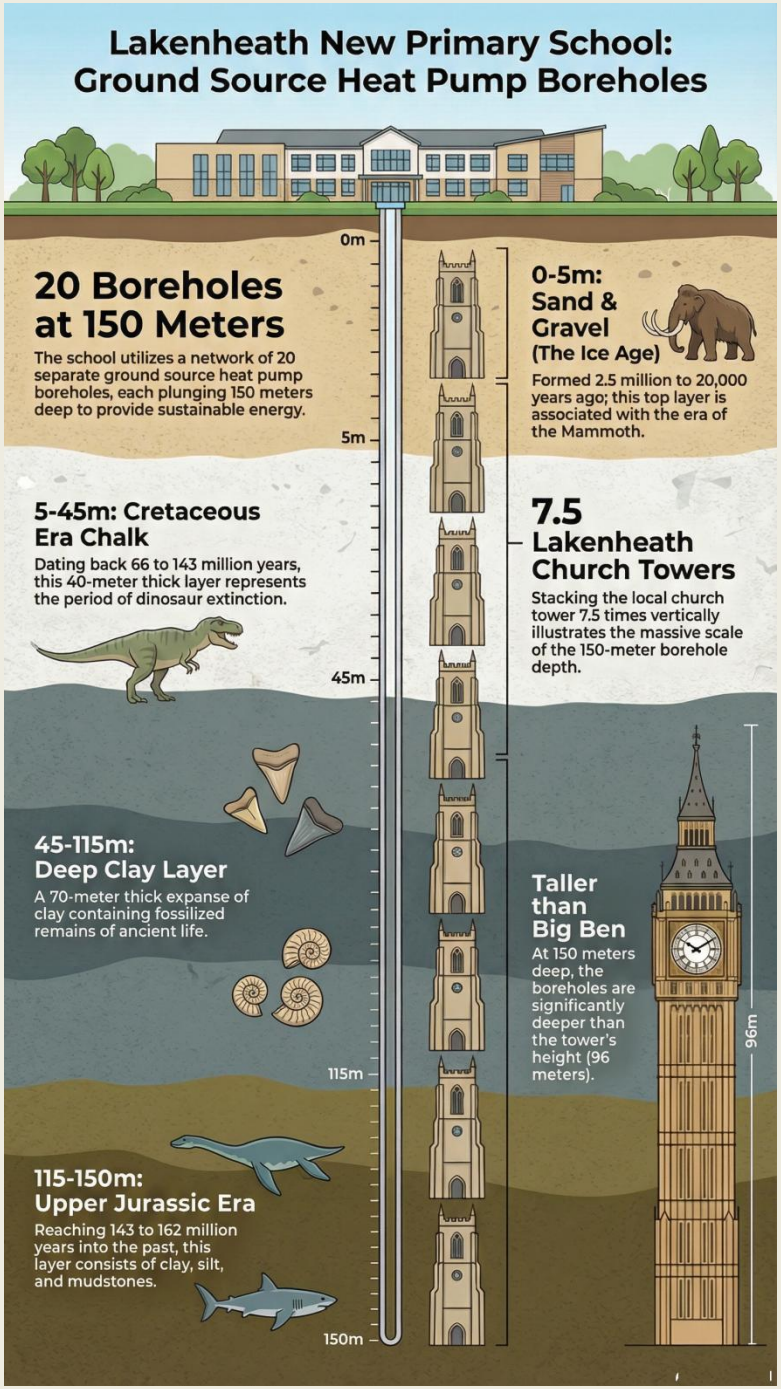
20 x 150m Boreholes to supply a 150kW Heat Pump



Started construction in July 2025

STEM Activities

A Living Lab and a STEM Educational Resource
Wider STEM and Sustainability Curriculum



Momentum and Scale

Construction has moved rapidly from groundwork to near completion of the external structure. MEP installation is now well underway
The footprint of the school is now a physical reality on the landscape

January 2026

Next Steps

- CIBSE Seminar Part 2: detailed focus on Building Services and Operational Performance
- Site visits for CIBSE EBG and interested groups
- Building performance monitoring and continuous commissioning
- Energy savings (ring fenced budget) -> Additional battery purchase
- STEM – Living Lab – developing curriculum resources
- Electric minibus for school and community
- Community school – sharing facilities
- Building Partnerships to promote sustainability – Construction industry/education/environment/community

THANK YOU

Questions?