

A young woman with dark, curly hair is looking upwards and to the left. She is wearing a dark grey, long-sleeved top. The background is a lush, green forest with sunlight filtering through the leaves, creating a bokeh effect.

A Journey into Sustainable Design

10 October 2019 / Accessible Retail Presentation

Case Study

Nando's

URBANEDGE

Why aim for sustainable
development?

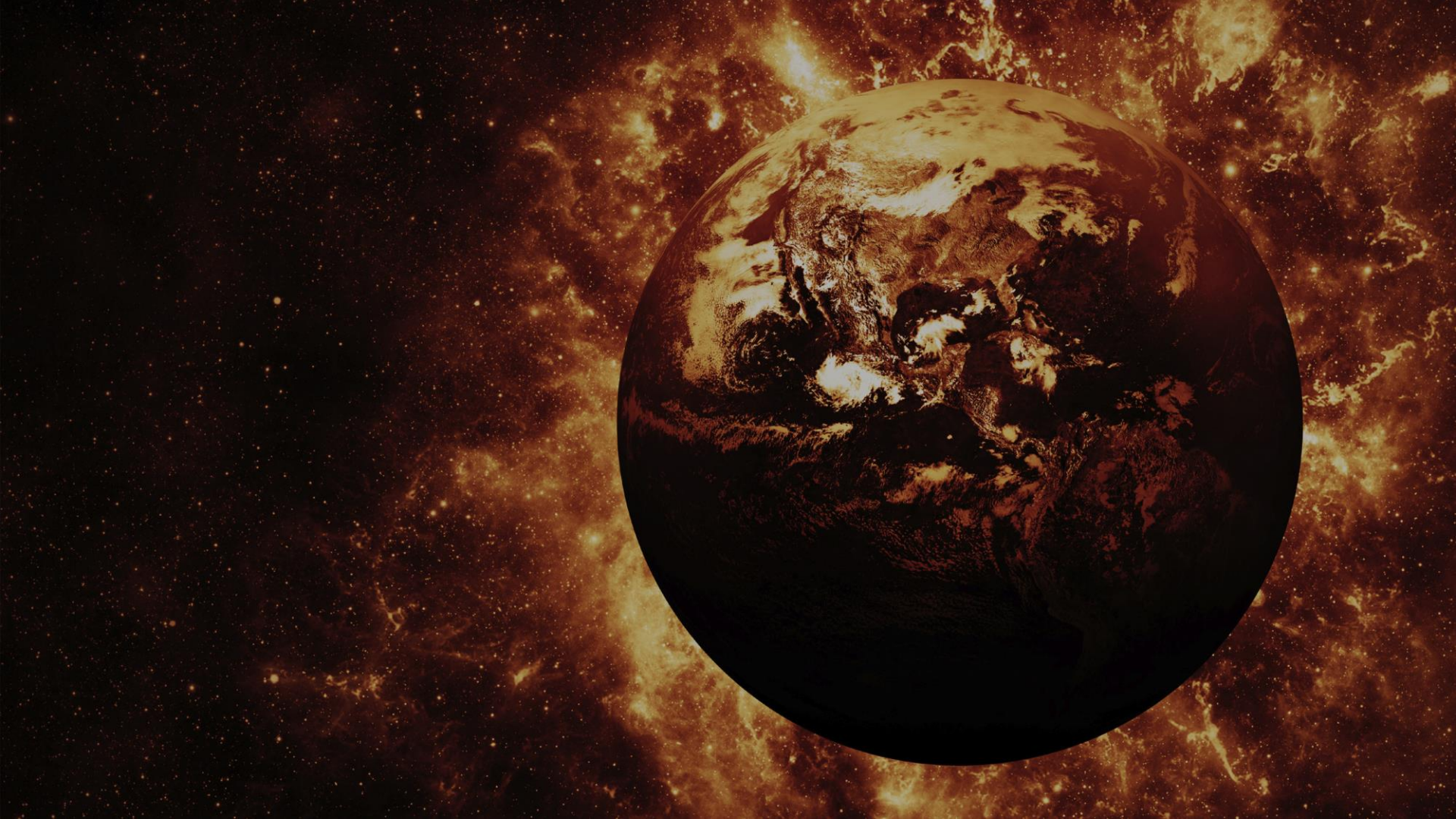
“

I don't want your hope. I don't want you to be hopeful. I want you to panic... I want you to act as if our house is on fire.

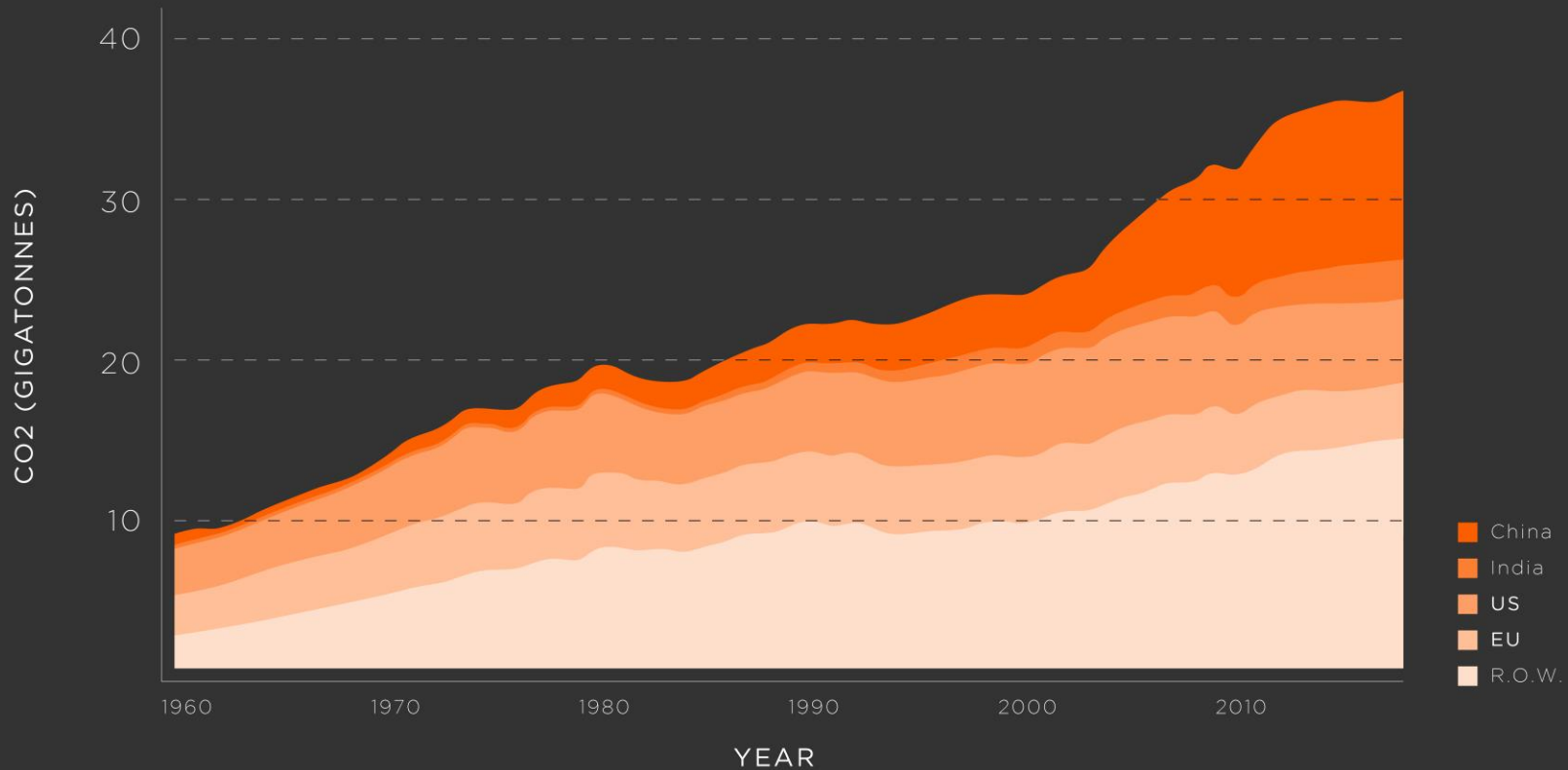
”

Greta Thunberg





FOSSIL FUEL EMISSIONS



What impact does the construction industry have?

According to recent research the construction sector contributes to approx.

- 23% of all air pollution
- 50% of all climate change
- 40% of drinking water pollution
- 50% of all landfill wastes
- 40% of worldwide energy usage

Sustainability

What does sustainability mean?



The avoidance of the depletion of natural resources in order to maintain an ecological balance.



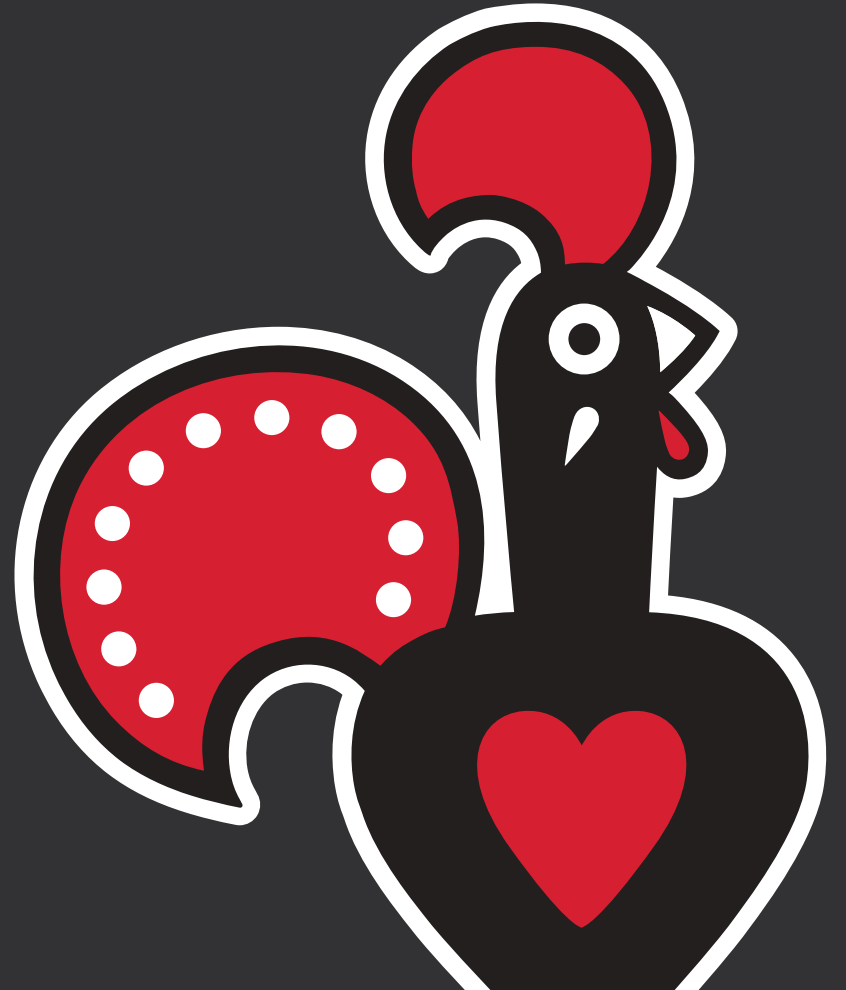




Case Study

URBANEDGE *Nando's*

In 2015 Nando's approached Urban Edge with a unique opportunity to explore sustainable building techniques, technologies and materials to assist them in delivering its **next generation** restaurant.



Considerations

- What sustainable building technologies are currently available and which are suitable for this development?
- What is the payback period for these technologies?
- What sustainable building techniques would be suitable for this commercial development?
- How do we best measure the success of the project in terms of its environmental impact?

Mission Statement



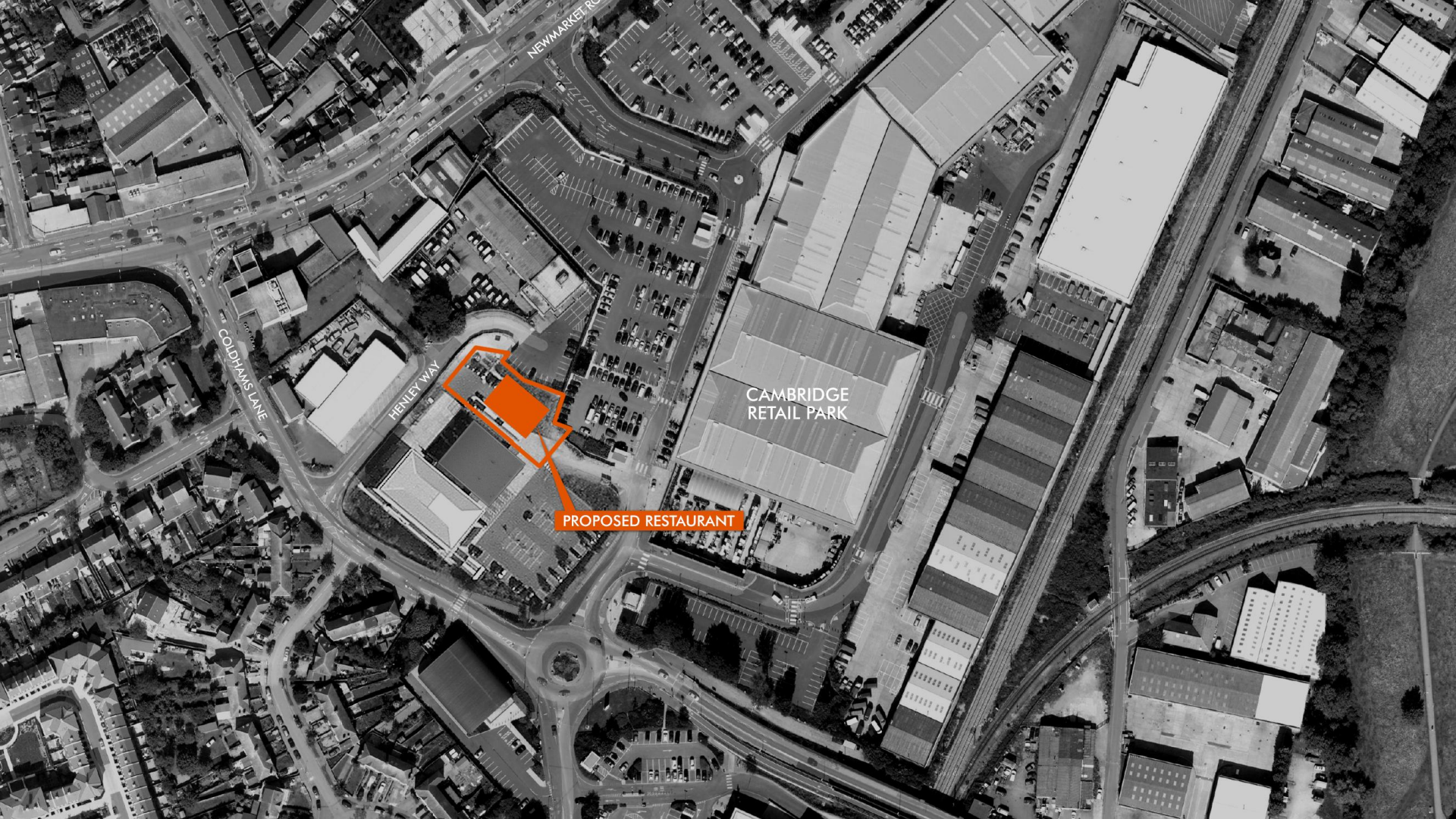
Design a building on a underutilized brown field site that is extremely energy efficient, generates is own electricity and minimize the environmental impact of its construction.



Our goals

- Achieve “Net-Zero Carbon” i.e. produce all the buildings energy needs on site via renewable methods
- A building that was extremely energy efficient
- Low embodied energy within the material shell of the building
- Minimise construction waste
- Consider the local communality in which the building would be located

The Site



NEWMARKET RD

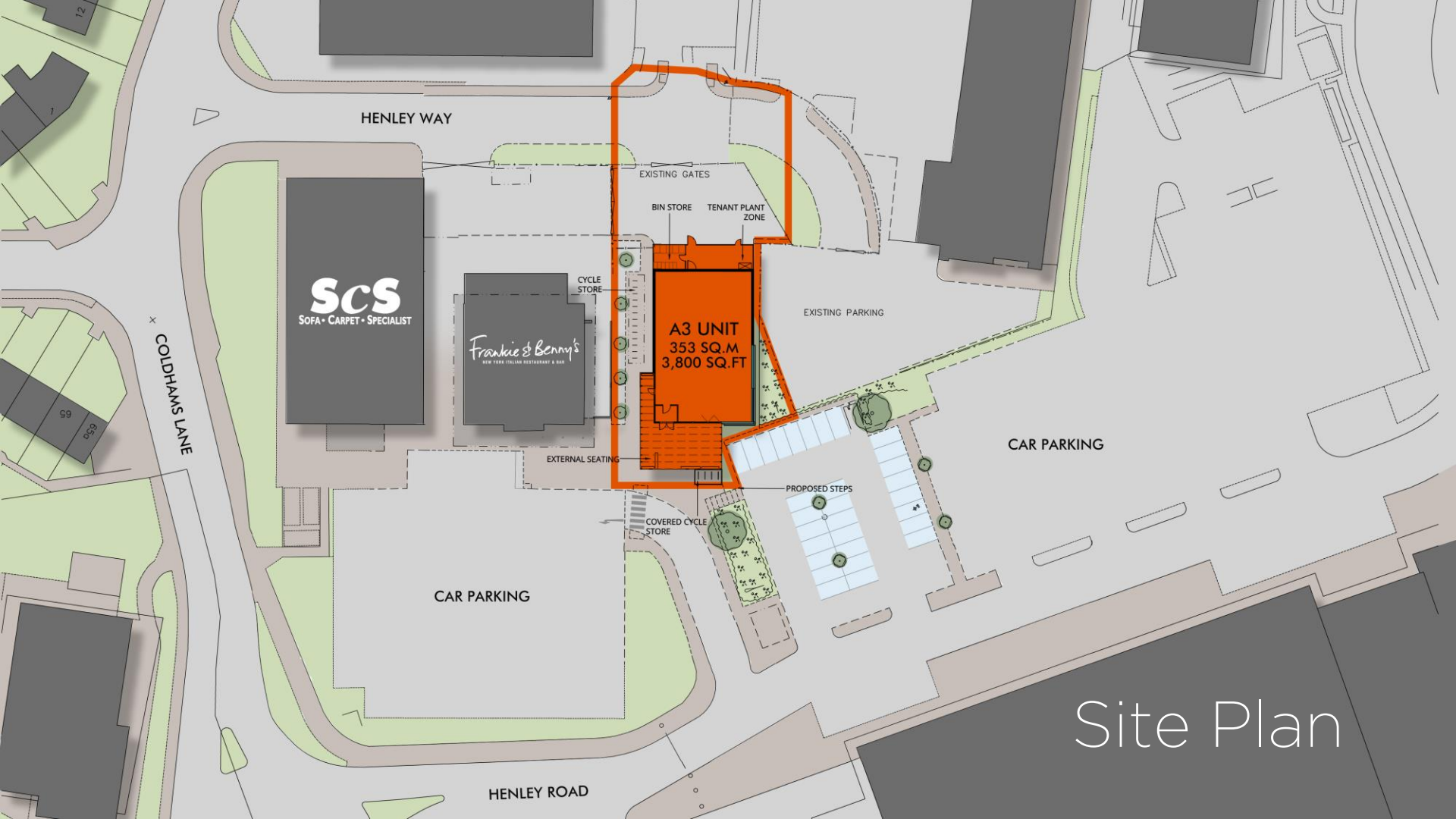
COLDHAMS LANE

HENLEY WAY

CAMBRIDGE
RETAIL PARK

PROPOSED RESTAURANT





HENLEY WAY

SCS
SOFA • CARPET • SPECIALIST

Frankie & Benny's
NEW YORK ITALIAN RESTAURANT & BAR

A3 UNIT
353 SQ.M
3,800 SQ.FT

CAR PARKING

CAR PARKING

HENLEY ROAD

COLDHAM'S LANE

EXISTING GATES

BIN STORE TENANT PLANT ZONE

CYCLE STORE

EXISTING PARKING

EXTERNAL SEATING

PROPOSED STEPS

COVERED CYCLE STORE

Site Plan

The team



Client /
Development Team



Architect



Environment &
Sustainability Consultants



Interior Design



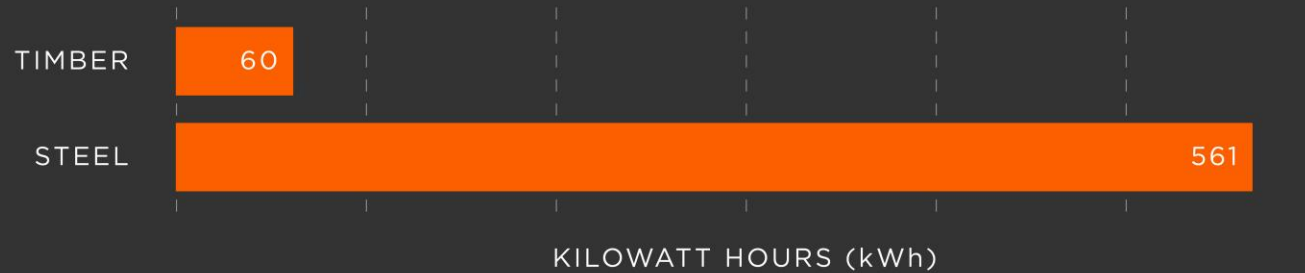
M&E Engineers



Contractor

The Shell

Steel VS Timber



Energy requirements in kilowatt hours for producing a 3 metre tall column (9.8 ft) carrying the same load.

Structural frame (or lack of one!)

- A traditional commercial building would usually be constructed using a steel frame, the decision was made to minimise the need for steel given the very high embodied energy required in the manufacturing process
- Instead the walls and roof of the building were constructed from CLT timber cassettes with glulam beams supporting the roof to allow for the large open internal span
- This system also offered very high insulation values with a U Value of 0.18 (building regs being 0.35) whilst only being 200mm in construction depth

Structural frame (or lack of one!)

- Utilising this offsite technology, as well as greatly improving the sustainability of the build, also radically shortened the build time of the project
- A typical building of this size would have taken approx. 1 year on site
- Instead the buildings shell was assembled in under 2 weeks, with the whole unit being ready for fit out in just over 5 months
- Nando's liked the exposed timber shell/ frame which cut down on the use of secondary building materials to clad the internal walls



Considerate Choices

- The foundations used 57% cement replacement products
- All timber was sourced from renewable, well managed forests and was 100% FSC certified
- The roof featured Cumbrian sheep's wool insulation
- We achieved a 20% reduction in vehicle movements on site
- 68% of the spend on the project was with local small to medium businesses
- 100% of the construction workers received the living wage



CENTRE



Looking green or
really green?



A hobbit-hole style building with a grass-covered roof and a yellow door, surrounded by a lush garden. The building is built into a hillside, with the roof covered in green grass. The walls are made of light-colored earth or plaster, and the roof is supported by dark wooden beams. A yellow door is the central feature, flanked by windows with grey shutters. The garden is filled with various flowers, including red and white blooms, and a wooden rocking chair sits on a stone path leading to the door. The overall scene is peaceful and idyllic.

Should green buildings
actually be green?

What actual benefits do green walls and roofs offer?

- Reduces rain water run off (this also has a cost saving in terms of underground rain water storage)
- Improves the thermal performance of the building - reducing heating and cooling costs
- Reduces noise and air pollution
- Increases urban biodiversity by providing habitat for wildlife (Nando's even had a beehive!)
- Improves the buildings aesthetic



Technology

What sustainable tech did we use at Nando's?

- 97 solar panels mounted on the roof
- Anaerobic digestion from food waste supplements gas and electricity supply
- Highly efficient air source heat pumps help maintain the internal temperature
- Heat recovery system utilizes heat from the grills to provide warm water for handwashing
- Rainwater harvesting limits attenuation & feeds green roofs and walls
- Natural ventilation (openable windows) assists in cooling, for the 3 days of summer we had this year!



The finished product

Nando's

Nando's









You fill the heart & soul
of a nation, its story is his story.

GARDEN

Is it a success?

Did we achieve our goals?

1. Achieve “Net-Zero Carbon” i.e. produce all the buildings energy needs on site via renewable methods
2. Low embodied energy within the material shell of the building
3. Low construction waste
4. Consider the local communality in which the building would be located
5. Implement a sustainable construction site

1. Net carbon zero scheme

- 97 solar panels provide 10% of the restaurants energy
- Anaerobic digestion from food waste also assist in providing gas and electricity
- The remaining energy is sourced from green providers such as UK hydropower
- Highly efficient air source heat pumps maintain the internal temperature of the building



FULLY MET



PARTLY MET



DIDN'T MEET

2. Low embodied energy shell

- Highly thermally efficient CLT Timber wall and roof cassette system
- Glulam roof beams
- 35% carbon saving using greener concrete
- Sedum roof provides additional thermal performance of the building shell



FULLY MET



PARTLY MET



DIDN'T MEET

3. Low construction waste

- Over 95% of the construction waste was reused or recycled (compared to an industry average of 67%)



FULLY MET



PARTLY MET



DIDN'T MEET

4. Consider the local community

- Two charities supported:
 - A local timber recycling centre
 - A local children's hospice
- Small and medium sized local businesses were used to supply building goods and services creating local employment opportunities



FULLY MET



PARTLY MET



DIDN'T MEET

5. Sustainable construction site

- All site workers received a living wage
- Construction vehicle site movements were reduced by approx 20%



FULLY MET



PARTLY MET



DIDN'T MEET

Any questions?

URBANEDGE

One Scotgate Mews
Scotgate
Stamford
Lincolnshire
PE9 2FX

t. 01780 755 665
e. enquiries@urbanedgearchitecture.co.uk

www.urbanedgearchitecture.co.uk